JET3

Operating Manual **V2.0**

Please keep for future usage!

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LEIBINGER

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1.1 Table of Contents

1.2 Group directory

The group directory serves as a guide through the device manual at hand to be able to find specific subject areas quickly.

1.3 Publisher

For questions regarding the operation and running of the LEIBINGER JET3 as well as in service case please contact the listed dealer address.

Dealer address

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We reserve the right to make alterations to the scope of delivery at any time in the form of technology, hardware, software as well as the corresponding materials (and manual extracts) as a result of innovative further development of our devices.

Texts, illustrations and technical drawings have been compiled with the greatest of care. Nevertheless errors cannot be excluded. Consequently no warranty can be assumed for the correctness of the content of this manual and no claims can be asserted against Paul Leibinger GmbH & Co. KG.

We shall be grateful for information regarding possible printing errors as well as for suggestions for the further optimisation of the device manual.

Authoritative for the scope of delivery is not the manual but rather the written order confirmation.

1.4 Symbolism of the manual

The following symbols and pictograms are used in this manual in order to point out possible dangers and necessary user information.

	Risk due to electricity		Risk due to flammable materials
	Risk due to pressure		Risk due to electrostatic discharges
	Risk due to potentially explosive atmospheres		Risk due to irritation of the respiratory organs
	Risk due to materials hazardous to health		Risk of explosion
	Risk of hand injuries		Smoking ban
	Comply with the operating instructions		Wear protective gloves
	Wear safety glasses		Important user information
	Service tasks		Usage tips

1.5 Introduction

We are pleased that you have decided in favour of a LEIBINGER JET3 device and welcome you as one of our customers.

You now own a LEIBINGER JET3 device that has been developed and constructed on the basis of many years of experience and using the latest Leibinger technology. This results in a high degree of quality and the renowned Leibinger reliability.

This manual shows you the fundamental advantages of the Leibinger Jet system manufactured by us, such as for example the fully automatic working, low maintenance etc..

IMPORTANT

The manual must be read thoroughly prior to first start up in order to ensure that no damage to the device and/or endangering of the operating personnel results from a defective electrical connection and/or from incorrect operation.

INFORMATION

Please pay particular attention to the safety instructions of the groups **Safety instructions** and **accident prevention** when handling consumables (ink and solvent).

Our devices are subjected to a quality control in our plant prior to delivery. If despite this the device or parts of it should be damaged or their function disturbed please advise us of this as fast as possible.

It is only through the use of inks and solvents from Paul Leibinger GmbH & Co. KG that optimum operating characteristics can be achieved. **Should other inks and solvents be used all warranty claims will expire.**

PRODUCT LIABILITY

No alterations whatsoever must be carried out on the entire LEIBINGER JET3 device. No liability will be accepted for damage or dangers resulting from inadmissible alterations.

WARNING

Danger of explosion!

- The device should be only operated outside of explosive areas!
- The installation has to be carried out according to the installation instructions of the manufacturer!

1.6 Document information

The instruction Release R2.0 of 19th.July.2014 is valid for LEIBINGER JET3 machine with the given below serial number.

Seriennummer einkleben
Stick in serial number

1.7 Warranty

The warranty conditions for the LEIBINGER JET3 can be seen from the order confirmation. The warranty presupposes that the device or the installation is operated correctly in accordance with the available warranty conditions and any possible additional manuals and descriptions prepared by us.

At this point we wish to make explicit reference to the fact that it is only when using solvent and ink from Paul Leibinger GmbH & Co. KG that the optimum operating characteristics can be achieved. **In the event of use of other inks and solvents all warranty entitlements shall cease to apply.**

2. Safety

2.1 Scope of risks

The high performance industrial printer LEIBINGER JET3 has been built in accordance with state-of-the-art standards and recognized safety requirements and has been equipped with protective devices.

The InkJet-printer works with flammable liquids which are ink and solvent.

At incorrect usage or misuse may result in danger of health of the operator or further people, as well as property damages.

All persons, which are entrusted with the initial operation, commissioning, operating, service and maintenance must be specifically trained and qualified about the handling with ink and solvent.

Before the first usage of the printer in particular the operating manual as well as the safety data sheets of the ink and solvent have to be read and noted.

Operational and safety checks of the installation were carried out before it left the factory. In case of improper handling or misuse, however, there are dangers for

- the health of the operating staff
- the high performance printer JET3 and other real assets of the plant operator
- the efficient operation of the high performance printer

All persons entrusted with the putting into service, the operation, the maintenance and the overhauling of the high performance printer must

- have the necessary qualification and
- strictly comply with this operating manual.

YOUR safety matters!

2.2 Structure of safety instructions

DANGER

In conjunction with the signal word, "Danger", the respective symbols represent an immediate threat to the life and health of persons.

Non-compliance with these instructions will lead to a severe impact on health or even life-threatening injuries.

WARNING

In conjunction with the signal word, "Warning", the respective symbols represent a possible threat to the life and health of persons.

Non-compliance with these instructions may lead to a severe impact on health or even life-threatening injuries.

CAUTION

In conjunction with the signal word "Caution", the respective symbol represents a potentially dangerous situation.

Non-compliance with these instructions may lead to light injuries or material damages.

ATTENTION

Relating to the signal word “Attention“, the respective symbols mean a possibly dangerous situation.

Ignoring the advice can result in minor injuries or damage to property.

ATTENTION

In conjunction with the signal word "Attention", this symbol represents important instructions for the proper use of the machine.

Non-compliance with these instructions may lead to machine faults, faults in the surrounding areas or other consequences.

2.3 Intended use

The high performance industrial printer JET3 serves exclusively the contact-free marking, inscribing and coding of surfaces using the continuous ink jet process.

The high performance printer can be used on the most varying materials (e.g. metal, synthetic material, glass, paper, wood, pressed materials, rubber etc.) with both, smooth as well as uneven, rough and stepped surfaces.

IMPORTANT

The intended use of this device also includes the observance of all instructions in this manual.

Using the installation for other purposes is considered contrary to its intended use!

For safety reasons conversions and alterations are only admissible following consultation with the manufacturer. Repairs to the device must only be carried out with original replacement parts.

The manufacturer shall not be liable for damage resulting from use for other than the intended purpose or misuse.

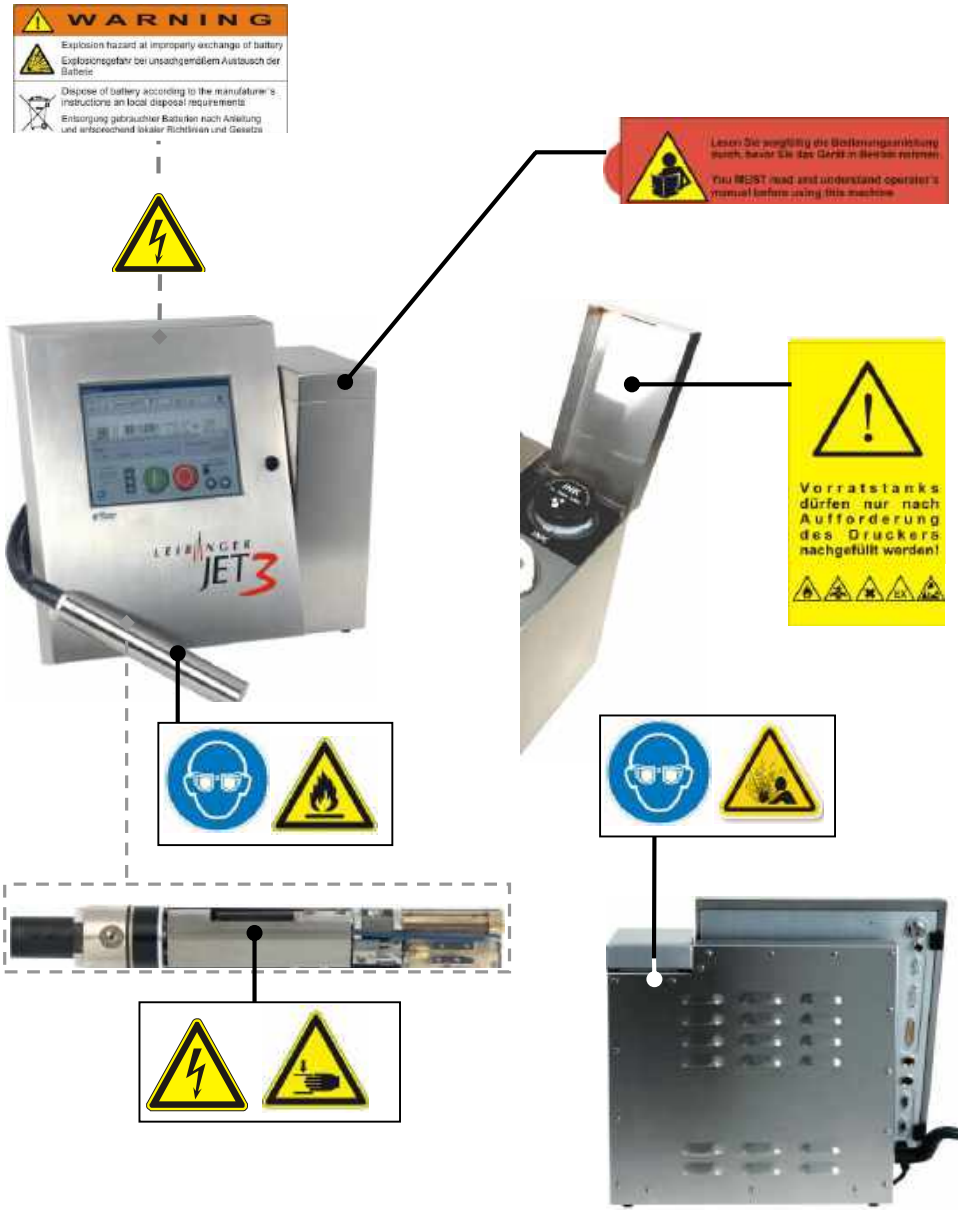
WARNING

Danger of explosion!

- The device should be only operated outside of explosive areas!
- The installation has to be carried out according to the installation instructions of the manufacturer!
- Precautions regarding electrostatics have to be carried out!

2.4 Safety sticker

Figure 1 Safety sticker



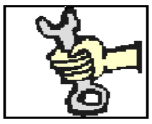
2.5 Operating staff

Only trained personnel must operate the device. The personnel must have the corresponding mechanical and electrical training to operate the inkjet printer professionally. The operator is responsible for third parties in the working area of the inkjet printer.

The owner-operator must make this operating manual accessible to the printer operator and has to ensure that the operator has read and understood it.

Personnel in training can work on or with the inkjet printer only when supervised by an experienced operator.

2.6 Dangers due to electric energy



ELECTRICAL WORK

The electrical and electronic components of the high performance printer are under voltage. The device must only be opened by trained personnel or by Leibinger service technicians.

Prior to the opening of the device the device must be switched off and the mains plug removed.

2.7 Personal protective equipment

WARNING

The inkjet printer processes materials that cause irritation and are under pressure. To prevent injuries and damage, the personnel must wear the following suitable personal protective equipment when carrying out certain tasks:

- Working clothes
- Safety glasses
- Safety gloves

The personal protective equipment must be provided by the owner-operator. Please consult the corresponding chapters of the operating manual as well as in the safety data sheets of the consumables for more information.

2.8 Protective devices and safety concept

In **an emergency** the device is placed idle by removal of the mains plug.

The device is equipped with the following safety concept to provide explosion protection:

- Bottom tub as collecting tray
- Ventilation in the hydraulic cabinet
- Plastic containers are arranged in the field of metal surfaces (PE-potential)
- Jet monitoring in the gutter circuit
- HV-cutoff at creepage current
- HV- and ink cutoff as well as nozzle sealing at HV-flashovers

2.9 Safety measures at the place of installation

A place of setting up must be selected with sufficient load bearing capacity and stability. When setting up it must be observed that sufficient movement space is available for the operating and service personnel. Solvents are processed in the device, sufficient room ventilation must be ensured!

Prior to assembly the place of setting up must be cleaned of dirt and contamination (residue of lubricants etc.). The working place surroundings should be kept clean at all times in order to ensure unrestricted access to the LEIBINGER JET3 device.

WARNING

Basics – Installation of the device and mains connection!

- The device must be installed in a well ventilated room only and must be kept away from any source of heat, flame or sparks, e.g. radiant heater, etc.!
- The device has no mains switch and must only be connected to a easy accessible plug socket in the direct vicinity of the place of setting up!

WARNING

Danger of explosion!

- The device must not be operated in potentially explosive areas!
- The installation has to be carried out according to the installation instructions of the manufacturer!
- Precautions regarding electrostatics have to be carried out!
- The device has to be integrated in the lightning protection concept of the operator!

WARNING

The inkjet printer does not have a power switch. For maintenance the printer must be disconnected from the mains.
Always connect the inkjet printer to an easily accessible outlet in close proximity to the installation site!
The printer has to be assimilated to the check list about the regular examinations according to the employers' liability insurance association-guideline.

Operate the inkjet printer only outside of explosive atmospheres in a well-ventilated area!
Inside the printer solvents are processed; ensure sufficient ventilation! The operator has to ensure that the MAK-values noted on the safety data sheets won't exceed.

The printer ventilation must not be impaired; do not cover or close the ventilation gills on the back panel of the printer.
Place the printer with enough distance to any wall (recommended minimum distance 0,3 m).
Ensure about sufficient space of the installation location of the printer and enough space to ensure a safely handling of ink and solvent.
Keep the inkjet printer away from any sources of heat, flame, or sparks (e.g. space heater).

The inkjet printer must be integrated into the lightning protection system of the owner-operator!

Protect the inkjet printer from electrostatic charges!

Keep suitably extinguishing medium available.

2.10 Dangers through consumables

Inks are coloured liquids on a solvent basis. The safety instructions on the containers of the consumables as well as the instructions in the group **Accident prevention** must be especially adhered to in order to exclude dangers for persons and the surroundings. Further instructions can be found in the Safety Data Sheets.

ATTENTION

When handling consumables (inks/solvents) the danger instructions and safety advice on the containers (transport, storage, distribution and correct disposal) must be observed!

INFORMATION

In addition we recommend **observance of the safety information leaflets** of the inks and solvents used.

CAUTION – FIRE HAZARD

Ink and solvent are highly flammable materials!

Inks are colored printing liquids on basis of solvents. The safety instructions on the bottles of the consumables as well as the operating manual and also the safety data sheets must be noted to avoid any danger for people and environment.

For handling this consumables (ink and solvent) the safety instructions and safety advices must be noted (e.g. for transport, storage and disposal)!

WARNING

Keep the inkjet printer away from any sources of heat, flame, or sparks (e.g. space heater).

Open containers must be closed properly at all times and stored upright to prevent leakage.

Smoking and open flames are strictly prohibited in areas where ink and solvent are stored.

Do not smoke, eat, or consume beverages in the storage and work areas.


WARNING

Always ground yourself and the printer to the same potential before filling the reservoirs! Simply touch the housing of the printer to discharge the equipment or you must stand on a grounded surface wearing ESD shoes during filling!

Burning gases and liquids may cause severe burns. Keep sources of ignition away from the printer!

Read the safety data sheets and the personal protective equipment rules and regulations!

Safe handling

These products may be used only in places that are completely free from open flames and other ignition sources. Use only spark-free tools. Electrical equipment and tools used must comply with the ATEX Directive.
Keep product containers tightly closed during operation. Avoid vapor concentrations that exceed the limit values specified by the employers' liability insurence association.
Do not use pressure to empty the product container - the container is not a pressure vessel.
The product may become statically charged. Use a grounded line to transfer from one container to another.
An uncluttered, clean working environment and regular, safe disposal of waste materials minimize the risk of spontaneous ignition and other fire hazards.
If the printer is ever operated in a way that allows it to print into a beaker, the beaker must be made of conducting material and be securely connected to earth (ground), as the electrostatic charges on the ink drops used for printing could built up an eletrostatic charge and may cause a fire hazard.
Employees must wear antistatic footwear and clothing, and the floors must be conductive.

Avoid skin or eye contact. Do not inhale vapors and spray mists.


WARNING

Absolutely observe!

- Before filling the device with the consumables, measures for the electrostatic discharge have to be made!
- Highly flammable! Burning gases and liquids may cause severe burns. Keep sources of ignition away from the printer!
- Always statically discharge the printer and yourself before filling the reservoirs! Simply touch the housing of the printer to discharge the equipment and stand on a grounded surface wearing ESD shoes during filling!

An uncluttered, clean working environment and regular, safe disposal of waste materials minimize the risk of spontaneous ignition and other fire hazards.

Many inks used in ink jet printing contain "nitro-cellulose" as the binder and remain highly flammable even when they are dry.
Therefore keep the printer clean and also the working free of ink accumulations. Avoid the accumulation of dried ink and clean the working area regular.

Special hints about inks based on „nitro-cellulose":

- **This inks remain highly flammable even when they are dry.**
- **If there has been an accumulation of dried ink, do not use ferrous metal (iron or steel) scrapers to remove it, as they can produce sparks.**
- **If dry "nitro-cellulose" based ink ignites, it will generate its own oxygen and can only be extinguished by lowering the temperature with water.**

In the following you will find examples for the marking of inks and solvents.

Figure 2 Ink and solvent lables

Examples: Labels for the marking of inks and solvents.

2.11 Conformity

Extract of declaration of conformity

according to machinery directive (2006/42/EG), Appendix II 1.A
according to low-voltage directive (2006/95/EG)
according to EMC directive (2004/108/EG)

CE

...complies with the provisions of the above mentioned directives –including the changes which valid at that time of the declaration. The following harmonized standards have been applied:

DIN EN ISO 12100	Safety of machinery – General principles for design – Risk assessment and risk reduction
DIN EN 60950-1	Information technology equipment – Safety; part 1: General requirements
DIN EN ISO 13732-1	Ergonomics for the thermal environment – Methods for the assessment of human responses to contact with surfaces; part 1: Hot surfaces
EN 61000-6-2	Electromagnetic compatibility (EMC) – part 6-2: Generic standards – Immunity for industrial environments
EN 61000-6-3	Electromagnetic compatibility (EMC) – part 6-3: Generic standards – Emission standard for residential, commercial and light-industrial environments

For that product the relevant technical documentation were compiled according to Annex VII part A of the machinery directive, on a resended request this documents can be transmitted to national authorities per CD.

Name and address of the person who is authorised to arrange the technical documentation:

Volker Teufel, authorised documentation agent, Paul Leibinger GmbH & Co. KG, D-78532 Tuttlingen (Germany)

Annotation:

The device fulfills the fundamental health and safety requirements of the directive 94/9/EU, but is intended only for use outside of explosive areas. This declaration is only valid for the components which are included in the delivery range of the manufacturer. The installation and works which have been carried out by the customer either the distributor as weil as it's components and modules are not the responsibility of the manufacturer. The adherence of the valid standards and regulations of the technology are generally the responsibility of the customer either of the distributor.

3. Accident prevention

The following presentation shows the measures in the event of an accident with **ink** and **solvent** with the **danger marking**,

highly flammable

irritant

3.1 Storage and handling (normal use)

GENERAL

These products must only used at points that are free from open flames and other ignition sources. Do not use pressure for emptying – the container is not a pressure vessel. Good household practice and regular, safe removal of the waste materials restrict the danger of self-ignition and other risks of fire to a minimum. The product can charge statically. When pouring from one container to another use a mass lead. The workers must wear anti-static shoes and clothing and the floors must be conductive.

STORAGE

Observe the marking information. Store at 5 to 25°C in a well ventilated location at a safe distance from heat and ignition sources and direct sunlight.

Do not smoke! Do not grant access to unauthorised persons. Open containers must be properly closed and stored upright in order to avoid leakage.

Smoking, eating and drinking must be forbidden in the storage and working areas. Always keep in containers from the same material as the delivery containers.

HANDLING

The development of combustible or explosive vapour concen-trations must be prevented and vapour concentrations avoided that are above the threshold values of the employers liability insurance association. Keep containers closed tightly.

Keep sources of heat and sparks as well as open flames well away.

Use only spark-free tools. Electrical devices must be protected in accordance with the corresponding standard.

Avoid contact with the skin and eyes. Do not inhale vapours and spray mist.

3.2 First aid measures

3.2.1 General first aid

The generally valid procedures apply.

- **Initiate emergency measures**
- **Comply with the rescue chain**

Rescue chain (Immediate and correct assistance)

Immediate measures → Emergency call → First aid → Emergency services → Hospital

Conduct after accidents (initiate emergency measures)

- Stay calm!
- Report the accident!
  - **WHO** is reporting?
  - **WHAT** happened?
  - **WHERE** did it happen?
  - **HOW MANY** persons are injured?
  - Are **additional** persons in danger?
- First aid!
  - Secure the accident site.
  - Tend to the injured person(s).
  - Comply with instructions!
  - Do not leave injured person(s) alone!
- Additional measures
  - Instruct the fire department or ambulance personnel.
  - Turn away curious onlookers.

3.2.2 First aid in case of contact with consumables

EYES	Contact lenses must be removed. Rinse thoroughly with pure, fresh water for at least 10 minutes, keep eyelids spread and call a doctor.
SKIN	Remove contaminated clothes. Wash skin thoroughly with soap and water or with a branded skin cleansing agent. **DO NOT** use solvents or thinners.
INHALING	Take patient into the fresh air and keep warm and calm. In the event of irregular breathing or of breath being missed resuscitate artificially. Do not give anything orally, place unconscious patients on their side and call a doctor.
MISCELLANEOUS	In case of doubt or with persistent symptoms call a doctor. Never give anything orally to unconscious patients.

3.3 Fire fighting measures

3.3.1 Conduct in case of fire (Initiate emergency measures)

The following procedure is merely a recommendation and must be adapted to the respective operating situation.

- Stay calm!
- Report the fire!

  - **WHO** is reporting?
  - **WHAT** happened?
  - **WHERE** did it happen?
  - **HOW MANY** persons are affected or injured?
  - **Wait** for potential questions?
  - Activate the fire alarm

- Safety!

  - Bring endangered persons to safety.
  - Close doors.
  - Follow marked escape routes.

  - Do not use the elevator!
  - Comply with instructions!

- Additional measures

  - Attempt to extinguish the fire
  - Instruct the fire department personnel.
  - Turn away curious onlookers.

3.2.3 Fire fighting (ink and solvents)

EXTINGUISHING AGENTS

Recommended: Alcohol-resistant foam, spray water/mist, CO_2 or powder

DO NOT use water jets. Cool closed containers exposed to the fire with spray water.

RISK OF FIRE AND EXPLOSION

As the product contains combustible organic constituents, a thick, black smoke develops in the event of fire that contains dangerous combustion products. Decomposition products can constitute a danger to health. Extinguishing waste water must not enter the waste water channels or waters.

PROTECTIVE MEASURES

If necessary suitable, independent breathing apparatus is required.

3.4 Measures in the event of accidental release (spillage)

GENERAL

Spilled ink and solvent should be removed immediately. Used wiping material could pose a potential fire hazard and have to be disposed in accordance with the regulations.

PRECAUTIONARY MEASURES

Switch off sources of ignition and ventilate room. Keep personnel that is not absolutely necessary away. Do not inhale any vapour. Observe the protective measures listed.

ENVIRONMENTAL PROTECTION MEASURES

DO NOT allow to enter waste water channels or waters.

Should the product enter waste water channels or the drainage system the local water supply authority must be informed immediately. In the event of contamination of streams, rivers or lakes inform the national water authorities. Vapour is heavier than air and can spread out on the ground. In combination with air it can form an explosive mixture.

RESTORATION

Restrict and suck up spilled substances with a non-combustible absorbent material *(e.g. sand, earth, vermiculite, infusorial earth)* and collect in a suitable container for removal. Preferably clean areas with spilled substances with a detergent. Avoid solvents.

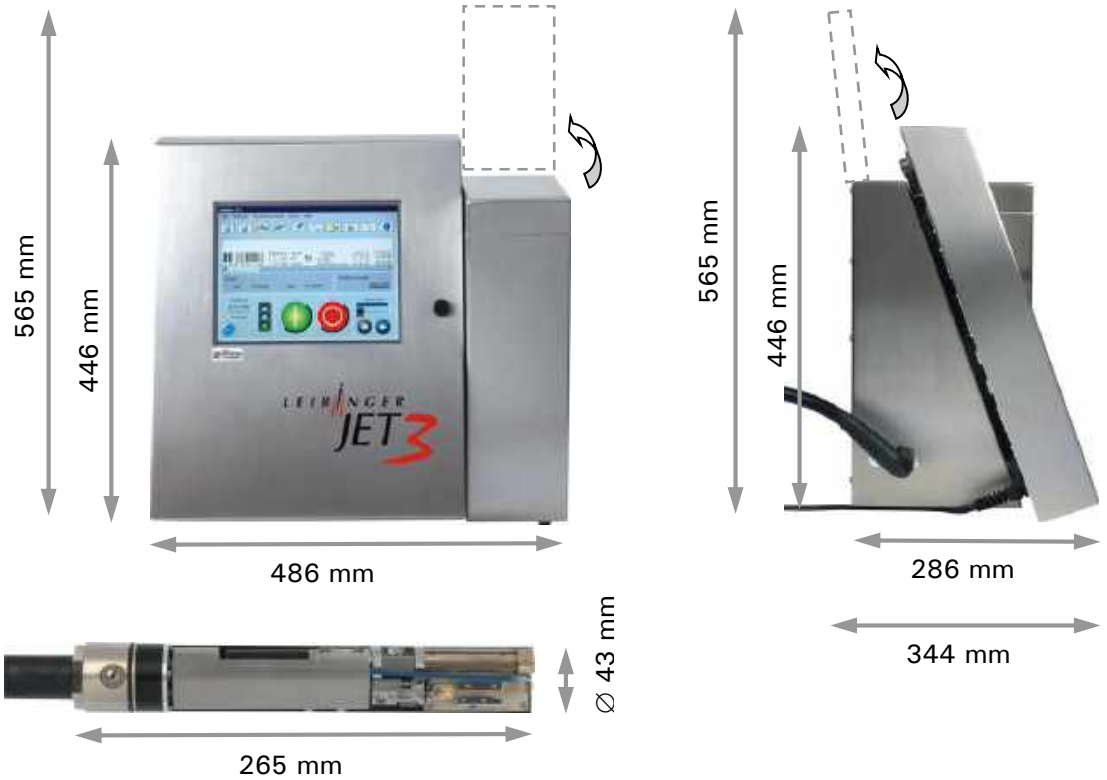
4. Technical data

4.1 Dimensions, weights, connections

Cabinet : Stainless steel
Width 486 mm, depth 286 mm, height 446 mm
Weight: 20,5 kg

Print head: Stainless steel cabinet
Length (total) 265 mm, diameter 43 mm,
Length of the print head lead 3 m, as option 6 and 10 m available
Weight: 1,5 kg
Any fitting position, also for overhead conveyor applications

Figure 3 Dimensions



Protection class: IP 54 (as option: IP 65)

4.2 Electrical connection values

Input voltage (voltage range):	100 - 240 V AC, 50-60 Hz
Current consumption:	max. 0,56 A at 100 V AC max. 0,25 A at 240 V AC
Power consumption:	max. 56 VA at 100 V AC max. 60 VA at 240 V AC

4.3 Ambient conditions

Temperature range:	+ 5° C to + 45° C (no rapid change of temperature)
Relative humidity:	max. 90 % relative humidity (non-condensating)

4.4 Interfaces, Inputs, Outputs

Product sensor input:	NPN/PNP 24V
Incremental encoder input:	TTL 5V, HTL 24V, RS422 5V
Inputs:	6 digitals, free selectable 10 inputs for ext. job selection
Outputs:	8 digitals, e.g. for alarm, re-filling, etc.
Interfaces:	Ethernet (Industry standard M12D) Serial Interface (V24/RS232) up to 115.200 Baud USB

4.5 Performance parameter

Printing capacity:	Character height: approx. ■ min.: 0,8 mm ■ max.:16 mm Depending on font, distance of head, nozzle diameter, ink, product surface and type of print head Up to 3200 characters/sec.
Printing speed:	Up to 6,6 m/sec (10 cpi)

4.6 Fonts

All fonts can be combined arbitrarily

Printing of 1-5 lines

Tower print

Capitals and lower case letters, umlaut, special characters

Fonts 5x5 up to 32x24

Multistage contrast- and bold text

All common Barcodes (Barcode 39, Code 128C, Postnet etc.) and Data-Matrix-Codes (ECC 200), GS1-Data-Matrix (EAN/ECC)

4.7 Types of writing

Double distance

Texts backwards

Symbols mirror-inverted

Symbols mirror-inverted and upside down

Symbols mirror-inverted, upside down and text backwards

Alternating readable font, reverse, bold text, inverse

4.8 Font combinations

All fonts can be presented in one writing in the requested matrix.

4.9 Function

Full automatic function by:

- The automatic nozzle seal guarantees that the print head is ready to print immediately after starting.
- Automatic, electronic drop control for compen-sation of changing ambient- and operating temperatures
- Automatic viscosity control
- Splash-free re-filling of ink and solvent during the printing operation

4.10 Software

Functions:

- Selectable print delay or print repetition
- Any combination of constant and variable texts within a printing line
- 10 individually programmable counters
- Current date- and time printing, original date
- Free programmable graphics/logos, creatable in the integrated editor
- Jobeditor allows the saving and calling of texts and all printing relevant parameters
- Programmable batch processing of jobs and bonding of several jobs
- „External-Text“ function
- Variable text (Data base processing)
- Replacements: all date-, time- and counter functions are codable by replacements
- Shift operation

5. Transport/Start up (Putting into service)

5.1 Transport, storage, shipping

In order to avoid damage during transport the following instructions must be observed.

The LEIBINGER JET3 must only be transported in a standing position. It is packed in a cardboard box with special polystyrene inserts for safe dispatch during delivery. Transport of the device must only be made in this packing in order to avoid damage.

ATTENTION

The printer should be only transported in an empty condition! A special draining routine ("ServiceFunctions ▶ Hydraulic ▶ Special Functions/ Tools ▶ Drain Routine") is available for the draining of the device.

You will find further information in the **group *Data entry/Programming*** in the **chapter *Draining routine***!

Note! Storage temperatures below +5°C and above +50°C as well as storage at outside are not admissible and can lead to damage!

5.2 Mounting

WARNING

Danger of explosion!

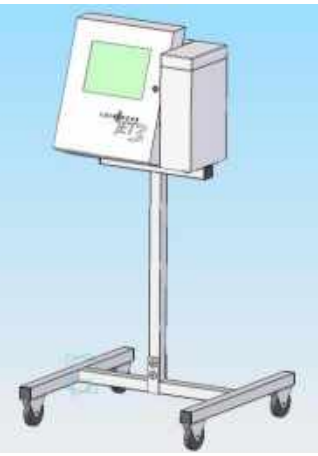
- The device must not be operated in potentially explosive areas!
- The installation has to be carried out according to the installation instructions of the manufacturer!
- Precautions regarding electrostatics have to be carried out!

WARNING – INSTALLATION OF THE DEVICE

The device must be installed in a well ventilated room only and must be kept away from any source of heat, flame or sparks, e.g. radiant heater, etc.!

Check device for damage! When determining a suitable place of setting up, the necessary additional space requirement for the movement room of the operating and service personnel must be taken into consideration. Solvents are processed in the device, adequate room ventilation must be ensured!

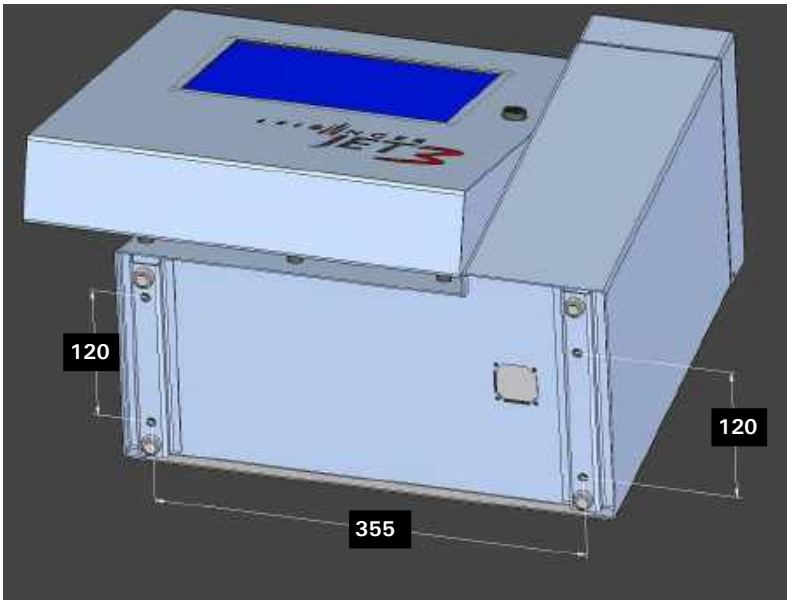
Figure 4 Movable base frame for JET3



For this it is expedient to place the device on a device support.

The device has four fastening possibilities for secure seting up and should be screw connected at the place of setting up.

Figure 5 Fastening posibilities



ATTENTION

A place of setting up with sufficient load bearing capacity and stability must be chosen. Prior to assembly the place of setting up must be cleaned of dirt and contamination (residue of lubricants etc.) .

5.3 Installation

For adaption to the production line several works have to be carried out and operating parameters have to be set before start of operation.

5.3.1 Mains supply

WARNING – MAINS SUPPLY

The device does not have a mains switch and should be only connected to an easy accessible socket close to the installation location!

The LEIBINGER JET3 should be connected to AC voltage 100 - 240 V AC, 50 – 60 Hz with an appropriate plug. **The socket should be provided with a clear designation (e.g.: JET3).**

After connecting to the mains power supply the initialization of the device will be carried out automatically. After this process the JET3 is ready for operation.

INFORMATION

You will find further information regarding the initialization in the chapter ***Initialization of device***!

5.3.2 Grounding (Potential equalization)

WARNING

Grounding (Potential equalization)!

- In case of a non existing grounding or that the grounding of the printer is not carried out properly, this could cause serious injury or death and it can also cause malfunctions or damages at the printer!
- These dangers or demolitions can happen for example because of electrostatic discharge (ESD) or potential difference!

Especially for countries without existing protected earth connection, there is a special grounding point located at the side of the printer.

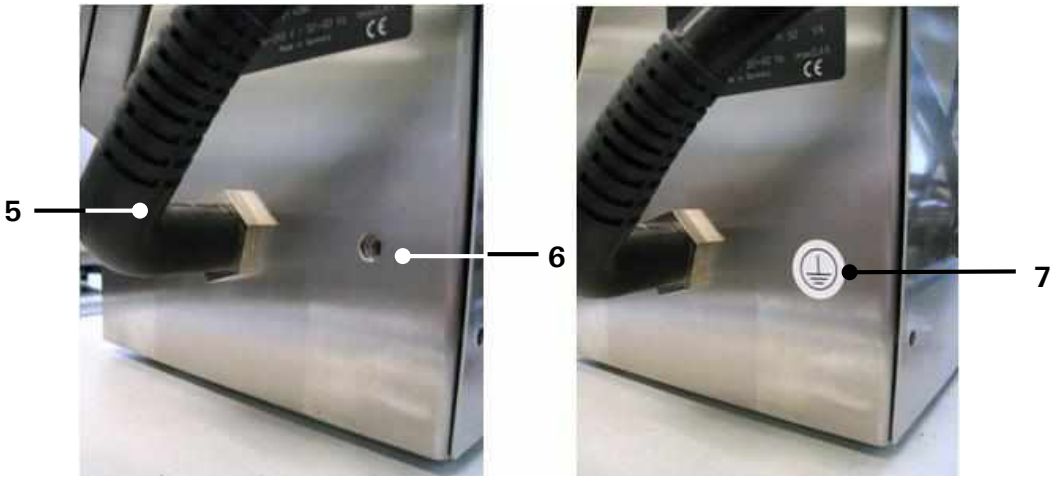
This threaded socket must be connected to ground if there is no ground pin in the mains socket/plug.

The threaded case is sealed inwards and thus IP 65 conform. With a screw and a ring terminal (cable lug) the grounding can be fixed easily.

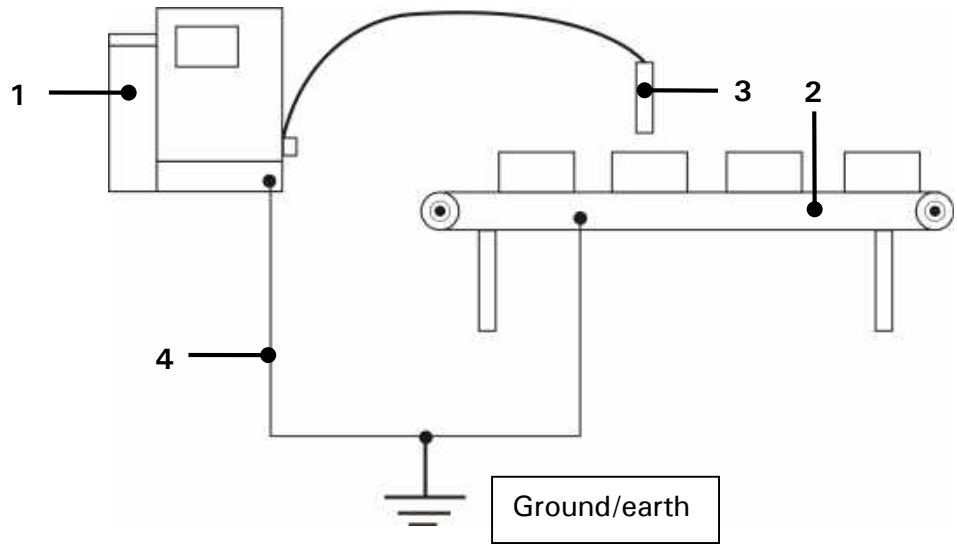
INFORMATION

Please note, that the grounding point (6) is hidden behind the round grounding-symbol-label (7) on the lower left hand side of the cabinet of the printer.

Figure 6 Grounding scematic and grounding point



Grounding schematic



1 – Printer cabinet
2 – Installation
3 – Print head
4 – Grounding line
5 – Umbilical
6 – Grounding point (M6)
7 – Grounding symbol-label

Grounding instructions

- A separate grounding line (min. cable cross-section 2,00 mm^2) to the printer cabinet must be installed **before** the print head is mounted in the installation and **before** the printer is plugged to the power supply.
- The connection must be carried with a solid bonding that corresponds with existing guidelines.

  Annotation: *A suitable grounding cable is available optionally (accessories).*
- The installation (machine) and the printer must have the same potential/ground.

ATTENTION

The printer must be always be switched off and the mains plug must be always unplugged if you plug and/or unplug any connectors!

5.3.3 Explosion protection

The device has to be integrated in the lightning protection concept of the operator!

Further more protection measures regarding electrostatics have to be made!

5.3.4 Print head

WARNING

Risk of fire and injury!

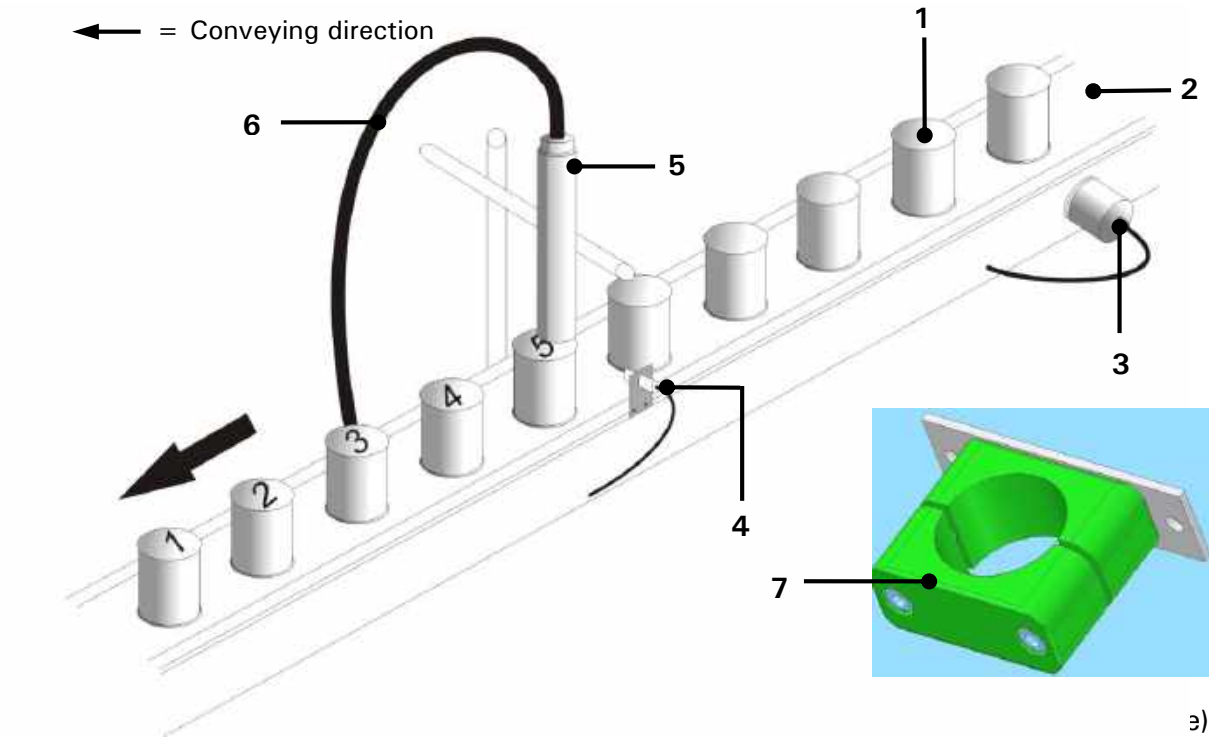
- Inflammable! Combustible gases and liquids cause serious burns. Sources of ignition must be kept away from the print head!
- Ink escapes from the head aperture. Spraying of ink into the eyes can cause blindness. Eye protection is necessary!

The print head should be mounted to the printed product that the notch in the head cover is placed vertical to the moving direction of the product. It can be installed horizontal, vertical, from the top or from the bottom.

For installation from the bottom it has to be prevented that dirt can enter in the print head. For this a head ventilation is required which can be purchased optionally.

The print head mounting should be carried out that a fast separation of the print head from the device for cleaning purposes is possible.

Figure 7 Print head installation (Example)



1 – Product
2 – Conveyor belt
3 – Encoder
4 – Sensor
5 – Print head
6 – Umbilical (Hose connection)
7 – Print head adapter *(accessories)*

ATTENTION

The print head should be attachted vibration-free. The hose connection of the print head should not be smaller as a radius of R = 100 mm statistically (loop: 200 mm) and dynamically not below R = 150 mm (loop: 300 mm)!

The distance of the print head to the product depends on the required character height. As smaller the required character height, as smaller the distance of the print head to the product (smaller distances produce better type quality)

***Note:* In general a distance of round about 8-10mm is recommended.**
For applications with extreme small or large character heights a micro- and macro print head are available optionally.

CAUTION – INSTALLATION OF PRINT HEAD

During an installation of a device in a production line, the operating staff should be not endagered. Due to moving products under the print head danger of bruisings and shearing can be caused. The regulations of the machinery directive 2006/42/EG should be observed!

5.3.5 External print head ventilation (optional equipment)

The "external head ventilation" unit is only delivered pre-assembled.

INFORMATION

Further information and installation instructions can be found in the separate instructions as well as in the accompanying assembly instructions **„Installation of the external print head ventilation“**.

The unit's pressure regulator must be connected to the compressed air supply with a suitable hose and quick connector.

5.3.6 Grounding regulation for print head works

For technical reasons the ink of a continuous ink jet printer is charged with high voltage during the printing process. In case of inappropriate handling the static charged ink may be an ignition source. In combination with flammable ink and solvent this could pose a fire or explosion hazard. Therefore for some works a ground cable is required.

Basically there are two situation where the use of a ground cable is mandatory:

- The printer is operated in test mode and the ink is just discharged into a service tray (e.g. a Leibinger cleaning station). Without any safety measures the ink in the service tray may be charged up. In order to avoid this critical situation the print head and the service tray have to be connected with a ground cable. In case of using a service tray made of plastic material it would be possible to place a metal foil in the service tray and connect the ground cable to that foil.
- During cleaning operations the service tray has to be connected with the print head by a ground cable.

Fire hazard

Explosion hazard

Electrostatic-sensitive device

Discharging the ink into a service tray

Fire hazard

Explosion hazard

Electrostatic-sensitive device

Cleaning the print head

5.4 Starting (Commissioning)

For a safe transport some hydraulic components are supplied with transportation protection (cable ties) and the reservoir tanks are evacuated. The following steps have to be carried out before the initial operation

- Remove the transportation protection (cable ties) (Step 1)
- Fill the reservoir tank (Step 2)
- Carry out the function <Filling Routine> (Step 3)

5.4.1 Remove transportation safety devices (Step 1)

The pumps and valves of the hydraulic system are secured with cable ties. These **have to be** absolutely removed.

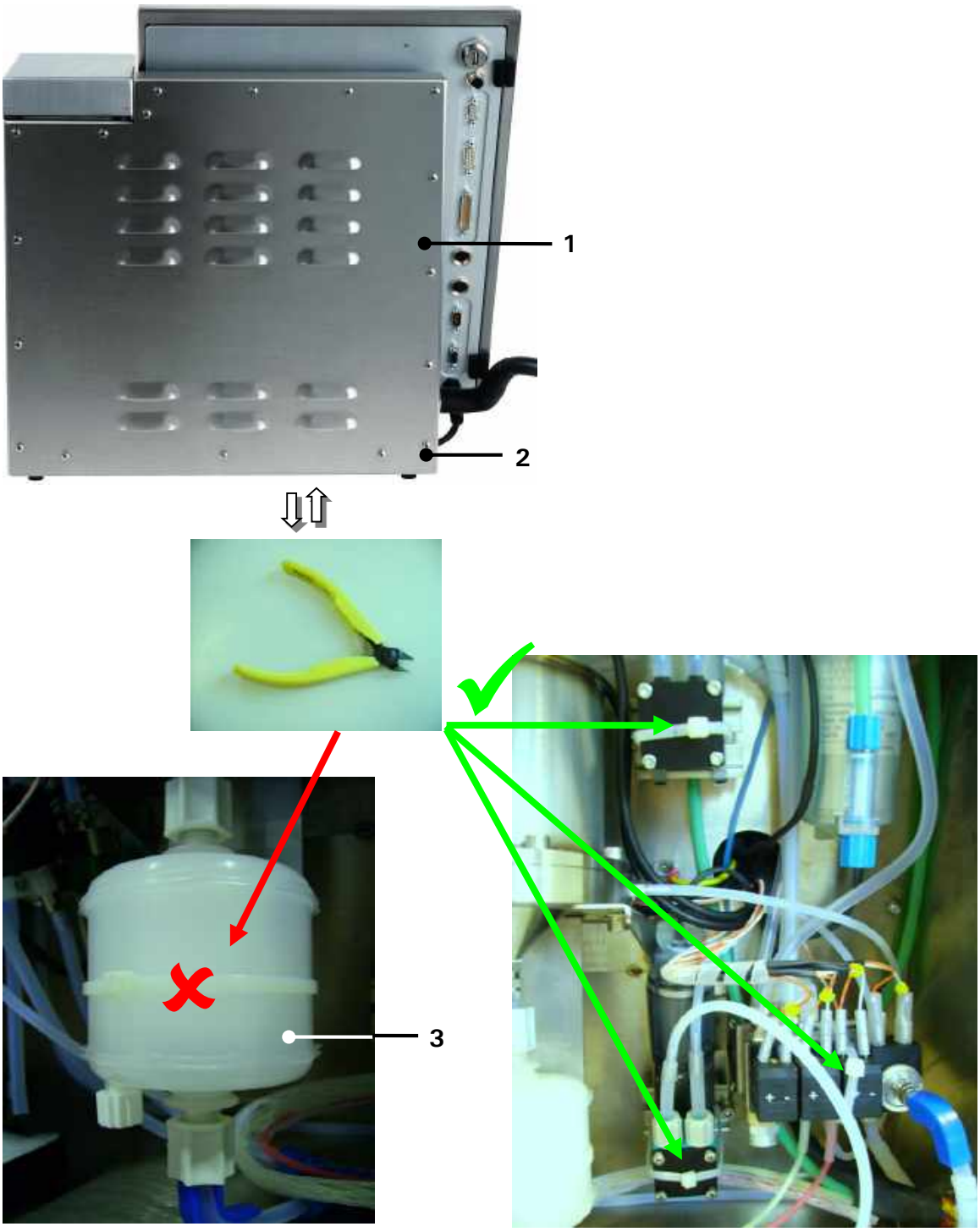
Proceeding:

- Dismantle the backplane of the hydraulic cabinet (1) by loosing the fixing screws (2).

ATTENTION
The cable tie at the main filter (3) should not be removed!

- Remove the transportation protection (cable ties).
- Now attach the backplane of the hydraulic cabinet again with the according fixing screws.

Figure 8 Remove transportation safety devices



Remove transportation safety devices

1 – Backplane (Hydraulic cabinet) 2 – Fixing screws 3 – Main filter

5.4.2 Fill reservoir tank (Step 2)

To avoid damages of the device during the transportation the reservoir tanks should be evacuated and have to be filled before the initial operation.

WARNING

Danger of explosion!

- Before filling the device with the consumables, measures for the electrostatic discharge have to be made!

The operator can carry out a discharge either by the direct touching of the LJ3-cabinet or by standing with the appropriate ESD-shoes on an grounded surface!

WARNING

Dangerous material in the machine!

- Danger of serious damage through burns, skin irriation and poisoning!
- Protective equipment is necessary! Read the safety data sheets and the personal protective equipment rules and regulations!

The reservoir tanks for ink and solvent are installed beneath the cover flap of the refill unit *(see illustration below).*

The two reservoir tanks are monitored by level sensors. They are always unpressurized and can be opened in every device condition.

The reservoir tanks and the sealing cap are color-coded and labelled to avoid any mistakes in filling. Additionally the sealing caps are marked with the ink-no. or solvent-no. which are admissible for the device.

For correct handling the LEIBINGER re-filling system allows an odor- and splash free refilling of the consumables.

Proceeding

(Example: Filling of solvent)




WARNING

Risk of fire and injury! Absolutely observe!

- Before filling the device with the consumables, measures for the electrostatic discharge have to be made!
- Highly flammable! Burning gases and liquids may cause severe burns. Keep sources of ignition away from the printer!
- Always statically discharge the printer and yourself before filling the reservoirs! Simply touch the housing of the printer to discharge the equipment and stand on a grounded surface wearing ESD shoes during filling!
- Protective equipment is necessary! Read the safety data sheets and the personal protective equipment rules and regulations!

ATTENTION

The sealing of the refill bottle **must not be opened**!

- Open the lid (2) of the reservoir tank unit(1).
- Open the screw cap of the solvent tank (4) and of the refill bottle (5).
- Put the refill bottle on the solvent tank. The seal of the bottle will be breached and the closing valve of the tank will open automatically and the reservoir tank is filled up.
- Wait until the refill bottle is completely empty.
- Take out the empty refill bottle. The closing valve of the reservoir tank will be closed automatically.
- Finally close the reservoir tank and empty refill bottle carefully with the srew caps.

ATTENTION

The reservoir tanks as well as the empty refill bottles have to be closed carefully after filling.

Figure 9 Reservoir tank and re-filling process

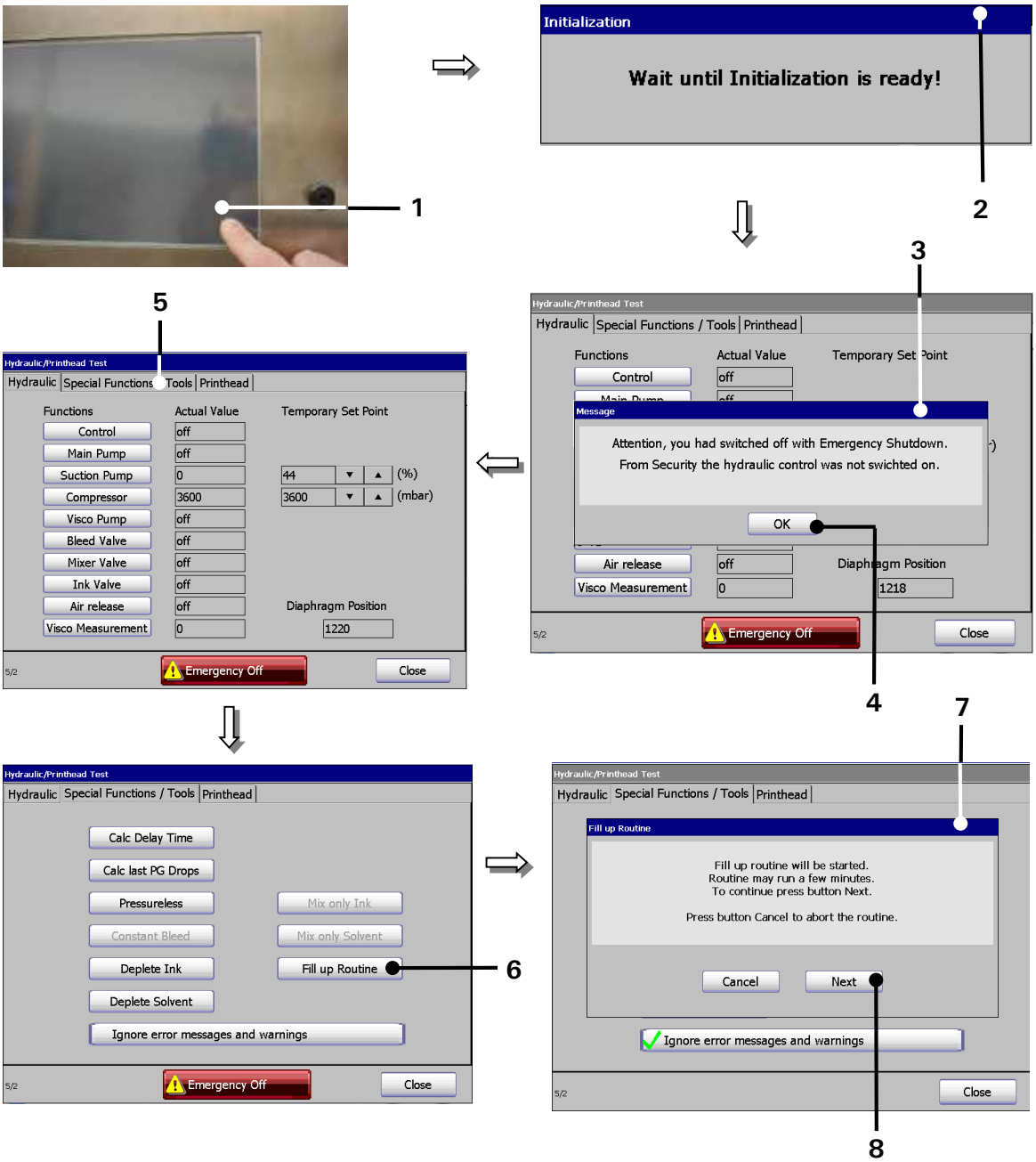
1 – Reservoir tank unit
2 – Hinged cover lid
3 – Reservoir tank „Ink“
4 – Reservoir tank „Solvent“
5 – Refill bottle „Solvent “
6 – Refill bottle seal

5.4.3 Carry out filling routine (Step 3)

After filling the consumables you have to carry out the filling routine.

Proceeding:

Figure 10 Filling routine (Step 1)



1 – TFT-Touch-Display
2 – Message <Initialization>
3 – Message <Emergency Shutdown
4 – Button <OK>
5 – Tab <Spec. func. /Tools>
6 – Button <Fill up Routine>
7 – Message <Fill up Routine>
8 – Button <next>

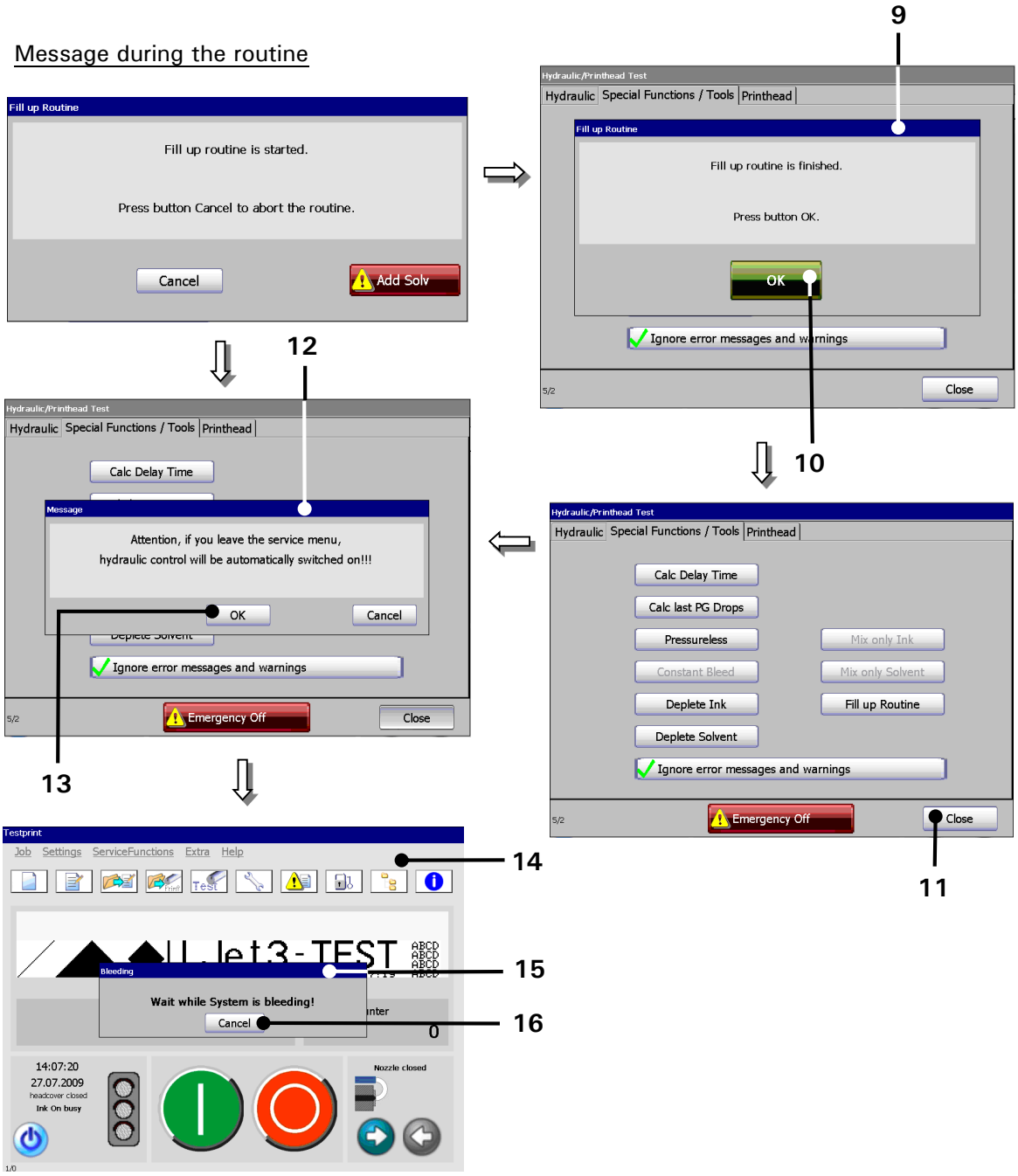
- Turn on the printer. For this touch the dark **touch-display** (1) at any position for approx. 2 sec..
- The device turns on and the main menu with the **message<Initialization>** (2) is displayed. Wait until the initialization is finished. After this process the **message<Emergency Shutdown>** (3) is displayed.
- Press the button **<OK>** (4).
- Change to tab **<Special functions /Tools>** (5).
- Now press the button **<Fill up Routine>** (6). The **message <Fill up Routine>** (7) is faded-in.
- Press the button **<Next>** (8) to start the filling routine.

  Note: *This process takes approx. 10 minutes.*
- After finishing the process an according message (9) is displayed. Press the button **<OK>** (10) to finish the routine.
- Press the button **<Close>** (11) to leave the menu **<Special functions /Tools>**.
- The message **<Hydraulic control>** (12) is faded-in.

  Note: *For leaving the service menu the hydraulic control will be turned on again automatically.*
- Press the button **<OK>** (13) to close the service menu.
- The m**ain menu** (14) is now displayed. If required the device starts automatically with the bleeding of the system.

  During the process the message **<Bleeding>** (4) is displayed. The bleeding takes between 1 – 5 min. The process can be canceled by pressing the button **<Cancel>** (5).
- Now the printer is ready to operate.

Figure 11 Filling routine (Step 2)



9 – Message <Fill up Routine finished>
10 – Button <OK>
11 – Button <Close>
12 – Message <Hydraulic control>
13 – Button <OK>
14 – Main menu
15 – Message <Bleeding>
16 – Button <Cancel>

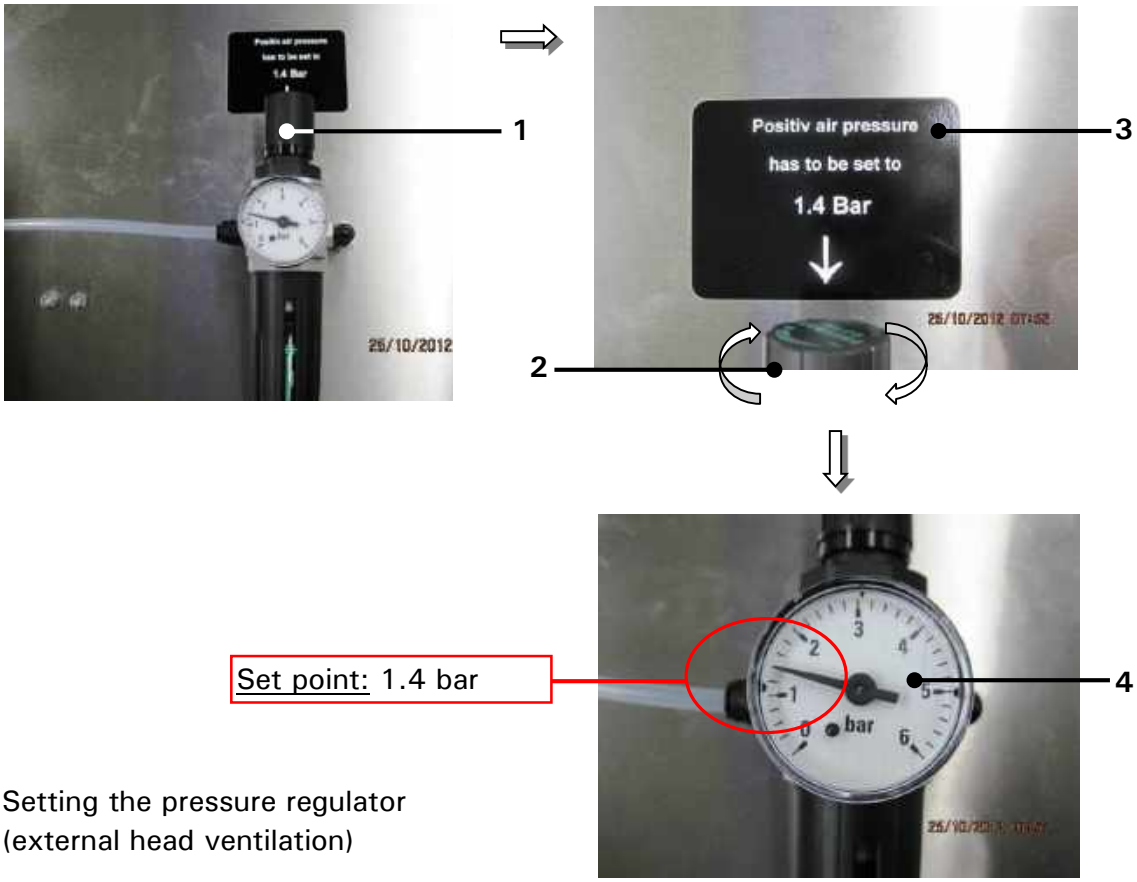
5.4.4 Setting of the external print head ventilation (optional equipment)

Before commissioning the high performance printer, the unit's pressure system must be set.

Proceeding

Turn the adjusting knob (2) of the pressure regulator valve (1), until the necessary pressure of 1.4 bar is reached.

Figure 12 Setting the pressure regulator



Setting the pressure regulator
(external head ventilation)

1 – Pressure regulator valve
2 – Adjusting knob
3 – Indicating label
4 – Manometer

INFORMATION

Supplementary information for the assembly and function can be found in the **chapter *External print head ventilation (assembly and function)***!

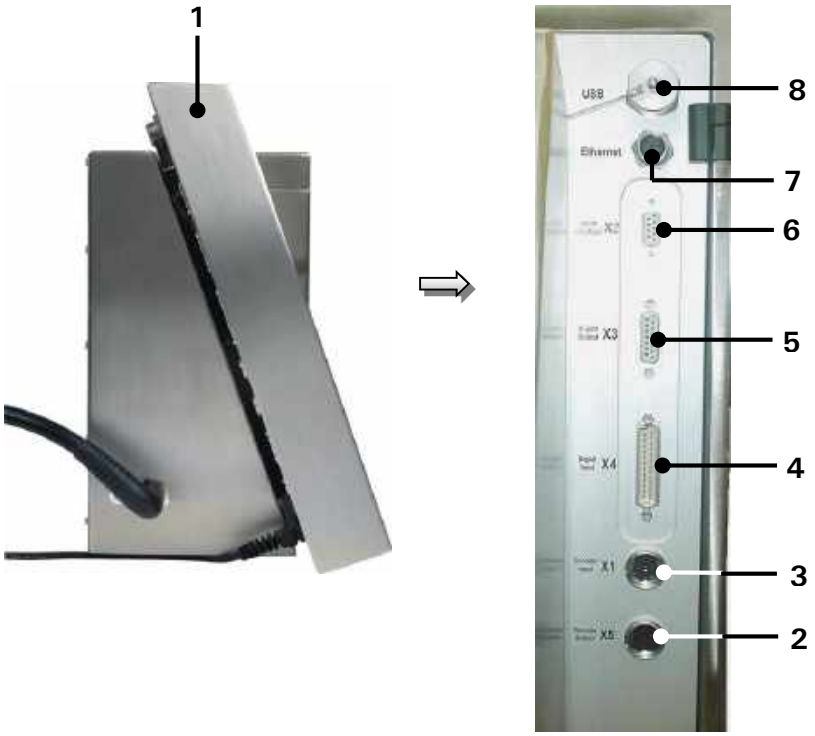
ATTENTION

- Make sure that there is a permanent compressed air supply!
- **The printer doesn't monitor the permanent compressed air supply!**
- **There will be no warning in case the permanent compressed air supply fails!**
- Operation is only permissible with dry, oil-free and filtered compressed air (Filtering 8 µm) The use of otherwise prepared compressed air can lead to damage and malfunctions!

5.5 Interfaces

The following interfaces are available on the rear side of the electronics cabinet.

Figure 13 Interfaces



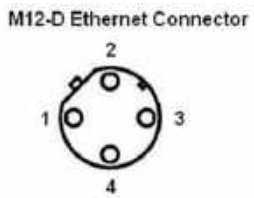
Interfaces

1 – Electronic cabinet
2 – Interface X5 – PrintGo
3 – Interface X1 – Encoder
4 – Interface X4 – digital inputs
5 – Interface X3 – digital outputs
6 – Interface X2 – Serial Interface
7 – Ethernet-connection
8 – USB connection

5.5.1 Ethernet-connection

The Ethernet-connection is implemented with a sturdy M12D coded socket and is designed for high transfer rates and long cable lengths. It provides the networking of several devices in multi-head applications. The data exchange happens via the „LEIBINGER JET3-interface protocol“.

Plug assignment:



Pin connection:

Pin No	Designation		Pin No.	Designation
1	Tx +		3	Tx -
2	Rx +		4	Rx -

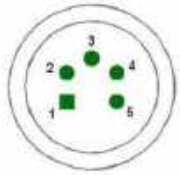
5.5.2 Interface X5 (PrintGo)

The interface "X5" provides the connection of an external PrintGo-signal. All common product detectors (*e.g. light barrier, product sensor ect.)*, 24V NPN- as well as 24V PNP-switching can be connected.

Regarding the software you can select additionally if the positive edge or the negative edge should be used for the release of the print out.

Note: *To inform the JET3 when a print text should be printed, you require a so-called Print-Go signal.*

Plug assignment:



Pin connection:

Pin	Designation		Pin	Designation
1	+24 V [1]		4	PrintGo
2	/PrintGo		5	PrintGo_Gate
3	GND			

Basic data/Recommended working conditions:

Signal	Parameter	Value
PrintGo	Input level High	15 up to 30V
	Input level Low	-3,5V up to 3,5V (or high resistance)
	Minimum pulse duration	100µS
	Input resistance	6,8 kOhm
/PrintGo	Input level High	20 up to 28V (or high resistance)
	Input level Low	-6V up to 9V
	Minimum pulse duration	100µS
	Input resistance	6,8kOhm
PrintGo Gate	Input level High	15 up to 30V
	Input level Low	-3,5V up to 3,5V (or high resistance)
	Minimum pulse duration	100µS
	Input resistance	6,8 kOhm

INFORMATION

You will find a circuit diagram of the interface in the appendix of this manual!

[1] *All 24V inputs which are designated with (1) are protected by a self-reset fuse with 700 mA.*

5.5.3 Interface X1 (Encoder)

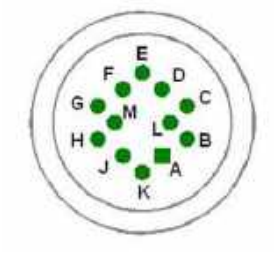
5.5.3.1 Description and configuration

The interface "X1" provides the connection of a shaft encoder.

Due to the input for which you can set the software individually, the encoders can be connected according to different norms without an additional converter.

Note: *For variable product speed you have to use a shaft encoder to synchronize the printing speed or to control the constant font width.*

Plug assignment:



Pin connection:

Pin	Designation		Pin	Designation
A	+5 V (max. 400 mA)		G	Encoder port /B RS422
B	GND		H	Encoder port A TTL (5V)
C	+24 V [1]		J	Encoder port B TTL (5V)
D	Encoder_port A RS422		K	Encoder port A HTL (24V)
E	Encoder port /A RS422		L	Encoder port B HTL (24V)
F	Encoder port B RS422		M	PowerOn Option

Basic data /Recommended working conditions:

Signal type	Parameter	Value
RS422	Input level	Difference input ≥ +/-200mV Input voltage range: -0,3 bis 5,5V
	Max. frequency	10 MHz
	Terminating resistor	100 Ohm
TTL	Input level High	2,4V up to 5,5V
	Input level Low	-0,5V up to 0,7V
	Max. frequency	500 kHz
	Input resistance	1 MOhm
HTL	Input level High	12 up to 28V
	Input level Low	-0,5 up to 3,5V
	Max. frequency	500 kHz
	Input resistance	4 kOhm

INFORMATION

The signal type which should be used as encoder source has to be set in the software of the JET3 under **Settings ▶ Basic Settings ▶ Encoder Interface.**

You will find a circuit diagram of the interface in the manual appendix!

[1] *All 24V inputs which are designated with (1) are protected by a self-reset fuse with 700 mA.*

5.5.3.2 Mechanical installation

ATTENTION

For the mechanical installation of the shaft encoder you have to pay attention in any case that the encoder is protected against axial and radial strain during the mounting and the continuous operation. For this a rubber gaiter or a plastic coupling is used.

If the conditions allow it, the shaft encoder can be also adapted to a production line with a friction wheel.

ATTENTION

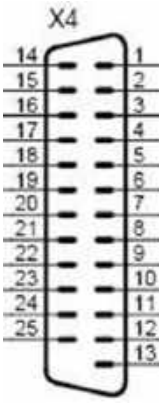
Risk of injury!

The shaft encoder has to be installed or mounted that no risks of injury can occur!

5.5.4 Interface X4 (Inputs)

19 inputs for special functions are available whereof the connections of 6 inputs can be freely selected.

Plug assignment: Pin connection:



Pin	Designation		Pin	Designation
1	+Reset Counter		14	+24V [(1)]
2	+Increment Counter		15	GND Reset Counter / Increment Counter
3	+Jobselect 0		16	+Jobselect 1
4	+Jobselect 2		17	+Jobselect 3
5	+Jobselect 4		18	+Jobselect 5
6	+Jobselect 6		19	+Jobselect 7
7	+Jobselect 8		20	+Jobselect 9
8	GND Jobselect 0-9		21	GND Input 0-5
9	+Input 0		22	+Input 1
10	+Input 2		23	+Input 3
11	+Input 4		24	+Input 5
12	+Power ON		25	GND Power On
13	GND 24V			

Basic data /Recommended working conditions:

Signal	Parameter	Value
All signals	Input level High	15 up to 30V
	Input level Low	-3,5V up to 3,5V (or high resistance)
	Input resistance	6,8kOhm
Increment Counter/ Reset Counter	Minimum pulse width	250µs
Power ON	Minium pulse width	2,5 s
Jobselect 0-9	Maximum duration of bounce	10 ms [2]
Input 0-5	Minimum pulse widths	Depending on assigned function *(see following table)*

In the following table you will find the minimum pulse widths which are required to release the assigned function at the X4 plug.

Function	Minium pulse width
Open nozzle	300ms
Close nozzle	300ms
Print start	500ms
Print stop	500ms
Turn off printer	750ms
Mirrored horizontally	200ms
Gauger synchronization signal	200ms

INFORMATION

The function allocations of the inputs 0 up to 5 happens by the software of the JET3 in the menu **Settings ▶ I/O-Settings ▶ Inputs**.

You will find a circuit diagram of the interface in the manual appendix!

[1] All 24V inputs which are designated with (1) are protected by a self-reset fuse with 700 mA.

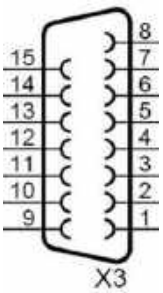
[2] For a change of the Jobselect inputs it has to be carried out within the duration of bounce, that means only after termination of this period of time the new Jobselect No. is validated.

5.5.5 Interface X3 (Outputs)

8 outputs which can be freely selected are available for special functions. The outputs 1-3 are predefined as a standard and should be not changed.

- Output 1 = Print stop error
- Output 2 = Refill warning
- Output 3 = Ready to print

Plug assignment:



Pin connection:

Pin	Designation		Pin	Designation
1	Output 1		9	Output 5
2	Output 2		10	Output 6
3	Output 3		11	Output 7
4	Output 4		12	Output 8
5	+24V [1]		13	Reserved
6	Reserved		14	Reserved
7	Reserved		15	GND
8	GND			

Reserved = Do not connect

Specifications Output 1-8:

Parameter	Value
Driver type	24V high side driver ON = +24V OFF = high resistance
Output current	max. 700mA/output max 700 mA totally[1]
Max. switching frequency	2 kHz [2]
Max. delay time	100µs
Turn on resistance	max. 0,28 Ohm
Features	■ Short-circuit-proof ■ Overcurrent- and excess temperature –proof

INFORMATION

The function allocations of the outputs is carried out with the software of the JET3 in the menu **Settings ▶ I/O-Settings ▶ Outputs**.

You will find a circuit diagram of the interface in the manual appendix!

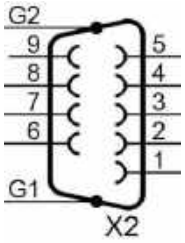
[1] All 24V inputs which are designated with (1) are protected by a self-reset fuse with 700mA, that means the sum of all output currents which are supplied of this 24V should not exceed 700mA.

[2] Depending on the set function.

5.5.6 Interface X2 (Serial interface)

The interface "X2" is a serial data interface with a transfer rate up to 115200 Baud. The access is suitable for a connection to the printer to application-specific software for the data management and for the remote control of the printer.

Plug assignment:



Pin connection:

Pin	Designation		Pin	Designation
1	NC		6	Connected with 4
2	RxD		7	RTS
3	TxD		8	CTS
4	Connected with 6		9	NC
5	GND			

NC = not connected

INFORMATION

The function allocations of the outputs is carried out with the software of the JET3 in the menu **Settings ▶ I/O-Settings ▶ Outputs**.

You will find a circuit diagram of the interface in the manual appendix!

5.5.7 USB-Connection

By the USB-connection you can connect all common USB-devices as e.g. mouse, keyboard or USB-stick very simply. All data can be exchanged comfortable and simply by the USB-connection. Software updates, exchange of variable printing data or memory expansions can be carried out simply with the USB-stick.

Shoot & print option

With an optional bar code scanner connected to the USB port it is possible to emulate keyboard inputs with barcodes in order to avoid typing errors.

Commands read from bar codes to load and execute pre-installed print jobs.

If the bar code scanner is connected to the USB port it is used to emulate keyboard inputs.

With a bar code scanner connected to the RS 232 interface of the JET3 there are further options available. Please see the following chapters for details:
8.7.5 *Extern Text*

Plug assignment:

Pin connection:

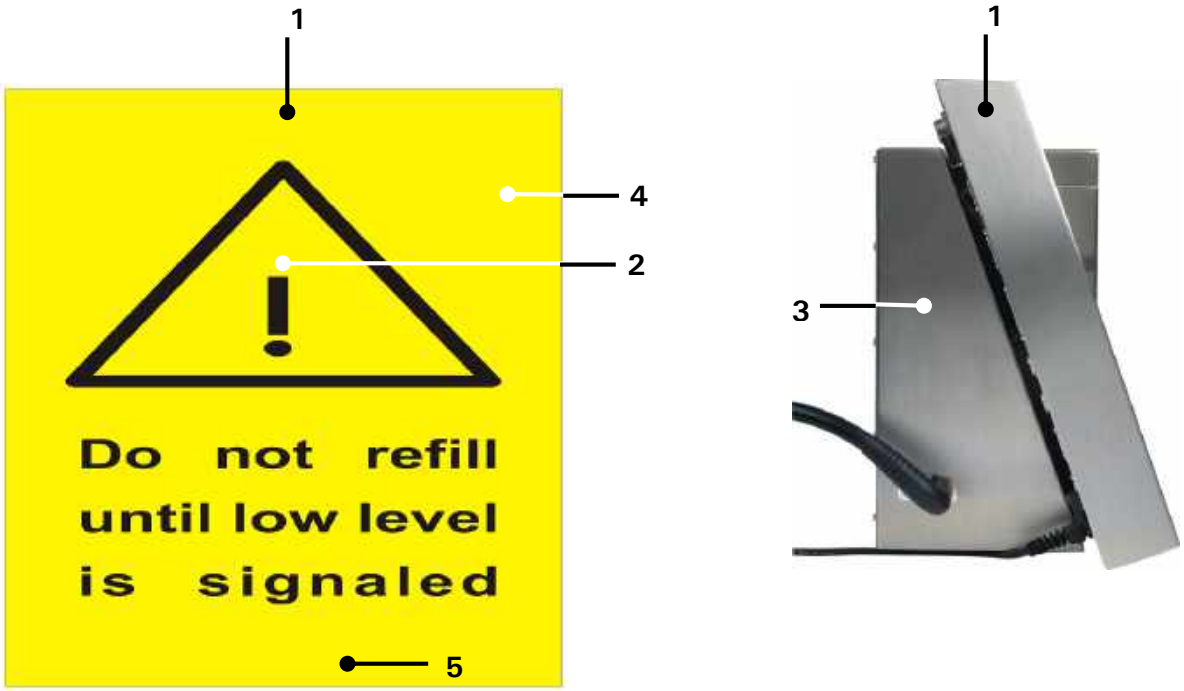
Pin	Designation		Pin	Designation
1	+V (+5V)		3	Data +
2	Data -		4	GND

6. Operation

6.1 Construction/Structure of the device

The high-performance LEIBINGER JET3 is manufactured of a solid two parts stainless steel cabinet. Due to the two parts construction you will get a thermal separation between the hydraulic- and electronic section. The device consists of the following main components.

Figure 14 Equipment configuration (General view)



1 – Electronic cabinet
2 – TFT – Touch Display
3 – Hydraulic cabinet
4 – Refilling unit
5 – Print head with umbilical

In the closed **electronic cabinet** you will find the essential electronic components as power supply, the TFT-Touch Display as well as the controller board.

The large central arranged **TFT-Touch Display** describes the interactive interface for the operator. This central entry medium with its extensive 10,4" color display with backlight allows a clear, self-explaining operator guidance without additional keys and switches.

In the **hydraulic cabinet** you find all components which are required for the transportation and preparation of ink.

The **refilling unit** provides a supply of consumables. It contains two separate reservoir tanks for ink and solvent. The unpressurized tanks can be refilled without interrupt procedure, odorless and splash-free during the operation.

The **print head** contains all mechanical, electronical and hydraulic components which are required for the creation of print out. It is connected with the hydraulic cabinet by a flexible umbilical.

6.2 Functional principle

6.2.1 Method of working

The JET3 works in accordance with the continuous ink jet process. In this a constant ink jet is emitted from a jet nozzle which is broken down into a series of equal size drops under the influence of mechanical oscillations.

If required these drops are individually charged up electrostatically and deflected into a constant electrical field depending on the charge. As a result not just one point but rather a line of points can be applied contact-free with one jet. If the product used is moved vertically to the drop deflection two-dimensional patterns (characters) can be created.

The drops that are not required for a programmed inscription are not charged and flow uninfluenced through the electrical deflection field into a gutter. In the gutter the drops are sucked up by a suction pump and fed back into the ink tank. Depending on the application alphanumeric data and graphics can be entered with the TFT touch display.

INFORMATION

Data for font and texts are stored in the device (even in the event of power failure). If required it can be called up, altered or deleted quickly and easily.

Further more, all jobs, fonts and graphics can be saved as a back-up e.g. on a USB-stick or a SD-card.

6.2.2 Drop creation

During the drop creation the ink is pressed through a jet nozzle under pressure and at the same time modulated in such a way by highly frequent sinus oscillations that are imposed on the drop that it attaches itself to the nodal points of the oscillations and breaks down into individual drops at a specific distance *(λ (please see the following figure "Creation of a character")* from the jet. The oscillations are created with an oscillatory system that is excited by a Piezo oscillator.

6.2.3 Drop charging

In order to be able to charge the drops it is necessary for the ink to have electrical conductivity. This is possible through the use of specific salts that dissociate in the solvent used. The drop brake-off point of the modulated jet is automatically set in such a manner that this happens inside the charging electrode.

The drops can now be charged up by creation of voltage between jet and charging electrode, because they are given a negative charge through the charge shift resulting in the charge electrode gap. A specific charge voltage is clearly allocated for each drop charge.

6.2.4 Drop deflection

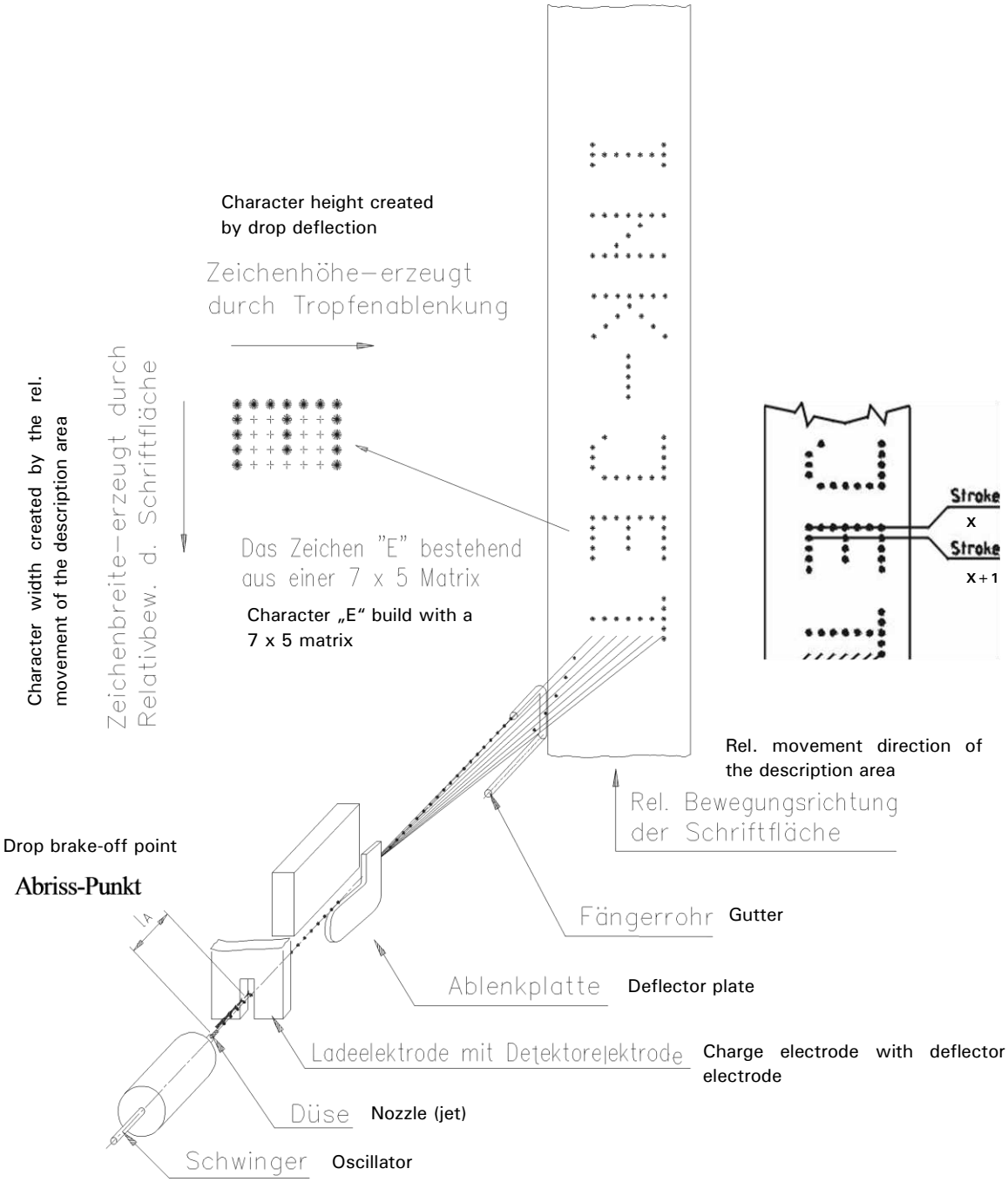
After the drops have left the charging electrode they fly through an electrical field. Here, those droplets that were previously charged in the charging electrode are deflected. The drops that have not been charged fly straight ahead into the gutter. Here they are sucked up and fed back to the circular flow of ink. The charged drops are only deflected in one direction, the other direction is performed by the product to be inscribed.

6.2.5 Creation of a character

Each character is defined by a two-dimensional matrix, e.g. 7 x 5. An ink drop can be assigned to every point of intersection. The character is formed by deflecting the ink drops in a vertical direction and by moving the product to be imprinted horizontally. The ink drops not to be positioned on the product will not be charged by the charging electrode and pass through the electric field without being deflected directly into the gutter tube. The controller (CPU) of the printer calculates the values which are required for the generation of charging voltages of the single characters.

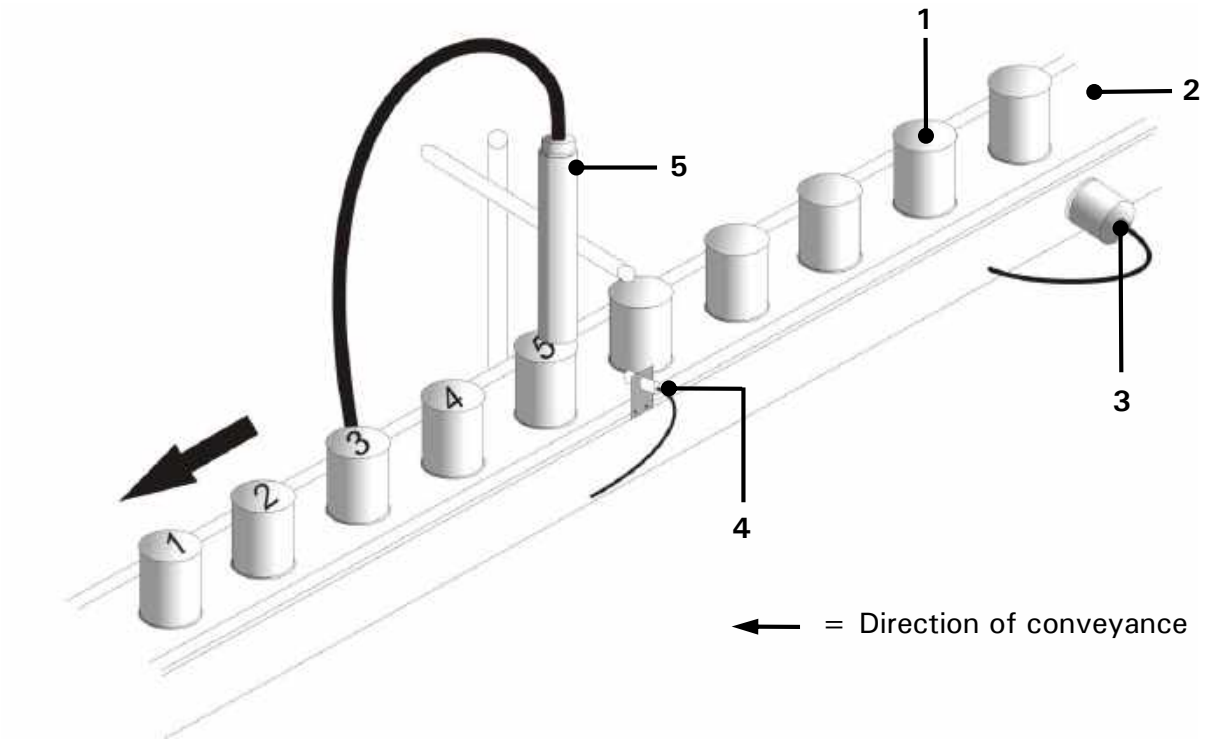
6.2.6 Summary of the individual procedures

Figure 15 Character creation process



6.2.7 Example of use

Figure 16 Example of use



1 – Product
2 – Conveyor belt
3 – Encoder
4 – Sensor
5 – Print head

6.3 Safety instructions

WARNING

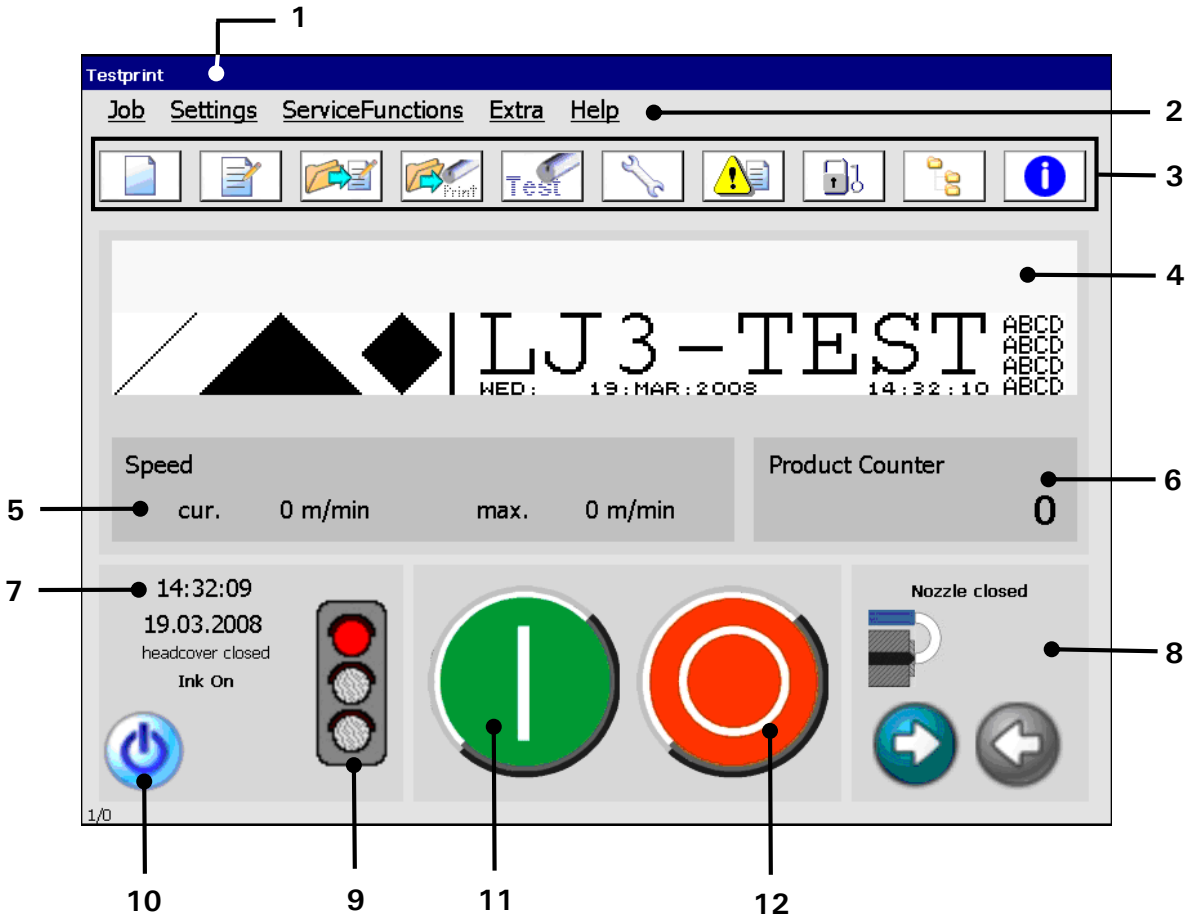
Risk of fire and injury!

- Inflammable! Combustible gases and liquids cause serious burns. Sources of ignition must be kept away from the print head!
- Ink escapes from the head aperture. Spraying of ink into the eyes can cause blindness. Eye protection is necessary!

6.4 Essential operating- and information elements

This chapter describes the essential operating- and information elements of the LEIBINGER JET3 main menu.

Figure 17 Design main menu



1 – Title bar
2 – Main menu bar
3 – Direct buttons
4 – Display range
5 – Status field <Printing speed>
6 – Status field <Product counter>
7 – Status field <General>
8 – Status field <Nozzle>
9 – Device status (traffic light)
10 – Button <Off/Shut down>
11 – Button <Printstart>
12 – Button <Printstop>

- **Title bar (1):** The title bar is displayed at the top of the main menu and contains the name of the active printing job as well as for activated password function the display of the logged-in password level.

- **Main menu bar (2):** The corresponding menus of the JET3 can be called with the buttons in the main menu bar. The following menus are available:

  - Job
  - Settings
  - Servicefunctions
  - Extra
  - Help

- **Direct buttons (3):** Several menus or submenus of the JET3 can be called directly with the direct buttons. The following direct buttons are available:

Pos.	Button	Function-/menu designation	Comment
1.		Create new job	Editor opens
2.		Edit current job	Editor with the current loaded job opens.
3.		Open job to edit	Job selection menu opens.
4.		Open job to print	Job selection menu opens.
5.		Test-print function	Special appliance for a fast print control and troubleshooting
6.		Hydraulic/Printhead test and maintenance menu	
7.		Data Logging	
8.		Login	
9.		Explorer	Data file manager to import jobs, graphics and fonts
10.		Info	System information menu opens

- **Display area (4):** In this area the printing data of the loaded job which should be currently printed or loaded is displayed in the WYSIWYG-mode.

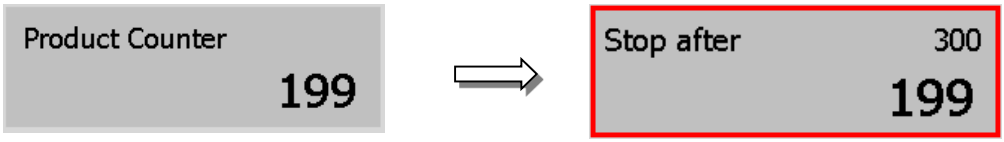
- **Status field <Printing speed> (5):** this indicator shows the current printing speed and the max. possible printing speed considering the current settings. De-pending on the selected adjustments in the basic settings the speed is displayed as. m/min or inch/min

- **Status field <Product counter> (6):** The current value of the production counter(s) is (are) displayed by this field(s). The fields work also as buttons. By pressing them you can change or reset the value of the counter(s). Whether there is displayed 1 or 2 product counters depends on the product counter settings. Details can be found in the respective chapters of this manual.

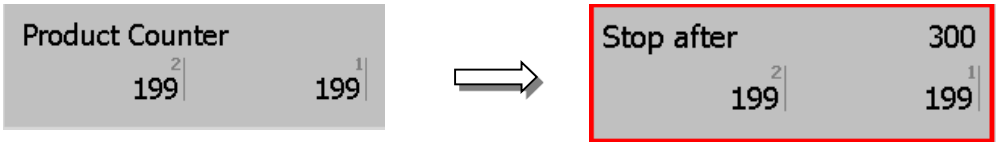
  If a print stop is defined after a pre-defined amount of prints, the value is also shown in the status field. For better visualization that a pre-defined print stop has been defined, the field is displayed with a red frame.
  This function works with either one or two production counters.

Figure 18 Status field <Product counter>

Status field with one production counter – With/without a pre-defined print stop



Status field with two production counters – With/ without a pre-defined print stop



Status field <Product counter>

INFORMATION

You will find further information also in the **chapters *Reset Production counter*** *and* ***Change Production counter*** as well as in the **chapter *Production counter***!

- **Status field <General> (7):** In this field the current time, date, the status of the head cover and the ink supply are displayed.

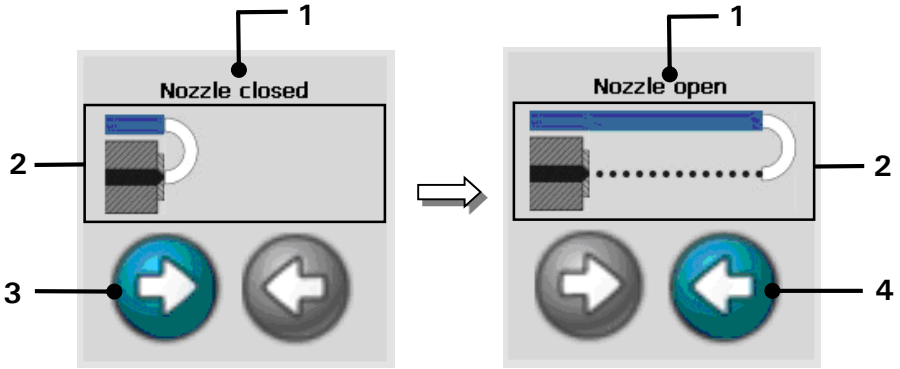
- **Status field <Nozzle> (8):** This indicator shows the current operating condition of the nozzle and enables the opening or closing of the nozzle. The condition is displayed in the form of a text message (1) and of an active visualization graphic (2).

  Operating conditions:

  - Opening nozzle
  - Closing nozzle
  - Nozzle open
  - Nozzle closed

  With the buttons **<Opening nozzle>** (3) and **<Closing nozzle>** (4) you can open or close the nozzle. The executable button is backgrounded blue-grey.

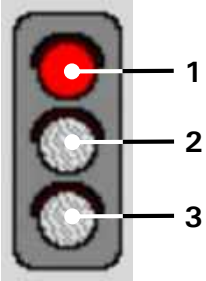
Figure 19 Status field <Nozzle>



1 – Status report
2 – Visualization field
3 – Button <Opening nozzle>
4 – Button <Closing nozzle>

- **Device status (traffic light) (9):** The status traffic light visualizes the current condition of the JET3.

Figure 20 Status traffic light



1 – red LED
2 –yellow LED
3 – green LED

Display	Device status	Causation/Comment
all LEDs off	No errors or warnings are pending, but the LJ3 is not ready to change to the print mode.	e.g.: Nozzle is closed, head cover is open, etc.
red LED on	An error is pending which requires an immediate interven-tion of the operator to get the print readiness or to continue an active print process.	e.g.: Phasing error, PrintGo-error, HV-error, etc.
yellow LED on	An intervention of the operator is required in the foreseeable future because an warning is pending. If the JET3 is in the print mode, the print process will be continued.	z.B.: Refill, Leakage, etc. If the message is acknowledged without changing the condition (e.g. no refill has been carried out) the message will appear again after one minute.
green LED on	The printer signalizes the readiness to print or that it can be switched to the active print mode.	The button **<Print stop>** is illuminated.

- **Button <Off> (10):** With this button you can switch off the device.

INFORMATION

You will find further information also in the **chapter *Switch off device!***

- **Button <Printstart> (11):** With this button the print job will be released for processing. If a print job is activated, the button is displayed backlighted. It will be printed as soon as a PrintGo is released.

= Print start inactive (Print job is not released for processing)

= Print start active (Printer is in active print mode)

To carry out a print process, you have to enter a text or you have to select an existing job. You will find further information regarding this topic in the group **Jobeditor**.

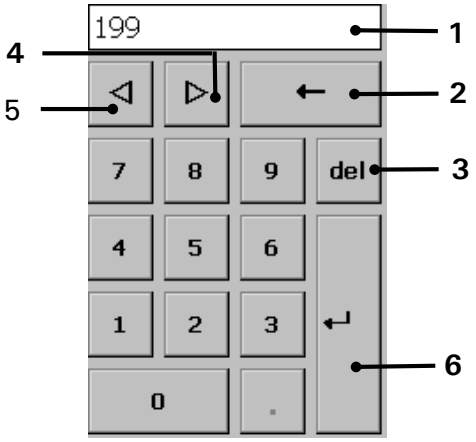
- **Button <Printstop> (12):** The released print job is stopped with this button. If a print stop is activated, the button is displayed backlighted.

= Print stop inactive

= Print stop active (current print job is stopped or no job for processing is released)

6.4.1 Numeric keypad

Figure 21 Numeric keypad design



1 – Display
2 – <Backspace> key
3 – <del> key
4 – <▷> key
5 – <◁> key
6 – <Return> key

Numbers are entered with the numeric keypad.

The entered value is shown in the **Display** (1).

The < **Backspace** ←> key (2) deletes the character in front of (to the left of) the current cursor position.

The <**del**> key (3) enables the deletion of the characters behind (to the right of) the current cursor position.

With the <▷> key (4) you can shift the current cursor position by one digit to the right.

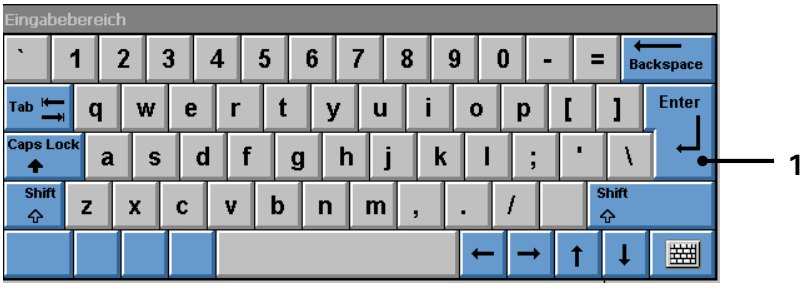
With the <◁> key (5) you can shift the current cursor position by one digit to the left.

With the <**Return** ↵> key (6) you can take over the input and the Numeric keypad closes.

6.4.2 Keyboard

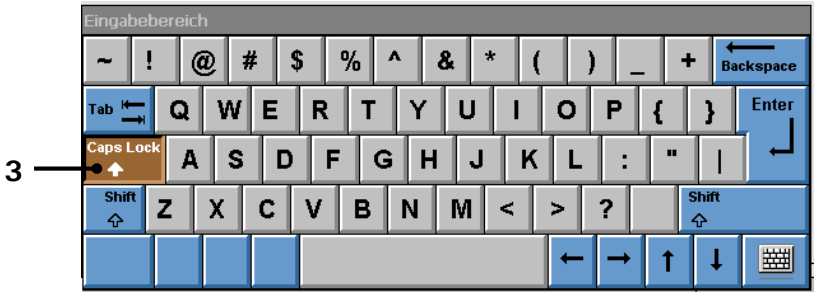
Figure 22 Keyboard design

Standard characters



Special characters (expanded font)

Caps Lock/Standard characters



Caps Lock/ Special characters (expanded font)

1 –Button <Return>
2 –Button <Special characters>
3 – Button<Caps Lock>

The characters are entered with the keyboard. The structure of the keyboard corresponds to the common computer keyboards.

Note: *Depending on the installed language package (e.g. Cyrillic) the structure can vary from the shown display.*

With the button <**Return** ↵> (1) the input is taken over and the Numeric keypad will be closed.

With the button <**Special characters**> (2) you can change between the standard characters and the special characters.

6.5 Basic operating processes

This paragraph describes the basic operating processes of the LEIBINGER JET3.

6.5.1 General

The complete control of the JET3 can be carried out with a connected PC-mouse or directly with the TFT-Touch-Display.

For the operation with the Touch-Display the control of the device happens by a slight touch on the buttons (touch-fields) with the finger or with the touch pin (included in the delivery). Here the targeted precision is decisive and not the pressure.

The operation with the touch-display is described subsequently.

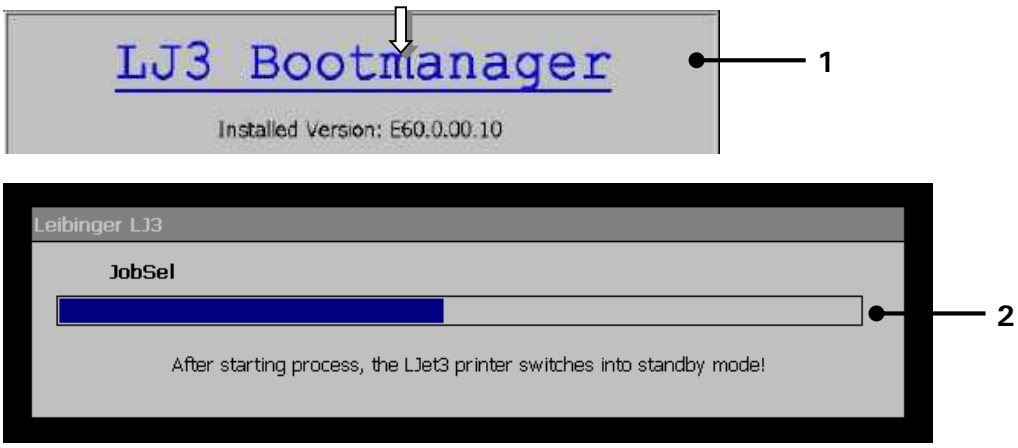
INFORMATION

Accidentally touching can release unintentional device conditions.

6.5.2 First initialization of the device

After connection to the mains power or after a power interruption, the initialization of the device will be carried out automatically. For this procedure the boot-manager is started. The progress of the initialization is shown by a bar. After finishing the process the device is switched to the standby-mode (monitor is dark) and the JET3 is now ready to switch on by pressing the touch screen.

Figure 23 Initialization process



1 – Bootmanager 2 – Progress display

6.5.3 Switch on device

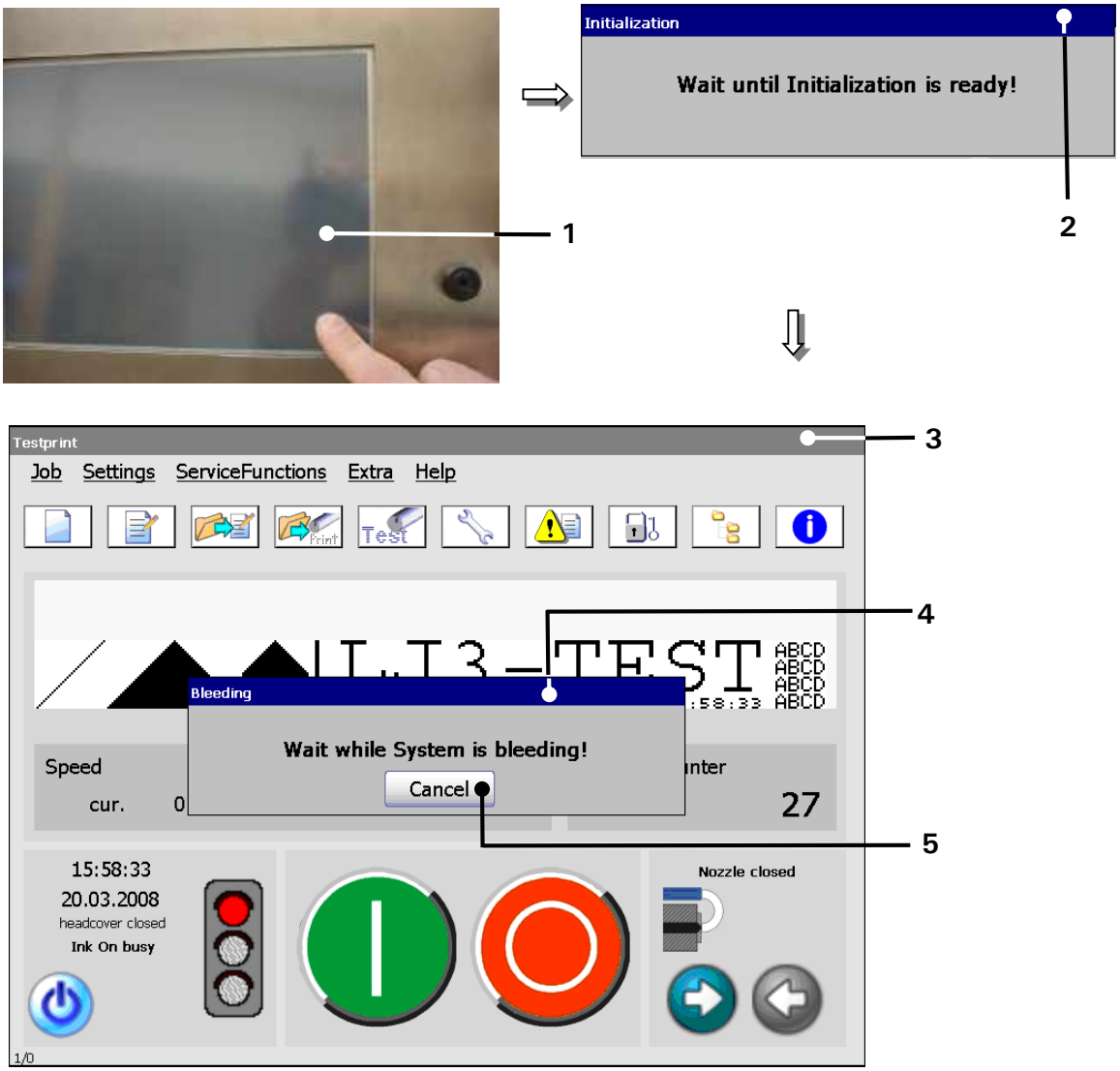
6.5.3.1 Switching on without password protection

Proceeding:

- Touch the dark **Touch-Display** (1) at any point. Period of touching approx. 2 sec..
- The device turns on and the main menu (2) is displayed with the message <**Initialization**> (3).
- After the initialization the device starts with the bleeding of the system automatically.
- During the process the message <**Bleeding**> (4) is displayed. The bleeding takes between 1 – 5 min. The process can be canceled by pressing the button <**Cancel**> (5).

  Note: *For starting the device the job which has been used at last will be loaded automatically.*

Figure 24 Switch-on procedure without password protection



1 – TFT-Touch-Display
2 – Message <Initialization >
3 – Main menu
4 – Message <Bleeding>
5 – Button <Cancel>

6.5.3.2 Switching on with password protetction

Proceeding:

- Touch the dark **Touch-Display** (1) at any point. Period of touching approx. 2 sec..
- The device turns on and the main menu (3) is displayed with the message <**Initialization**> (2).
- After the initialization the device starts with the bleeding of the system automatically.
- During the process the **message** <**Bleeding**> (4) is displayed. The bleeding takes between 1 – 5 min. The process can be canceled by pressing the button <**Cancel**> (5).

  Note: *The start of the device happens in the logged-out status (no operator will be logged on) but the job which has been used at last will be loaded automatically.*
- The dialog field <**Current login**> (6) and a keyboard field (8) is faded in.

INFORMATION

You will find further information regarding the operation with keyboard in the **chapter *Keyboard***!

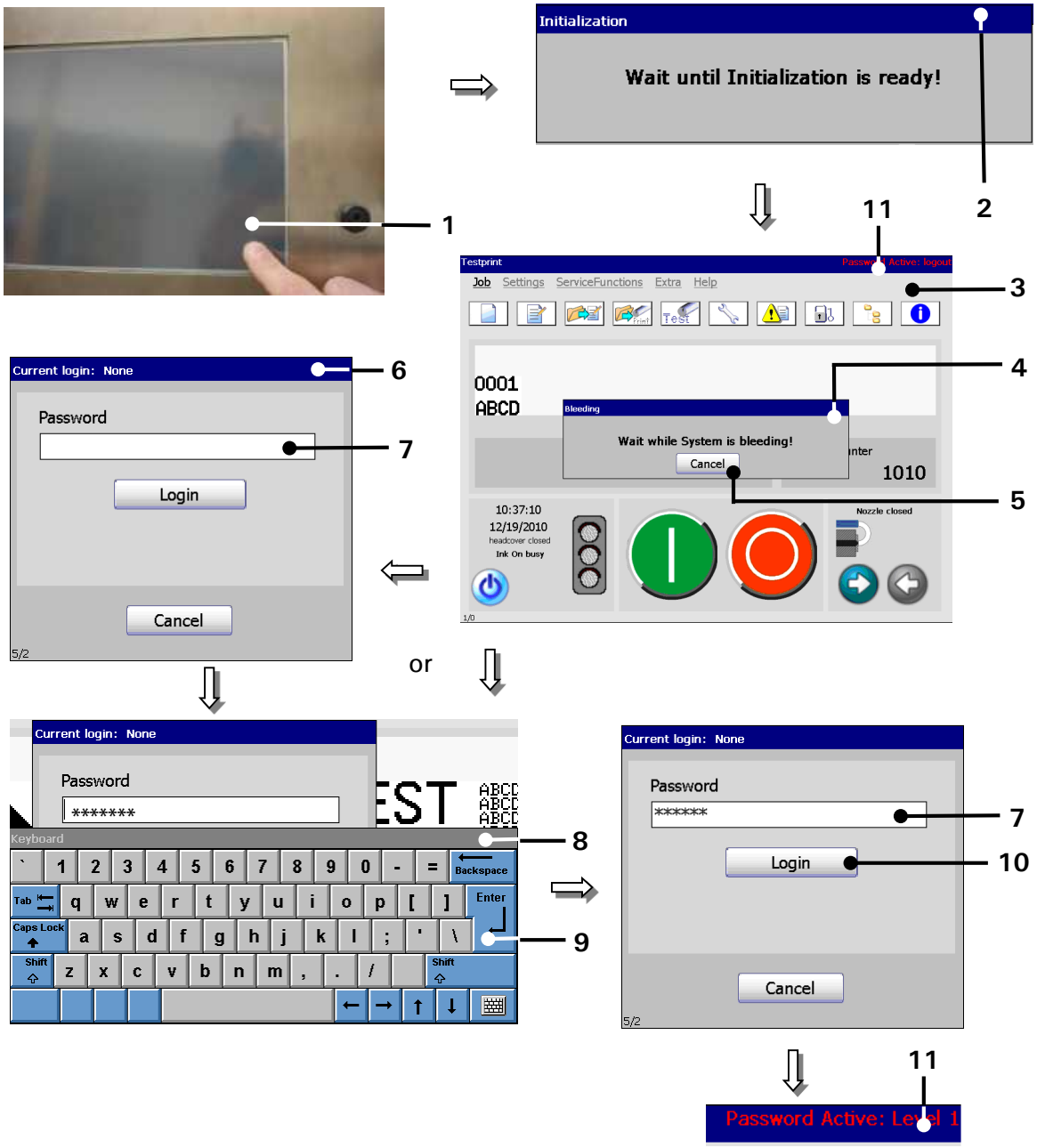
- Enter your password with the keyboard field.
- Press the button <**Enter**> (9) of the keyboard field to finish the input.
- Now press the button <**Login**> (10) to finish the login.
- Now the user is logged-in and the active password level is displayed on top right of the title bar (11).

ATTENTION

The login can be also carried out without a password. In this case only several basic functions of the device are available for the user. In this case the last active password level is logged-in.

You will find further information in the **chapter *Password protection***!

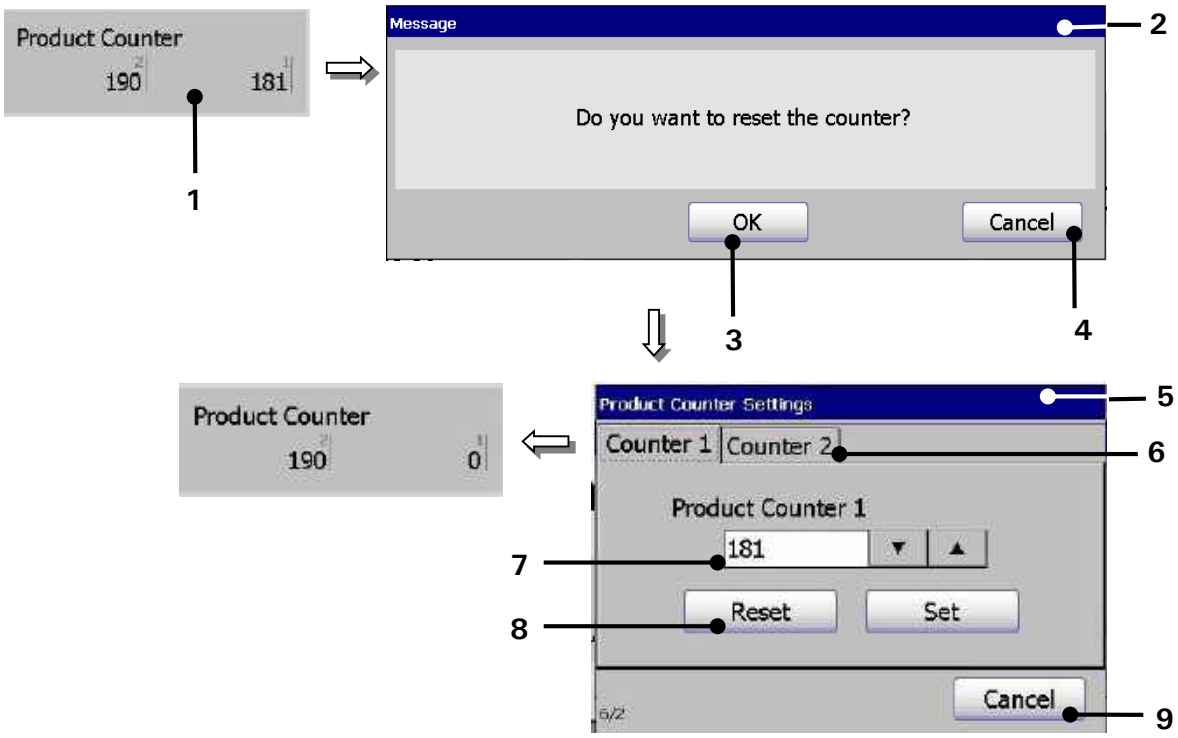
Figure 25 Switch-on procedure with password protection



1 – TFT-Touch-Display
2 – Message <Initialization>
3 – Main menu
4 – Message <Bleeding>
5 – Button <Cancel>
6 – Dialog field <Current login>
7 – Input field <Password>
8 – Keyboard field
9 – Button <Enter>
10 – Button <Login>
11 – Password level display

6.5.4 Reset product counter

Figure 26 Product counter reset



1 – Status field <Product Counter>
2 – Message <Safety query>
3 – Button <OK>
4 – Button <Cancel>
5 – Window <Product counter settings>
6 – Counter Tab
7 – Display field <Counter setting>
8 – Button <Reset>
9 – Button <Cancel>

Example: The product counter no. 1 of two product counters should be reseted.

Proceeding:

- Press on the status field <**Product counter**> (1).
- A **safety query** (2), if the counter should be really reset is faded in.
- Confirm the reset by pressing on the button <**OK**> (3) or cancel the process with the button <**Cancel**> (4).
- The window <**Product Counter Settings**> (5) is faded in.
- Select the desired product counter no. 1 by pressing the corresponding <**Tab**> (6) in the dialog box.
- Confirm the reset of the counter again by pressing on the button <**Reset**> (7) or cancel the process with the button <**Cancel**> (8).

ATTENTION

Each product counter has to be reset separately!

If job counters (object counters) whose existing settings <**Counter Reset**> have been applied with the attribute „Product Counter“ are available in the current job, they will be also reset.

You will find further information also in the **chapter *Change product counter*** as well as in the **chapter *Product counter***!

6.5.5 Change product counter (Change value)

*Example: With only **one** product counter*

Proceeding:

- Press on the status field <**Product Counter**> (1).
- A **safety query** (2), if the counter should be really changed is faded in.
- Confirm the query by pressing on the button <**OK**> (3) or cancel the process with the button <**Cancel**> (4).
- The window <**Product Counter Settings**> (5) is faded in.
- Change the value of the counter with the **Arrow keys** (6). The value of the counter will be increased or reduced by pressing on the corresponding buttons.

  or
- Click in the **Counter display field** (7). The **Numeric keypad** (8) opens for input.

INFORMATION

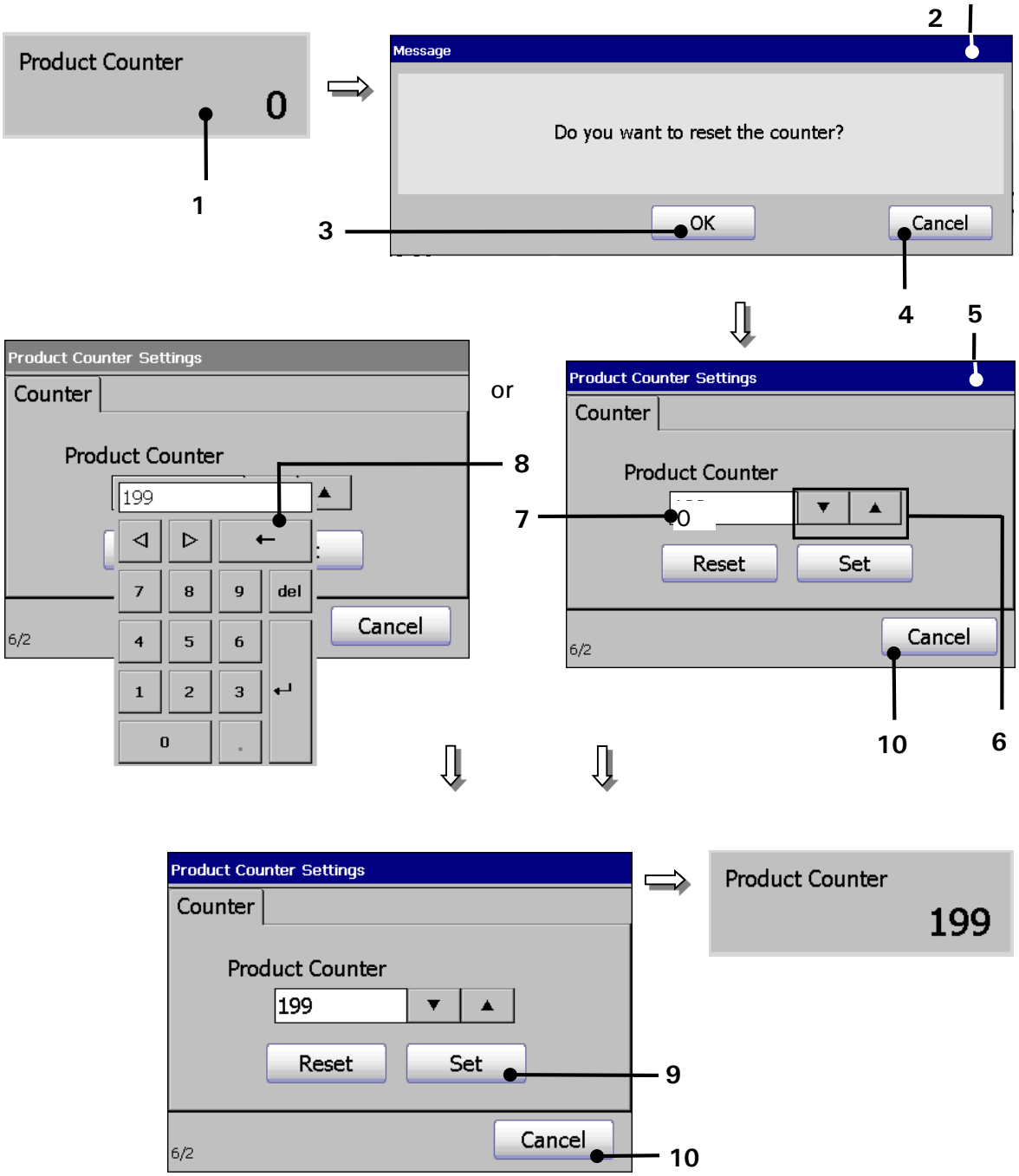
Note! Each counter has to be change separately! The selection happens with the according tab in the dialog box <**Product Counter Settings**>.

You will find further information regarding the operation with Numeric keypads in **chapter *Numeric keypad***!

You will find further information also in the **chapter *Reset product counter*** as well as in the **chapter *Product counter***!

- Confirm the change of values by pressing on the button <**Set**> (9) or cancel the process with the button <**Cancel**> (10).

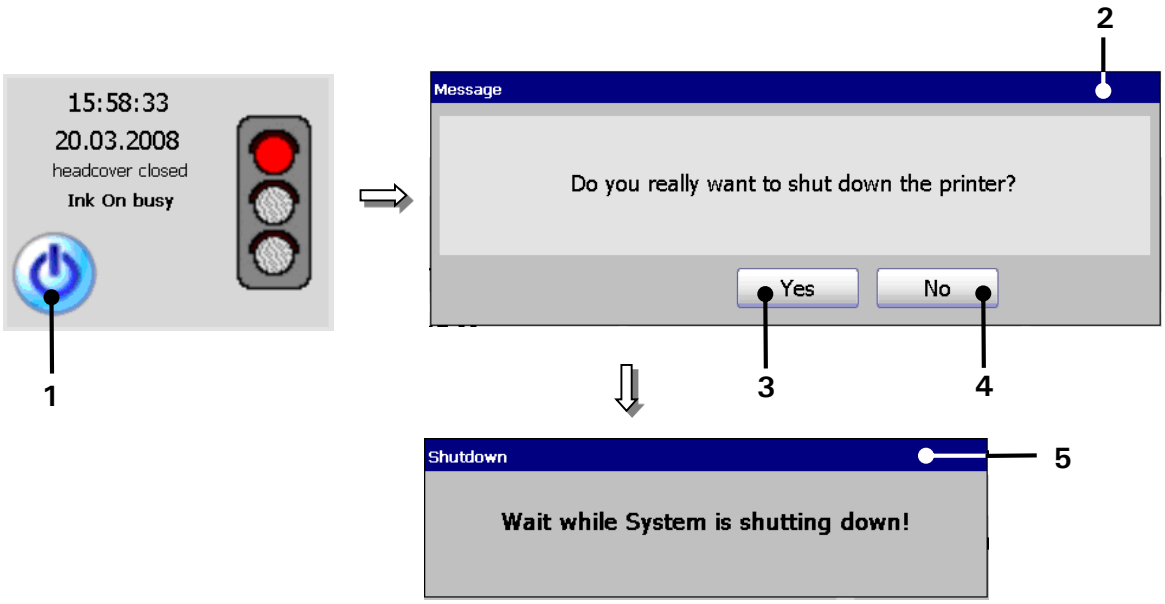
Figure 27 Change product counter value – Example with 1 product counter



1 – Status field <Product counter>
2 – Message <Safety query>
3 – Button <OK>
4 – Button <Cancel>
5 – Window <Product counter settings>
6 – Arrow keys
7 – Counter display field
8 – Number keypad
9 – Button <Set>
10 – Button <Cancel>

6.5.6 Switch off device

Figure 28 Switch-off procedure



1 – Button <Off>
2 – Message <Safety query>
3 – Button <Yes>
4 – Button <No>
5 – Message <Shutdown>

Proceeding:

- Press the button **<Off>** (1).
- A **safety query** (2), if the printer should be really switched off is faded in.
- Confirm the shut down of the device by pressing the button **<Yes>** (3) or cancel the process with the button **<No>** (4) ab.
- Now the device is turned off. During the shut down the message **<Shutdown>** (5) is displayed.

  Comment: *If the nozzle is still open during the turn-off procedure, it will be closed automatically.*

INFORMATION

Turning off the device is only possible after a print stop has been carried out!

After turning off you have to wait approx. 5 sec. to turn on the device again.

6.6 Menu layout

Menu bar

A menu bar displays several drop-down menus.

Drop-down menu

A drop-down menu is opened by clicking on the respective menu item in the menu bar. It shows a list of options or commands.

Submenu

A drop-down menu may have menu items which open submenus.

Dialog box

A dialog box may contain controls, status indicators, text entry boxes or buttons which start additional functions.

Title bar

The title bar is the topmost bar of a dialog box or window and shows the function of the dialog box or the file that is currently open in the window.

Tabs

Complex dialog boxes may contain several tabs to arrange functions logically. One can change between tabs by clicking on their captions.

Controls

There are several controls to set parameters or enter data:

Arrow key:	*Arrow keys are used to move objects or to set parameters in a spin box.*
Drop-down list:	*A list that holds several options from which only on can be selected.*
Checkbox:	*A checkbox allows the choice between two options. A checkbox may be ticked off (for true) or not (for false).*
Display field:	*Field for text or figures inputs.*

Command inputs

There are two possibilities for command inputs:

Button:	*The command is carried out by clicking on a button.*
Menu entry:	*The command is carried out by clicking on a menu entry.*
Direct button:	*Special button (Icon) that works as a shortcut to open a dialog box directly instead of using the menu structure.*

Some buttons may indicate their current status:

Button caption greyed out:	*The button is disabled at the moment. The reason for this may be a functional one (the command is not enabled during operation) or it be caused by an interfering parameter setting.*
Button is displayed blue-grey:	*The button is activated and the command is carried out at the moment.*

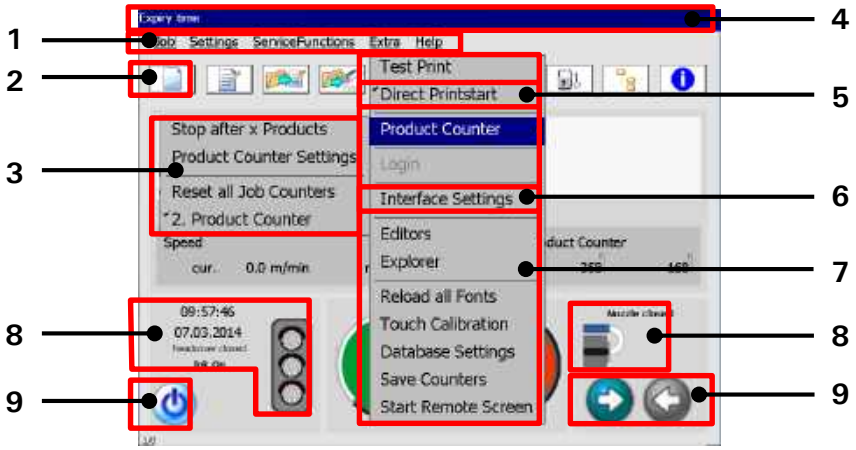
Status indicators or display fields

A status indicator shows a status or a position. That may be the position of a print object (e.g. x-y indicator) or the current status of a printer component (e.g. the diaphragm position in the pressure tank). An indicator that is combined with arrow keys is also referred to as “display field”. A display field may not only show the current value but also can be used for inputs.

INFORMATION

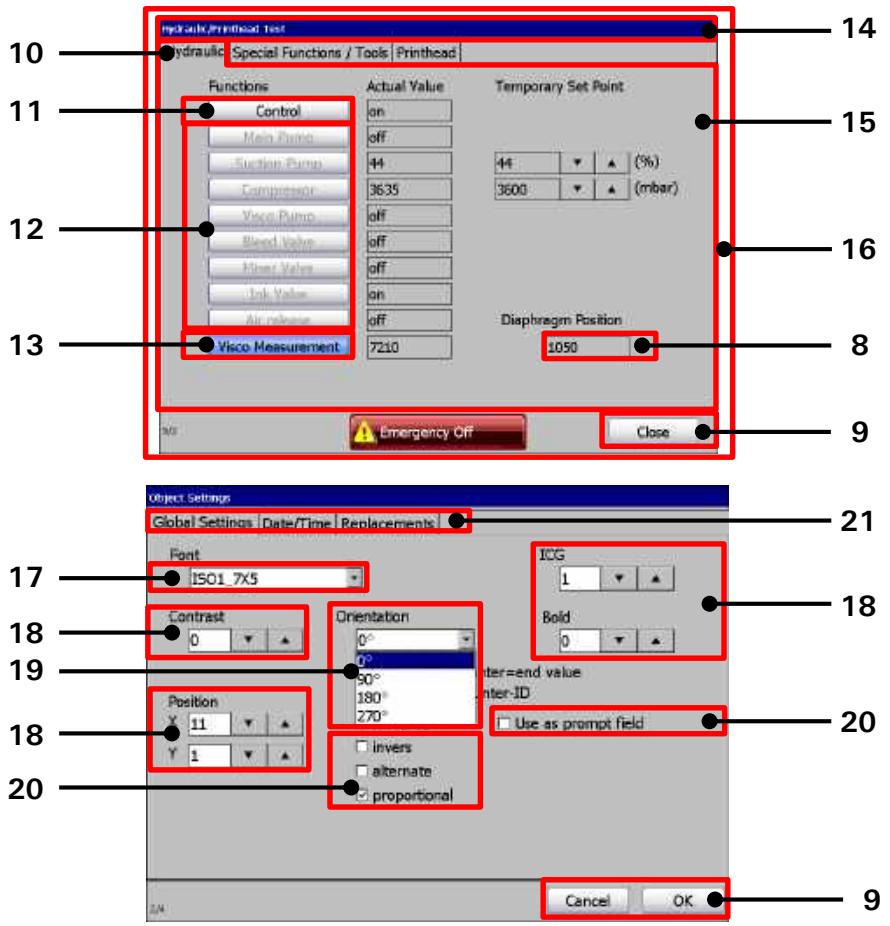
The functionality of the user interface corresponds to the Windows™-standard procedures.

Figure 29 Menu layout 1



1 – Menu bar
2 – Direct button (Icon)
3 – Submenu
4 – Title bar
5 – Command in drop-down menu
6 – Option in drop-down menu
7 – Drop-down menu
8 – Status indicators
9 – Buttons

Figure 30 Menu layout 2



8 – Status indicators
9 – Buttons
10 – Tab caption
11 – Enabled button
12 – Disabled button
13 – Activated button
14 – Title bar dialog box
15 – Tab
16 – Dialog box
17 – Drop-down list (not activated)
18 – Arrow keys, display field, indicator
19 – Drop-down list (activated)
20 – Check boxes
21 – Tab bar

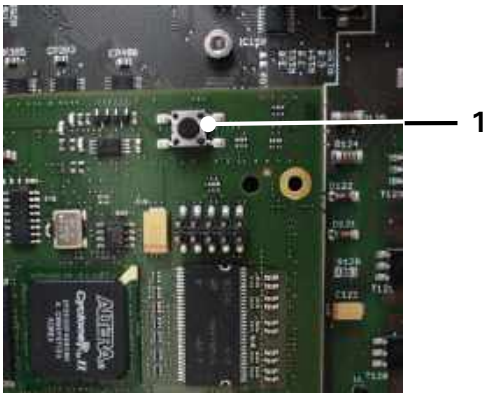
6.7 Other settings and functions

6.7.1 Carry out Hardware Reset

Reset-switch:

Enables the reset of the electronic in case of error. It is placed in the electronic-cabinet on the main board (controller board).

Figure 31 Reset-switch (Hardware Reset)



1 – Reset-switch

ATTENTION

The hardware reset may only be performed by trained staff!

Do not use any tools for the hardware reset.
Inpropre use of sharp or metallic tools may cause short circuits or other damages to the circuit board!

A safe way to perform a hardware reset is to unplug the printerfor a few seconds!

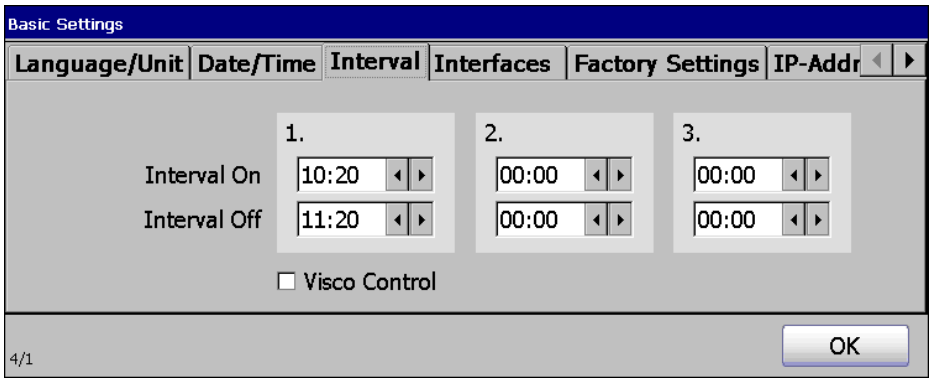
6.7.2 Interval operation (integrated clock timer)

ATTENTION

The device has to be connected to the mains supply.

The device turns on automatically irrespectively of the ambient conditions!

The integrated interval function activates the LEIBINGER JET3 automatically in the on-state according to the times which have been set under the option **<Interval>** ("Settings ▶ Basic Settings ▶ Interval").



The circulation of the ink prevents a drying up of ink and accumulation of ink components. The viscosity of the ink is constant.

You will find further information regarding setting of interval times in the **chapter *Interval Operation (Set interval time)***!

6.8 Optional equipment

6.8.1 External head print ventilation (assembly and function)

Function:

External head ventilation is predominantly used for devices in safety class IP65 and for print jobs in which the retractive suction of particles *(e.g. paper lint in the printing industry)* in printer circulations should be avoided .

For this purpose, the unit is provided with a **head ventilation** and a **housing ventilation**:

- **Head ventilation:** The printer's print head is impinged on with a constant air flow of 30l/h and thus the retractive suction of particles is prevented.
- **Housing ventilation:** With devices of protection class IP65, a great deal of heat is generated due to the tight design of the housing. Due to this heat generation in conjunction with the evaporation of the operating materials, an explosion danger zone (Ex zone) can arise.

  To prevent this, the interior space of the hydraulic housing is impinged on with a constant air flow of 70l/h and vented via a concealed drilled hole.

Assembly:

1. **Outside of the rear panel of the housing:**
   The unit's pressure regulator valve is attached to the outside.

2. **Inside of the rear wall of the housing:**
   Both of the throttle valves for the writing head ventilation and the housing ventilation are attached to the inside. These valves are adjusted exactly as well as sealed and may **not** be adjusted!

CAUTION – INSTALLATION OF PRINT HEAD

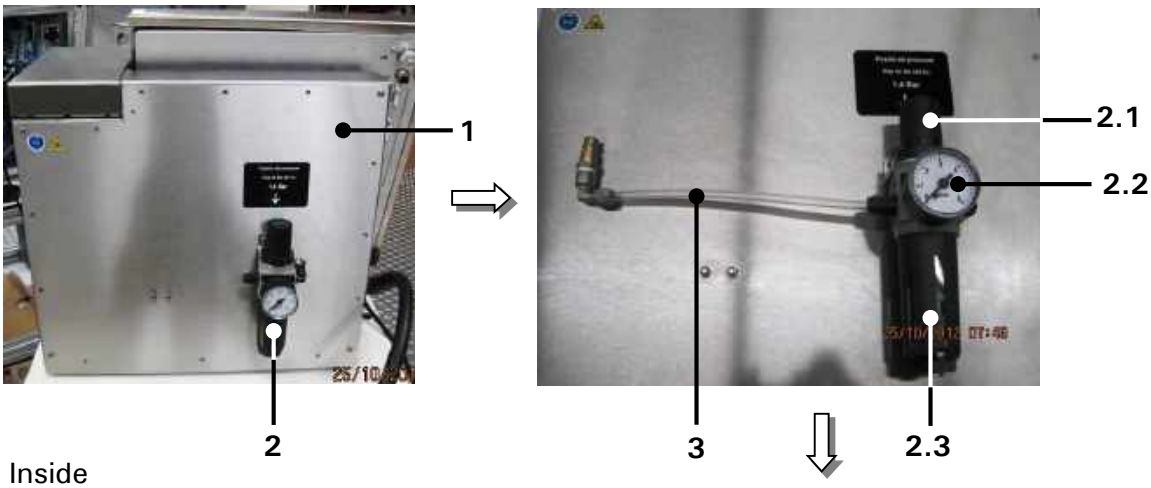
Both of the throttle valves are adjusted exactly and may not be adjusted!

ATTENTION

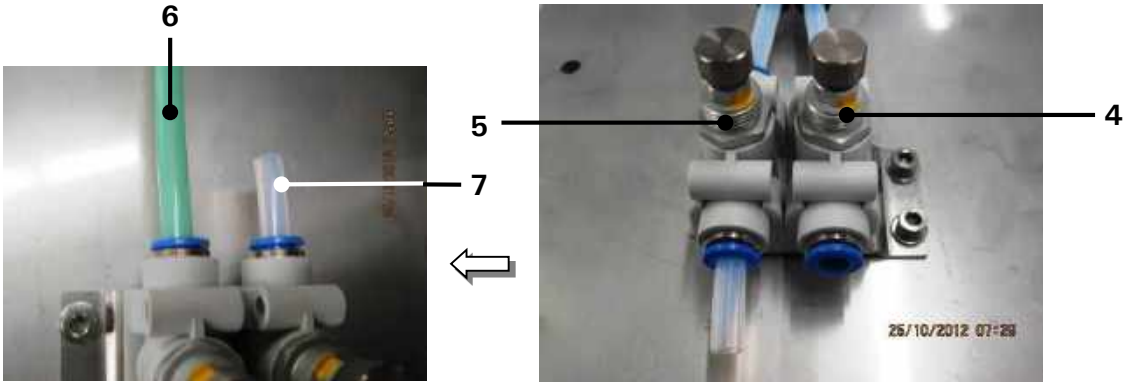
- Make sure that there is a permanent compressed air supply!
- **The printer doesn't monitor the permanent compressed air supply!**
- **There will be no warning in case the permanent compressed air supply fails!**
- Operation is only permissible with dry, oil-free and filtered compressed air (Filtering 8 µm) The use of otherwise prepared compressed air can lead to damage and malfunctions!

Figure 32 Assembly of the external print head ventilation

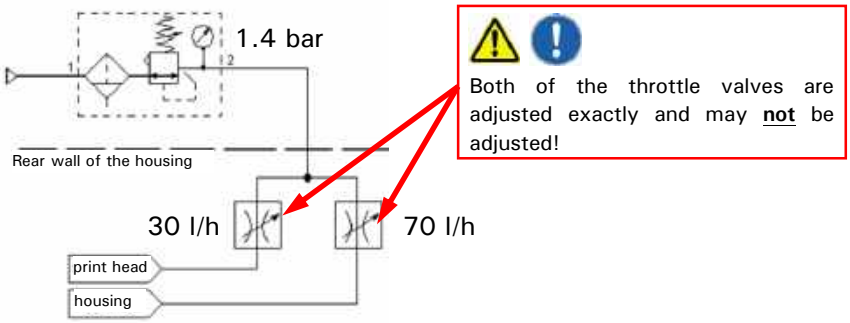
Outside



Inside



Connection diagram:



1 – rear panel of the housing
2 – pressure regulator valve
2.1 – adjusting knob
2.2 – manometer
2.3 – Condensate container (cartridge)
3 – Supply air hose
4 – Throttle valve for the head ventilation
5 – Throttle valve for the housing ventil.
6 – Hose for the print head ventilation
7 – Hose for the housing ventilation

7. Data entry/Programming

7.1 General

Data which should be printed by the LEIBINGER JET3 can be entered, called, changed and saved with several input devices, e.g. TFT-Touch display, mouse etc..

The printer can also be programed and controlled with the (RS232/Ethernet) per external software (according to the Leibinger interface protocol for the LJ3).

Further more the LEIBINGER JET3 can also carry out several functions (e.g. job selection) by the control with digital signals (e.g. out of a SPS) and can be therefore also controlled locally.

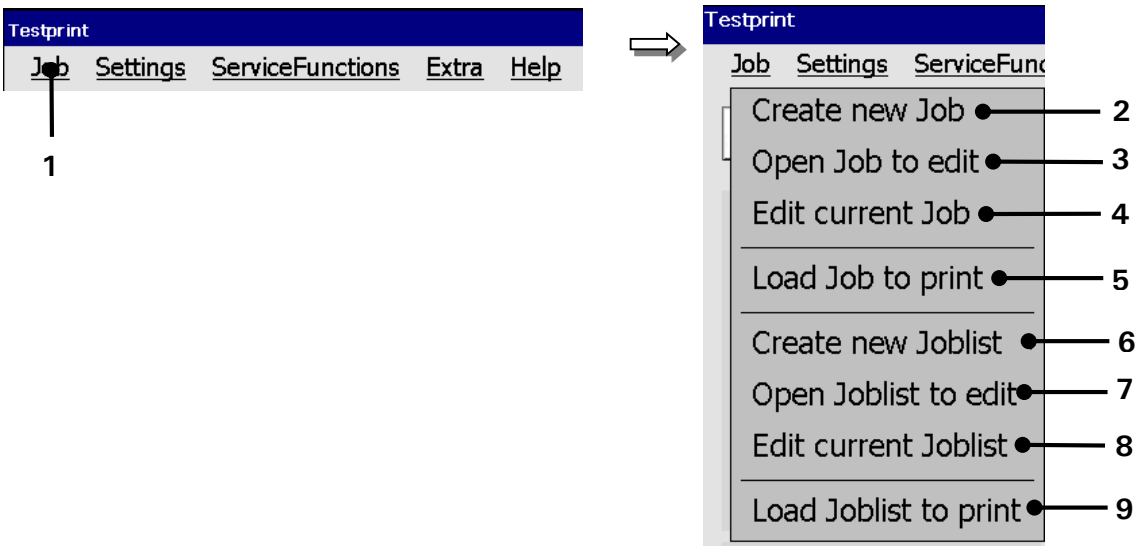
In the following the operation and programming with the TFT-Touch display are described.

7.2 Job administration

With the button **<Job>** in the main menu bar the submenu „Job“ is displayed. The following options are available:

- Create new Job
- Load Job to print
- Edit current Joblist
- Edit current Job
- Open Job to edit
- Create new Joblist
- Load Joblist to print
- Open Joblist to edit

Figure 33 Job menu (file management)

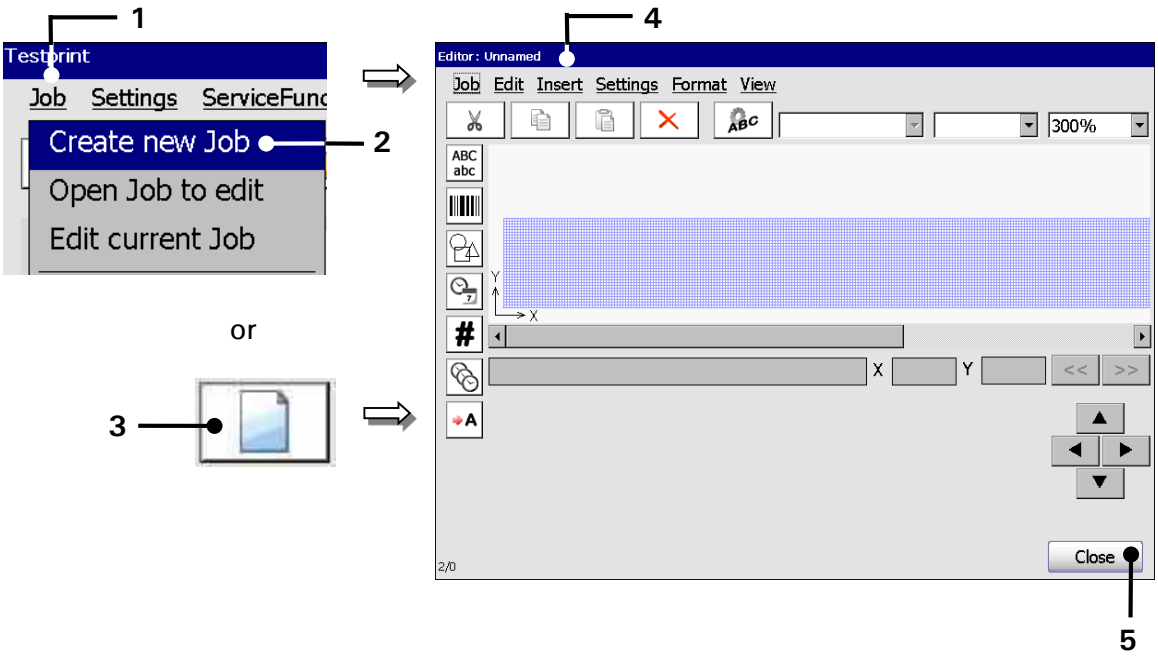


1 – Button <Job>
2 – Option <Create new Job>
3 – Option <Open Job to edit>
4 – Option <Edit current Job>
5 – Option <Load Job to print>
6 – Option <Create new Joblist>
7 – Option <Open Joblist to edit>
8 – Option <Edit current Joblist>
9 – Option <Load Joblist to print>

7.2.1 Create a new job

With the option <**Create a new Job**> or by pressing on the accordant direct button (Icon) you can create a new job. For creation the job editor opens where you can create the printing data and save it as a job. A variety of Windows® similar tools make the operation easier.

Figure 34 Create a new job



1 – Menu item <Job>
2 – Option <Create new Job>
3 – Direct button (Icon)
4 – Menu <Jobeditor>
5 – Button <Close>

Proceeding:

- Press the button <**Job**> (1) and the option <**Create new Job**> (2) or press the accordant direct button [icon] (3).
- The menu <**Jobeditor**> (4) opens to create the printing data.
- Carry out the requested inputs and save the job data.

INFORMATION

- You will find further information regarding the memory process in the **group *Jobeditor*** in the **chapter 8.3.1 *Save job/Save job as***.
- You will find further information regarding the operation of the job editor in the **group *Jobeditor***.

7.2.2 Open job to edit

With the option <**Open Job to edit**> or by pressing on the accordant direct button (Icon) you can open an existing job for editing. For selection of a job the window „Job edit“ is faded in.

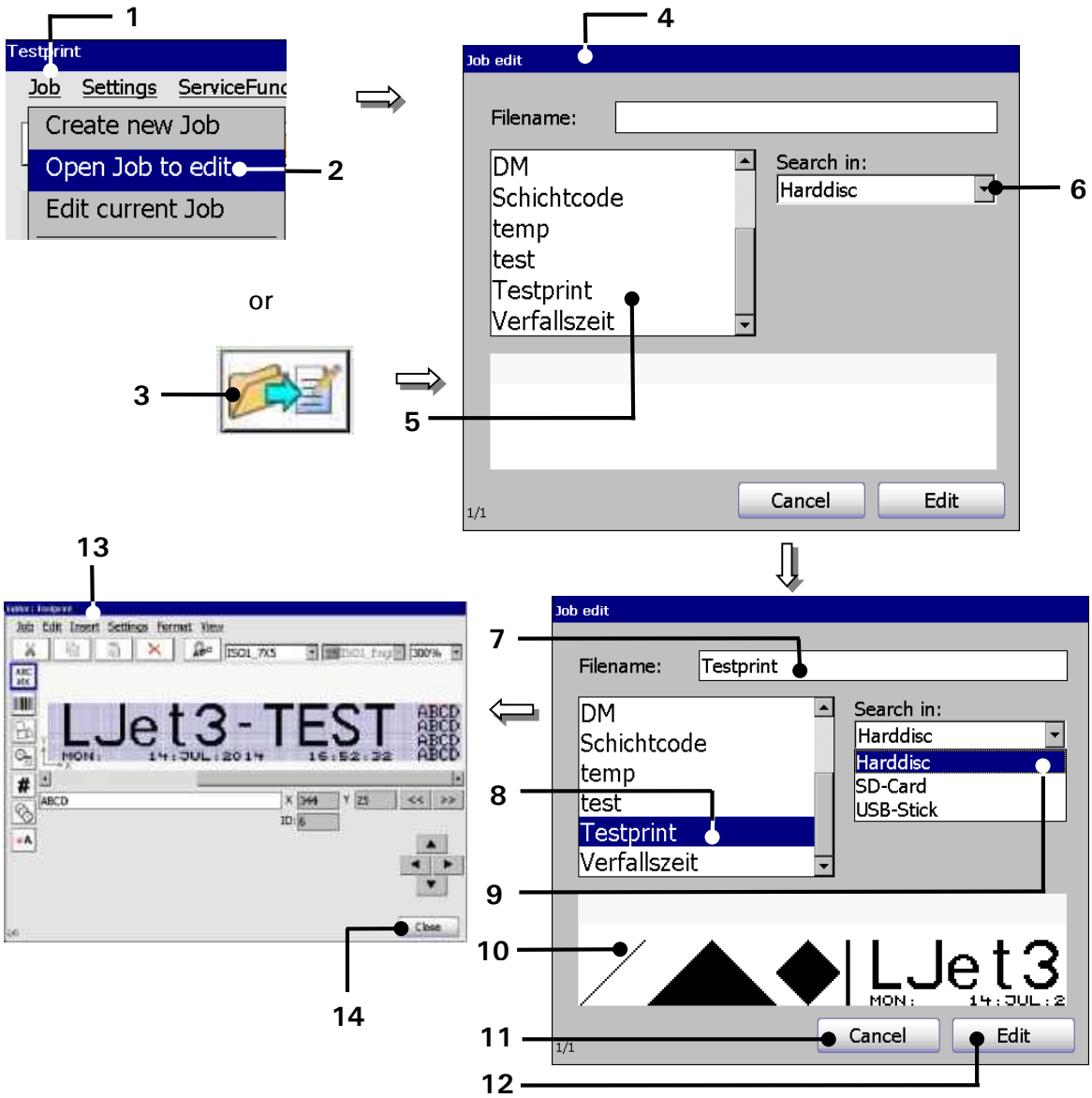
Proceeding

- Press the button <**Job**> (1) and the option <**Open Job to edit**> (2) or press the accordant direct button [icon] (3).
- The window <**Job edit**> (4) is faded in.
- Select the requested job in the selection field <**Job list**> (5). With the drop-down list <**Search in**> (6) you can select the various memory locations.
- The name of the selected jobs is now shown on the display <**Filename**> (7). Additionally a preview of the printing job is faded in on the display <**Job preview**> (10).
- Press the button <**Edit**> (12) to take over the selected job or press the button <**Cancel**> (11) to cancel the process.
- The menu <**Jobeditor**> (4) opens to change the printing data. The name of the opened job is displayed in the title bar of the editor.
- Carry out the requested changes and save it.

INFORMATION

- You will find further information regarding the memory process in the **group *Jobeditor*** in the **chapter *Save job/Save job as***.
- You will find further information regarding the operation of the job editor in the **group *Jobeditor***.

Figure 35 Open job to edit

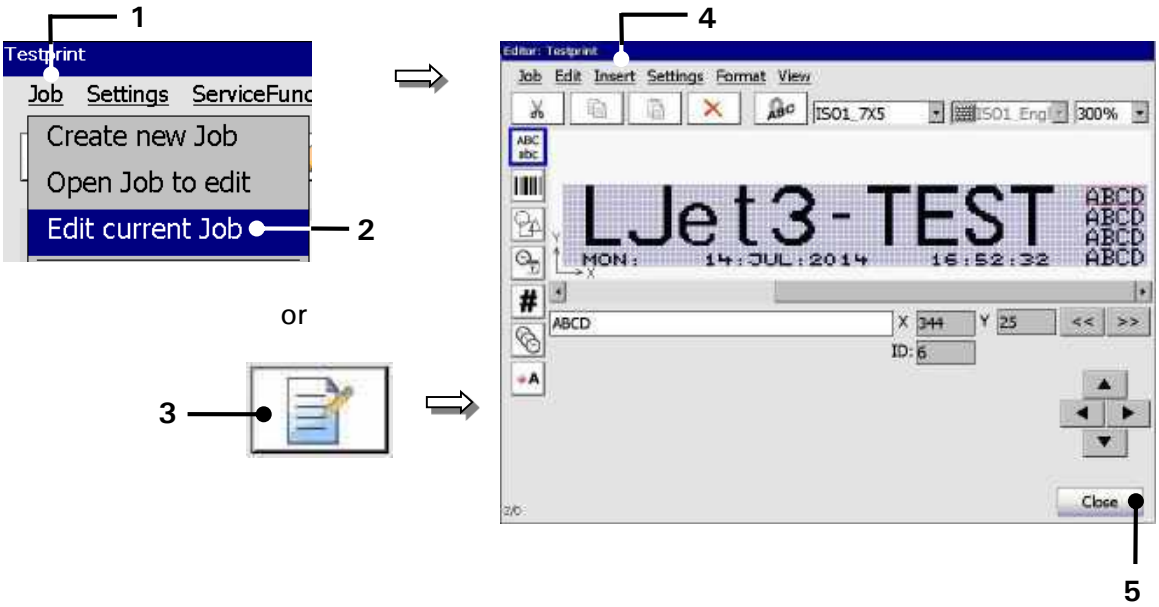


1 – Menu item <Job>
2 – Option <Open Job to edit>
3 – Direct button (Icon)
4 – Window <Job edit>
5 – Selection field <Job list>
6 – Drop-down list <Search in>
7 – Display <Filename>
8 – Selected job
9 – Selected data carrier
10 – Display <Job preview>
11 – Button <Cancel>
12 – Button <Edit>
13 – Menu <Job editor>
14 – Button <Close>

7.2.3 Edit current job

With the option <**Edit current Job**> or by pressing on the accordant direct button (Icon) you can edit the current job.

Figure 36 Edit current job



1 – Button <Job>
2 – Option <Edit current Job>
3 – Direct button (Icon)
4 – Menu <Jobeditor>
5 – Button <Close>

Proceeding:

- Press the button <**Job**> (1) and the option <**Edit current Job**> (2) or press the accordant direct button [icon] (3).
- The menu <**Jobeditor**> (4) opens to change the printing data. The name of the opened job is displayed in the title bar of the editor.
- Carry out the requested changes and save it.

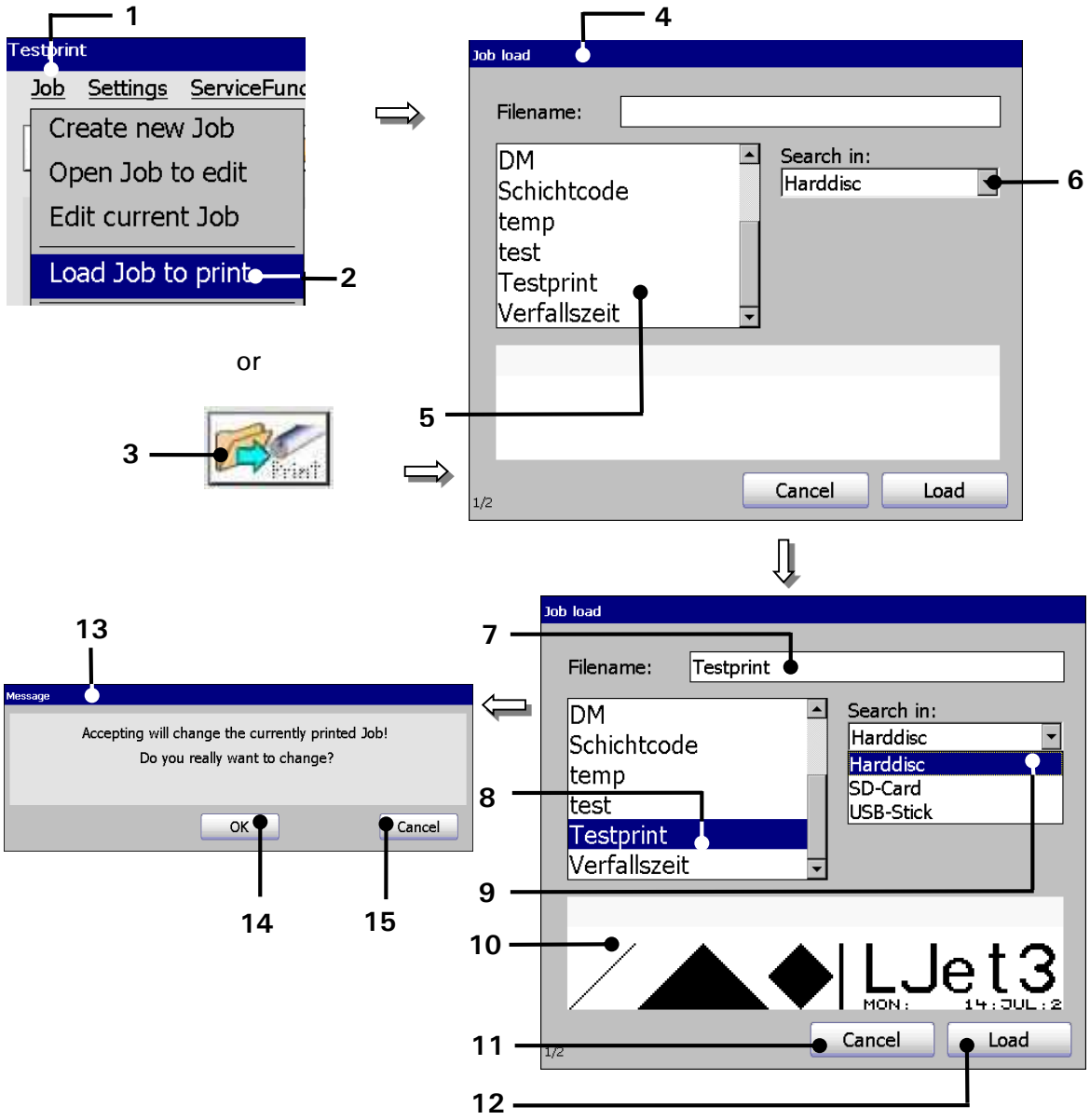
INFORMATION

- You will find further information regarding the memory process in the **group *Jobeditor*** in the **chapter *Save job/Save job as***.
- You will find further information regarding the operation of the job editor in the **group *Jobeditor***.

7.2.4 Load Job to print

With the option <**Load Job to print**> you can load (open) a saved job directly for printing. For selection of a job the window "Load job" opens.

Figure 37 Load job to print



1 – Button <Job>
2 – Option <Load Job to print>
3 – Direct button (Icon)
4 – Window <Job load>
5 – Selection field <Job list>
6 – Drop-down list <Search in>
7 – Display <Filename>
8 – Selected job
9 – Selected memory device
10 – Display <Job preview>
11 – Button <Cancel>
12 – Button <Load>
13 – Message <Change print job>
14 – Button <OK>
15 – Button <Cancel>

Proceeding:

- Press the button <**Job**> (1) and the option <**Load Job to print**> (2) or the accordant direct button [Icon] (3).
- The window <**Job load**> (4) is faded in.
- Select the requested job in the selection field <**Job list**> (5). With the drop-down list <**Search in** > (9) you can select different memory locations.
- The name of the selected job is now shown on the display <**Filename**> (7). Additionally a preview of the printing job is faded in on the display <**Job preview** > (10).
- Press the button <**Load**> (12) to take over the selected job or press the button <**Cancel**> (11) to cancel the process.
- A **safety query** (13), if the printing job should be really changed is faded in.
- Confirm the change by pressing the button <**OK**> (14) or cancel the process with the button <**Cancel**> (15).

7.2.5 Create new job list

All numbers in the following description refer to figure 38

The menu item <**Create new job list**> offers three options:

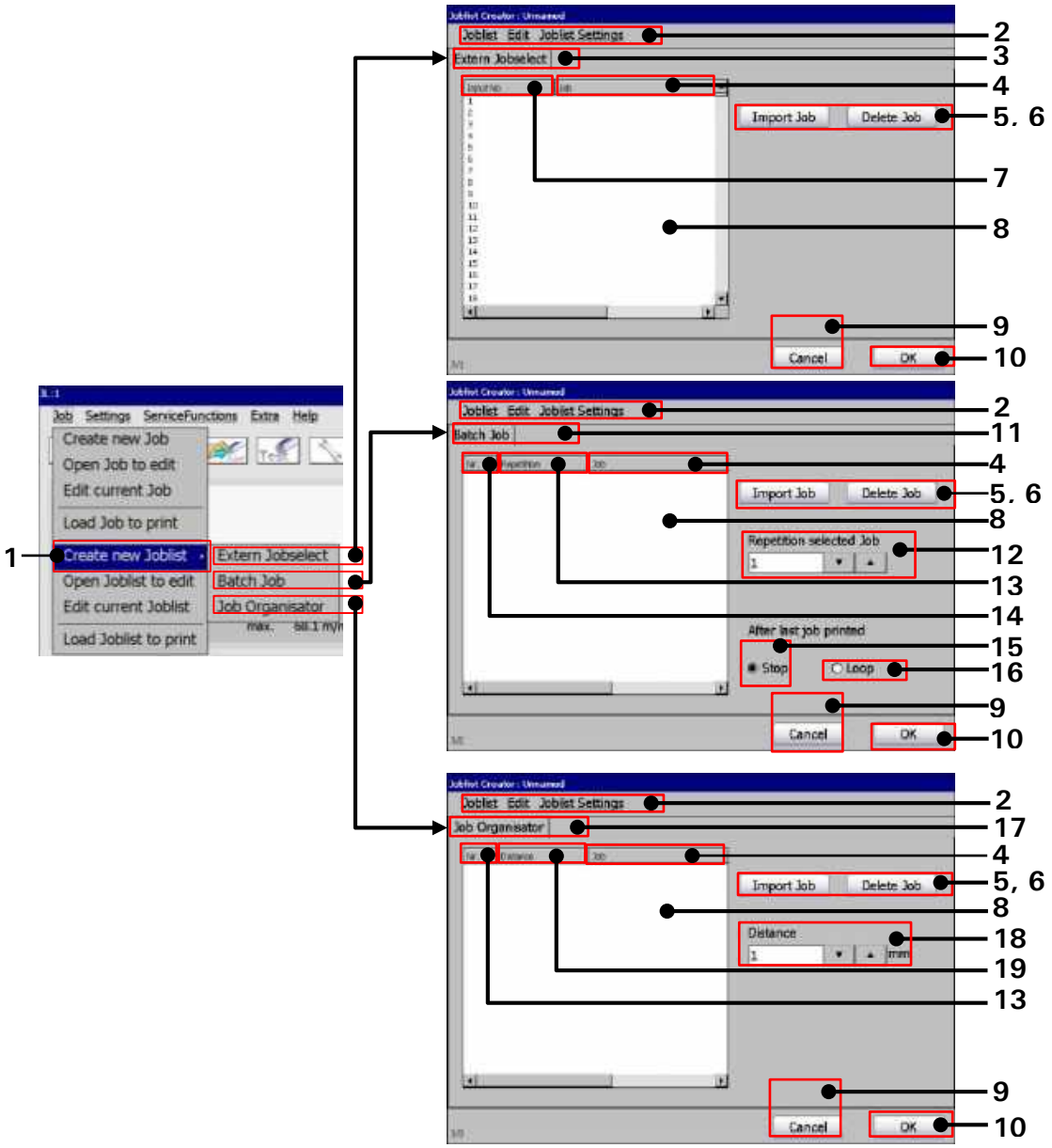
- Extern Job select (3)
- Batch job (10)
- Job organisator (16)

Each option represents a special type of job list. The dialog boxes of all 3 options have all the same <**Menu bar**> **(2)** which will be described separately. Each of the 3 types of job lists has its own dialog box. Changes made in these dialog boxes may either be confirmed with the <**OK**> button **(9)** or discarded with the <**Cancel**> button **(10)**. There are examples for all types of job lists at the end of this chapter.

Extern Job select (3)

Up to 1023 print jobs can be listed in an <**Extern Jobselect**> list (3). A job is added either with the <**Import Job**> button (5) or with the respective option of the <**Edit**> drop-down menu of the menu bar (2). Both will open an <**Open file**> dialog box. The print job will be added at the current cursor position. With the <**Delete Job**> button (6) the currently marked job will be removed from the list display (8). The job list shows <**Input No**> (7) and <**Job**> name (4). The <**Input No**> (7) represents the address of the print job. The addressing is done in binary form through the digital inputs of connector X4. Details about connector X4 can be found in the addendum. With each <**PrintGo**> signal the currently addressed print job will be printed.

Figure 38 Creating a new job list



1 – Option <**Create new Joblist**>
2 – <**Menu bar**> Joblist Creator
3 – Tab <**Extern Jobselect**>
4 – Column <**Job**> name
5 – <**Import**> button
6 – <**Delete**> button
7 – Column job <**Input No**> (address)
8 – Job list display
9 – <**Cancel**> button
10 – <**OK**> button
11 – Tab <**Batch Job**>
12 – Setting <**Repetition select. Job**>
13 – Column <**Repetition**>
14 – Column job <**No**>
15 – Option <**Stop**> after last job printed
16 – Option <**Loop**> after last job printed
17 – Tab <**Job organisator**>
18 – Settings <**Distance**> from ref. point
19 – Column <**Distance**> from ref. point

Batch Job (11)

Up to 1023 print jobs can be listed in an <**Batch Job**> job list **(11)**. A job is added either with the <**Import Job**> button **(5)** or with the respective option of the <**Edit**> drop-down menu of the menu bar **(2)**. Both will open an <**Open file**> dialog box. A print job will be added below the current cursor position. With the <**Delete Job**> button **(6)** the currently marked job will be removed from the list. The job list shows the <**No.**> (14), the number of <**Repetitions**> **(13)** and the name of the <**Job**> (4). The number of <**Repetitions**> (13) for a selected print job is defined and indicated through a display field with Numeric keypad and/or arrow keys (12). The print jobs plus optional repetitions will be printed in the order of the job list display (8). The job list (8) can either be processed in a loop (16) or the print-out can be stopped after the last job on the list was printed (15).

Job organisator (17)

Up to 16 print jobs can be listed in a <**Job organisator**> list (17). A job is added either with the <**Import Job**> button (5) or the respective option of the <Edit> drop-down menu of the menu bar (2). Both will open an <**Open file**> dialog box. A print job will be added below the current cursor position. With the <**Delete Job**> (6) button the currently marked job will be removed from the list. The job list shows the <**No.**> **(13)**, the <**Distance**> **(19)** between the reference point and the print job and the name of the <**Job**> **(4)**. The reference point is defined by the <**PrintGo**> signal. The <**Distance**> for a selected print job is defined and indicated through a display field with a Numeric keypad and/or arrow keys (18). The print jobs will be printed in the order of the job list (8) taking into account the <**Distance**> settings (18).

All numbers in the following description refer to figure 39

Menu bar of the job list creator (1)

In the following all dialog boxes related to the menu bar of the job list creator are described. Changes made in these dialog boxes may either be confirmed with the <**OK**> button **(18)** or discarded with the <**Cancel**> button **(19)**.

Joblist (1a)

The drop-down menu <**Joblist**> **(1a)** offers options for file handling and for exiting the dialog box.

<**Save Joblist**> **(2)**	Will save the file under the current file name. After saving the dialog box will close.
<**Save Joblist as**> **(3)**	Opens a <**Save file as**> dialog box **(6)** and offers the option to save the file under a different name. After saving the dialog box will close.
<**Load joblist to print**> **(4)**	Should not be used while creating a new job list. This function should only be used during job list editing.
<**Close joblist creator**> **(5)**	Closes the dialog box. If the current job was not already saved a message box will ask for saving.

Edit (1b)

The drop-down menu **<Edit> (1b)** offers the same options as the two buttons on the tabs of the respective job list types.

<Import job> (7)	Opens a <Open-file> dialog box. Jobs will be either imported at the current list position or at the next available position depending on the type of job list.
<Delete jobs> (8)	Will delete the currently marked job in the job list.

Joblist settings (1c)

The drop-down menu **<Joblist settings> (1c)** offers options for the global settings of the job list. These options apply to all jobs in the job list no matter what original settings the single job had.

INFORMATION

For further descriptions please see also

- **chapter *Print parameter***
- **chapter *Encoder parameter***
- **chapter *Font parameter values***
- **chapter *Date changing parameter*.**

Selecting an item on the drop-down list will open a dialog box with 4 tabs. The 4 tabs show the 4 menu items of the drop-down list **<Joblist settings> (1c) (not all parameters are available for all types of joblists!):**

Printstyle (14)

<Print height> (15)	The setting defines the distances between the drops and therefore the print height.
<Orientation> (16)	All printing objects can be rotated by 180°.
<mirrored> (17)	All printing objects will be mirrored.

PrintGo Parameter (20)

<PrintGo Distance> (21)	Distance between two print-outs. This option is only available for the job list type **<Job organisator>**. It refers to print-outs created by the **<PrintGo Repeat>** option. Please see example.
<PrintGo Repeat> (22)	Number of repetitions with each PrintGo signal. This option is only available for the job list type **<Job organisator>**. Please see example.
<endless> (23)	The print-out will be carried out until a **<PrintStop>** command occurs. This option is only available for the job list type **<Job organisator>**. Please see example at the end of this chapter.
<PrintGo Source>(24)	Defines the source and the edge to be evaluated of the PrintGo signal
<PrintStop interrupts print-out immediately> (25)	With this option ticked off the current print-out will not be finished but interrupted immediately in case a **<PrintStop>** command occurs
<PrintGo Gate> (26)	With this option ticked off an additional print start query will be activated using a separate PrintGo Gate sensor. The print-out will only start as long as the monitored sensor is active. Additionally it can be defined which kind of signal level shall be recognized as "active".

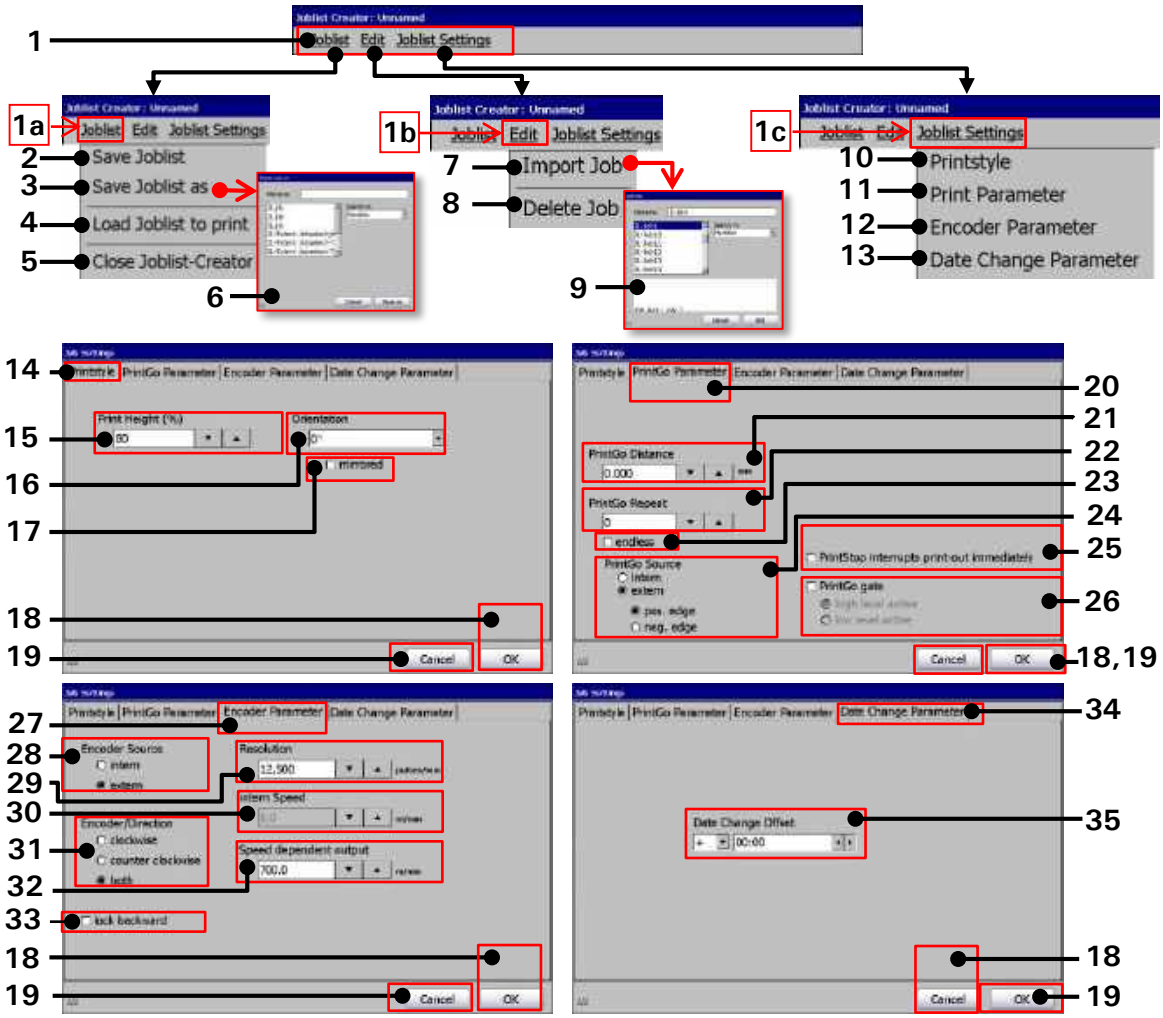
Encoder Parameter (27)

<Encoder Source> (28)	The encoder source can either be external (hardware encoder) or internal (defining the speed).
<Resolution> (29)	In this display field the resolution of the used encoder has to be defined in pulses per millimeter.
<intern Speed> (30)	There has to be an internal speed defined in case no external encoder is used.
<Encoder/Direction> (31)	For an external encoder it can be defined which rotational directions shall be detected.
<Speed dependent output> (32)	The digital outputs of the JET3 printer can be linked with the measured speed. The assigned output switches to high level once the set speed is reached /exceeded. The assigned output switches back to low level when the speed falls 10% below the set speed. Please see **chapter *Speed dependent output*** for details.
<lock backward> (33)	With this option ticked-off the backward movements of an external encoder will be ignored.

Date Change Parameter (34)

<Date Change Offset> (35)	There can be defined a date change offset with a maximum of 23 hours and 59 minutes. The offset can be defined as positive or negative offset. E.g. with an offset of +3 the date would not change at 00:00 but at 03:00.

Figure 39 Menu bar Job list creator



1 – Menu bar <**Joblist Creator**>
1a – Drop-down menu <**Joblist**>
1b – Drop-down menu <**Edit**>
1c – Drop-down menu <**Joblist sett.**>
2 – Option <**Save Joblist**>
3 – Option <**Save Joblist as**>
4 – Option <**Load Joblist to print**>
5 – Option <**Close Joblist Creator**>
6 – Dialog box <**Save file as**>
7 – Option <**Import Job** >
8 – Option <**Delete Job**>
9 – Dialog box <**Open file**>
10 – Option <**Printstyle**>
11 – Option <**Print Parameter**>
12 – Option <**Encoder Parameter**>
13 – Option <**Date change Param.**>
14 – Tab <**Printstyle**>
15 – Display field <**Print height**>
16 – Display field <**Orientation**>
17 – Checkbox <**mirrored**>
18 – Button <**OK**>
19 – Button <**Cancel**>
20 – Tab <**PrintGo Parameter**>
21 – Display field <**PrintGo Distance**>
22 – Display field <**PrintGo Repeat**>
23 – Checkbox <**endless**>
24 – Settings <**PrintGo Source**>
25 – Checkbox <**PrintStop immed.**>
26 – Settings <**PrintGo gate**>
27 – Tab <**Encoder Parameter**>
28 – Settings <**Encoder Source**>
29 – Settings <**Encoder Resolution**>
30 – Settings <**intern Speed**>
31 – Settings <**Encoder Direction**>
32 – Settings <**Speed dependent out.**>
33 – Checkbox **lock backward**>
34 – Tab <**Date Change Parameter**>
35 – Settings <**Date Change Offset**>

7.2.5.1 Create new job lists – Example 1: Extern Jobselect

Task:

Three different print jobs shall be printed. The print-out shall not be carried out in a fixed order but on the basis of direct addressing each print job. The addresses of the print jobs shall be 1, 5 and 7. The print order shall be 1-7-5-5-1.

Presets:

The described presets depend on the used hardware and may vary.
The digital I/O for the <**External Joblist**> on connector X4 are connected to a source which can provide 10-bit binary address signals.

The print-out speed is measured with an external encoder with a resolution of 12.5 pulses/mm. The encoder shall only work clockwise and shall be locked against backward movement detection. The speed dependent output shall not be used. The <**PrintGo**> signal is a positive signal edge provided from an external sensor. The <**PrintGo Gate**> function shall not be used and the print-out shall not be stopped immediately when a <**PrintStop**> signal occurs but the current print job shall be finished. The <**Date Change Parameter**> option shall not be used.

It is assumed that the three different print jobs are already created. For these print jobs no <**PrintGo Delay**> no <**PrintGo Distance**> and no <**PrintGo Repetitions**> were defined. For these topics there will be a separate example.

Approach:

The numbers in brackets refer to the numbers in Figure 40

1. Open the <**Extern Jobselect**> tab from the menu bar of the main window of the printer: <**Job**>-<**Create new Joblist**>-<**Extern Job select**> **(1)**.
2. Place the cursor in the first row of the job list display and push the <**Job Import**> button **(2).**
3. Select the print job for address "1" **(3)**. The address is shown in the first column of the job list display: <**Input No**> **(4).**
4. Fill the following rows in the job list display with the two remaining print jobs **(4)**.
5. Enter the following settings in the <**Joblist settings**> **(5-8)**:

Printstyle (5)

<Print height>	Default (80%)
<Orientation>	Default (0°)
<mirrored>	Default (no)

PrintGo Parameter (6)

<PrintGo Distance>	Not available for **<Extern Joblist>**. This parameter can be defined within each print job. It will only affect print jobs with repetitions.
<PrintGo Repeat>	Not available for **<Extern Joblist>.** This parameter can be defined within each print job. Distances between repetitions are defined with the **<PrintGo Distance>** parameter within the print job.
<endless>	Not available for **<Extern Joblist>** This parameter can be defined within each print job.
<PrintGo Source>	**<Extern>** and **<positive edge>**.
<PrintStop interrupts print-out immediately>	Default (no)
<PrintGo Gate>	Default (no)

Encoder Parameter (7)

<Encoder Source>	Extern
<Resolution>	12.500
<intern Speed>	Not available if an external encoder is used
<Encoder/Direction>	Clockwise
<Speed dependent output>	Not used. Default (700)
<lock backward>	yes

Date Change Parameter (8)

<Date Change Offset>	Default (0)

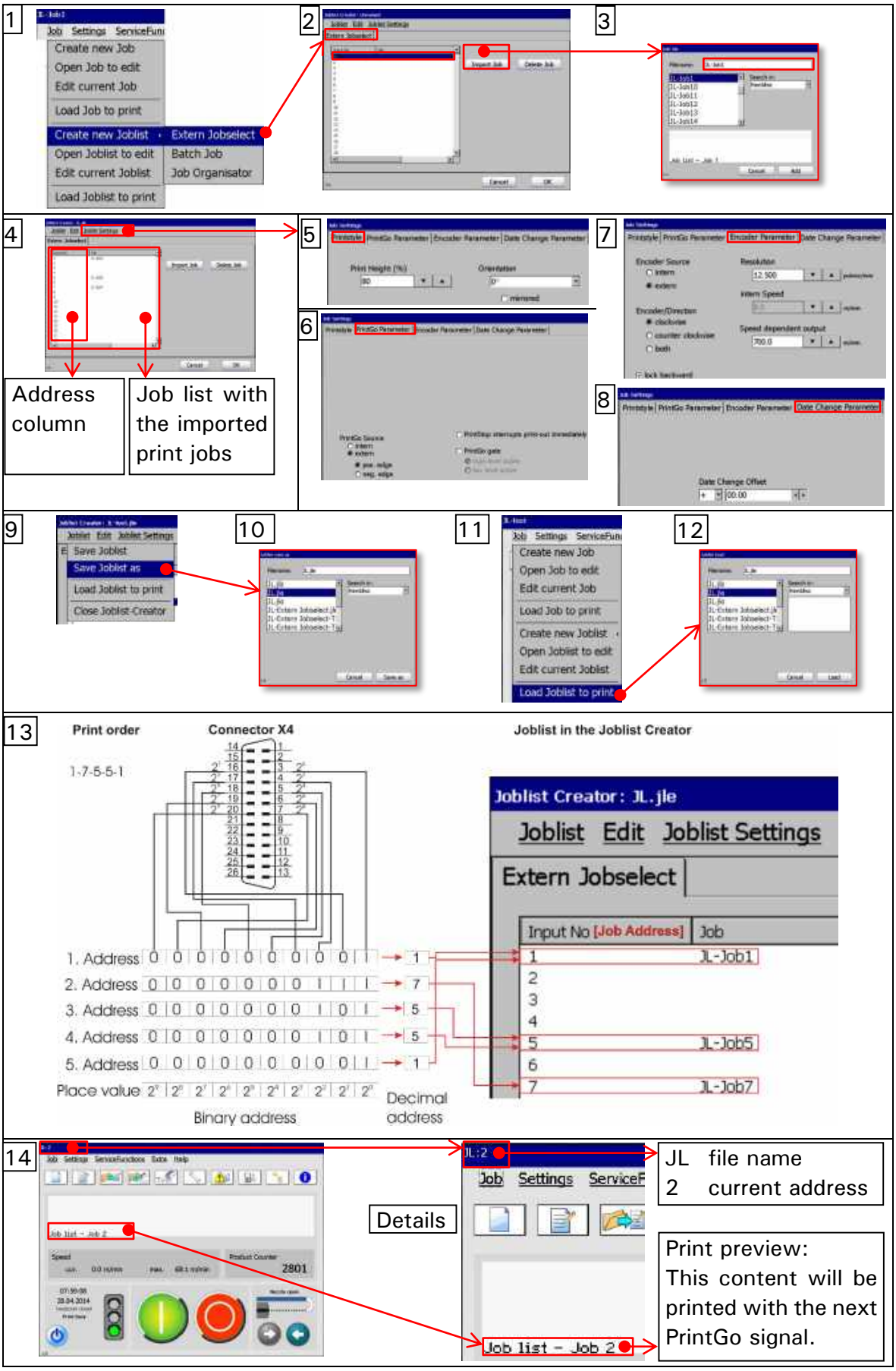
6. Save the created job list **(9-10)**.
7. Open the job list with the **<Load Joblist to print> (11-12)**.
8. Get the printer ready to print (open nozzle seal, push green **<PrintStart>** button).
9. Apply the address of the print job at the first position of the job list to the X4 connector (decimal = 1; 10-bit binary = 0000000001) **(13)**.
10. With the next **<PrintGo>** signal the addressed print job will be printed.
11. Apply the address of the print job at the seventh position of the job list to the X4 connector (decimal = 7; 10-bit binary = 0000000111) **(13).**
12. With the next **<PrintGo>** signal the addressed print job will be printed.
13. Apply the address of the print job at the fifth position of the job list to the X4 connector (decimal = 5; 10-bit binary = 0000000101 **(13).**
14. With the next **<PrintGo>** signal the addressed print job will be printed.

15. The print job at the fifth position of the job list shall be printed twice. Therefore the address has not to be changed for the next print-out **(13)**. It will be printed again with the next **<PrintGo>** signal.
16. Apply the address of the print job at the first position of the job list to the X4 connector (decimal = 1; 10-bit binary = 0000000001 **(13).**
17. With the next **<PrintGo>** signal the addressed print job will be printed.
18. The task is finished.

Basic rules for the job list type <External Job>:

- Each print job is managed separately.
- Each print job needs a **<PrintGo>** signal to be printed.
- If a single print job of the <External Job> job list has to be edited, this has to be carried out with the job editor. The print job on the list has then to be exchanged against the revised print job. It is not possible to edit a job on the job list directly.
- **<PrintGo distance>**, **<PrintGo repetition>** and the option for **<endless>** printing have to be set within the single print jobs.
- An empty address will be ignored. The last addressed print job will remain in the print storage.
- The WYSIWYG preview of the main window always shows the print job that will be printed with the next **<PrintGo>** signal (14).

Figure 40 Extern Joblist Example 1: Extern Jobselect



7.2.5.2 Create new job lists – Example 2: Extern Jobselect with distances

Task:

*This example is based on the last example (see **7.2.5.1**).*

Three different print jobs shall be printed. The print-out shall not be carried out in a fixed order but on the basis of direct addressing each print job. The addresses of the print jobs shall be 1, 5 and 7 and the print order 1-7-5-5-1. The job list is the same as for Example 1 but the parameters of the single print jobs are different.

For this example the following parameters were added to each print job:

Print job address	Print job	PrintGo delay [mm]	PrintGo distance [mm]	PrintGo repetition	endless
1	JL-Job1	0	60	2	no
5	JL-Job2	20	50	3	no
7	JL-Job3	30	70	1	no

Presets:

The presets for this example are the same as for example 1.

Settings:

The joblist settings are the same as for example 1.

Approach:

The numbers in brackets refer to the pictures in Figure 41.

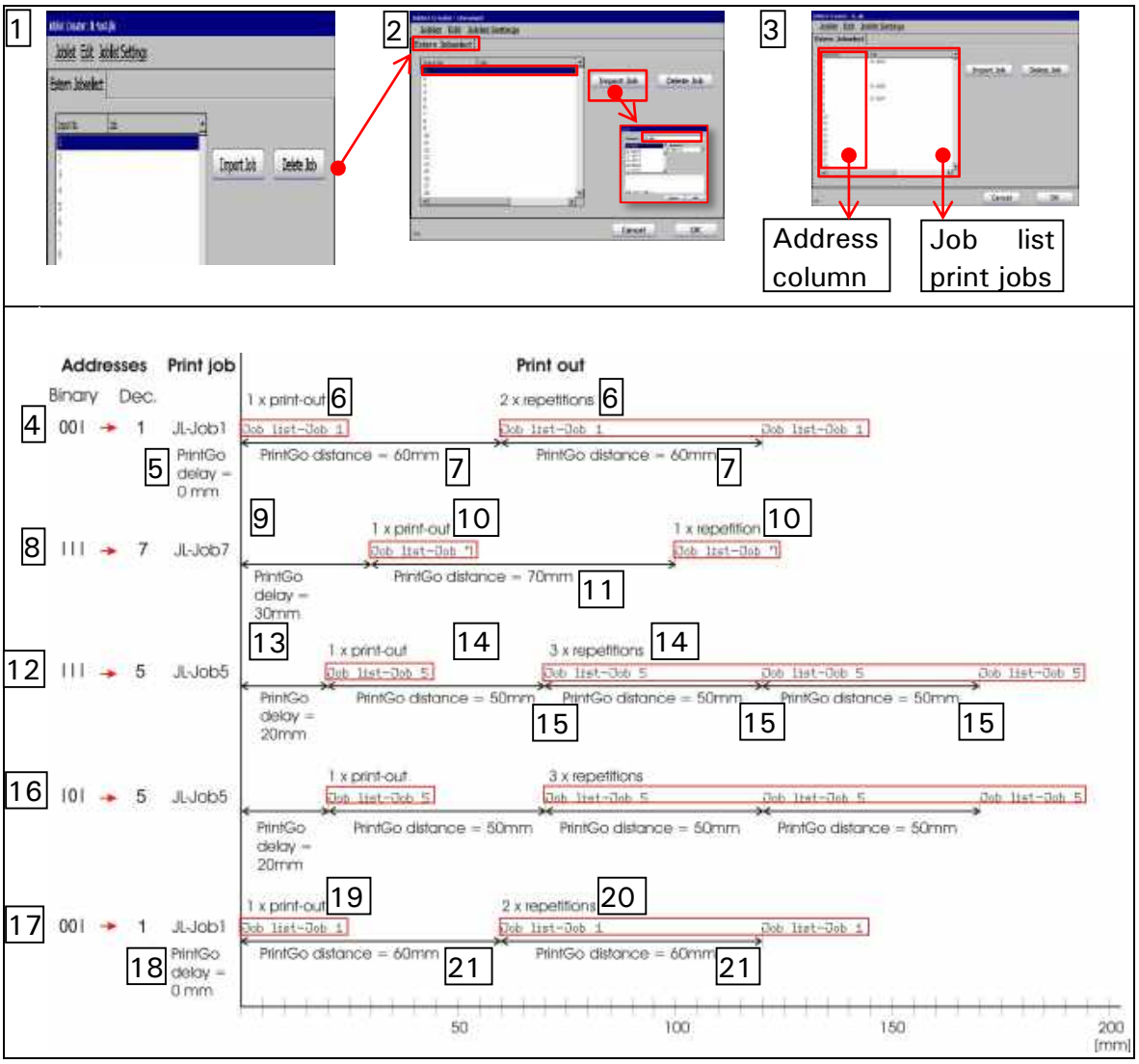
1. Open the job list with the **<Load Joblist to print> (1-3)**.
2. Apply the address of the print job at the first position of the job list to the X4 connector (decimal = 1; 10-bit binary = 0000000001) **(4)**.
3. With the next **<PrintGo>** signal the addressed print job will be printed. For this print job the **<PrintGo delay>** is set to 0 mm. Therefore the print out will start directly with the **<PrintGo>** signal **(6)**. **<PrintGo repetition>** is set to two and the **<PrintGo distance>** is set to 60 mm. Therefore there will be a total of three print outs **(6)** and the distances between the first dots of each print out/repetition will be 60 mm **(7)**.
4. Apply the address of the print job at the seventh position of the job list to the X4 connector (decimal = 7; 10-bit binary = 0000000111) **(13) (8).**
5. With the next **<PrintGo>** signal the addressed print job will be printed. For this print job the **<PrintGo delay>** is set to 30 mm. Therefore the print out will start 30 mm after the position where the **<PrintGo>** signal occurred **(9)**. **<PrintGo repetition>** is set to 1 and the **<PrintGo distance>** is set to 70 mm. Therefore there will be a total of two print **(10)** outs and the distances between the first dots of each print out/repetition will be 70 mm **(11)**.
6. Apply the address of the print job at the fifth position of the job list to the X4 connector (decimal = 5; 10-bit binary = 0000000101 **(12).**

7. With the next <**PrintGo**> signal the addressed print job will be printed. For this print job the <**PrintGo delay**> is set to 20 mm. Therefore the print out will start 20 mm after the position where the <**PrintGo**> signal occurred **(13)**. <**PrintGo repetition**> is set to 3 and the <**PrintGo distance**> is set to 50 mm. Therefore there will be a total of four print outs **(14)** and the distances between the first dots of each print out/repetition will be 50 mm **(15)**.
8. The print job at the fifth position of the job list shall be printed twice. Therefore the address has not to be changed for the next print-out **(16)**. The print job will be printed again with the next <**PrintGo**> signal and it will have the same distances between printouts as the last printout.
9. Apply the address of the print job at the first position of the job list to the X4 connector (decimal = 1; 10-bit binary = 0000000001 **(17).**
10. With the next <**PrintGo**> signal the addressed print job will be printed. For this print job the <**PrintGo delay**> is set to 0 mm **(18)**. Therefore the print out will start directly with the <**PrintGo**> signal **(19)**. <**PrintGo repetition**> is set to two and the <**PrintGo distance**> is set to 60 mm. Therefore there will be a total of three print outs **(20)** and the distances between the first dots of each print out/repetition will be 60 mm **(21)**.
11. The task is finished.

Basic rules for the job list type <Extern Job select> with distances:

- An error message occurs if the set <**PrintGo distance**> is shorter than the print out itself.
- The <**PrintGo Distance**> is measured between the first left print dots of two print outs.
- The <**PrintGo delay**> is the distance between the PrintGo signal and the start of the print out.
- <**PrintGo delay**> and <**PrintGo distance**> have no effects on distances between two print jobs of the job list but only on distances within a print job.

Figure 41 Extern Job select Example 2: Extern Jobselect with distances



7.2.5.3 Create new job lists – Example 3 „Batch Job"

Task:

Five different print jobs shall be printed (JL-Job1 to JL-Job5). The print-out shall be carried out in a fixed order. The print jobs shall be printed in the following order and with the respective repetitions:

Print job no.	Print job	Number of print outs and repetitions	Total number of print outs	<PrintGo delay> in [mm]. Defined in each print job
1	JL-Job1	1 print out, 0 repetitions	1	0
2	JL-Job2	1 print out, 2 repetitions	3	10
3	JL-Job3	1 print out, 1 repetitions	2	20
4	JL-Job4	1 print out, 3 repetitions	4	10
5	JL-Job5	1 print out, 0 repetitions	1	30

Presets:

The described presets depend on the used hardware and may vary.

The print-out speed is measured with an external encoder with a resolution of 12.5 pulses/mm. The encoder shall only work clockwise and shall be locked against backward movements. The speed dependent output shall not be used. The **<PrintGo>** signal is provided from an external sensor and provides a positive edge. The **<PrintGo Gate>** function shall not be used and the print-out shall not be stopped immediately when a **<PrintStop>** signal occurs but the current print job shall be finished. The **<Date Change Parameter>** option shall not be used.

It is assumed that the 5 different print jobs are already created. A **<PrintGo delay>** (distance between **<PrintGo>** signal and start of the print out) cannot be defined in the job list. A **<PrintGo delay>** has to be defined in each print job itself. The **<PrintGo delay>** of each of the five print jobs of this example are listed in the table above.

Approach:

The numbers in brackets refer to the numbers in Figure 42

1. Open the **<Batch Job>** tab from the menu bar of the main window of the printer: **<Job>**-**<Create new Joblist>**-**<Batch>** **(1)**.
2. Push the **<Import>** button for adding the first print job to the list **(2)**.
3. Select the first print job **(2)**. The first column of the job list displays the print job number, the second the numbers of repetitions and the third the print job names **(3)**
4. Define the number of repetitions for the selected job **(3)**.
5. Fill the job list display with the 4 remaining print jobs **(4)** and assign the required repetitions to each job **(4)**.
6. Enter the following settings in the **<Joblist settings>** **(5-8)**:

Printstyle (5)

<Print height>	Default (80%)
<Orientation>	Default (0°)
<mirrored>	Default (no)

Print Parameter (6)

<PrintGo Distance>	Not available for **<Batch Job>**. Parameters defined within a print job **will be ignored**.
<PrintGo Repeat>	Not available for **<Batch Job>** job list. Parameters defined within a print job will be ignored.
<endless>	Not available for **<Batch Job>** job list. Parameters defined within a print job will be ignored.
<PrintGo Source>	**<Extern>** and **<positive edge>**.
<PrintStop interrupts print-out immediately>	Default (no)
<PrintGo Gate>	Default (no)

Encoder Parameter (7)

<Encoder Source>	Extern
<Resolution>	12.500
<intern Speed>	Not available if an external encoder is used
<Encoder/Direction>	Clockwise
<Speed dependent output>	Not used. Default (700)
<lock backward>	yes

Date Change Parameter (8)

<Date Change Offset>	Default (0)

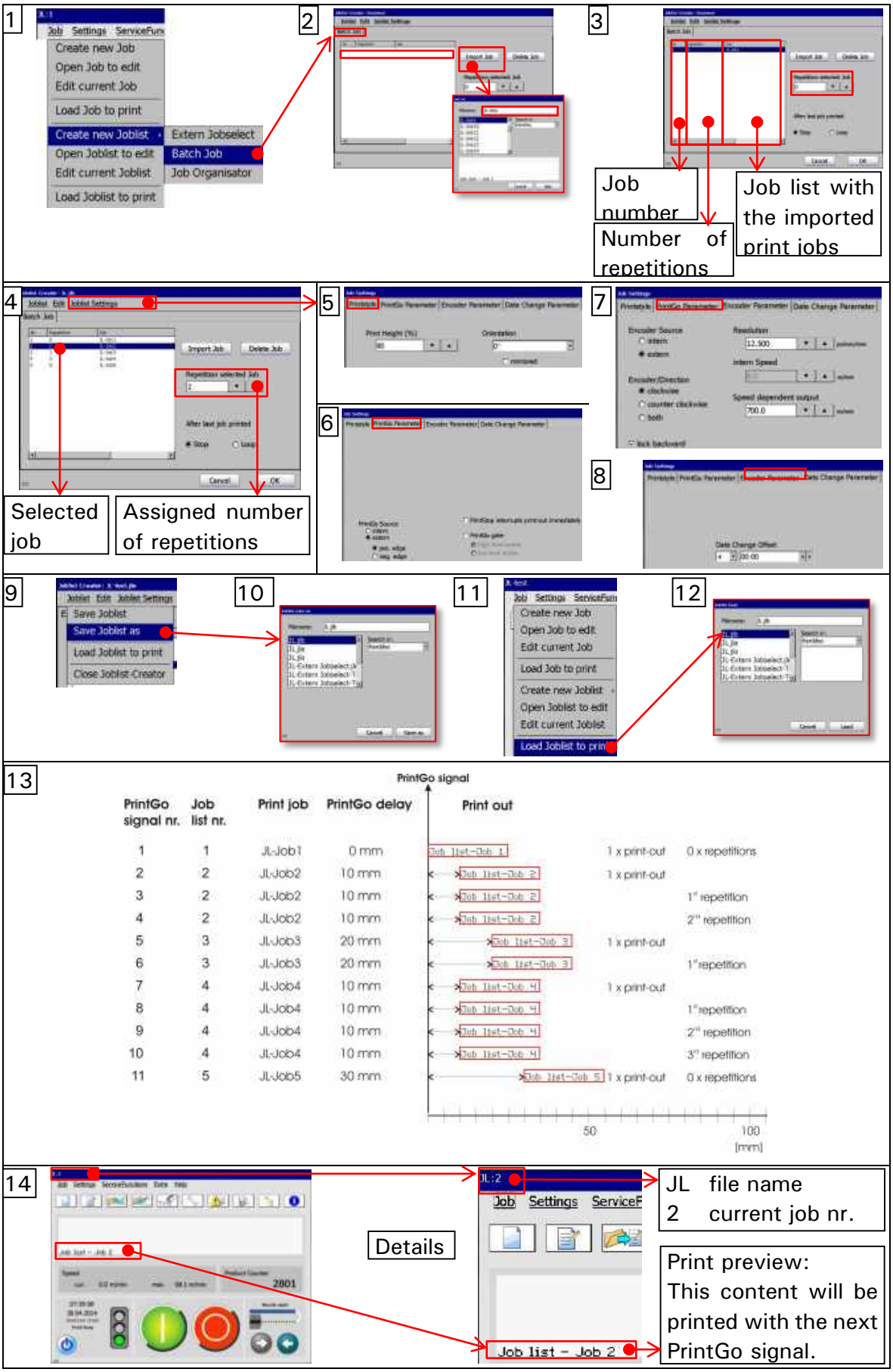
7. Save the created job list **(9-12)**.
8. Open the job list with the **<Load Joblist to print>** command **(13-14)**.
9. Get the printer ready to print (open nozzle seal, push green **<PrintStart>** button).
10. With the next **<PrintGo>** signal the first print job of the job list will be printed. There are no repetitions defined for this print job, therefore there will be only one print out. The **<PrintGo delay>** is 0 mm **(13).**
11. With the next **<PrintGo>** signal the second print job of the job list will be printed. There are two repetitions defined, therefore there will be two more print outs with the next two PrintGo signals. The **<PrintGo delay>** for each printed job is 20 mm **(13)**.
12. With the next **<PrintGo>** signal the third print job of the job list will be printed. There is one repetition defined, therefore there will be one more print out with the next PrintGo signal. The **<PrintGo delay>** for each printed job is 30 mm **(13)**.
13. With the next **<PrintGo>** signal the fourth print job of the job list will be printed. There are three repetitions defined, therefore there will be four more print outs with the next four PrintGo signals. The **<PrintGo delay>** for each printed job is 20 mm **(13)**.

14. With the next <**PrintGo**> signal the fifth print job of the job list will be printed. There no repetitions defined, therefore there will be a total of one print out. The <**PrintGo delay**> for each printed job is 30 mm **(13)**.
15. The task is finished.

Basic rules for the job list type <Batch Job>:

- Each print job is managed separately.
- A <**PrintGo**> signal is required for each print out and each repetition.
- If a single print job of the job list has to be edited, this has to be carried out with the job editor. The print job on the list has then to be exchanged against the revised print job. It is not possible to edit a job on the job list directly.
- <**PrintGo distance**>, <**PrintGo repetition**> and the option for <**endless**> print out are not available for <Batch Job> job lists. All settings regarding these parameters which were made within the print jobs will be ignored.
- A <**PrintGo delay**> can be defined within each print job separately.
- The WYSIWYG preview of the main window always shows the print job that will be printed with the next <**PrintGo**> signal (14).

Figure 42 Extern Joblist Example 3: Batchjob



7.2.5.4 Create new job lists – Example 4: Job organisator

Task:

Three different print jobs shall be printed (Job1 to Job3) using the job list type **<Job organisator>**. The whole print list shall be printed twice. The second print out shall be in a distance of 150 mm after the **<PrintGo>** signal.

Important: The **<Job Organisator>** offers the possibility to define the number of repetitions with **<PrintGo repeat>** and the **<PrintGo distance>** for the repetitions and for the complete job list. All settings for these parameters made within each print job will be ignored in the job list.

The only exception is the first print job imported to the list. The parameters for **<PrintGo distance>** and **<PrintGo repeat>**.of this print job will be applied for the job list **<PrintGo>** settings. Nevertheless these parameters can be adjusted in the job list settings even after the first job was imported.

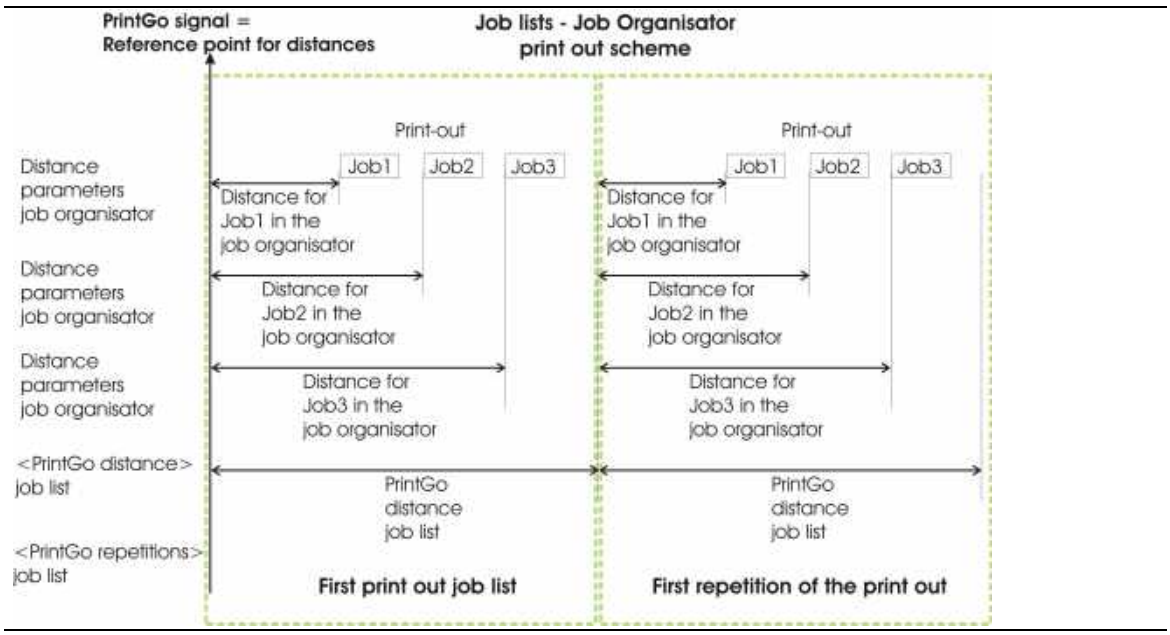
Beside these parameters the settings for **<PrintGo Control>** and **<StrokeGo Control>** are also taken from the first print job imported. **These parameters cannot be adjusted within the <Joblist Settings>. Changes are only possible by deleting all jobs on the job list and importing the first job again.**

The **<PrintGo>** signal sets the reference point for all distances assigned to the print jobs on the job list. The distances to be assigned for each print job on the job list, the **<PrintGo distance>** for the job list and the number of repetitions of the job list are shown in the table below:

Job list parameters

Job no.	Print job	Distance [mm]	**<PrintGo distance>** job list [mm]	**<PrintGo repetition>** job list
1	Job1	30	---	---
2	Job2	70	---	---
3	Job3	110	---	---
Complete job list			150	1 print out 1 repetition

The following picture gives an schematic overview:



Presets:

The described presets depend on the used hardware and may vary.

The print-out speed is measured with an external encoder with a resolution of 12.5 pulses/mm. The encoder shall only work clockwise and shall be locked against backward movements. The speed dependent output shall not be used. The **<PrintGo>** signal is provided from an external sensor and provides a positive edge. The **<PrintGo Gate>** function shall not be used and the print-out shall not be stopped immediately when a **<PrintStop>** signal occurs but the current print job shall be finished. The **<Date Change Parameter>** option shall not be used.

It is assumed that the 3 different print jobs are already created.

Approach:

The numbers in brackets refer to the numbers in Figure 43

1. Open the **<Job organisator>** tab from the menu bar of the main window of the printer: **<Job>-<Create new Joblist>-<Job Organisator> (1).**
2. Push the **<Import>** button for adding the first print job to the list **(2)**.
3. Select the first print job **(2).** The first column of the job list shows the print job number, the second the distance between the **reference point** and the print out and the third the print job names **(3)**.
4. Assign the distance for the print job **(3)**.
5. Fill the job list display with the two remaining print jobs **(4)** and assign the required distances to each job **(4)**.
6. **Enter the following settings in the <Joblist settings> (5-8):**

Printstyle (5)

<Print height>	Default (80%)
<Orientation>	Default (0°)
<mirrored>	Default (no)

Print Parameter (6)

<PrintGo Distance>	150 mm
<PrintGo Repeat>	1
<endless>	Not selected
<PrintGo Source>	**<Extern>** and **<positive edge>**.
<PrintStop interrupts print-out immediately>	Default (no)
<PrintGo Gate>	Default (no)

Encoder Parameter (7)

<Encoder Source>	Extern
<Resolution>	12.500
<intern Speed>	Not available if an external encoder is used
<Encoder/Direction>	Clockwise
<Speed dependent output>	Not used. Default (700)
<lock backward>	yes

Date Change Parameter (8)

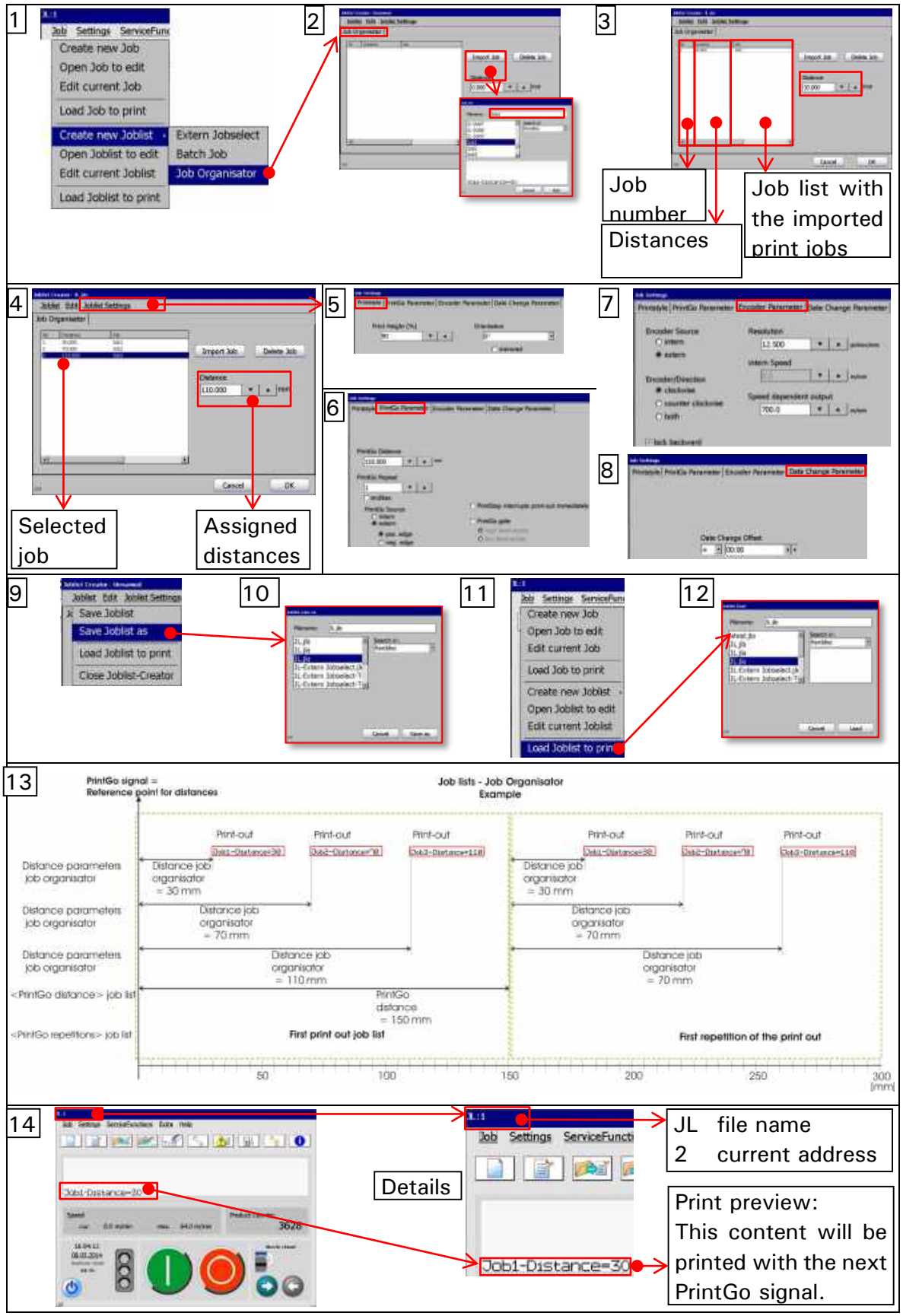
<Date Change Offset>	Default (0)

7. Save the created job list **(9-10)**.
8. Open the job list with the **<Load Joblist to print>** command **(11-12)**.
9. Get the printer ready to print (open nozzle seal, push green **<PrintStart>** button).
10. The **<PrintGo>** signal sets the reference point for all distances assigned to the print jobs on the job list. The first print job of the job list will be printed in a distance of 30 mm to that reference point **(13)**.
11. The second print job of the job list will be printed in a distance of 70 mm to the reference point **(13)**.
12. The third print job of the job list will be printed in a distance of 110 mm to the reference point. **(13)**.
13. In the **<PrintGo Parameters>** of the **<Joblist Settings>** parameter for **<PrintGo distance>** and **<PrintGo repetition>** were set. The **<PrintGo distance>** was set to 150 mm and there shall be one repetition. Therefore all three jobs on job list will be printed again in the same matter as described in points 9-11. The repetition will start 150 mm from the reference point **(13)**.
14. The task is finished.

Basic rules for the job list type <Job Organisator>:

- The print out of the complete job list including all repetitions is started with one **<PrintGo>** signal.
- If a single print job of the job list has to be edited, this has to be carried out with the job editor. The print job on the list has then to be exchanged against the revised print job. It is not possible to edit a job on the job list directly.
- All distances assigned to print jobs on the job list are related to the same reference point. The reference point is set with the **<PrintGo>** signal.
- If a distance assigned to a job is shorter than the sum of all distances and print jobs lengths coming before that job no error message occurs. The too short distance will just be ignored and the print out will start right after the last print job. **Too short distances between the print jobs on the job list, too short distances for print jobs will lead to wrong distances for defined print job repetitions!**
- For the **<PrintGo distance>** which is defining the print out distance for repetitions the same reference point is used as for the distances assigned to the print jobs on the joblist. For each additional repetition the <PrintGo distance> is added up respectively. Here also all defined distances will be considered.
- If the **<PrintGo distance>** of the job list is shorter than one complete print out of the job list no error message occurs. The too short distance will just be ignored and the print out of the repetition will start right after the last print out.
- The WYSIWYG preview of the main window always shows the print job that will be printed with the next **<PrintGo>** signal (14).

Figure 43 Extern Joblist Example 4: Job organisator

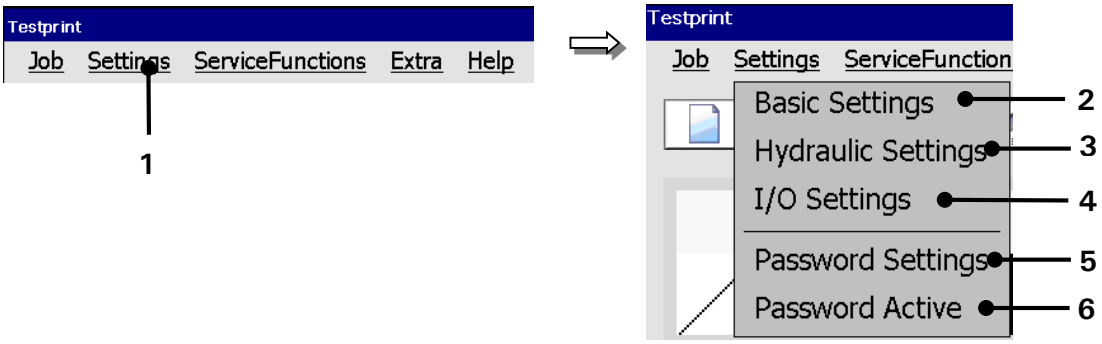


7.3 Settings

The drop-down menu <**Settings**> in the menu bar of the main window offers the following options:

- Basic settings
- Hydraulic settings
- I/O settings
- Password settings
- Password active

Figure 44



1 – Button <Settings>
2 – Option <Basic Settings>
3 – Option <Hydraulic Settings>
4 – Option <I/O Settings>
5 – Option <Password Settings>
6 – Option <Password active>

7.3.1 Basic settings

The drop-down menu <**Settings**> in the menu bar of the main window offers the option <**Basic Settings**> (2). This opens a dialog box (3) whith a tab bar. The tabs are grouped by function.
The following tabs are available:

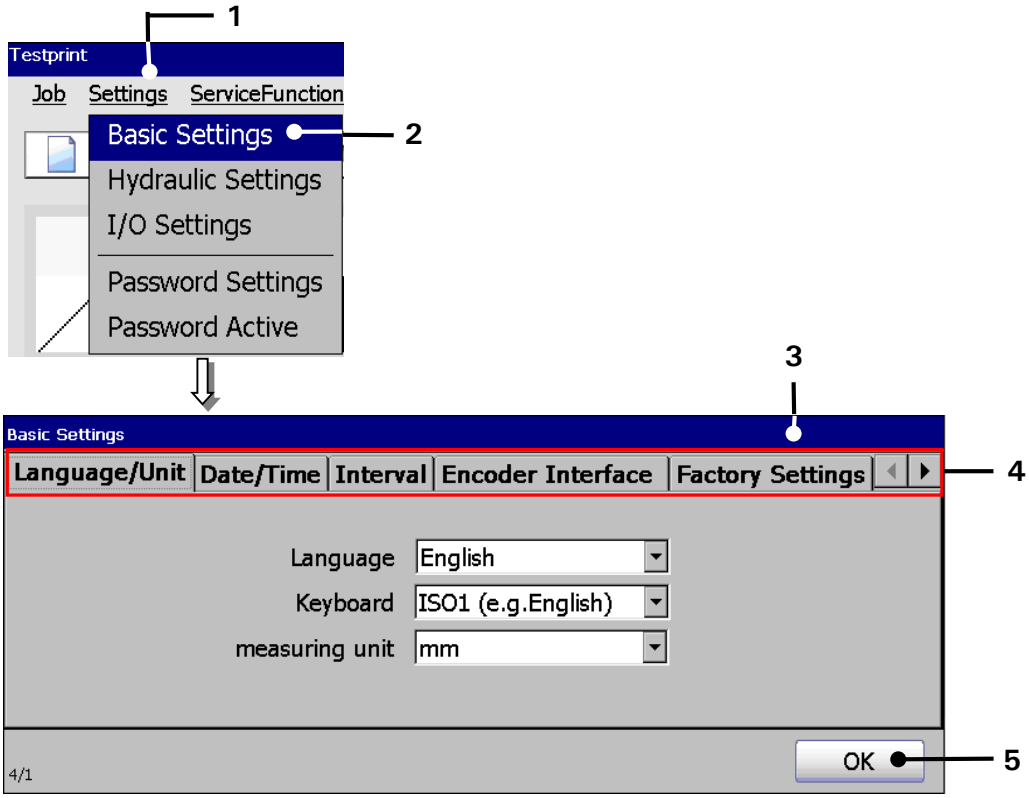
- Language/Unit (Measurement)
- Date/Time
- Interval function
- Encoder interface
- Factory Settings
- IP-address
- Remote screen

A tab is selected by clicking on its caption (4).

Note: *The software is based on common Windows™-standards.*

With the <**OK**> button (5) all settings and chages are saved and the dialog box will be closed.

Figure 45 Menu basic settings



1 – Drop-down menu <Settings>
2 – Option <Basic Settings>
3 – Dialog box <Basic Settings>
4 – Tab bar with tab captions
5 – Button <OK>

7.3.1.1 Language and units

The JET3 allows the selection of the operation language, the ISO-fonts which are assigned to the keyboard as well as the used measuring unit. The parameters which are set currently are displayed in the drop-down lists.

1. Menu language:

The available menu languages are listed in the drop-down list. The available languages depend on the ordered version of the printer.

Note: *The function is also helpful to simplify the communication (e.g. in case of service) with the dealer or the LEIBINGER service-hotline because English language can be generally selected irrespectively of the installed language package.*

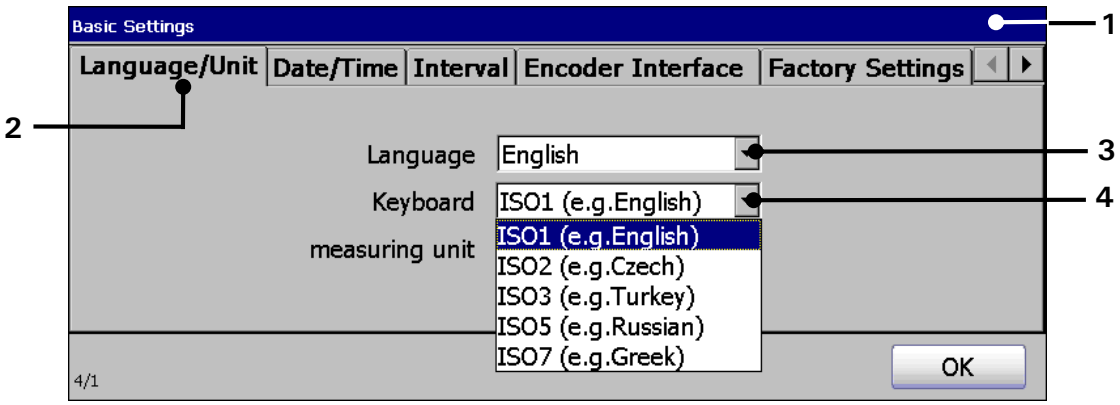
With the selected language the accordant ISO-font is assigned automatically to the keyboard.

2. Keyboard:

In this Drop-down list you can change preset ISO-fonts with the language selection.

Annotation: *The allocation of another ISO-font is reasonable e.g. if you have to create also characters of another language group additionally to the standard characters of the set language. These characters are then available in the advanced font of the keyboard.*

Figure 46 Set language and keyboard



1 – Menu <Basic settings>
2 – Tab <Language/Unit>
3 – Drop-down list <Language>
4 – Drop-down list <Keyboard>

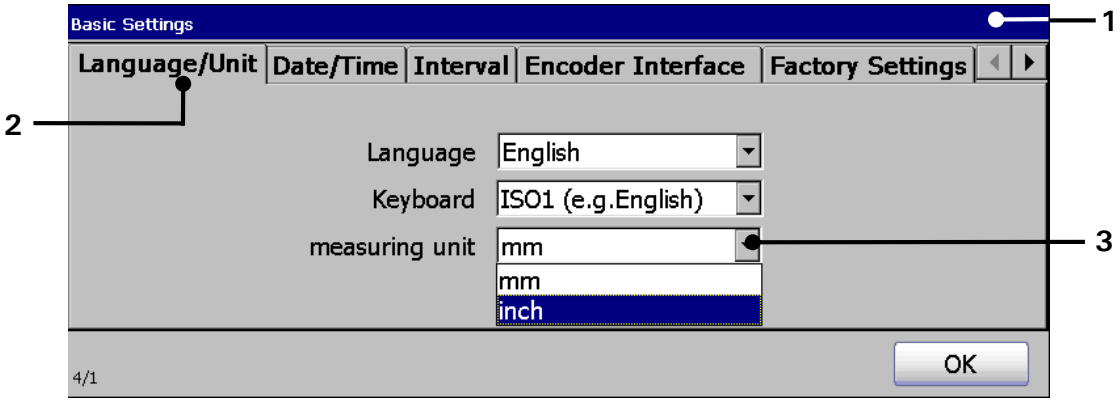
Proceeding:

- Press on the tab <**Language/Unit**> (2) to select the tab.
- Press on the arrow key of the accordant drop-down list. The drop-down list opens for selection.
- Now select the requested language or the requested keyboard font.

3. Measuring unit:

The two different measuring units „mm“ and „inch“ are available.

Figure 47 Set measuring unit



1 – Dialog box <Basic Settings>
2 – Tab <Language/Unit>
3 – Drop-down list <Measuring unit>

Proceeding:

- Press on the tab <**Language/Unit**> (2) to select the tab.
- Press on the arrow key of the drop-down list <**Measuring unit**> (3). The drop-down list opens for selection.
- Now select the requested measuring unit.

7.3.1.2 Date and time

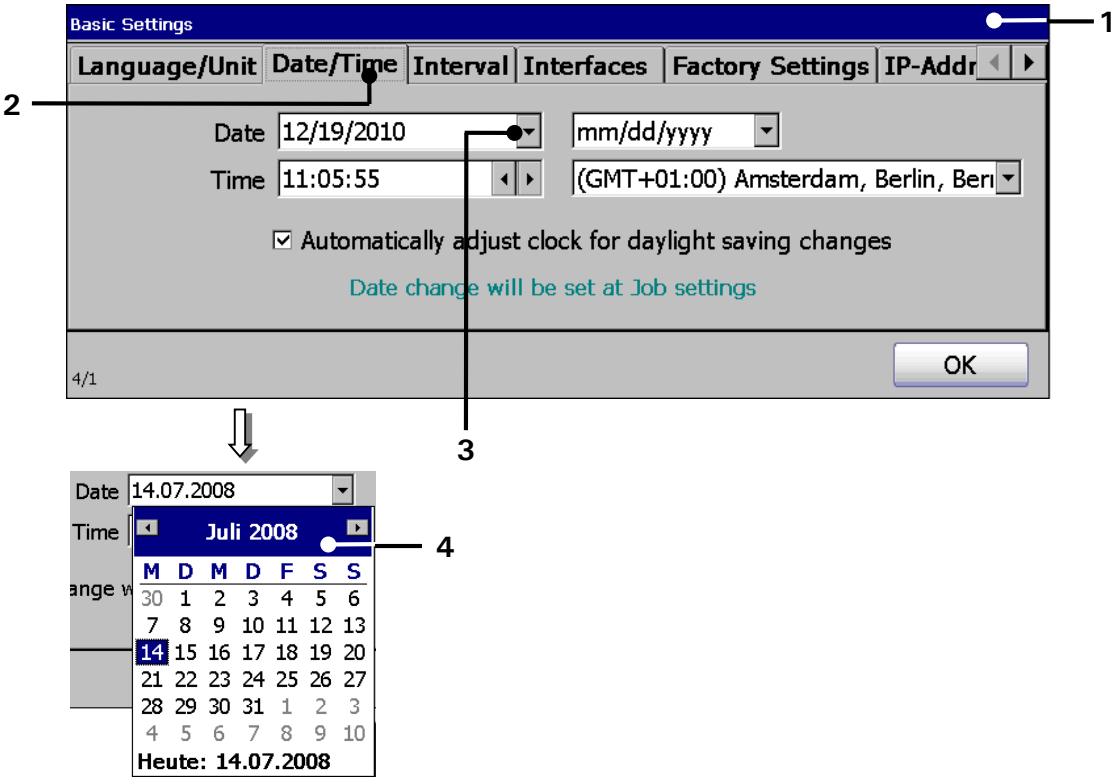
Under the tab <**Date/Time**> you can set the current time, the time zone, the current date and the date format as well as the automatic change from summertime (daylight saving time-[DST]) to wintertime.

1. Set date:

Proceeding:

- Press on the tab <**Date/Time**> (2) to select the tab.
- Press on the arrow key of the drop-down list <**Date**> (3). A calendar (4) opens.
- Select the requested date. The calendar will be automatically closed and the selected date is taken over.

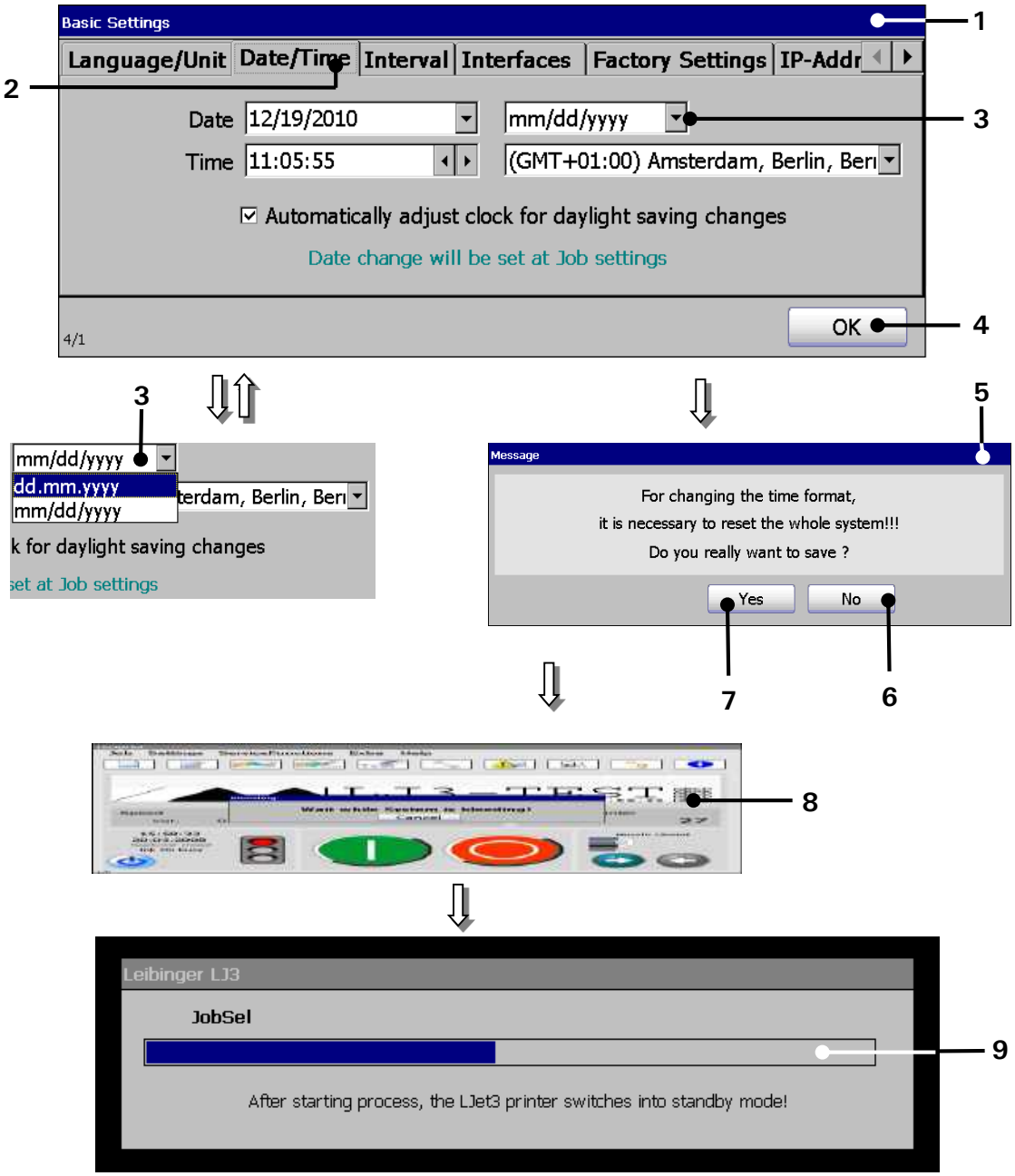
Figure 48 Set date



1 – Dialog box <Basic Settings>
2 – Tab <Date/Time>
3 – Drop-down list <Date>
4 – Calendar

2. Set date format:

Figure 49 Set date format



1 – Dialog box <Basic Settings>
2 – Tab <Date/Time>
3 – Drop-down list <Date format>
4 – Button <OK>
5 – Security query
6 – Button <No>
7 – Button <Yes>
8 – Bootmanager
9 – Progress indicator (Bootmanager)

Proceeding:

- Press on the tab <**Date/Time**> (2) to select the tab.
- Press on the arrow key of the Drop-down list <**Date format**> (3) to define the format. A drop-down list opens.
- Now select the requested format.
- Press the button <**OK**> (4) to take over the changes.

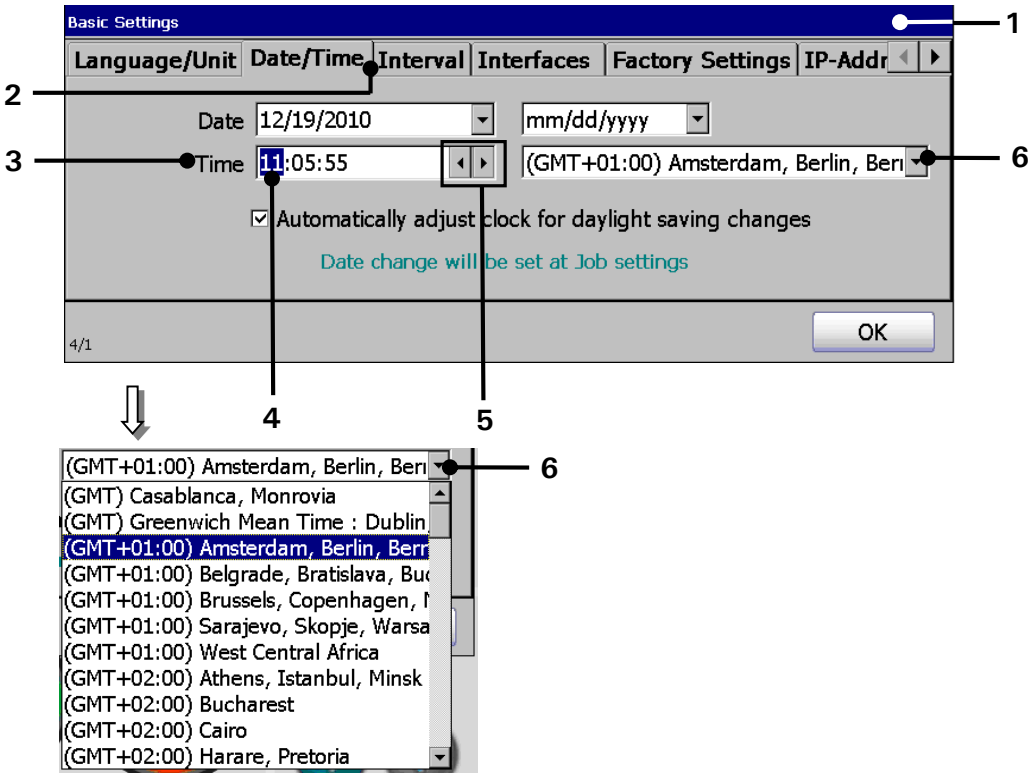
ATTENTION

For changing the date format you have to shut down the complete system and initialize it again!

- A **security query** (5) is faded-in if you would like to continue with the process. Press the button <**No**> (6) to abort the process or press the button <**Yes**> (7) to save the change.
- Now the device will be shut down automatically and will be rebooted again.
- The LEIBINGER JET3 will be shut down and the bootmanager (8) is started. The progress of the initialization is displayed by a bar. After finishing the process the device is switched to the standby-mode (display is dark) and the JET3 is now ready for operation again.

3. Set time and time zone:

Figure 50 Set time and time zone



1 – Dialog box <Basic Settings>
2 – Tab <Date/Time>
3 – Setting field <Time>
4 – Example hour block selected
5 – Arrow keys
6 – Drop-down list <Time zone>

Proceeding:

- Press on the tab <**Date/Time**> (2) to select the tab.
- Now mark in the setting field <**Time**> (3) the hour-, minute- or second block to change the values.
- With the two <**Arrow keys**> (5) you can increase or reduce the values of the blocks wich are each marked.
- To define the time zone press on the drop-down list <**Time zone**> (6). The Drop-down list opens for selection.
- Now select the requested time zone.

4. Automatic clock change:

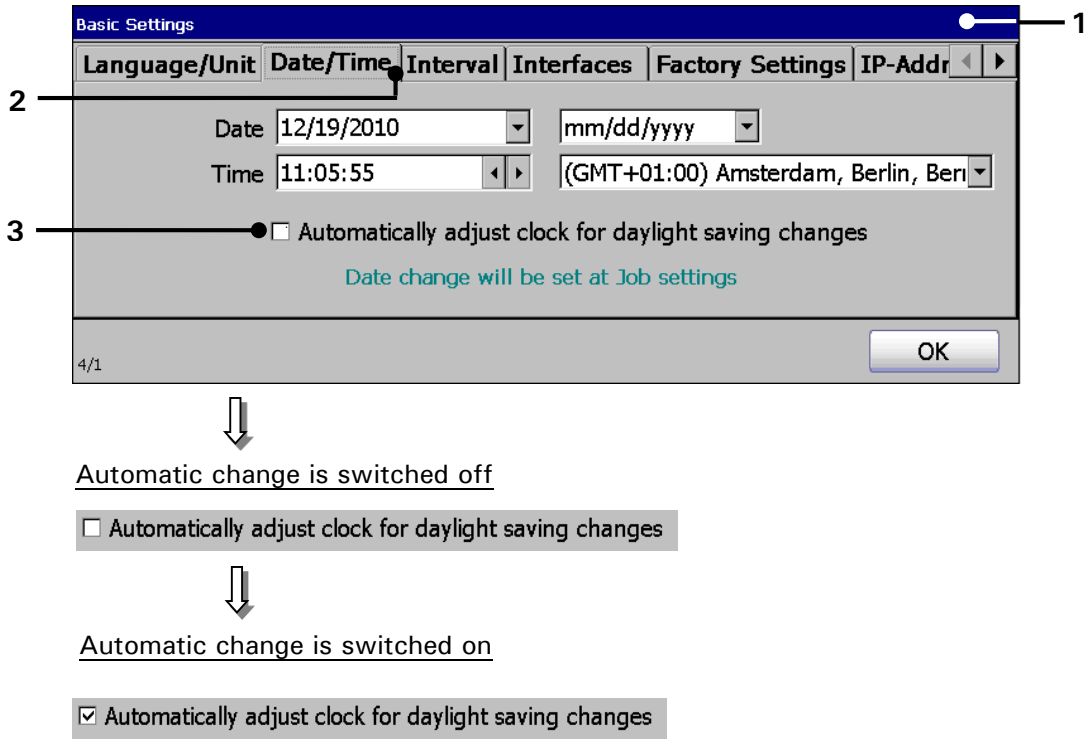
The function enables you to activate or deactivate the automatic change to summer- and wintertime (daylight savings time [DST]).

Proceeding:

E.g.:The automatic change to summer- and wintertime should be activated.

- Press on the tab <**Date/Time**> (2) to select the tab.
- Now activate the automatic clock change by clicking on the checkbox (3). An automatic change is displayed by √ in the checkbox.

Figure 51 Automatic clock change (Summer-/Wintertime)



1 – Dialog box <Basic Settings> 3 – Checkbox <Summer-/Wintertime>
2 – Tab <Date/Time>

7.3.1.3 Interval operation (Set interval time)

The mode <**Interval operation**> enables the input of start- and end times when the LEIBINGER JET3 turns on or off automatically (e.g. 10.20 pm, the device turns on / 10.40 pm, the device turns off) to circulate the ink.
The JET3 provides three free configurable time frames for interval operation. It is not mandatory to use all three time frames.
This function prevents that the ink dries up or sediments as well as the jamming of the nozzle if the printer is turned off for a longer time.

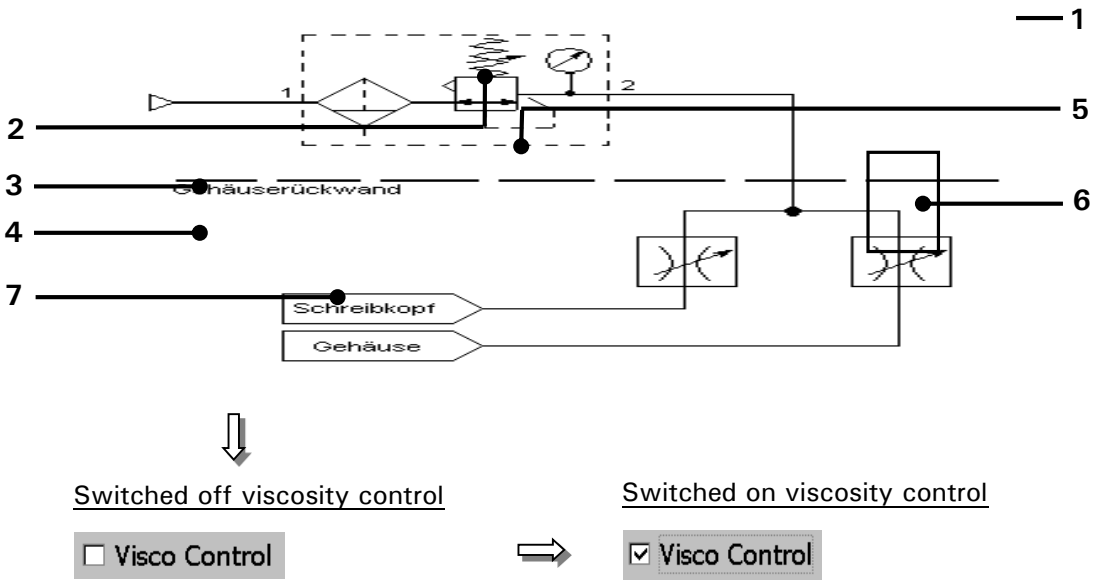
As standard the interval operation is carried out without viscosity control. In case of need the viscosity control can be also activated for the interval operation.

ATTENTION

The viscosity control should be only activated for special operating conditions of the JET3 or after consultation with the LEIBINGER-service department.

You should set an interval time of at least 20 minutes.

Figure 52 Interval operation (Set interval time)



1 – Dialog box <Basic Settings>
2 – Tab <Interval>
3 – Setting field <Interval On>
4 – Setting field <Interval Off>
5 – Example hour block selected
6 – Arrow keys
7 – Checkbox <Visco control>

Proceeding:

- Press on the tab <**Interval**> (2) to select the tab.
- Now mark in the setting field <**Interval On**> (3) the hour- or minute block to change the values.
- With the the two <**Arrow keys**> (6) you can increase or reduce the blocks wich are each marked.
- Now carry out the settings in the field <**Interval Off**> (4) accordingly.
- Now activate if necessary the viscosity control by clicking on the checkbox (7). An activated control is displayed by a √ in the checkbox.

7.3.1.4 Interface (Encoder interface)

Under the tab < **Interfaces**> you can set the interface for the incremental encoder and you can also switch on or off the bounce time delay. The bounce time delay is required for working with external jobs.

How can you explain the terms „bounce time“ and „bounce time delay“?

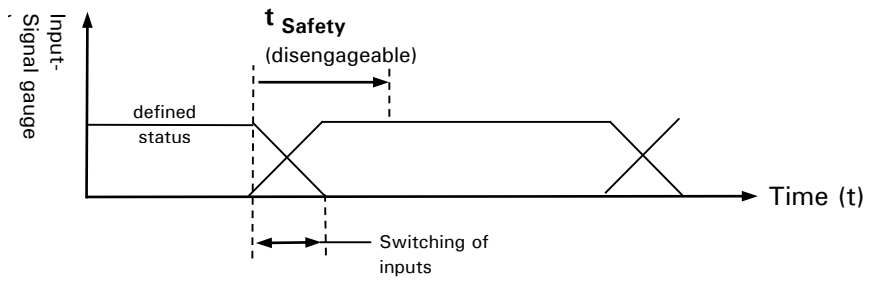
Bounce time: Describes the period which a signal requires after an input has been switched to reach a defined status (0 or 1) again.

Bounce time delay: Describes a predefined safety time. That means if an input is switched, the signal will be only valid after this safety time.

At the LEIBINGER JET3 you can switch on or off this safety time.

Bounce time delay	Advantages	Disadvantages
off	Faster change of jobs	No safety for bouncing signals afterwards
on	High safety for bouncing signals afterwards	Slower change of jobs

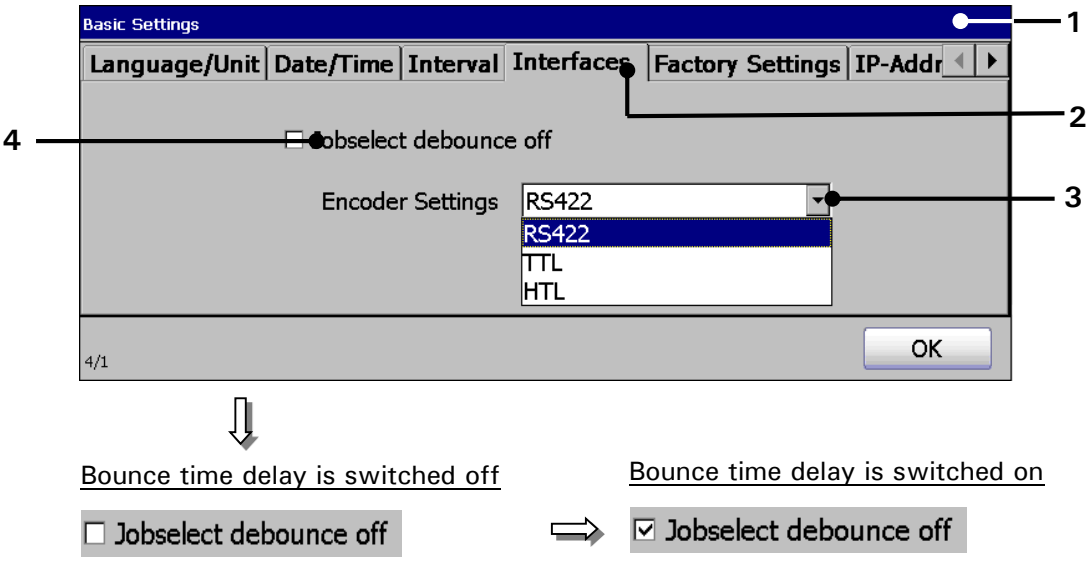
Figure 53



Proceeding:

- Press on the tab< **Interfaces**> (2) to select the tab.
- Press on the arrow key of the drop-down list <**Encoder Settings**> (3). The drop-down list opens for selection.
- Now select the required interface.
- If required activate now the bounce time delay by clicking on the checkbox (4). An activated delay is displayed by √ in the checkbox.

Figure 54 Select encoder interface



1 –Dialog box <Basic Settings>
2 –Tab < Interfaces>
3 – Drop-down list <Encoder settings>
4 – Checkbox <Bounce time delay off>

Pos.	Interface	Describtion
1.	RS422	5V / 4 Signals (A, Ā, B̄, B)
2.	TTL	5V TTL / 2 Signals (A, B)
3.	HTL	24V / 2 Signals (A, B)

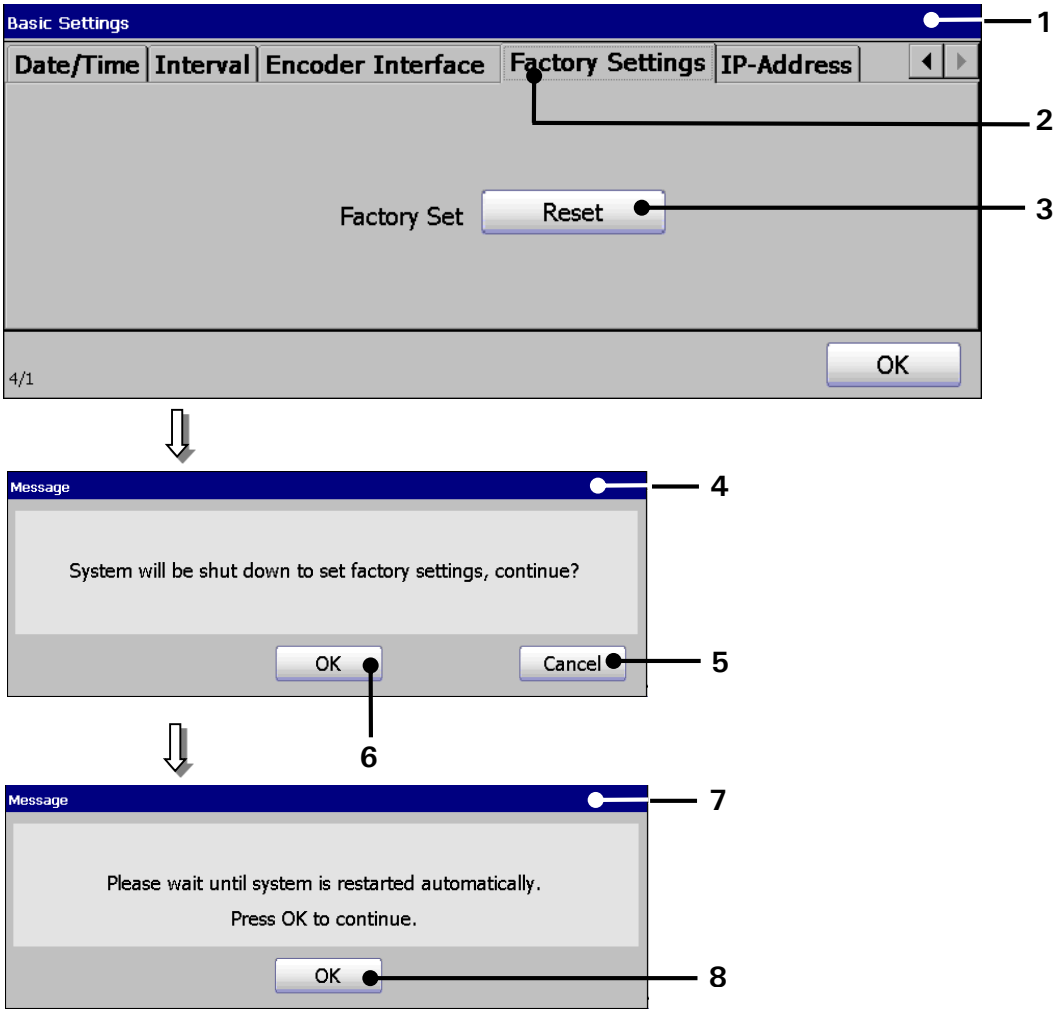
7.3.1.5 Factory Settings

Under the tab <**Factory settings**> you can reset the printer adjustments to the standard settings.

ATTENTION

The consequences of resetting to the factory settings should be considered!

Figure 55 Reset device to factory settings



1 – Dialog box <Basic Settings>
2 –Tab <Factory Settings>
3 –Button <Reset>
4 – Safety query <Continue>
5 – Button <Cancel>
6 – Button <OK>
7 – Message <Restart>
8 – Button <OK>

Proceeding:

- Press on the tab <**Factory Settings**> (2) to select the tab.
- Press the button <**Reset**> (3).
- A **Safety query** (4) if you would like to continue with the process is faded in. Press the button <**Cancel**> (5) to abort the process or press the button <**OK**> (6) to reset the device.
- The message <**Restart**> (7) is faded in.
- Press the button <**OK**> (8). The device is shut down automatically and will be rebooted afterwards. After this process the JET3 is reset to the standard settings.

7.3.1.6 IP-Address

With the tab <**IP-Address**> you can carry out the addressing of the device.

If the LEIBINGER JET3 will be integrated in a network which is based on an internet protocol, an IP-address has to be assigned to the device.

As standard the IP-address is preallocated by the company Leibinger and can be adjusted to the customer demands.

Proceeding:

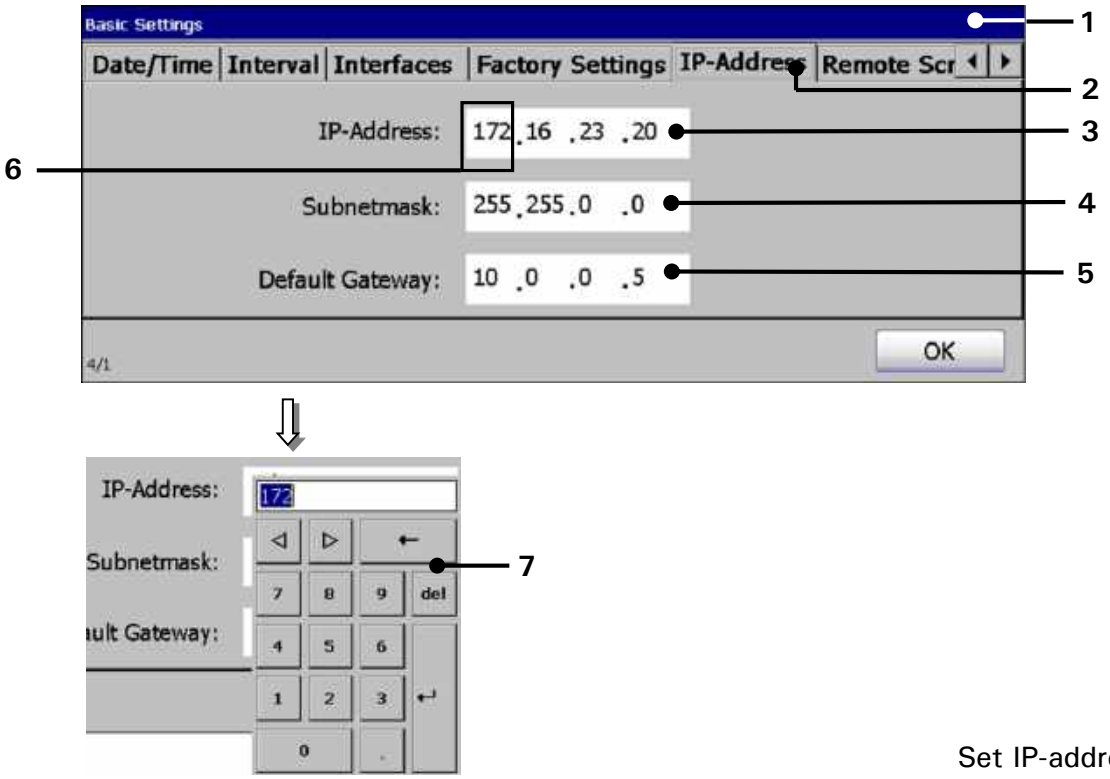
- Press on the bar <**IP-Address**> (2) to select the tab.
- Click in the setting field which should be changed on the requested address block (6). A Numeric keypad (7) opens for input in which you can enter the required value.

INFORMATION

You will find further information regarding working with Numeric keypads in the **chapter *Numeric keypad***!

- Now carry out the settings for every further address block accordingly.

Figure 56 Set IP-address



Set IP-address

1 – Dialog box <Basic Settings>
2 – Tab <IP-Address>
3 – Setting field <IP-Address>
4 – Setting field <Subnet mask>
5 – Setting field <Standard gateway>
6 – Address block (Example)
7 – Numeric keypad

7.3.1.7 Remote control (Remote Screen)

With the tab **<Remote screen>** you can enter the required licence key and the address of the Host-PC which are required for the working with the additional software „Remote Control“.

Furthermore the MAC-address (physical address) of the printer as well as the status of the licence key are displayed.

If you would like to work with the additional software „Remote Control“ you have to transfer the MAC-address to the company Leibinger first to calculate a valid licence key for the specific printer.

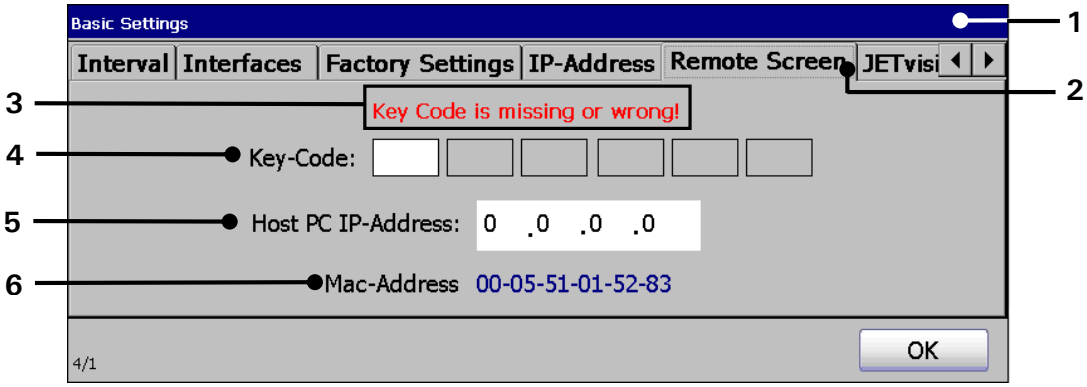
7.3.1.7.1 Display MAC address

If you would like to work with the optional software “Remote Control” you have to transfer the MAC-address to the company Leibinger first to calculate a valid licence key for the device.

Proceeding:

- Press on the tab <**Remote screen**> (2) to select the tab.
- In the display field <**MAC-Address**> (6) you can see the physical address of the printer.

Figure 57 Remote screen (MAC-address)



)

1 – Dialog box <Basic Settings>
2 – Tab <Remote screen>
3 – Display field <Licence key status>
4 – Setting field <Key-Code>
5 – Setting field <Host PC IP-Address>
6 – Display field <MAC-Address>

7.3.1.7.2 Installation of the Remote Control-Software

To work with the additional software, the following steps have to be carried out:

- The program installation (Step 1)
- The licence key input (Step 2)
- The input of the Host PC IP-address (Step 3)

1. Installation of the program (Step 1):

Install the program LJ Remote Control Installer.exe on your computer. Please see software manual for details

2. Input of the licence key (Step 2):

To activate the „Remote Control"-function in the printer, you have to enter the licence key.

You have to enter the key in the input field <**Key-Code**>, which consists of 4-digits input blocks.

ATTENTION

For the input there is no differentiation between capital letters and small letters!

If the input has been started all six input blocks have to be filled. There is no possibility to abort the program!

The entered licence key can be kept for a software update!

Proceeding:

- Press on the tab <**Remote screen**> (2) to select the tab.
- Click in the 1. input block (4.1) of the setting field <**Key-Code**> (4). A keyboard field (5) opens automatically and a cursor flashes in the first input block (4.1).
- Enter the first 4 characters of your licence key.

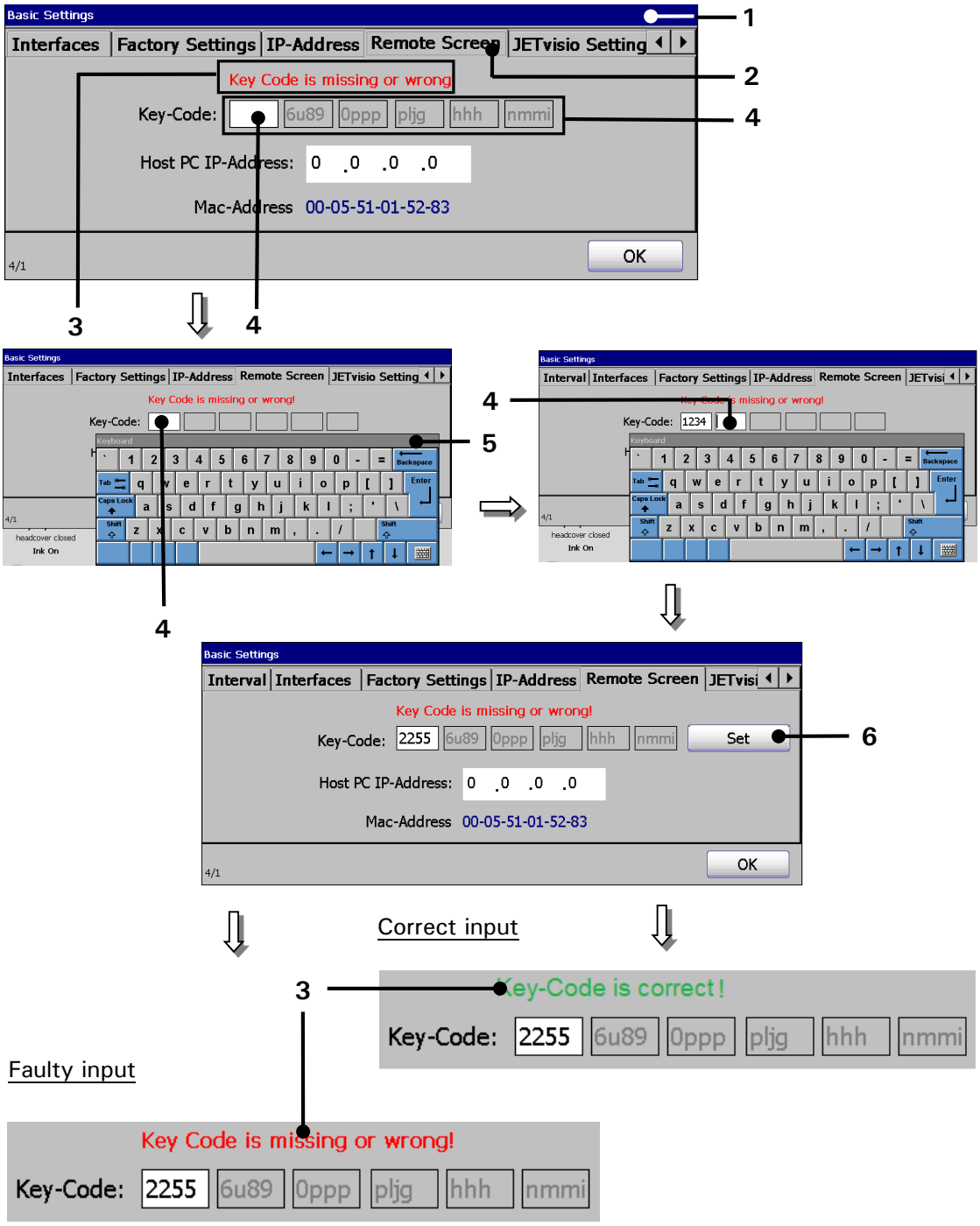
INFORMATION

You will find further information regarding the operation with keyboard in the **chapter *Keyboard***!

- Enter the first 4 characters of your licence key. After input the program activates automatically the next input block. Continue this input as long as the complete licence key has been entered. After the last input the keyboard field will be closed automatically and the button <**Set**> (6) is displayed.
- Press the button <**Set**> (6). A check of the entered code is now carried out. The status of the licence key is shown on the accordant display field (3).

Additional information	Display color	Description
Key-Code is missing or wrong!	red	None or wrong licence key has been entered.
Key-Code is correct!	green	Licence key is correct.

Figure 58 Remote control: Enter licence key



1 – Dialog box <Basic Settings>
2 – Tab <Remote screen>
3 – Display field <Licence key status>
4 – Setting field <Licence key>
4.1 – Licence key <1. block>
4.2 – Licence key <2. block>
5 – Keyboard field
6 – Button <Set>

2.1 Licence key input is correct:

The additional information in the display field <**Licence key status**> (3) changes and all input blocks of the setting field <**Licence key**> (4) are blocked.

ATTENTION

No other or new licence key can be entered!

2.2 Wrong licence key or input is faulty:

The additional information in the display field <**Licence key status**> (3) stays unchanged and the carried out input is still apparent.

By clicking again in the 1. input block (4.1) of the setting field <**Licence key**> (4) all inputs are deleted and a key can be entered again.

3. Input of the Host PC IP-address (Step 3):

That a connection between the LEIBINGER JET3 and the connected PC can be realized, it is necessary to register its IP-address.

Proceeding:

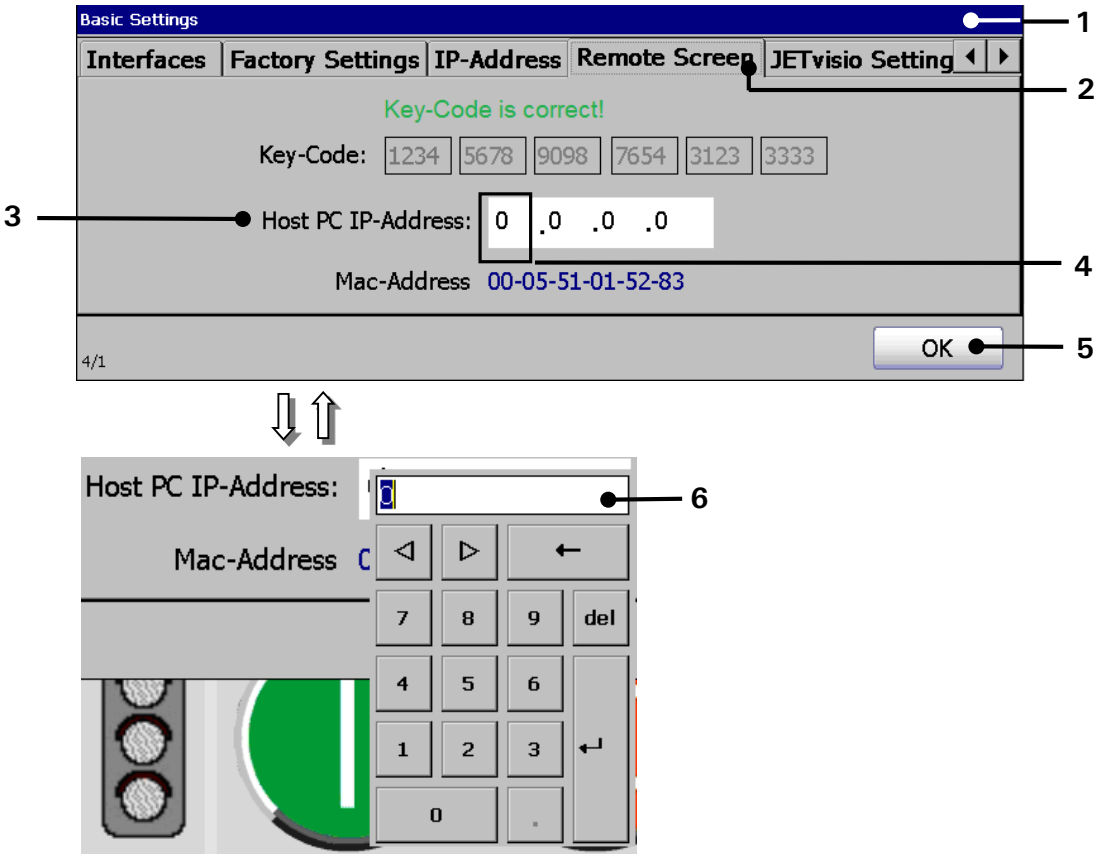
- Press (if required) on the tab <**Remote screen**> (2) to select the tab.
- Now click in the setting field <**Host PC IP-Address**> (3) on the requested address block (4). A numeric keypad (6) opens for input in which you can enter the required value.
- Now carry out the settings for every further address block accordingly.
- Press the button <**OK**> (5) to save the registered IP-address.

INFORMATION

You will find further information regarding the work with Numeric keypads in the **chapter *Numeric keypad***!

After storage it is not necessary anymore to enter the IP-address again for a further connection establishment as long as you work with the same PC!

Figure 59 Remote control: Set Host PC IP-address



1 – Dialog box <Basic Settings>
2 – Tab <Remote screen>
3 – Setting field <Host PC IP-Address>
4 – Address block (Example)
5 – Button <OK>
6 – Numeric keypad

7.3.2 Password settings and user authorizations

The LEIBINGER JET3 offers different access levels which are protected by passwords from faulty operation or non-authorized access. Five levels of access authorization are available. For each level any functions can be enabled or blocked to apply access rights for e.g. operator or supervisor (free definable).

7.3.2.1 Menu password settings

With the option <**Password Settings**> (2) the menu „Password settings“ (3) opens.

This menu provides

- Selection of user levels (Level of access right)
- Definition of access rights.
- Definition of passwords

In the several tabs you can enable or lock the functions in the current access levels. An enabled function is displayed by a √ in the accordant checkbox.

The selection of a tab happens by clicking on the accordant tab (4).

Note: *The proceeding corresponds to the Windows™-standard procedure.*

With the drop-down list <**Level**> (5) you can select the user levels for which you would like to carry out the settings.

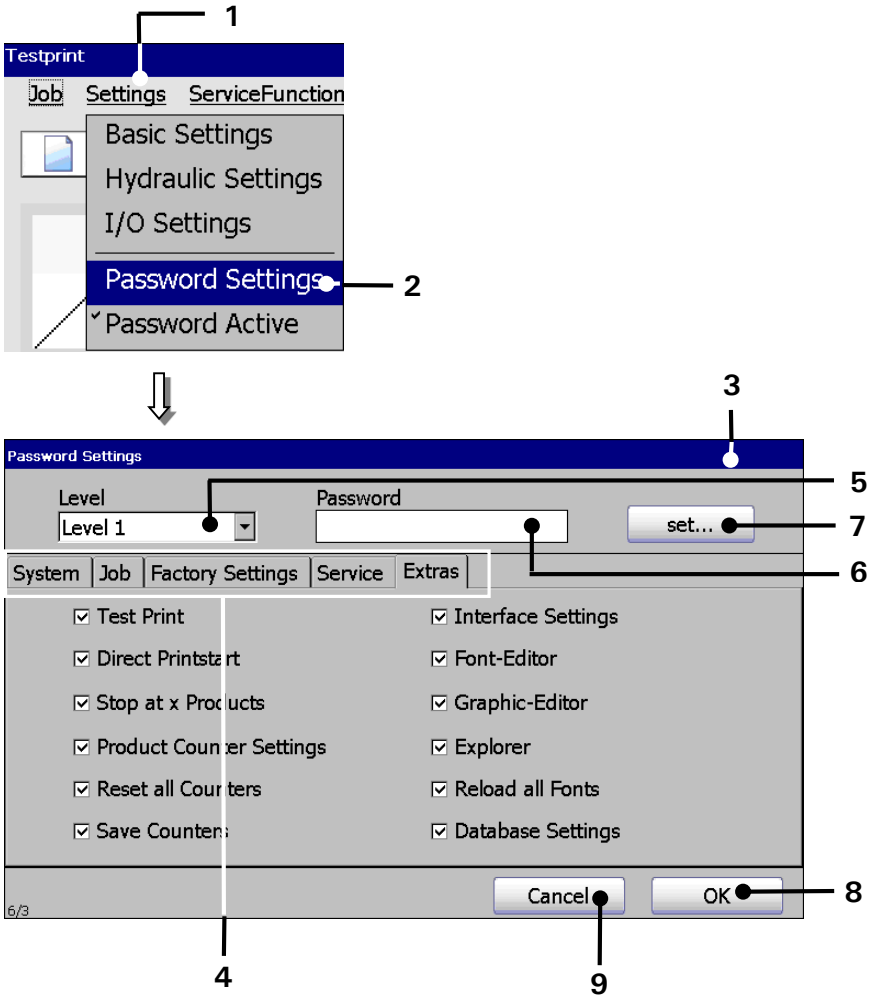
In the input field <**Password**> (6) you can enter the password for the current user level or you can display an already defined password.

With the button <**set...**> (7) the password which has been entered for the current access level will be taken over.

With the button <**OK**> (8) the menu closes and the settings will be saved.

The button <**Cancel**> (9) closes the menu without taking over the carried out changes.

Figure 60 Menu password settings



1 – Button <Settings>
2 – Option <Password Settings>
3 – Dialog box <Password Settings>
4 – Tab bar
5 – Drop-down list <Level>
6 – Input field <Password>
7 – Button <set...>
8 – Button <OK>
9 – Button <Cancel>

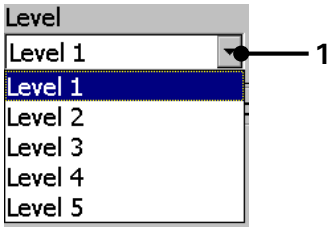
Proceeding:

- Press the button **<Settings>** (1) and the option **<Password Settings>** (2).
- The menu **<Password Settings>** (3) is faded in.

7.3.2.1.1 Selection of user level (Level of access authorization)

With the drop-down list <**Level**> (1) you can select the user level for which the user rights should be activated as well as how the password should be defined.

Figure 61 Selection of user level (Level of access authorization)



1 – Drop-down list <Level>

7.3.2.1.2 Definition of password

In the input field <**Password**> (1) you can enter the password for the current user level or you can display an already defined password.

Proceeding:

Example: The password „Leibinger“ should be defined.

- Click in the input field <**Password**> (1). A keyboard field (2) opens for input.

INFORMATION

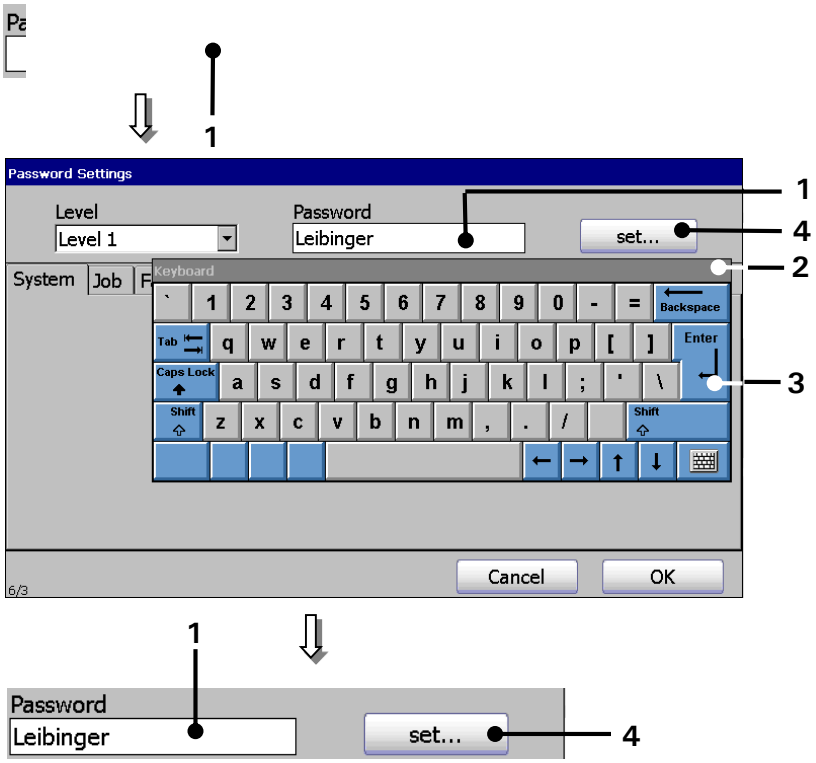
You will find further information regarding the operation with keyboard in the **chapter *Keyboard***!

- Enter the password „Leibinger“. The input is displayed in the input field <**Password**> (1).
- Press the button <**Enter**> (3) of the keyboard field to finish the input.
- Now press the button <**set...**> (4) to take over the entered password.

ATTENTION

A final taking over does only happen if the menu is closed with the button <**OK**>!

Figure 62 Define password



1 – Input field <Password>
2 – Keyboard field
3 – Button <Enter>
4 – Button <set...>

7.3.2.1.3 Definition of user rights

In the several tabs of the menu you can enable or lock the functions of the current access levels. An enabled function is displayed by a √ in the checkbox.

The selection of a tab happens by clicking on the accordant tab.

Note: *The proceeding corresponds to the Window™-standard procedure.*

If a function is blocked in a specific level, it will be deactivated in the menus insofar as it is technically possible.

If this is not possible, a ***safety message <Access authorisation>*** *(see picture „Password level display and safety messages“) is faded in by calling up a function for which the active level has no access authorisation.*

7.3.2.2 Lost password

If the password of the highest defined access right (Supervisor) has been lost special measures are required. In this case please contact the dealer address which is listed in the **chapter** 1.3 ***Publisher***.

7.3.3 Password protection (Password query)

If the password protection LEIBINGER JET3 is activated a password enquiry is carried out for every start of the device.

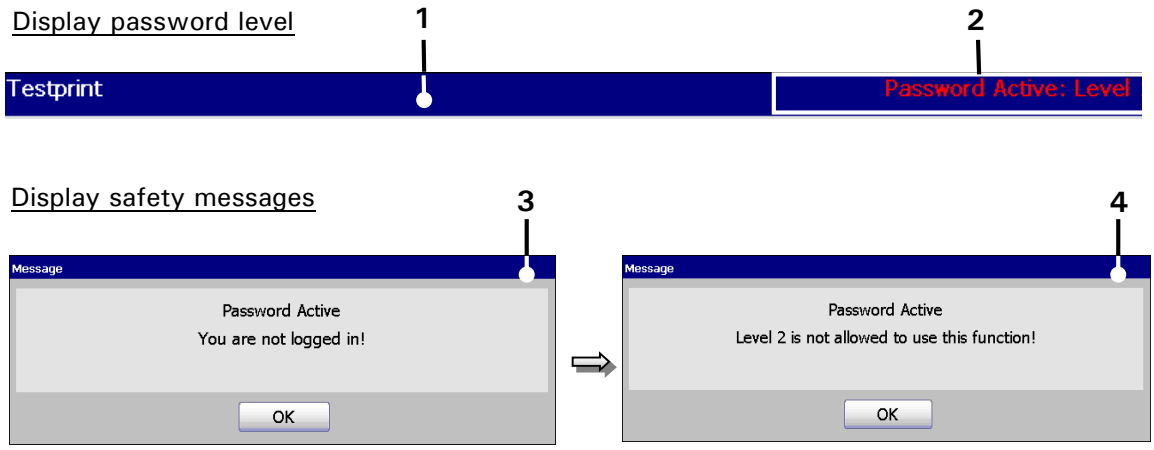
Further more the function <**Login**> in the menu „Extra“ is activated. With this function an user can login during the operation to e.g. carry out functions which are still not enabled and can logout and can therefore prevent changes of the settings by unauthorized staff.

If the device is switched off during an activated password query, the current password level will be logged-out automatically. By switching on the device, the LEIBINGER JET3 is always in the logged-out status.

If the function is activated it is displayed by a √ on the checkbox of the function.

Further more the last active password level is displayed on top right in the title bar. If no password levels have been assigned up to this date, level 1 is displayed.

Figure 63 Password level display and safety messages



1 – Title bar
2 – Password level display
3 – Message <Login required>
4 – Message <Access authorisation>

Note: *If no password has been entered for activated password query during the start of the device, only the functions <**Log on**> in the menu „Extras“ are available for the current user.*

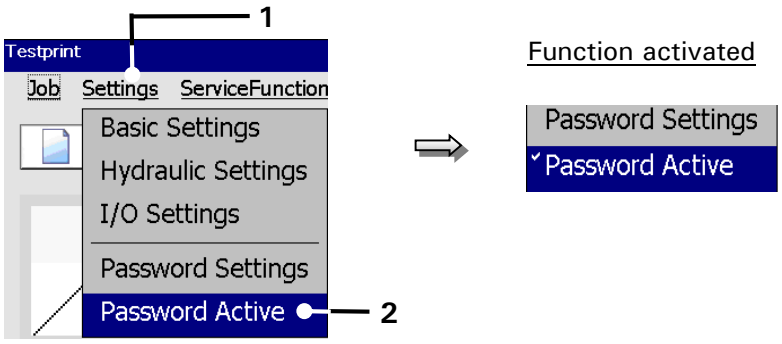
After logging-out the user, this function is still only available.

If you try to carry out a function in a logged-out status or you try to carry out a function in a logged-in status for which the active level has no access authorisation, accordant safety messages are faded-in.

The function is activated or deactivated as follows:

- Press the button <**Settings**> (1) and the option <**Password Activate**> (2).
- The function is activated or deactivated depending on the existing status.

Figure 64 Activate/deactivate password query



1 – Button <Settings> 2 – Option <Password protection activated >

INFORMATION

You will find further information regarding login/logout and switching on the device in the **chapter** ***Login*** and in the **chapter** ***Switching on with password protection!***

7.3.4 I/O-settings

With the option <**I/O Settings**> (2) you can open the dialog box „I/O Settings“ (3).

This dialog box shows the function or status assignment to the available digital inputs and outputs.

6 inputs and 8 outputs are available.

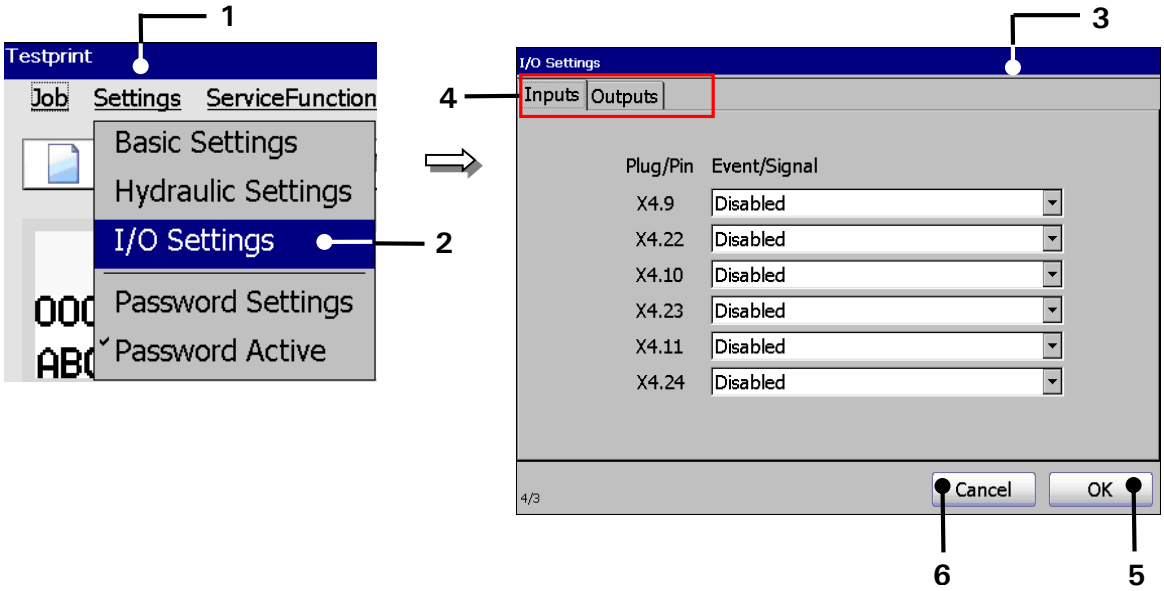
The selection of the tab „Inputs“ and „Outputs“ happens by clicking on the accordant tab (4).

Note: *The proceeding corresponds to the Windows™-standard procedure.*

With the button <**OK**> (5) you can close the dialog box and you can save the settings.

The button <**Cancel**> (6) closes the dialog box without taking over the carried out changes.

Figure 65 Dialog box I/O Settings



1 – Button <Settings>
2 – Option <I/O Settings>
3 – Dialog box <I/O Settings>
4 – Tabs
5 – Button <OK>
6 – Button <Cancel>

7.3.4.1 Inputs

With the tab <**Inputs**> you can assign functions to the available inputs.

E.g.: Input 1 (X4.9 (of the Pin No. 9 of interface X4)) should be assigned the function "Counter reset".

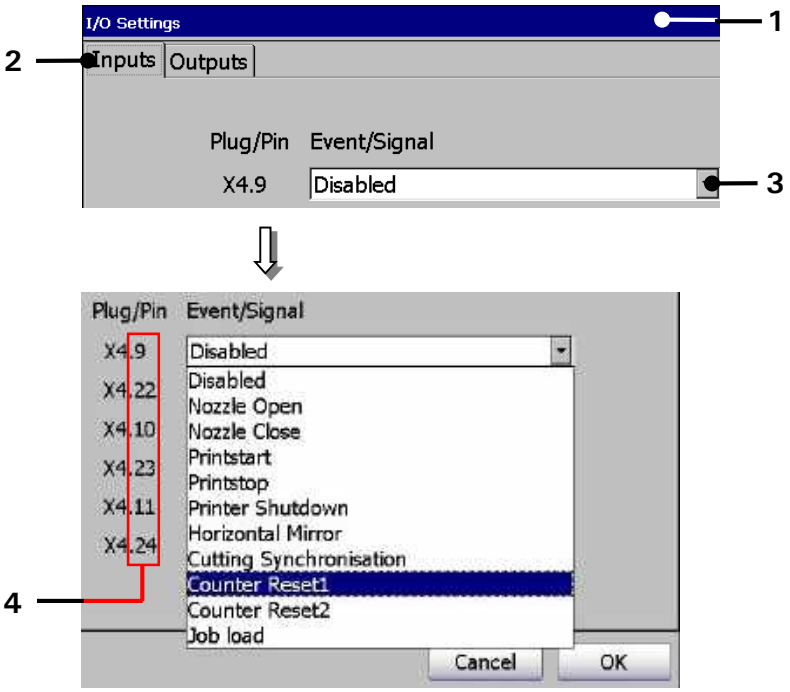
Proceeding:

- Press on the tab <**Inputs**> (2) to select the tab.
- Press on the **arrow key of the drop-down list of the input 1 [X4.9]** (3). The drop-down list provides a list of functions for selection.
- Now select the required event/signal.

INFORMATION

You will find further information in the **chapter *Interface X4 (Inputs)***!

Figure 66 Assign functions to digital inputs



1 – Dialog box <I/O Settings>
2 – Tab <Inputs>
3 – Drop-down list <X4.9>
4 – Pin designation

7.3.4.2 Outputs

With the tab <**Outputs**> you can assign printer states and messages to the available outputs.

ATTENTION

Standardly the outputs 1-3 are already predefined!

- Output 1 (X3.1) = Print stop error
- Output 2 (X3.2) = Refill warning
- Output 3 (X3.3) = Ready to print

E.g.: The output 5 (X3.9 (of the Pin No. 9 of interface X3)) should be assigned to the JET Viso trigger function.

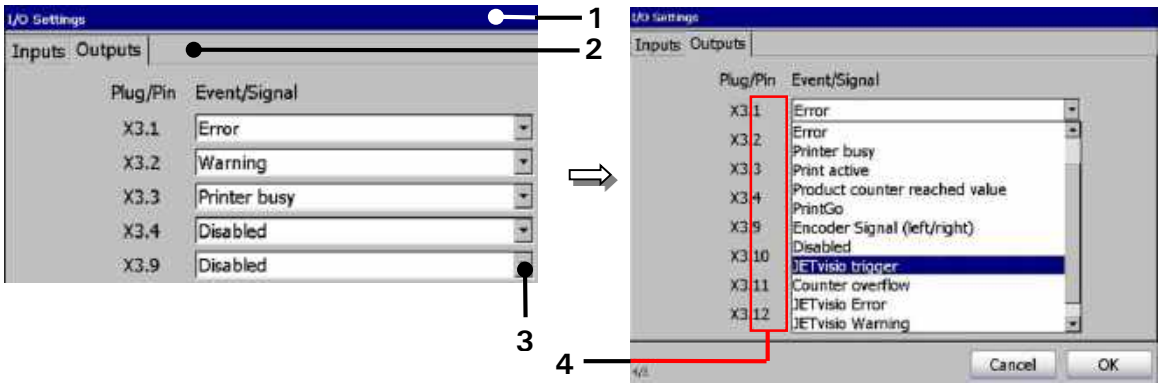
Proceeding:

- Press on the tab <**Outputs**> (2) to select the tab.
- Press on the **arrow key of the drop-down list of the output 5 [X3.9]** (3). The drop-down list provides a list of events/signals for selection.
- Now select the required event/signal.

INFORMATION

You will find further information also in the **chapter *Interface X3 (Outputs)***!

Figure 67 Assign functions and messages to digital outputs



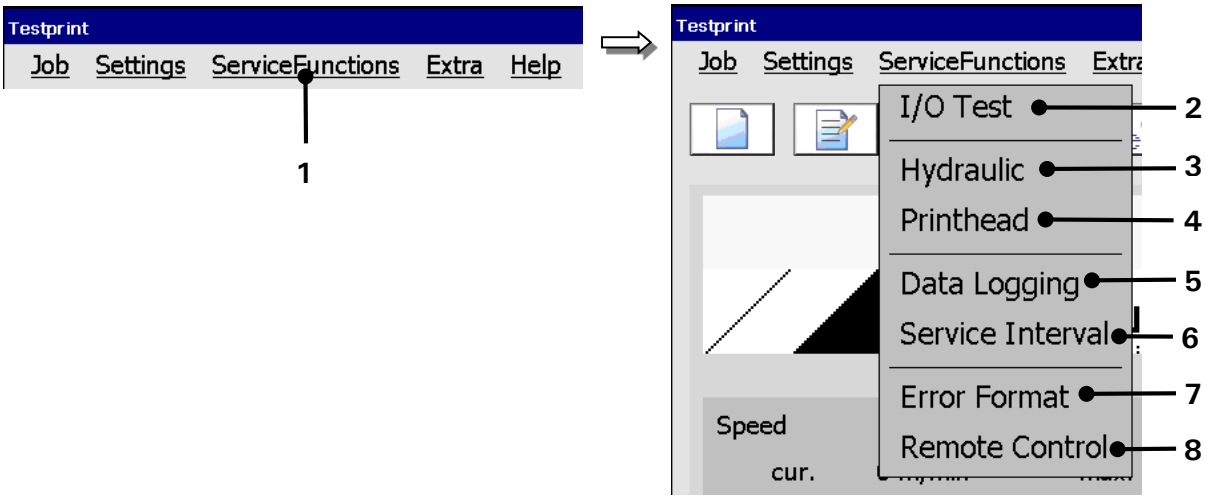
1 – Dialog box <I/O Settings>
2 – Tab <Outputs>
3 – Drop-down list <X3.9>
4 – Pin designation

7.4 Service functions

With the button <**ServiceFunctions**> in the main dialog box bar the submenu „Service functions“ is displayed. The following options are available:

- I/O-Test
- Data Logging
- Remote Control
- Hydraulic
- Service Interval
- Printhead
- Error Format

Figure 68 Service functions menu

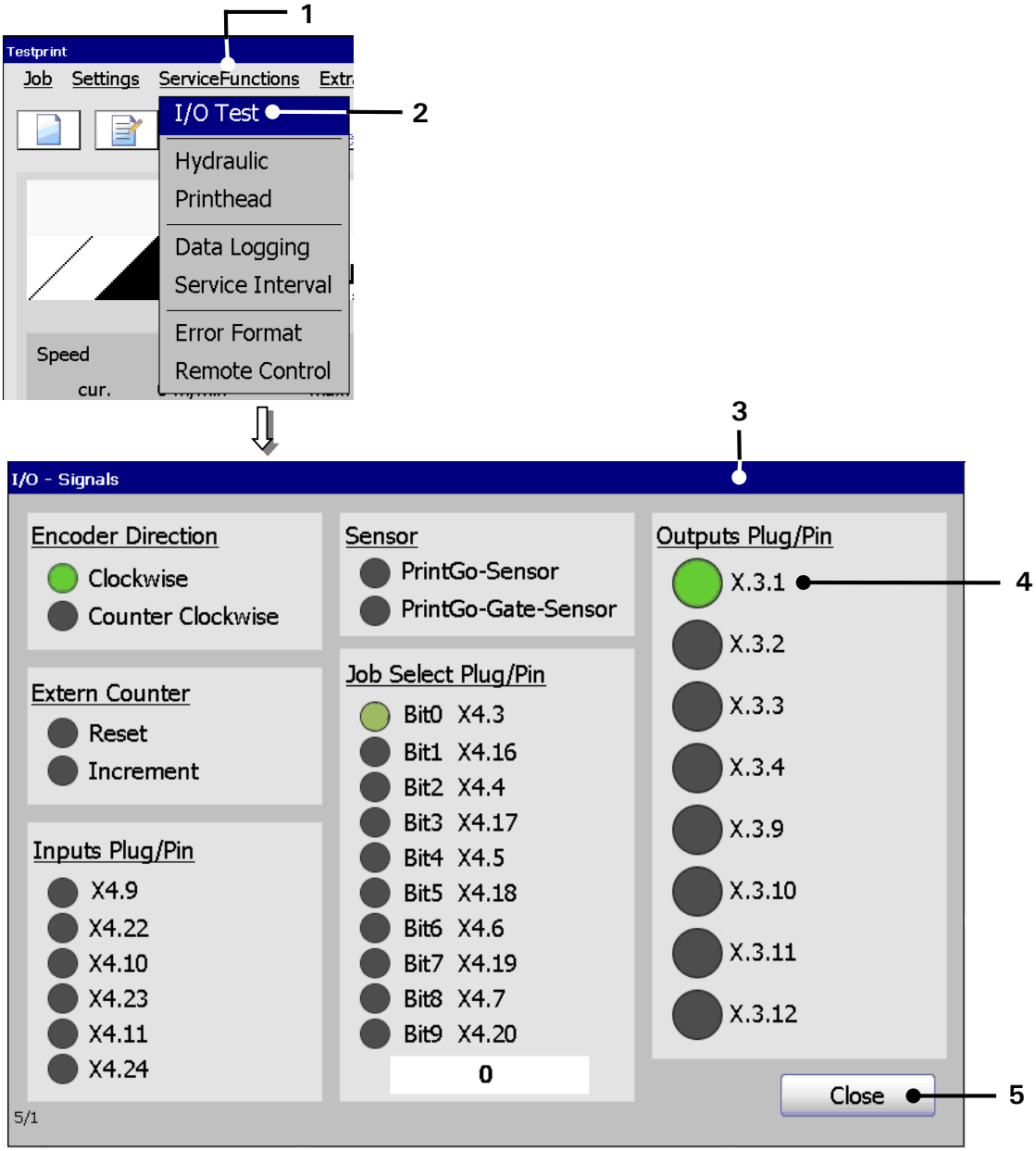


1 – Button <ServiceFunctions>
2 – Option <I/O Test>
3 – Option <Hydraulic>
4 – Option <Printhead>
5 – Option <Data Looging (Protocol file)>
6 – Option <Service Interval>
7 – Option <Error Format>
8 – Option <Remote Control>

7.4.1 I/O Test (Signal test)

With the option <**I/O Test**> (2) the dialog box „I/O-Signals (3)“ is displayed. The dialog box shows the states of the inputs and outputs of the device.

Figure 69 I/O-Signal test



1 – Button <ServiceFunctions>
2 – Option <I/O-Test>
3 – Dialog box <I/O-Signals>
4 – Status display <I/O active/inactive>
5 – Button <Close>

The button <**Close**> (5) closes the dialog box.

The dialog box allows carrying out a temporary test of the inputs and outputs of the LEIBINGER JET3 during the troubleshooting without any additional tools.

If signals are fed to the inputs the signal status are displayed in the dialog box. The functions which are assigned to the inputs are not carried out for feeding the signals!

Active in-/outputs are displayed by a green status display.

For leaving the dialog box all carried out settings will be rejected, that means if outputs have been defined just for testing (activated) they will be deactivated again.

7.4.2 Hydraulic-/Printhead – and special functions

SERVICE WORK AND SPECIAL FUNCTIONS

This work must only be carried out by trained personnel or by Leibinger service technicians!

By pressing the direct button [icon] <**Service**> (1) or with the options <**Printhead**> (3) or <**Hydraulic**> (4) you can open the dialog box „Hydraulic/Printhead Test“ (5).

This dialog box provides the verification of hydraulic components, activation or deactivation and setting of print head functions as well as the processing of special functions. All changes have only a temporary effect, that means as long as the dialog box is open.

The selection of a tab happens by clicking on the accordant tab (8).

Note: *The proceeding corresponds to the Windows™-standard procedure.*

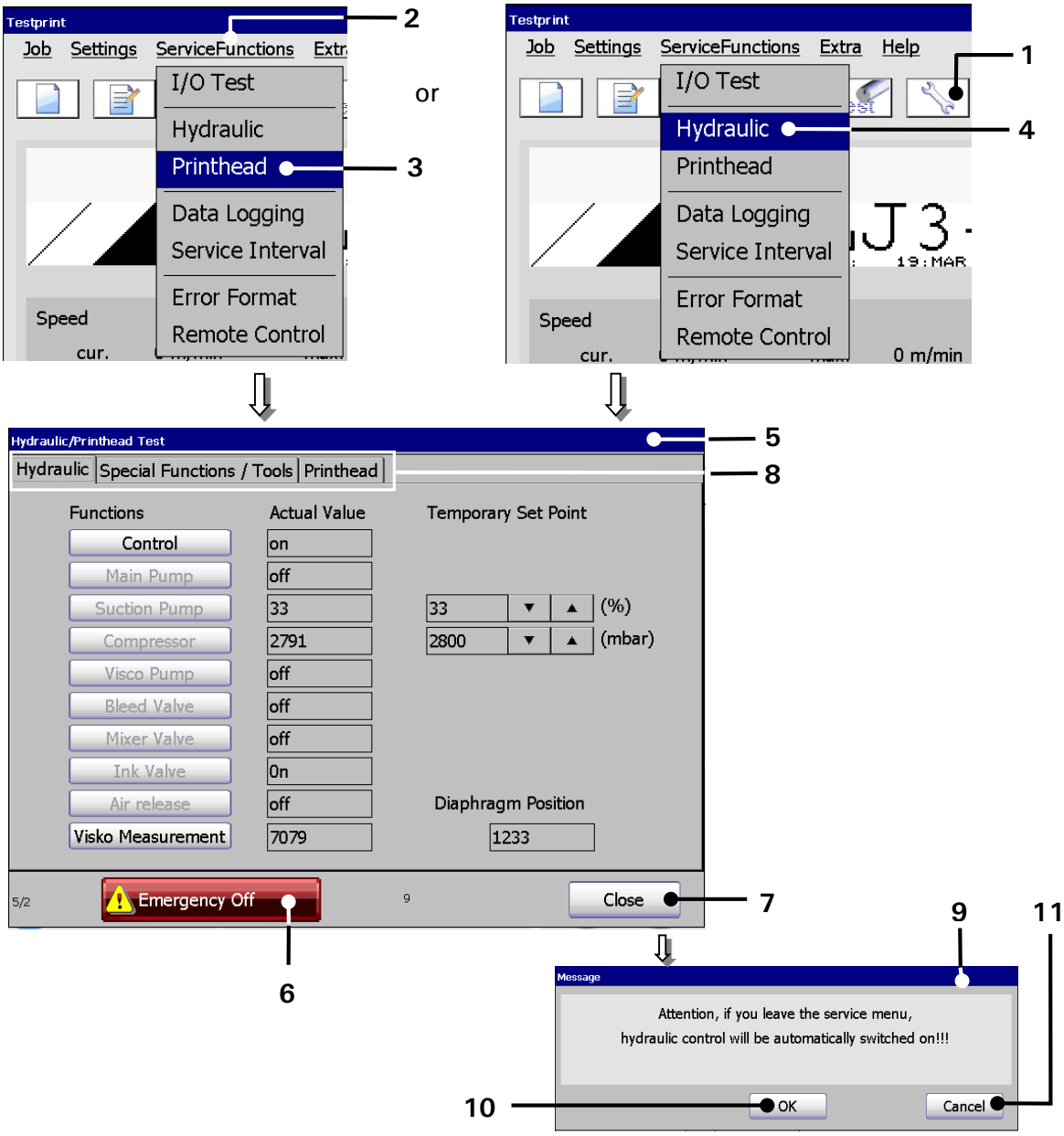
By pressing the button <**Emergency off**> (6) the JET3 is turned off immediately, without carrying out further actions (e.g. closing the nozzle).

The button <**Close**> (5) closes the dialog box.

INFORMATION

By closing the dialog box all changes are reset to the normal/fully automatic operating condition!
If the dialog box closes an accordant message (9) is faded in which can confirm or cancel the quitting.

Figure 70 Hydraulic/Printhead test dialog box



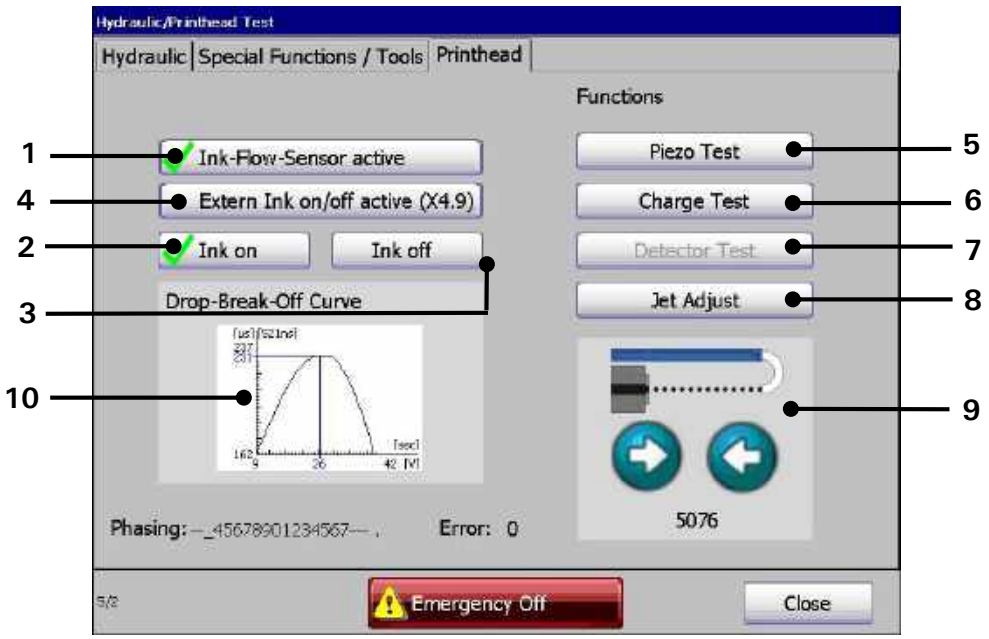
1 – Direct button (Icon) <Service>
2 – Button <ServiceFunctions>
3 – Option <Printhead>
4 – Option <Hydraulic>
5 – Dialog box <Hydraulic/Printh. Test>
6 – Button <Emergency Off>
7 – Button <Close>
8 – Tab bar
9 – Message <Close dialog box>
10 – Button <OK>
11 – Button <Cancel>

7.4.3 Printhead functions

Under the tab <**Print head**> the following functions are available:

- Ink-Flow-Sensor active
- Extern Ink on/off active
- Ink on/Ink off
- Piezo Test
- Charge Test
- Detector Test
- Jet Adjust

Figure 71 Tab printhead



1 – Button <Ink-Flow-sensor active>
2 – Button <Ink on>
3 – Button <Ink off>
4 – Button <Extern Ink on/off active>
5 – Button <Piezo Test>
6 – Button <Charge Test>
7 – Button <Detector Test>
8 – Button <Jet Adjust>
9 – Operating field<Nozzle seal>
10 – Display <Drop-Break-Off-Curve>

7.4.3.1 Jet monitoring (Ink-Flow-Sensor active)

The ink jet monitoring provides highest operating reliability due to the additional monitoring of the ink backflow. The full automatic monitoring turns off the ink jet as soon as the ink backflow is interrupted. The nozzle seal will be closed automatically and head impurities are therefore prevented.

By pressing the button <**Ink-Flow-Sensor active**> (1) the jet monitoring is turned on or off.

An activated jet monitoring is designated by a ✓ on the button.

7.4.3.2 Ink on/off

With the two buttons <**Ink on** > (2) and <**Ink off** > (3) the ink delivery to the nozzle is turned on or off.

The status of the ink delivery is designated by a ✓ on the accordant button.

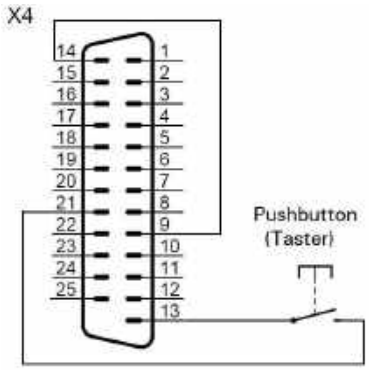
This function can be generated also „remote-controlled“ by an electronical contact *(see also the informations in the following chapter).*

7.4.3.3 Extern Ink on/off

During cleaning works at the print head it can be helpful (e.g. in case of a long umbilical) that the ink delivery can be turned on/off externally. The JET3 requires impulses for the control. This can be reached with a bridge between pin 9 and 14 and a switch contact (pushbotton) at the pins 21 and 13 of the I/O interface **X4**.

Example:
First impulse = switches off the ink delivery
Second impulse = switches on again the ink delivery

Diagram/Plug assignment:



The signal which is pending at the interface is only analyzed by the JET3 if the function <**Extern Ink on/off active**> (4) is turned on.

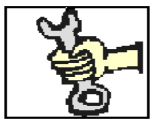
If the function is activated, it is shown by a ✓ on the display.

7.4.3.4 Piezo test and charge test

INFORMATION

You will find further informations in the separate document **Service manual**!

7.4.3.5 Jet adjustment



DANGER

Dangerous voltage exists in the print head!

The jet adjustment can only be carried out by authorized staff or Leibinger service technicians!

WARNING

Risk of fire and injury!

- Inflammable! Combustible gases and liquids cause serious burns. Sources of ignition must be kept away from the print head!
- Ink escapes from the head aperture. Spraying of ink into the eyes can cause blindness. Eye protection is necessary!
- Upon contact the contents causes skin irritation. Protective equipment is necessary!

This function provides a support for a required correction of the jet position.

Proceeding:

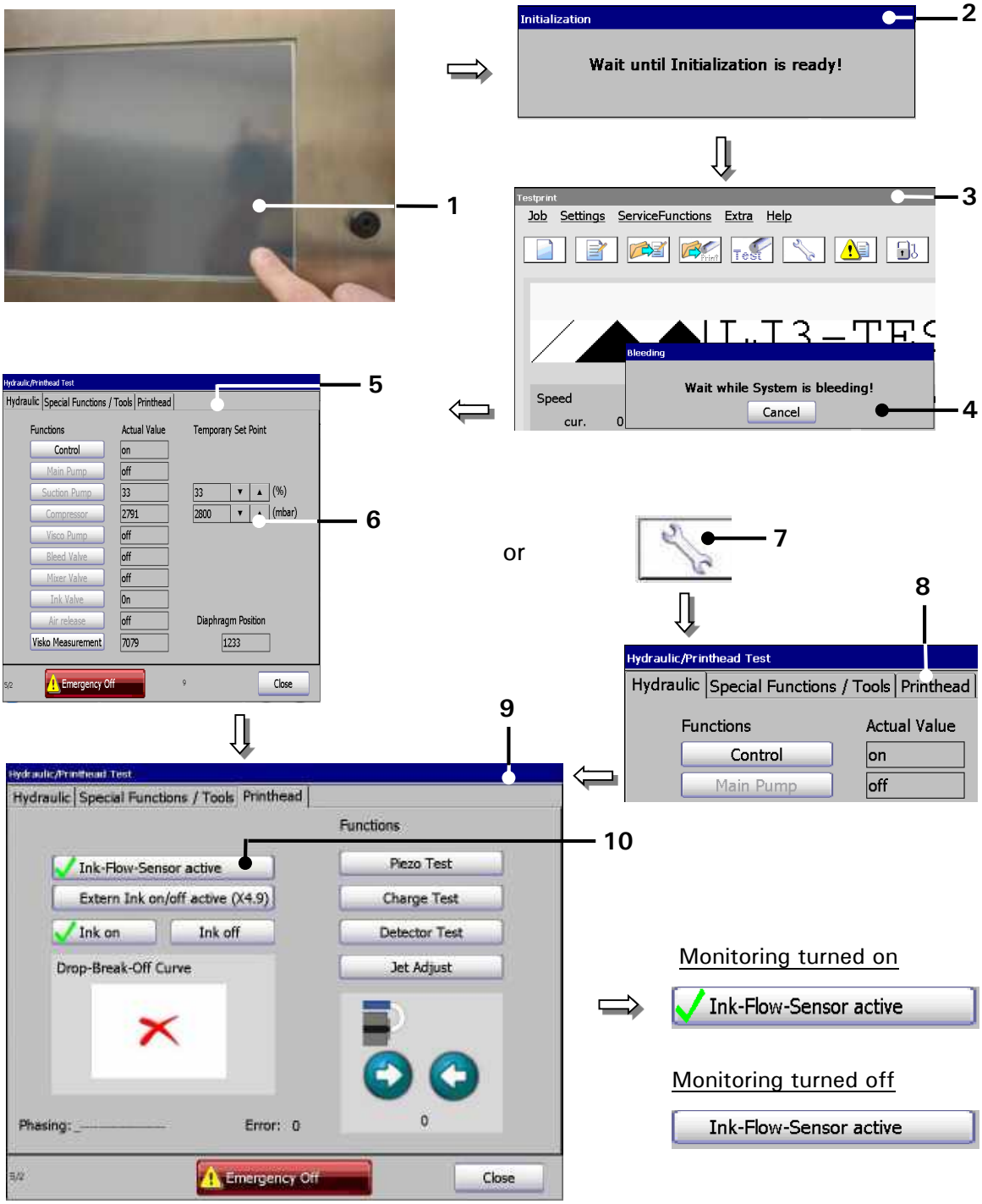
ATTENTION

Required tools and facilities:

- Magnifier (Sixfold lens)
- Allen key 1,5 mm

Do not use a ball head-allen key because it can cause damages at the screw heads!

Figure 72 Jet adjustment (Step 1)



1 – TFT-Touch-Display
2 – Message <Initialization>
3 – Main menu
4 – Message <Bleeding>
5 – Button <ServiceFunctions>
6 – Option <Printhead>
7 – Direct button (Icon) <Service>
8 – Tab <Printhead>
9 – Tab <Printhead>
10 – Button <Ink-Flow-Sensor active>

- Turn on the JET3 by touching the dark **touch-display** (1) at any position *(Duration of touching approx. 2 sec.)*.
- The **main menu** (2) with the **message** <**Initialization**> (3) is displayed.
- After initialization the device starts automatically with the bleeding of the system. During the process the **message** <**Bleeding**> (4) is displayed.
- Wait until the bleeding process is finished.

  Note: *Do not cancel the bleeding cycle ahead of time!*
- Press the button <**ServiceFunctions**> (5) and the option <**Printhead**> (6) or press the Icon <**Service**> (7) and the tab <**Printhead**> (8).
- The tab <**Printhead**> (9) in the dialog box „Hydraulic/ Print head Test“ is now displayed.
- Now turn off the jet monitoring with the button <**Ink-Flow-Sensor active**> (10).

  An activated jet monitoring is marked by a ✓ on the button
- Remove the print head cover (11).
- Press the button <**Jet Adjust**> (12). The gutter motor of the print head is now moving automatically to the required setting position (approx. 4200).

  Note: *Smaller deviations from the given setting position are in the tolerance range of the system!*
- The ink jet has to be now adjusted with the two setting screws 13) according to the following picture on the next pages (jet adjustment (step2)) to the gutter tube (14).

  By turning the upper setting screw (13.1) clockwise the ink jet moves to the direction of the gutter tube top edge. Counter-clockwise the jet moves to the direction of the gutter tube bottom edge.

  Note: *Line of sight from the nozzle to the gutter tube.*

  By turning the lateral setting screw (13.2) clockwise the ink jet moves to the direction of the left gutter tube angle. Counter-clockwise the jet moves to the direction of the right gutter tube angle.

  Note: *Line of sight from the nozzle to the gutter tube.*
- After carried out adjustment of the jet position in the gutter tube the complete jet generation unit has to be adjusted in the charging tunnel (15) and in the deflection plates in this way that the ink jet is parallel and flush with the left angle of the charging tunnel.

  Note: *Line of sight from the nozzle to the gutter tube.*

ATTENTION

The ink jet should be absolutely parallel to the deflection plates.

For the optical evaluation of the jet position it is important that the angle of view is exactly adjusted vertically from above via the charging tunnel and ink jet to exclude parallax errors as far as possible.

- Press the button **<Jet Adjust>** (12). The gutter motor of the print head is now moving automatically to the required setting position (approx. 4200).

  Note: *Smaller deviations from the given setting position are in the tolerance range of the system!*

- The ink jet has to be now adjusted with the two setting screws (13) according to the following picture (jet adjustment (step2)) to the gutter tube (14).

  By turning the upper setting screw (13.1) clockwise the ink jet moves to the direction of the gutter tube top edge. Counter-clockwise the jet moves to the direction of the gutter tube bottom edge.

  Note: *Line of sight from the nozzle to the gutter tube.*

  By turning the lateral setting screw (13.2) clockwise the ink jet moves to the direction of the left gutter tube angle. Counter-clockwise the jet moves to the direction of the right gutter tube angle.

  Note: *Line of sight from the nozzle to the gutter tube.*

- After carried out adjustment of the jet position in the gutter tube the complete jet generation unit has to be adjusted in the charging tunnel (15) and in the deflection plates in this way that the ink jet is parallel and flush with the left angle of the charging tunnel.

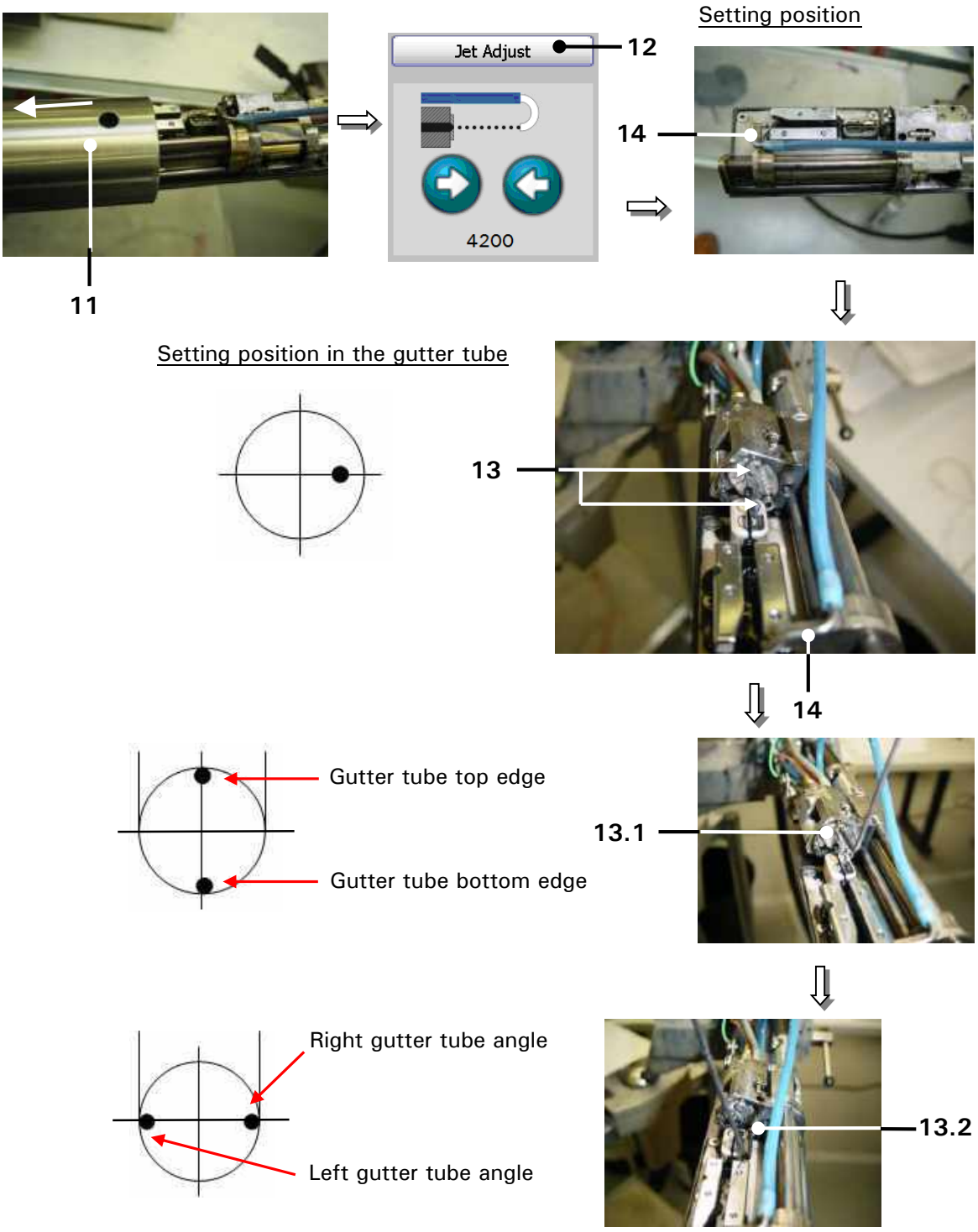
  Note: *Line of sight from the nozzle to the gutter tube.*

ATTENTION

The ink jet should be absolutely parallel to the deflection plates.

For the optical evaluation of the jet position it is important that the angle of view is exactly adjusted vertically from above via the charging tunnel and ink jet to exclude parallax errors as far as possible.

Figure 73 Jet adjustment (Step 2)

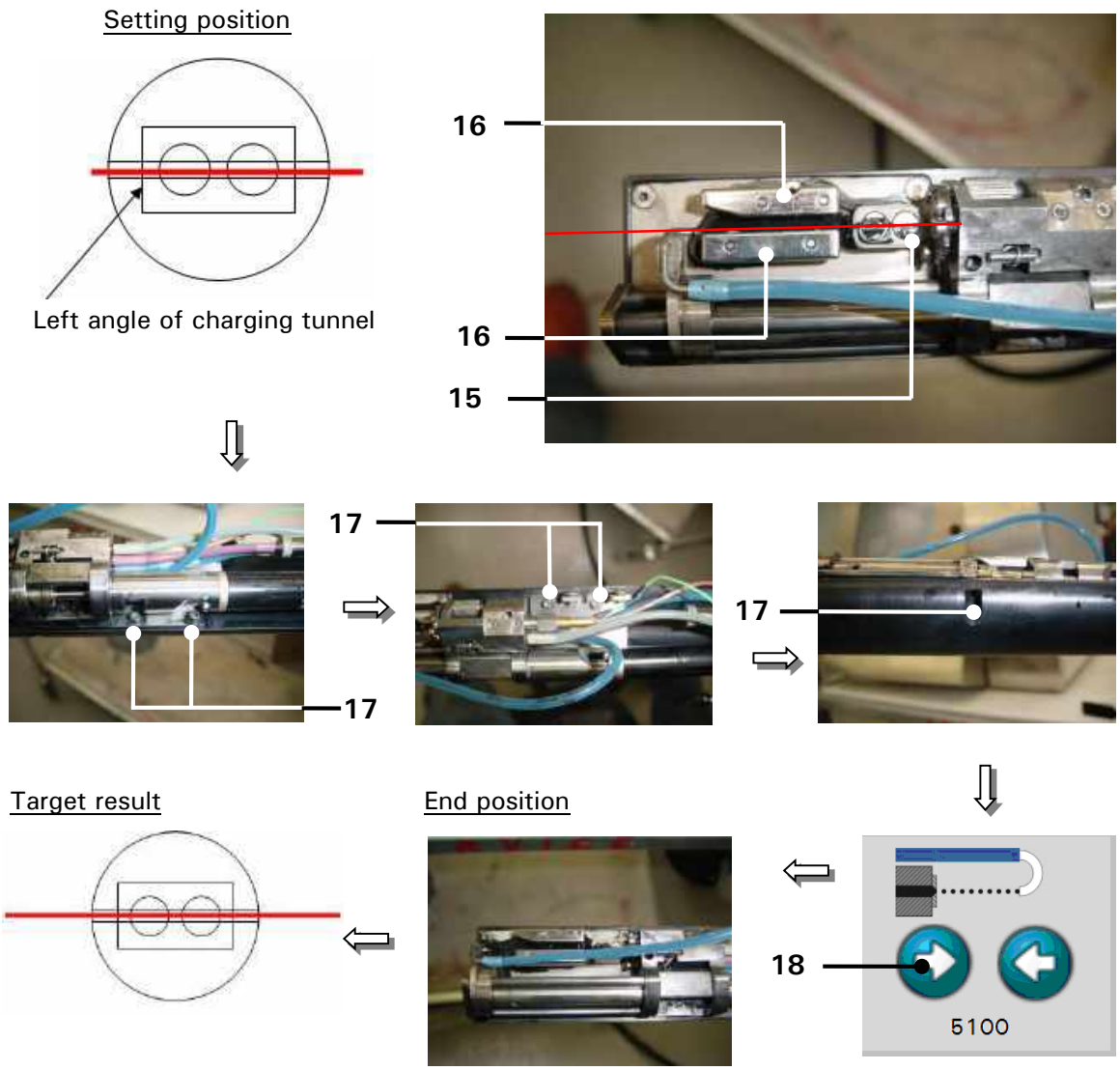


11 – Head cover
12 – Button <Jet Adjust>
13 – Setting screw (2x)
13.1 – Upper setting screw
13.2 – Lateral setting screw
14 – Gutter tube

Setting sequence:

1. Open the 5 locking screws on the fixing plate (17) as far as the unit can be moved by hand.
2. Move the unit carefully until the ink jet corresponds with the shown setting position.
3. Fix the settings by tighten the locking screws (17).
4. Check the setting positions after fixing again and if necessary correct the position again.

Figure 74 Jet adjustment (Step 3)

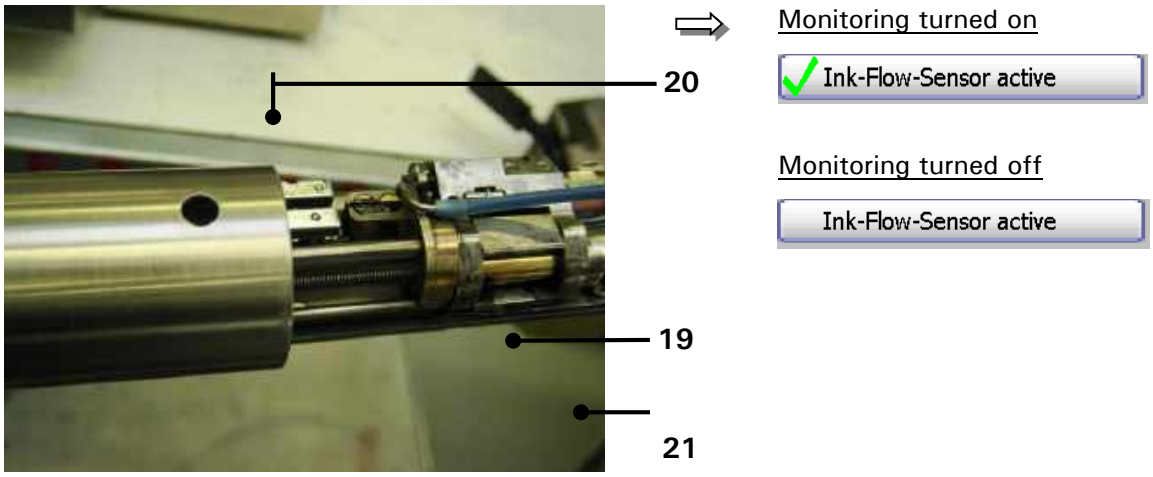


15 – Charging tunnel
16 – Deflection plates
17 – Holding screw of the fixing plate (5x)
18 – Arrow key <Open nozzle>

- Now the nozzle seal has to be opened completely to souse the ink jet completely into the charging tunnel (15). For this press on the arrow key <**Open nozzle**> (18) and keep it pressed until the gutter motor has reached it's end position.
- In this position check the setting position again. The ink jet should be now in the centre of the charging tunnel and parallel to the deflection plates. If necessary the position has to be corrected again by moving the fixing plate.
- If you have reached the correct setting you have to close the nozzle seal. For this press on the arrow key <**Close nozzle**> (19) and keep it pressed until the nozzle seal is completely closed.
- Finally activate the ink jet monitoring with the button <**Ink-Flow-Sensor active**> (20).

  An activated jet monitoring is marked by a . on the button.
- Close the dialog box with the button <**Close**> (21).

Figure 75 Jet adjustment (Step 4)



19 – Arrow key <Close nozzle>
20 – Button <Ink-Flow-Sensor active>
21 – Button <Close>

7.4.4 Special functions and tools

Under the tab <**Special Functions/Tools**> the following functions are available:

- Pressureless
- Constant Bleed
- Deplete Ink
- Deplete Solvent
- Calc Delay Time
- Calc last PG Drops
- Mix only Ink
- Mix only Solvent
- Fill up Routine
- Ignore error messages and warnings

7.4.4.1 Constant bleed

ATTENTION

The function constant bleeding is only activated or functional under the following device conditions:

- Ink suction is turned on
- Nozzle is closed
- Head cover has been detached

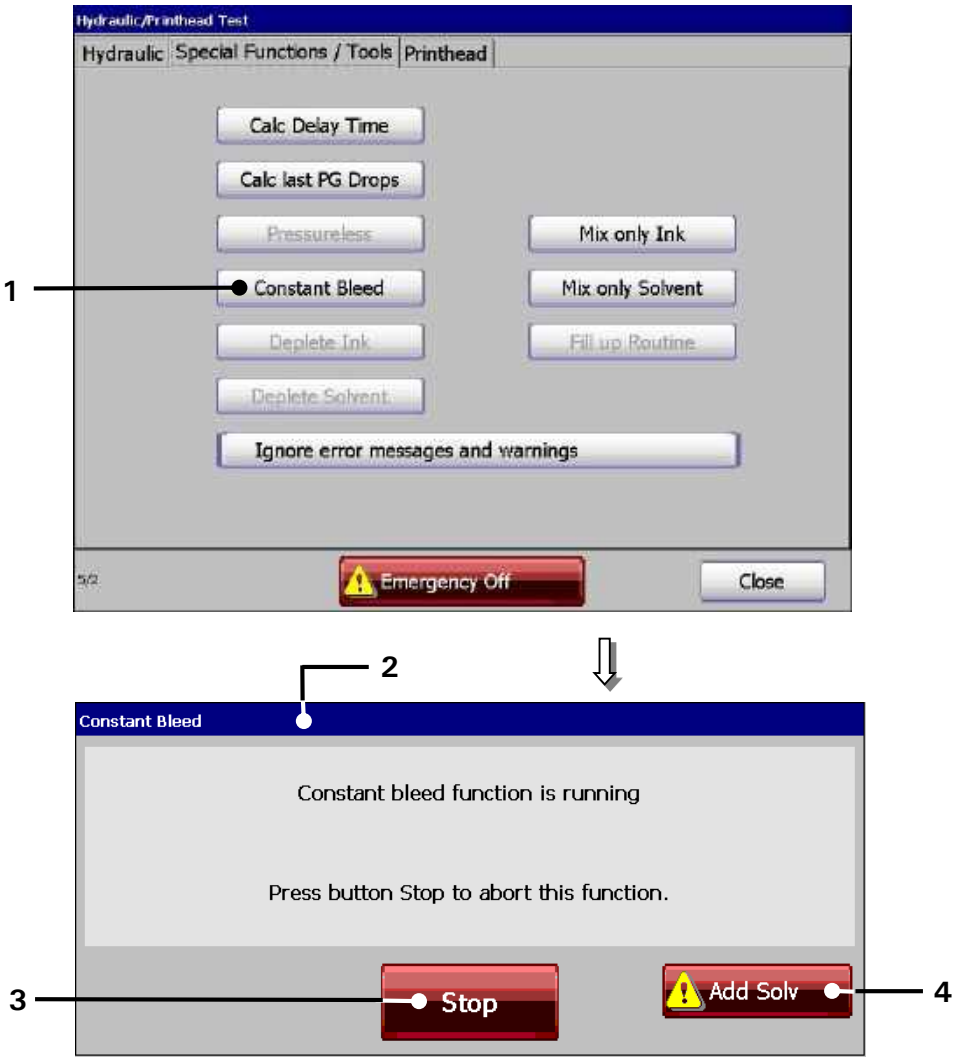
By pressing the button <**Constant Bleed**> (1) the constant bleeding is started. During the process the message **„Constant Bleed“** (2) is displayed. The bleeding can be canceled any time by pressing on the button <**Stop**> (3). During this process the visco pump is activated for 3 sec. every minute to ensure a purging of the pump.

With the button <**Add Solv**> (4) you can add only solvent. This function provides specially filling operations to bleed e.g. the solvent tube or to set the viscosity of the ink faster to a lower value.

ATTENTION

By adding solvent the ink can be diluted too strong. Therefore this function should only be carried out by qualified personnel.

Figure 76 Constant bleed



1 – Button <Constant Bleed>
2 – Message <Constant Bleed>
3 – Button <Stop>
4 – Button <Add Solv.>

7.4.4.2 Mix only ink/sovent

With the two buttons <**Mix only Ink** > (1) and <**Mix only Solvent** > (2) only ink or solvent can be supplied to the hydraulic circuit.

These functions allow to set the viscosity of the ink fast to a lower or higher value.

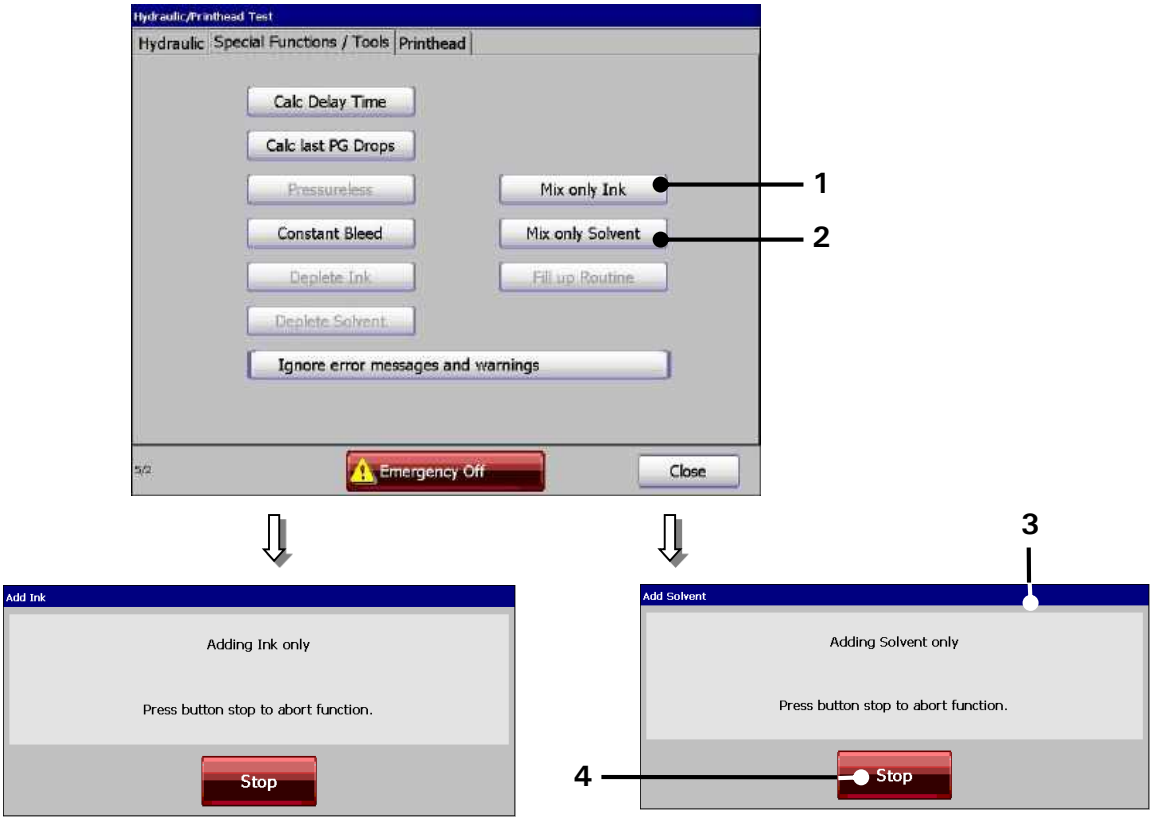
The execution of addition of the selected medium is displayed by an accordant message (3).

With the button <**Stop**> (4) the particular process will be finished.

ATTENTION

By adding solvent the ink can be diluted too strong. Therefore this function should only be carried out by qualified personnel.

Figure 77 Ink-/Solvent delivery



1 – Button <Mix only Ink>
2 – Button <Mix only Solvent>
3 – Message <Delivery .....>
4 – Button <Stop>

7.4.4.3 Ignore all error messages and alarm messages

With this function the error- and alarm messages of the device e.g. for starting up, filling, or for service works can be canceled.

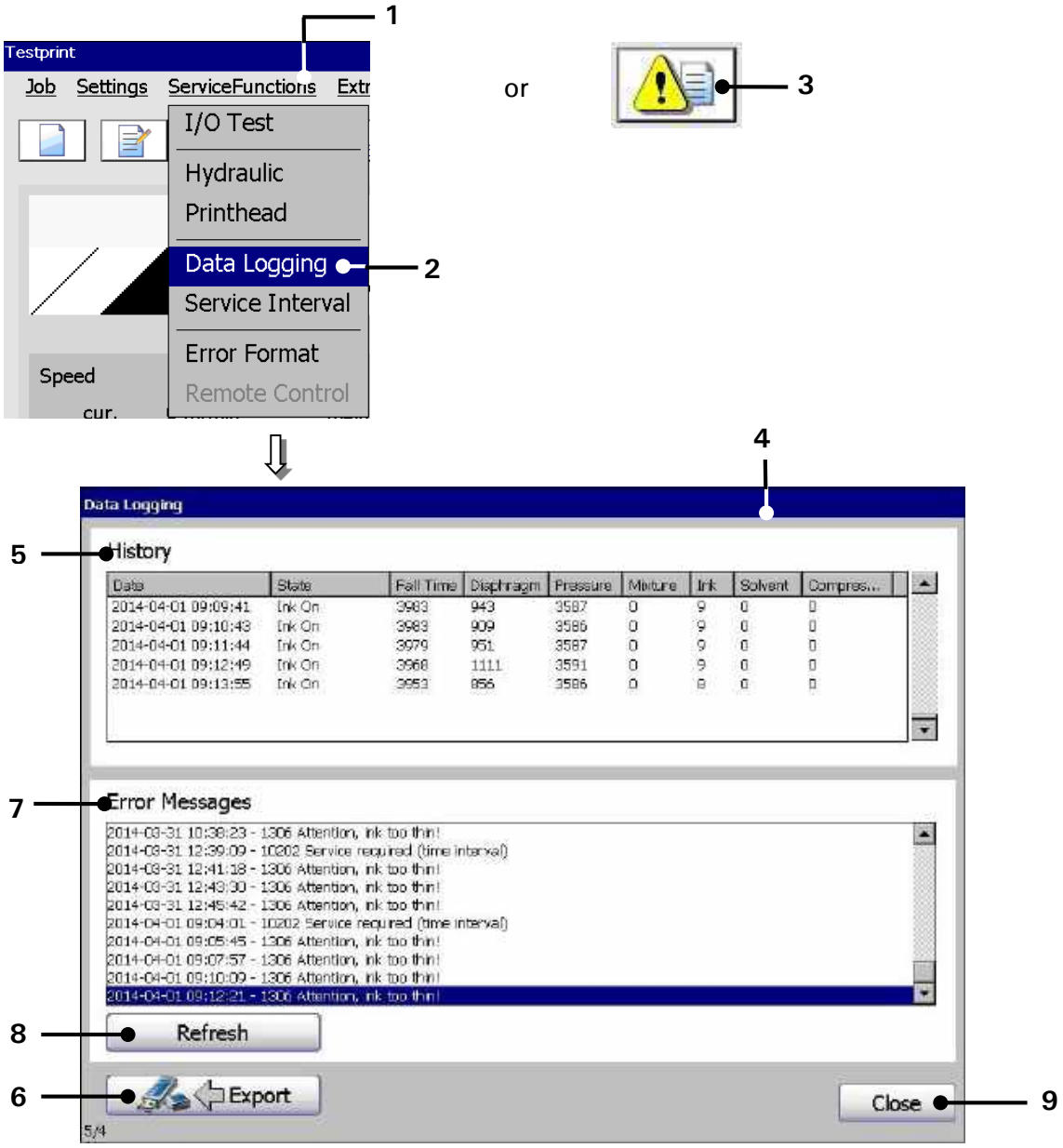
By pressing the button **<Ignore error messages- and warnings>** the function is turned on or off.

If the function is activated, it is marked by a  on the display.

7.4.5 Data logging (Log file)

In the log file all events and reports of the last 72 hours are saved in cycles of approx. every minute. With the obtained history, processes can be reproduced and causes can be identified.

Figure 78 Data logging window



1 – Button <ServiceFunctions>
2 – Option <Data Logging>
3 – Direct button (Icon)
4 – Window <Data Logging>
5 – Display <History>
6 – Button <Export>
7 – Display <Error Messages>
8 – Button <Refresh>
9 – Button <Close>

An additional function allows to select and export the current machine relevant data.

With the button <**Export**> (6) you can save the recorded machine relevant data on an external memory device (e.g. USB-stick).

The button <**Close**> (10) closes the window.

7.4.5.1 Select (call up) log file

Proceeding:

- Press the button <**ServiceFunctions**> (1) and the option <**Data Logging**> (2) or the accordant direct button (Icon) (3).
- The window <**Data Logging**> (4) is faded in.

7.4.5.2 Save log file

The recorded machine relevant data of the last 72 hours of operation can be saved on an external memory device (USB-stick or SD-CARD).

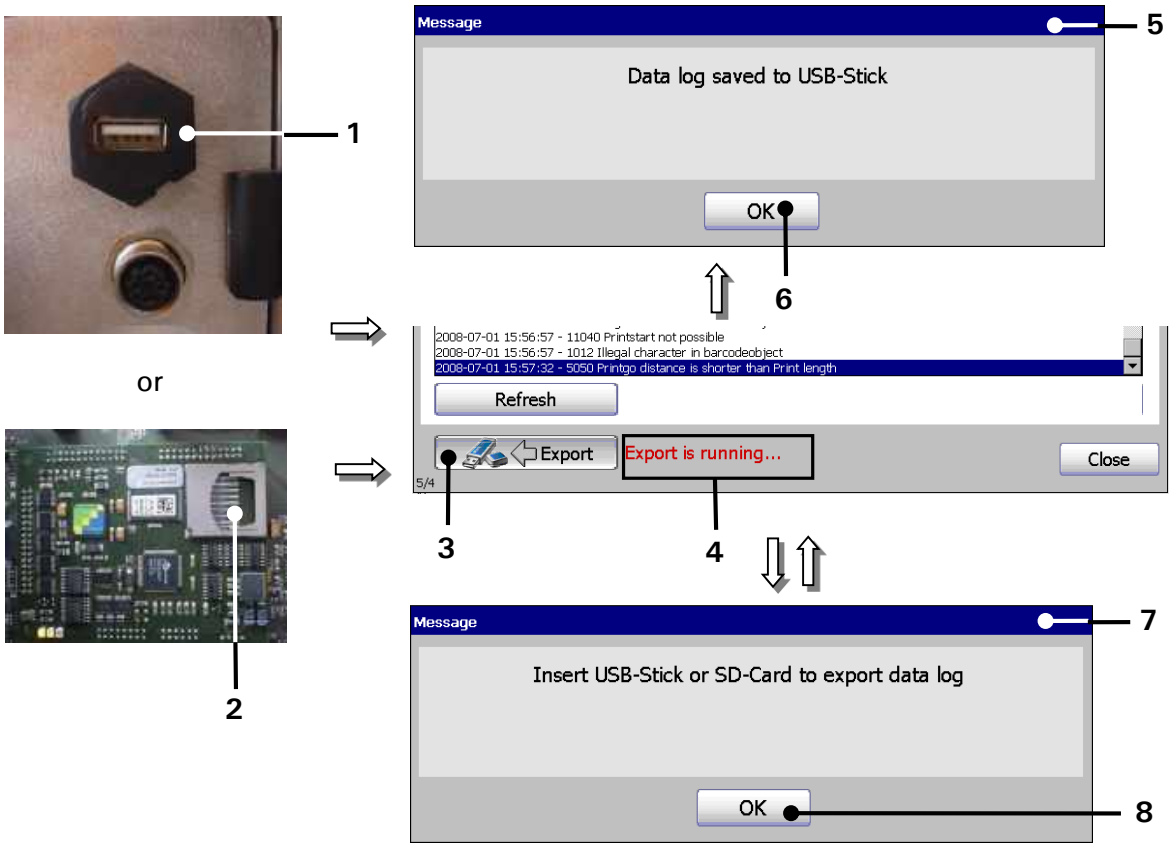
Proceeding:

- Plug an USB-stick or a SD-card device in the USB-connection (1) on the back of the printer.

  or
- Insert a SD-card in the slot (2) on the controller board in the electronic cabinet.
- Press the button <**Export**> (3).
- Now the data are saved on the connected medium and the **message** <**Export is running...**> (4) is displayed during the process.
- After finishing the storage the **message** (5), that the process has been carried out is faded in. The saving happens with the description „datalog_LJ3-*("serial number of the printer")*.txt".
- Finally confirm the message with the button <**OK**> (6).

  Note: *If no storage medium (memory device) is connected, the* ***message*** *(7) is faded in. Confirm the message with the button* <***OK***> *(8). Connect a memory device and repeat the complete process.*

Figure 79 Save log file



1 – USB-connection
2 – SD-Card Slot
3 – Button <Export>
4 – Message <Export is running...>
5 – Message <Log file saved>
6 – Button <OK>
7 – Message <Insert storage medium>
8 – Button <OK>

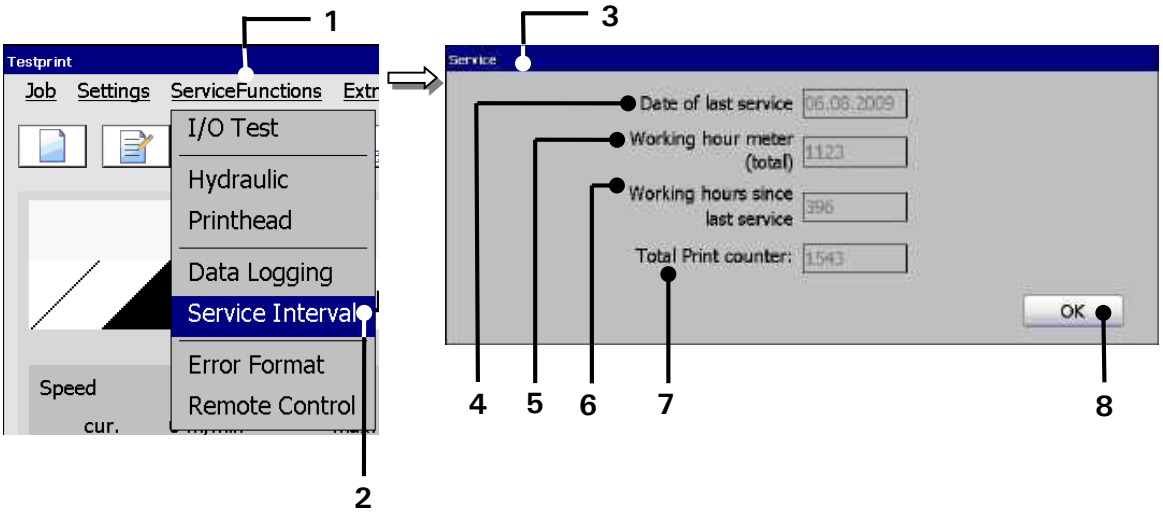
7.4.6 Service interval

With the option <**Service Interval**> (2) you can open the display window “Service“ (3). The following parameters are displayed in this window:

- The date of the last inspection (4)
- The total amount of operation hours of device (5)
- Operation hours since the last inspection (6)
- The total print counter (7)

The button <**OK**> (8) closes the window.

Figure 80 Service interval window



1 – Button <ServiceFunctions>
2 – Option <Service Interval>
3 – Display window <Service>
4 – Display <Date of inspection>
5 – Display<Total operation hours>
6 – Display <Operation hours since>
7 – Display <Total print counter>
8 – Button <OK>

7.5 Extra (Additional functions)

With the button <**Extra**> in the main menu bar the submenu „Extra“ is displayed. The following options are available:

- Test Print
- Login
- Explorer
- Database Settings
- Direct Printstart
- Interface Settings
- Reload all Fonts
- Start Remote Screen
- Product Counter
- Editors
- Touch Calibration
- Save Counters

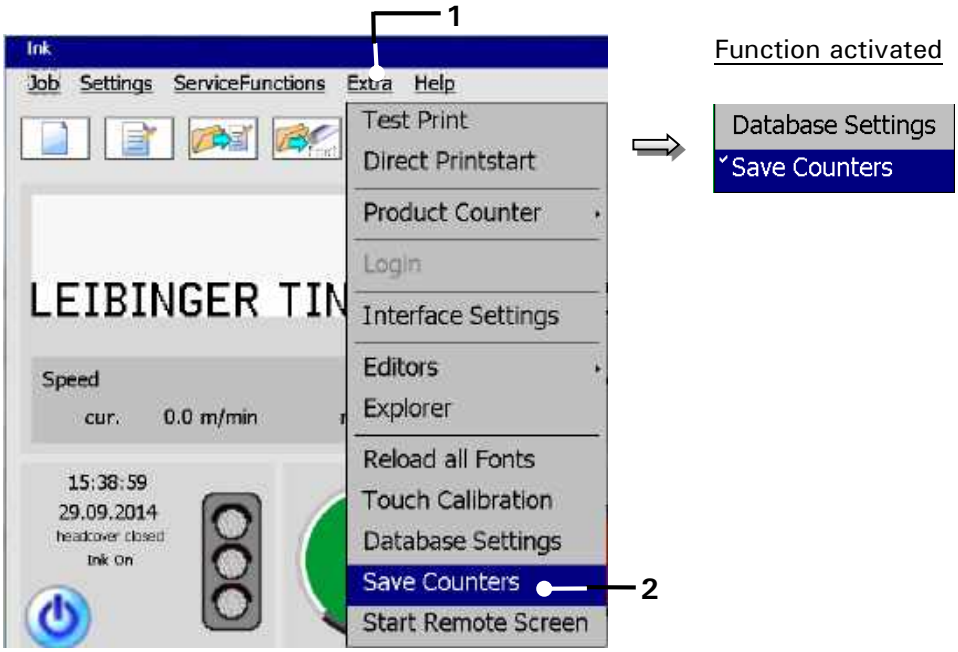
7.5.1 Save counter states

For leaving a job, the counter status of integrated job counters are normally not saved, that means for calling this job again, the counter states are 0 respectively set to the predefined start values.
If the print should be continued with already existing counter states for calling the job again, you have to activate the function <**Save Counters**>. If this function is activated it is displayed by a √ on the button of the function.

The function is activated or deactivated as following:

- Press the button <**Extra**> (1) and the option <**Save Counters**> (2).
- The function is activated or deactivated depending on the existing state.

Figure 81 Save counter states



1 – Button <Extra> 2 – Option <Save Counters>

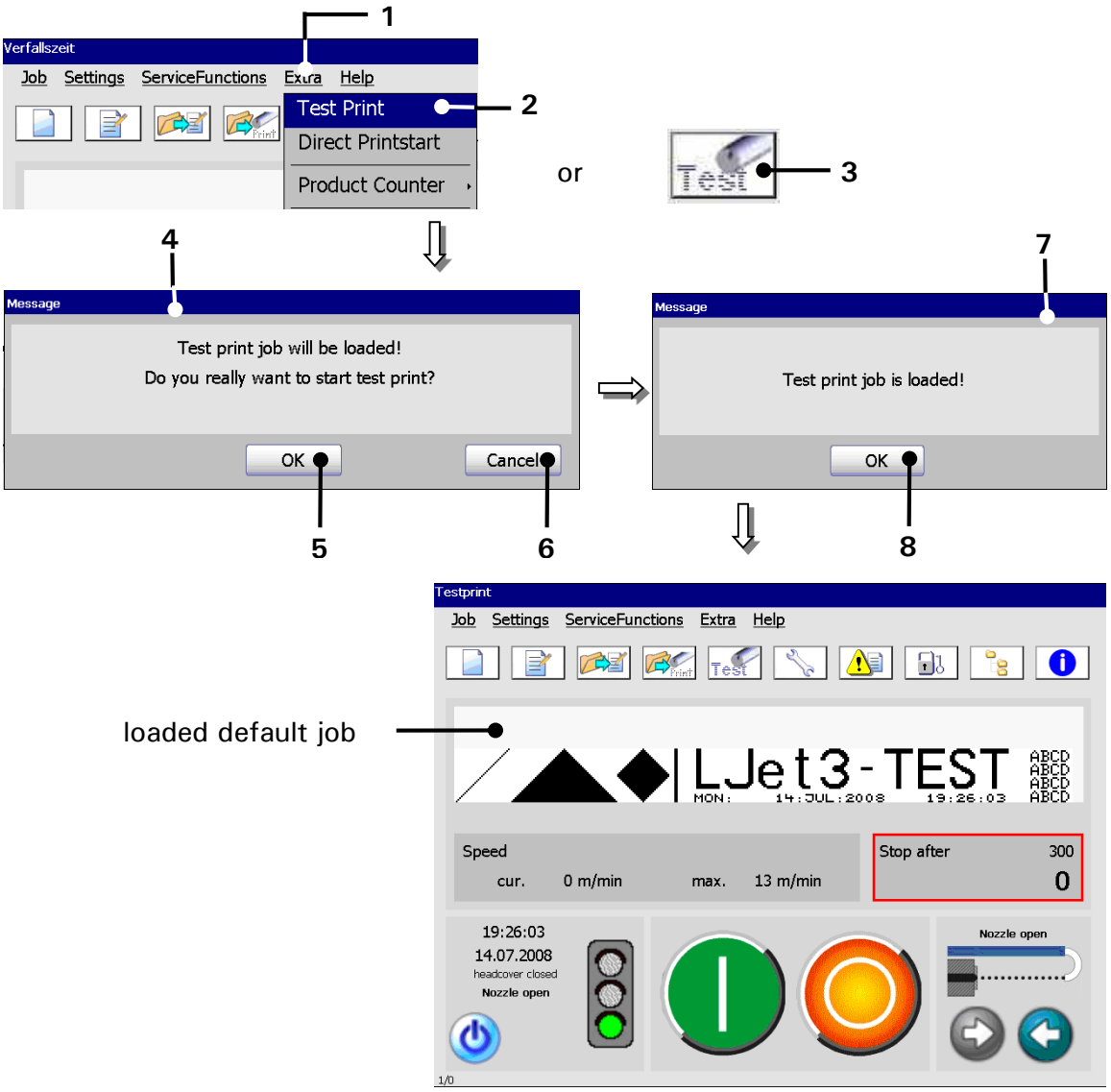
7.5.2 Test print

With the option <**Test Print**> a defined default job with set internal PrintGo-source is loaded.

This job can be used by the operator as basis to create a new job or to control the print function of the JET3.

The default job is loaded as following:

Figure 82 Test print (Load default job)



1 – Button <Extra>
2 – Option <Test Print>
3 – Direct button (Icon)
4 – Message <Safety query>
5 – Button <OK>
6 – Button <Cancel>
7 – Execution report
8 – Button <OK>

ATTENTION

- If the test print is activated when a print start release did already happen for the previous loaded job, the JET3 starts immediately with the print process because all signals are generated internally and no sensor or encoder are required.
- **Caution! Ink escapes immediately from the print head**

- Press the button <**Extra**> (1) and the option <**Test Print**> (2) or the accordant direct buttons (Icon) (3).
- A **safety query** (4), if the test print should be really started is faded in.
- Confirm the loading of the job by pressing the button <**OK**> (5) or cancel the process with the button <**Cancel**> (6).
- A **message** (7), that the test print-job is loaded is faded in.
- Confirm the message with the button <**OK**> (8). The job is now loaded and can be started for printing.

7.5.3 Product counter

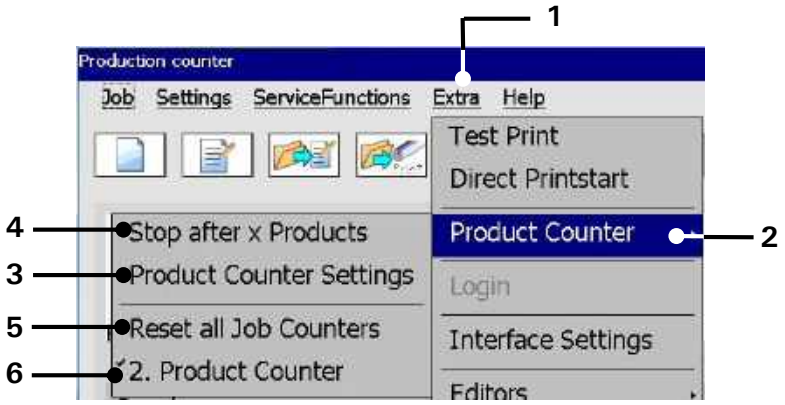
In the production counter dialog box you can carry out settings of the production counter and you can set-up a pre-defined print stop. Furthermore all existing job counters in the current loaded job can be reset. Additionally it is possible to set a second production counter. This counter can be set and reset independently from the first one.

For the production counter options selct the menu item <**Product Counter**> (3) in the <**Extra**> drop down menu (2). Select an option from the offered subdialog box.

In the dialog box <**Product Counter**> the following options are available:

- Product Counter Settings
- Stop after x Products
- Reset all Job counters
- 2. Product Counter

Figure 83 Call up product counter dialog box



1 – Drop down menu <Extra>
2 – Menu item <Product Counter>
3 – Option <Product Counter Settings>
4 – Option <Stop after x Products>
5 – Option <Reset all Job counters>
6 – Option <2. product counter>

7.5.3.1 Product counter settings

Proceeding (see figure 84 and 85)

- Press the option <**Product Counter Settings**> (2).
- The window <**Product Counter Settings**> is displayed. Depending on how many product counters are defined (1 or 2) (6) you can see 1 or two tabs.

1. Reset counter (figure 84)

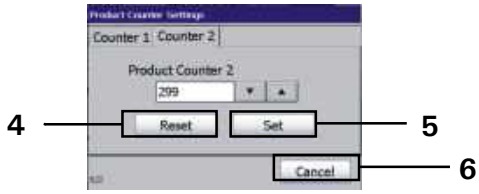
- Press the button <**Reset**> (4) to reset the counter or cancel the process with the button <**Cancel**> (6).
- If there are 2 product counters defined each of them has to be reset separately.

  Note: *The resetting happens **without** a further safety query.*
- The value „0“ is now displayed in the status field <**Production Counter**> of the main dialog box.

Figure 84 Product Counter Settings - Reset

Select Product Counter Settings / 1 or 2 product counters

Settings for 1 product counter	Settings for 2 product counters
	

Reset one product counter	Reset two product counters
	
To reset the product counter push the <**Reset**> button. The dialog box will close and the product counter is set to 0.	Each product counter has to be reset separately. Pushing the <**Reset**> button will close the dialog box and set the respective product counter to 0.

Results

Status field 

 **Status field**

1 – Dialog box <Product Counter>
2 – Option <Product Counter Settings>
3 – Option <2. Product Counter> with indicator
4 – Button <Reset>
5 – Button <Set>
6 – Button <Cancel>

2. Change counter value (figure 85)

- Change the value of the counter with the **arrow keys** (7). The value of the counter is increased or reduced in single steps by pressing the accordant buttons.

Or

- Click in the **Counter display field** (4). The **Numeric keypad** (8) opens for input.
- If there are 2 product counters defined each of them has to be set separately. The product counter dialog box has to be re-opened for that procedure.

INFORMATION

You will find further information regarding the working with Numeric keypads in the **chapter *Numeric keypad***!

- Confirm the value change by pressing the button <**Set**> (5) or cancel the process with the button <**Cancel**> (6).
- The set value is now displayed in the status field <**Production Counter**> of the main menu.
- This procedure has to be carried out for each product counter separately. The dialog box has to be re-opened to set the second product counter.

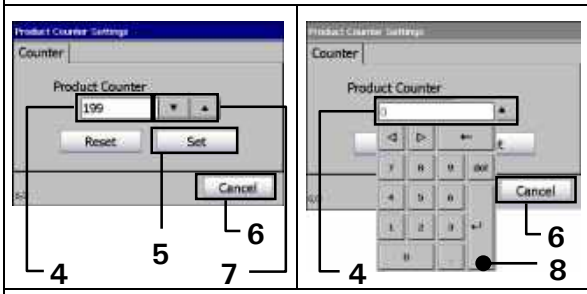
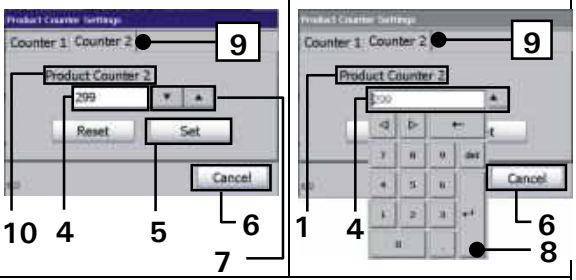
ATTENTION

If job counters (object counters) whose settings <**Counter reset**> are applied with the attribute „production counter“ exist in the current job, they will be also reset. The attribute “production counter” for <**Counter reset**> is only available for the 1. product counter.
You will find further information regarding the counter reset methods in the **chapter *Counter reset (methods)***!

Figure 85 Product Counter Settings

Select Product Counter Settings / 1 or 2 product counters

Settings for 1 product counter	Settings for 2 product counters
	

Set one product counter	Set two product counters
	
The counter can either be set with the arrow keys or with the virtual keyboard. Settings have to be confirmed with the <**Set**> button. To leave th dialog box without confirmation use the <**Cancel**> button.	The counters can either be set with the arrow keys or the virtual keyboard. Each counter has to be set separately. Settings have to be confirmed with the <**Set**> button. To leave the dialog box without confirmation use the <**Cancel**> button.

Results

Status field Product Counter 199

Product Counter 299 199 **Status field**

1 – Dialog box <Product Counter>
2 – Option <Product Counter Settings>
3 – Option <2. Product Counter> with indicator
4 – Counter display field
5 – Button <Set>
6 – Button <Cancel>
7 – Arrow keys
8 – Numeric keypad
9 – Tabs for counter selection
10 – Counter indicator

7.5.3.2 Stop after x products (Pre-defined print stop)

With the option <**Stop after x Products**> the amount of prints will be defined after the LEIBINGER JET3 should release an automatic print stop.

If a print stop has been pre-defined the value is displayed in the status field <**Production Counter**> of the main menu.

ATTENTION

Before the re-start of the production, the production counter has to be necessarily reset to get a correct result.

Proceeding:

- Press the option <**Stop after x Products**> (2).
- The window <**Stop at x Products**> (3) is faded in.
- Change the value of the print stop counter with the **Arrow keys** (4). The value of the counter will be increased or reduced in single steps by pressing the accordant buttons.

  or
- Click in the **Counter display field** (5). The **Numeric keypad** (6) opens for input.

INFORMATION

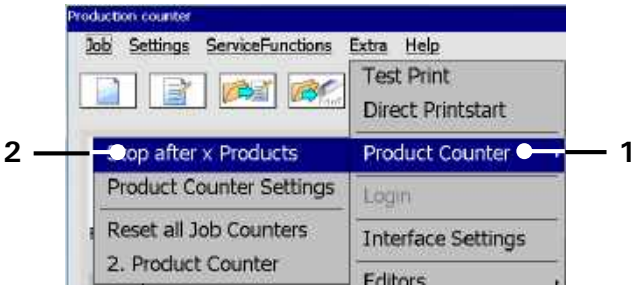
You will find further information regarding the working with Numeric keypads in the **chapter *Numeric keypad***!

- Confirm the changed value by pressing on the button <**Set**> (7) or cancel the process with the button <**Cancel**> (8).
- The set print stop value is now displayed in the status field <**Product Counter**> (9) of the main menu. For better visualization that a pre-defined print stop has been defined, the field is displayed with a red frame.
- If the x-value set is equal or lower than the value set for the 1. Production counter the input will be ignored.

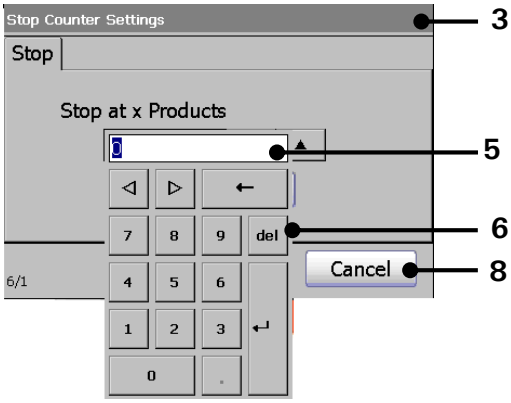
Figure 86 Product counter (pre-defined print stop)

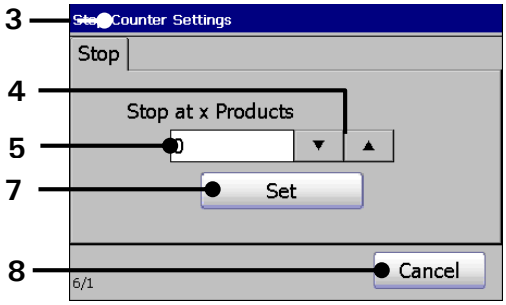
Select <Stop after x Products / 1 or 2 product counters

Basically this function works the same way no matter whether there are one or two product counters defined. A second product counter does not have any effect on this function. The only difference is the look of the status field.

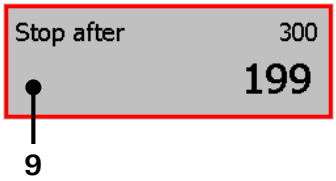


The dialog box of the <**Stop after x Products**> function is a submenu of the <**Product counter**> menu.



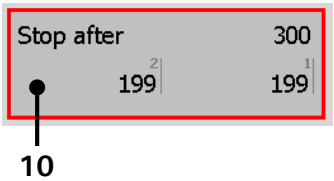


The parameter can either be set with the virtual keyboard or with the arrow keys.



Red frame as <**Stop after x Product setting**> indi-cator

With one production counter



Red frame as <**Stop after x Product setting**> indi-cator

With two production counters

The settings are confirmed with the <**Set**> button.

Depending on whether there is a second production counter defined or not the status field looks different.

1 – Options <Product Counter>
2 – Option <Stop after x Products>
3 – Window <Stop at x Produts>
4 – Arrow keys
5 – Counter display field
6 – Numeric keypad
7 – Button <Set>
8 – Button <Cancel>
9 – Sta. field <Prod. Counter> 1 counter
10 – Sta. field <Prod. Counter> 2 counter

7.5.3.3 Reset all job counters

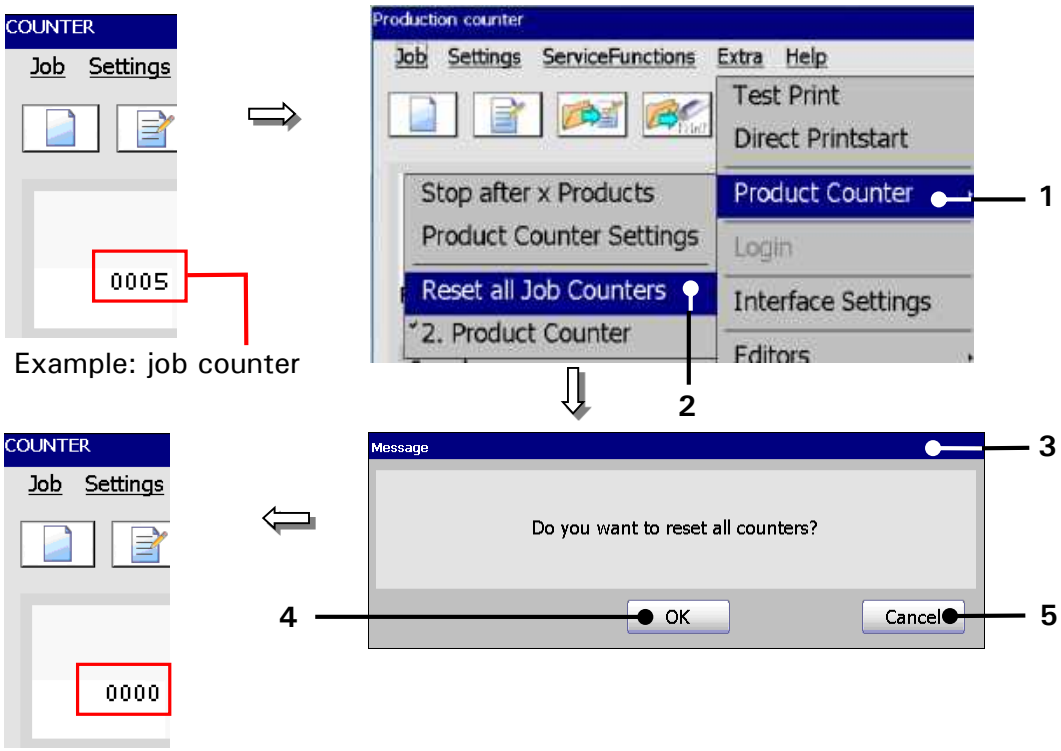
With this function, all existing job counters in the current loaded job can be reset.

Proceeding:

- Press the option <**Reset all Job Counters**> (2).
- A **safety query** (3), if all job counters have been reset is faded in.
- Confirm the reset by pressing the button <**OK**> (4) or cancel the process with the button <**Cancel**> (5).
- All job counters are reset.

Figure 87 Product counter (Job counter reset)

Main menu:



1 – Dialog box <Product Counter>
2 – Option <Reset all Job Counters>
3 – Message <Safety query>
4 – Button <OK>
5 – Button <Cancel>

ATTENTION

The reset of the job counter is irrevocably!

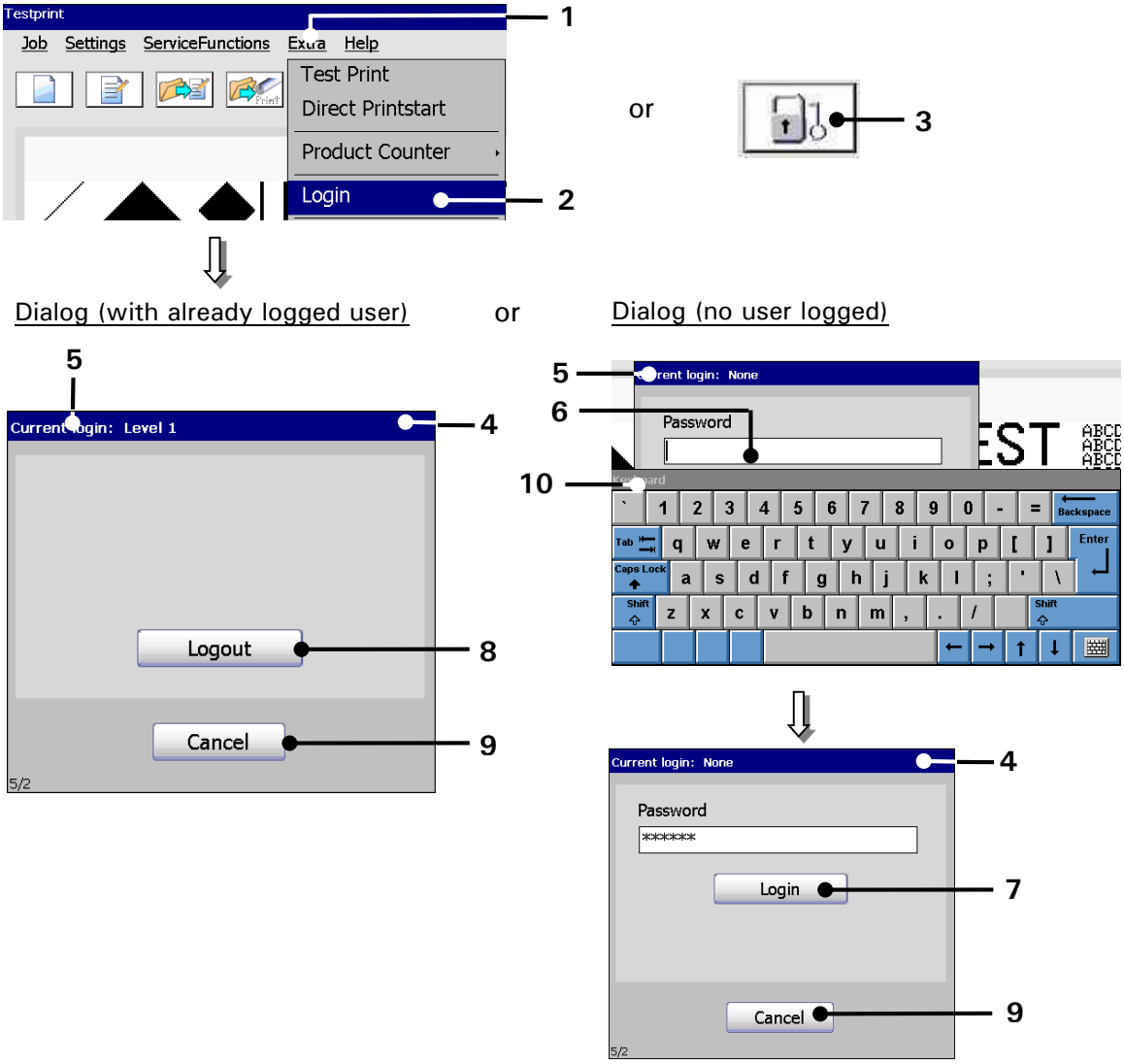
7.5.4 Login

With the option <**Login**> an user can login during the operation to e.g. carry out functions which are still not enabled for the original logged in user.

Further more the logged in user can logout also during the operation and can therefore prevent a change of the settings by unauthorized staff.

7.5.4.1 Layout and call login-/logout dialog

Figure 88 Login (open dialog box)



1 – Button <Extra>
2 – Option <Login>
3 – Direct button (Icon)
4 – Dialog field <Current login>
5 – Title bar with user display
6 – Input field <Password>
7 – Button <Login>
8 – Button <Logout>
9 – Button <Cancel>
10 – Keyboard field

Call login-/logout dialog:

- Press the button <**Extra**> (1) and the option <**Login**> (2) or the accordant direct button (Icon) (3).
- The dialog field <**Current login**> (4) is called.

Layout:

The current registered level of the access right (user level) is displayed in the **title bar** (5).

The password for the login of the user is entered in the input field (6) <**Password**>.

With the button <**Login**> (7) the login is carried out after entering the password.

With the button <**Logout**> (8) the current user is logged out.

With the button <**Cancel**> (9) the dialog field is closed without carrying out an user change or logout.

7.5.4.2 Login user or carry out user change

- Enter the password of your access right with keyboard field (2). The input is displayed with placeholders (wildcards) in the input field <**Password**> (1).

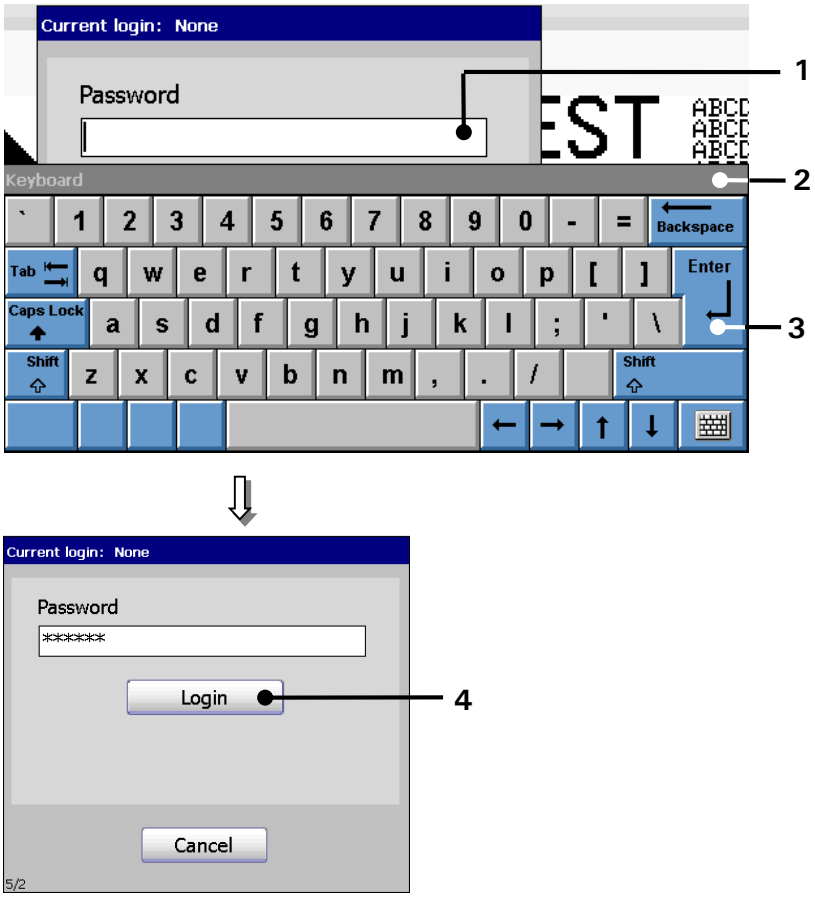
INFORMATION

You will find further information regarding the operation with keyboard in the **chapter *Keyboard***!

To carry out an user change the current user must be logged out at first!

- Press the button <**Enter**> (3) of the keyboard field to finish the input.
- Now press the button <**Login**> (4) to carry out the login process. The dialog field is closed and the new user is logged in.

Figure 89 Login (Login user/change user)



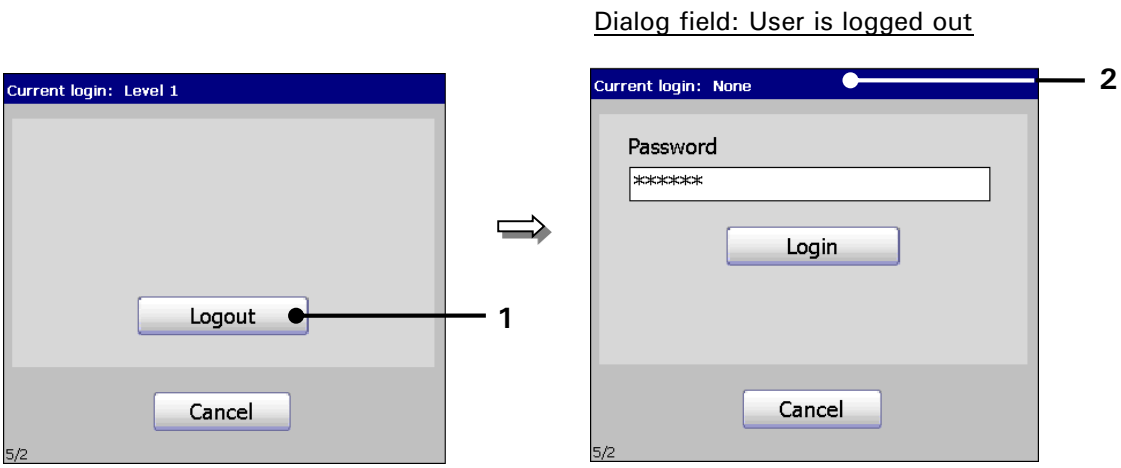
1 – Input field <Password>
2 – Keyboard field
3 – Button <Enter>
4 – Button <Login>

7.5.4.3 Logout user

- Press the button <**Logout**> (1). The dialog field is closed and the user is logged out.

Note: *For next calling of the dialog field „Unknown“ is displayed in the title bar (2) as status of the user level.*

Figure 90 Login (Logout user)



)

1 – Button <Logout> 2 – Title bar with user display (logged out)

INFORMATION

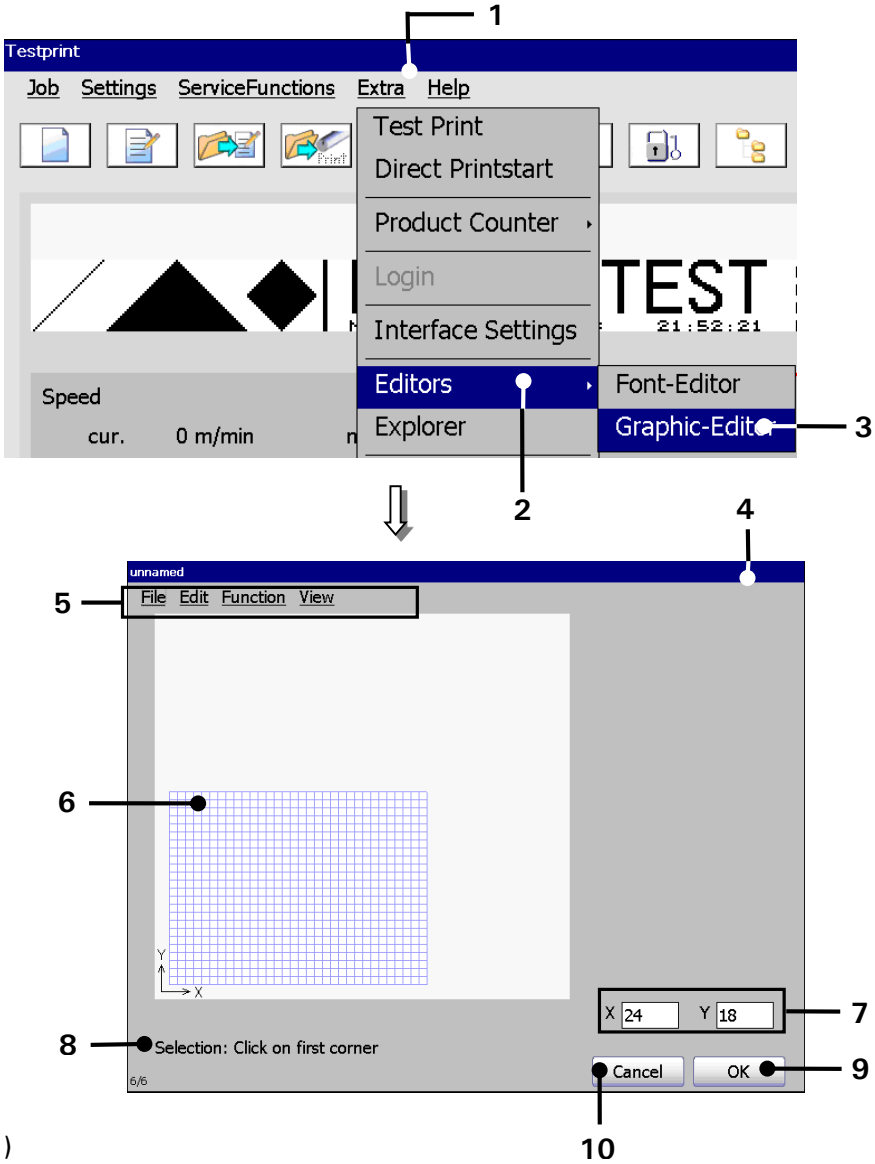
An input of the password is not required to logout!

After logging-out of the user, only the function <**Login**> is available

7.5.5 Graphic editor

In the graphic editor you can create and change complex logos, pattern or writings easily. For the usage of a mouse you will get a comparable ease of use for the PC-surroundings. Typical functions as Copy&Paste, Zoom in/out as well as tools for the drawing of circles, lines and rectangles make the creation and changes of graphics easier.

Figure 91 Graphic editor (start editor/ design user interface)



)

1 – Button <Extra>
2 – Option <Editor>
3 – Option <Graphic-Editor>
4 – Dialog box <Graphic-Editor>
5 – Menu bar
6 – Input field <Graphic>
7 – Display <Coordinates>
8 – Display <Activities to carry out>
9 – Button <OK>
10 – Button <Cancel>

The graphic editor dialog box can be opened with the option <**Editor**> (2) and selection afterwards of the option <**Graphic-Editor**> (3) in the faded in subdialog box.

With the buttons in the menu bar (5) you can select the accordant submenus of the graphic editor. The following submenus are available:

- File
- Edit
- Function
- View

With the input field <**Graphic**> (6) you can create a graphic.

In the display <**Coordinates**> (7) the current or the last cursor position is displayed.

In the display <**Activities to carry out**> (8) the input (activity) which is expected next from the operator is displayed.

The button <**OK**> (9) closes the dialog box. If the inputs have been not saved yet, a safety query is faded in.

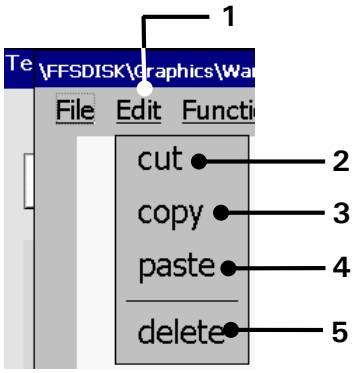
With the button <**Cancel**> (10) the graphic editor will be closed without a further safety query and without memory.

7.5.5.1 Edit tools

With the button <**Edit**> you can select the edit tools.

Note: *The function of the tools corresponds to the Windows™-functions.*

Figure 92 Graphic editor (Edit tools)

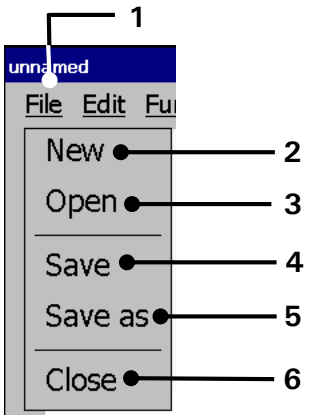


1 – Button <Edit>
2 – Edit tool <cut>
3 – Edit tool <copy>
4 – Edit tool <paste>
5 – Edit tool <delete>

7.5.5.2 Organization tools

With the button <**Data file**> you can select the organization tools of the editor.

Figure 93 Graphic editor (File management)

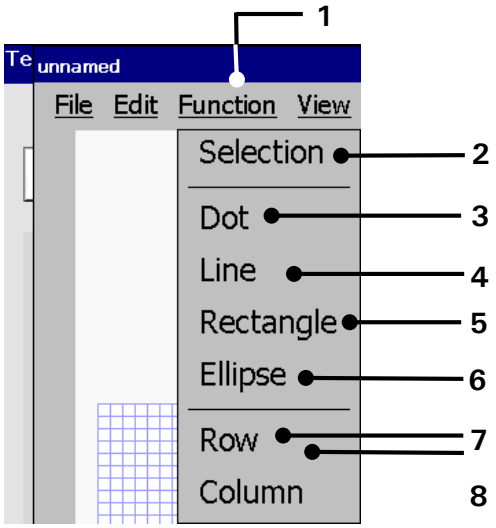


1 – Button <File>
2 – Organization tool <New>
3 – Organization tool <Open>
4 – Organization tool <Save>
5 – Organization tool <Save as>
6 – Organization tool <Close>

Pos.	Org.-tool	Function
2.	New	Provides the creation of a new graphic. An empty input field is created.
3.	Open	Provides opening of an existing graphic.
4.	Save	Saves the current loaded graphic under the existing name.
5.	Save as	Saves the current loaded or new created graphic under a new name.
6.	Close	Closes the graphic editor. If carried out inputs or graphic changes have been not saved yet, an accordant safety query is faded in.

7.5.5.3 Drawing tools

Figure 94 Graphic editor (Drawing tools)



1 – Button <Function>
2 – Drawing tool <Selection>
3 – Drawing tool <Dot>
4 – Drawing tool <Line>
5 – Drawing tool <Rectangle>
6 – Drawing tool <Ellipse>
7 – Drawing tool <Row>
8 – Drawing tool <Column>

With the button <**Function**> you can select the tools to create graphic elements and you can select (mark) the graphic segments.

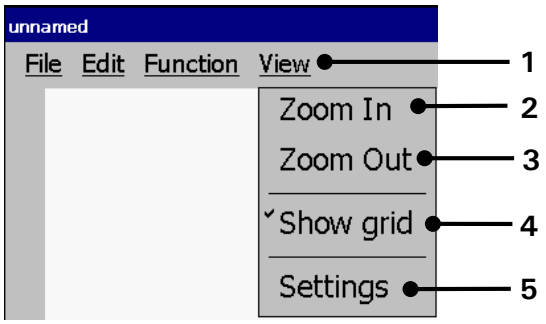
Note: *The function of the tools refers to the Windows™-drawing tools. Irrespectively of the set raster size, points are always created with a raster size 1x1 and lines- and circle elements are created with a raster width 1.*

Pos.	Drawing tool	Function
2.	Selection	Provides the marking of a created graphic segment for editing.
3.	Dot	Provides the creation of a point.
4.	Line	Provides the creation of a line in the requested length.
5.	Rectangle	Provides the creation of a rectangle or quad in the requested size.
6.	Ellipse	Provides the creation of a circle or an ellipse in the requested size.
7.	Row	Generates a (horizontal) line with the total length of the selected row.
8.	Column (Gap)	Generates a (vertical) line with the total length of the selected gap.

7.5.5.4 View settings

With the button <**View**> you can select the display tools of the editor.

Figure 95 Graphic editor (Display tools)



1 – Button <View>
2 – Display tool <Zoom In>
3 – Display tool <Zoom Out>
4 – Display tool <Show grid>
5 – Display tool <Settings>

Pos.	Display tool	Function
2.	Zoom In	Enlarges the display in the input field <**Graphic**>.
3.	Zoom Out	Reduces the display in the input field <**Graphic**>.
4.	Show grid	Turns on or off the grid display. If the grid is turned on, it is displayed with a checkmark on the button.
5.	Settings	Enables the settings of the edit size (width and height of the drawing area) as well the settings of the grid size.

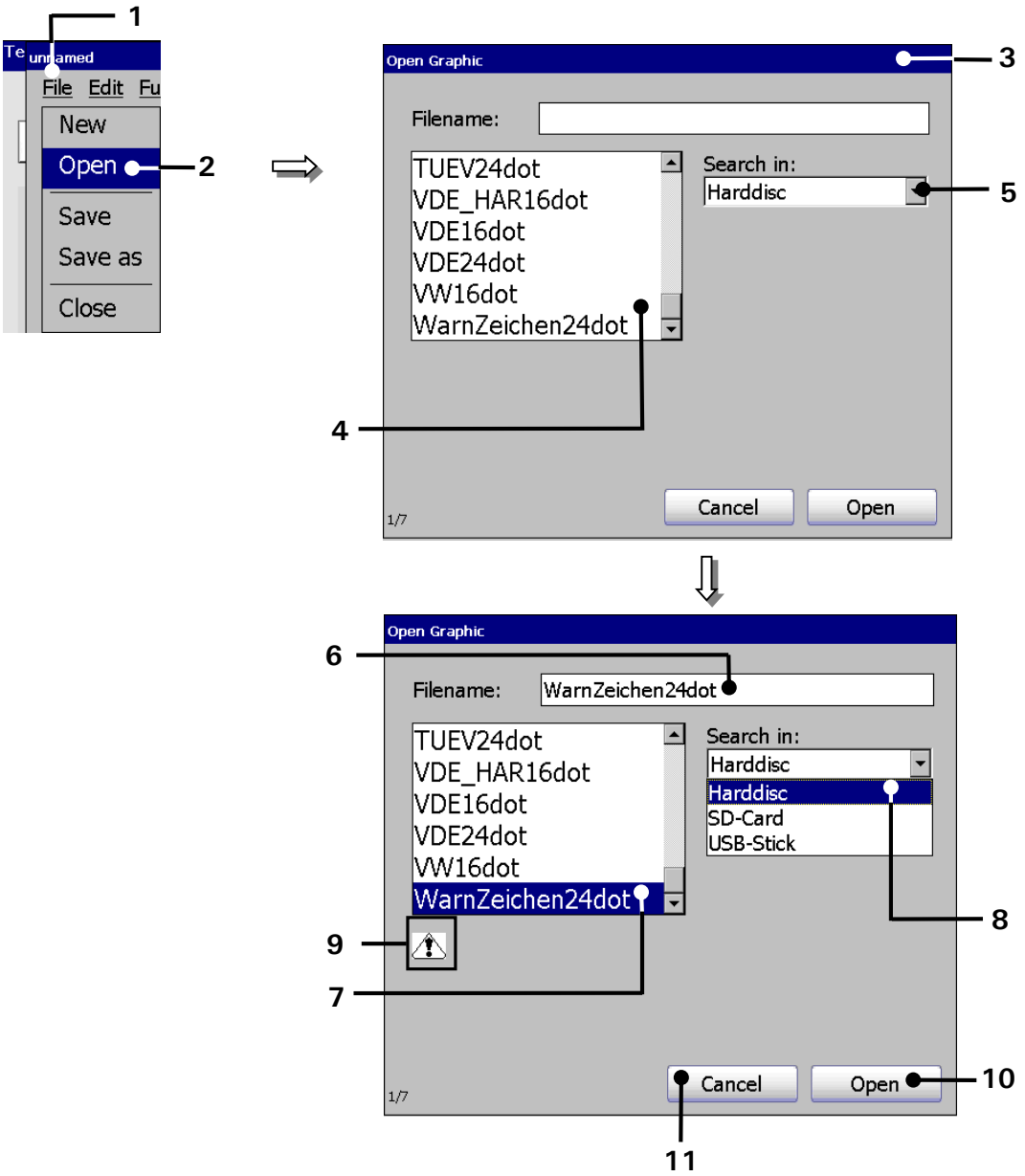
INFORMATION

You will find further information regarding the function of the several display tools also in the **chapter *Carry out settings of the graphic editor***!

7.5.5.5 Load existing graphic

With the option <**Open**> you can open an existing graphic for processing. For selection of a graphic the window „Load graphic " opens.

Figure 96 Graphic editor (Load file dialog)



1 – Button <File>
2 – Option <Open>
3 – Window <Load Graphic>
4 – Selection field <Graphic list>
5 – Drop-down list <Search in>
6 – Display <Filename>
7 – Selected graphic
8 – Selected memory device
9 – Preview of the selected graphic
10 – Button <Open>
11 – Button <Cancel>

Proceeding:

- Press the button <**File**> (1) and the option <**Open**> (2).
- The window <**Load Graphic**> (3) is faded in.
- Select the requested graphic in the selection field <**Graphic list**> (4). With the drop-down list <**Search in**> (5) you can select the different memory locations.
- The name of the selected graphic is now shown on the display <**Filename**> (6) and a preview of the graphic is displayed.
- Press the button <**Open**> (10) to load the selected graphic for processing or press the button <**Cancel**> (11) to cancel the process.

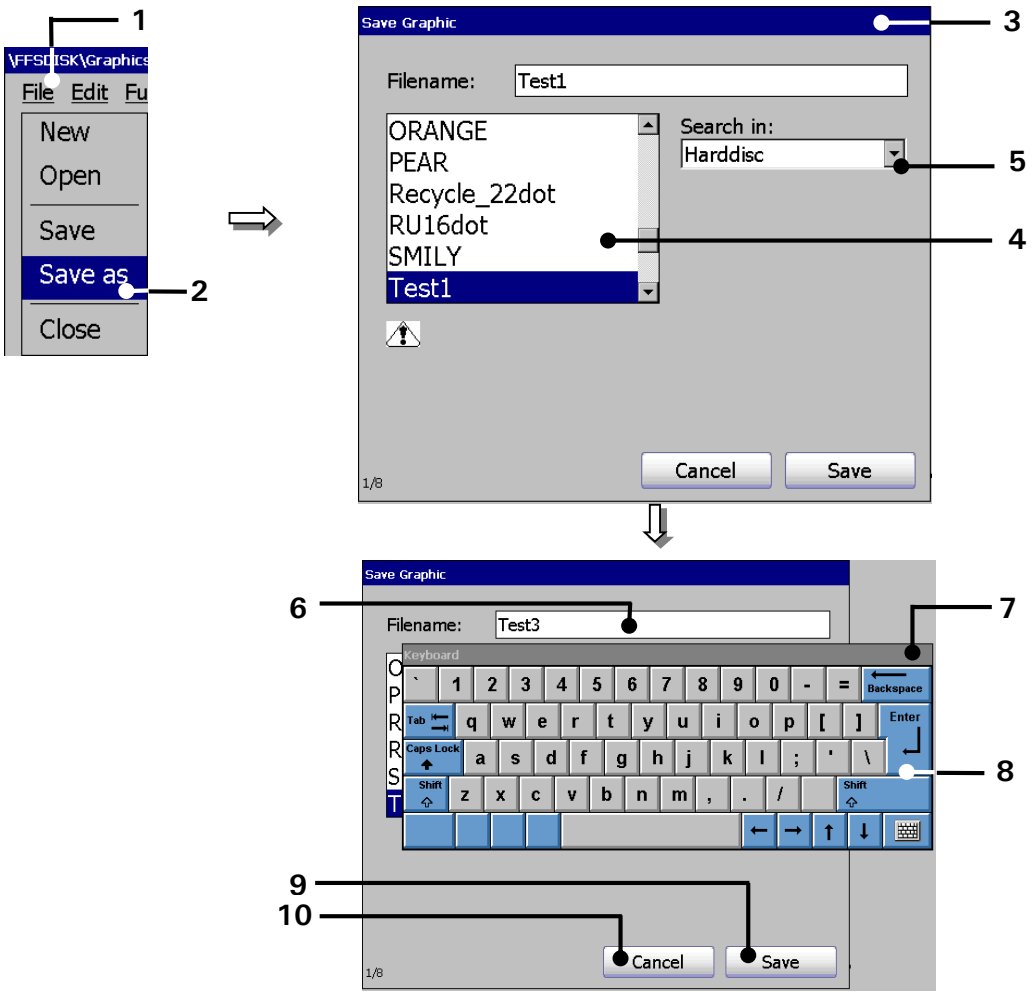
7.5.5.6 Save graphic/Save graphic as

With the option <**Save**> an open graphic is saved under the current name. The existing data will be overwritten.
With the option <**Save as**> you can save the current opened or new created graphic under a new name.

ATTENTION

Note! If the graphic is saved with the option <Save> or under an existing filename, no safety query is generated. The existing data will be overwritten.

Figure 97 Graphic editor (Save file dialog)



1 – Button <File>
2 – Option <Save as>
3 – Window <Save graphic>
4 – Selection field <Graphic list>
6 – Display <Filename>
7 – Keyboard field
8 – Button <Enter>
9 – Button <Save>

5 – Drop-down list <Search in>

10 – Button <Cancel>

Proceeding:

- Press the button <**File**> (1) and the option <**Save as**> (2).
- The window <**Save Graphic**> (3) is faded in.
- The names of the already existing graphics are displayed in the selection field <**Graphic list**> (4). With the drop-down list <**Search in**> (5) you can select the different memory locations.
- Click in the display <**Filename**> (6). A keyboard field (7) opens for input.

INFORMATION

You will find further information regarding the working with keyboard in the **chapter *Keyboard***!

- Enter the requested name.
- Press the button <**Enter**> (8) of the keyboard field. The entered name will be taken over to the display <**Filename**> (6).
- Press the button <**Save**> (9) to finish the memory process or press the button <**Cancel**> (10) to cancel the process.

7.5.5.7 Graphic editor settings

With the display tools you can change the settings of the editor. The following functions are available:

- Enlarge and reduce display size (Zoom in/out)
- Show grid
- Settings

With the option <**Settings**> you can set the editor size (width and height of the drawing area) as well as the grid size.

Proceeding:

- Press the button <**View**> (1) and the option <**Settings**> (2).
- The window <**Editor Settings**> (3) is faded in.
- With the **Arrow keys** (4) you can increase or reduce the values of the editor size and the grid size by one step.

  alternatively
- Click in the appropriate display field (5) of the value which you would like to change. A Numeric keypad opens for input Now enter the requested value.

INFORMATION

You will find further information regarding the working with keyboard in the **chapter *Keyboard***!

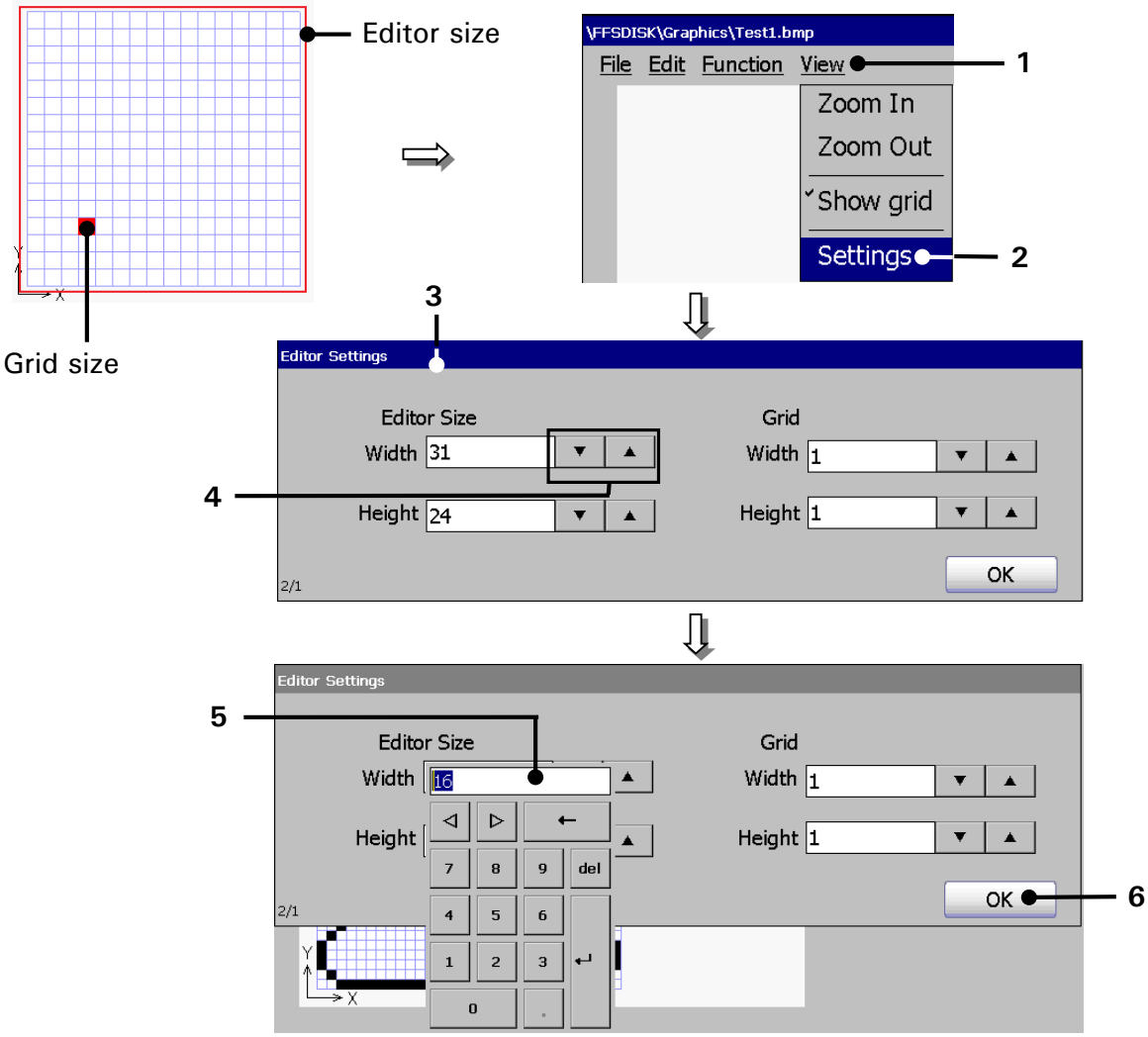
- The button <**OK**> (6) closes the window.

Note: *Irrespectively of the set grid size points are always created in the grid size 1x1 and line- and circle elements in the grid size 1.*

INFORMATION

You will find further information regarding the further display tools in the **chapter *Display tools***!

Figure 98 Graphic editor (Settings)



)

1 – Button <View>
2 – Option <Settings>
3 – Window <Editor Settings>
4 – Arrow keys
5 – Display field
6 – Button <OK>

7.5.5.8 Create and process graphic elements

1. Creation of a graphic element:

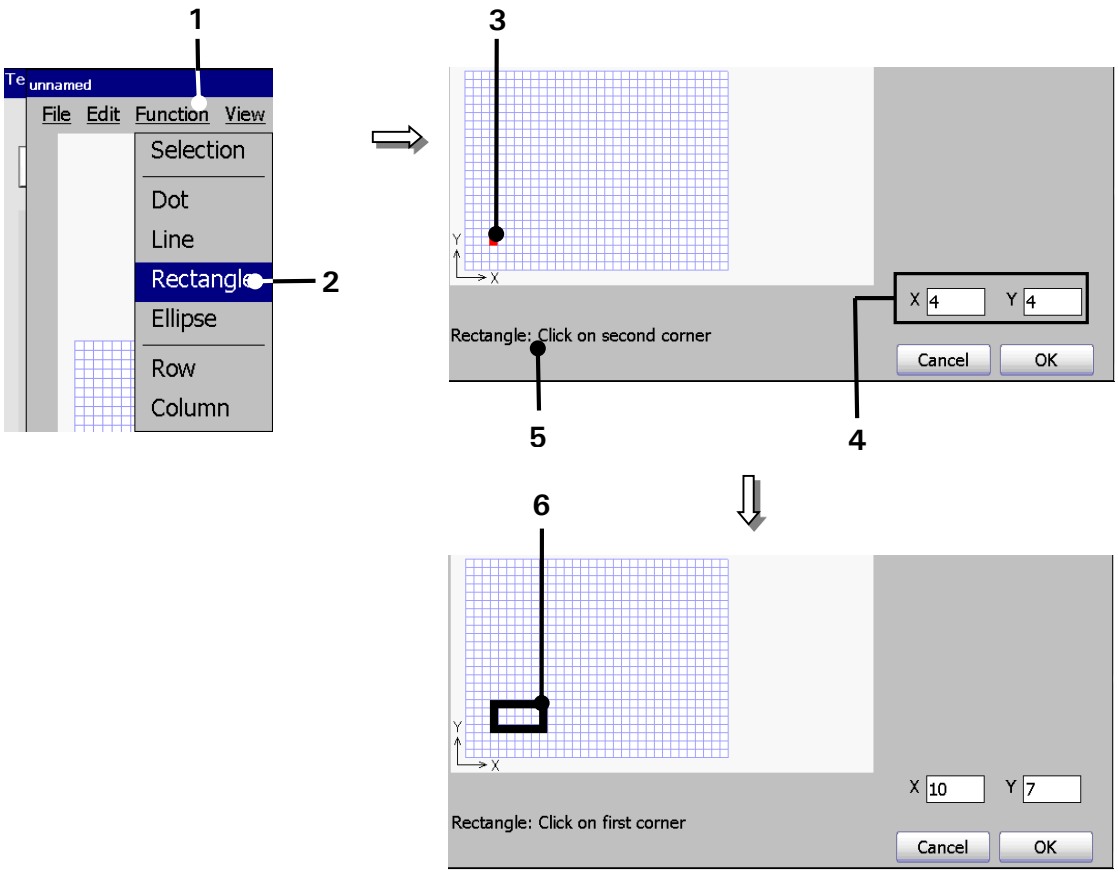
(Example.:A rectangle should be created)

Proceeding:

- Press the button <**Function**> (1) and afterwards on the drawing tool <**Rectangle**> (2).

- Click in the grid of the input field on the requested start point (3).
- The requested start point is placed and is marked red. At the same time on the display <**Coordinates**> (4) the coordinates of the start points are shown and on the display <**Activities to carry out**> (5) you can see the next required or possible activity.
- Now click in the grid on the requested position of the end point (6). The rectangle is now created.

Figure 99 Graphic editor (Create a bitmap)



)

1 – Button <Function>
2 – Drawing tool <Rectangle>
3 – Start point
4 – Display <Coordinates>
5 – Display <Activities to carry out>
6 – End point (Rectangle)

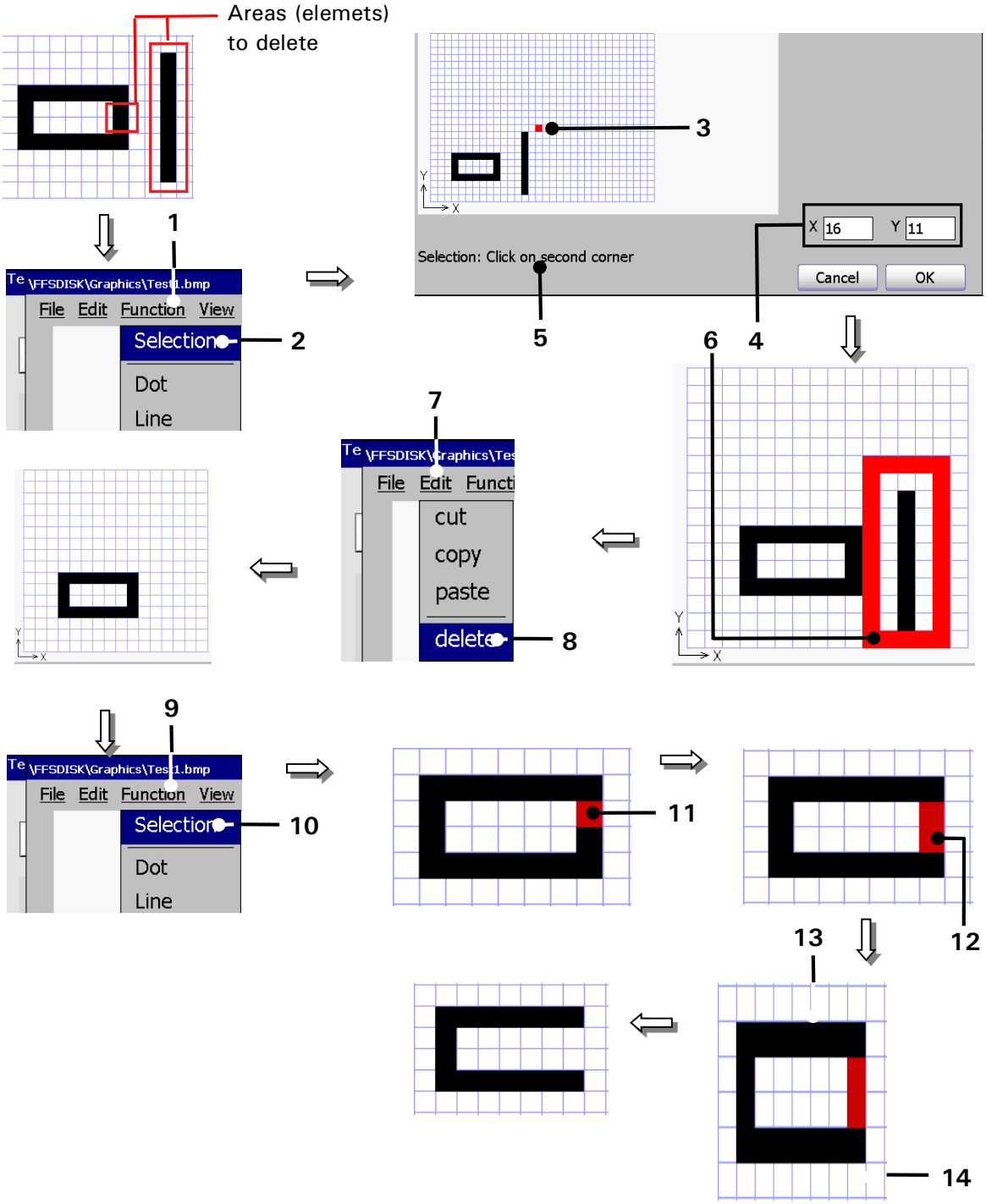
2. Deletion of a graphic element or graphic segment:

(Example: A rectangle should be interrupted and a line should be deleted)

Proceeding:

- Press the button <**Function**> (1) and afterwards on the drawing tool <**Selection**> (2).

Figure 100 Graphic editor (Delete graphic elements)



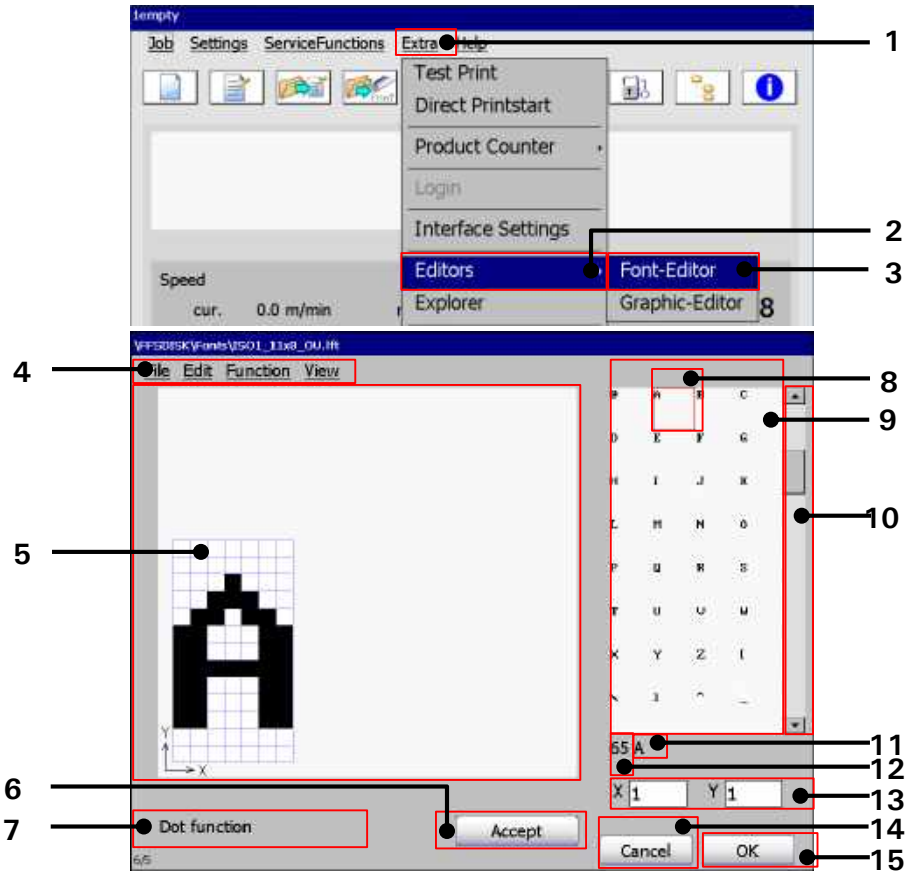
1 – Button <Function>
2 – Drawing tool <Selection>
3 – Start point (catch frame)
4 – Display <Coordinates>
5 – Display <Activities to carry out>
6 – End point (catch frame)
7 – Button <Edit>
8 – Edit tool <delete>
9 – Button <Function>
10 – Drawing tool <Selection>
11 – Start point (catch frame)
12 – End point (catch frame)
13 – Button <Edit>
14 – Edit tool <delete>

- Click in the grid of the input field on an empty point close to the line which should be deleted. The start point (3) of the catch frame is displayed red. At the same time in the display <**Coordinates**> (4) the coordinates of the object frame start point are shown and in the display <**Activity to carry out**> (5) the next required or possible activity.
- Now click in the grid on an empty point on the other side of the line which should be deleted to define an end point (6) for the catch frame. The catch frame is now created.
- Now press the button <**Edit**> (7) and afterwards the edit tool <**Delete**> (8).
- The line will be deleted.
- Press again the button <**Function**> (9) and afterwards the drawing tool <**Selection** > (10) to work on the rectangle.
- Click on the grid field (11) where the interruption of the rectangle should happen. The start point of the catch frame is displayed red.
- Now click on the grid field (12) where the interruption should be finished. The catch frame is generated.
- Press the button <**Edit**> (13) and afterwards the edit tool <**Delete**> (14).
- The marked area will be deleted.

7.5.6 Font editor

With the font editor you can edit existing fonts and create new fonts. It is possible to define customized characters and either include them in existing fonts or create complete new fonts on the basis of custom characters. Edited or new fonts can immediately be used for print jobs. The editor provides several functions and tools that ensure a convenient operation.

Figure 101 Font editor (Start, user interface, structure)



1 – Menu item <Extra>
2 – Option <Editor>
3 – Option <Font-Editor>
4 – Menu bar <Font editor>
5 – Drawing area with grid
6 – Button <Accept>
7 – Status bar for current tool or command
8 – Selected character
9 – Font preview
10 – Scroll bar
11 – Standard ASCII character of the selected character
12 – Decimal ASCII value of the selected character
13 – x-y coordinates of the last click in the drawing area
14 – Button <Cancel>
15 – Button <OK>

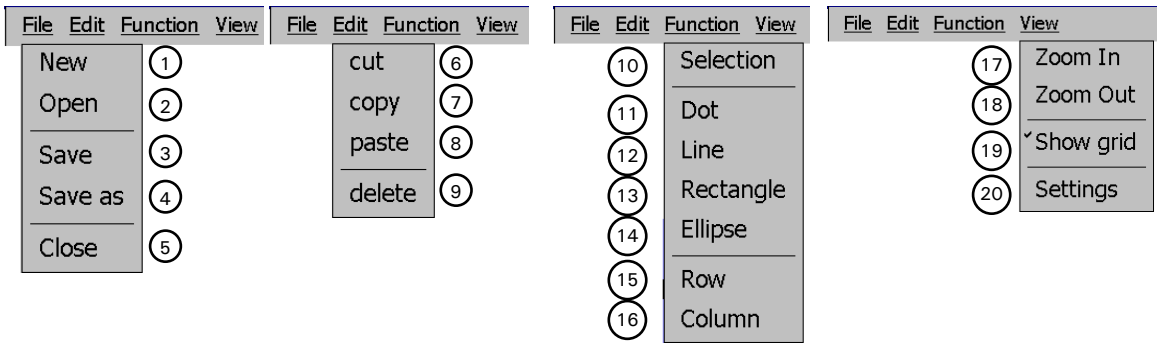
The font editor is started from the main window of the printer. To start the font editor choose the respective menu item from the drop-down menu (3):

<Extra>-<Editors>-<Font editor>.

The user interface of the font editor consists of various components:

Menu bar

With the drop-down menus of the menu bar (4) you can select various commands, options and tools. The following drop down menus are available:



Options <File> menu **Options <Edit> menu** **Options <Func.>menu** **Options <View> menu**

File: **The <File> menu provides all standard operations for file handling:**

- **New (1):** A new font file is created. In a first step you will have to define the size of the editor and the grid (measured in dots)
- **Open (2):** Opens a standard file dialog box to open a stored font from the file system (harddisk, SD-card or USB-stick)
- **Save (3):** Saves the current file. If the current file is still unnamed a standard file dialog box will open and you will have to specify the file name and the storage location
- **Save as (4):** Opens a standard file dialog box to save the current file. You will have to specify the file name and the storage location
- **Close (5):** Closes the current file. If there were made any changes to the file you will be asked whether you like to save them.

Edit: **The <Edit> menu provides several standard commands for drawing objects:**

- **Cut (6):** Cuts out a selected area (see: <Function>-<Selection>) and stores it in the clipboard until you use the <cut> or <copy> command again.
- **Copy (7):** Copies a selected area (see: <Function>-<Selection>) and stores it in the clipboard until you use the <cut> or <copy> command again.
- **Paste (8):** In the status bar of the drawing area you will be asked to place the cursor in the upper left corner of the drawing area but this is not mandatory.

Edit:
(Continuation)

Basically the cursor can be positioned at any position on the drawing area. After you placed the cursor the current clipboard content will be pasted. The point you click on represents the upper left corner of the object you paste. If there is not enough space for the object on the drawing area it will be cropped. Existing dots will be replaced.

- **Delete (9):** Deletes a selected area (see: <Function>-<Selection>)

Function: **The <Function> menu provides several tools to create and select drawing objects:**

- **Selection (10):** With this tool you can select parts of the drawing area. The selected area is always a rectangle which is defined by two points.
- **Dot (11):** Drawing tool for single dots. If you place the cursor on an empty grid point of the drawing area a black dot will be set. If you place the cursor on an existing black dot it will be deleted.
- **Line (12):** Drawing tool for lines. The line is defined by the starting point and the end point. Existing dots will be replaced.
- **Rectangle (13):** Drawing tool for rectangles. The rectangle is defined by two points and it has no filling. Existing dots will be replaced.
- **Ellipse (14):** Drawing tool for ellipses. The ellipse is defined by two points and it has no filling. Existing dots will be replaced.
- **Row (15):** Drawing tool to fill a complete row with dots. The row is selected with the cursor. Existing dots will be replaced.
- **Column (16):** Drawing tool to fill a complete column with dots. The row is selected with the cursor. Existing dots will be replaced.

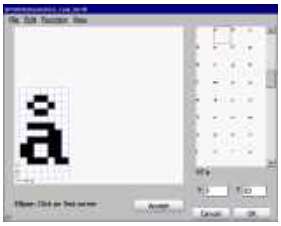
View: **The View> menu provides zooming tools and options for the settings of the grid and the editor size:**

- **Zoom In (17):** There are 10 zoom levels available. With each click you zoom in by one step.
- **Zoom out (18):** There are 10 zoom levels available. With each click you zoom out by one step.
- **Show grid (19):** With this option ticked off a grid layer is added to the drawing area. With the standard resolution the grid layer corresponds with the grid of the drawing area.
- **Settings (20):** Opens a dialog box with the settings for the size of the drawing area of the editor and the resolution of the grid layer. All values are stated in dots. The maximum settings for the editor are 32 dots in height (depends on the font matrix) and 20000 dots in width.

Font preview

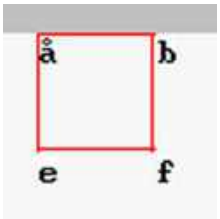
The font preview shows all characters of the currently loaded font. The printer software works with 8-bit ASCII fonts which means you have a maximum of 192 printable characters per font. Using the scroll bar you can scroll through all available characters of the currently loaded font. When you select one of the characters it is marked with a red frame and displayed in the drawing area. Edited characters will also be displayed in the preview area as soon as changes are applied with the **<Accept>** button.

The selected character is marked with a red frame in the font preview and displayed in the drawing area.



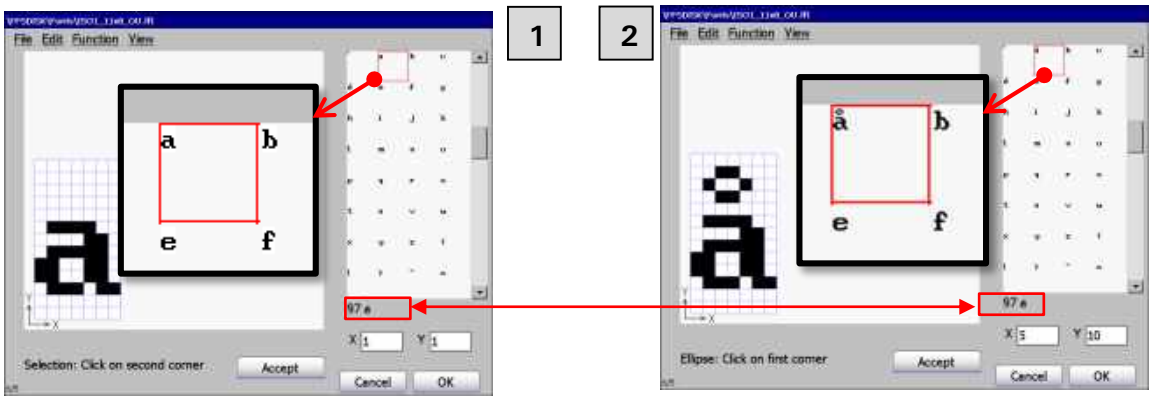
Changes are not visible in the font preview as long as the changes are not applied with the <Accept> button.

After clicking the <Accept> button the edited character is displayed in the preview.



Enlarged view of the edited character in the font preview area.

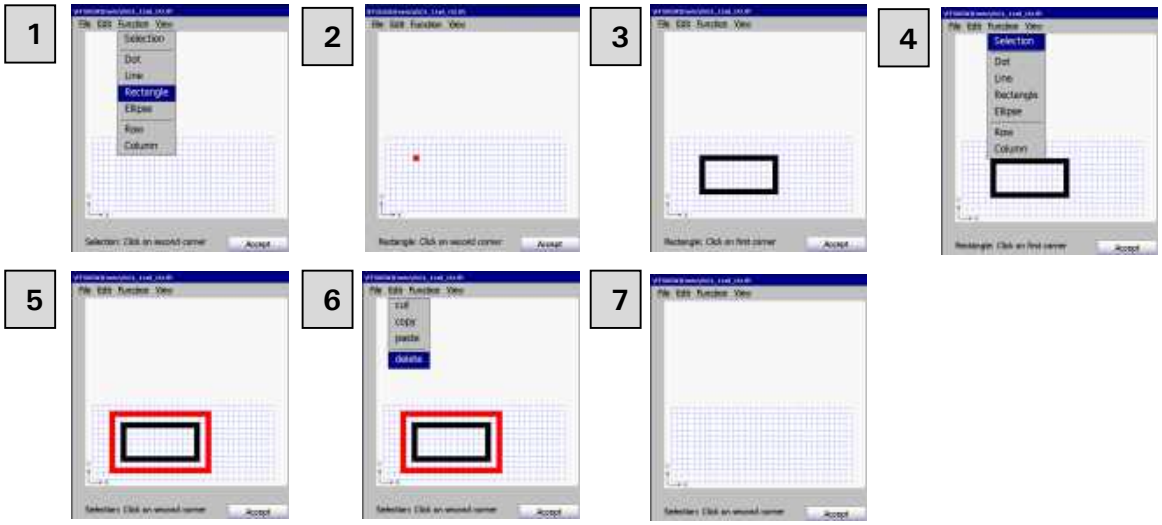
There is a status indicator at the bottom side of the preview area. It shows the decimal value of the ASCII code for the currently selected character and the corresponding standard ASCII character. The displayed standard ASCII character may differ from the character in the preview. There are two reasons for this: either the character was modified with the font editor or there is no character defined for the currently selected ASCII code.



Example: *The decimal ASCII value of the character "a" is 97 and the standard ASCII character is "a". After editing the character it looks different and it will be printed in that new design. Nevertheless the ASCII values remain the same.*

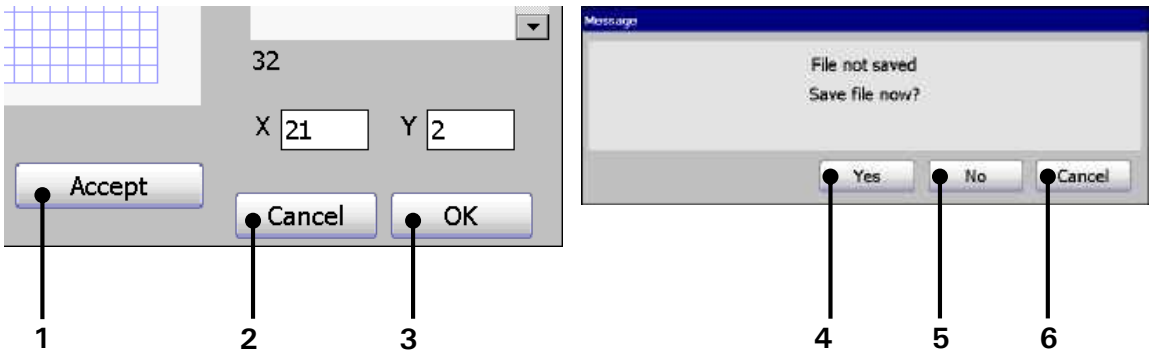
Drawing area

On the drawing area the current content of the selected ASCII character is displayed. You can edit the character using the tools and commands from the menu bar. To change the size of the drawing area and to set the grid you can use the options from the <**View**> drop-down menu. The status bar at the bottom side of the drawing area displays instructions for the current tool or command. There are x-y indicators in the lower right corner of the font editor. They show the position of the point in the drawing area on which was clicked last.



Example: *First you draw a rectangle using the rectangle tool (1 to 3). Then you select the rectangle with the selection tool (4). The selection tool creates a red frame (5). At last you use the* <***Delete***> *command to delete the selected area (6-7).*

Command buttons

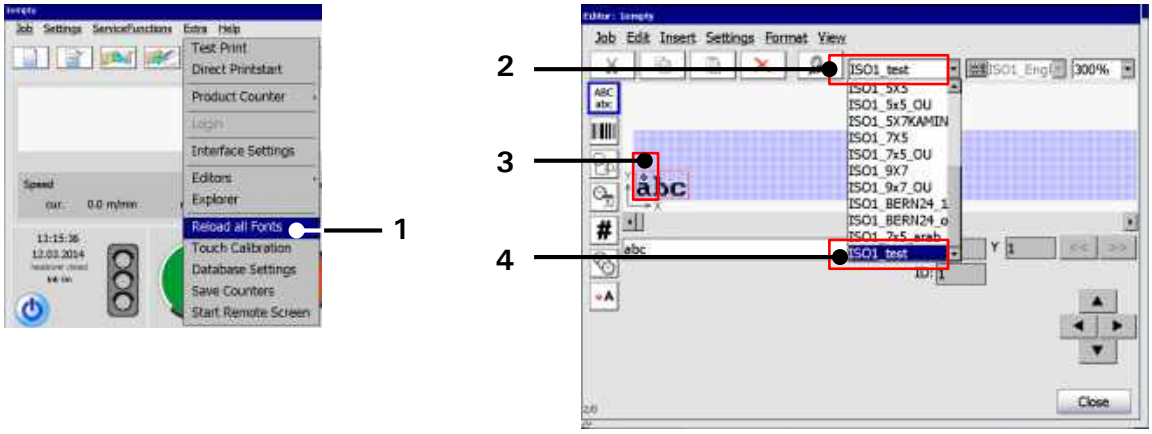


The font editor has three command buttons in the lower right corner:

- **Accept (1):** With this button all changes made to the currently selected character are confirmed and the character is applied to the opened font. All changes will be displayed in the font preview. The font editor will remain open for further editing.
- **Cancel (2):** With this button you can leave the editor without saving changes made after the last saving of the current file. The editor will be closed without further notice.
- **OK (3):** With this button you confirm the state of the current file. If the current file was not already saved a message box will be displayed asking if you want to save the current file. There are three options available:
  a. **Yes (4):** the dialog box for saving files will be displayed
  b. **No (5):** The message box and the font editor will be closed without saving the current file.
  c. **Cancel (6):** The message box will close and you will return to the font editor.

Make fonts available for the job editor

Edited or new fonts have to be loaded from the operating system before they are available in the job editor. For this you have to reload all fonts in the software system. The command for reloading all fonts is located in the <**Extra**> drop down menu (1). After the reload you will find the new or the edited font in the font drop-down list of the job editor (4). If the edited font is selected (2) the characters in the print job will be adjusted to the new font (3).



ATTENTION

A edited or a new font will not be available as long as the font is not re-loaded!
Edited or new font will NOT be re-loaded automatically!

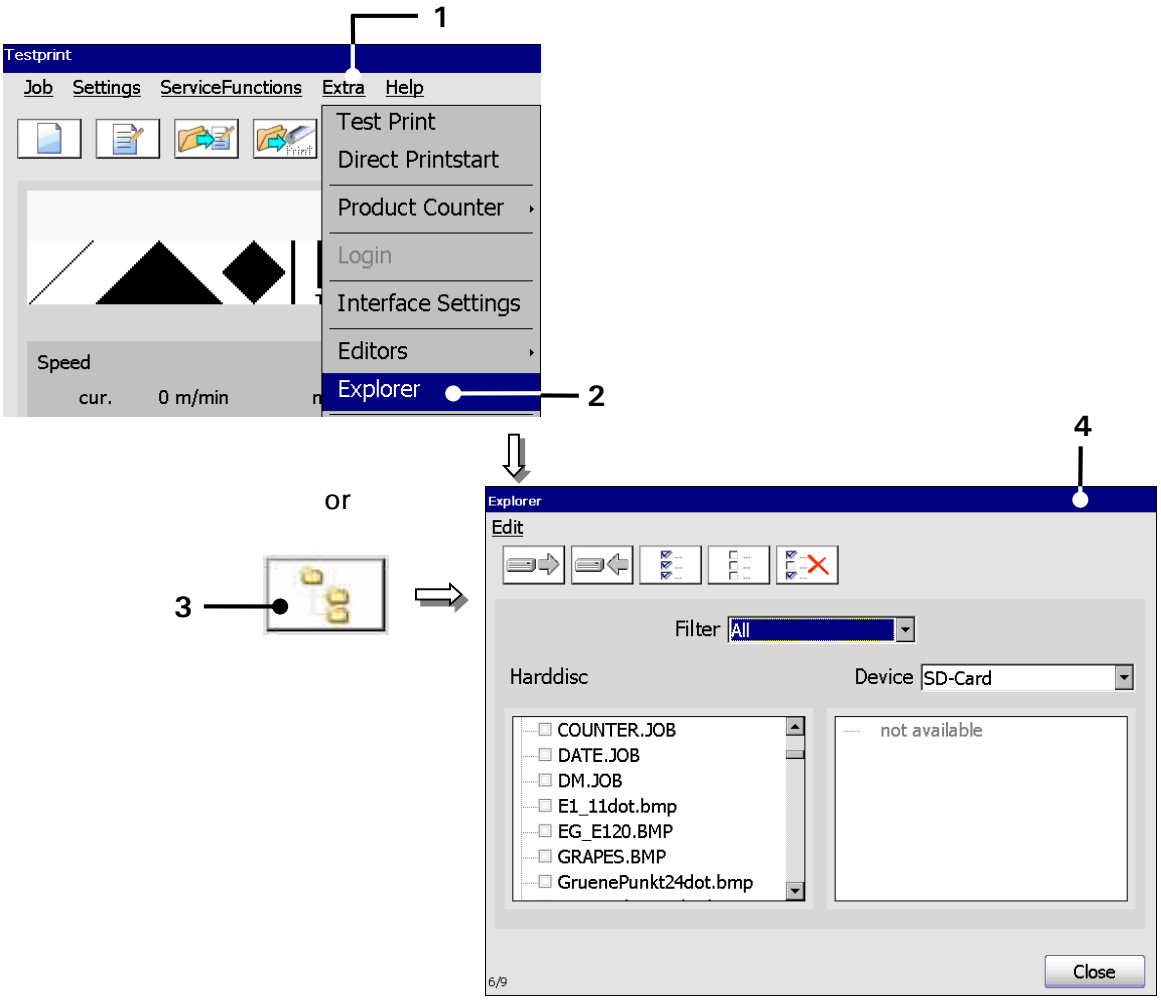
7.5.7 Explorer

The explorer administrates the data of the LEIBINGER JET3. As the explorer of the PCs, the explorer in the JET3 allows the deletion of data as well as the free saving and loading of data on different media (e.g. USB-stick, SD-card) or of the internal memory. Selection window and filter functions allow a clear and easy to operate data management.

7.5.7.1 Launch explorer

- Press the button <**Extra**> (1) and the option <**Explorer**> (2) or the accordant direct button (Icon) (3).
- The dialog box <**Explorer**> (4) opens.

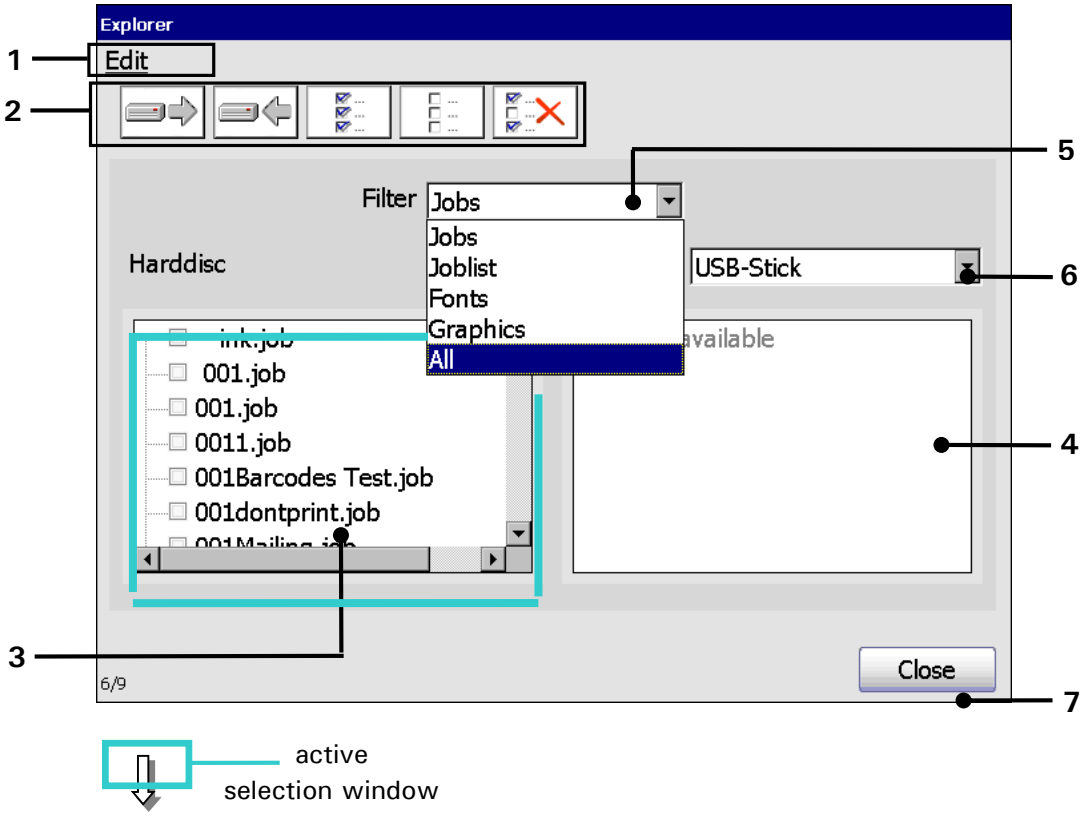
Figure 102 Launch explorer



1 – Button <Extra>
2 – Option <Explorer>
3 – Direct button (Icon)
4 – Dialog box <Explorer>

7.5.7.2 Structure

Figure 103 Explorer (Layout)



1 – Button <Edit>
2 – Direct buttons <Tools>
3 – Selection window <Harddisc>
4 – Selection window <Ext. memory>
5 – Drop-down list <Filter>
6 – Drop-down list <memory device>
7 – Button <Close>

- **<Edit> Button (1) and direct buttons [icons] (2):** With the button or with the icons you can select the tools of the explorer.

- **Selection window <Harddisc> (3):** In the selection window the data or the filtered data of the internal memory of the JET3 are displayed.

- **Selection window <External memory> (4):** In the selection window the data or the filtered data of the external data carrier which have been selected in the drop-down list **<memory device >** are displayed.

  Annotation: *A selection window is activated by clicking on the display area of the window. The active window is marked by a turquoise border.*

- **Filter (5):** With the drop-down list you can select the several data fields which should be displayed or processed. If a filter has been used, only the accordant data is shown in the two selection windows.

  The following filters are available:

  - All
  - Jobs
  - Fonts
  - Graphics
  - Joblists

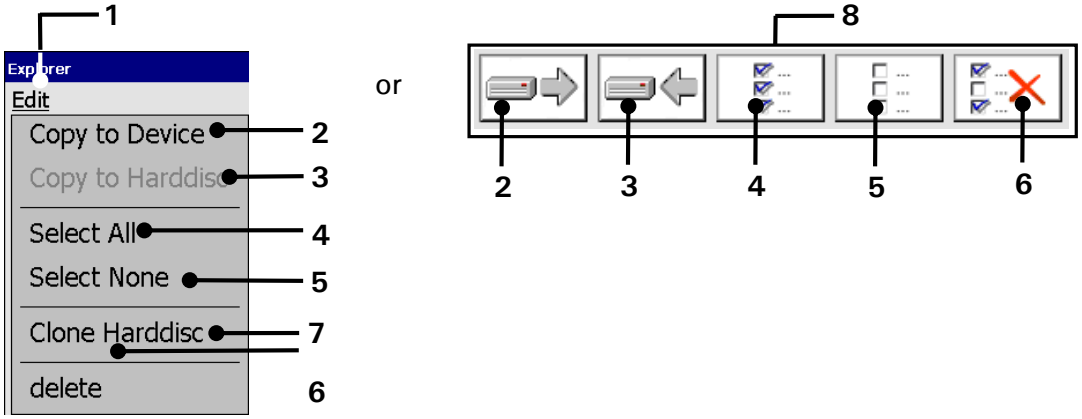
- **Memory device (6):** With the drop-down list you can select the external data carrier.

- The button <**Close**> (7) closes the explorer.

7.5.7.3 Explorer tools

With the button <**Edit**> you can select the explorer tools. Further more most of the tools can be selected directly with the available icons (direct buttons).

Figure 104 Explorer (Tools)



1 – Button <Edit>
2 – Tool <Copy to Device>
3 – Tool <Copy to Harddisc>
4 – Tool <Select all>
5 – Tool <Select None>
6 – Tool <delete>
7 – Tool <Clone Harddisc>
8 – Direct buttons (Icons)

Pos.	Icon	Tool	Function
2.		Copy to (external) device	Copy marked data to an external memory device.
3.		Copy to Harddisc (internal memory)	Copy marked data from an external memory device to the internal memory of the JET3.
4.		Select All	Selects all data in the active selection window. ***Annotation:*** *The selection of several data happens by clicking on the accordant checkbox or the designation.*
5.		Select None (Cancel selection)	Cancels the selection of all data of the active selection window. ***Annotation:*** *The selection of several data is cancelled by clicking on the accordant checkbox or the designation.*
6.		Delete	Deletes all marked data in the active selection window.
7.		Clone Harddisc	Dublicates all data of the LJ3 to an external data carrier.

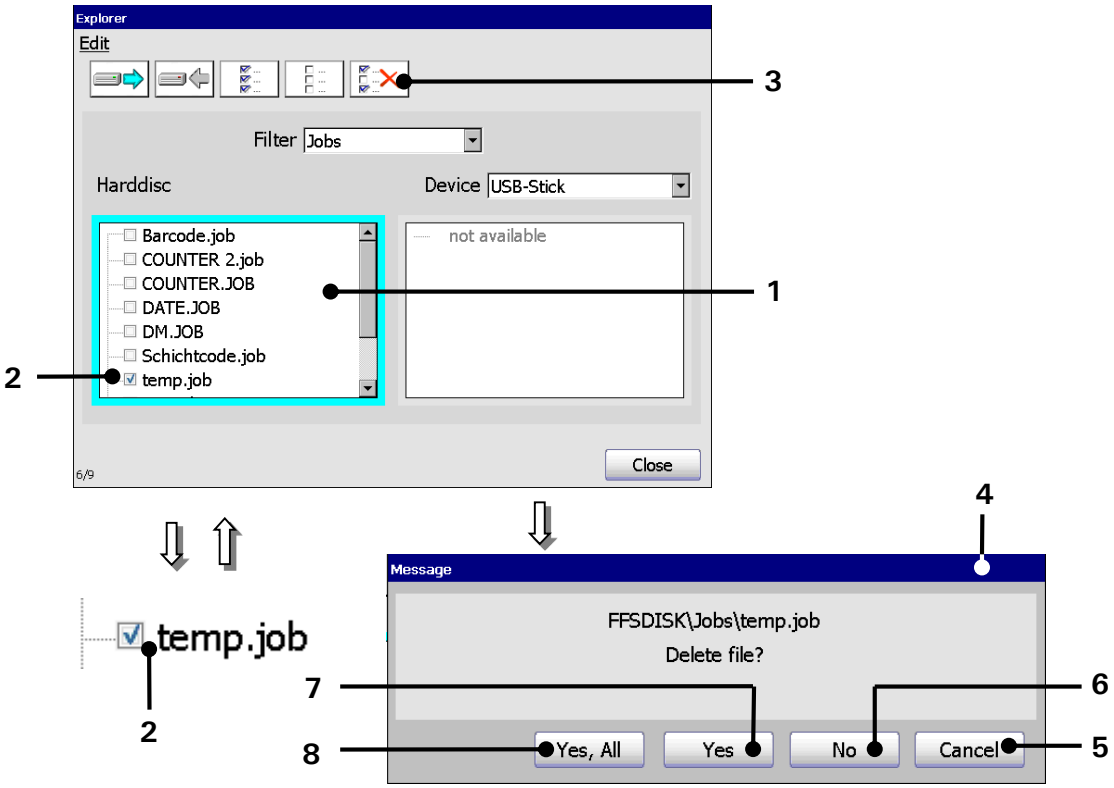
7.5.7.4 Delete jobs

INFORMATION

A job can only be deleted in the explorer!

(Example: The job „temp“ should be deleted in the internal memory.)

Figure 105 Explorer (Delete job)



1 – Selection window <Harddisc>
2 – Selected job
3 – Tool <delete>
4 – Message <Delete file>
5 – Button <Cancel>
6 – Button <No>
7 – Button <Yes>
8 – Button <Yes, All>

Proceeding:

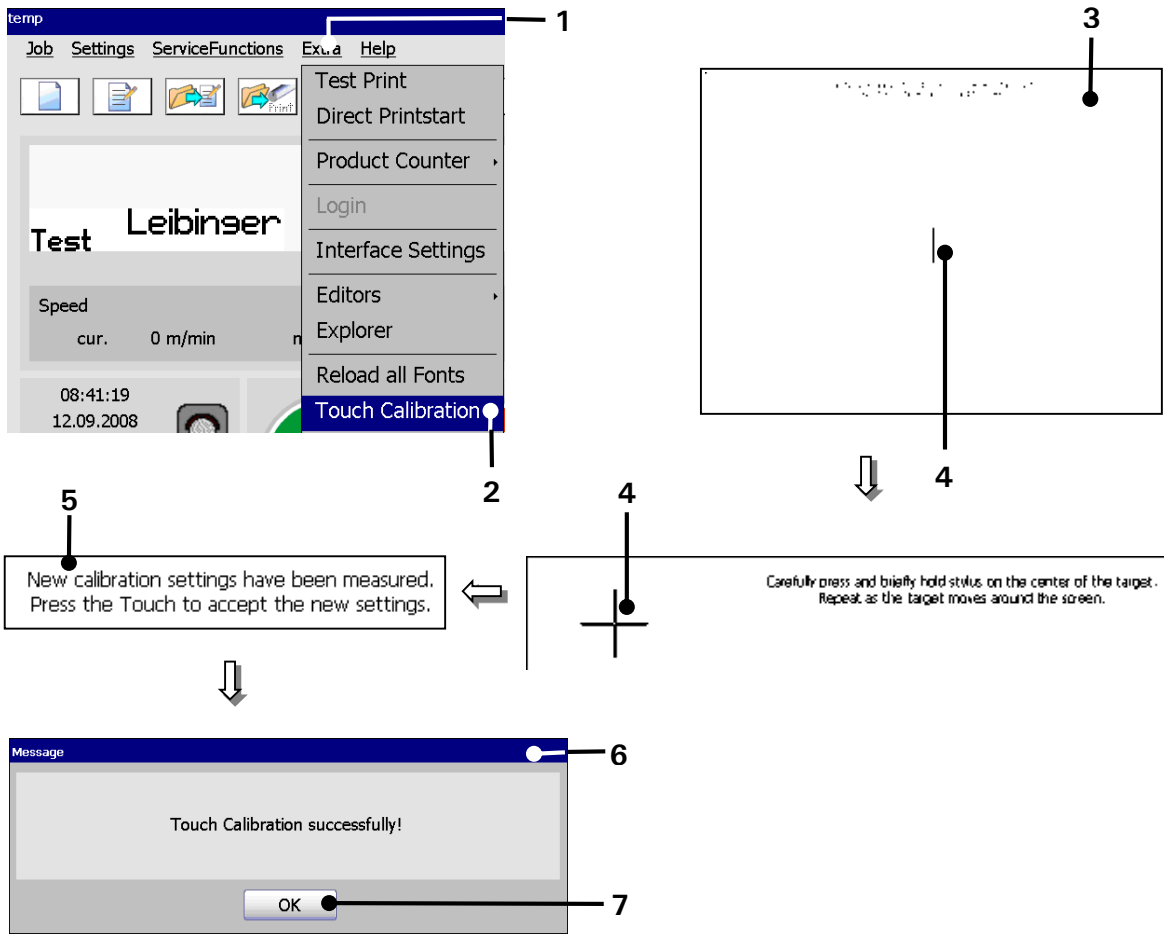
- Click on the display area of the selection window **<Harddisc>** (1) to activate it. The border of the window is now displayed turquoise.
- Select the job with the designation“temp.job“ (2) by clicking on the checkbox or the designation. The selection is displayed with a √ in the checkbox.

- Press the icon of the tool <**delete**> (3).
- The message <**Delete file**> (4) is faded in.
- Press the button <**Yes**> (7) to delete the selected job or press the button <**No**> (7) or the button <**Cancel**> (5) to abort the process.

7.5.8 Touch-Calibration

The function provides a calibration of the TFT-Touch-Display. The device is delivered with a calibrated touch display.

Figure 106 Touch-calibration



1 – Button <Extra>
2 – Option <Touch Calibration>
3 – Calibration window
4 – Calibration point
5 – Message <Setting calculation>
6 – Message <Touch calibration successfully>
7 – Button <OK>

ATTENTION

To avoid faulty operation you have to carry out the calibration carefully!

Proceeding:

- Press the button <**Extra**> (1) and the option <**Touch Calibration**> (2).
- The calibration window (3) opens.
- Now press carefully on the middle of the calibration point (4). Repeat the process as long as the calibration point moves on the display.
- If the settings are calculated an accordring message (5) is displayed on the upper area of the calibration window. Now press any point on the Touch Display to accept the settings.
- The message <**Touch calibration successfully**> (6) is faded in.
- Finally press the button <**OK**> (7) to finish the process.

7.6 Help

With the button <**Help**> (1) in the main menu bar you can call up the options <**Info**> (2) and <**LoginLog**> (3).

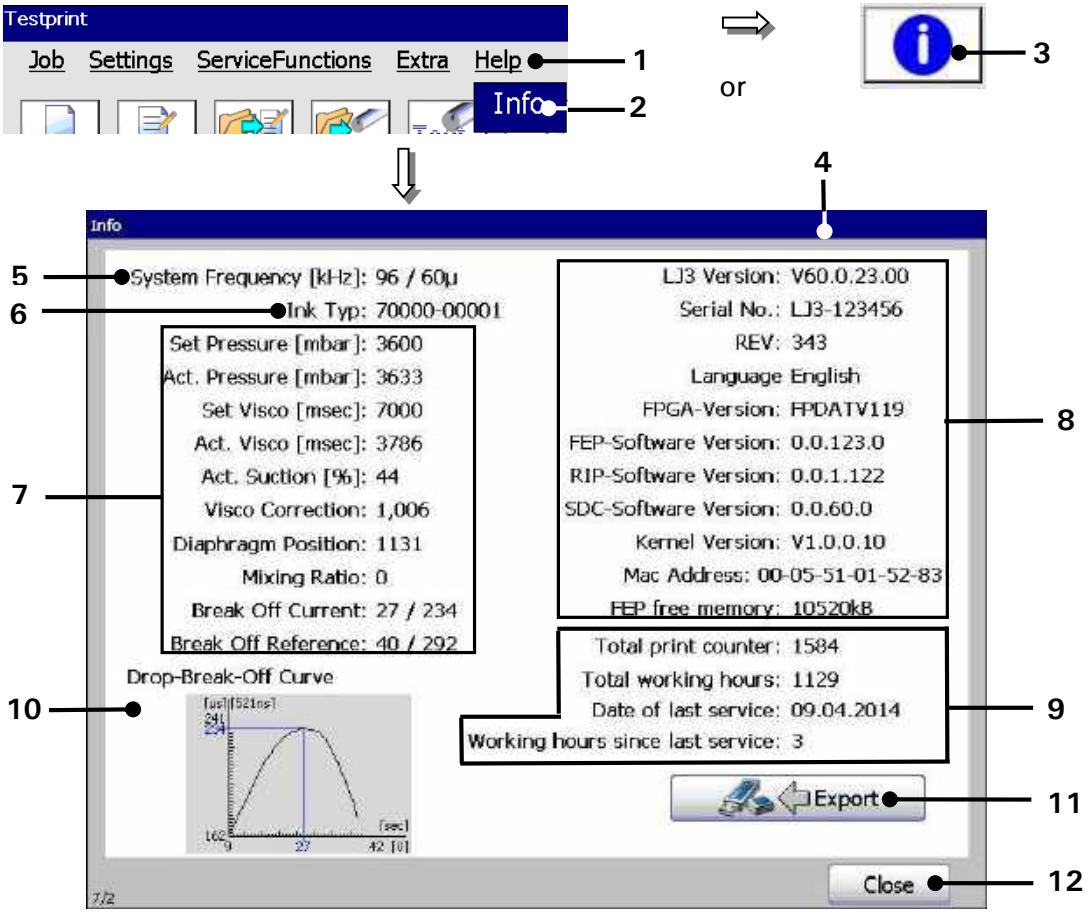
Figure 107 Launch help

1 – Button <Help> 2 – Option <Info>

7.6.1 Information

With the option <**Info**> (2) or or the accordant direct button [Icon] (3) you can open the display window "Information" (4).

Figure 108 System info window



1 – Button <Help>
2 – Option <Info>
3 – Direct button (Icon)
4 – Display window <Info>
5 – Display<System frequency>
6 – Display<Filled ink>
7 – Display <Curr. hydr. param.>
8 – Display <Version/Software version>
9 – Display<Operation hours/inspection>
10 – Drop break off curve
11 – Button <Export>
12 – Button <Close>

The following system information are displayed in the window:

- Oscillator frequency of the device (5)
- The ink which has been filled in the device (6)
- The nominal values and the current actual values of the hydraulic system (7)
- The JET3 version number, the serial number of the device and the software versions (8)
- The operation hour counter and information for inspection (9)
- The drop break off curve (10) [if available]

With the button <**Export**> (11) you can save the system information on an external memory device (e.g. USB-stick).

The button <**Close**> (12) closes the window.

7.6.1.1 Save info file

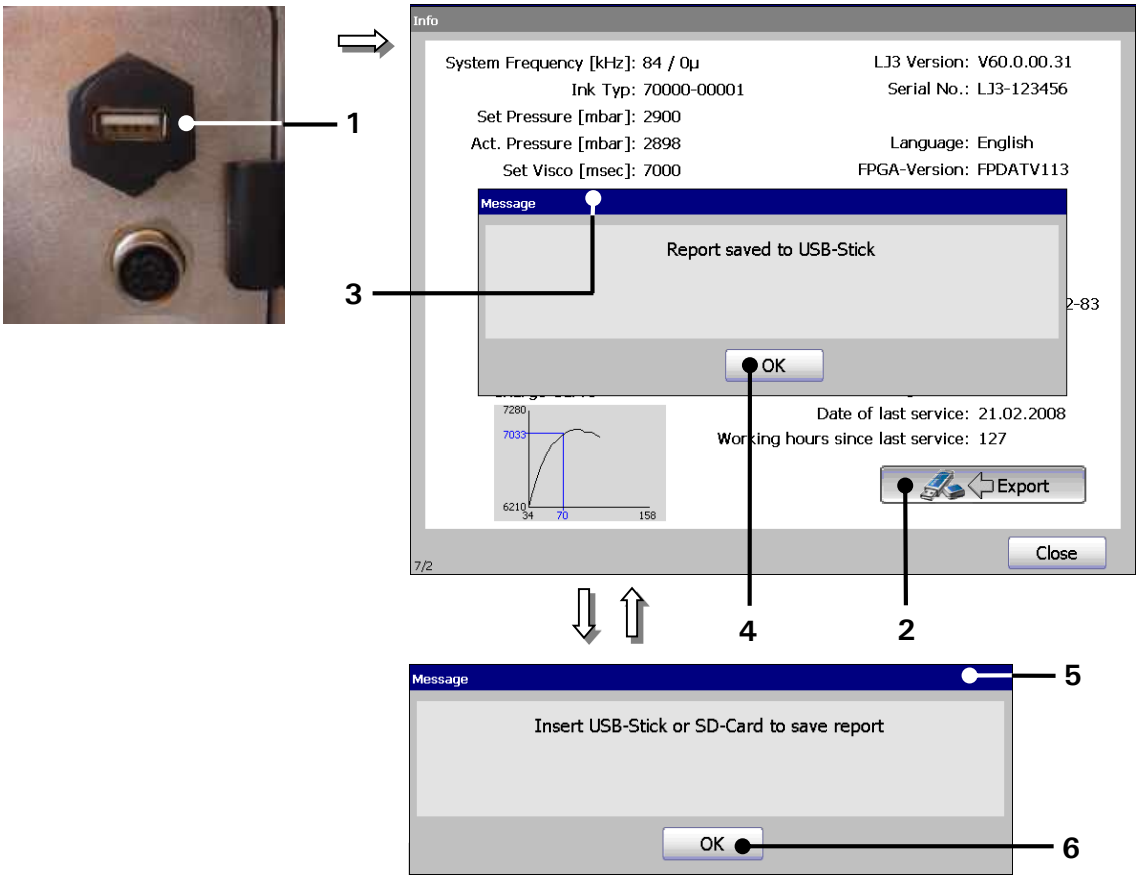
The displayed system information can be swaped out to an external memory device (USB-stick).

Proceeding:

- Plug an USB-Stick in the USB-socket (1) on the back of the device.
- Press the button <**Export**> (2).
- The data is saved on the connected medium and the **Message** (3), that the process has been carried is faded in. The memory happens with the designation „info_LJ3-*("serial number of the printer")*.txt".
- Finally confirm the message with the button <**OK**> (4).

  Comment: *If no storage medium (memory device) is connected, the **Message** (5) is faded in. Confirm the message with the button <**OK**> (6). Connect a memory device and repeat the complete process.*

Figure 109 System info (Save info file)



1 – USB-access (connection)
2 – Button <Export>
3 – Message <Info file (Report) saved>
4 – Button <OK>
5 – Message <Insert storage medium>
6 – Button <OK>

8. Job editor

The printing data is created and saved as a job in the job editor. A variety of Windows® similar tools make the operation easier. A job can consist of a lot different objects e.g. text blocks, graphics or barcodes whose contents and characters are changeable.

Functions as matrix, size, bold type, rotation etc. can be assigned to every single object irrespectively of each other. Current jobs can be edited or created new also during running production. All jobs are displayed in the WYSIWYG mode.

Note:

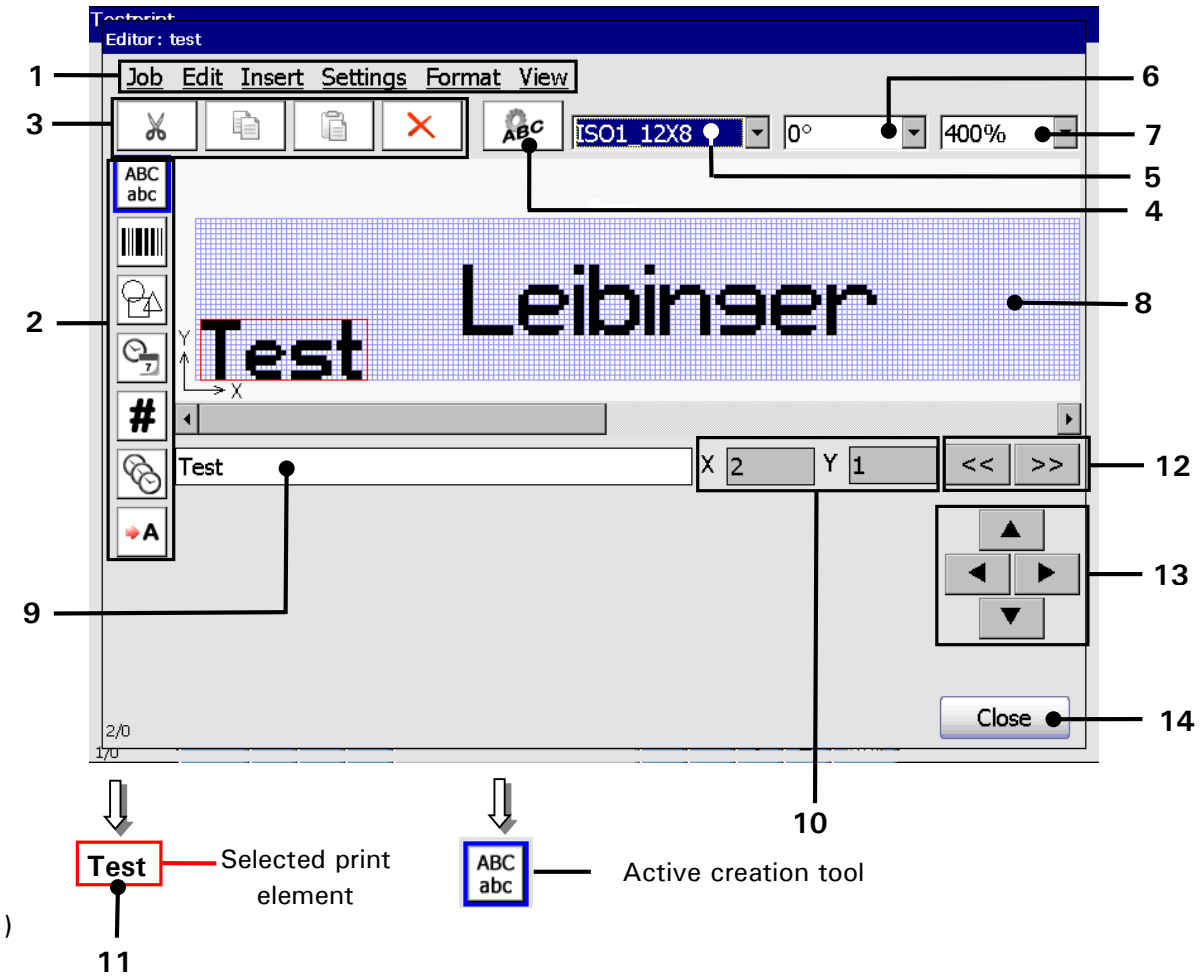
WYSIWYG = What you see is what you get (real display of print image)

8.1 Structure

- **Menu bar (1):** With the buttons in the menu bar you can select the accordant submenus of the editor. The following submenus are available:
  - Job
  - Insert
  - Format
  - Edit
  - Settings
  - View
- **Direct buttons (2+3):** With the direct buttons (Icons) you can select the creation- and editing tools directly.

  You will find further information regarding these tools in the following chapters.
- **Direct button <Object settings> (4):** With the direct button (Icon) you can assign several object settings (e.g. font, contrast, alignment etc.) to the selected printing element.
- **Font selection (5):** With the drop-down list you can change a font for a new created element or for a selected element.
- **Orientation (6):** With the drop-down list you can change the orientation (alignment) of an element.
- **Zoom (7):** With the drop-down list you can change the zoom factor of the elements in the display area <**Print image**> (8) to make the process easier.
- **Display area <Print image> (8):** In the display area the created printing data is displayed in the WYSIWYG-mode.

Figure 110 Job editor (Structure)



1 – Menu bar
2 – Direct buttons <Creation tools>
3 – Direct buttons <Editing tools>
4 – Direct button <Object settings>
5 – Drop-down list <Font selection>
6 – Drop-down list <Orientation>
7 – Drop-down list <Zoom>
8 – Display area <Print image>
9 – Input field <Text>
10 – Display <Coordinates>
11 – Object framen
12 – Skip buttons
13 – Positioning buttons
14 – Button <Close>

- **Input field <Text> (9):** In the field the text of the selected text print element is displayed. By clicking in the field a keyboard field opens to change the input.

  If the creation tool **<Text>** is activated a keyboard field also opens and you can see the inputs directly in the input field (9).

- On the display **<Coordinates>** (10) the start position (bottom left corner) of the selected printing element is dispalyed.

  Note: *For the displayed position not the actual printing element but the position of the displayed object frame is decisive.*

- **Object frame (11):** A selected printing element is marked with a red object frame.
- **Skip buttons (12):** With the buttons you can skip from one printing element to the other.
- **Directional buttons (13):** With the four directional buttons you can shift a selected printing element easily and accurately (pixel accurate). With every pressing on the accordant directional button the element is shifted by one raster point to the particular direction.
- The button <**Close**> (14) closes the editor dialog box. If the inputs have been not saved, an accordant safety query is faded in.

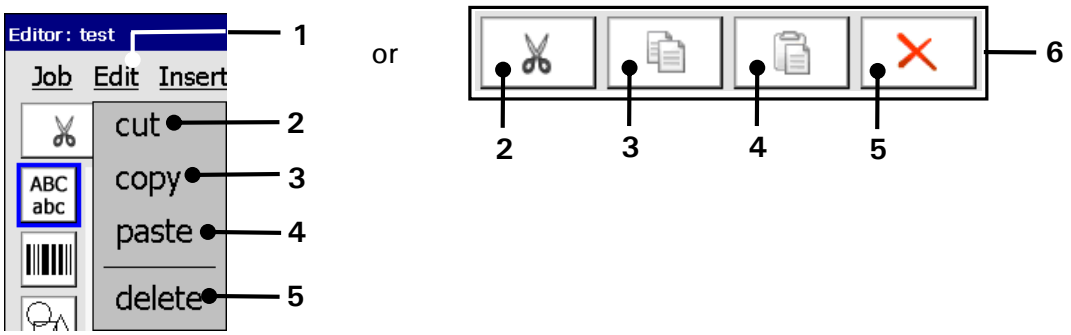
8.2 Job editor tools

8.2.1 Edit tools

With the button <**Edit**> you can select the editor tools. Further more you can also select the several tools with the available Icons (direct buttons).

Note: *The function of the tools corresponds to the Windows™-functions.*

Figure 111 Job editor (Edit tools)

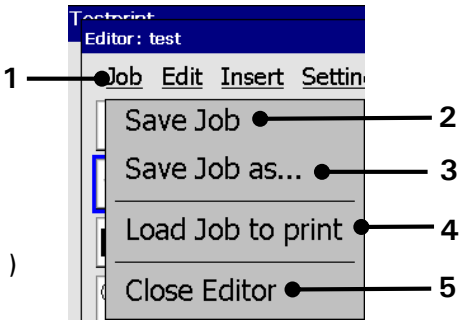


1 – Button <Edit>
2 – Edit tool <cut>
3 – Edit tool <copy>
4 – Edit tool <paste>
5 – Edit tool <delete>
6 – Direct buttons (Icons)

8.2.2 Organization tools

With the button **<Job>** you can select the organization tools of the job editor.

Figure 112 Job editor (File management tools)



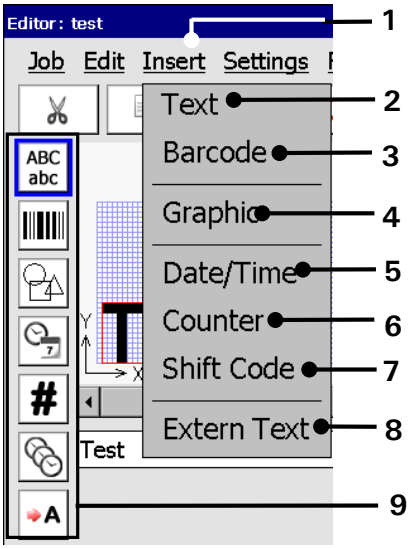
1 – Button <Job>
2 – Organization tool <Save Job>
3 – Organization tool <Save Job as>
4 – Organization tool <Load Job to print>
5 – Organization tool <Close Editor>

Pos.	Organization tool	Function
2.	Save Job	Saves the current loaded job under the existing name.
3.	Save Job as	Saves the current loaded job or a new created job under a new name.
4.	Load Job to print	Loads the selected job into the active memory in the printer. This job will be the next one, which will be printed
5.	Close Editor	Closes the job editor. If carried out inputs or changes have been not saved yet, an appropriate safety query is faded in.

8.2.3 Creation tools

With the button <**Insert**> you can select tools to create printing elements (texts, graphics, counters etc.). Further more you can also directly select the several tools with the available Icons (direct buttons).

Figure 113 Job editor (Creation tools)



1 – Button <Insert>
2 – Creation tools <Text>
3 – Creation tools <Barcode>
4 – Creation tools <Graphic>
5 – Creation tools <Date/Time>
6 – Creation tools <Counter>
7 - Creation tools <Shift Code>
8 – Creation tools <Extern Text>
9 – Direct buttons (Icons)

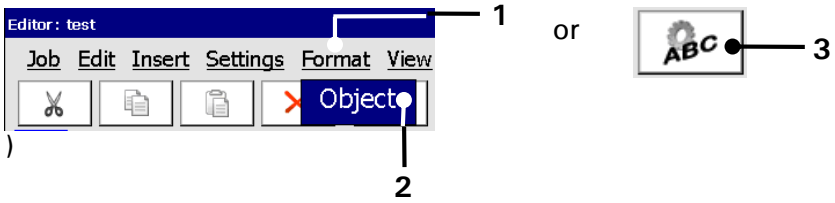
Pos.	Icon	Creation tool	Function
2.	ABC abc	Text	Provides the creation of text elements.
3.		Barcode	Provides the integration of barcodes and defines the certain parameters.
4.		Graphic	Provides the integration of an already existing graphic and defines the accordant parameters.
5.		Date/Time	Provides the integration of date- and time specification and defines the accordant parameters and requested replacements.
6.	#	Counter	Provides the integration of a counter as well as the definition of the accordant parameters and requested replacements.
7.		Shift Code	Provides the integration of a text element which is printed by predefined periods (shifts of time) as well the definition of the accordant parameters..
8.	A	Extern(al) Text	Provides the integration of an external text as well as the definition of the accordant parameters. By usage of this function an easy possibility is offered to integrate **variable data** in the printing text without any additional software- and programming works.

8.2.4 Formatting tool

With the button <**Format**> you can select the formatting tool <**Object**> (2). Further more you can also select the tool directly with the accordant Icon (3).

With the tool you can assign several object settings *(e.g. font, contrast, alignment, etc.)* to the selected printing elements. The displayed dialog box refers to the selected printing element *(e.g. text, graphic, barcode, etc.).*

Figure 114 Job editor (Formatting tool)



)

1 – Button <Format>
2 – Formatting tool <Object>
3 – Direct button (Icon)

INFORMATION

You will find further information regarding the procedure of object settings in the a **chapter *Object settings***!

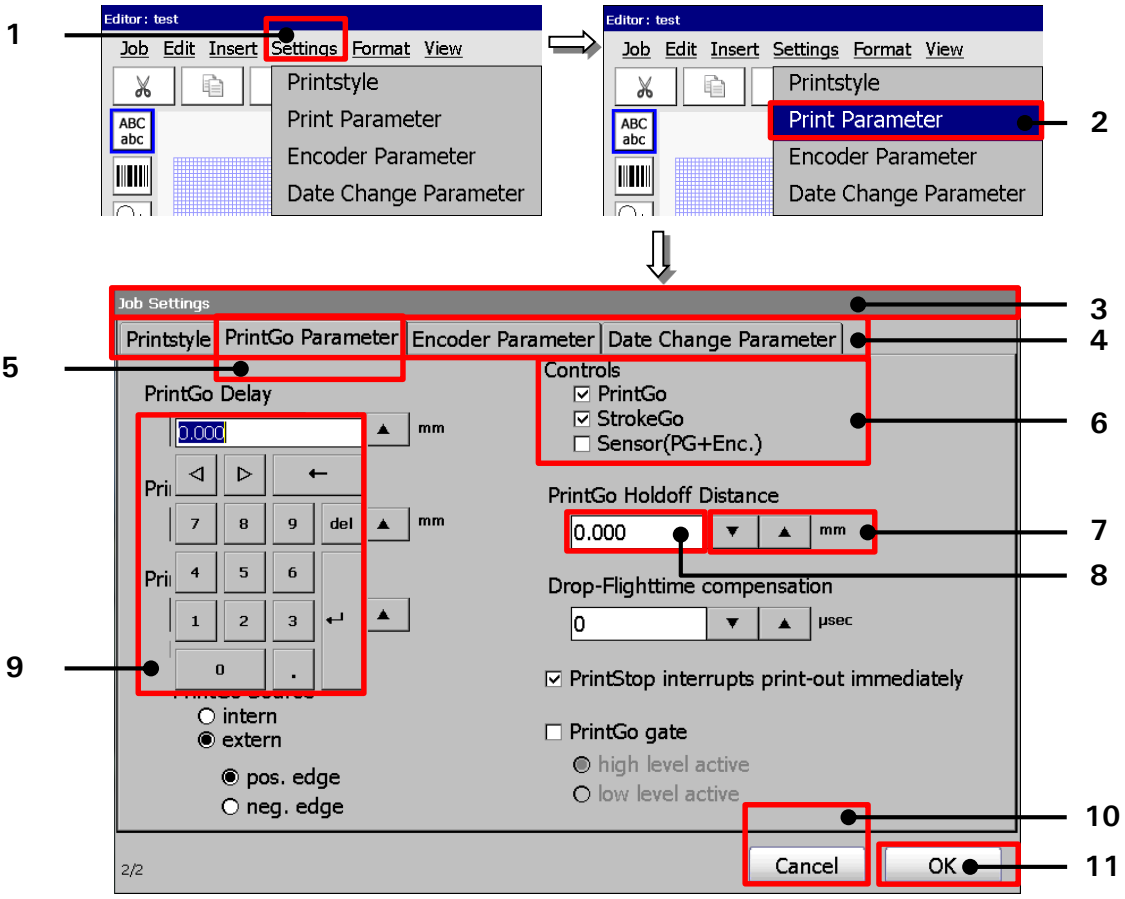
8.2.5 Parameter setting tools (Parameter settings menu)

The drop-down menu <**Settings**> offers the following options:

- Printstyle
- Print parameter
- Encoder parameter
- Date changing parameter

The settings for each option are arranged in tabs.

Figure 115 Job editor (Parameter settings menu)



1 – Drop-down menu <Settings>
2 – Option <Print Parameter>
3 – Dialog box <**Job settings**>
4 – Tab bar
5 – Tab caption <**PrintGo Parameter**>
6 – Checkboxes
7 – Arrow keys
8 – Display field
9 – Numeric keypad
10 – Button <**OK**>
11 – Button <**Cancel**>

Open a dialog box and enter settings

(Example: Enter settings within the tab „PrintGo Parameter“)

Proceeding:

- Open the drop-down menu **<Settings>** **(1)** and select **<Print Parameter>** **(2)**
- This opens the **<Job Settings>** dialog box **(3)**.
- The dialog box **<Job Settings>** has a tab with 4 tabs **(4)**. Respectively the parameter settings are separated in 4 groups: **<Print style>**, **<PrintGo Parameter>**, **<Encoder Parameter>**, **<Date change parameter>**. A tab is selected by pressing the caption **(5)**. In this example the **<PrintGo Parameter>** tab is selected.
- Options are activated using checkboxes **(6)**.
- Parameters are entered into display fields **(8)**. Inputs or changes can either be made by using the arrow keys **(7)** or a numeric keypad **(9)**.

INFORMATION

The **chapter *Numeric keypad*** describes further details regarding this input method.

- Pressing the **<Cancel>** button **(10)** discards all changes and closes the dialog box.
- Pressing the **<OK>** button **(11)** confirms and saves all settings and changes and closes the dialog box.

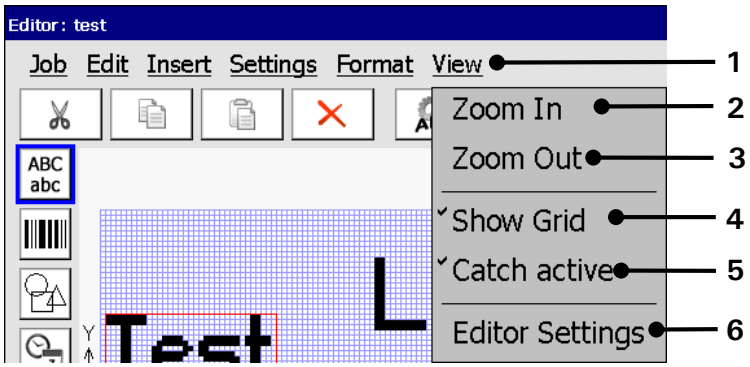
INFORMATION

The **chapter *Parameter settings*** describes further details about the content of all tabs of the **<Job Settings>** dialog box.

8.2.6 View settings

With the button <**View**> you can select the display tools of the job editor.

Figure 116 Job editor (Display tools)



)

1 – Button <View>
2 – Display tool <Zoom In>
3 – Display tool <Zoom Out>
4 – Display tool <Show Grid>
5 – Display tool <Catch active>
6 – Display tool <Editor settings>

Pos.	Display tool	Function
2.	Zoom In	Zoom In enlarges the display in the display area <**Print image**>.
3.	Zoom Out	Zoom Out reduces the display in the display area <**Print image**>.
4.	Show Grid	Turns on or off the reticule display. If the reticule is turned on, it is displayed with a checkmark on the button.
5.	Catch active	Turns on or off the catch (snap) function. The catch function enables the easy and exact positionig of an element at the reticule. If the function is turned on it is displayed with a checkmark on the button.
6.	Editor Settings	Enables the setting of the editor size (width of the display field <Print image>) as well as the settings of the reticule size.

INFORMATION

You will find further information regarding the functions of several display tools in the **chapter *Carry out settings of the job editor***!

8.3 Job(editor)management

In the job management the following submenus are available:

- Save Job
- Save Job as
- Close Editor
- Load Job to print

8.3.1 Save job/Save job as

With the option <**Save Job**>, a job which opened for editing is saved under the current name.

With the option <**Save Job as**>, a job which opened for editing or a new created job can be saved under a new or particular name.

ATTENTION

If a job is saved under an already existing data file name, no further safety query happens. The existing data will be overwritten.

Proceeding:

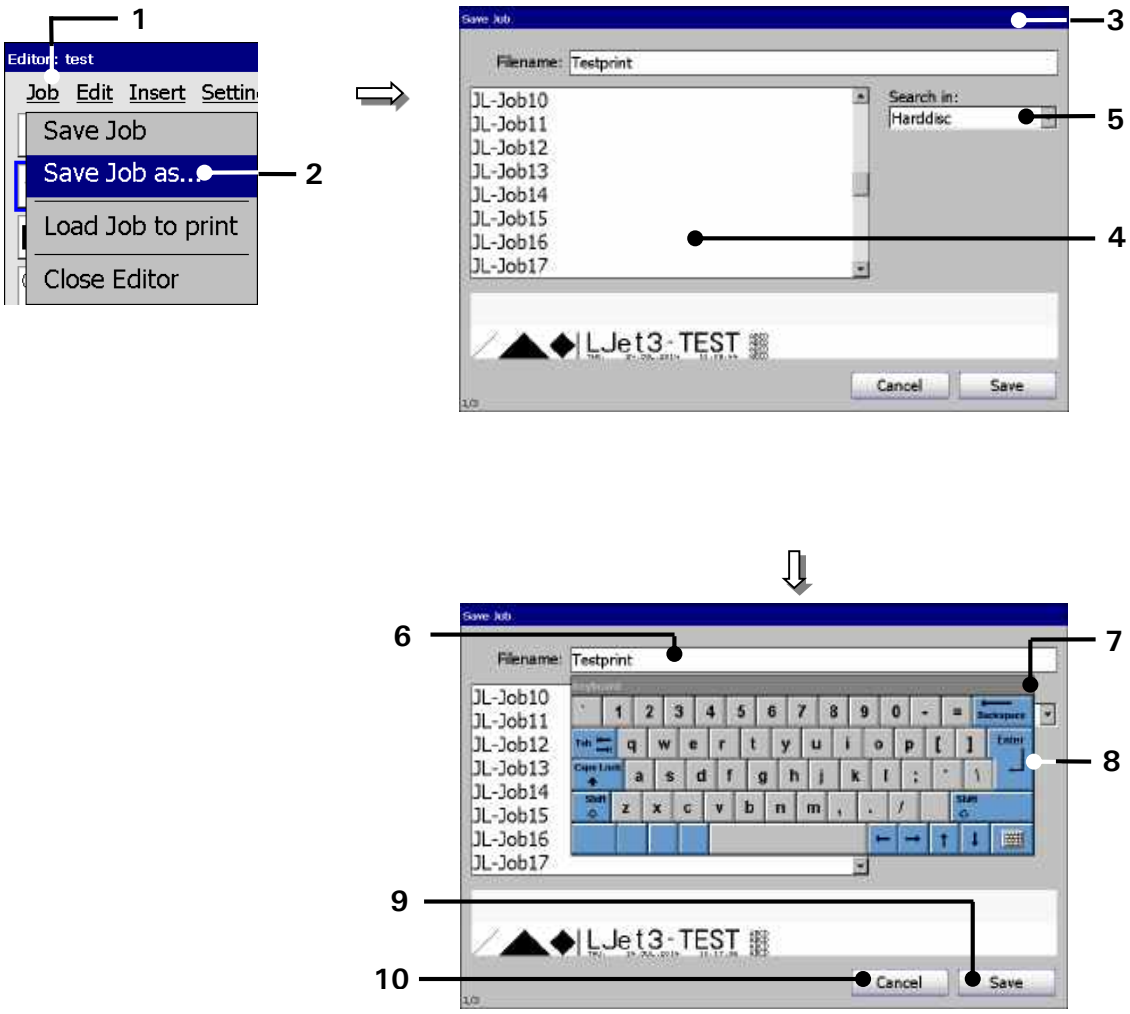
- Press the button <**Job**> (1) and the option <**Save Job as**> (2).
- The window <**Save Job**> (3) is faded in.
- The names of the already existing graphics are displayed in the data file selection field (4). With the drop-down list <**Search in**> (5) you can select the different memory devices.
- Click in the display <**Filename**> (6). A keyboard field (7) opens for input.

INFORMATION

You will find further information regarding the operation with keyboard in the **chapter *Keyboard***!

- Enter the requested name.
- Press the button <**Enter**> (8) of the keyboard field. The entered name is taken over to the display <**name**> (6).
- Press the button <**Save**> (9) to finish the saving process or press the button <**Cancel**> (10) to abort the process.

Figure 117 Job editor (Save job)

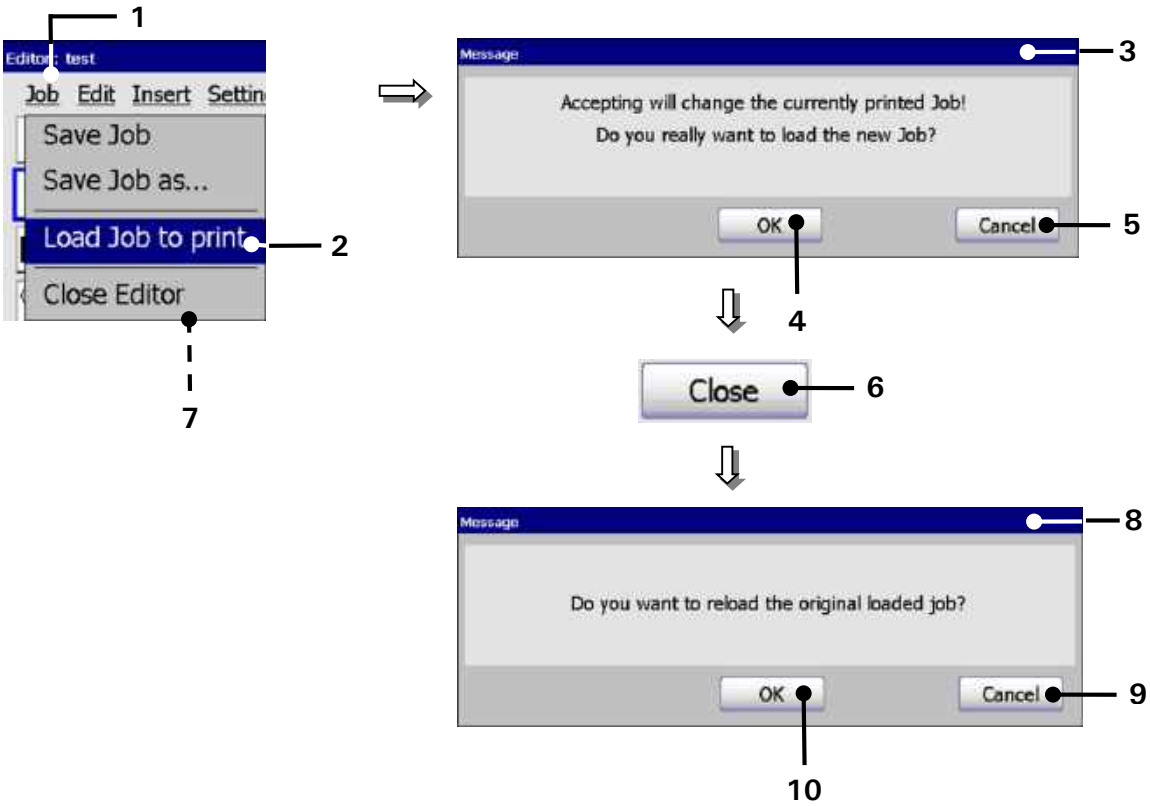


1 – Button <Job>
2 – Option <Save Job as>
3 – Window <Save Job>
4 – Selection field <Data file>
5 – Drop-down list <Search in>
6 – Display <Filename>
7 – Keyboard field
8 – Button <Enter>
9 – Button <Save>
10 – Button <Cancel>

8.3.2 Load job to print

With the option <**Load Job to print**> the job which is currently opened in the job editor can be loaded directly for printing.

Figure 118 Job editor (Load job to print)



1 – Button <Job>
2 – Option <Load Job to print >
3 – Message <Print job change>
4 – Button <OK>
5 – Button <Cancel>
6 – Button <Close>
7 – Option <Close Editor>
8 – Message <Reload original job>
9 – Button <OK>
10 – Button <Cancel>

Proceeding:

- Press the button <**Job**> (1) and the option <**Load job to print**> (2).
- A **safety query** (3), if the print job should be really changed is faded in.
- Confirm the change by pressing on the button <**OK**> (4) or cancel the process with the button <**Cancel**> (5).
- The job in the job editor is now loaded for printing. **Attention!** If a print start release has already happened for the original job, the JET3 starts immediately with the printing process.

1. Print loaded job (without given print release):

- Press the button <**Close**> (6) of the job editor.

  or

- Press the button <**Job**> (1) and the option <**Close Editor**> (7).
- A **safety query** (8), if the original printing job should be loaded again is faded in.
- Press the button <**Cancel**> (9) to keep the **new loaded** job.
- The job editor will be closed and the main menu is displayed again. The print start release can now be carried out.

2. Load original job again (reload):

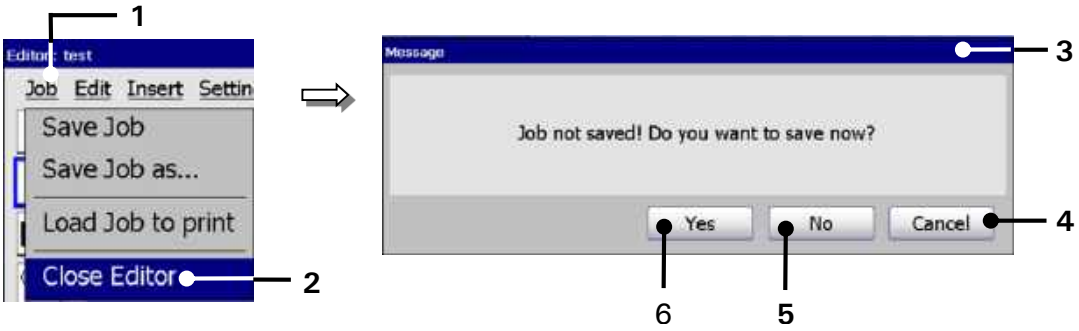
- Press the button <**Close**> (6) of the job editor.

  or

- Press the button <**Job**> (1) and the option <**Close Editor**> (7).
- A **safety query** (8), if the original printing job should be loaded again is faded in.
- Press the button <**OK**> (10) to reload the **original** job.
- The job editor will be closed and the original job is now available. **Attention!** For activated print start release the JET3 starts immediately again with the printing process.

8.3.3 Close job editor

Figure 119 Close job editor



1 – Button <Job>
2 – Option <Close Editor>
3 – Safety query
4 – Button <Cancel>
5 – Button <No>
6 – Button <Yes>

With the option **<Close Editor>** you can close the job editor.

If changes have been carried out at the opened job, an accordant safety query (3) is faded in.

In this case the following possibilities are available:

- Press the button **<Cancel>** (4) to abort the process and to go back to the editor.
- Press the button **<No>** (5) to leave the editor without saving the job.
- Press the button **<Yes>** (6) to save the job when leaving the editor. **Attention!** The saving happens under the current data file name. The existing data will be overwritten!

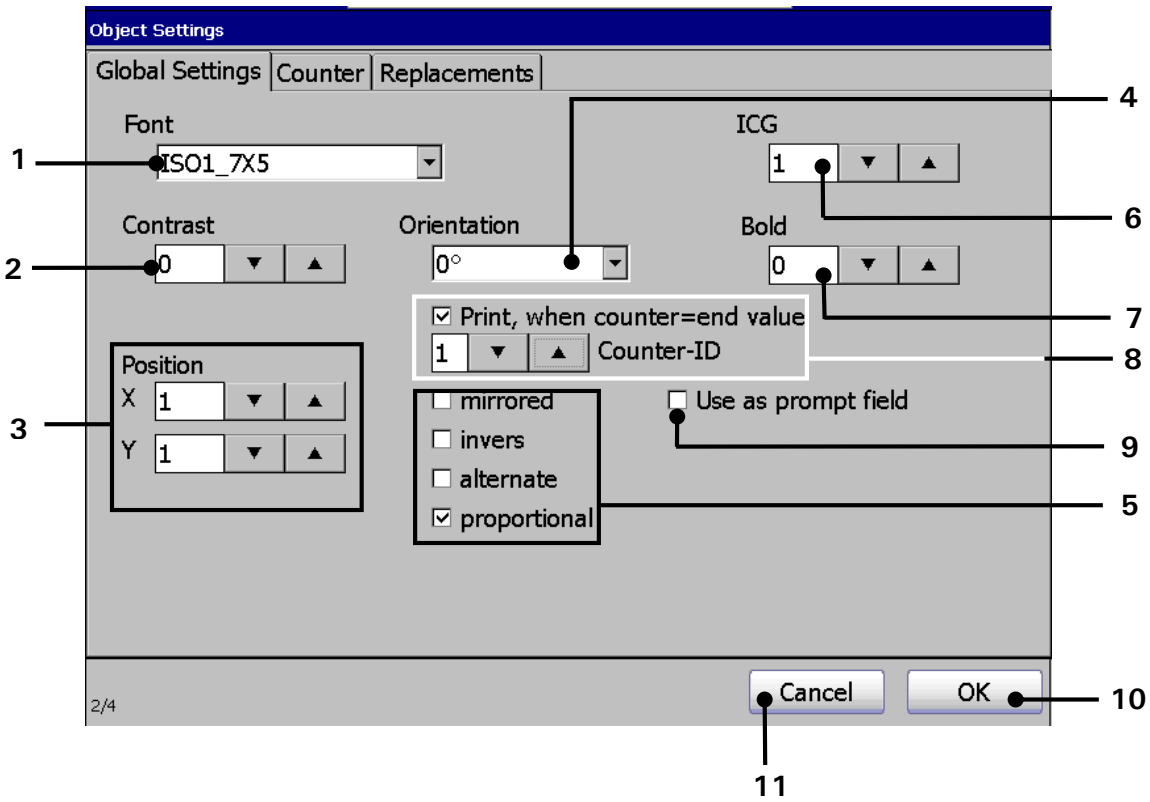
8.4 Object settings

In the dialog box <**Object Settings**> you can assign several printing elements to different object settings *(e.g. font, contrast, alignment etc.).*

That means the carried out settings have only effects on the selected or applied printing element.

The displayed dialog box refers to the selected printing element *(e.g. text, graphic, barcode etc.).*

Figure 120 Object setting dialog box



1 – Drop-down list <Font>
2 – Display field <Contrast value>
3 – Display fields <Position X/Y>
4 – Display field <Orientation>
5 – Checkbox <Display options>
6 – Display field <ICG-value>
7 – Display field <Bold level>
8 – Display field/Checkbox <Settings Counter assignment>
9 – Checkbox <Use as prompt field>
10 – Button <OK>
11 – Button <Cancel>

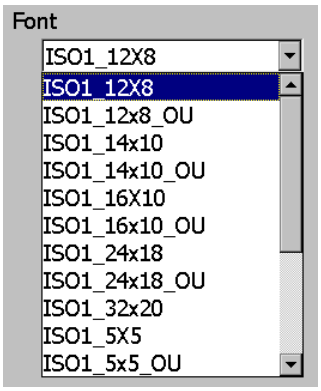
The following settings can be carried out:

Pos.	Object settings	Note
1.	Font selection	Not available for barcodes and graphics
2.	Contrast value	
3.	Position X/Y	
4.	Orientation	
5.1	Display mirrored	
5.2	Display inverted	
5.3	Display alternating	
5.4	Display proportional	Not available for barcodes and graphics
6.	ICG-value	Not available for barcodes and graphics
7.	Bold level	Not available for barcodes and graphics
8.	Settings Counter assignment	
9.	Use as prompt field	

8.4.1 Font selection

With the drop-down list <**Font**> you can assign the requested font to the printing element.

Figure 121 Object settings (Font selection)



8.4.2 Contrast value

The setting determines the print contrast of the object. The value can be set between 0 – 7.

To get a contrast increasing of the print out, you have to place several dots on top of each other (on the same position).

Example
0 = no contrast increasing (single print out)
1 = 2 dots are placed on top of each other
2 = 3 dots are placed on top of each other
.....
7 = 8 dots are placed on top of each other

The set value is shown on the accordant display field.

Figure 122 Object settings (Contrast)

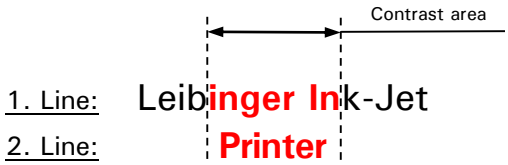
Display: normal with contrast

Contrast

ATTENTION

From the technical side the function <**Contrast**> can only used for complete strokes (vertical dot line). This means that all further strokes which are placed above or below the attribute setting are also generated with the contrast additionally to the affected object.

Example: *For a doublespaced font only the lower line is reserved with the attribute „Contrast“. The elements of the first line which are placed above the attribute setting will be also printed automatically with the attribute “Contrast”.*



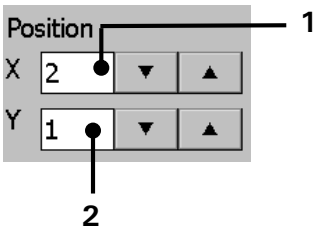
As higher the contrast has been set, as lower is the max. printing speed!

8.4.3 Position settings

With the position inputs you can position the printing object accurately (pixel accurate).

Note: *Important for the displayed position is not the printing element but the position of the displayed object frame.*

Figure 123 Set object position



1 – Display field <X – Position>
2 – Display field <Y – Position>

8.4.4 Bold level (Bold text)

To write a printing text "bold" you have to determine a bold level. The level can be between 0 – 7.

To get a bold text several dots are placed parallel (multiplication of strokes).

Example 0 = no bold text (single strokes)
1 = 2 dots are placed parallel (2 strokes)
2 = 3 dots are placed parallel (3 strokes)
.....
7 = 8 dots are placed parallel (8 strokes)

The set value is shown on the accordant display field.

Figure 124 Object settings (Bold text)

Display: normal bold print

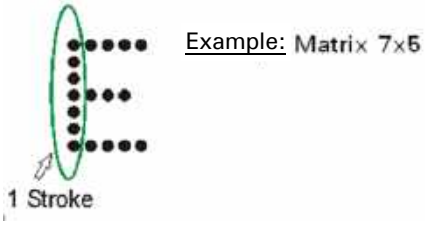
8.4.5 ICG-value (Inter Character Gap)

The setting determines the distance between the several characters. As larger the character distance has been selected, as more ***„Blank strokes“*** are inserted between the single characters. The value can be set between 0 – 7.

Example 0 = no distance between the characters
1 = 1 blank stroke is generated between the characters
.....
7 = 7 blank strokes are generated between the characters

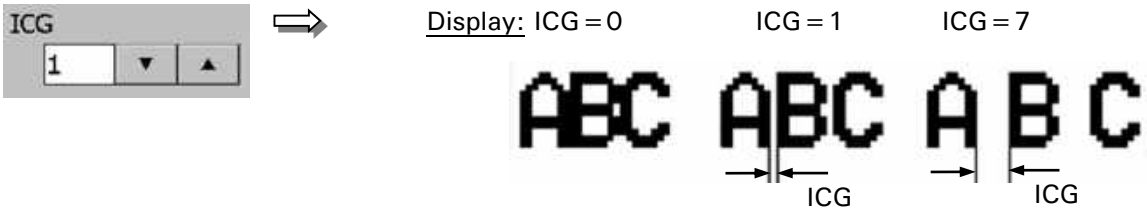
The set value is shown on the accordant display field.

Explanation:



A stroke is a complete dot line in vertical direction (dot height).

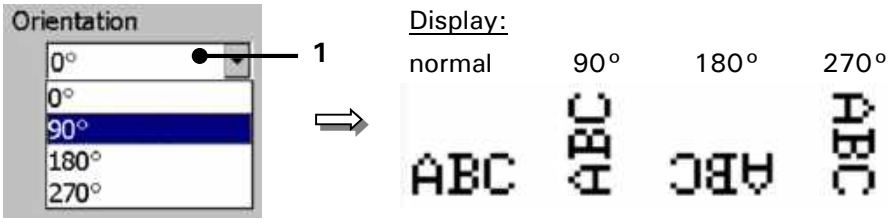
Figure 125 Object settings (ICG)



8.4.6 Orientation

With the drop-down list <**Orientation**> (1) you can rotate the printing object by 90°/180° or 270° .

Figure 126 Object settings (Orientation)



1 – Drop-down list <Orientation>

8.4.7 Display settings

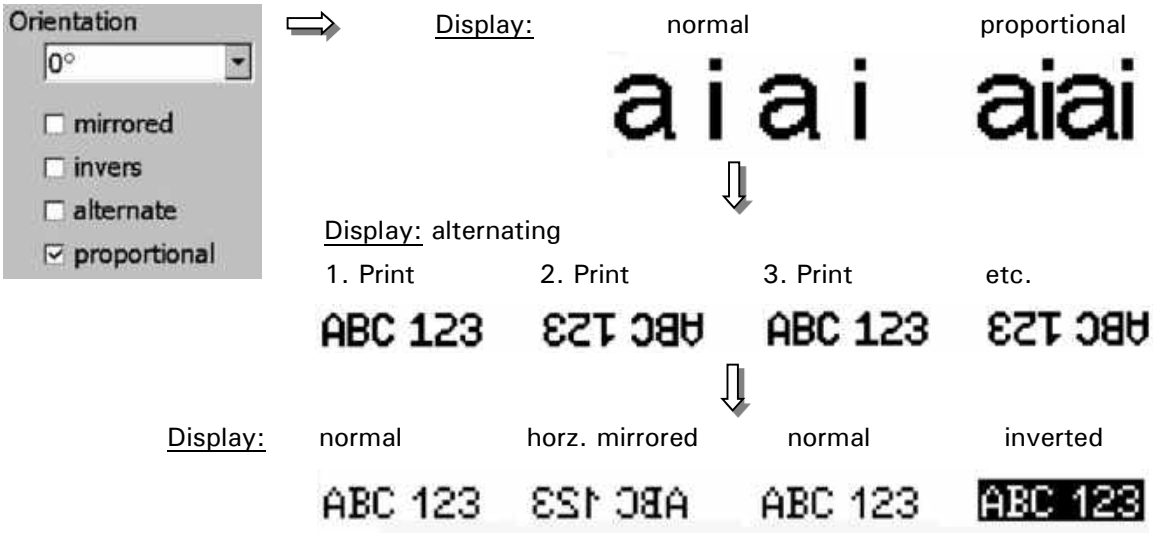
With this function you can activate different display options.

The following display options are available:

- mirrored
- inverted
- alternating
- proportional

An activated option is displayed with a √ in the checkbox.

Figure 127 Object settings (Display options)



- **Mirrored display:** The printing element is mirrored horizontally.
- **Inverse display:** The printing element is displayed inverse.

  Example: For printing a black ink is used on a white medium.

  ***Without** the option <Invers> the letters of the printing text are written in black.*

  ***With** the option <Invers> the area around the letters will be blacken and the characters stay white.*

- **Alternating display:** Every second print out is displayed mirrored horizontally and vertically.
- **Proportional display:** The printing object is displayed proportionally that means unneeded blank fields between the single characters of the printing element can be avoided.

8.4.8 Counter assignment

With this function you can assign a counter to an object in order to create a periodically repeated object.
Basically a counter can be assigned to all kinds of objects:

- Text objects
- Barcode objects
- Graphic objects
- Time/Date objects
- Counter objects
- Shift code objects
- External text objects

With an activated assigned counter you can define at which counter reading the object shall be printed. With this function it is possible to create a print job with periodically repeated elements. See example for details.
Please see details regarding the counter function in chapter 8.7.3.1

Figure 128 Settings for counter assignment

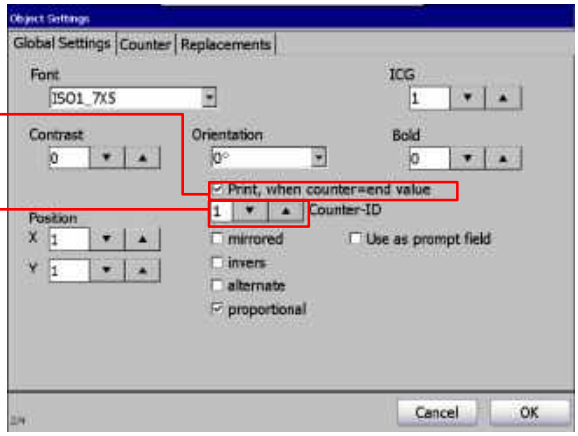
Check box *Print, when counter=end value*

With this box checked a counter is assigned to the object.

Arrow keys Counter ID

With these spin buttons you choose the required counter. You'll have to make sure that there is a counter object defined in the job and and that the correct ID is set. The counter ID is shown in the editor while the object is selected.

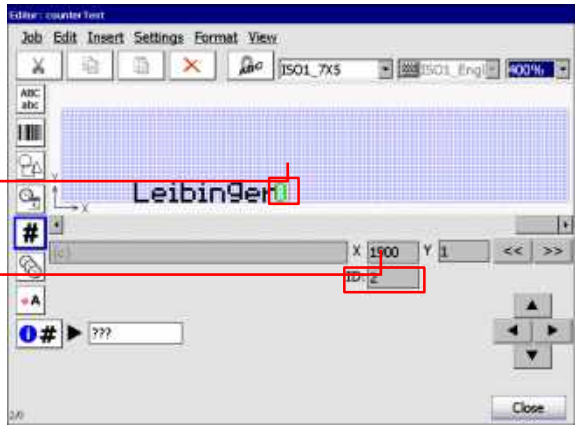
If there's no counter defined in the current print job or in case you set the wrong ID the counter assignment settings will be ignored.



Settings for counter assignment

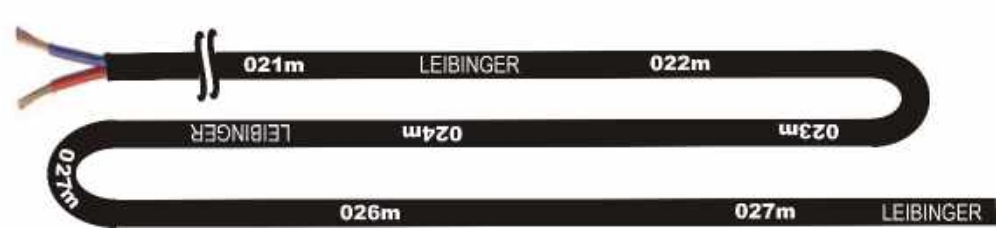
Selected counter object

ID of the selected counter object



Objects ID

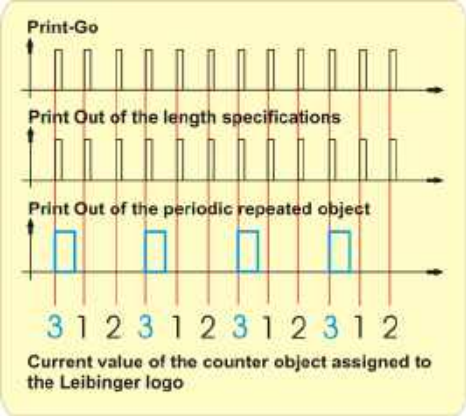
Example In this example lenghts specifications are printed on a cable (for details see <Meter-Go-function>). In addition the word **Leibinger** shall be printed together with each third printout. See Picture 1 for details.



Picture 1 – Example cable print: the Leibinger logo together with each third meter printout

The printout of the length specifications is controlled by the PrintGo signals. The printout of the **Leibinger** logo is controlled by the value of the counter that is assigned to the **Leibinger** text object.

Picture 2 shows the timing diagram. For this print job are several settings required.

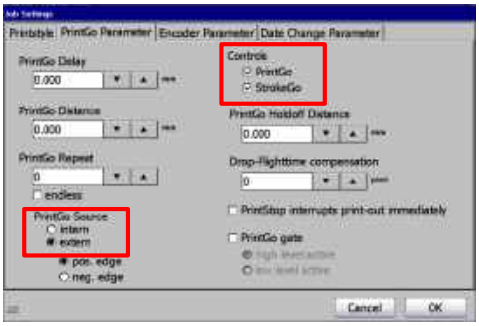


Picture 2 – Timing diagram for the periodically repeating object

Settings for the PrintGo parameters

The PrintGo parameters are the same for all objects printed. The PrintGo signals (from the external measuring system) and the StrokeGo signals (from the external encoder) are used to control the printout.

Relevant settings are marked in **Picture 3**.



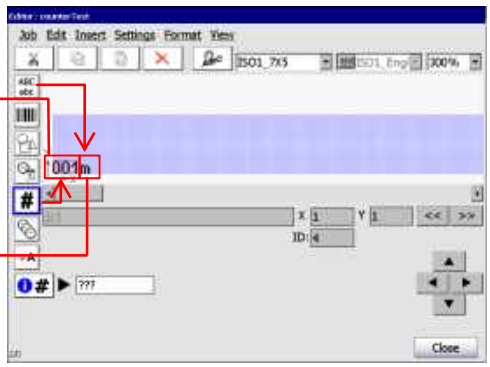
Picture 3 – PrintGo settings for all printed objects

The two „object groups“ in the JET3 job editor

“Length specification group”

Counter object for the length specifications.

Text object for the unit [m].
No specific settings needed.

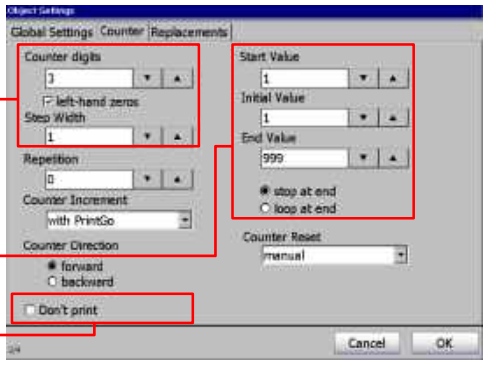


Picture 4 – JET3 job editor: Objects for the length specifications printout

Counter parameters

Counter parameters
Printout of lenghts specifications

1. The lenghths specifications are printed with 3 digits, left-hand zeros and step width is 1 (in this example: 1 meter).
2. The count will start at 1 meter and it will stop after 999 meter.
3. The current counter value is printed after each PrintGo signal.

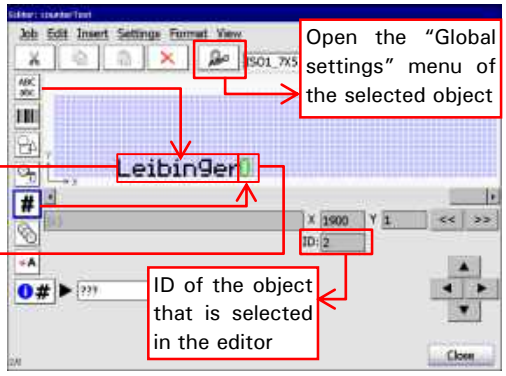


Picture 5 – Counter settings for the length specifications printout

„Leibinger logo group“

Text object for the **Leibinger** logo.

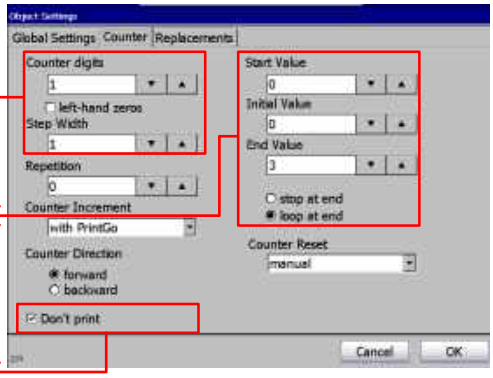
Counter object for the printout control of the **Leibinger** logo.
This counter is assigned to the text object “Leibinger”.
It is displayed in green because it will not be printed. When you select the counter object you can see its ID in the field below the x-y coordinates.



Picture 6 – JET3 job editor: Objects for the „Leibinger“ logo printout

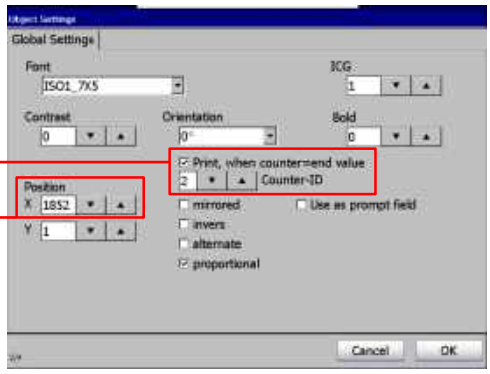
Counter parameters
Printout control of Leibinger logo

1. The counter works with 1 digit and a step width of 1; left-hand zeros are not relevant.
2. The count will start at 1 and the end value is 3. After reaching the end value the counter will loop back to 0.
3. The current counter value is not printed.



Picture 7 – Counter settings for the Leibinger text object

1. In the global settings of the text object you can assign the counter for the **Liebinger** text object. Make sure to set the correct ID.
2. The Leibinger logo shall be printed between two length specifications. Therefore the distance between the printout of the length specifications and the Leibinger logo has to be 500 mm. The position of an object can be exactly specified in the global settings of an object. The x value equals the number of strokes. The mm value of one stroke can be found in the font parameter menu. In this example the stroke width is set to 0,271 mm/Stroke. This equals in ~1852 strokes for 500 mm.



Picture 8 – Global settings for the "Leibinger" text object

Picture 9 – Use the scroll bar for switching between the 2 "object groups" within the editor

8.4.9 Prompt field

This function provides a fast access to editable objects.

The following objects can be defined as **<Prompt fields>**:

Object type	Editability
Text object	Text content
Barcode object	Barcode content
Counter object	Counter initial value
Time/Date object **only if declared as expiry date***	Days or months before expiration
* There has to be set a value >0 for the expiry date offset. Otherwise the prompt function is not available for a date or time object.	

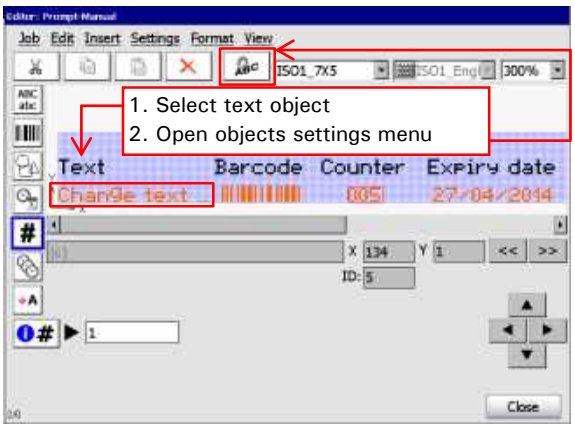
Depending on the object type the editability is different. If an object is declared as a **<Prompt field>** it is possible to edit it without entering the editor. The editing can be done directly on the WYSIWYG screen.

Figure 129 Settings for prompt field

JET3 job editor

Object

To use an object as a **<Prompt field>** select the object in the JET3 job editor and open the object settings menu

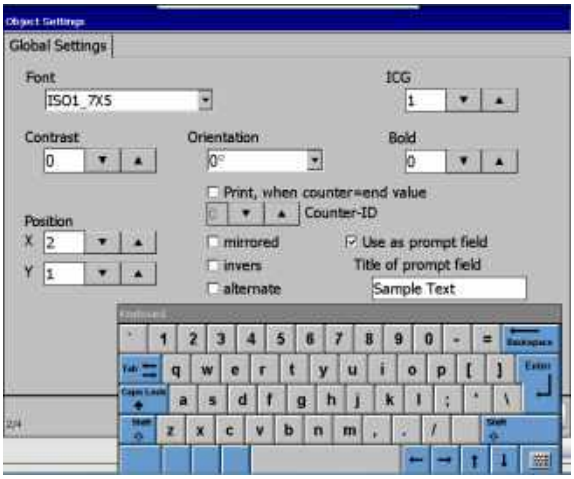


Text object in the JET3 job editor

Global object settings

Check box - *Use as <Prompt field>*.

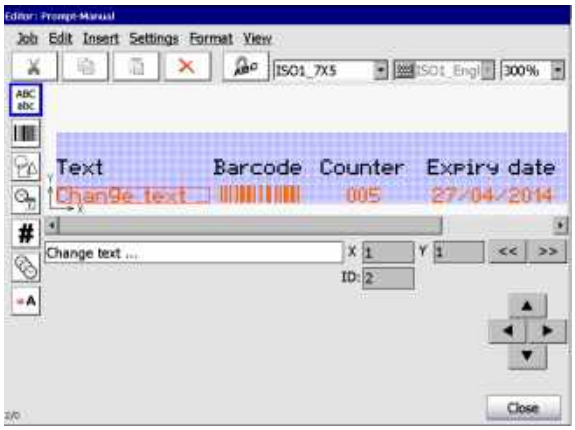
Checking this box opens a text enry field to assign a name to the **<Prompt field>**. Prompt fields have to be named for a better handling in case you are working with more than one **<Prompt field>**.



Declaring an object as a <Prompt field>

The number of <**Prompt fields**> within a print job is only limited by the maximum number of objects you can have in a print job.

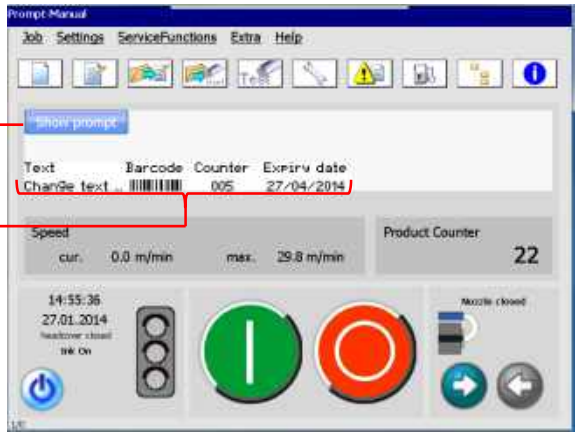
In the JET3 editor the <**Prompt field**> is displayed in a orange color and it shows the current content



<Prompt field> in the editor

With the "Show prompt" button you can open a dialog box for changing the content

The <**Prompt fields**> in the WYSIWYG window of the main menu. You can see the field itself with the current content and a button labelled "Show prompt".



The <Prompt field> in the WYSIWYG window

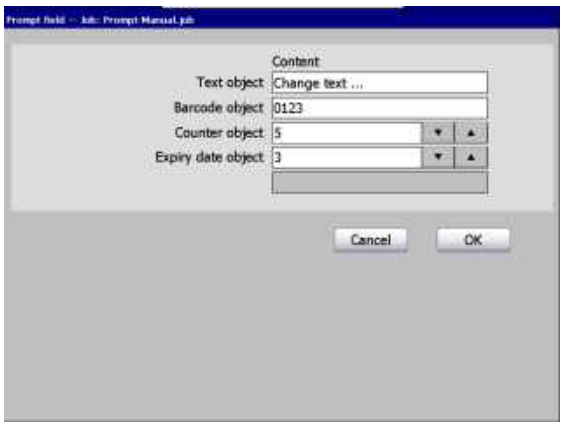
The button "Show prompt" opens a dialog box that shows a list of all <**Prompt fields**> of the current print job with the respective contents.

It is also possible to change the current content of each <**Prompt field**>.

All changes have to be confirmed with the OK button.

Changes will be showed immediately in the WYSIWYG window.

The same dialog box will show up when you open a job with <Prompt fields>.

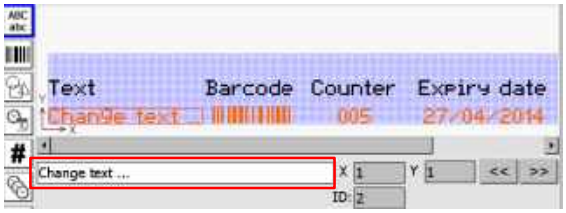


Dialog box of the <Prompt field>

Overview Settings and Changes

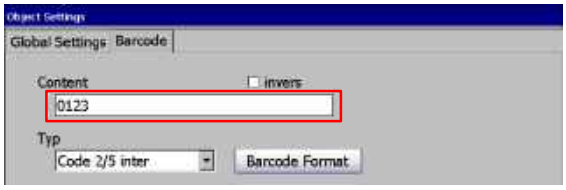
Original settings are made in the respective object settings menus

Text object



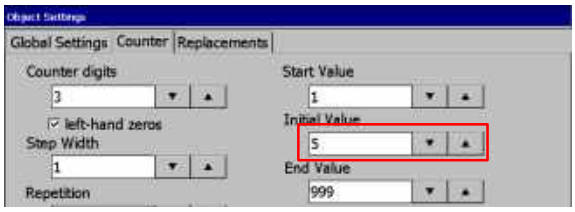
The content of the text object is originally set directly in the JET3 editor.

Barcode object



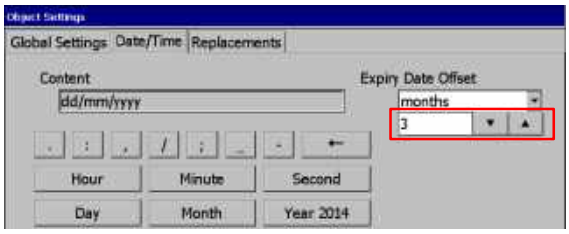
The content of a barcode object is originally set in the object settings.

Counter object



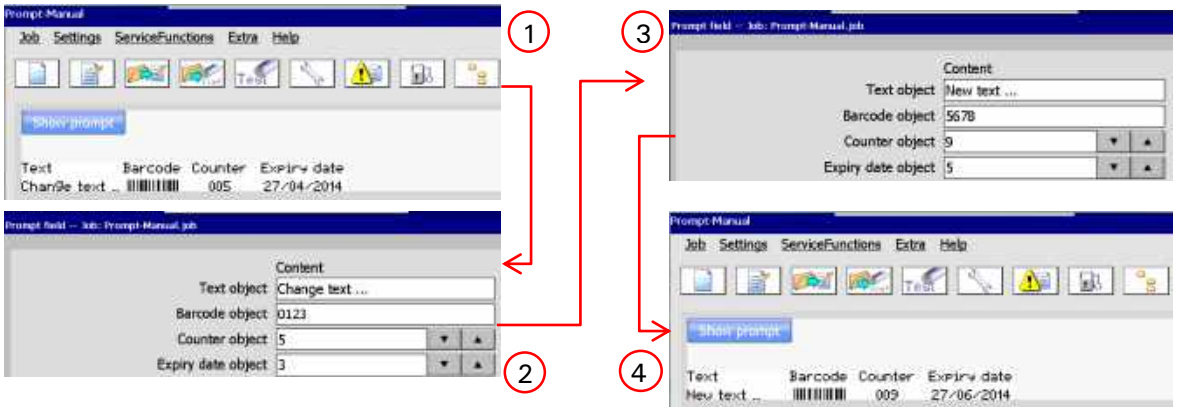
The content of a counter is originally set in the object settings. The value that can be changed using the **<Prompt field>** is the **<Initial value>**.

Date object (Expiry date)



The content of a date object is originally set in the object settings. The value that can be changed using the **<Prompt field>** is the **<Expiry Date Offset>**.

New settings made by using the <Prompt field>



WYSIWYG Window and **<Prompt field>** properties with the original settings.

WYSIWYG Window and **<Prompt field>** properties with the new settings.

All changes can be made in one dialog box without entering the JET3 Editor!

8.5 Parameter settings

INFORMATION

You will find further information regarding the calling of the several submenus and the processing of settings in the **chapter *Parameter setting tools***!

8.5.1 Print parameter

In the dialog box <**Print Parameter** > you can commit the kind of text output, select the PrintGo source and you can activate or deactivate the monitoring functions.

The following settings can be carried out:

- PrintGo-Delay
- PrintGo-Distance
- PrintGo-Repeat
- PrintGo-Holdoff Distance
- Drop Flighttime
- Selection of PrintGo Source
- Selection of function PrintGo-Gate
- Selection monitoring functions

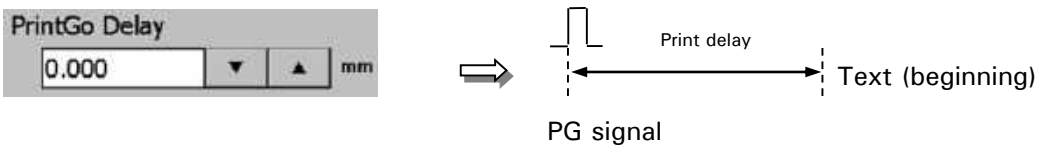
8.5.1.1 PrintGo-delay

The setting allows the delay of the text output by the entered value. The input happens in the measurement which has been selected in the basic settings.

The set value is shown on the accordant display field.

As higher the entered value, as later starts the print.

Figure 130 PrintGo-delay



PrintGo-delay

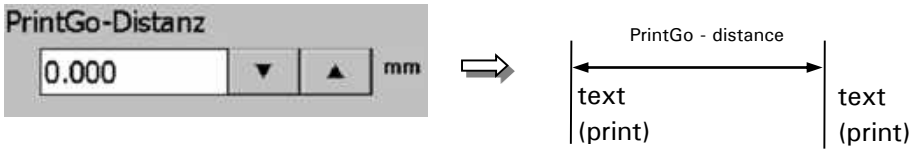
8.5.1.2 PrintGo-distance

The setting defines the distance by the set value between the several text outputs. The input happens in the measurement which has been selected in the basic settings.

The set value is shown on the accordant display field.

As higher the entered value, as higher is the distance between the single prints.

Figure 131 PrintGo-distance



PrintGo-distance

ATTENTION

If the Print-Go distance has been selected too small, Print-Go errors can be caused, because a print has been not printed completely during a new print should be already started!

Example of error:

8.5.1.3 PrintGo-repetitions

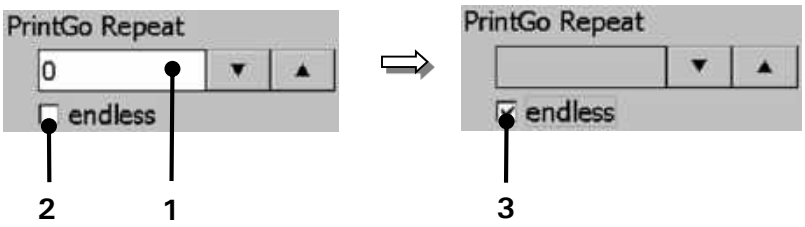
The setting defines the amount of text outputs (print repetitions) by the set value between the several text outputs. Values between 0 – 1000 are permitted.

Example: 0 = no repetition (single print)
1 = one repetition (double print)

The set value is shown on the accordant display field.

To get an endless repetition of the print outputs, you have to activate the checkbox <**Endless**> (2).

Figure 132 PrintGo-repetitions



1 – Display field <PrintGo-Repeat>
2 – Checkbox <Endless> deactive
3 – Checkbox <Endless> active

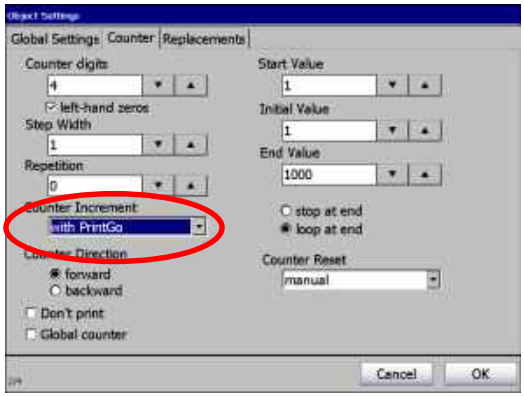
8.5.1.4 Meter Go function

The Meter Go function is a special function for printing length specifications on cabels, pipes etc. The function results from several parameter settings.

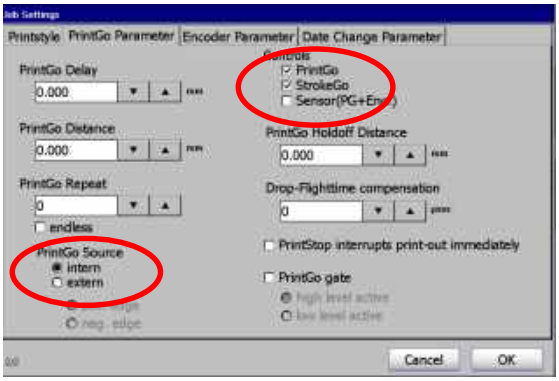
With these settings one can ensure that the meter counter carries on counting even if there are no print outs. The counter works independent from the print out as long as there are encoder signals.

External encoder signals are required for the position and speed measuring. In addition there should be an external PrintGo signal provided in exactly the same distance as the required print out of the length specifications (e.g. after each meter). It is not recommended to use the Meter-Go function with the internal PrintGo signal. To use the internal PrintGo signal you would have to specify the cable speed. Even the smallest deviation would sum up with each print out and this would lead to a significant deviation between the printed length specifications and the current length of the cable.

Figure 133 Parameter settings Meter Go function



Counter object settings



Job settings

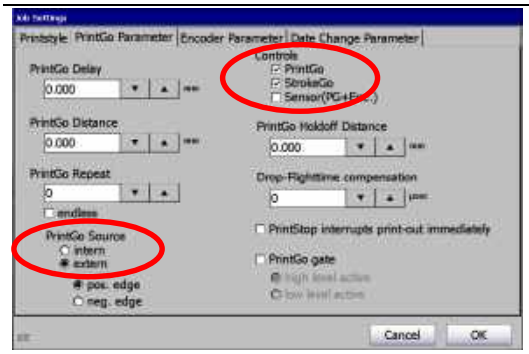
The crucial setting for the Meter Go function within the parameters for the counter object is the setting for the <**Counter Increment**>. This value has to be set to ***with PrintGo***. Please see example for details.

For printing length specifications on cables, pipes etc. use the parameters shown above. These settings are true while using an external PrintGo signal. Please see example for details.

Example: Assumptions and pre settings for this example:

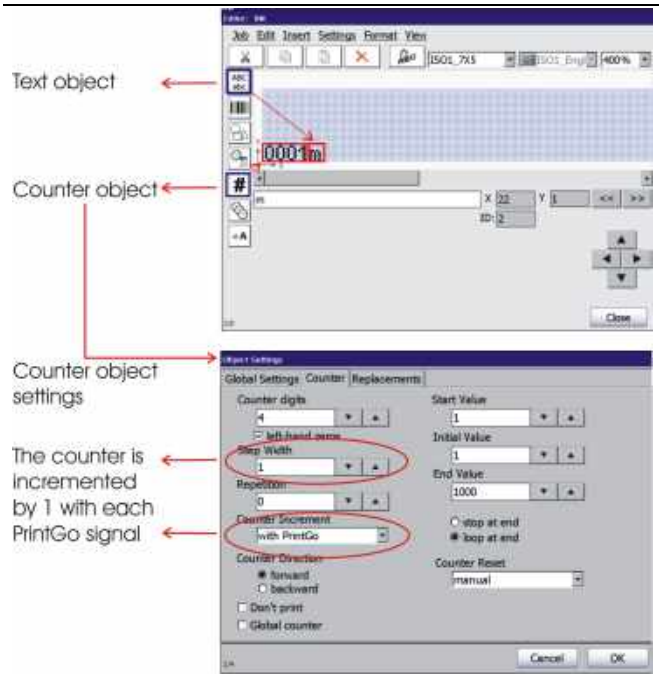
The JET3 printer is used for continuously printing on a cable emerging from a cable extruder device. The cable extruder mustn't stop even if the print out fails. After a print interruption the print out should continue with the correct meter number.

For this application an encoder is used for speed measuring and position detection. The print out is carried out each meter and shows the current number of meters.
Additionally a length measuring system has to provide a PrintGo signal after each meter.
These settings for the so called "meter counter" are shown in Picture 10.



Picture 10 - Print parameter for Meter-Go function

Picture 11 shows the JET3 editor with the counter object and the settings for the counter object in this example. The text object for the letter "m" is just a standard object without any special settings for this example.

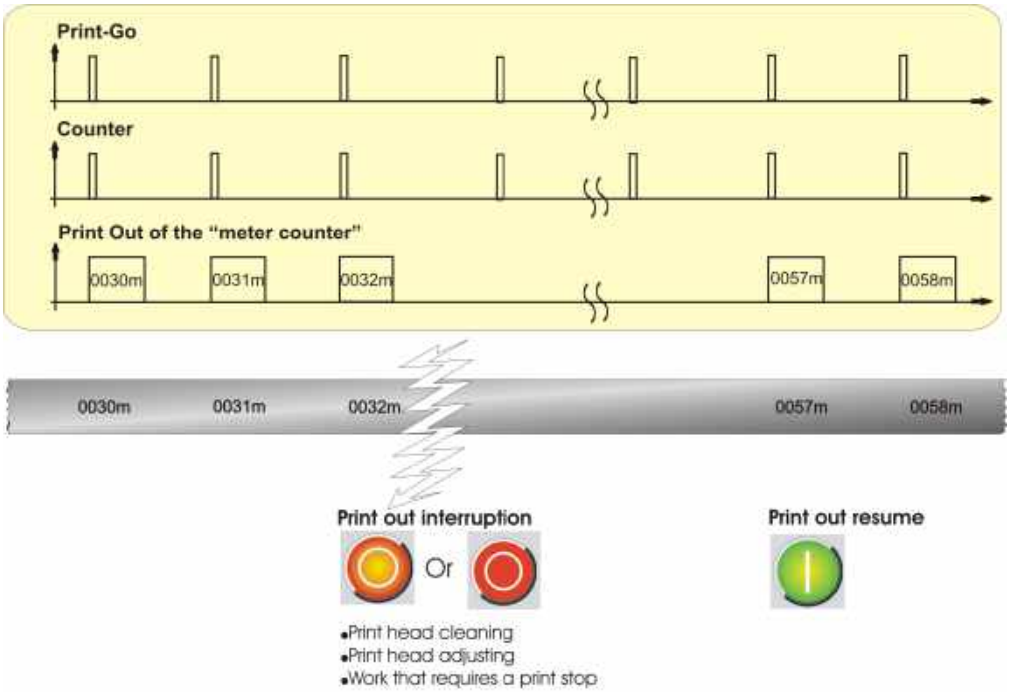


Picture 11- Settings of the counter object

Picture 12 shows the function diagram of the example.

After 32 meters the print out stops for e.g. print head cleaning. Nevertheless the JET3 is still receiving PrintGo signals. Because of the **<Counter Increment>** setting ***with PrintGo*** (see picture 3) these signals can be used to keep the counter updated.

Therfore the counter always has the current meter number no matter whether there are print outs or not. So after the work on the print head the print out can be resumed with the correct meter number.



Picture 12 – Example function diagram

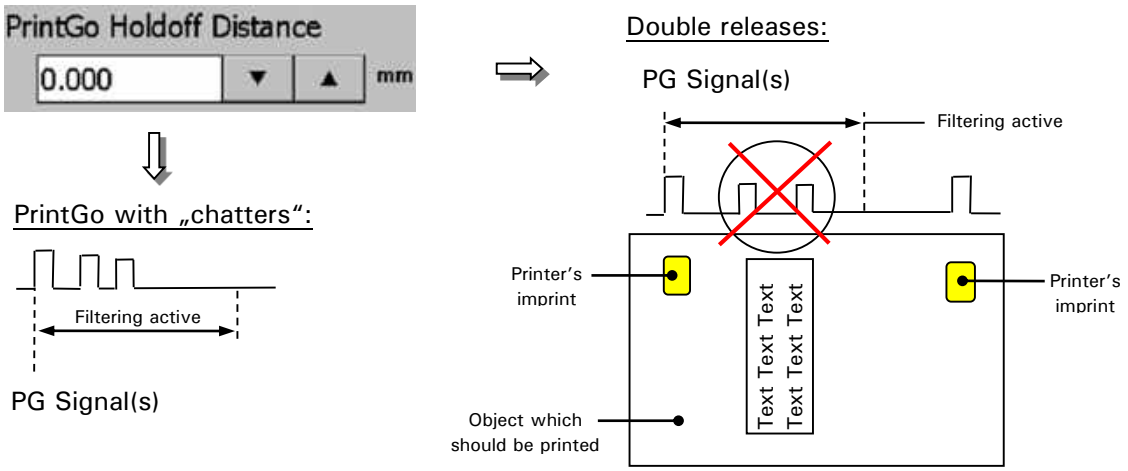
8.5.1.5 PrintGo-hold off distance

The setting provides a filtering of unrequested PrintGo-signals (e.g. PrintGo with bounces or double releases). The value defines a length „x“ after the PrintGo-signal in which every further signal will be ignored.

The input is carried out in the measurement which has been selected in the basic settings.

The set value is shown on the accordant display field.

Figure 134 PrintGo-hold off distance

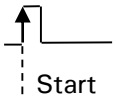


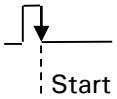
8.5.1.6 PrintGo-source (Print start control)

To control the print-out of the JET3, a so called Print-Go signal is required. It can be generated internally, depending on the set printing parameters, as well as externally by a sensor *(e.g. light barrier, product sensor etc.).*

This sensor is called as Print-Go source.

- **Extern:** If this function is activated an external sensor has to be connected to the interface X5 of the LEIBINGER JET3.

  Pos. edge: 

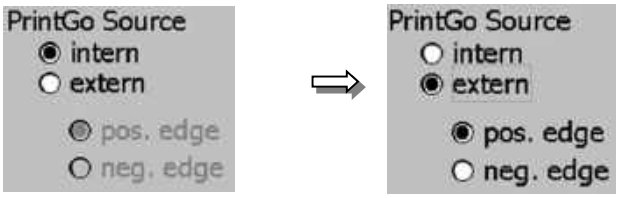
  Neg. edge: 

  Note: *The product sensor 24V can be NPN- or PNP-connected.*

- **Internal:** If this function is activated a print is generated depending on the set printing parameters.

  Note: *A connected sensor is not inquired.*

Figure 135 PrintGo-source/Print start control



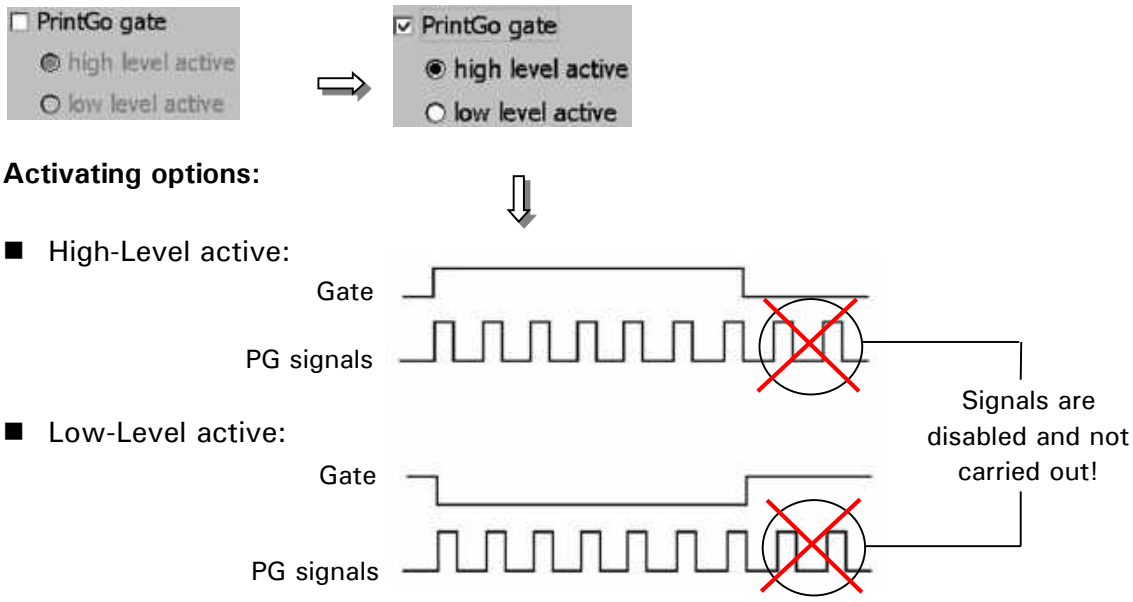
)

8.5.1.7 PrintGo-Gate (Print start control)

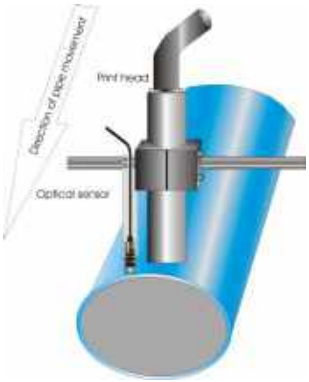
This function offers an additional option to control the print start. With this function enabled the print out starts only as long as the monitored sensor is active during the PrintGo signal.

The inputs for the sensor signals are located on the connector of interface X5 of the LEIBINGER JET3.

Figure 136 PrintGo-Gate /Print start control

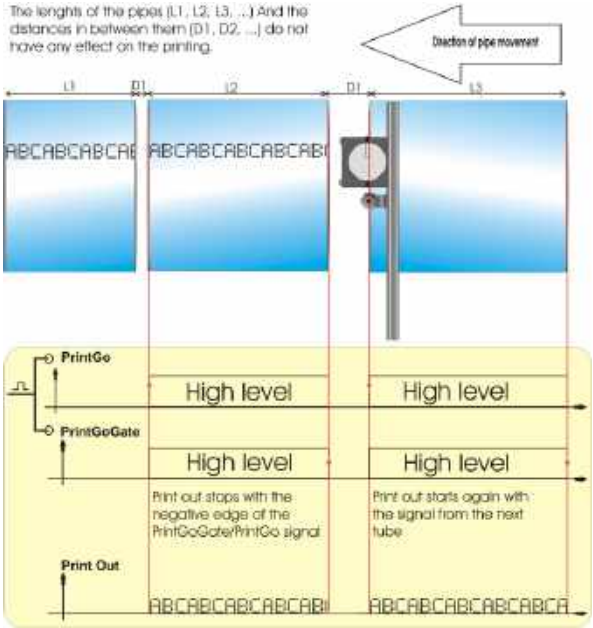


Example: *In this example the print shall be carried out on tubes. The printout is an endless print (e.g. Type, date of manufacturing, material etc.) and not each tube has the same length. In addition the distances between the tubes are not always the same. The basic mounting of the sensor and the print head is shown in Picture 13.*



Picture 13- Print head and sensor mounting

Picture 14 - Settings



Picture 15 - Timing diagram

As shown in Picture 13 the print head and the sensor should be installed in parallel to each other. If the sensor and the print head would be installed in row the stopping of the printout at the end of a tube would be either too early or too late.

The printout shall start with the beginning of each tube and it shall stop at the end of it without printing in the space between the tubes. For this a sensor which recognizes the beginning and the end of a tube is used. The output of the sensor is connected to the PrintGo and the PrintGoGate input of the JET printer (see Picture 15). With this design the PrintGo signal together with the PrintGoGate signal starts the printout and with the negative edge received from the sensor at the end of the tube the printout stops.

The signal from the sensor is used for the PrintGo input as well as for the PrintGoGate input. For the PrintGoGate input you need a high level and not only a positive edge as for the PrintGo input. **Therefore it is important that the signal from the Sensor is a signal level and not only a signal edge.**

8.5.1.8 Monitoring functions

Two monitoring functions are available. Monitoring functions are especially required for high printing speeds.

Figure 137 Monitoring functions

Monitoring functions

PrintGo-monitoring: If the function is activated it is monitored if every Print-Go signal can be processed. If a signal can be not processed, a certain error message is generated.

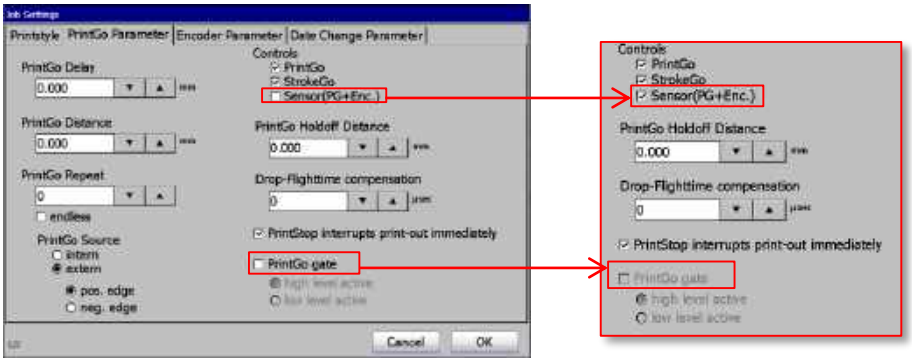
Example: *A Print Go is generated and is printed. The next PrintGo is generated; if the printing process is not finished yet, an error message is generated on the display.*

StrokeGo-monitoring: If the function is activated, the stroke output is monitored, that means if the StrokeGo-signal is generated faster than the printer can output the several strokes, an error message is also generated.

Example: *If the production speed with the set parameters is too high, stroke errors can be caused. The following error message appears on the display:*

8.5.1.9 Sensor monitoring

With this function the print-out control of the PrintGo sensor is complemented with a second sensor. The first sensor delivers the PrintGo signal and the signals of the second sensor are used for double-check. The two signals haven't to be present exactly at the same time, but they have to overlap at any rate. The settings for the monitoring through a second sensor are entered in the dialog box **<Job Settings>** on the tab **<PrintGo Parameter>**.



The second sensor is connected to the PrintGoGate input of the JET3 printer. The PrintGoGate function is not available if a second sensor is used for the PrintGo monitoring.

With the sensor monitoring activated two further functions will be monitored:

- Monitoring of the StrokeGo signals. These are the signals of a connected encoder.
- Monitoring of the ready for printing status. If there are received PrintGo signals, StrokeGo signals (encoder signals) or signals from the second sensor it will be verified whether the printer is ready for printing.

With activated sensor monitoring (Sensor (PG+Enc.)) each of the following cases will cause an error message. Figure 138 shows the the timing diagrams.

1. Either the PrintGo sensor signal, the signal of the additional sensor or both are missing or have the wrong timing.

Error 1

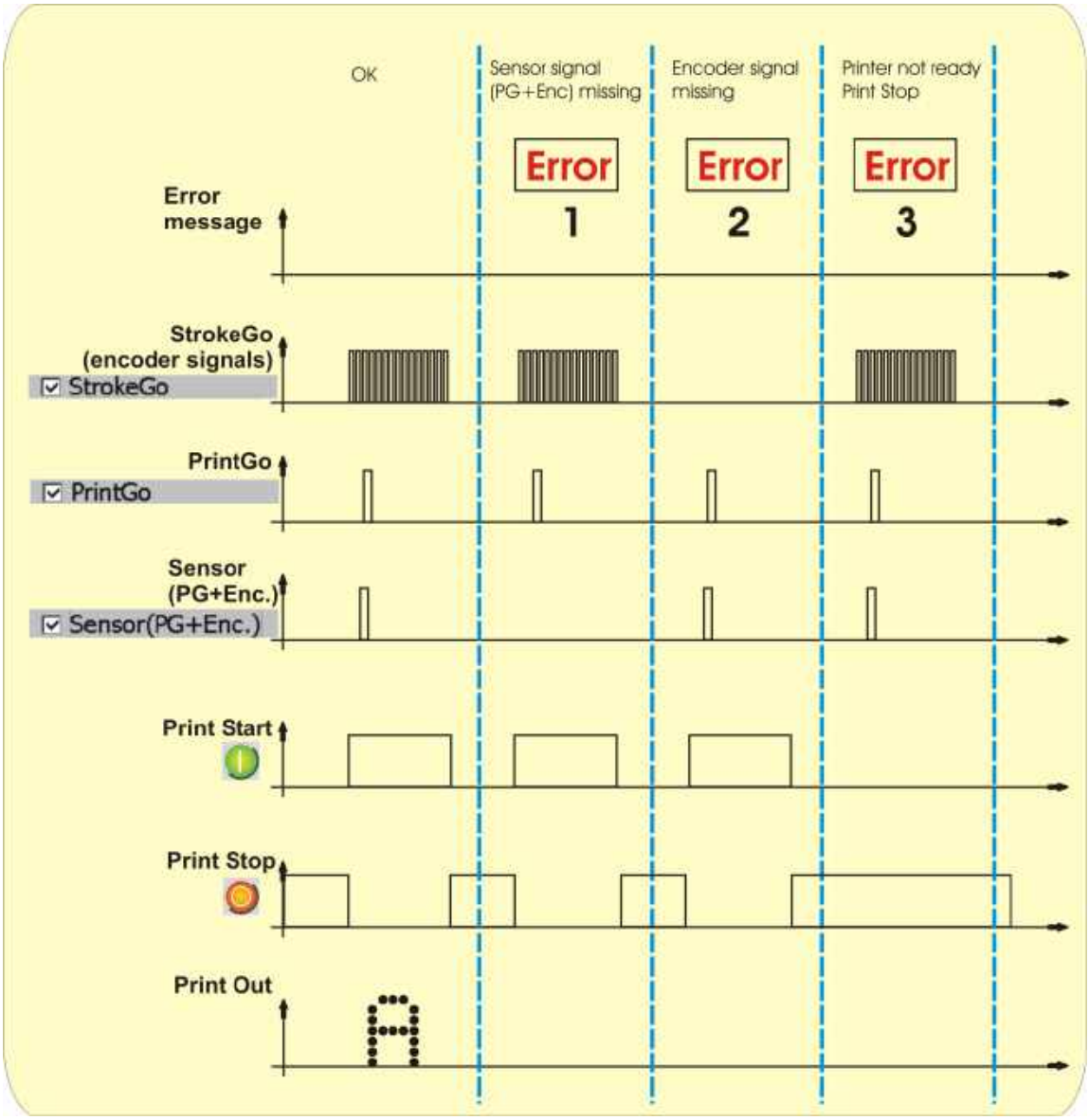
2. There are no encoder signals detected while the printer is ready for printing and PrintGo signals are received as well as signals from the additional sensor.

Error 2

3. The printer is not ready for printing (PrintStop button activated) while PrintGo signals, signals from the additional sensor and encoder signals are received.

Error 3

Figure 138 Sensor monitoring



8.5.1.10 Drop flighttime

The setting causes a temporal change of the drop charging. The input happens in µsec.

The set value is shown on the accordant display field.

High speed changes require the drop flying time compensation to prevent deviations of the text positions. Condition is the setting of a higher print delay because the drop charging has to start earlier for higher speed.

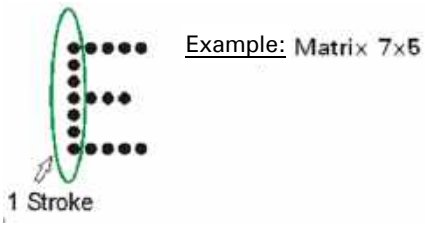
This function is only necessary if the printing is carried out at very slow but also very fast processing speeds; that means if the speed differences are very high.

Figure 139 Setting of drop flighttime

8.5.2 Encoder parameter

The LEIBINGER JET3 composes the printed lines of single dots and therefore it requires a signal encoder (encoder) which tranfers when the single dot lines (so called strokes) should be printed.

Explanation:



A stroke is a complete dot line in vertical direction (dot height).

This encoder is also called StrokeGo-source. The required signal can be generated internally as well as externally.

In the dialog box <**Encoder Parameter**> you can carry out the basic settings of the signal encoder.

The following settings can be carried out depending on the encoder signal source:

- Selection of encoder signal source
- Internal speed
- Lock backward on/off
- Rotating direction
- Resolution
- Speed dependent output

8.5.2.1 Encoder source (StrokeGo-source)

With this setting you can define the encoder source.

- **Internal:** If this function is activated, the signal is generated by the printer and needs no external encoder device.

  Additionally you have to enter the <**Internal speed (intern Speed)**> (3).

ATTENTION

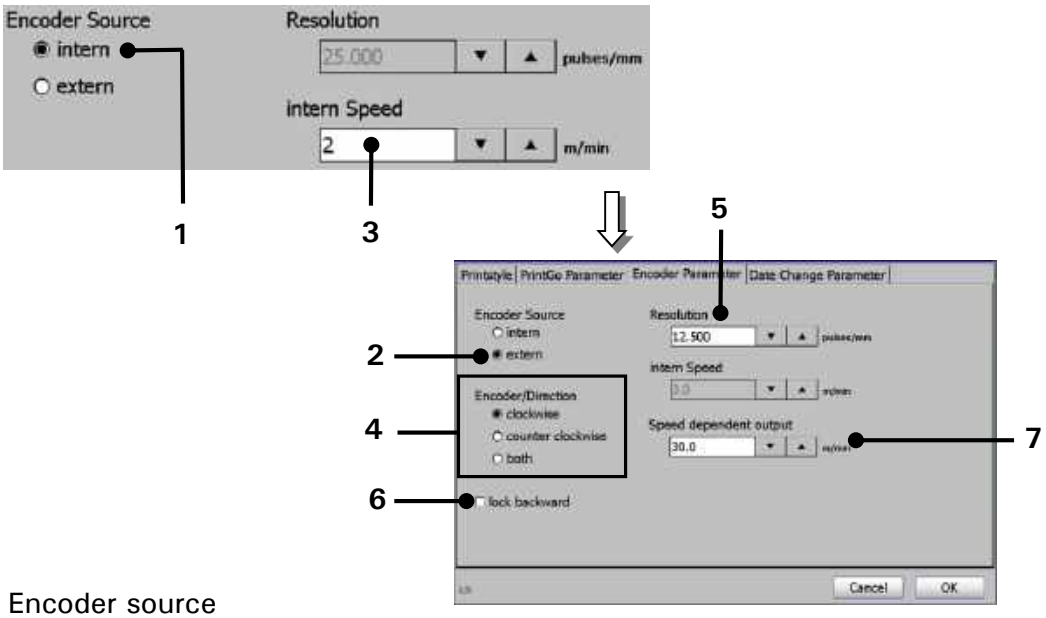
You should only work with an internal encoder source if the product is always directed at the print head with a fix defined and constant speed. For unsteady production speeds a distortion of the print image can be caused.

You will find further information regarding this topic in the **chapter *Internal speed***!

- **External:** If this function is activated the signal has to be generated by an external encoder (e.g. incremental encoder). The encoder has to be connected to the interface X1 of the LEIBINGER JET3.

  Additionally you have to define the <**Encoder/Direction**> (4) and the <**Resolution**> (5).

Figure 140 StrokeGo-source /Encoder source



Encoder source

1 – Checkbox <Encoder source int.>
2 – Checkbox <Encoder source ext.>
3 – Display field <Internal speed>
4 – Checkbox <Encoder/Direction>
5 – Display field <Resolution>
6 – Checkbox <lock backward>
7 – Setting for <Speed depend. output>

8.5.2.2 Internal speed

If you work with the internal encoder source, the production speed, that means the speed which you need to convey the product below the print head, has to be determined exactly. This value can be entered directly in the display field **<Internal speed >** . The input happens in the unit **m/min**.

ATTENTION

Unsteady production speeds can be not identified which causes a distortion of the print image!

- If the production speed is higher as the set value, the font will be streched!
- If the production speed is lower as the set value, the font will be compressed.

8.5.2.3 Rotating direction (Encoder)

With the setting you can select the rotating direction of the encoder.

- **Rotating direction right:** If this checkbox is activated, the encoder has to turn right for printing.
- **Rotating direction left:** If this checkbox is activated the encoder has to turn left for printing.
- **Rotating direction both:** If this checkbox is activated it is printed if the encoder turns left or right.

Note: *Encoder signals are only analyzed for correct set rotating direction.*

8.5.2.4 Resolution

The setting determines the encoder resolution that means it defines how many impulses are generated by the encoder per set measurement. The input happens in the unit **Pulse/mm**.

The set value is shown on the accordant display field.

Example: An encoder which generates 10.000 impulses/rotation with a friction wheel and which has a circumference of 200 mm is used.

Calculation: Resolution = Impulses/Rotation : Circumference
= 10.000: 200 = 50 (Pulses/mm)

8.5.2.5 Return stop (Stop backwards)

With the checkbox **<lock backward>** the function „lock backward movement of the encoder“ is activated or deactivated.

For activated “lock backward” the strokes which are generated for a possible backward motion will be included for following forward motion to control the correct start of the text output.

That means the print will be only continued if the correct printing position has been reached. Therefore you will get a print without any gaps or overlaps.

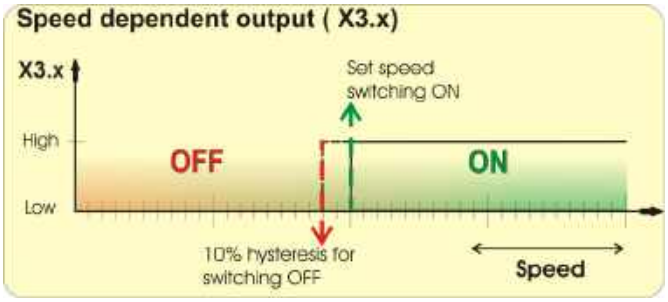
8.5.2.6 Speed dependent output

In dependence of a pre-adjusted speed limit, this special output signal switches ON or OFF. The setting for the output can be found in the main menu under **Settings ► I/O Settings ► Outputs**. The speed dependent output can be assigned to any available output.

Function: The assigned output switches to high level once the set speed is reached or exceeded. The assigned output switches back to low level when the speed falls 10% below the set speed.

Figure 141 Speed dependent output – Setting/diagram

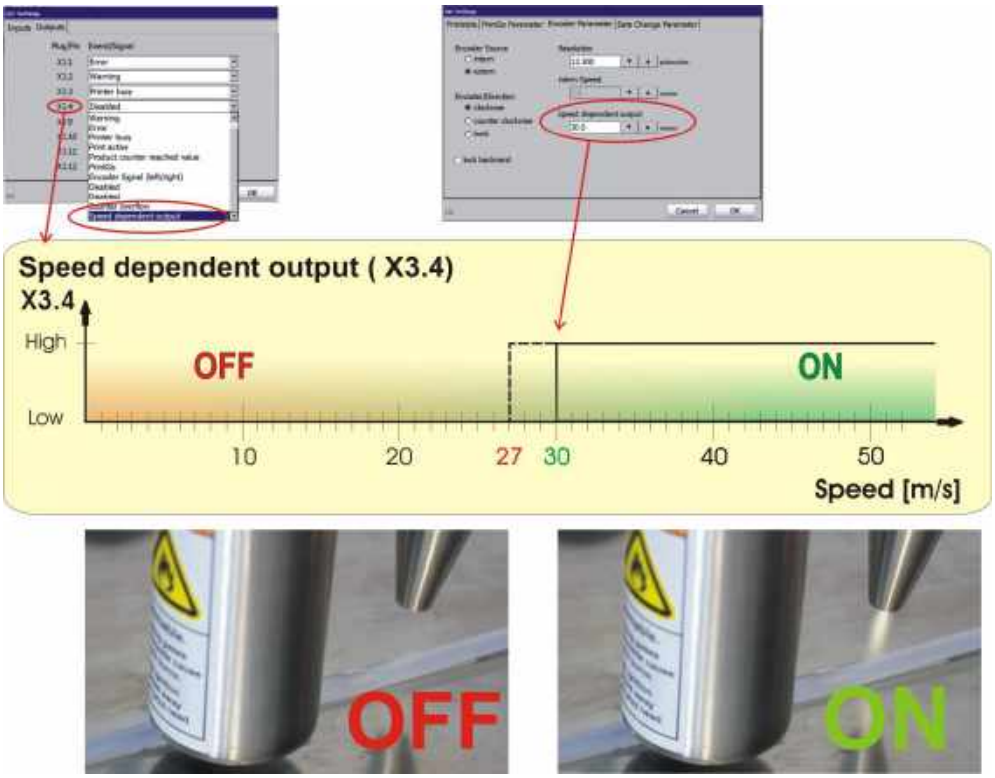
Assigning the speed dependent output function to an available output



Basic function diagram

Example: This function may be used for Corona / Plasma pre-treatment security. A corona treatment device modifies the surface of materials especially plastic material as a preparation for the ink jet print. The corona treatment and the ink jet print happen on the fly. In case the production line stops or gets too slow there is the danger that the surface of the material can be destroyed by the corona treatment if the device isn’t stopped. The stop can be managed by the speed dependent output of the JET 3. In this example the speed is set to 30 m/min. The speed is

detected through the encoder signals which are also used for the positioning of the JET 3 print out. As soon as the production line reaches or exceeds the set speed the assigned output will switch to a high level. This high level remains as long as the speed doesn't drop below 27 m/min (30 m/min -10%). If the speed drops below the lower limit the output will switch to a low level. The output level is used to control the on/off of the corona treatment electrode.



Picture 16 – Example corona treatment control with speed dependent output

8.5.3 Font parameter values (Print style)

The dialog box <**Printstyle**> allows the design of the text layout.

The following settings can be carried out:

- Selection of print height
- Selection of font width (Stroke distance)
- Selection of orientation
- Selection of print mode

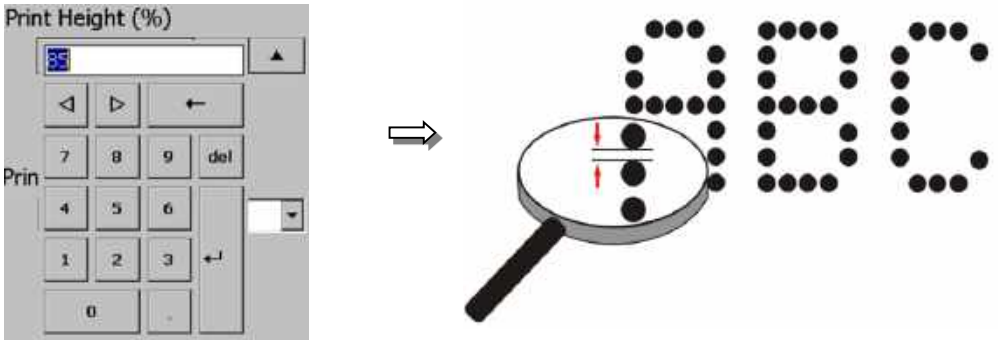
8.5.3.1 Print height

The setting determines the print height. The print height is determined by the vertical drop distance. The value can set between 1 – 100%.

The set value is shown on the accordant display field.

As higher the entered value, as larger the distance between the single dots.

Figure 142 Font parameter values (Print height)



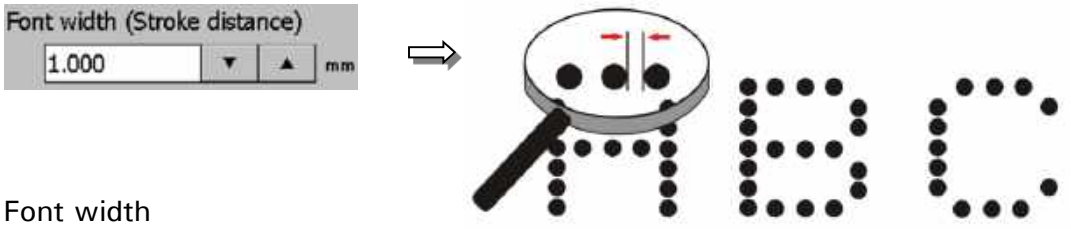
8.5.3.2 Font width (Stroke distance)

The setting determines the print width. The print width is determined by the horizontal drop distance of the strokes. The input happens in the measurement which has been selected in the basic settings.

The set value is shown on the accordant display field.

As higher the entered value, as larger the distance between the several strokes.

Figure 143 Font parameter values (Font width)



Font width

8.5.3.3 Orientation

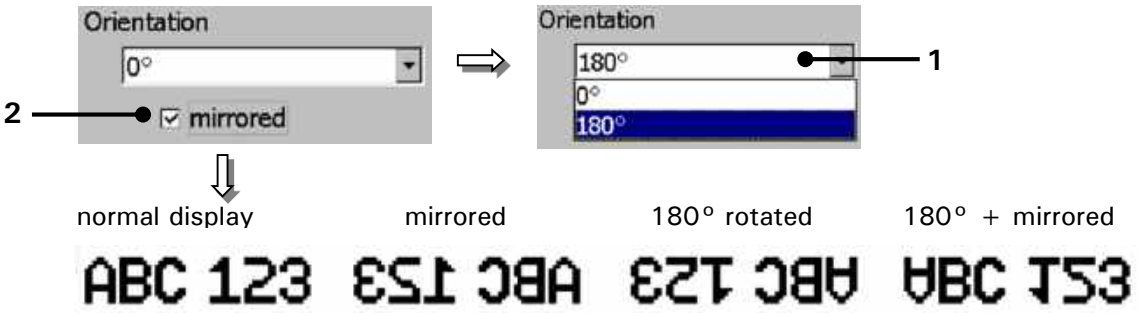
With the drop-down list <**Orientation**> (1) you can rotate all printing elements by 180°.

To get a reflection you have to activate the control <**mirrored**> (2).

ATTENTION

The made settings have not only an effect on single printing objects but on the complete print-band!

Figure 144



1 – Drop-down list <Orientation> 2 –Checkbox <mirrored>

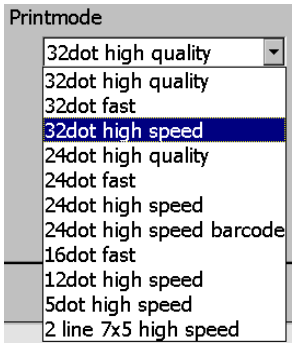
8.5.3.4 Printing mode

The print mode is selected from the drop-down list <**Print mode** >. There are 11 printing modes available.

The print modes are classified in three categories: the maximum number of vertical dots per line, the print quality and the printing speed. You can either aim for high print quality or high speed. There are five different values for the dots and three modes for quality respective speed available whereby not all combinations of these criteria are possible.

- **Available dot modes:** 32, 24, 16, 12, 5 and 2-line 7x5
- **High quality mode:** This mode allows the best possible positioning of the single dots and therefore the best possible print quality. Change to fast mode if the required speed cannot be reached in HQ-mode.
- **Fast mode:** This mode is a good compromise between quality and speed. Change to high speed mode if the required speed cannot be reached in HQ-mode.
- **High speed mode:** This mode ensures the fastest possible print speed. The quality of the printout is not optimal but acceptable.

Figure 145 Font parameter values (Print mode)



Pos.	Print mode	Annotation
1.	2-line 7 dot high speed	
2.	5 dot high speed	
3.	12 dot high speed	
4.	16 dot fast	
5.	24 dot high speed barcode	
6.	24 high speed	
7.	24 dot fast	
8.	24 dot high quality	
9.	32 dot high speed	
10.	32 dot fast	
11.	32 dot high quality	

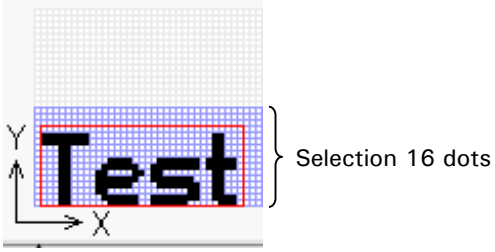
ATTENTION

You always have to set a **print mode** which is larger than the selected font matrix. Inappropriate print modes may result in incomplete print outs.

A mismatch between the selected print mode and the selected font matrix can be identified in the preview showed in the editing area of the Job editor.

Example (for matrix 12x 8):

Previews in the editing area of the job editor



Appropriate print mode

Inappropriate print mode

8.5.4 Date changing parameter

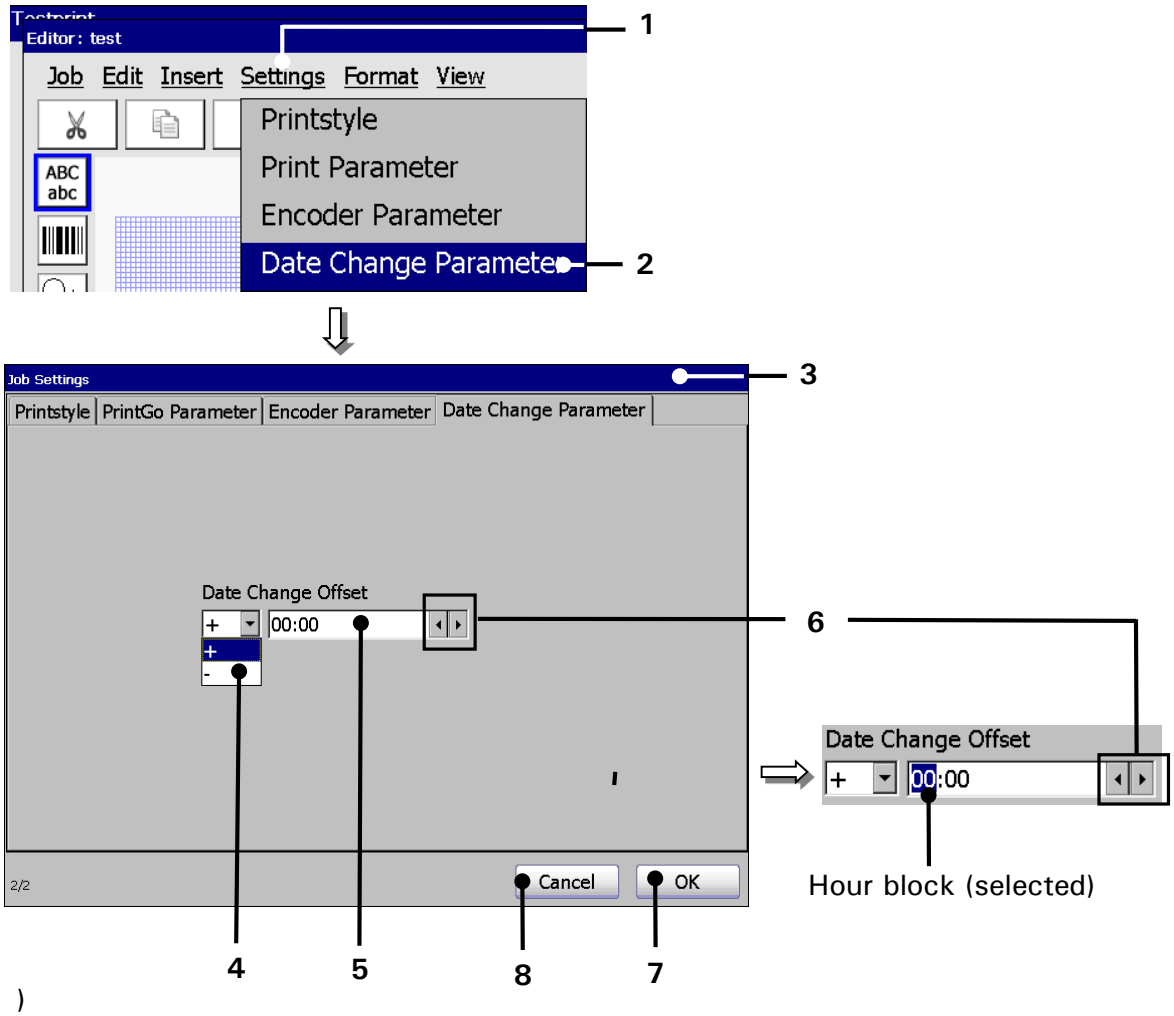
With this function you can postpone the date changing to an earlier or later point of time.

Note: *The postponement happens in hours- and minutes. The max. possible postponement is 23 hours and 59 minutes.*

Proceeding:

- Press the button <**Settings**> (1) and the option <**Date Change Parameter**> (2).

Figure 146 Job editor (Set date change offset)



)

1 – Button <Settings>
2 – Option <Date Change Parameter>
3 – Dialog box < Date Change Parameter>
4 – Drop-down list <Offset-direction>
5 – Display field <Offset-value>
6 – Arrow keys
7 – Button <OK>
8 – Button <Cancel>

- The dialog box <**Date Change Parameter**> (3) is faded in.
- Select in the drop-down list <**Offset-direction**> (4) the direction (+/-) of the shifting.
- Now mark in the display field <**Offset-value**> (5) the hour- or minute block to change the values.
- With the two <**Arrow keys**> (6) you can increase or reduce the values of the marked block.
- Press the button <**OK**> (7) to take over the settings and to close the dialog box.

  or
- Press the button <**Cancel**> (8) to leave the dialog box without saving the changes.

8.6 Job editor settings

The drop-down menu <**View**> provides several options for view settings and the basic settings for the job editor. The following functions are available:

- Enlarge and reduce display size (Zoom in/out)
- Show grid
- Catch active
- Editor Settings

1. Editor settings

With the option <**Editor Settings**> you can set the editor size (width and height of the display area) as well as the grid size.

Proceeding:

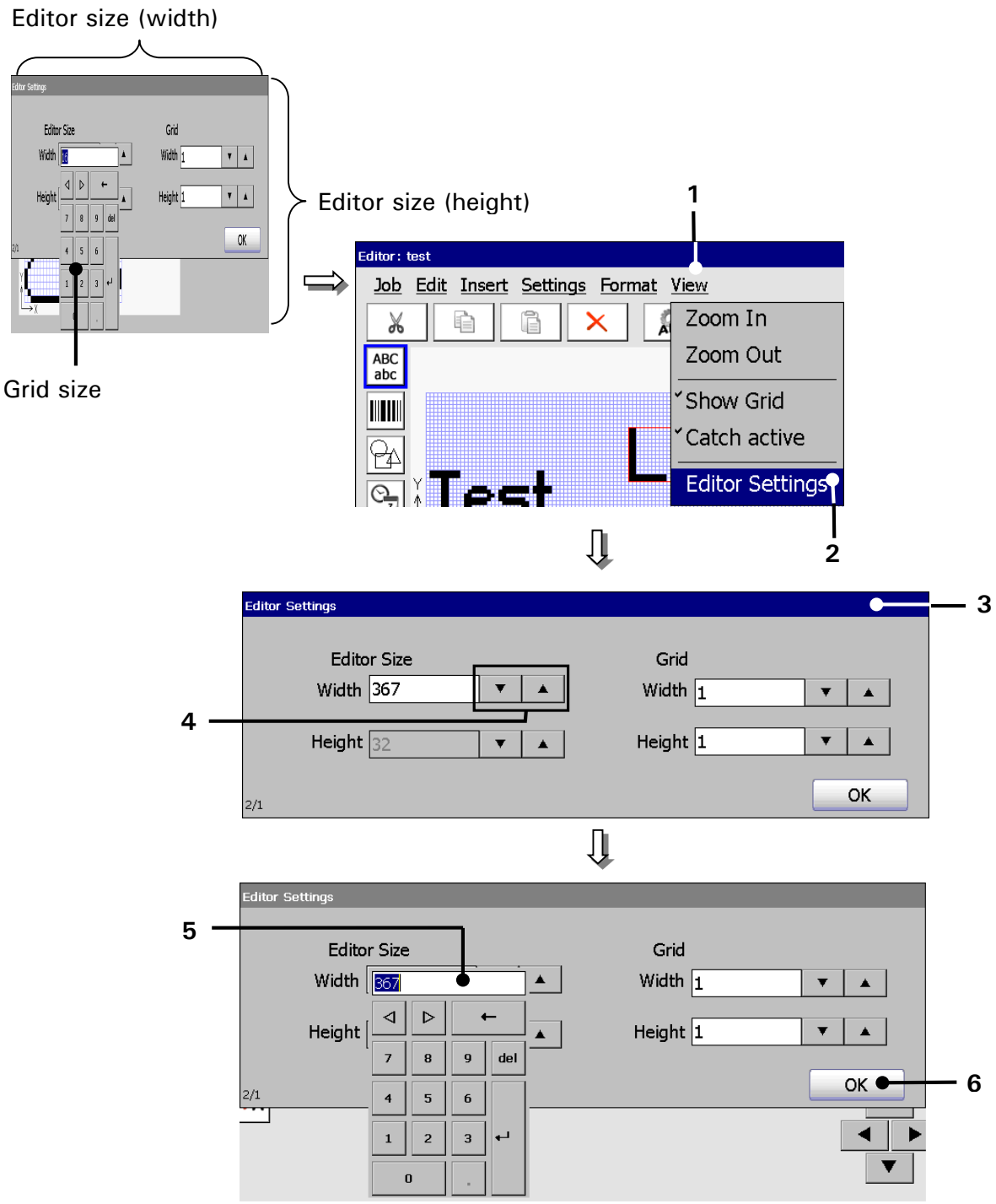
- Press the button <**View**> (1) and the option <**Editor Settings**> (2).
- The window <**Editor Settings**> (3) is faded in.
- With the **Arrow keys** (4) you can increase or reduce the values of the editor size and the grid size by one step.

  alternatively
- Click in the appropriate display field (5) of the value which you would like to change. A Numeric keypad opens for input Now enter the requested value.
- The button <**OK**> (6) closes the window

INFORMATION

- **Hint:** The editor height is specified and cannot be changed.
- You will find further information regarding the working with Numeric keypads in the **chapter *Numeric keypad***!
- You will find further information regarding the further display tools in the **chapter *Display tools***!

Figure 147 Editor settings)



1 – Button <View>
2 – Option <Editor Settings>
3 – Window <Editor Settings>
4 – Arrow keys
5 – Display field
6 – Button <OK>

2. Catch function (Catch active)

The function enables the easy and exact positioning of an element at the reticule.

8.7 Printing elements

8.7.1 Bar codes

Provides the implementation of barcodes and definition of the required barcode parameters.

8.7.1.1 Bar codes: Basics about

IMPORTANT

Please note!

The LEIBINGER JET3 does not generally carry out any check digit calculations.
These have to be carried out external in advance!

Code 39:speed

- Alphanumerical code
- Characters from A-Z, figures from 0-9, minus, period, space, dollar, slash, plus percent

2 of 5 interleaved (Code 25):

- Numerical code. Figures from 0-9
- The number of digits has to be even. The JET3 will automatically fill up missing digits with left hand zeros. E.g. **123** -> **0123**

EAN 8:

- Numerical code. Figures from 0-9
- 8 digit code, last digit as check digit.

EAN 13:

- Numerical code. Figures from 0-9
- 13 digit code, last digit as check digit.

UPC A12: (US equivalent to EAN13)

- Numerical code. Figures from 0-9
- 12 digit code. First digit as indicator for number system, last digit as check digit.

UPC E8: (US equivalent to EAN8)

- Numerical code. Figures from 0-9
- 8-digit code. First digit as indicator for number system, last digit as check digit.

Code 128B:

- Subtype of the 128 code; using code set B
- ASCII characters 32 to 127 (0-9, A-Z, a-z)
- Includes special characters FNC 1-4

Code 128C:

- Subtype of the 128 code; using code set C
- Especially for numerical purposes
- 00-99 (encodes each two digits with one code) and FNC1
- Because of the two digits coding only an even number of characters is possible.

GS1 128

- Subset of the 128 code. Code set A, B or C is selected by the start character.
- Identifies data with FCN1 Application Identifiers (AI)
- ASCII characters 32 to 127 (0-9, A-Z, a-z)
- Formerly known as UCC/EAN-128

PostNET

- **Post**al **N**umeric **E**ncoding **T**echnique
- Bar code used by the United States Postal Service to assist in directing mail.
- The ZIP Code code is encoded in half- and full-height bars
- POSTNET is being replaced by the *Intelligent Mail* bar code (see USPS 4CB)

USPS 4CB

- 4-State Customer Barcode, abbreviated 4CB, 4-CB or USPS4CB
- Intended to provide greater information and functionality than its predecessors PostNET.
- Height-modulated barcode that encodes up to 31 decimal digits of mail-piece data into 65 vertical bars. The code is made up of four distinct symbols.

ECC200 square

- 2-dimensional (2-D) matrix bar code of black and white square "cells"
- The information to be encoded can be text or numeric data
- Usual data size is from a few bytes up to 1556 bytes
- It can encode up to 3,116 characters from the entire ASCII character set
- The code symbols are square with sizes from 10 × 10 to 144 × 144

ECC200 rectangle

- Same specifications as the ECC200 square but:
- rectangular with sizes from 8 × 18 to 16 × 48 (even values only)

GS1-ECC200 square

- ECC200 code in accordance with the GS-1 standard
- FNC1 application identifier implemented

GS1-ECC200 rectangle

- Same specifications as the GS-1 ECC200 square but:
- rectangular with sizes from 8 × 18 to 16 × 48 (even values only)

PPN-ECC200 square

- The PPN Code is the machine-readable identification of retail packs with the **P**harmacy **P**roduct **N**umber.
- The ECC200 data matrix code is used for the encoding of the information.

PPN-ECC200 rectangle

- Same specifications as the PPN ECC200 square but:
- rectangular with sizes from 8 × 18 to 16 × 48 (even values only)

QR-Code

- QR code (**Q**uick **R**esponse Code) is the trademark of a type of matrix barcode.
- The amount of data that can be stored in the QR code symbol depends on the data type (mode, or character set), version (1, ..., 40, indicating the overall dimensions of the symbol), and error correction level.

IMPORTANT

- The JET3 job editor offers the possibility to add the content of each bar code type as plain text.
- Due to technical limits the maximum number of vertical dots is 32. For this the maximum size of data matrix codes is also determined by this limit. Using a rectangle data matrix code may be a work around.

8.7.1.2 Bar codes: Object creation and properties

Please see point 1 of Figure 148

In the job editor you can create an <**Bar code**> object either with the <**Insert**> drop-down menu **(1)** or with the direct button (icon) for <**Bar codes**> **(2)**.

Both will open the dialog box for the object settings **(3)**.

8.7.1.3 Bar codes: Global settings

Please see point 2 of Figure 148

On the tab <**Global settings**> **(4)** the following adjustments are provided:
Contrast and orientation of the printed bar code **(6)**, defining the positioning of the object **(9)** and selecting several options for the print-out **(7)**.

INFORMATION

Please see **chapter *Bar code settings: <Inverse> function*** for details about the <**inverse**> option **(8)** in combination with bar codes.

For details about the global settings of an object please see **chapter *Object settings***.

8.7.1.4 Bar codes: Bar code settings

Please see point 3 of Figure 148

The bar code tab **(9)** offers several options:
The display field <**Content**> **(11)** either shows the content of the currently selected bar code object or it allows the entry of data for a newly created bar code object. It is also possible to change the data of an existing bar code object.

For changes or new entries the cursor has to be placed within the display field in order to open a keyboard **(12)**. The drop-down list <**Type**> shows the available types of bar codes **(13)**. Data entries may be restricted by the type of bar code.

The drop-down list <**Textposition**> **(14)** offers several options for displaying the bar code content as plain text. The options offered depend on the selected type of code.

The drop-down list <**Font**> **(15)** shows the available fonts for the plain text. Settings may either be confirmed with the <**OK**> button **(19)** or discarded with the <**Cancel**> button **(18)**.

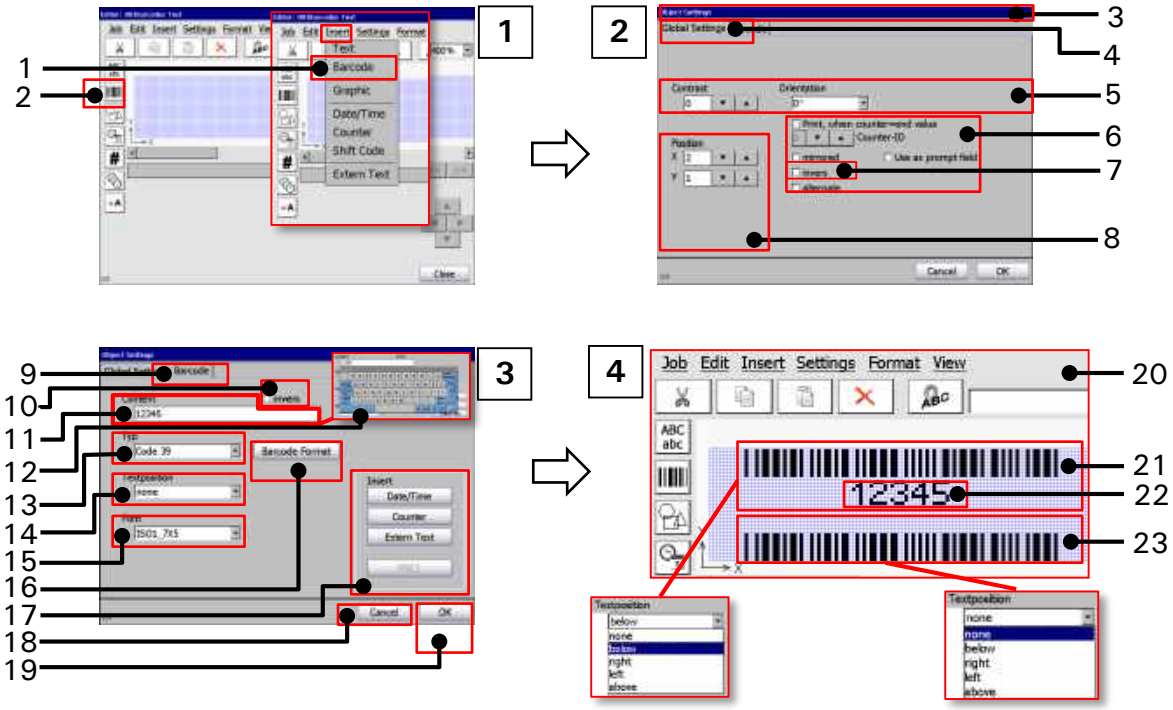
INFORMATION

Please see **chapter *Bar code settings: <Inverse> function*** for details about the <**inverse**> option **(10)**.
Please see **chapter *Bar code settings: Bar code format*** for details about the <**Barcode Format**> option **(16)**.
Please see **chapter *Bar code settings: Insert objects*** for the <**Insert**> option **(17)**.

Please see point 4 of Figure 148

The result of the settings for the plain text is displayed in the job editor **(20)**. The example shows a job editor preview of two bar codes. Both are code 39 bar codes with the same content. The upper code **(21)** is with the plain text option and shows the content of the bar code below the code **(22)**. The lower bar code **(23)** is without the plain text option.

Figure 148 Bar codes: Object creating and settings



1 – Menu item <**Extern Text**>
2 – Direct button <**Barcode**>
3 – Dialog box <**Object settings**>
4 – Tab <**Global settings**>
5 – <**Contrast**> and <**Orientation**> options for the bar code object
6 – Options for the print out
7 – Global <**Inverse**> option. *(See chapter 8.7.1.4.3)*
8 – Settings for object positioning
9 – Tab <**Barcode**>
10 – Barcode <**Inverse**> option. *(See chapter 8.7.1.4.3)*
11 – Display field/input bar code <**Content**>
12 – Keyboard for <**Content**> input
13 – Drop-down list bar code <**Type**>
14 – Drop-down list <**Textposition**>
15 – Drop-down list <**Font**>
16 – Button <**Barcode Format**>
17 – Options for inserting objects and functions into the barcode content
18 – Button <**Cancel**>
19 – Button <**OK**>

20 – Job editor preview
21 – Bar code (code 39) with plain text
22 – Plain text of the bar code content. Positioned below the bar code.
23 – Bar code (code 39) without plain text

IMPORTANT

Due to integrated counters and replacements impermissible number of digits or invalid constellations can be caused. These barcodes are displayed as crossed out codes in the job editor and the preview.

Correct EAN13 code with 13 numbers

EAN13 code with only 5 numbers. Recognized as wrong code and crossed out.

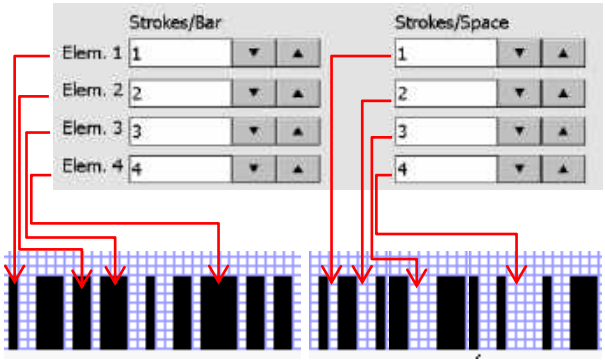
8.7.1.4.1 Bar code settings: Bar code format

Please see Figure 149

To open the dialog box **(3)** with the format options for the bar code type selected push the <**Barcode Format**> button **(2)** on the <**Barcode settings**> tab **(1)**.
1-D bar codes can either have a 2-width-symbology or a many-width-symbology *(Symbology: rules about how bars and spaces are structured).*

A bar code with a 2-width-symbology uses only two widths for bars and spaces: wide and narrow. The width and spaces of barcodes with a many-width-symbology are all multiples of a basic width called the **module**; most such codes use four widths of 1, 2, 3 and 4 **modules**.

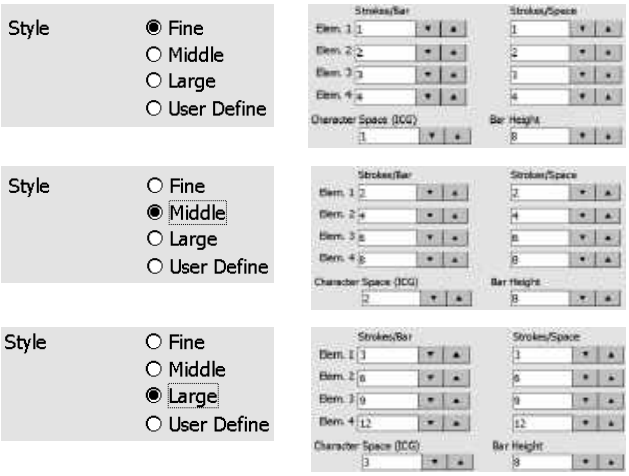
Within the <**Barcode format**> dialog box the bars **(4)** and spaces **(5)** are called **Elements (Elem.)**. The elements are defined by the number strokes per bar or per space. A ***stroke*** is one vertical print movement.



The width of a bar or a space is defined by the number of strokes. For bar codes with a 2-width-symbology only the element 1 and element 2 will be used for the bar code. Settings for element 3 and 4 will be ignored for that kind of bar code.

There are three basic <**Styles**> and one user defined <**Style**> available **(9)**. With default settings the bars and spaces become wider with an increasing <**Element**> number. E.g. with the basic <**Style**> <**Fine**> the bars and spaces of <**Elem.1**> consist of one stroke and the bars and spaces of <**Elem. 4**> consist of 4 strokes. Therefore <**Elem. 4**> has four times the width of <**Elem. 1**>.

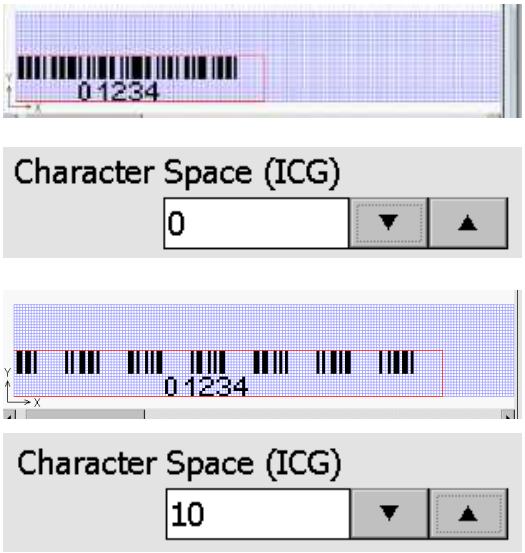
Each style provides different widths.



The <**Middle**> <**Style**> has the double width of the <**Fine**> <**Style**> and the <**Large**> <**Style**> has three times the width of the <**Fine**> <**Style**>.

With the <**User define**> <**Style**> a customized setting is possible without changing the three pre-sets.
When a preset <**Style**> is changed the <**User define**> <**Style**> will be automatically ticked off.

The <Character Space (ICG> option (7) has only an effect on discrete bar codes like code 39. With discrete barcodes an increase of the <Character Space (ICG> value will lead to larger spaces between single characters.

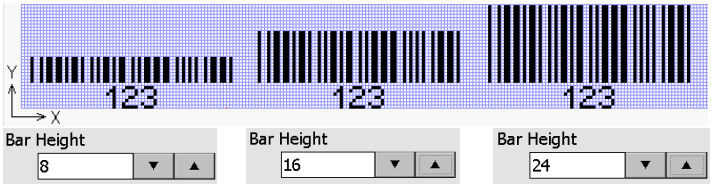


With a discrete bar code characters begin and end with a bar. This construction creates spaces between characters that are not part of a character. This inter character gap should be approximately equal to the narrow bar width. Codes with this inter character gap are called discrete since each character is separate and independent from other characters in the same symbol.
With a <**Character Space (ICG)**> of 0 there are no distance between the coded characters. With an <**Character Space (ICG)**> of 10 all coded characters are clearly separated. The <**Character Space (ICG)**> value represents the number of dots between each character.

Codes without inter character gaps are called linear codes. Linear codes are those in which characters are grouped, one next to another, in one linear direction.

On these codes the <**Character Space (ICG)**> setting has no effects.

The height of the printout of the selected bar code type is defined with the **<Bar height> (6)** setting. The height is measured in dots. The JET3 printer is able to print up to 32 dots in vertical direction. Therefore **<Bar height>** can be set to a value between 0 and 32.



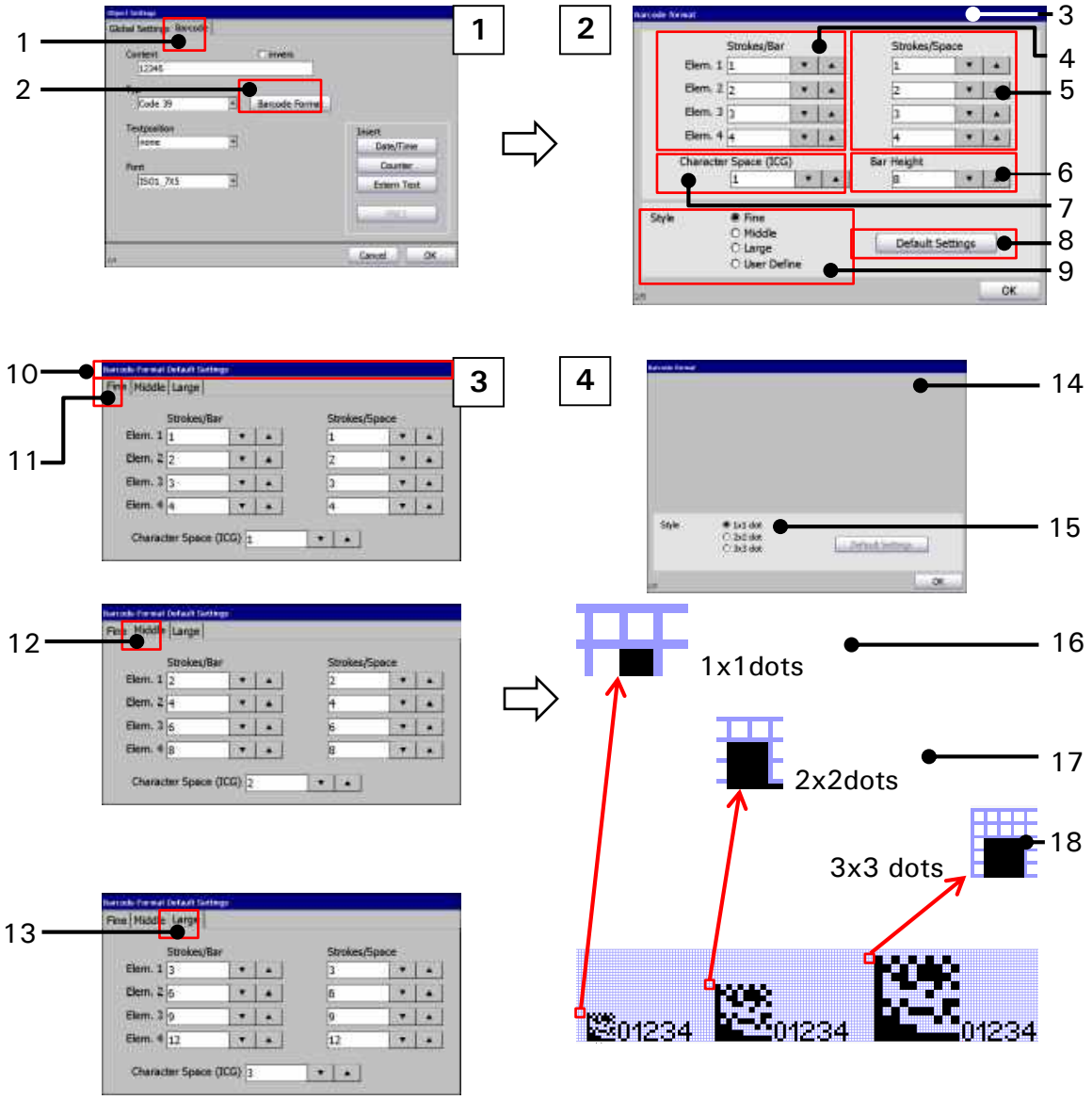
Bar code type code 39 with different **<Bar height>** settings.
The height of the plain text depends on the selected font. In this example it is a 7x5 font.

Pushing the **<Default Settings>** button **(8)** will open the **<Barcode Format Default Settings>** dialog box **(10)**. In this dialog box the default settings for the 3 preset **<Styles>** can be adjusted. There is a tab for each **<Style> (11-13)**. All changes confirmed with the **<OK>** button will be applied to the **<Style>** settings in the **<Barcode format>** dialog box. The **<Cancel>** button will close the dialog box without changes.

For 2-D bar codes like the ECC200 code the **<Barcode format>** dialog box **(14)** offers different options. For 2-D bar codes there are 3 **<Styles>** available **(15)**. With the styles the number of printed dots which are used per 2-D code square is defined.

<1x1> <Style>: one square of the 2-D code is printed with 1 dot **(16)**.
<2x2> <Style>: one square of the 2-D code is printed with 4 dots **(17)**.
<3x3> <Style>: one square of the 2-D code is printed with 9 dots **(18)**

Figure 149 Bar codes: Bar code format



1 – <**Barcode**> tab

2 – <**Barcode Format**> button

3 – Dialog box <**Barcode format**> for 1-D codes

4 – Bar width settings

5 – Space width settings

6 – <**Bar Height**> settings

7 – <**Character Space (ICG)**> settings

8 – <**Default Settings**> button

9 – <**Style**> options for 1-D codes

10 – Dialog box <**Barcode Format Default Settings**>

11 – <**Style**> settings for ***Fine***

12 – <**Style**> settings for ***Middle***

13 – <**Style**> settings for ***Large***

14 – Dialog box <**Barcode format**> for 2-D codes

15 – <**Style**> options for 2-D codes

16 – 1x1dot <**Style**>

17 – 2x2dot <**Style**>

18 – 3x3dot <**Style**>

8.7.1.4.2 Bar code settings: Insert objects

Please see Figure 150

It is possible to add the content of certain objects and special control characters to a bar code. These objects and special control characters can be added by pushing the respective buttons in the <**Insert**> section **(3)** of the <**Barcode**> tab **(1)** while the cursor is placed in the <**Content**> display field **(2)**. There are three kinds of objects for insertion available:

- Date/Time object **(4)**
- Counter object **(5)**
- Extern Text object **(6)**

Each type of object can only be inserted once!

Beside these objects for some types of bar codes there are also a button for special control characters available:

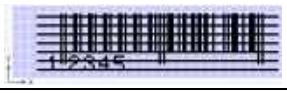
- FNC1 **(7)**
- Field Sep (GS) **(8)**

The function <**FNC1**> is a special code used with GS1 bar codes (e.g. GS1-128 code). The function <**Field Sep (GS)**> is a special code used with PPN bar codes (e.g. PPN-ECC200 square).
These function codes respective special characters can be inserted multiple times. Restrictions due to the specifications of the selected code have to be considered.
It is possible to combine different kind of objects and functions with numerical or alphanumerical content in the <**Content**> display field.

IMPORTANT

Due to integrated counters and replacements impermissible number of digits or invalid constellations can be caused. These barcodes are displayed as crossed out codes in the job editor and the preview.

Correct EAN13 code with 13 numbers



EAN13 code with only 5 numbers. Recognized as wrong code and crossed out.

Date/Time object (4)

Pushing the <**Date/Time**> button **(4)** will insert a **{t}** **(11)** symbol at the current cursor position within the <**Content**> display field **(2)**. There will also be displayed two additional tabs on the tab bar of the <**Object Settings**> dialog box:

Date/Time tab (10)

On the <**Date/Time**> tab the content of the placeholder **{t}** is configured.

INFORMATION

For details about configuring date/time objects please see **chapter *Date/time and expiry time*** for details.

Replacements tab (9)

The <**Replacement**> tab offers options for the replacement of certain elements of the date/time object.

INFORMATION

Please see chapter ***8.8 Replacements*** for details.

Counter object (5)

Pushing the <**Counter**> button **(5)** will insert a **{c} (13)** symbol at the current cursor position within the <**Content**> display field **(2)**. There will also be displayed two additional tabs on the tab bar of the <**Object Settings**> dialog box:

Counter tab (12)

On the <**Counter**> tab the content of the placeholder **{c}** is configured.

Replacements tab (9)

The <**Replacement**> tab offers options for the replacement of certain elements of the counter object.

INFORMATION

For details about configuring counter objects please see **chapter *Counter*** for details.

Please see **chapter *Replacements*** for details.

IMPORTANT

There will be only on <**Replacement**> tab be displayed even if there are a <**Date/Time**> object **AND** a <**Counter**> object used in the <**Content**> display field **(2)**. The settings on the <**Replacement**> tab will affect the <**Date/Time**> object as well as the <**Counter**> object.

Extern text object (6)

Pushing the <**Extern Text**> button **(6)** will insert a **{e}** symbol **(15)** at the current cursor position within the <**Content**> display field **(2)**. There will also be displayed an additional tab on the tab bar of the <**Object Settings**> dialog box:

Extern text tab (14)

On the <**Extern Text**> tab the content of the placeholder **{e}** is configured.

INFORMATION

For details about configuring extern text objects please see **chapter *Extern Text*** for details.

FNC1 function (7)

Pushing the <FNC1> button (7) will insert a {f} symbol (16) at the current cursor position within the <Content> display field (2).The function <FNC1> is a special code used with GS1 bar codes .The <FNC1> control character identifies data with Application Identifiers (AI). The <FNC1> control character is followed by an Application Identifier (AI) number which provides a bar code reader with information about the following data. The <FNC1> control character represents the ASCII character 207 (dec.).

Example:

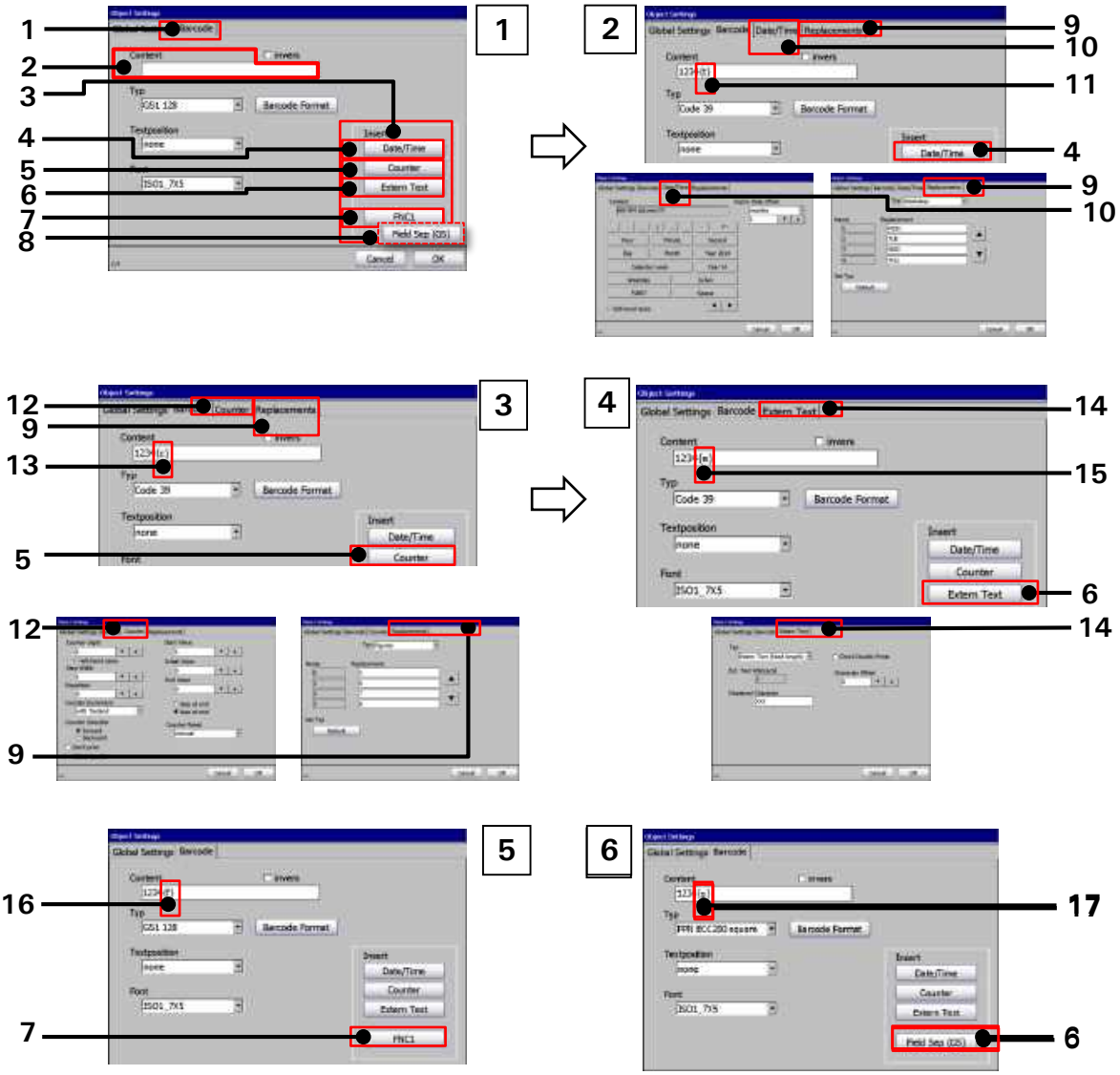
Code: **[FNC1] 21** 12345 **[FNC1] 11** 090101 17 100101
21: Serial number. The following number is considered as a serial number
10: Lot number data. The following number is considered as a lot number

Field Sep (GS) (8)

Pushing the <**Field Sep (GS)**> button **(8)** will insert a **{g}** symbol **(17)** at the current cursor position within the <**Content**> display field **(2)**.The function <**Field Sep (GS)**> is a special code used with PPN bar codes.

The PPN (pharmaceutical product number) specifications require a field separator between data elements. Actually the field separator represents the ASCII character 29 (dec.).

Figure 150 Bar codes: Insert objects



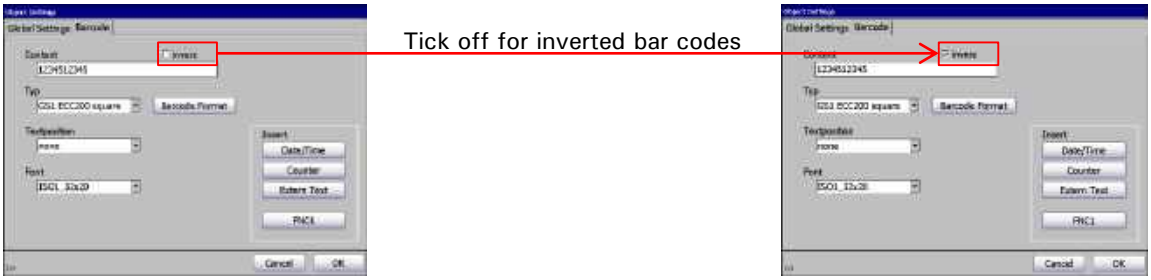
1 – <**Bar code**> tab
2 – <**Content**> display field
3 – <**Insert**> section
4 – <**Date/Time**> button
5 – <**Counter**> button
6 – <**Extern Text**> button
7 – <**FNC1**> button
8 – <**Field sep (GS)**> button
9 – <**Replacements**> tab
10 – <**Date/Time**> tab
11 – **{t}** symbol for <**Date/Time**> object
12 – <**Counter**> tab
13 – **{c}** symbol for <**Counter**> object
14 – <**Extern Text**> tab
15 – **{e}** symbol for <**Extern Text**> object
16 – **{f}** symbol for <**FNC1**> character
17 – **{g}** symbol for <**Field sep (GS)**> character

8.7.1.4.3 Bar code settings: <Inverse> function

It is possible to print all kind of barcodes inverted. To change a barcode into an inverted barcode you have to check the respective checkbox in the barcode menu.

Figure 151 Inverted bar codes

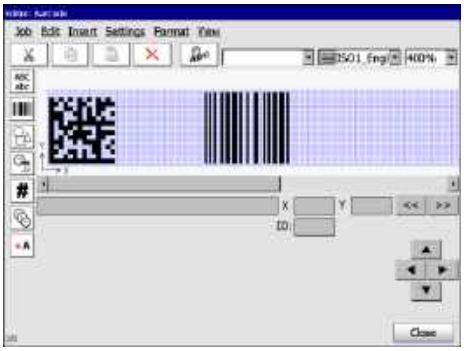
Differences between non-inverted and inverted barcode

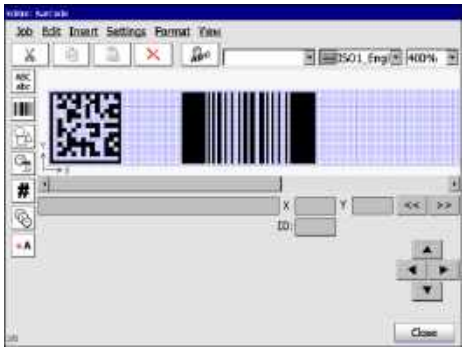


Barcode setting dialog box – “inverse” checkbox not selected

Barcode setting dialog box – “inverse” checkbox selected

Results with a matrix code and a bar code





Non-inverted barcode in the editor

Inverted barcode in the editor

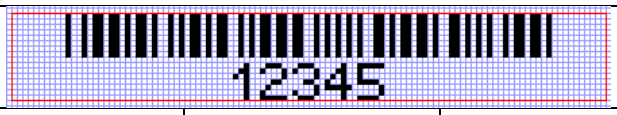
Non-inverted barcode in the WYSIWYG window

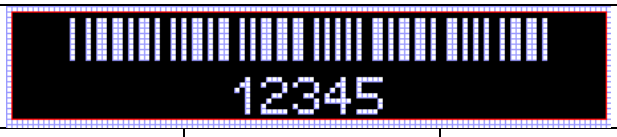
Inverted barcode in the WYSIWYG window

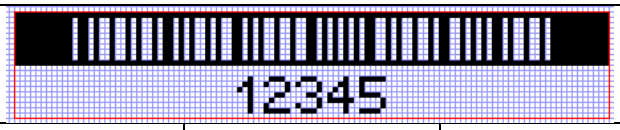
Additionally there is an <**Inverse**> function available on the <**Global settings**> tab of the <**Object settings**> dialog box. Therefore there are 2 <**Inverse**> functions with 4 possible options.

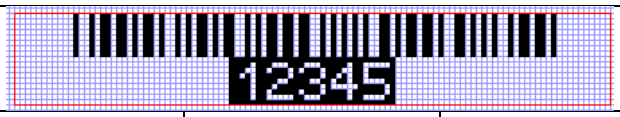
Global <**Inverse**>	Bar code <**Inverse**>	
No	No	Option 1
Yes	No	Option 2
No	Yes	Option 3
Yes	Yes	Option 4

The global <**Inverse**> function affects the bar code as well as the plain text. The bar code <**Inverse**> function only affects the bar code.
The following previews show the results of the different settings.

Option 1				
Parameter	**Bar code**	**Content**	**Invers Global**	**Invers Barcode**
Settings	**39**	**12345**	**No**	**No**

Option 2				
Parameter	**Barcode**	**Content**	**Invers Global**	**Invers Barcode**
Settings	**39**	**12345**	**Yes**	**No**

Option 3				
Parameter	**Barcode**	**Content**	**Invers Global**	**Invers Barcode**
Settings	**39**	**12345**	**No**	**Yes**

Option 4				
Parameter	**Barcode**	**Content**	**Invers Global**	**Invers Barcode**
Settings	**39**	**12345**	**Yes**	**Yes**

Option	Description
1	The bar code and plain text are printed in the color of the ink used
2	The bar code and plain text are printed inverted. They will have the color of the print medium used. The outline of the bar code and the plain text will be printed in the color of the ink used.
3	The bar code is printed inverted. It will have the color of the print medium used. The outline of the bar code and the plain text will be printed in the color of the ink used.
4	The bar code is printed in the color of the ink used (double inverted). The plain text is printed inverted. It will have the color of the print medium used. The outline of the plain text will be printed in the color of the ink used.

8.7.2 Date/time and expiry time

Provides the implementation of date and time specifications and the settings for the font parameters, the display options and an expiry time.

Furthermore it is possible to generate accordant replacements (numbers, letters or designations) for the date- and time values in order to get an operating-specific display or coding of the specifications.

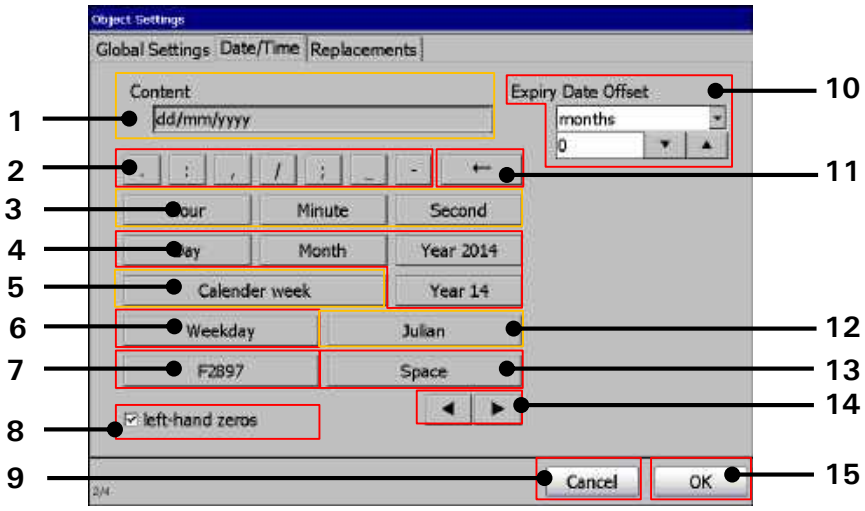
INFORMATION

For more details about

- the global settings (font settings, display options) please see **chapter *Object settings***!
- the generating of replacements please see **chapter *Replacements***!

Note: *"Expiry time" is the time which elapses until the product cannot be used anymore.*

Figure 152 Print elements Date/Time settings



1 – Display field <Content>
2 – Buttons for <special characters>
3 – Buttons for time settings
4 – Buttons for date setting
5 – Button <Calendar week>
6 – Button <Weekday>
7 – Button <F2897> code
8 – Checkbox <left-hand zeros>
9 – Button <Cancel>
10 – Expiry date settings
11 – Button <Backspace>
12 – Button <Julian date>
13 – Button <Space>
14 – Arrow keys <display field>
15 – Button <OK>

Description of the date/time settings

The display field (1) shows the content. The content is created with the buttons 2-7 and 12-13. Additionally there are a checkbox for adjusting the left-hand zeros (8) and control buttons for deleting (11) and the cursor control (14) within the display field (1). All Settings can either be confirmed with the <**OK**> button or discarded with the <**Cancel**> button.

How to set a date/time

Basically there are two options to set a date or a time:

- The date/ time is set using the current date/time
- The date/time is set using an offset for an expiry date

With the first option the current date or time will be displayed and printed.
With the second option the current date or time plus the defined offset will be displayed and printed.
The navigation within the display field (1) is carried out with the arrow keys (14). With these buttons you can move the cursor to any position within the display field. Inputs will happen at the cursor position. So it is possible to insert fields or special characters within an already existing set of fields and special characters.
With the <**Space**> button (13) you can create spaces between fields or special characters. Using the <**Backspace**> button (11) will delete the field or special character left to the cursor position.

Time

A time is set by using the buttons for time settings (3). The single fields (hour, minute, second) may be separated using the special characters but that's not stringently required. There are no restrictions regarding the order and the number of the fields and special characters.

E.g. it is possible to create the following time settings:

- HH:MM/SS
- HH_SS
- SS/SS/HH/HH

ATTENTION

There is one thing to regard: it is not possible to place two fields of the same kind directly in row. In that case a special character has to be set in between the two fields.

Date

A calendar date is set by using the date setting buttons (4). For date setting the same is true as for time setting. Because there are no restrictions regarding the content and the order it is also possible to mix date and time like shown in the following examples:

- dd/mm/YY/HH:MM:SS
- dd/mm/HH:MM:SS/yyyy

ATTENTION

There is an exclusion regarding the number and order of the used fields:

A "year"-field ("Year 2014" or "Year 14") can only be used once within a set of fields and special characters. If a second "year"-field is used it will not be showed in the display and it will not be printed. Also all fields after that second year field neither will be displayed nor printed.

E.g.:

DD:MM:YYYY/hh:mm/~~YYYY:hh:mm:ss~~

The crossed out part will neither be displayed nor printed.

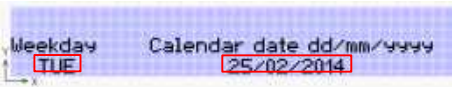
Special Formats

Beside the buttons for time and calendar date there are several buttons for special date formats available. These special formats can also be mixed with the time and the calendar date fields.

The 19th February 2014 is in the 8th calendar week of the year 2014.

Calendar week (5)

Displayed as "c" in the display field. The field **<Calendar week>** shows the calendar week number for the current date.



The 19th February 2014 is a Wednesday.

Weekday (6)

Displayed as "w" in the display field. The field **<Weekday>** shows the weekday regarding the current date. The following abbreviations are used:

Monday	MON	Friday	FRI
Tuesday	TUE	Saturday	SAT
Wednesday	WED	Sunday	SUN
Thursday	THU		

F2897 is code that shows the current Julian date and the last 2 digits of the current year as a 3 digit alphanumerical expression.

F2897 (7)
Displayed as "f" in the display field.
The **<F2897>** function is a special date-coding for US pipe manufacturers. It is a specific US-guideline to convert the 5 digit date code containing the "Julian date" and the last two digits of the year to a just 3 digits long calculated alphanumerical number.

The 19th February is the 50th day of the year 2014.

Julian date (12)
Displayed as "j" in the display field.
The **<Julian>** function shows the day-of-year number for the current date.

How to set ab expiry date

The expiry date is created by an offset on the current date/time. It is possible to choose either days or months for the offset.

Expiry date – calculated on the basis of days

If the expiry date is calculated in days the result will show the current day or/and time plus the offset. The function will consider the actual number of days of the current month as well as leap years.

Expiry date – calculated on the basis of months

If months are used for the calculation of the expiry date, the following rules are valid:

If the specific day code does not exist in the month which would be the "expiry month", the expiry date will be shifted into the next month. The number of days the expiry date would be shifted depends on the "missing" days in the month in which the expiry date originally would have been. Please see the examples for details.

Example 1:
The day of the production is: 31 August 2012
The expiry date shell be: 6 months
The regular result of the final date would be: 31. February 2013. Due to the fact that this day not exists, the printer will print: 03. March 2013. In that case 3 days are missing in February.

Example 2:

The day of the production is: 31 March 2012

The expiry date shall be: 15 months

The regular result of the final date would be the 31st June 2013. Due to the fact that this day not exists, the printer will print 01. July 2013. In that case 1 day is missing in June.

EXP examples

production month	12 months	15 months	18 months
January *	__.01.2013	__.04.2013	__.07.2013
February*	__.02.2013	__.05.2013	__.08.2013
March *	__.03.2013	__.06.2013	__.09.2013
April	__.04.2013	__.07.2013	__.10.2013
Mai *	__.05.2013	__.08.2013	__.11.2013
June	__.06.2013	__.09.2013	__.12.2013
July	__.07.2013	__.10.2013	__.01.2014
August *	__.08.2013	__.11.2013	__.02.2014
September	__.09.2013	__.12.2013	__.03.2014
October *	__.10.2013	__.01.2014	__.04.2014
November *	__.11.2013	__.02.2014	__.05.2014
December *	__.12.2013	__.03.2014	__.06.2014

* Exception at specific production days

Production day	12 months	15 months	18 months
31. January		01.05.2013	
29. February	01.03.2013		
31. March		01.07.2013	
31. Mai			01.12.2013
29. August			01.03.2014
30. August			02.03.2014
31. August		01.12.2013	03.03.2014
31. October			01.05.2014
29. November		01.03.2014	
30. November		02.03.2014	
31. December			01.07.2014

8.7.2.1 Insert date- and time specifications

Example: To an already existing text object „A“ the current date should be added and printed and to an existing text object „V“ the expiry date as a result of the set expiry time should be added and printed.
Each date should be formatted dd/mm/yyyy (Day/Month/Year) and it should be displayed with left-hand zeros (e.g. 01/01/2014). The print should be a two-line print whereby the “A” and the current date should be printed in the first line and the “V” and the expiry date in the second line.
The set expiry time should be 15 days.

Approach (part 1) refers to Figure 153

Point 1

- Press the menu item <**Insert**> (1) and in the drop down menu select the menu item <**Date/Time**> (2) or the appropriate direct button (3)

Point 2

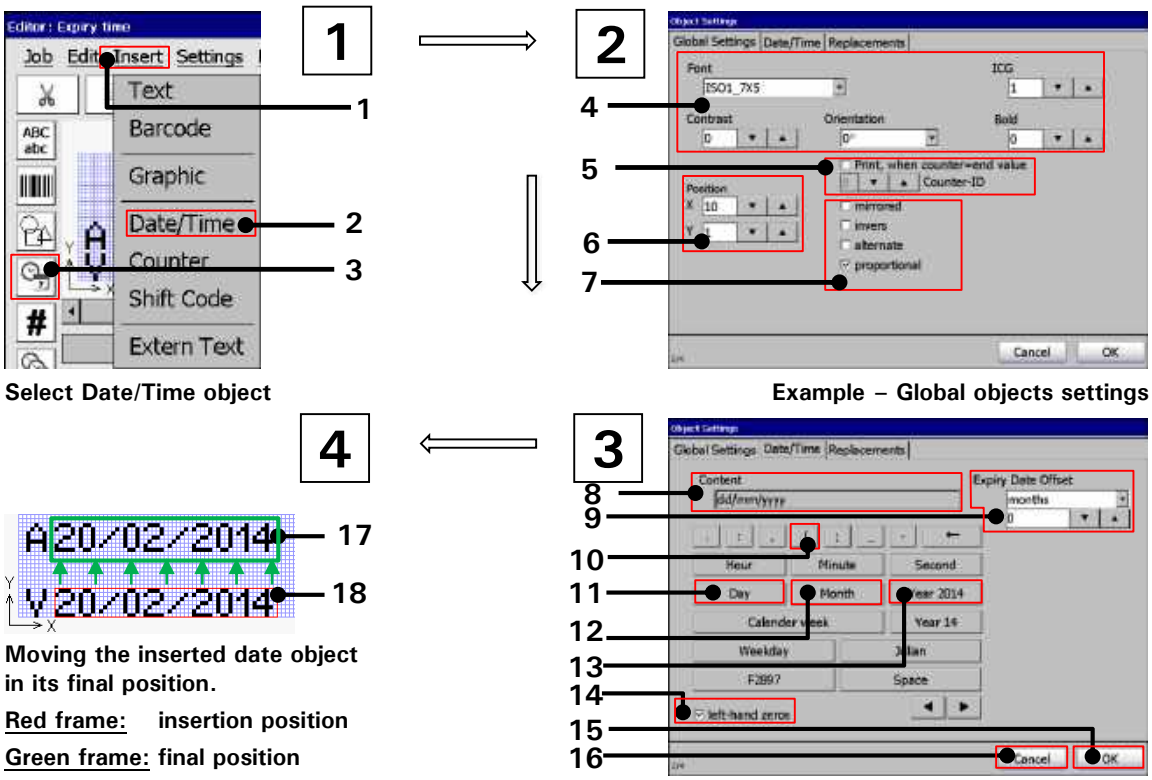
- The dialog box <**Global Settings (Date/Time)**> is faded in and it shows the first tab <**Global Settings**>. You can make the requested settings for the font parameters and display options on this tab.

INFORMATION

You will find further information in the **chapter *Object settings***!

Note: *For a new object the input fields <**Position X/Y**> (6) shows automatically the next possible position for the object after an already existing object. The first object within a job will have the position X=2 and Y=1. For adjusting the position of a selected object you can use the input fields for the x and y position (6). Inputs can be carried out stepwise with the arrow keys or with the number keypad that shows up by selecting one of the input fields. Please consider that objects can be positioned on top of each another. Use the editing window to check the correct positions of all objects.*

Figure 153 Print elements (Date/time input (Part 1)



1 – Menu item <Insert>
2 – Drop-down menu item <Date/Time>
3 – Direct button for <Date/Time> object
4 – Font Settings *
5 – Counter assignment settings *
6 – Arrow keys for object <Position X/Y>*
7 – Object display settings.*
8 – Display field <Content>
9 – Settings <Expiry date offset>
10 – Button </>
11 – Button <Day>
12 – Button <Month>
13 – Button <Year 2014>
14 – Checkbox <left-hand zeros>
15 – Button <Cancel>
16 – Button <OK>
17 – Final position of the date object
18 – Position of the date object

** Please see **chapter "Object settings"** for details.*

Point 3

- Now change to the <**Date/Time**>.
- Press the following buttons (10-13) to create the required date format input:
  „Day“ ▶ „/“ ▶ „Month“ ▶ „/“ ▶ „Year 2014“
  The display field <**Content**> (8) shows a preview of the date format.
- Press the button <**OK**> (15) for confirmation and to close the tab or press the button <**Cancel**> (16) to leave the tab without saving.
- With the confirmation the date object is inserted into the editing window of the <**Job editor**> marked with a red object frame.
- Click on an object to select it. A selected object is marked with a red frame.

Point 4

- Position the date object with the direction buttons of the job editor or use the drag-and-drop function to move the element.

Approach (part 2) refers to Figure 154

Point 1

- Press the menu item <**Insert**> (1) and in the drop down menu select the menu item <**Date/Time**> (2) or the appropriate direct button (3).

Point 2

- The menu <**Global Settings (Date/Time)**> is faded in. Carry out the requested settings for the font parameters and display options on the <Global Settings> tab.

INFORMATION

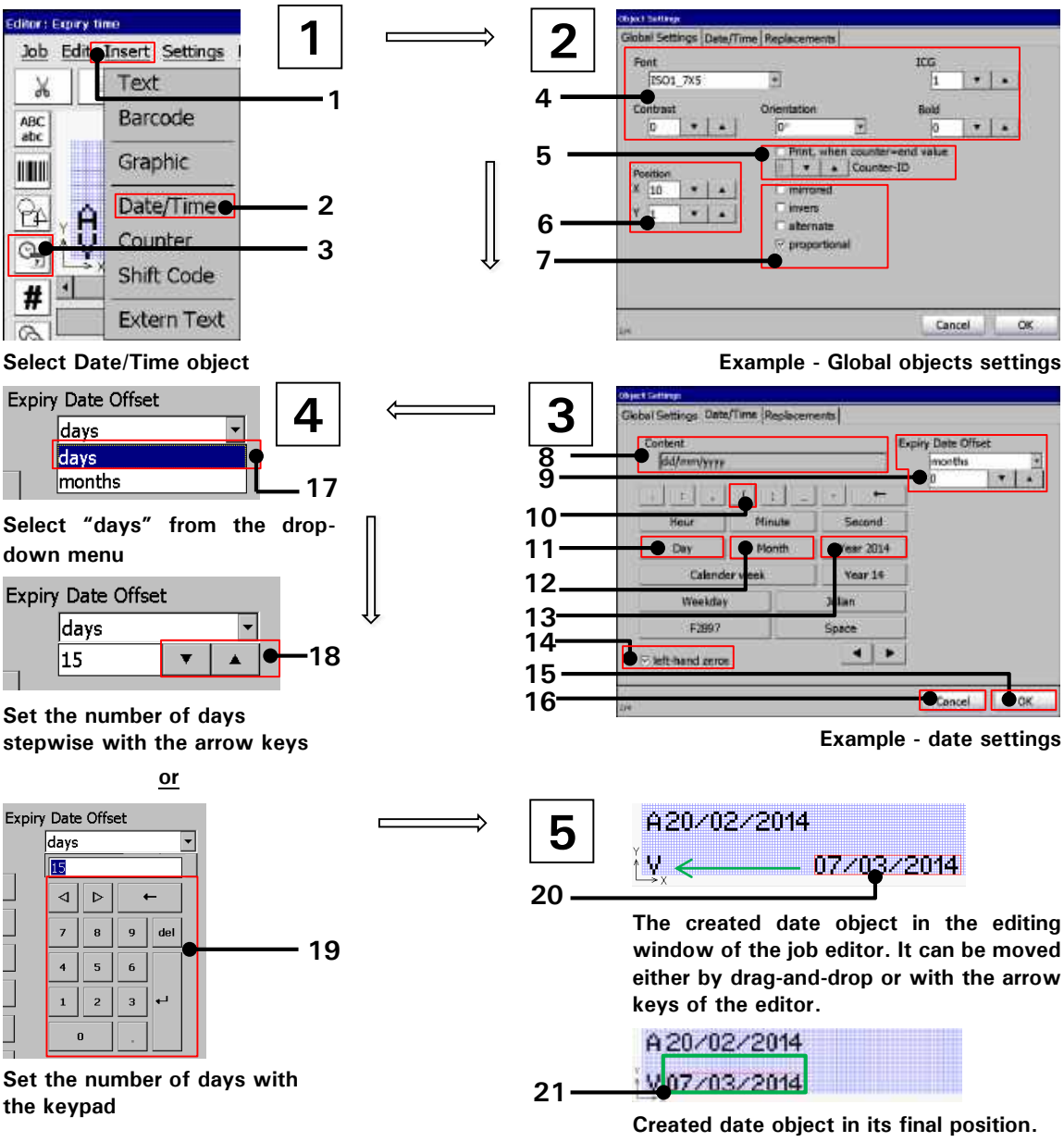
You will find further information in the **chapter *Object settings***!

Point 3

- Now change to the <**Date/Time**> tab by selecting the corresponding tab caption.
- Press the following buttons (10-13) in the appropriate order to create the required date input:
  „Day“ ▶ „/“ ▶ „Month“ ▶ „/“ ▶ „Year 2014“

  The display field <**Content**> (8) shows a preview of the formatting.
- Select “days” from the drop-down menu of the <**Expiry Date Offset**> section (17).

Figure 154 Print elements (Date/time input (Part 2)



1 – Menu item <Insert>
2 – Drop-down menu item <Date/Time>
3 – Direct button for <Date/Time> object
4 – Font Settings *
5 – Counter assignment settings *
6 – Arrow keys for object <Position X/Y>*
7 – Object display settings.*
8 – Display field <Content>
9 – Settings <Expiry date offset>
10 – Button </>
11 – Button <Day>
12 – Button <Month>
13 – Button <Year 2014>
14 – Checkbox <left-hand zeros>
15 – Button <Cancel>
16 – Button <OK>
17 – Drop down <day>/<month>
18 – Data entry arrow keys
19 – Data entry with keypad
20 – Insertion position date object
21 – Final position of the date object

** Please see **chapter "Object settings"** for details.*

Point 4

- Set the requested expiry date of 15 days. The setting can be carried out stepwise with the arrow keys (18)

  or

  by clicking in the display field of the <**Expiry Date Offset**> section which will open a number keypad (19) for input.

INFORMATION

You will find further information about working with the number keypad in the **chapter *Numeric keypad***!

- Press the button <**OK**> (15) for confirmation and to close the tab or press the <**Cancel**> button (16) to leave the tab without saving.

Point 5

- The expiry date object is inserted to the editing window of the <**Job editor**> marked with a red object frame (20).
- You can select an object by clicking on it. A selected object is marked with a red frame.
- Position the object with the arrow keys of the job editor or use the drag-and-drop function to move the object in its final position (21).

8.7.2.2 Carry out replacements

Further more accordant substitutions (numbers, letters or designations) for the date- and time values can be generated in the tab <**Replacements**> to get an operating-specific display or coding of the specifications.

INFORMATION

You will find further information regarding the execution of substitutions in the **chapter *Replacements***!

8.7.3 Counter

Provides bonding of individual programmable counters as well as definition of counter parameters, font parameters and display options.

Further more accordant replacements (number or letters) can be generated to get a operating specific display or coding of the specifications.

ATTENTION

Attention! For leaving a job, the counter states of integrated job counters are usually not saved, that means if you call up this job again the counter states are already again on the start value. If the print should be continued with the already existing counter states you have to activate the function <**Save counter states**> in the dialog box <**Extra**> in advance.

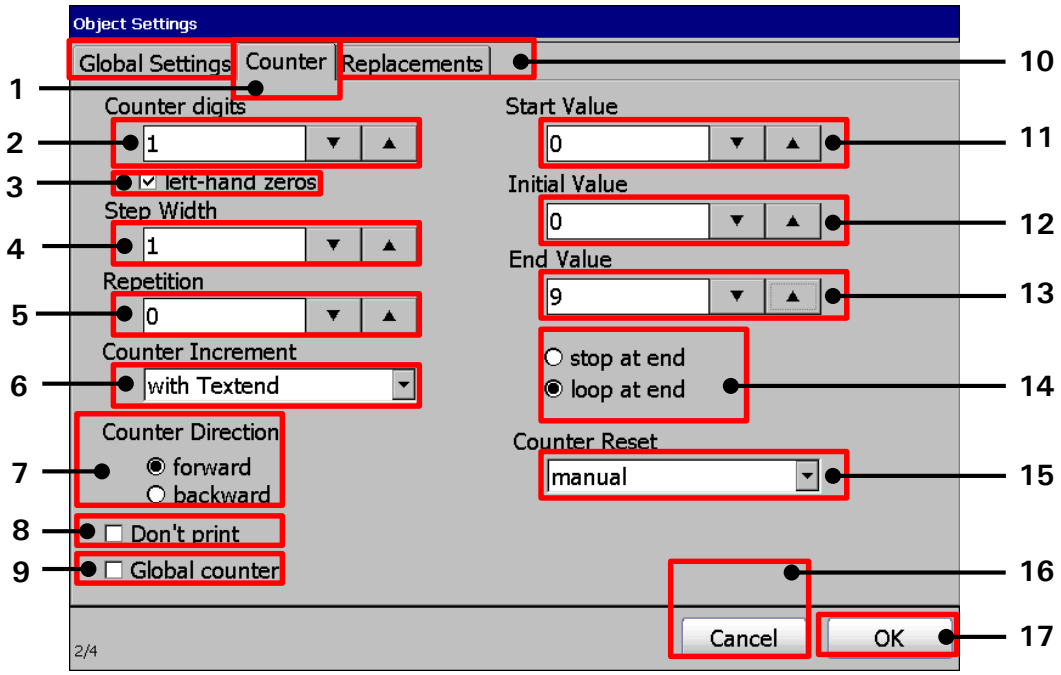
INFORMATION

You will find further information also in the **group *Data entry/Programming*** in the **chapter *Save Counter States***!

8.7.3.1 Counter parameter

On the <**Counter**> tab the basic counter settings are defined.

Figure 155 Print elements: counter settings



1 – <**Counter**> tab
2 – Display field <**Counter digits**>
3 – Checkbox <**Left hand zeros**>
4 – Display field <**Step width**>
5 – Display field <**Repetition**>
6 – Drop-down list <**Count increment**>
7 – Selection <**Counter direction**>
8 – Checkbox <**Don't print**>
9 – Checkbox <**Global counter**>
10 – Tab bar <**Object settings**>
11 – Display field <**Start value**>
12 – Display field <**Initial value**>
13 – Display field <**End value**>
14 – Selection <**Counter (Loop/Stop)**>
15 – Drop-down list <**Counter reset**>
16 –<**Cancel**> Button
17 – <**OK**> Button

8.7.3.1.1 Number of digits

The setting defines the number of digits of the counter. The maximum input is 10 digits. The set value is shown on the accordant display field.

8.7.3.1.2 Start value

The setting defines the start value of the counter. The maximum input is 10 digits.

After reaching the end value the counter will be reset to the start value.

The set value is displayed on the accordant display field.

8.7.3.1.3 Initialization value

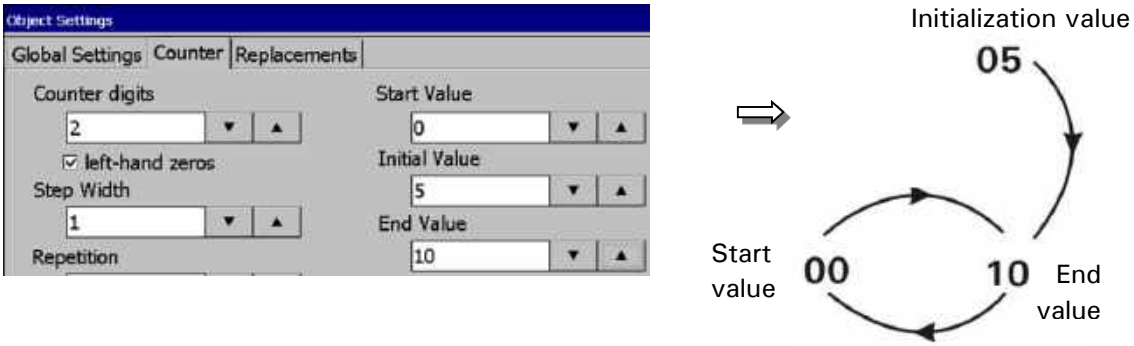
The setting defines the initialization value of the counter. The maximum input is 10 digits.

That means if the job is started or loaded for the first time, it is first counted from the initialization value to the end value. Afterwards it is then always counted from the start value to the end value.

The set value is shown on the accordant display field.

Figure 156 Counter settings (Initialization value)

Example:



Counter settings (Initialization value)

8.7.3.1.4 End value

The setting defines the end value of the counter. The maximum input is 10 digits.

After reaching the end value the counter will be reset to the start value.

The set value is shown on the accordant display field.

8.7.3.1.5 Leading zeros (Left-hand zeros)

With this function the display of the leading zeros of a counter are turned on or off.

Example: *4-digits counter*

Function	Value	Display
deactivated	1	1
activated	1	0001

8.7.3.1.6 Step width

The setting defines the increasing of the counter between the several prints.

The set value is shown on the accordant display field.

8.7.3.1.7 Repetitions

The setting defines the amount of prints which should be repeated. If no repetition is requested, you have to enter **„0“**. The counter can print up to 999998-times repetitive.

Example: 0 = no repetition
1 = Every counter value is printed twice consecutively (1repetition)
2 = Every counter value is printed triply consecutively (2 repetitions)
.....

The set value is shown on the accordant display field.

8.7.3.1.8 Counting direction

This setting controls the direction of the counting process.

- **Counting direction forward:** If this checkbox is activated the counter will be incremented (+).
- **Counting direction backwards:** If this checkbox is activated, the counter will be decremented (-).

8.7.3.1.9 End value control (Loop/Stop after end value)

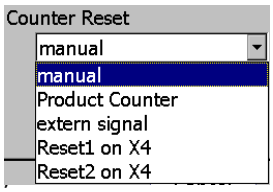
The setting controls the action of the counter by reaching the set end value.

- **Stop at end value:** If this checkbox is activated, no more counter is displayed after the end value has been reached.
- **Loop after end value:** If this checkbox is activated the counting process and the print will be started again from the beginning after the end value has been reached.

8.7.3.1.10 Counter reset (methods)

With the Drop-down list <**Counter Reset**> you can define the reset method of the counter.

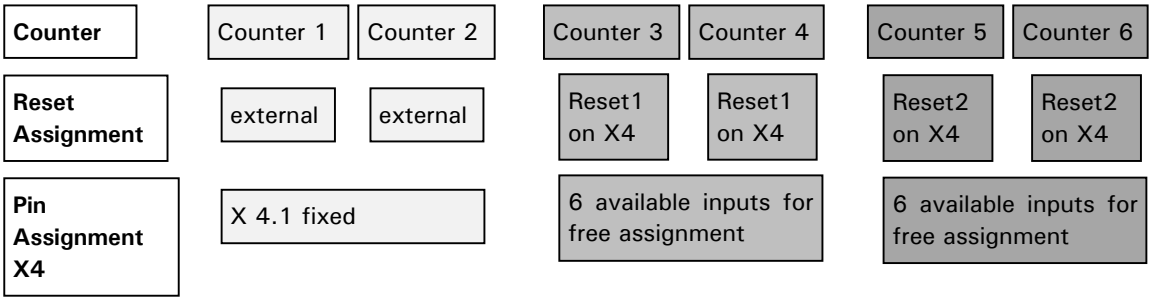
Figure 157 Counter settings (Reset methods)



- **manual:** The reset happens manually by the operator in the dialog box (**Extra ▶ Product Counter ▶ Reset all Job Counters**
- **Product Counter:** The reset of the job counter happens with the reset of the production counter. This function is associated with the first product counter. A second product counter would be ignored.
- **extern signal:** The reset happens by an external supplied signal (X4.1 on interface X4. Please see appendix for details).
- **Reset1 on X4:** The reset happens by an external supplied signal on the X4 interface. The actual input has to be assigned in the I/O Settings dialog box (Settings – I/O Settings – Inputs)

- **Reset2 on X4:** The reset happens by an external supplied signal on the X4 interface. The actual input has to be assigned in the I/O Settings dialog box (Settings – I/O Settings – Inputs)
- A counter reset method can be assigned to more than one counter. Therefore it is possible to create "Reset groups".

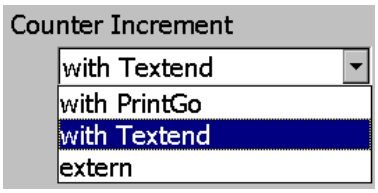
Example for "Reset groups" – 6 defined Counters assigned to three groups



8.7.3.1.11 Counter increment (methods)

With the drop-down list <**Counter Increment**> you can determine the method at which event the counter value should be changed (incremented or decremented).

Figure 158 Counter settings (Increment methods)



- **with PrintGo:** The change in value of the counter happened with each the PrintGo-signal *(even, if the print out is stopped and the printer still receives some PrintGos from the sensor or the internal PG source).*
- **with printing (text) end:** The change in value of the counter happens after the print out was made.
- **Extern (external signal):** The change in value happens by an external signal (interface X4).

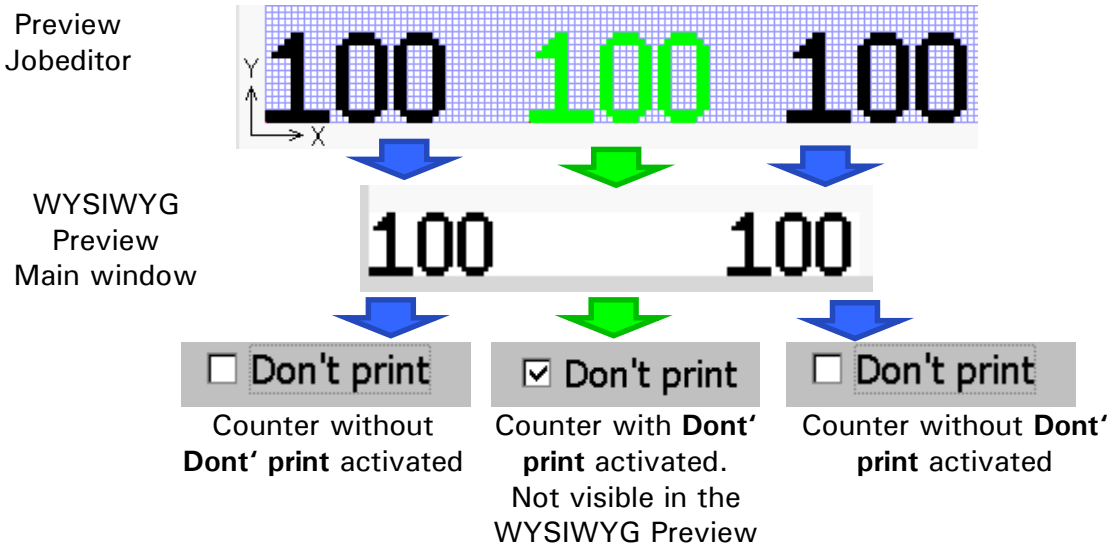
8.7.3.1.12 <Don't print function>

With the checkbox **<Don't print>** on the **<Counter>** tab ticked off the counter object will not be printed. The counter will work in the background and the counter object will not be displayed in the WYSIWYG preview of the main window.

In the job editor a **<Don't print>** counter object will be displayed in green colour. In the preview WYSIWYG of the main window it would be not visible. A **<Don't print>** counter object can be used to control the print out of text objects.

INFORMATION

Please see chapter ***8.4.8 Counter assignment*** for details.



8.7.3.1.13 Global counter

With the checkbox <**Global counter**> on the <**Counter**> tab ticked off the counter object will be declared as <**Global counter**>. Within a print job only one counter can be declared as <**Global counter**>. The counter reading is stored in a special memory register and it is available in all print jobs.
Therefore it is possible to access the current counter reading from each print job provided in that print job there is one counter declared as <**Global counter**>.

Example

With a <**Global counter**> it is possible to print consecutive numbers on different products which are imprinted using different print jobs.

Basics rules about global counters

1. There can be declared only one counter as global counter within a print job
2. The counter reading can only be set or reset within the job editor. For this the object has to be selected in the job editor in order to call the <**Object settings**>dialog box.
3. A <**Global counter**> can be edited during <**Print Start**> mode (green <**Print Start**> button is activated) but closing the dialog box will discard all changes. Changes on the <**Global counter**> settings and counter reading can only be saved during <**Print Stop**> mode (red <**Print Stop**> button is activated).

8.7.3.2 Carry out replacements

In the tab <**Replacements**> of the dialog box you can generate accordant replacements (numbers or letters) for the counter values to get an operating specific display or coding of the specifications.

INFORMATION

You will find further information regarding the carrying out of substitutions in the **chapter *Replacements***!

8.7.4 Shift code

Provides the integration of a text element which is printed in predefined periods (shift times) as well as a definition of the accordant parameters.

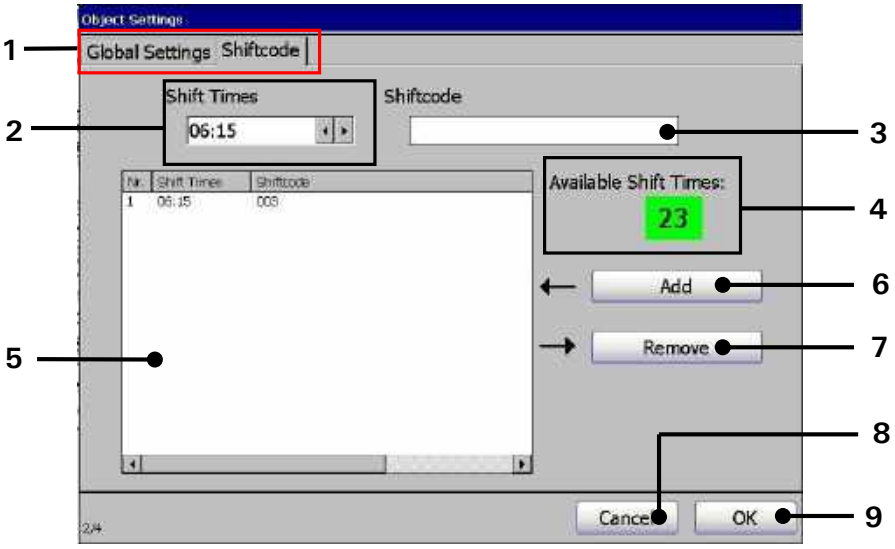
Note: *The changing text can be also combined with other printing elements which will not change by the predefined periods (only the „shift-defined“ text).*

8.7.4.1 „Shift Code“ tab

In the **management window** (5) all defined shift times with the corresponding shift codes are listed. Up to 24 shift codes can be managed.

In the display field **<Shift code management>** (4) the number of shift times still available; i.e. the shift times which can still be defined, is displayed.

Figure 159 Print elements (Shift code dialog box design)



1 – Tab bar
2 – Settings field <Shift times>
3 – Settings field <Shiftcode>
4 – Display field <Shift code management>
5 – Management window
6 – Button <Add>
7 – Button <Remove>
8 – Button <Cancel>
9 – Button <OK>

8.7.4.2 Compile shift times and integrate shift codes

Example: A shift code should be written additionally to an existing fix text „xxx“.

*In the first shift (early shift) at 6.15 am „xxx **001**“.*
*In the second shift (late shift) at 12.15 pm „xxx **002**“.*
*In the third shift (night shift) at 20.15 am „xxx **003**“.*

Proceeding:

- Press the button <**Insert**> (1) and the option <**Shift Code**> (2) or the accordant direct button [icon] (3).
- The dialog box <**Object settings (Shift Code)**> is faded in.

  In the tab <**Global Settings**> (4) carry out the requested settings for the font parameters and display options. You will find further information in the **Chapter *Object Settings***.

  Note: *In the setting fields <**Position X/Y**> (5) the system shows automatically the next possible position of the shift code after the already existing fix text. This position can be of course changed!*

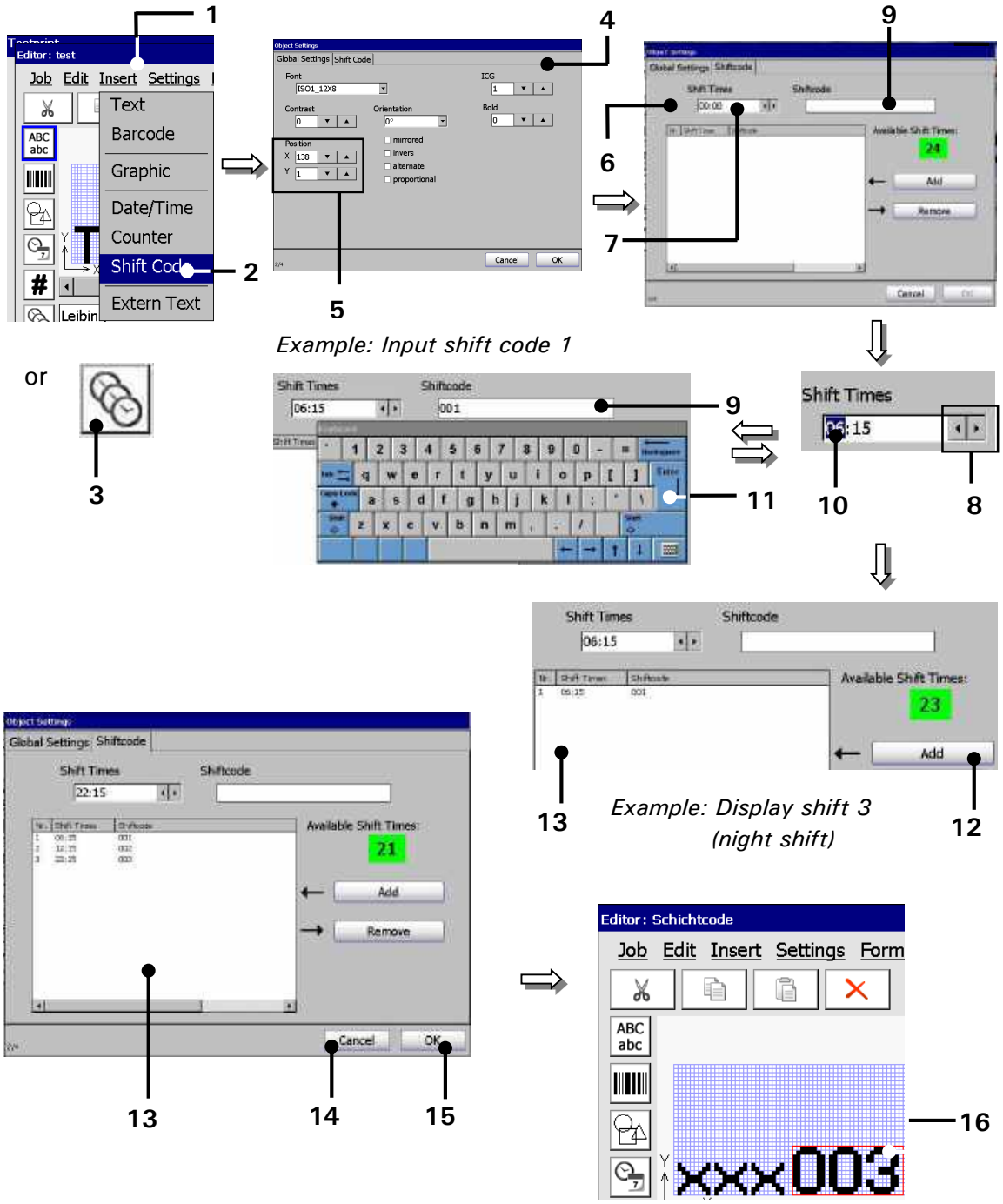
- Now change to the tab <**Shift Code**> (6). The selection of the tab happens by clicking on the tab bar.
- Now mark in the setting field <**Shift Times**> (7) the hour- or minute block to change the values. With the accordant <**Arrow keys**> (8) you can increase or reduce the values of the marked block (10).
- Now click in the setting field <**Shiftcode**> (9). A keyboard field opens for input. Now enter „001“.
- Press the button <**Enter ↵**> (11) of the keyboard field. The entered characters are taken over and are displayed in the setting field.

INFORMATION

You will find further information about the usage of the keyboard in **chapter *Keyboard***!

- Now press the button <**Add**> (12). The settings that have been made are transferred to the management window (13).

Figure 160 Print elements (Shift code input)



1 – Button <Insert>
2 – Option <Shift Code>
3 – Direct button (Icon)
4 – Tab <Glob. Settings>
5 – Setting fields <Position X/Y>
6 – Tab <Shift Code>
7 – Setting field <Shift Times>
8 – Arrow keys
9 – Settings field <Shiftcode>
10 – Selected (marked) time block
11 – Button <Enter>
12 – Button <Add>
13 – Management window
14 – Button <Cancel>
15 – Button <OK>
16 – <Job editor> display

- Carry out the inputs („002“ and „003“) accordingly for the further shift codes.
- Press the button <**OK**> (15) to take over the input and to close the dialog box or press the button <**Cancel**> (14) to leave the dialog box without saving the inputs to take over the input and to close the dialog box.
- In the dialog box <**Jobeditor**> (16) the fix text followed by the applied shift code are displayed.

Note: *Displayed is the shift code which is currently valid (as in the example the night shift „003“).*

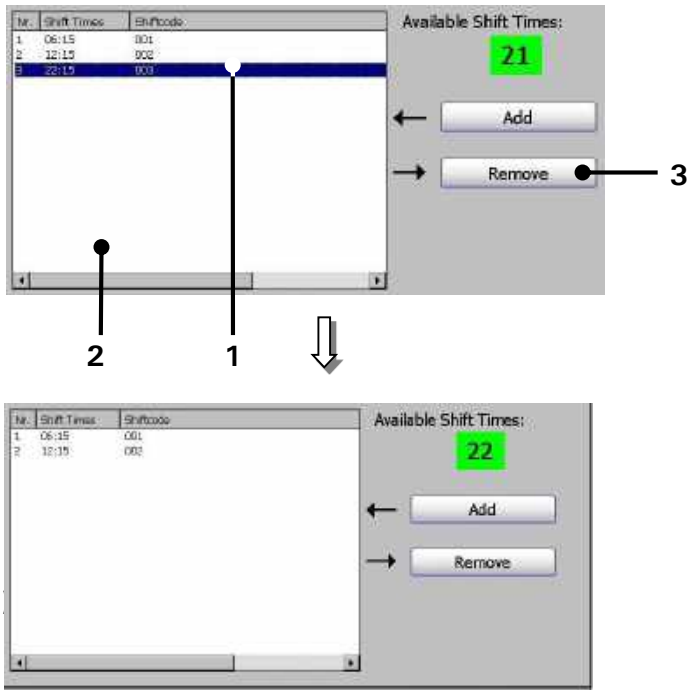
8.7.4.3 Remove shift times

Shift times that are no longer needed can be removed.

Proceeding:

- Mark the shift time to be deleted (1) in the **management window** (2).
- Press the button <**Remove**> (3). The shift time is deleted.

Figure 161 Print elements (Shift code remove)



1 – Marked shift time 2 – Management window 3 – Button <Remove>

8.7.5 Extern Text

With the **<Extern Text>** object it is possible to use external text files as a data source for the print-out. There are three options for using the external data:

1. A fixed length character string shall be transferred either via a RS232 or Ethernet connection. For this requirement you can use the function **<Extern Text fixed length>**.
2. A variable length character string shall be transferred either via a RS232 or Ethernet connection. For this requirement you can use the function **<Extern Text variable length>**.
3. The data is read from an.txt file saved on an external storage. This can either be an USB stick or an SD card. This function is called **<Mailing>**.

Requirements <Extern Text> – fixed and variable length

- You have to set the interface parameters in the interface dialog box.
- To use the **<Extern Text>** function you will have to create an extern text object. The parameters for the object are set in the **<Extern Text>** dialog box. For an **<Extern Text>** object with a fixed-length character string you will have to define the number and the characters for the wildcards and an optional offset. For an **<Extern Text>** object with a variable-length string you will have to define additionally a **<Start symbol>** and **<End symbol>**.

You can send the serial data either via a RS232 or an Ethernet connection.

INFORMATION

Please see **chapters *Ethernet connection*** and ***Interface X2 (Serial interface)*** for details.

The data can be transferred with any terminal software e.g. like Hyperteminal.

You have to make sure that the parameters in the terminal software correspond with the parameter set for the JET3.

Shoot & Print

Alternatively the data can be sent with a bar code scanner connected to the RS232 interface. The data is coded as bar code, read with a bar code scanner and finally sent to the printer through the RS 232 interface. Working with this method avoids errors by wrong data input. Suitable bar code scanners are optionally available.

For this option a bar code scanner with serial interface is required!

A bar code scanner with a USB interface (HID device) cannot be used in combination with the <Extern Text for serial interface>.

Interface settings

With the JET3 interface setting **<Extern Text for serial interface>** and **<Extern Text for Ethernet interface>** the JET3 printer does not expect any control characters. Each character sent will be interpreted as data. This will also be true for control characters like **<line feed>**, **<form feed>** or **<carriage return>**.

There is an exception for the **<Extern Text variable length>** function. With this function you can set control characters that mask the transferred string by defining a **<Start symbol >** and a **<End symbol>**.

Requirements <Mailing>

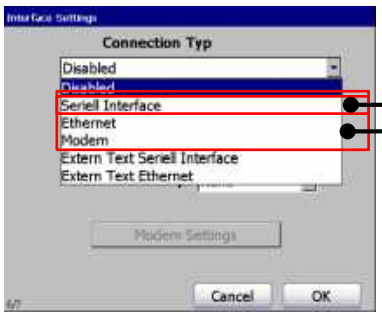
- For the **<Mailing>** function you will have to set the parameters for the external data source.
- To use the **<Mailing>** function you will have to create an **<Extern Text>** object. The parameters for the object are set in the **<Extern Text>** dialog box. You can define which field of a data set should be assigned to the object and you can set wildcards for this field.

INFORMATION

The JET3 printer also offers the possibility of controlling print job selection and print out using s special script language. Data and commands can be sent by modem, Ethernet or RS 232 interface using a terminal software.

Shoot & Print

Data and commands can also be coded as bar codes and transferred with a bar code scanner connected to serial interface to the JET3 printer.
For this option a bar code scanner with serial interface is required!
A bar code scanner with a USB interface (HID device) cannot be used in combination with the script language.



Interface for Shoot & Print using a bar code scanner with serial interface

Available serial interfaces for using theJET3 script language

Regarding the JET3 script language and the possibilities of Shoot & Print detailled documentation is available separately.

8.7.5.1 Extern Text: fixed length

8.7.5.1.1 Extern Text: fixed length – Interface settings

See figure 162

Open the dialog box for the interface settings from the main window of the printer:

<Extra> - <Interface setting> (1).

The dialog box **(2)** for the interface settings offers several options. First you can choose the **<Connection type> (3)**. The displayed options depend on the selected type of connection. E.g. the serial interface for extern text offers input fields for the baud rate **(4)** and the parity settings **(5)**.

Extern Text for serial interface

After the connection type **<Extern Text for serial interface> (6)** is selected you can choose the baud rate **(10)** and the kind of parity **(7)** from a drop-down lists. With the **<OK>** button all settings are saved and the dialog box is closed **(8)**. With the **<Cancel>** button **(9)** all changes are discarded and the dialog box is closed without saving.

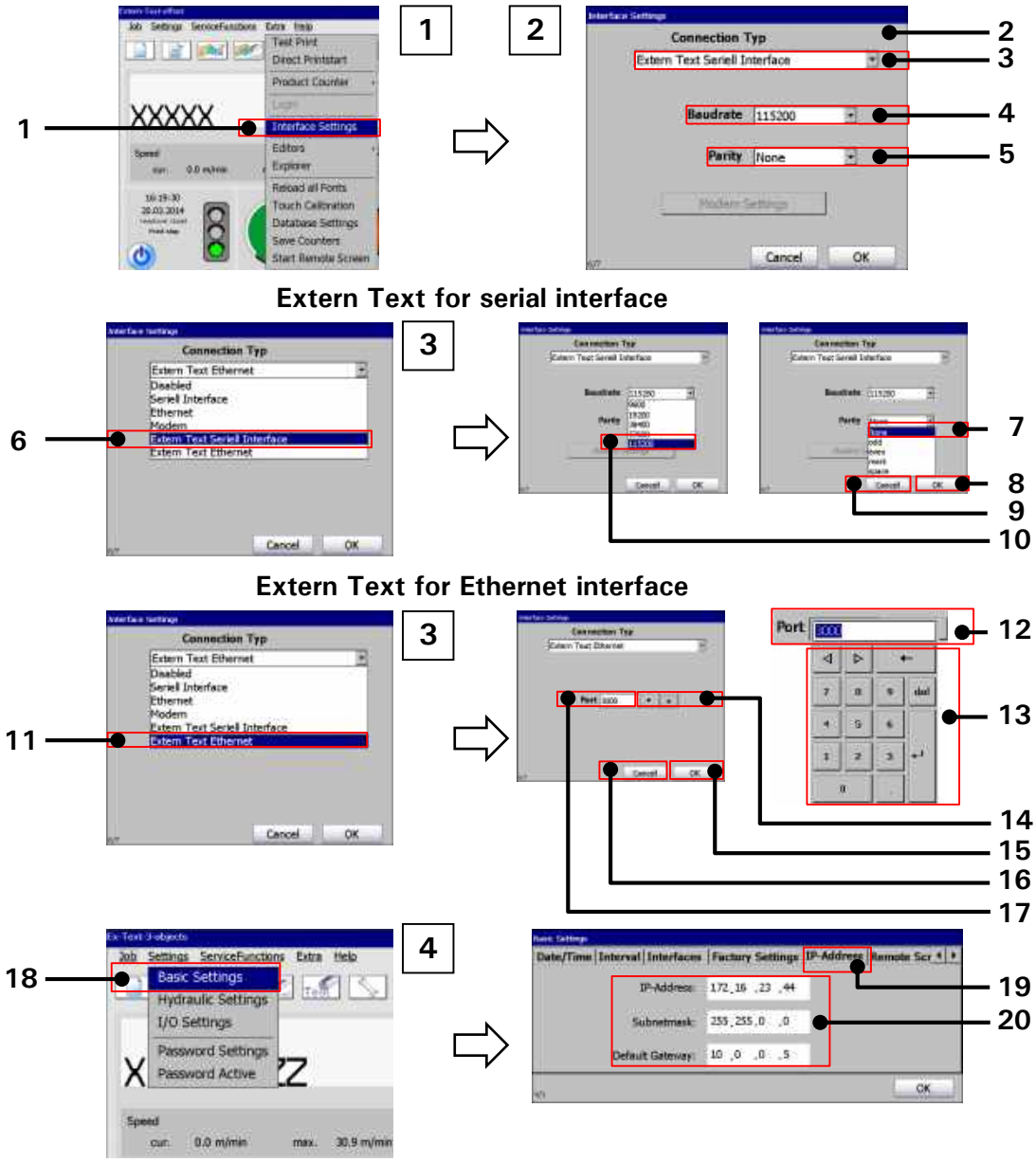
Extern Text for Ethernet interface

After the connection type **<Extern Text Ethernet> (11)** is selected you can set the **<Port>** number **(16)** for the connection. Clicking in the display field **(12)** will open a numeric keypad **(13)** for inputs. Alternatively you can use the arrow keys of the display field **(14)**. You can save all settings and close the dialog box with the **<OK>** button **(15)**. The **<Cancel>** button **(16)** will discard all changes and close the dialog box without saving. If you use the Ethernet interface you will have to make sure that the IP-address settings of the printer are correct. For this you will have to open the respective dialog box from the main window of the printer:

<Settings>-<Basic Settings>-<IP-Address> (18, 19)

The tab shows the current settings **(20)**. You will have to make sure that the IP addresses of the printer and of the device used for the connection (e.g. Notebook) are within the same logical address space respective within the same network.

Figure 162 Extern Text – Interface settings



1 – Menu item <**Interface Settings**>
2 – Dialog box <**Interface Settings**>
3 – Drop-down list <**Connection type**>
4 – Drop-down list <**Baud rate**>
5 – Drop-down list <**Parity**>
6 – Selection <**Extern Text seriell interface**>
7 – Selection <**Baud rate**>
8 – Selection <**Parity**>
9 – Button <**Cancel**>
10 – Button <**OK**>
11 – Selection <**Extern Text Ethernet**>
12 – Display field <**Port**> number
13 – Numeric keypad
14 – Arrow keys <**Port**> number
15 – Button <**OK**>
16 – Button <**Cancel**>
17 – Display field for the current <**Port**> number
18 – Menu item <**Basic settings**>
19 – Tab <**IP-Adress**>
20 – IP address settings

8.7.5.1.2 Extern Text: fixed length – Object creation and properties

See figure 163

In the job editor you can create an <**Extern Text**> object either with the <**Insert**> drop-down menu **(1)** or with the direct button (icon) for <**Extern Text**> **(2)**.

This will open the dialog box for the object settings **(3)**.

On the tab <**Global settings**> **(4)** you can enter the font settings **(5)**, select font options **(6)** or define the positioning of the object **(7)**.

INFORMATION

For details about the global settings of an object please see **chapter *Object settings***.

On the tab <**Extern Text**> you can choose the type of the extern text. The following description refers to the option <**Extern Text: fixed length**> **(9)**. The <**Extern Text: variable length**> and the <**Mailing**> options are described separately.

The type <**Extern Text: fixed length**> offers several options:

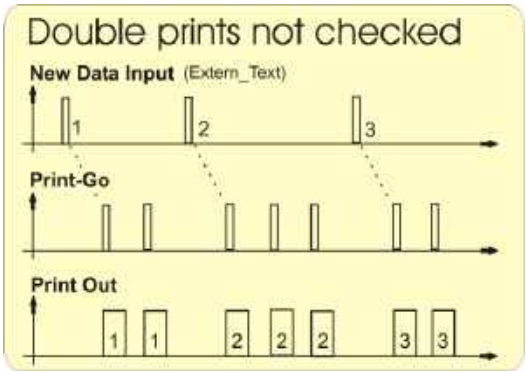
- Settings for double prints **(11)**
- Settings for wildcards **(10)**
- Settings for an offset **(12)**

Setting for double prints

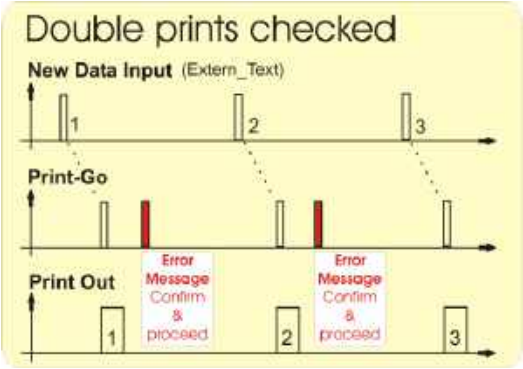
With the checkbox checked off **(11)** each received character string will only be printed once. In case there is another PrintGo signal received before any new data were received the printer will switch to <**Print Stop**>: the green <**Print Start**> button switches off and the red <**Print Stop**> button switches on. Additionally a message box is displayed:

You will have to confirm the error message and restart the print-out again by pressing the green <Print Start> button.

Example: diagrams with and without double prints checked



With double prints not checked there will be a printout with each PrintGo signal. Therefore a received character string may be printed more than once.



With double prints checked there will be only one print-out with each PrintGo signal. If a second PrintGo signal occurs before new data were received will an error message will be displayed. Therefore a received character string is always printed once only.

Wildcards

There is an indicator which shows the current number of wildcards **(15)** and a display field for inputs **(16)**. When you place the Cursor in the display field a keyboard for inputs will open **(17)**. Changing the number and kind of the wildcard character **(19)** will be immediately shown by the indicator **(18)**. In the job editor the defined <**Wildcards**> are shown as content of the <**Extern text: fixed length**> object **(26)**.

Wildcards for an <**Extern Text:fixed length**> object have two functions:

1. The characters of the set wildcards represent the first character string that will be displayed on the WYSIWYG display and printed. They will then be replaced by the first received data.
2. Wildcards define together with the character offset the length of the input buffer and therefore the number of characters to be considered.

Character offset

With the character offset **(12) (abbreviated: OS)** you can define how many characters from the left side of the received character string will be ignored. Together with the <**Wildcards**> the <**Character offset**> defines the length of the input buffer. You can set the character offset either with the arrow keys of the display field **(20)** or with a numeric keypad **(21)** displayed when placing the cursor in the display field.

Example for <Character offset> and <Wildcards>:

Set wildcards:

X	**X**	**X**					

Set offset:

3

Display in the print preview of the main window as long as there were no data received:

XXX

Received data:

1	**2**	**3**	**4**	**5**	**6**	**7**	**8**

Used data (regarding the offset (O) and the wildcards (W)):

~~1~~ (O)	**~~2~~ (O)**	**~~3~~ (O)**	**4 (W)**	**5 (W)**	**6 (W)**	**~~7~~ (W)**	**~~8~~ (W)**

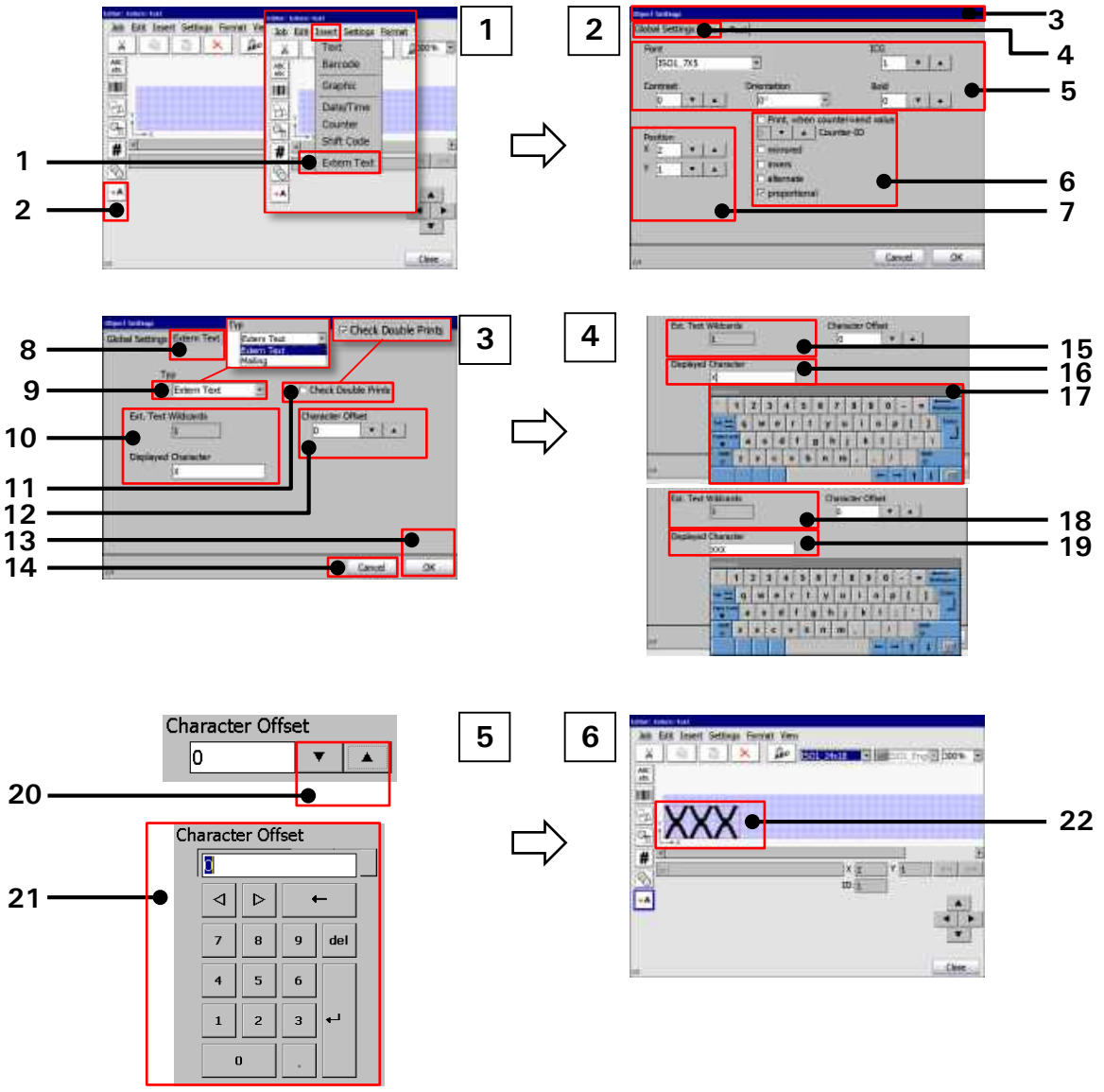
Display of the received data in the print preview of the main window:

456

Result:

Due to the set offset the first 3 characters of the received character string will not be used. Due to the wildcards only the first 4 characters of the remaining character string are used.

Figure 163 Extern Text fixed length – Object settings



1 – Menu item <**Extern Text**>
2 – Direct button <**Extern Text**>
3 – Dialog box <**Object settings**>
4 – Tab <**Global settings**>
5 – Font settings
6 – Font option
7 – Position indicator/setting
8 – Tab <**Extern Text**>
9 – Drop-down list <**Type**>
10 – Settings <**Wildcards**>
11 – Checkbox <**Double Prints**>
12 – Offset indicator/setting
13 – Button <**OK**>
14 – Button <**Cancel**>
15 – Indicator <**Wildcards**> 1 Wildcard
16 – Input <**Wildcards**> 3 Wildcards
17 – Keyboard
18 – Indicator <**Wildcards**> 3 Wildcards
19 – Input <**Wildcards**>
20 – Offset setting with arrow keys
21 – Offset setting with numeric keypad
22 – Extern Text object in the job editor

8.7.5.1.3 Extern Text: fixed length – Print out/Deleting the input buffer

There can be up to 32 **<Extern Text>** objects within a print job. For each object you can define the number of wildcards and the offset separately.

But nevertheless all **<Extern Text>** objects within a print job will process the same received character string. It is just a matter of the wildcard and the offset settings which part of the received character string is used by the **<Extern Text: Fixed length>** object.

The received serial data are stored in an input buffer. The size of this buffer is defined the **<Extern Text: fixed length>** object that have the largest sum from wildcards and offset.

If you like to use more than one <Extern Text: fixed length> object in a print job it is mandatory that the transferred string is always of the same length.

Example print-out:

This example is based on a print job with three <**Extern Text: fixed length**> objects. Each object has different settings for wildcards and offset **(abbreviated: OS)**. The character string **12ab345** shall be transmitted. The settings for each <**Extern Text: fixed length**> object look as follows:

Object 1:

Wildcards:	**X**	1 wildcard
Offset:	**0**	0 offset
Sum of wildcards and offset:	**1**	

Object 2:

Wildcards:	**YY**	2 wildcard
Offset:	**1**	1 offset
Sum of wildcards and offset:	**3**	

Object 3:

Wildcards:	**ZZZ**	3 wildcard
Offset:	**3**	3 offset
Sum of wildcards and offset:	**6**	

The input buffer in this example has the length of 6 characters because the largest sum of wildcards and offset is 6.

Beside the input buffer there is also a display buffer. The content of the display buffer is what you see in the print preview of the main window of the JET3 printer.

There are three rules regarding the input and the display buffer:

1. The input buffer has to be completely filled before its content is transferred to the display buffer.
2. The print-out always reflects the content of the display buffer (what you see is what you get printed).
3. The input buffer is emptied as soon as its content is transferred to the display buffer.

The current display buffer will be printed with each PrintGo signal received unless you have selected the <**Check Double Prints**> option.

With the <**Check Double Prints**> option activated you will receive an error message when a PrintGo signal occurs before a new character string was received. So it is granted that each character string is only printed once.

The following tables show the data transmission, the buffer content and the print-out. It also shows how the settings for the wildcards and the offset affect the displayed characters and therefor the print-out.

The external data can be sent with any terminal software like e.g. Hyperterminal. You have to make sure that the serial interface parameters of the terminal software correspond with the parameters of the JET3 interface.

Deleting the input buffer

The current content of the input buffer can be deleted at any time. For this you can use the respective option in the Drop-down menu **<Extra>:**

<Extra>-<Production counter>-<ExternText Delete extern text memory>

After the input buffer was deleted it has to be filled up again completely with data. Only then the data will be transferred to the display buffer in order to be printed.

Deleting the input buffer

Tables for the example

Buffer position⟶	**1**	**2**	**3**	**4**	**5**	**6**	**Shifting direction**	**Data**	**Nr**
Display buffer	**X**	**Y**	**Y**	**Z**	**Z**	**Z**			1
Input buffer						1	←	1	2
Display buffer	**X**	**Y**	**Y**	**Z**	**Z**	**Z**			3
Input buffer					1	a	←	a	4
Display buffer	**X**	**Y**	**Y**	**Z**	**Z**	**Z**			5
Input buffer				**1**	**a**	**b**	←	b	6
Display buffer	**X**	**Y**	**Y**	**Z**	**Z**	**Z**			7
Input buffer			**1**	**a**	**b**	**4**	←	4	8
Display buffer	**X**	**Y**	**Y**	**Z**	**Z**	**Z**			9
Input buffer		**1**	**a**	**b**	**4**	**5**	←	5	10
Display buffer	**X**	**Y**	**Y**	**Z**	**Z**	**Z**			11
Input buffer	**1**	**a**	**b**	**4**	**5**	**6**	←	6	12
Display buffer	**1**	**a**	**b**	**4**	**5**	**6**			13
Input buffer									14
Object 1 param.	X								15
Display Object 1	***1***								16
Object 2 param.	OS	Y	Y						17
Display Object 2		***a***	***b***						18
Object 3 param.	OS	OS	OS	Z	Z	Z			19
Display Object 3				***4***	***5***	***6***			20

The following table shows the explanations for each step and setting.

No.	Explanation
1	Before the first data are received the set wildcards represent the first display buffer content. This would also be the first print-out as soon as a PrintGo signal will be received.
2	The character string **1ab456** is sent to the printer starting with the character **1**.
3, 5, 7, 9, 11	The display buffer remains the same because the input buffer is not filled up completely.
4, 6, 8, 10	The characters **a**, **b**, **4** and **5** are sent.
12	The character **6** is sent. With that character the input buffer is completely filled.
13	With the input buffer filled up completely the content is transferred to the display buffer.
14	The input buffer is emptied after the transfer in the last step. **This state can also be set with the <Deleting ExternText memory> command.**
15	Parameters object 1: 1 wildcard (**X**) and 0 offset
16	Display content for object 1: the first character of the display buffer.
17	Parameters object 2: 2 wildcards (**YY**) and 1 offset (**OS**)
18	Display content for object 1: the second and the third character of the display buffer
19	Parameters object 3: 3 wildcards (**ZZZ**) and 3 offset (**OS**)
20	Display content object 3: the fourth, fifth and sixth character of the display buffer.

8.7.5.2 Extern Text: variable length

8.7.5.2.1 Extern Text: variable length – Interface settings

The interface settings for an extern text of variable length are the same as for the extern text with fixed length.

INFORMATION

Please see **chapter *Extern Text: fixed length – Interface settings*** for details.

8.7.5.2.2 Extern Text: variable length – Object creation and properties

See figure 164

In the job editor you can create an <**Extern Text**> object either with the <**Insert**> drop-down menu **(1)** or with the direct button (icon) for <**Extern Text**> **(2)**.

This will open the dialog box for the object settings **(3)**.

On the tab <**Global settings**> **(4)** you can enter the font settings **(5)**, select font options **(6)** or define the positioning of the object **(7)**.

INFORMATION

For details about the global settings of an object please see **chapter *Object settings***.

On the tab <**Extern Text**> you can choose the type of the extern text. The following description refers to the option <**Extern Text: variable length**> **(9)**. The <**Extern Text: fixed length**> and the <**Mailing**> options are described separately.

The type <**Extern Text: variable length**>offers several options:

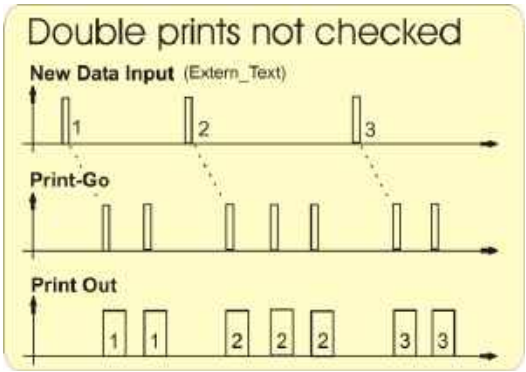
- Settings for double prints **(10)**
- Settings for start and end of text symbols **(13-16)**
- Settings for wildcards **(11)**
- Settings for an offset **(12)**

Setting for double prints

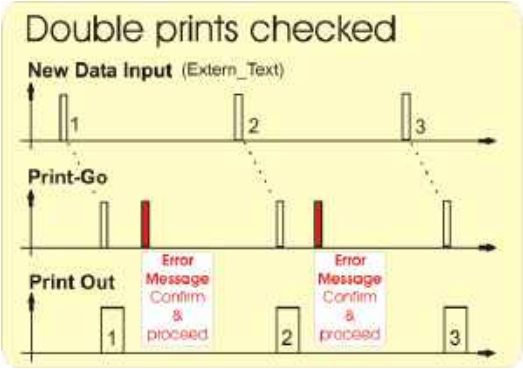
With the checkbox checked off **(10)** each received character string will only be printed once. In case there is another PrintGo signal received before any new data were received the printer will switch to <**Print Stop**>: the green <**Print Start**> button switches off and the red <**Print Stop**> button switches on. Additionally a message box is displayed:

You will have to confirm the error message and restart the print-out again by pressing the green <Print Start> button.

Example: diagrams with and without double prints checked



With double prints not checked there will be a printout with each PrintGo signal. Therefore a received character string may be printed more than once.



With double prints checked there will be only one print-out with each PrintGo signal. If a second PrintGo signal occurs before new data were received will an error message will be displayed. Therefore a received character string is always printed once only.

<Start symbol> and <End symbol>

Using a **<Start symbol>** and a **<End symbol>** allows masking a received character string whereby the character string can be of variable length within the set limits.

A **<Start symbol>** is defined with the decimal value of an ASCII character. You can use a value between 1 and 255 **(13)**. The selected character will be shown to the right of the arrow keys of the display field **(14)**.

A **<End symbol> (15)** is defined with the decimal value of an ASCII character. You can use number between 1 and 255. The selected character will be shown to the right of the arrow keys of the display field **(16)**.

All characters following the **<Start symbol>** in the transmitted string will be written into the input buffer until a **<End symbol>** is received. If another **<Start symbol>** is received before the **<End symbol>** was received the current input buffer content will be discarded and the filling of the buffer will start again.

The number of characters between a **<Start symbol>** and a **<End symbol>** may be shorter than the number of characters defined by the **<Wildcards>** parameter. In that case the input buffer is only filled with the relevant characters. If the number of characters exceeds the number defined by the **<Wildcards>** before the **<End symbol>** is received only the number of characters that are equivalent with the size of the input buffer will be taken into account. In that case the input buffer is filled with the first received characters up to the number defined by the size of the input buffer.

Wildcards

There is an indicator which shows the current number of wildcards **(19)** and a display field for inputs **(20)**. When you place the cursor in the display field a keyboard for data inputs is displayed **(21)**. In the event of modifications of the number or the kind of the wildcard character **(23)** the indicator **(22)** will be updated immediately. In the job editor the defined <**Wildcards**> are shown as content of the <**Extern text: variable length**> object **(26)**.

Wildcards for an <**Extern Text:variable length**> object have two functions:

1. The characters of the set wildcards represent the first character string that will be displayed on the WYSIWYG display and printed. They will then be replaced by the first received data.
2. Wildcards, together with the character offset, define the length of the input buffer and therefore the maximum number of characters to be considered. If there are more characters between the <**Start symbol**> and the <**End symbol**> than limited by the <**Wildcards**> settings only the defined number of characters following the <**Start symbol**> will be used.

Character offset

With the character offset **(24)** you can define how many characters from the left side of the received string will be ignored. You can set the character offset either with the arrow keys of the display field **(24)** or with the numeric keypad **(25)** displayed when placing the cursor in the display field.

Example <Start symbol>, <End symbol>, <Wildcards>, <Character offset>:

Set start symbol: **65 = A**

Set end symbol: **66 = B**

Set wildcards: Displayed text: **Wildcards** = 9 characters = 9 wildcards

Set offset: **3**

Display in the print preview of the main window as long as there were no data received :

Wildcards

Received data:

a	**b**	**c**	**A**	**d**	**e**	**f**	**g**	**h**	**i**	**j**	**k**	**B**	**l**	**m**	**n**

Used data (with due regard to the Start symbol (A), the End symbol (B), the offset (O) and the wildcards (W)):

~~a~~ (A)	**~~b~~ (A)**	**~~c~~ (A)**	**A**	**~~d~~ (O)**	**~~e~~ (O)**	**~~f~~ (O)**	**g (W)**	**h (W)**	**i (W)**	**j(W)**	**k (W)**	**B**	**~~l~~ (B)**	**~~m~~ (B)**	**~~n~~ (B)**

Display of the received data in the print preview of the main window:

ghijk

Result:

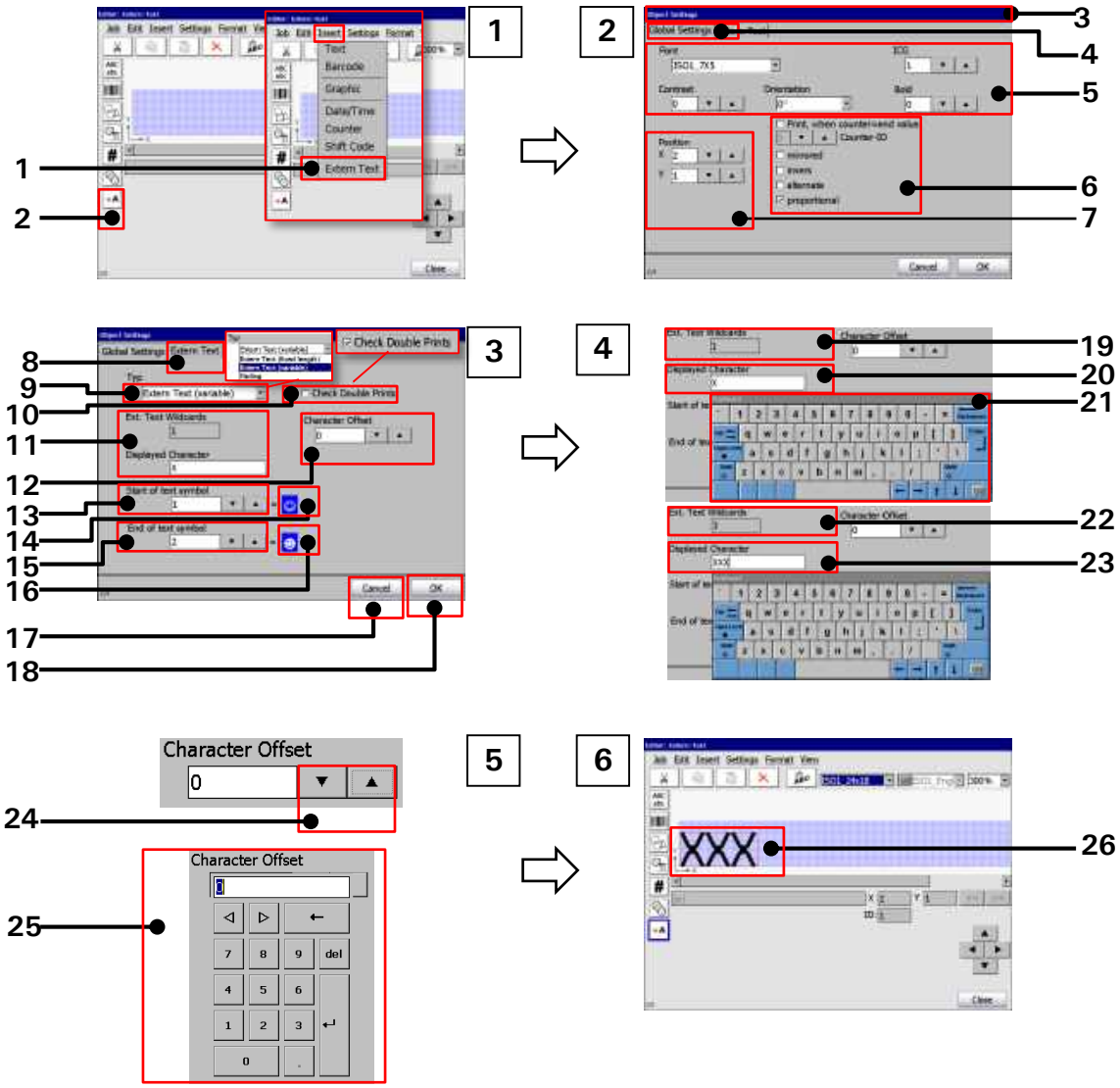
Due to the <**Start symbol**> **A** the input buffer is filled starting with the transmitted character **A.**

Due to the set <**Offset**> the first 3 characters of the received data are not used.

Due to the <**Wildcards**> only the first 9 characters of the remaining data are used.

Due to the <**End symbol**> **B** only all characters up to the **B** are used.

Figure 164 Extern Text variable length – Object settings



1 – Menu item <**Extern Text**>

2 – Direct button <**Extern Text**>

3 – Dialog box <**Object settings**>

4 – Tab <**Global settings**>

5 – Font settings

6 – Font option

7 – Position indicator/setting

8 – Tab <**Extern Text**>

9 – Drop-down list <**Type**>

10 – Settings <**Wildcards**>

11 – Checkbox <**Double Prints**>

12 – Offset indicator/setting

13 – Dec. ASCII val. <**Start symbol**>

14 – Respective character to the decimal ASCII value of the <**Start symbol**>

15 – Decimal ASCII value <**End symbol**>

14 – Respective character to the decimal ASCII value of the <**Start symbol**>

17 – Button <**OK**>

18 – Button <**Cancel**>

19 – Indicator <**Wildcards**> 1 Wildcard

20 – Input <**Wildcards**> 3 Wildcards

21 – Keyboard

22 – Indicator <**Wildcards**> 3 Wildcards

23 – Input <**Wildcards**>

24 – Offset setting with arrow keys

25 – Offset setting with numeric keypad

26 – Extern Text object in the job editor

8.7.5.2.3 **Extern Text: variable length** – Print out/Deleting the input buffer

There can be up to 32 **<Extern Text>** objects within a print job. For each object you can define the number of wildcards and the offset separately. But nevertheless all **<Extern Text>** objects within a print job will process the same received character string. It is just a matter of the **<Start symbol>, <End symbol>,** the **<Wildcards>** and the **<Offset>** settings which part of the received character string is used by the **<Extern Text: variable length>** object.
The received serial data are stored in an input buffer. The size of this buffer is defined by the **<Extern Text: variable length>** object that have the largest sum from wildcards and offset.
There are 2 basic rules for using more than one <Extern Text: variable length> object in a print job:

1. Basically it is possible to use different **<Start symbols>** and **<End symbols>** for each **<Extern Text: variable length>** object created. However this wouldn't be advisable because only **<Start symbol>** and **<End symbol>** of the last created **<Extern Text: variable length>** object will be used. If the object is deleted, the **<Start symbol>** and **<End symbol>of the** object created before the delete object will be used and so on. Therefore it is **highly recommended** using the same **<Start symbol>** and **<End symbol>** for all **<Extern Text: variable length>** objects within the same print job.
2. Using within the same print job several **<Extern Text: variable length>** objects which have all the same **<Start symbol>** and **<End symbol>** offers the possibility of controlling the content to be used of a character string by wildcards and offset for each object separately.

Example print-out:

The example is a print job with three **<Extern Text: variable length>** objects. Each object has different settings for wildcards and offset. The **<Start symbol>** and **<End symbol>** shall be the same for all three objects. The character string **xxxGabc123456Sxxx** shall be transmitted.

The settings for each **<Extern Text: variable length>** object looks as follows:

Object 1:

Wildcards:	**XXXXXXX**	7 wildcards
Offset:	**2**	2 offset
Sum of wildcards and offset:	**9**	
Start symbol:	G	
End symbol:	S	

Object 2:

Wildcards:	**YYYYY**	5 wildcards
Offset:	**1**	1 offset
Sum of wildcards and offset:	**6**	
Start symbol:	G	
End symbol:	S	

Object 3:

Wildcards:	**ZZZ**	3 wildcard
Offset:	**6**	6 offset
Sum of wildcards and offset:	**9**	
Start symbol:	G	
End symbol:	S	

The input buffer in this example has the size of 9 characters because the largest sum of wildcards and offset is 9.

Beside the input buffer there is also a display buffer. The content of the display buffer is what you see in the print preview of the main window of the JET3 printer.

There are the following rules regarding the input and the display buffer:

1. The filling of the input buffer starts with each <**Start symbol**> received.
2. The filling of the input buffer stops with the first respective <**End symbol**> received.
3. If the number of the characters received between <**Start symbol**> and <**End symbol**>exceeds the size of the input buffer all excess characters will be discarded.
4. If the number of the received characters between <**Start symbol**> and <**End symbol**> is smaller than the size of the input buffer the input buffer will only be filled with the received characters.
5. With a valid <**End symbol**> received the current content of the input buffer is transferred to the display buffer.
6. The print-out always reflects the content of the display buffer (what you see is what you get printed).
7. The input buffer is emptied as soon as its content is transferred to the display buffer. The filling starts again with the next <**Start symbol**> received.

The current display buffer will be printed with each PrintGo signal received unless you have selected the <**Check Double Prints**> option.

With the <**Check Double Prints**> option activated you will receive an error message when a PrintGo signal occurs before a new character string was received. So it is granted that each character string is only printed once.

The following tables show the data transmission, the buffer contents and the print-outs. They also show how the settings for the <**wildcards**> and the <**offset**> affect the displayed characters and therefor the print-out.

The external data can be sent with any terminal software like e.g. Hyperterminal. You have to make sure that the serial interface parameters of the terminal software correspond with the parameters of the JET3 interface.

Deleting the input buffer

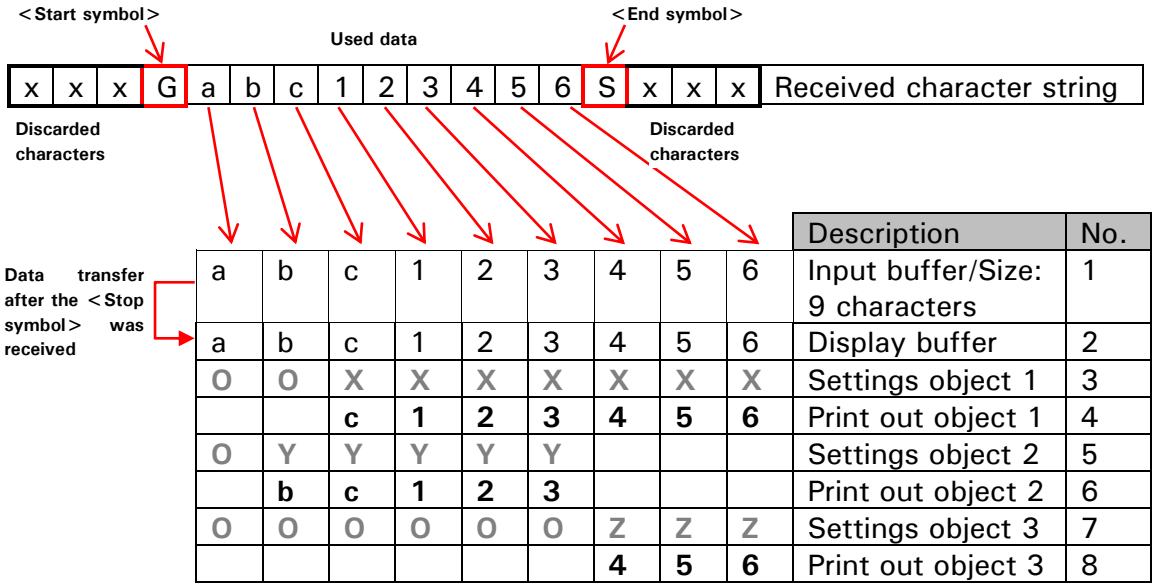
The current content of the input buffer can be deleted at any time. For this you can use the respective option in the drop-down menu **<Extra>:**

<Extra>-<Production counter>-<ExternText Delete extern text memory>

Deleting the input buffer

After the input buffer was deleted it has to be filled up again completely with data. Only then the data will be transferred to the display buffer in order to be printed.

Tables for the example



The following table shows the explanations for each step and setting.

No.	Explanation
1	The filling of the input buffer starts with the receiving of the **<Start symbol> G**.
2	As soon as the **<End symbol> S** is received the data stored in the input buffer is transferred to the display buffer.
3	Settings for object 1: 2 **O**ffset and 7 wildcards **X**.
4	WYSIWYG display content and printout of object 1.
5	Settings for object 2: 1 **O**ffset and 5 wildcards **Y**.
6	WYSIWYG display content and printout of object 2.
7	Settings for object 3: 6 **O**ffset and 3 wildcards **Z**.
8	WYSIWYG display content and printout of object 3.

8.7.5.3 Extern Text Mailing

8.7.5.3.1 Extern Text Mailing – Creating a data file

See figure 165

To create a data file for the <**Mailing**> function the JET3_Mailing-File-Converter software application is needed. This software application standardizes *.txt formatted files and converts them into *.ljd formatted data files for the JET3 printer. You can create the source file either with spread sheet software **(1)** or a text editor **(2)**. The file needs a .txt file extension **(3)**. The text file with the data has to be of a special format. Each line of the file holds one data set **(4)** and the fields of each data set **(5)** are separated by tabs **(6)**.

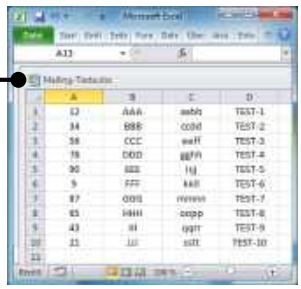
This source file has to be standardized for JET3 Printer using the JET3_Mailing-File-Converter software application **(7)**. Firstly you have to open the text file with the converter software **(8)**. The software provides information about the data structure of the source file like the number of the records **(9)**, the number of the fields **(10)** within a record and the length of each field **(11)**. Pressing the <**Standardize**> button **(12)** will start the converting process. You can finish the software without saving by pressing the <**Close**> button **(13)**.You will have to save the converted file on an USB stick. During the saving procedure the software offers several options for adjustments **(14)**.

INFORMATION

Please see the manual of the software application for further details.

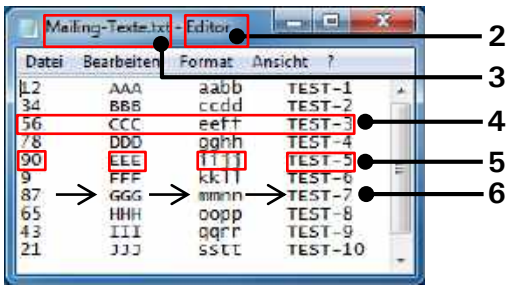
You will need an USB stick with a folder named LJ3 in the root directory **(15)**. If this folder does not already exist you will have to create one. The standardized *.ljd file has to be saved in that folder **(16)**.

Figure 165 Extern Text Mailing – Creating a data file

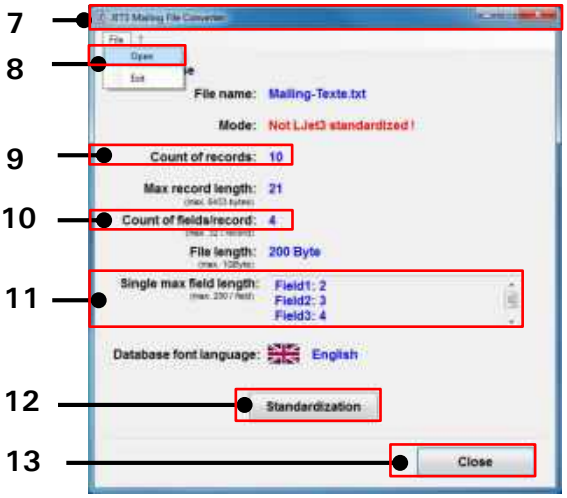


Spreadsheet: export to tab separated *.txt file

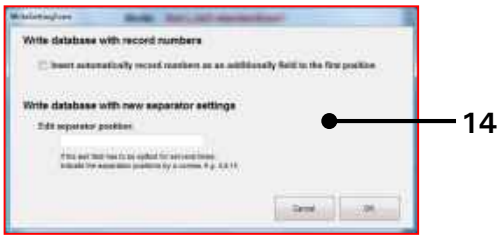
Export



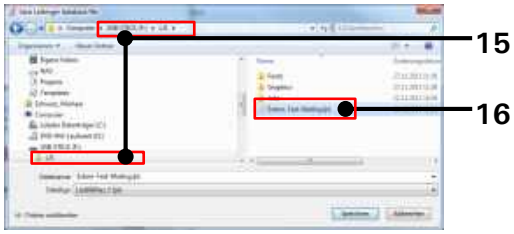
Text editor: create a tab separated *.txt file



JET3 Mailing File Converter user interface. File loaded.



Available options during the saving procedure.



Save-as dialog box of the JET3 Mailing File Converter.

1 – Spreadsheet software
2 – Text editor software
3 – File format *.txt
4 – Data set
5 – Data fields
6 – Tabulator separators
7 – JET3 Mailing file converter
8 – Option <**Open**> file open dialog
9 – Number of data sets
10 – Number of fields per record
11 – Field length of each field
12 – <**Standardization**> button
13 – <**Close**> button
14 – Database options
15 – LJ3 folder in root directory
16 – Saved *.ljd file

8.7.5.3.2 Extern Text Mailing – Database settings

See figure 166

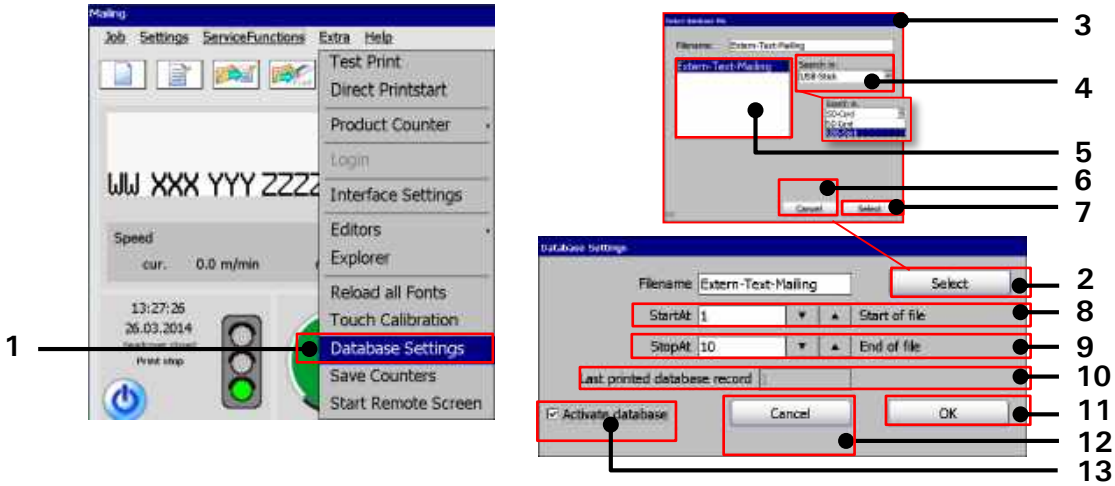
Firstly you have to connect the USB stick to the USB port of the JET3 printer. In the next step you will have to set the parameter for the database. The database settings are an option of the <**Extra**> drop-down menu **(1)**.

Pressing the <**Select**> button of the dialog box **(2)** will open an <**Open File**> dialog box **(3)**. Selecting "USB" from the drop-down list **(4)** will show the *.ljd files on the USB stick **(5)**.

Choose the requested file and confirm with the <**Select**> button **(7)**. You can leave this dialog box without any changes by pressing the <**Cancel**> button **(6)**.
Now some basic information of the loaded data file is shown in the database settings dialog box. There are display fields which show the number of the first **(8)** and the last record **(9)** and the number of the last printed record **(10)**.

You will have to check off the checkbox <**Activate database**> **(13)** before you can leave the dialog box with the <**OK**> button **(11)** to confirm the settings. You can leave the dialog box without changes by pressing the <**Cancel**> button **(12)**.

Figure 166 Extern Text Mailing – Database settings



1 – Option <**Database Settings**>
2 – <**Select**> button
3 – <**Open File**> dialog box
4 – Drop-down menu file source
5 – File list
6 – <**Cancel**> button
7 – <**Select**> button
8 – Number of first data set
9 – Number of last data set
10 – Number of last printed data set
11 – <**OK**> button
12 – <**Cancel**> button
13 – Checkbox <**Activate database**>

8.7.5.3.3 Extern Text Mailing – Object creation and properties

See figure 167

Basically a <**Mailing**> object is a special kind of <**Extern Text**> object.

INFORMATION

Please see **chapter *Extern Text: fixed length –Object creation and properties*** for details about how to create an object and enter the global settings for an object.

To create a <**Mailing**> object you will have to select this option in the <**Object settings**> dialog box on the <**Extern Text**> tab **(1)**. After selecting the <**Mailing**> option **(6)** from the drop-down list <**Type**> the <**Mailing object**> parameters are shown on the tab.

Wildcards

There is a display field which shows the current number of wildcards **(3)**. This parameter can either be changed by using the arrow keys **(7)** or with the numeric keypad that will be displayed when you click in the display field **(3)**.

Wildcards are used to determine the number of characters from the content of the defined field **(5)** that shall be used. The used character (e.g. "X") will be displayed in the editor as long as there are no data loaded from the data file. As soon as the first data set is loaded from the data file the wildcard characters will be replaced by these data.

Example <Wildcards>:

Set wildcards:

X			

Display in the print preview of the main window as long as there were no data loaded:

X

Data in field 1

A	**B**	**C**	**D**

Display of the loaded data in the print preview of the main window:

A

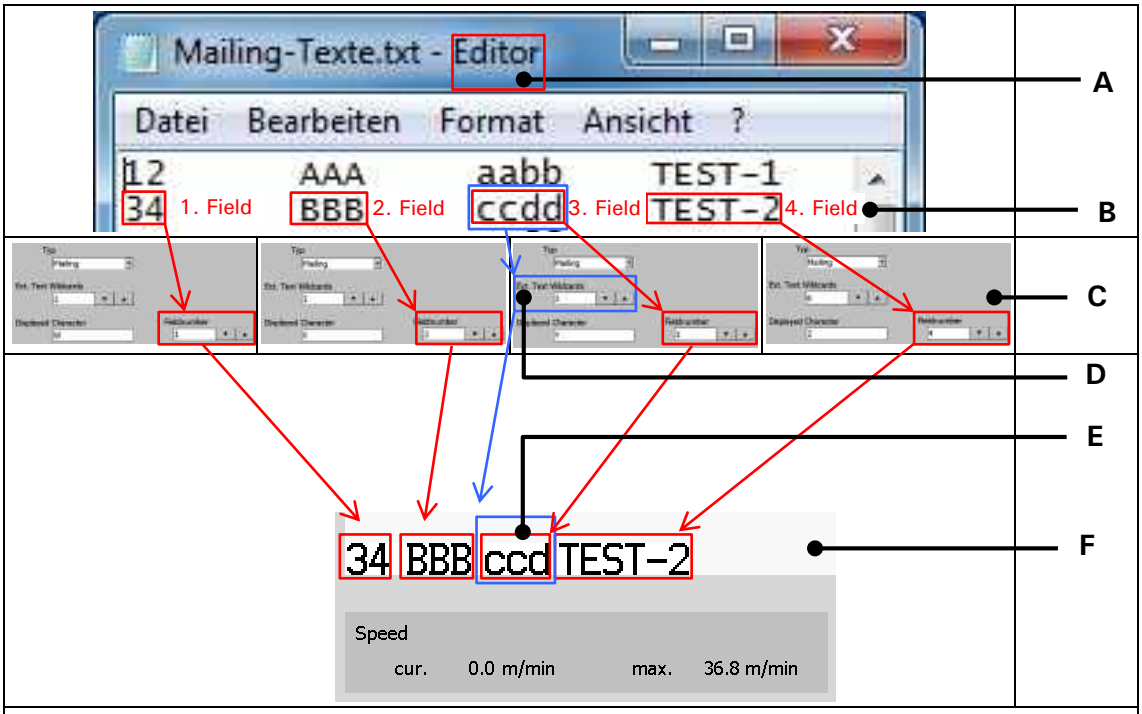
Result

Due to the set wildcards only the first characters of the data in field 1 are took into account.

Fieldnumber

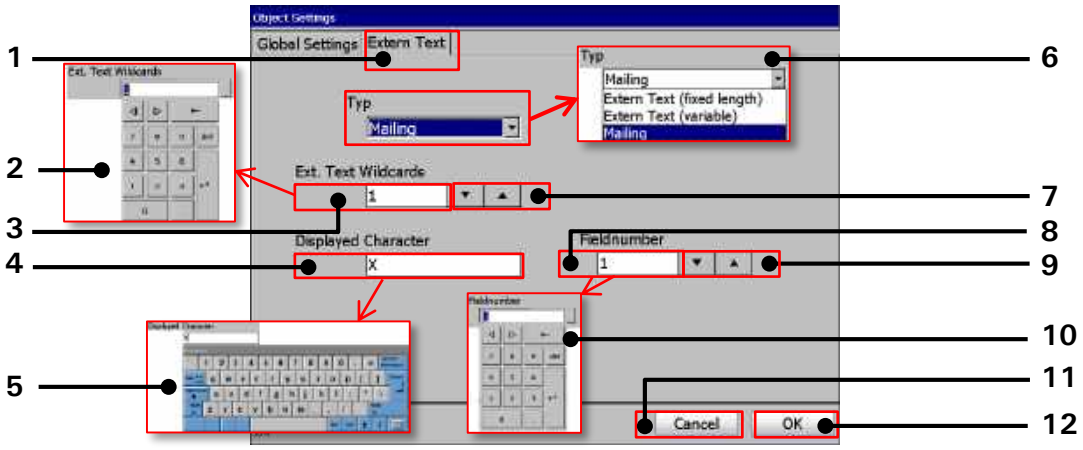
With the parameter <**Fieldnumber**> **(5)** you assign the data field to the <**Mailing**> object. The current content of the specified data field will be printed. You can enter the parameter either with the arrow keys **(8)** or the numeric keypad **(9)** which is displayed when you click in the display field.

Expample <Fieldnumber>



A – Text editor with *.txt file
B – Data set with four fields
C – Field assignment to <**Mail**> objects
D – Three wildcards for a field with four characters
E – Assigned <**Mail**> object shows only the first three characters because of the set wildcards for this object
F – JET3 print preview showing four <**Mailing**> objects

Figure 167 Extern Text Mailing – Mailing object settings



1 – Tab <**Extern Text**>
2 – Number keypad <**Wildcards**>
3 – Display field < **Wildcards**>
4 – Display field <**Displayed Character**>
5 – Keyboard <**Displayed Character**>
6 – Drop down list <**Typ**>
7 – Arrow keys <**Wildcards**>
8 – Display field <**Field number**>
9 – Arrow keys <**Field number**>
10 – Number keypad <**Field number**>
11 – <**Cancel**> button
12 – <**OK**> button

8.7.5.3.4 Mailing – Print out

See figure 168

If there are <**Mailing**> objects in the current print job you will see the placeholders in the print preview of the main window **(1)** as long as there was no print-out. If you press the green <**Print Start**> button **(2)** the database settings dialog box will be displayed **(3)**.

You can identify the data set the last print-out made was from **(6)** and you can set from which data sets shall be printed by defining the first record to be printed **(4)** and the last one **(5)**.

It is possible to print fields from already printed data sets once again. That means the setting in the <**StartAt**> display field **(4)** do not depend on the <**Last printed database record**> **(5)**.

You can confirm the settings by pressing the <**OK**> button **(7)**. Pressing the <**Cancel**> button **(8)** will close the dialog box without any changes and the red <**Print Stop**> button **(9)** will remain switched on.

If the settings are confirmed the dialog box will close and the <**Print Start**> button will switch on **(11)**. You will see the content of the fields of the first data set selected for print-out in the print preview of the main window **(10)**. With the next PrintGo signal the first data set will be printed. With each following PrintGo signal the respectively next data set is printed.

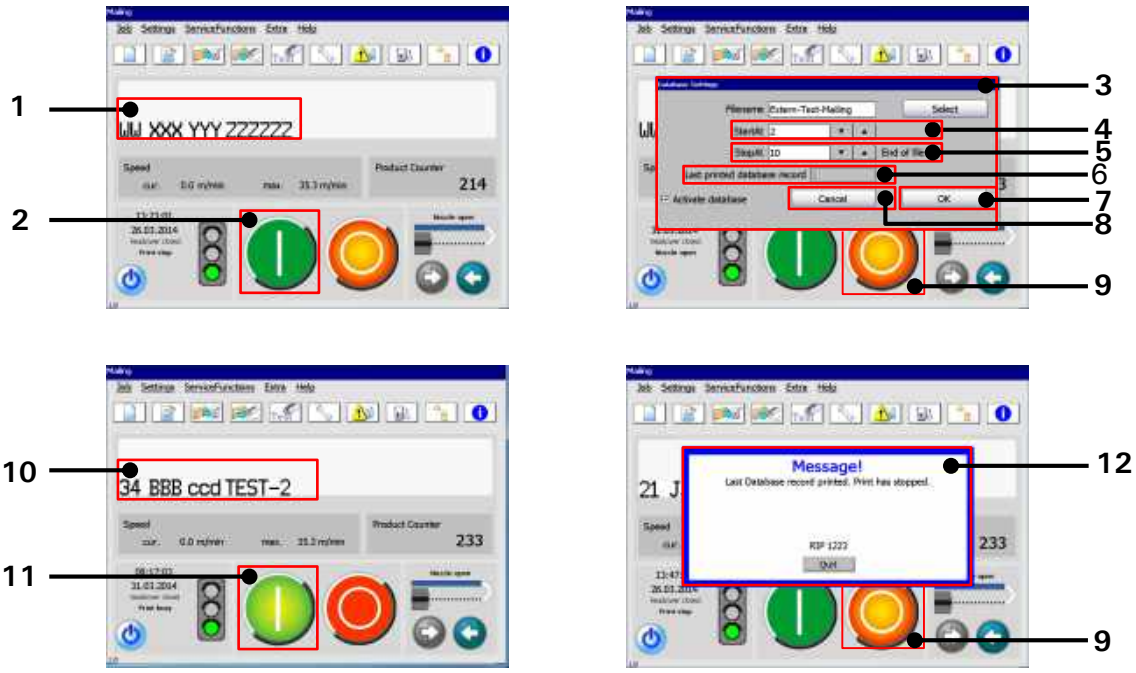
Which field of a data set is printed has to be defined in the object settings of the <**Mailing**> object. Each field to be printed has to be assigned to a <**Mailing**> Object. You can only assign one filed of a data set to one <**Mailing**> object. With the parameter <**Wildcard**> you can define how many character of one field shall be used. The parameter indicates the number of used characters on the basis of a left-to right reading direction.

INFORMATION

With the <**Wildcard**> settings. See <**Example – Field number**> and **Figure 166** for details.

If a PrintGo signal is received after the last data set was printed an error message will be displayed **(12)**. The message has to confirmed and the printer is set to <**Print Stop**> **(9)**.
For a new printing sequence you will have to press the green <**Print Start**> **(2)** button again and specify the data sets to be printed.

Figure 168 Extern Text Mailing – Print out



1 – <**Wildcards**> for <**Mailing**> objects
2 – <**Print start**> button
3 – <**Data base settings**> dialog box
4 – Number of first data set
5 – Number of last data set
6 – Number of last printed data set
7 – <**OK**> button
8 – <**Cancel**> button
9 – <**Print start**> button
10 – Preview of the used data fields
11 – Activated <**Print stop**> button
12 – Message box <Last database record printed>

8.8 Replacements

The <**Replacements**> **function** LEIBINGER JET3 offers the possibility to exchange date- and time specifications as well as counters by replacements (figures, letters or designations). Thereby you can get an application-specific display or coding of the information. The definitions of the replacements are carried out on the respective <**Replacements**> tab of the corresponding dialog box. The available options on the tab depend on the kind of printing element to be replaced.

INFORMATION

Replacements can be carried out for date and time specifications as well as for counters or counters which are integrated in barcodes.
The settings are only valid for the selected printing element! Therefore it is possible to apply different replacements to different counters or time/date objects within a job.

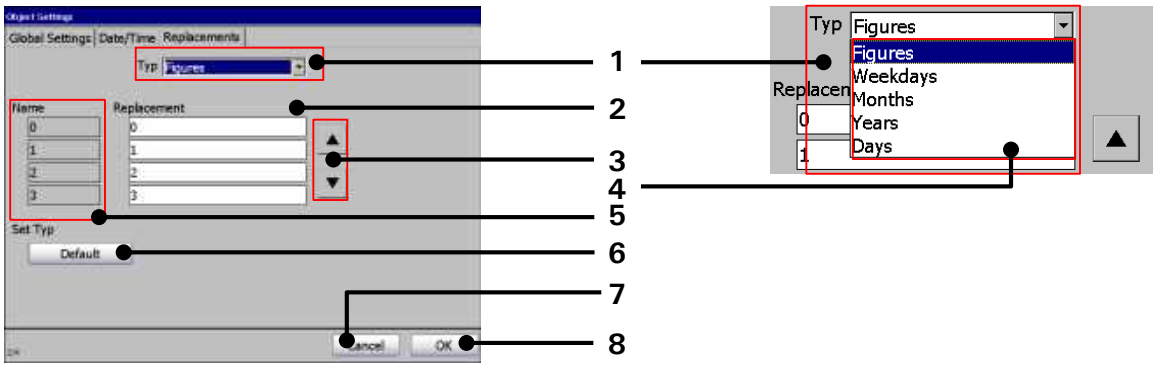
- On the drop down list <**Type**> (1) you can select the element type for which replacements should be generated.
- Depending on the selected print object there are different kinds of element types available (2).
- In the display fields <**Replacement**> (2) the defined replacements are displayed for the selected element type.
- Using the <**Scroll**> buttons (3) you can scroll through the display fields <**Replacements**>.
- On left side there is the list with the original settings for the selected element type (5).
- With the button <**Default**> (6) you can reset the definitions of the replacements to the standard values.

IMPORTANT

The resetting of the replacements has only effects on the selected printing element!
The replacement function is always active and therefore the default settings are active as long as there are no customized settings!
E.g. the default replacement setting for the <**Months**> element is 1=01, 2=02, 3=03, 4=04 etc. That means that checking off the <**left-hand-zeros**> checkbox in the date/time tab of the objects settings wouldn't have an effect on the display of the <**Months**> element as long as the replacement settings weren't changed to 1=1, 2=2, 3=3, 4=4 etc.

- With the button <OK> (8) you can confirm changes and close the dialog box.
- The button <Cancel> (7) closes the dialog box without saving changes.

Figure 169 Job editor (tab replacements)



1 – Drop-down list <Type>
2 – Display fields <Replacement>
3 – Buttons <Scroll>
4 – Available types
5 – Original setting
6 – Button <Default>
7 – Button <Cancel>
8 – Button <OK>

8.8.1 Carry out replacements

Proceeding:

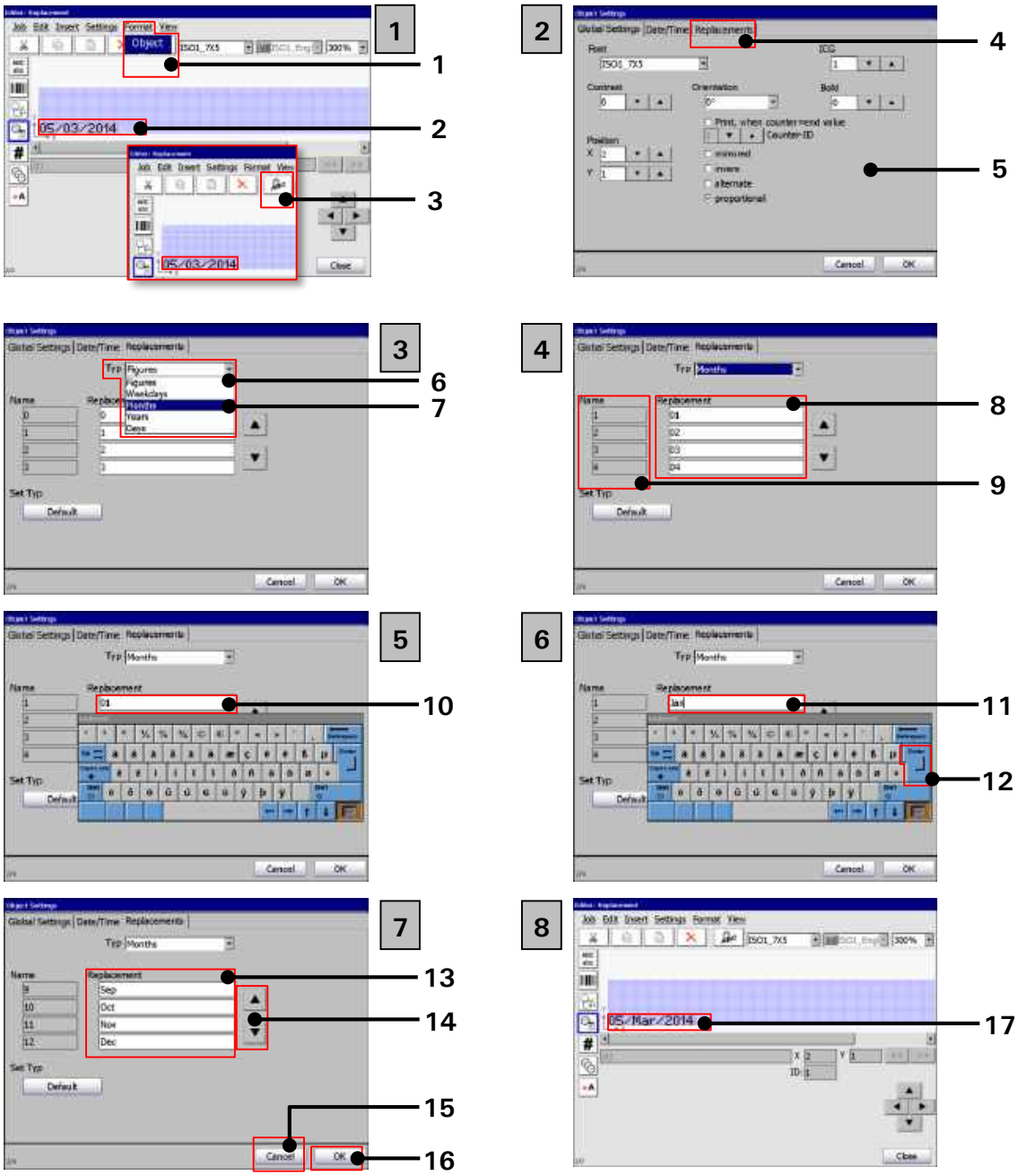
Example 1: The default month specifications of a date object (1 = 01; 2 = 02, ... 7 = 07, etc.) should be replaced by short names (1 = JAN, 2 = FEBR ... 7 = JUL....).

- Select the date object in the editing window of the job editor (2).
- First select <**Format**> (1) from the menu bar and then <**Object**> (2) from the drop down menu. Alternatively you can use the respective direct button (3) to open the object settings dialog box.
- The dialog box <**Object Settings (Date/Time)**> (5) opens.
- Select the <**Replacements**> tab (4)
- Select the element type „Months“ (7) from the <Type> drop down list (6).
- Each element in the <**Name**> list (9) has a corresponding input field in the <**Replacement**> field list (8). By setting the cursor into one of the input fields a virtual keyboard opens (10). Enter the required replacements for each element (1 = JAN, 2 = FEBR.....7 = JUL....etc.) (11).
- Confirm each input with the <**Enter**> button (12) of the keyboard.
- Fill-in each required replacement in the <**Replacements**> field list (13). Run through the list by using the scroll buttons (14).
- Confirm all changes and close the dialog box with the <**OK**> button (16). Use the <**Cancel**> button (15) to leave the dialog box without saving.
- All changes are displayed in the editing window of the <**Job editor**> (17).

INFORMATION

You will find further information about the usage of the keyboard in **chapter *Keyboard***!

Figure 170 Carry out replacements 1



1 – Menu item <Format>-<Object>
2 – Original date object
3 – Direct button <Object settings>
4 – Tab <Replacements>
5 – Dialog box <Object settings>
6 – Drop down list <Type>
7 – List item <Months>
8 – Setting fields <Replacement>
9 – Original element designations
10 – Open keyboard
11 – Change settings
12 – Confirm settings with <Enter>
13 – Filled-in replacement fields
14 – Use scroll buttons
15 – Button <Cancel>
16 – Button <OK>
17 – Changed date object

Proceeding:

Example 2: *The actual counter reading of a counter object should be replaced with code. For this each figure of the counter reading is replaced by another figure. The following table shows the coding and an example.*

Code Table

Orig. figure	*Coded figure*	*Orig. figure*	*Coded figure*
1	*0*	*6*	*5*
2	*9*	*7*	*4*
3	*8*	*8*	*3*
4	*7*	*9*	*2*
5	*6*	*0*	*1*

Examples

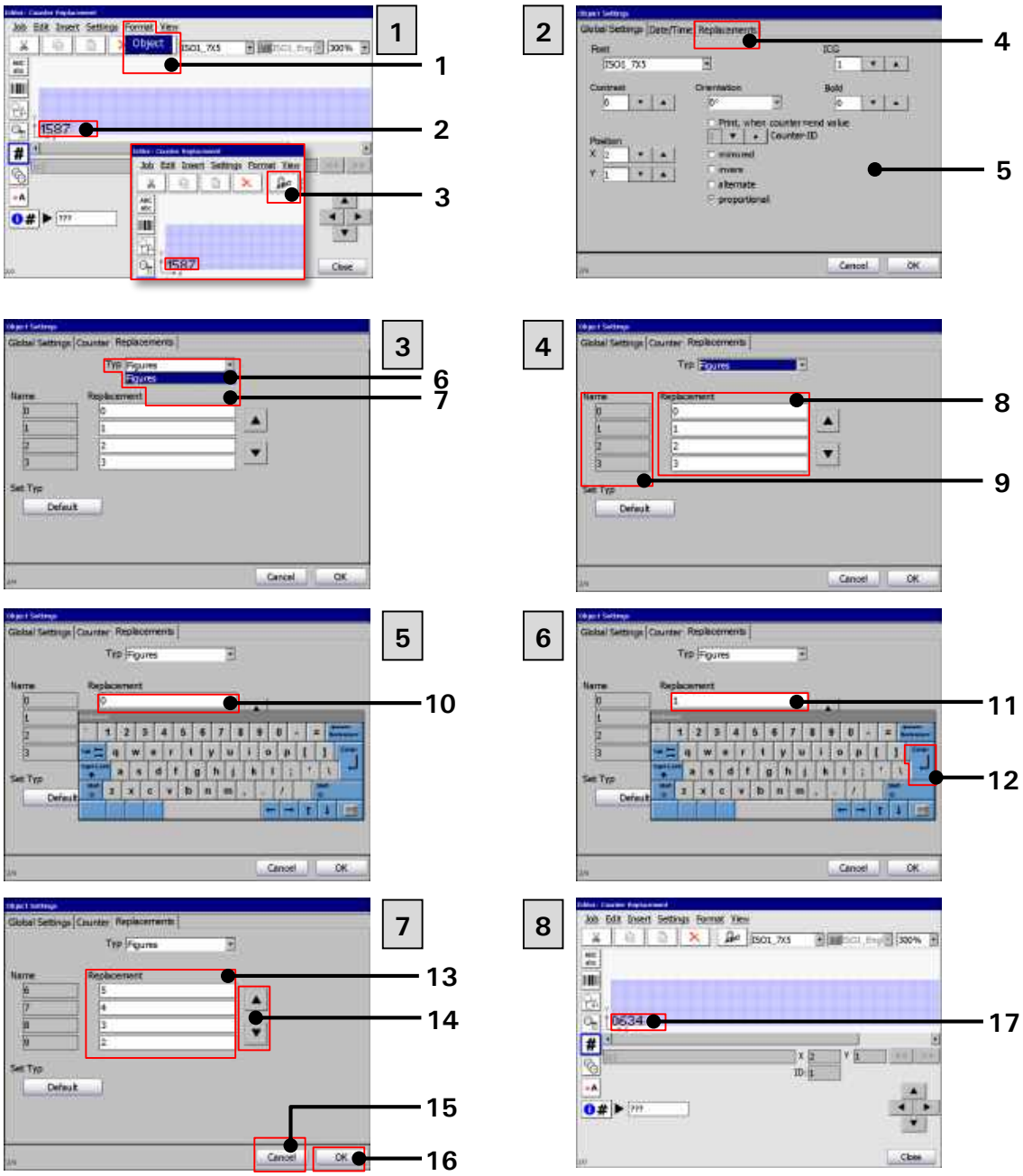
Orig. figure	*1587*				
Coding		*1*	=	*0*	
		5	=	*6*	
		8	=	*3*	
		7	=	*4*	
Coded figure					*0634*

- Select the counter object in the editing window of the job editor (2).
- First select <**Format**> (1) from the menu bar and then <**Object**> (2) from the drop down menu. Alternatively you can use the respective direct button (3) to open the object settings dialog box.
- The dialog box <**Object Settings (Date/Time)**> (5) opens.
- Select the <**Replacements**> tab (4)
- Select the element type „Figures“ (7) from the <**Type**> drop down list (6).
- Each element in the <**Name**> list (9) has a corresponding input field in the <**Replacement**> field list (8). By setting the cursor into one of the input fields a virtual keyboard opens (10). Enter the required replacements for each element (1 = 0, 2 = 9.....7 = 4....etc.) (11).
- Confirm each input with the <**Enter**> button (12) of the keyboard.
- Fill-in each required replacement in the <**Replacement**> field list (13). Run through the list by using the scroll buttons (14).
- Confirm all changes and close the dialog box with the <**OK**> button (16). Use the <**Cancel**> button (15) to leave the dialog box without saving.
- All changes are displayed in the editing window of the <**Job editor**> (17).

INFORMATION

You will find further information about the usage of the keyboard in chapter ***Keyboard***!

Figure 171 Carry out replacements 2



1 – Menu item <Format>-<Object>
2 – Original counter object
3 – Direct button <Object settings>
4 – Tab <Replacements>
5 – Dialog box <Object settings>
6 – Drop down list <Type>
7 – List item <Figures>
8 – Setting fields <Replacement>
9 – Original element designations
10 – Open keyboard
11 – Change settings
12 – Confirm settings with <Enter>
13 – Filled-in replacement fields
14 – Use scroll buttons
15 – Button <Cancel>
16 – Button <OK>
17 – Changed counter object

9. Disorder/Trouble shooting

9.1 General

Tthe error diagnosis provides a useful tool for the operating staff for removing minor defects. In case these measures do not lead to an appropriate result please contact the service department or a service technician of your dealer.

WARNING

Dangerous material in the machine!

- Danger of serious damage through burns, skin irriation and poisoning!
- Protective equipment is necessary! Read the safety data sheets and the personal protective equipment rules and regulations!

9.2 Display of device messages

The LEIBINGER JET3 generates two kinds of device messages. The warning messages and the error messages.

Warning messages: Shows a critical device condition which requires an intervention of the operating staff in the foreseeable future. Warning messages are e.g. refill messages.

The messages are displayed with the text „Warning“ and an orange frame. It contains a warning text in clear text, the necessary operator action and if necessary the display of the remaining <balance time> (2) until the condition causes a shutdown.

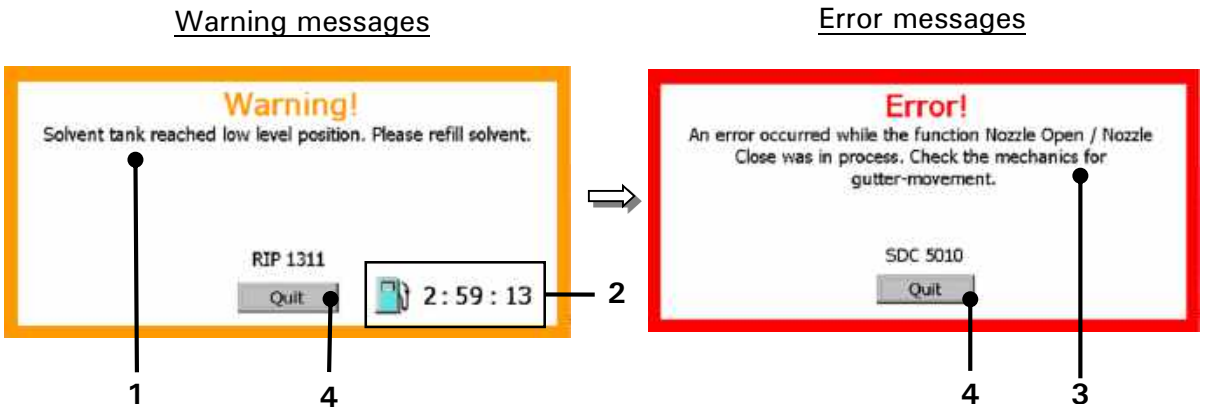
The confirmation of the message happens by pressing the button **<Quit>**.

Error messages: Shows a condition which requires an immediate intervention of the operating staff.

The messages are displayed with the text „error“ and with a red frame. It contains an error text in clear text and a possible troubleshooting.

The confirmation of the message happens by pressing the button **<Quit>**.

Figure 172 Device messages



Device messages

1 – Warning text
2 – Count down timer
3 – Error text
4 – Button <Quit>

9.3 Error messages

Error no.	Error message	Reason of failure	Workaround
5000	Charging electrode is dirty	Charging electrode is dirty.	Clean charging electrode
5001	Phasing error	Charging electrode is dirty.	Clean charging electrode
5002	Error of drop control	Charging electrode is dirty. Wrong frequency has been set. Oscillator is defect.	Clean charging electrode Change frequency Exchange oscillator
5003	Error of oscillator voltage	Bad drop control point. Charging electrode is dirty. Wrong frequency has been set. Oscillator is defect.	Clean charging electrode Change frequency Exchange oscillator
5020	HV-current too high. Please check deflection plates for dirt or damp-ness.	Dirt at the deflection plates. Dampness at the deflection plates.	Clean deflection plates Dry deflection plates

Error no.	Error message	Reason of failure	Workaround
5060	Overload of the charging voltage amplifier.	Overload of charging voltate amplifier.	Clean charging electrode
1309	Ink return monitoring		
1308	Failure of compression. Please check compressors and all connections.	The compressor could not set the compression within 120 sec.	Check pneum. connections for leakages. Check compressor and if necessary exchange it.
1307	Ink delivery is faulty. Please check pump and all connections.	Main pump could not place the membrane to the central position within 2,5 sec. during the normal operation. Air in the system. Leakage. Bleeding valve does not close correctly. Main pump is defect electrically. Main pump is defect mechanically.	Activate function permanent bleeding for some minutes. Check for leakage Check bleeding valve and if necessary replace it. Check main pump and if necessary replace it.
1312	Leakage in hydraulic has been found. Please check immediately.	Leakage sensor at the cabinet bottom reports liquid.	Check system for liquid and repair. Check leakage sensor for dirt and if necessary clean it.
5030	Stroke-Go error	During a stroke has been generated, the next stroke output has been already initiated.	Reduce production speed. Increase font width. Use other printing mode (high speed mode). Reduce height of total printing image (Reduce amount of dots).
5050	Print-Go distance error	The printing distance (PG-distance) which is specified in the job editor between two prints is smaller than the print.	Reduce font width. Increase the PG-distance value.
5051	Print-Go error	During a print the next PrintGo-signal has been already received.	Reduce font width. Check signal encoder (sensor). Check signal encoder for multi-identification during a print. Enlarge product distance.

10. Equipping/Maintenance

10.1 Equipping

WARNING

Danger of explosion!

- Before filling the device with the consumables, measures for the electrostatic discharge have to be made!

The operator can carry out a discharge either by the direct touching of the LJ3-cabinet or by standing with the appropriate ESD-shoes on an grounded surface!

WARNING

Dangerous material in the machine!

- Danger of serious damage through burns, skin irriation and poisoning!
- Protective equipment is necessary! Read the safety data sheets and the personal protective equipment rules and regulations!

10.1.1 Refilling of ink and solvent

The storage containers for ink and solvent are installed beneath the cover flap of the refill unit *(see illustration below).*

The two reservoir tanks are monitored by level sensors. They are always unpressurized and can be opened in every device condition – also during the production.

The reservoir tanks and the sealing cap are color-coded and labelled to avoid any mistakes in filling. Additionally the sealing caps are marked with the ink-no. or solvent-no. which are admissible for the device.

For correct handling the LEIBINGER re-filling system allows an odor- and splash free refilling of the consumables.

ATTENTION

The reservoir tanks should be not overfilled, that means a re-filling should be only carried out if a certain message has been generated by the printer!

Proceeding

(Example: Re-filling of solvent)




WARNING

Risk of fire and injury! Absolutely observe!

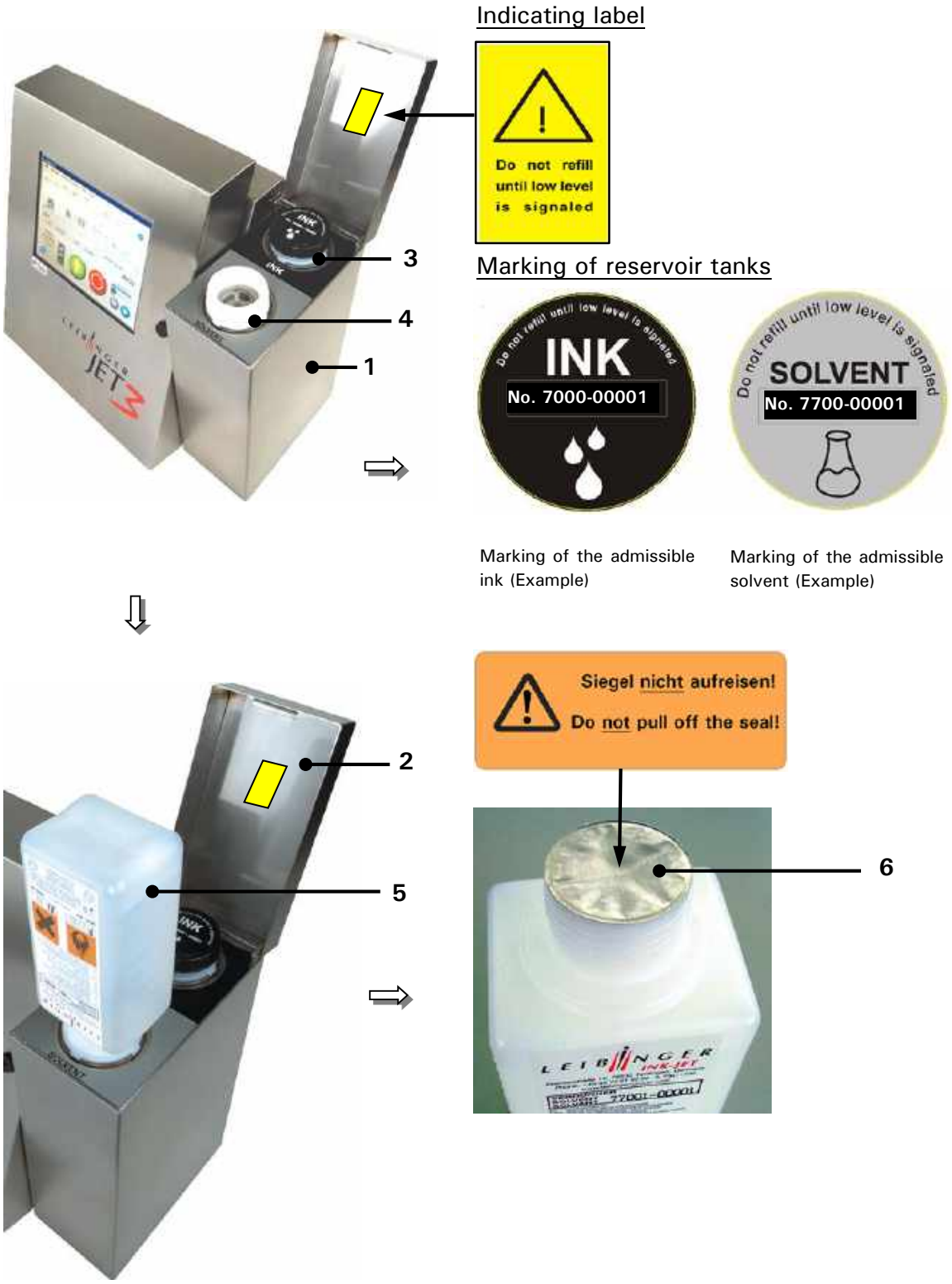
- Before filling the device with the consumables, measures for the electrostatic discharge have to be made!
- Highly flammable! Burning gases and liquids may cause severe burns. Keep sources of ignition away from the printer!
- Always statically discharge the printer and yourself before filling the reservoirs! Simply touch the housing of the printer to discharge the equipment and stand on a grounded surface wearing ESD shoes during filling!
- Protective equipment is necessary! Read the safety data sheets and the personal protective equipment rules and regulations!

ATTENTION

The sealing of the refill bottle **should be not opened**!

- Open the cap (2) of the re-filling unit (1).
- Open the screw cap of the solvent tank (4) and of the re-filling bottle (5).
- Put the re-filling bottle on the solvent tank. The seal of the bottle will be breached and the closing valve of the tank will open automatically and the reservoir tank is filled up.
- Wait until the re-filling bottle is completely empty.

Figure 173 Reservoir tank and re-filling process



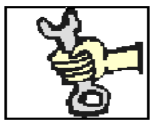
1 – Re-filling unit
2 – Cap (cover flap)
3 – Reservoir tank „Ink“
4 – Reservoir tank „Solvent“
5 – Re-filling bottle „Solvent “
6 – Seal of re-filling bottle

- Take out the empty re-filling bottle. The closing valve of the reservoir tank will be closed automatically.
- Finally screw off the sealing cap of the reservoir tank as well as the empty refill bottle carefully.

ATTENTION

After filling the containers (reservoir tanks) as well as the empty refill bottles, they have to be closed carefully again

10.2 Service/Maintenance



DANGER

Dangerous voltage exists in the print head!

- After opening the head cover and turning on the „safety contact bypass“ on the head, arbitrarly dangerous voltage occurs.
- Only authorized staff or Leibinger service technicians can work under voltage!

WARNING

Risk of fire and injury!

- Inflammable! Combustible gases and liquids cause serious burns. Sources of ignition must be kept away from the print head!
- Ink escapes from the head aperture. Spraying of ink into the eyes can cause blindness. Eye protection is necessary!
- Upon contact the contents causes skin irritation. Protective equipment is necessary!
- Read the safety data sheets and the personal protective equipment rules and regulations!

10.2.1 Daily servicing work

The daily servicing work includes the checking of the print head and in particular of the deflector unit, the charging electrode as well as of the guides for dirt. If necessary the components must be cleaned as described in the chapter **Cleaning**.

10.2.2 Weekly servicing work

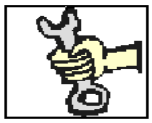
The weekly servicing work includes the checking of the spindles and of the guides of the nozzle seal for dirt. If necessary the components must be cleaned as described in the chapter ***Cleaning***.

SERVICE WORK

This work must only be carried out by trained personnel or by Leibinger service technicians!

10.2.3 Anual servicing work

The manufacturer recommends a regular servicing interval of 6–12 months.



SERVICE WORK

This work must only be carried out by trained personnel or by Leibinger service technicians!

10.2.4 Other servicing work

10.2.4.1 Replacement of the battery

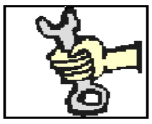
DANGER

Dangerous voltage!

Contact causes serious damage through an electric shock! Disconnect the device from the mains supply prior to opening. Remove mains plug!

CAUTION – RISK OF EXPLOSION

Risk of explosion in the event of incorrect replacement of the battery. Replace only with an identical battery or with an equal value battery type in accordance with the recommendations of the manufacturer! The instructions of the battery manufacturer must be observed when disposing of the battery!



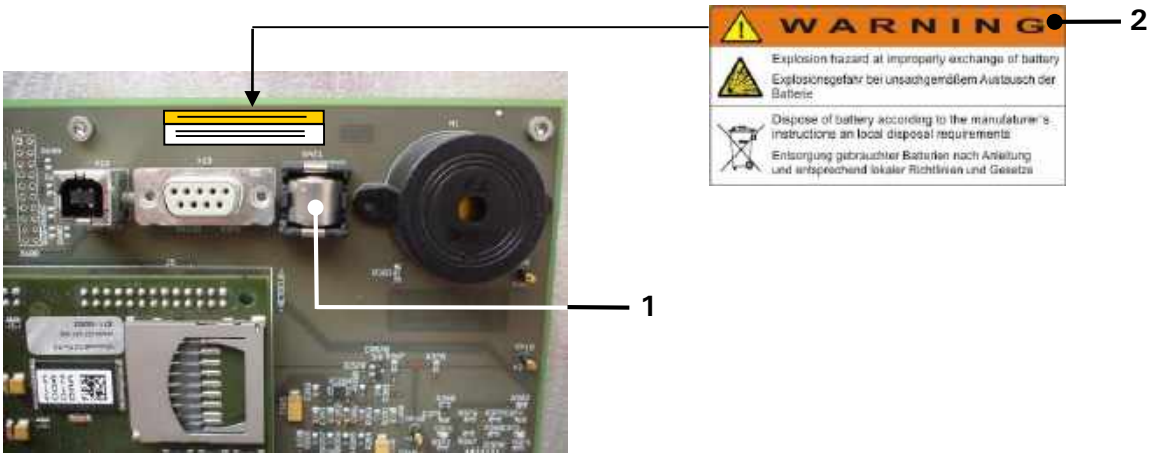
REPLACEMENT OF BATTERY

This work must only be carried out by trained personnel or by Leibinger service technicians!

The battery is situated in the electronics housing on the controller board. If necessary the battery must be replaced. For the change of the battery you have to observe the following **safety- and disposal instructions** as well as the **disposal directions** and the **disposal directions of the battery manufacturer**!

Safety- and disposal instructions		
1. 2. 3. 4.	Please only replace with the same battery or with a comparable type of battery according to the recommendation of the manufacturer! Pay attention to the correct polarity (+/-)! Do not throw battery into fire! Do not load battery again!	Danger of explosion
5.	Do not use conductive tools to change the battery!	Danger of short circuit
6. 7.	Do not open battery! Do not dispose battery in the household garbage!	 Li

Figure 174 Replacement of the battery



1 – Battery, lithium, 3.2 VDC (54-003 032 KA) 2 – Safety indication

10.2.4.2 Pressure regulator valve (ext. print head ventilation (opt. equip.))

Resulting condensate must be emptied at regular intervals and the cartridge cleaned.

10.3 Cleaning

10.3.1 Cleaning the print head

DANGER

Dangerous voltage!

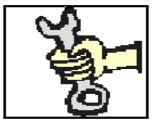
Contact causes serious damage through an electric shock! Disconnect the device from the mains supply prior to opening. Remove mains plug!

WARNING

Risk of fire and injury!

- Inflammable! Combustible gases and liquids cause serious burns. Sources of ignition must be kept away from the print head!
- Ink escapes from the head aperture. Spraying of ink into the eyes can cause blindness. Eye protection is necessary!
- Upon contact the contents causes skin irritation. Protective equipment is necessary!
- Read the safety data sheets and the personal protective equipment rules and regulations!

The print head must be checked daily and cleaned in the event of recognisable dirt through penetrating dust or ink. In this respect high release of solvent vapours should be avoided through the economical use of Leibinger solvent (corresponding to the Leibinger ink). This is achieved through applying the Leibinger solvent to fluff-free paper with the spray bottle and wiping off the parts to be cleaned with this. Direct spraying off of the print head with solvent should only be carried out with very major dirt and should be limited to the front part of the print head. Following intensive cleaning the nozzle seal must be lubricated with a commercially available oil (spindle and guide). **Oil must not get into the gutter (back absorption)!** Solvent dropping down must be collected using a solvent resistant metal vessel and disposed of properly.



SERVICE WORK

This work must only be carried out by trained personnel or by Leibinger service technicians!

10.3.2 Grounding regulation for print head cleaning

For technical reasons the ink of a continuous ink jet printer is charged with high voltage during the printing process. In case of inappropriate handling the static charged ink may be an ignition source. In combination with flammable ink and solvent this could pose a fire or explosion hazard.

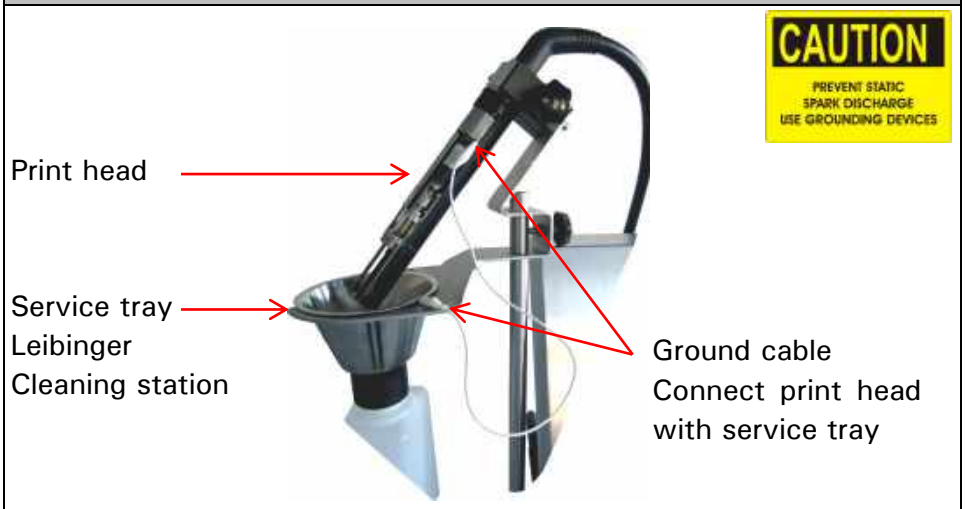
Without any safety measures the ink in the service tray may be charged up during cleaning work. In order to avoid this critical situation the print head and the service tray have to be connected with a ground cable. In case of using a service tray made of plastic material it would be possible to place a metal foil in the service tray and connect the ground cable to that foil.

Fire hazard

Explosion hazard

Electrostatic-sens. device

Discharging the ink into a service tray



Fire hazard

Explosion hazard

Electrostatic-sens. device

Cleaning the print head

11. Taking out of operation/Dismantling

11.1 Taking out of operation

The ink and solvent which still remains in the high performance printer have to be removed. For this a special draining routine is available.

INFORMATION

You will find further information regarding the procedure of draining in the **chapter *Draining routine***!

WARNING

Dangerous material in the machine!

Protective equipment is necessary! Read the safety data sheets and the personal protective equipment rules and regulations!

Now the high performance printer has to be turned off and disconnected from the mains supply. Further more you have to disconnect possible connected additional devices. You will find the capabilities of connecting on the back side of the device. **You have to follow the instructions of the serveral devices!**

Finally you have to cleanse the device of dirt, ink rests etc. as described in the chapter **Cleaning.**

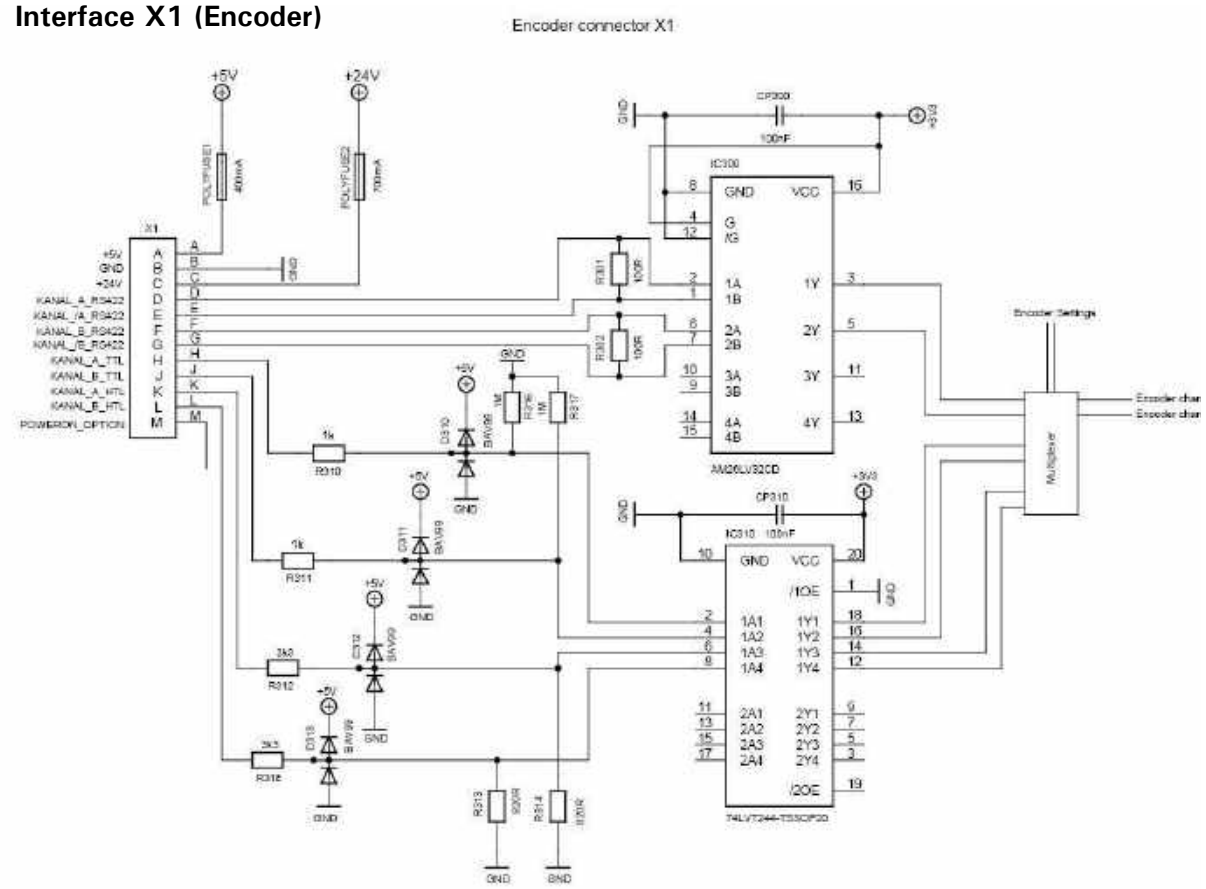
11.2 Dismantling/Disposal

The LEIBINGER JET3 has been developed and built with materials that ensure problem-free dismantling and disposal. When dismantling, the information in the **chapter *Taking out of operation*** as well as the respective country specific disposal regulations (e.g. for inks and solvents) must be taken into consideration

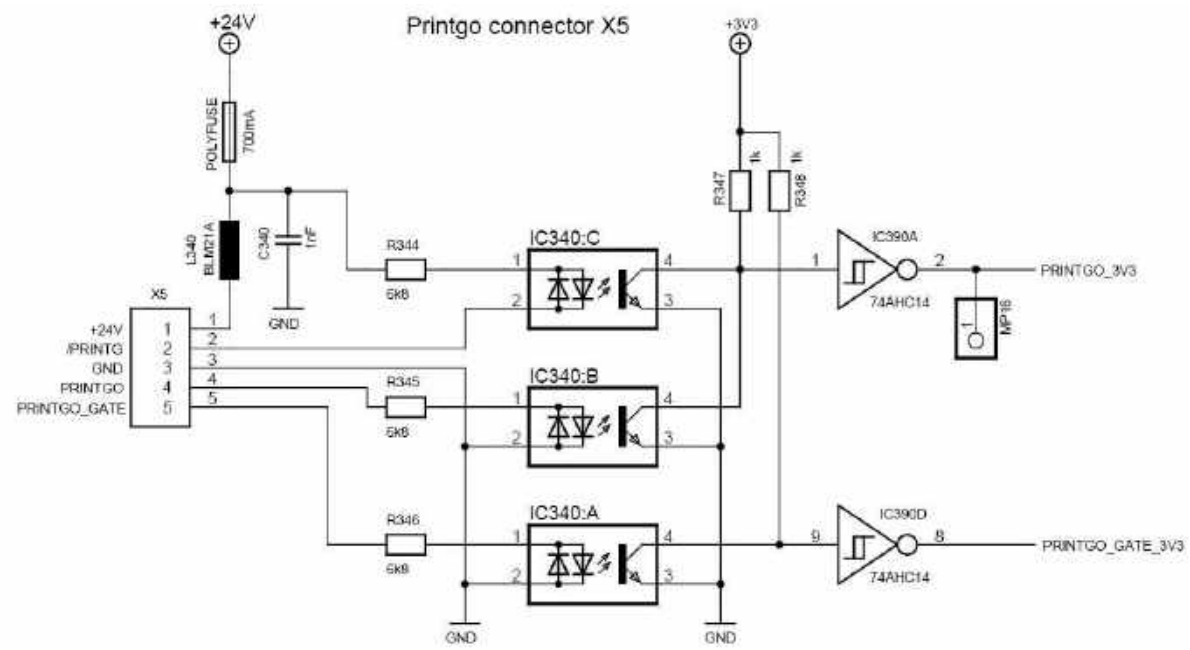
12. Appendix

12.1 Circuit diagrams of the interfaces

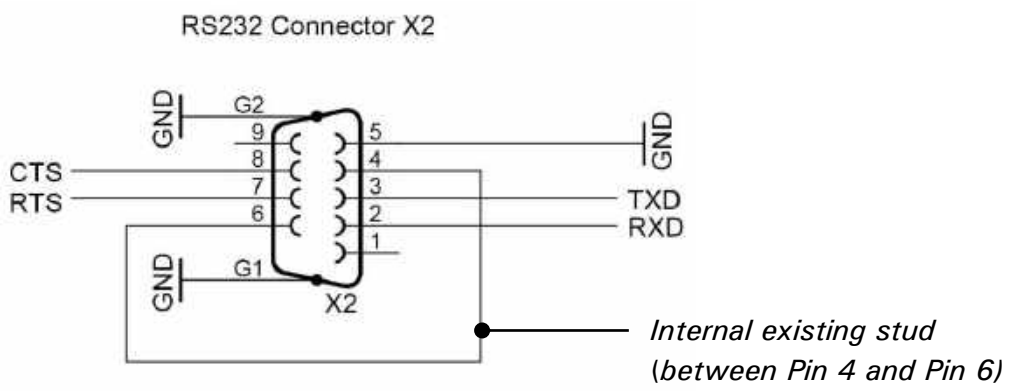
Interface X1 (Encoder)



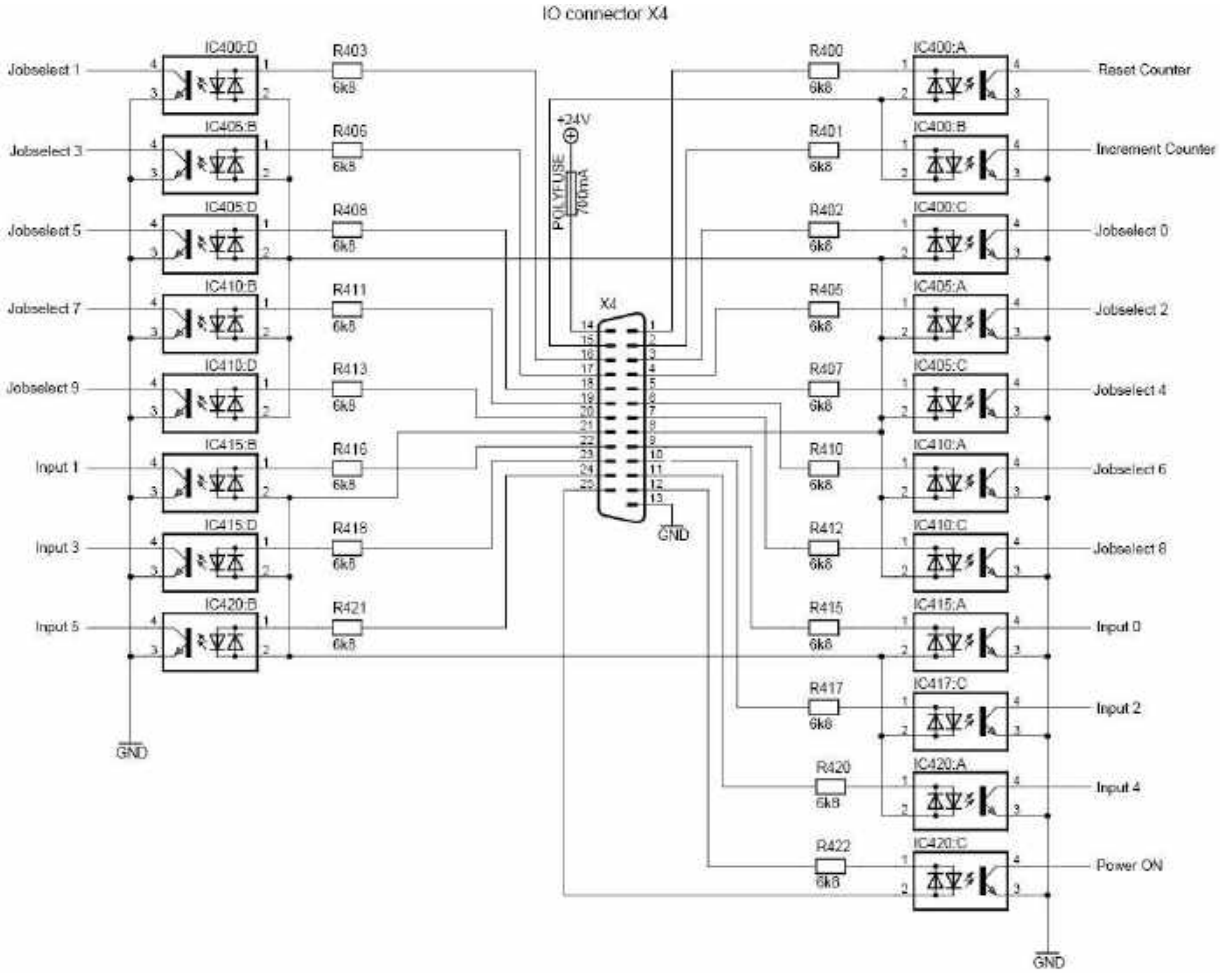
Interface X5 (PrintGo)



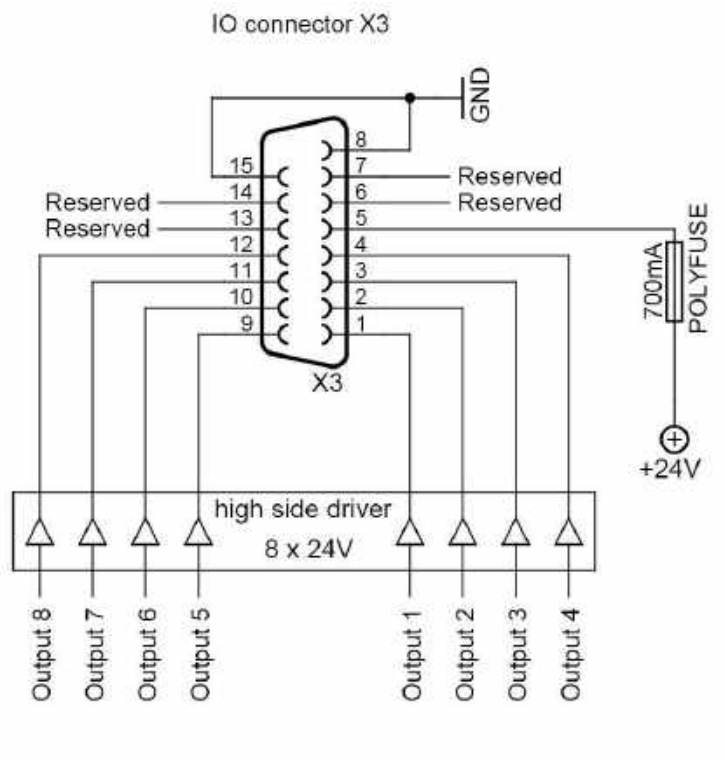
Interface X2 (RS232 – Serial Interface)



Interface X4 (Inputs)



Interface X3 (Outputs)

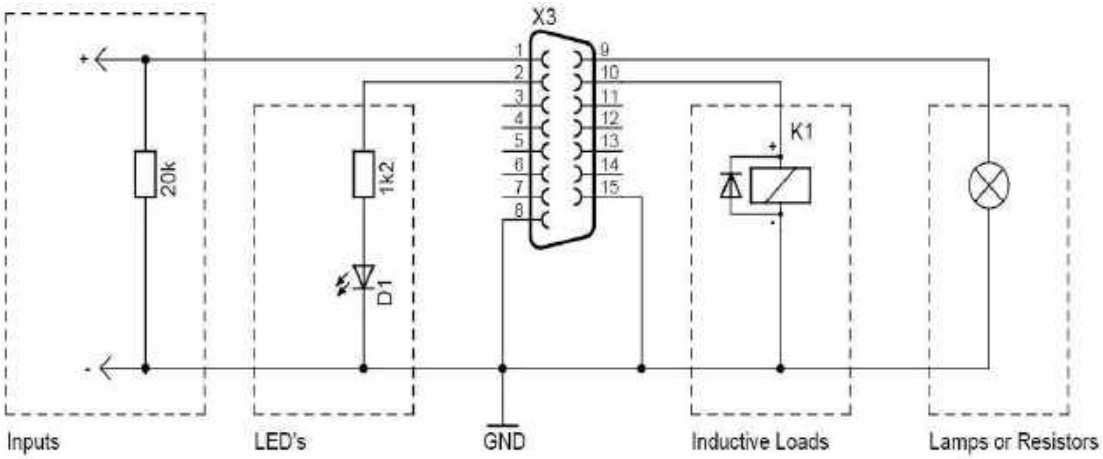


12.2 Connection examples of the interfaces

The wiring examples which are described in the following are only for support. Other combinations, actuators, sensors and switching elements are of course possible and cannot be described completely here.

For the connection please pay attention to the specifications which are described for the plug assignment!

12.2.1 Interface X3 (Outputs)



The described examples are possible at all 8 outputs.

Inputs:

Is used when an printer-output is connected to an input of a external logic (e.g. PLC). Due to the high resistance of the low level signal of the output driver, a 20kOhm Pull-down resistor is recommended.
The resistor can be dropped if the following input wiring has already an accordant low input resistance.

LED's:

LED can be connected by a series resistance. (as in the example for a LED with U_F = 2V and $I_{nominal}$ = 20mA)

Inductive Loads:

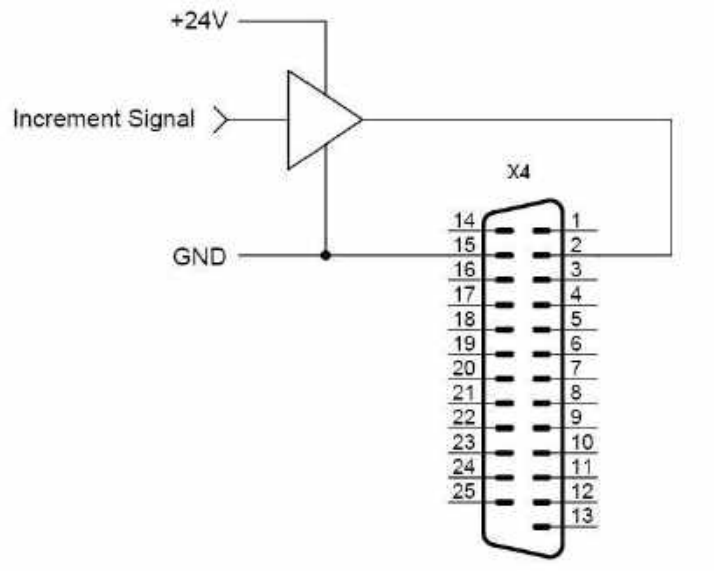
For the usage of inductive loads (relay, motors etc.) a parallel-diode is provided to avoid a turning-off peak.

Lamps or Resistors:

Lamps or other resistor loads can be directly connected to the output, but the sum of the output loads should not be higher than 700 mA (in sum of all outputs together).

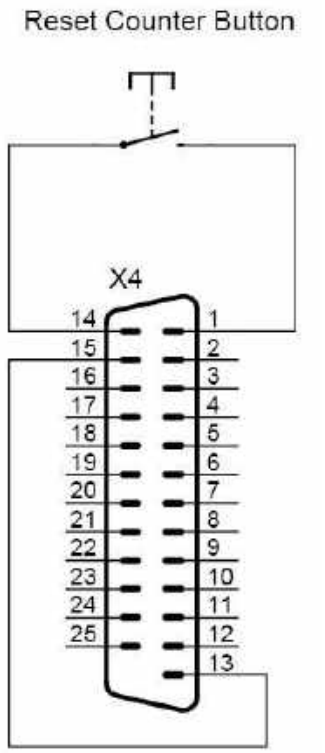
12.2.2 Interface X4 (Inputs)

12.2.2.1 Increment Counter Signal (PIN 2)

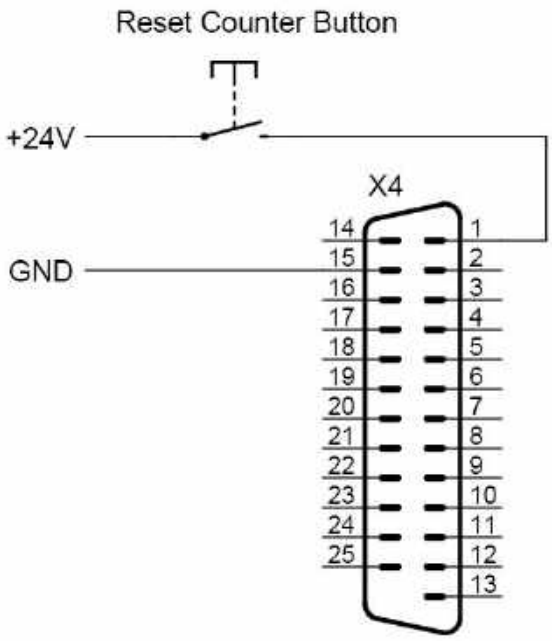


Mechanical switch or relay contacts are improper for the counter input because bounce processes at the switching contacts can cause faulty countings.

12.2.3.2 Reset Counter Signal (Example with pushbutton)

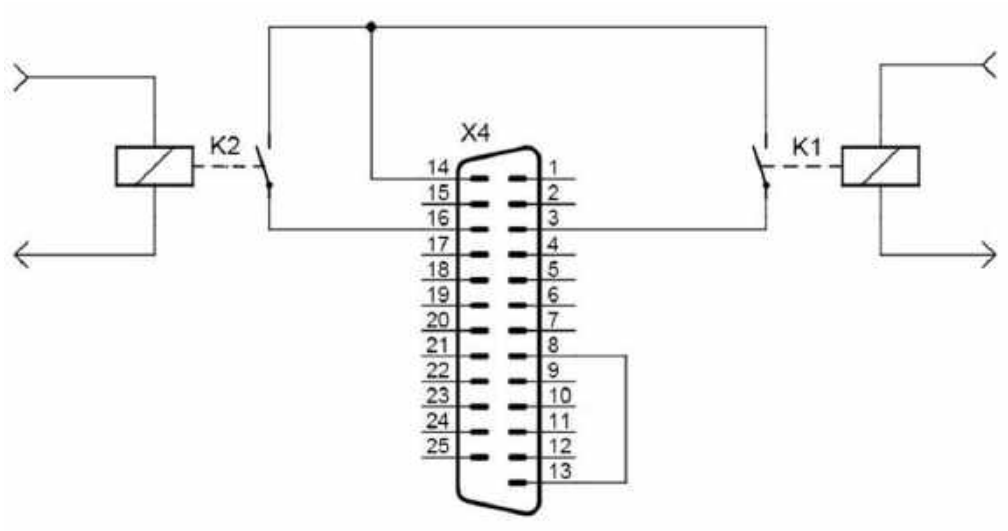


with internal supply

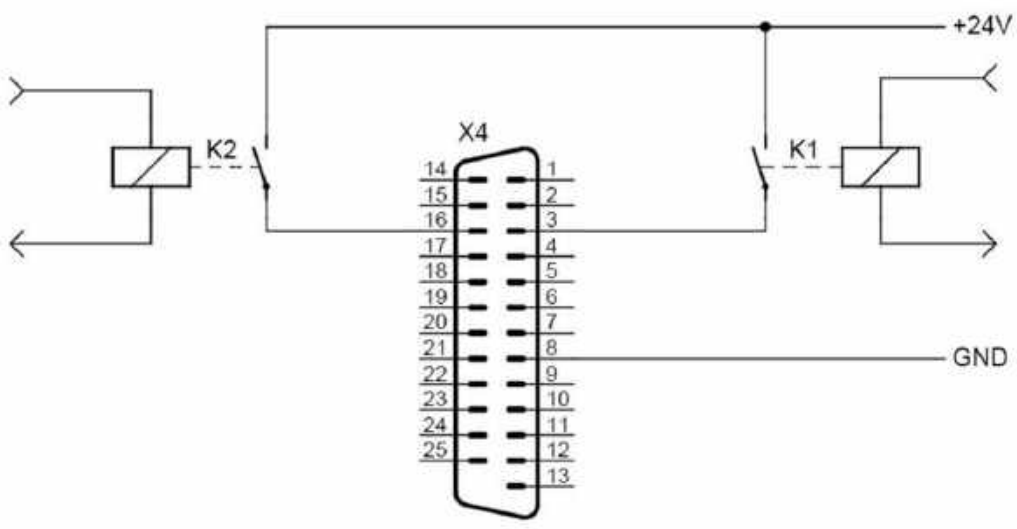


with external supply

12.2.2.3 Jobselect Input (Example with relay contacts)



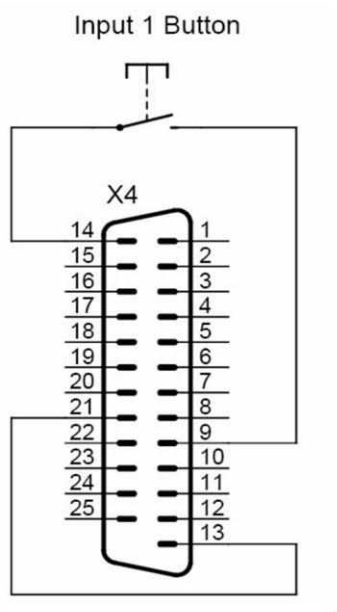
With internal supply



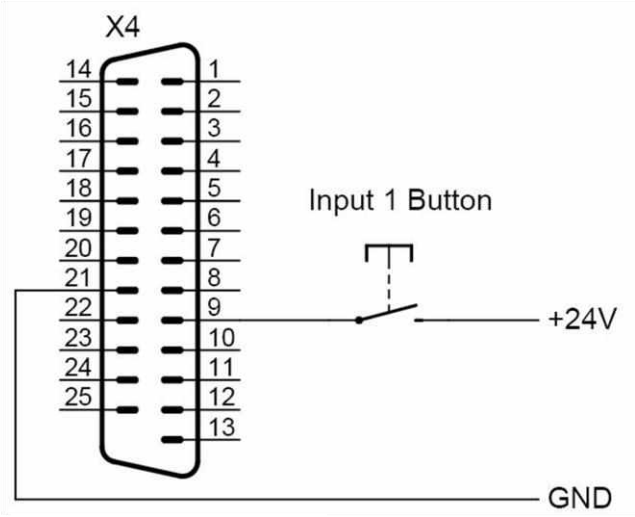
With external supply

Note: *Only Jobselect 0 and 1 are displayed. The same connection-schema is also possible for Jobselect 2 up to 9.*

12.2.2.4 Inputs (Example with pushbotton)



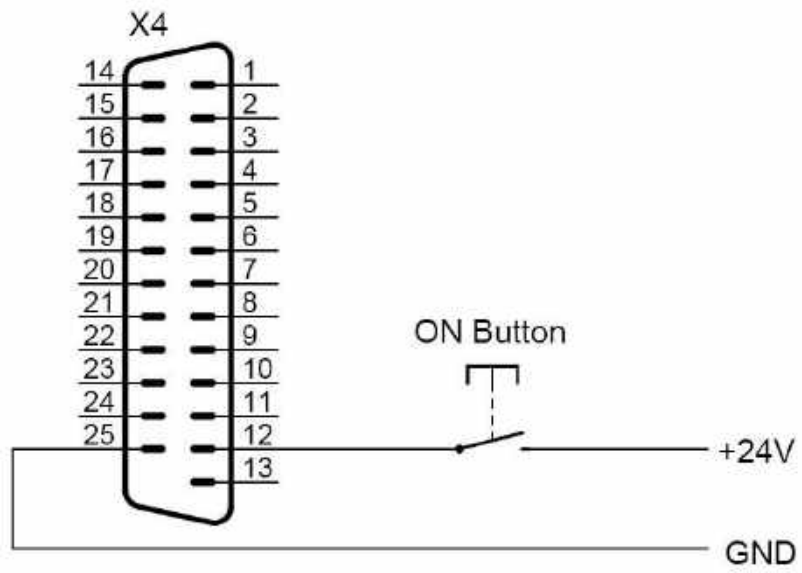
with internal supply



with external supply

Note: *Only input 1 is displayed, the same goes also for input 2 up to 6*

12.2.4.5 ON Input (Example with pushbotton)



Note: *A switching option which works with the internal 24V supply (Pin 14) is not possible because it is not available at the plug in the OFF-status of the printer.*

12.3 Encoder guidelines and "hot-plugging" of external devices

Encoders (also called incremental encoder) are used for the dynamic capture of angles of shafts or to measure distances and speed information.

They are based on a technology which converts mechanical movements like rotation or linear movement to electrical digital signals. In combination with measurement wheels or gear racks, encoders can be also used to measure linear movements as e.g. distances.

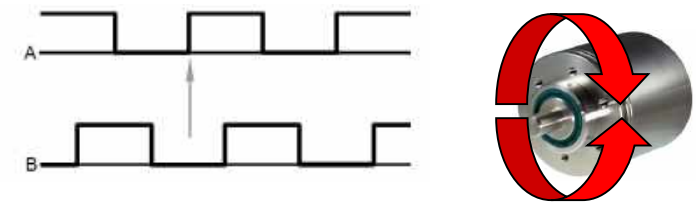
Types of encoders:

Regarding the different internal technology of the encoders, they are distinguished into two different principles:

- **Incremental encoders:** ⇒ supply simple "endless" square wave signals
- **Absolut encoder:** ⇒ supply digital signals on several data output lines (parallel signal output) ⇒ this encoder type cannot be used!!!

Direction of rotation:

Typically encoders are supplying two output signals which are shifted 90°.



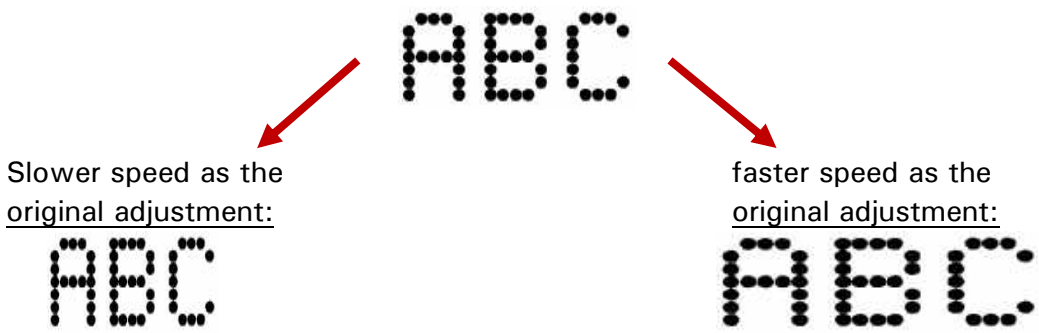
Just with this two shifted signals a so-called „direction detection" can be realized. Due to the analysis of the phase position of signal „A" and the phase position of signal "B" the electronic can detect if the encoder turns forward or backwards.

Control of print width:

With the help of the encoder signals the printer gets information about the distance and the speed of the current production and is therefore able to regulate an accurate print width of the print out.
Just due the permanent and current measurement of the encoder, a steady print width can be ensured even at varying speeds of the production line.

If an „internal clock“ (internal encoder) is used, there will appear deviations in the print width if the speed of the product would vary!

Original print adjustment oft he „print width“:



Therefore we recommend always using an encoder to ensure an accurate and stable print width even at varying speeds!

Resolution:

The precise the resolution of the encoder (amount of impulses per revolution), the precise and in finer steps the position of the print out can be adjusted.

Besides print-width regulation of the printer is also depending about the resolution of the encoder. If the resolution of the encoder signal would be too small there are just „gradually“ and no finer adjustments possible.

Example:
If an encoder is used with 5000Imp/r and a measurement wheel with a circumference of 200mm, the following resolution will be achieved:

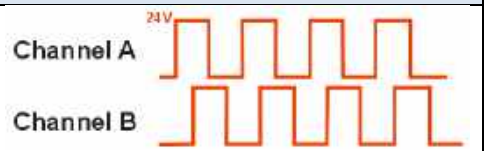
5000 Impulses : 200mm = 25 Impulses/mm

Generally the resolution should have at least 10 pulses/mm to achieve a good precision and fine adjustment of all print parameters!

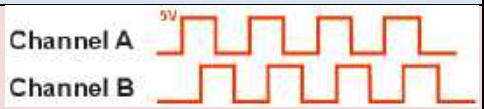
Higher resolutions as 50 impulses/mm will not bring any advantages or a higher accurate precision of the printer!

Interfaces:

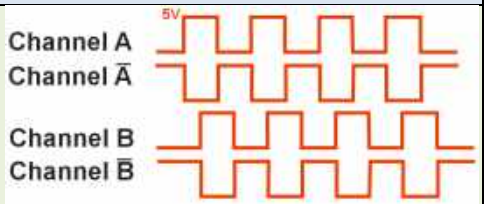
The output signals (interfaces) of encoders are offered in different standards:

Typ	Output Signals	Technologie
HTL		**24 Volt**

- two output signal => „A“ and „B“
- isn't qualified for longer cable distances (maximum 10m)
- in spite of the higher signal level a very good "noise immunity" as with the interface type RS422 cannot be achieved!

Typ	Output Signals	Technologie
TTL		**5 Volt**

- two output signals ⇒ „A“ und „B“
- not qualified for longer cable distances (max. 6m)
- **is quite „noise sensitive“ and therefore almost not qualified for the industrial environment and applications.**

Typ	Output Signals	Technologie
RS422 (TTL)		**5 Volt**

- four output signals ⇒ „A“, „/A“, „B“ und „/B“
- **due to the inverted signals a very high „noise immunity“ can be realized. Injected „noise signals“ on long cable lengths almost didn't show any negative effect.**
- **even qualified for longer cables over 10m. But the "voltage drop" of the complete cable length must be checked and judged.**

ATTENTION

Please note! For each interface, in general just shielded and grounded cables shall be used the reduce any „noise influence“ as much as possible. Besides the encoder signal cable should not be installed in closer neighborhood with cables which transmits high frequencies or high energies. Please avoid to use any unnecessary long cable lengths and keep in mind: the shorter, the better!

Connection of external devices on the printer:

To protect the encoder and of course in a particular way the controller board of the printer, it is not allowed to plug and un-plug the connectors as long as the printer is switched on and connected to the main power supply.

ATTENTION

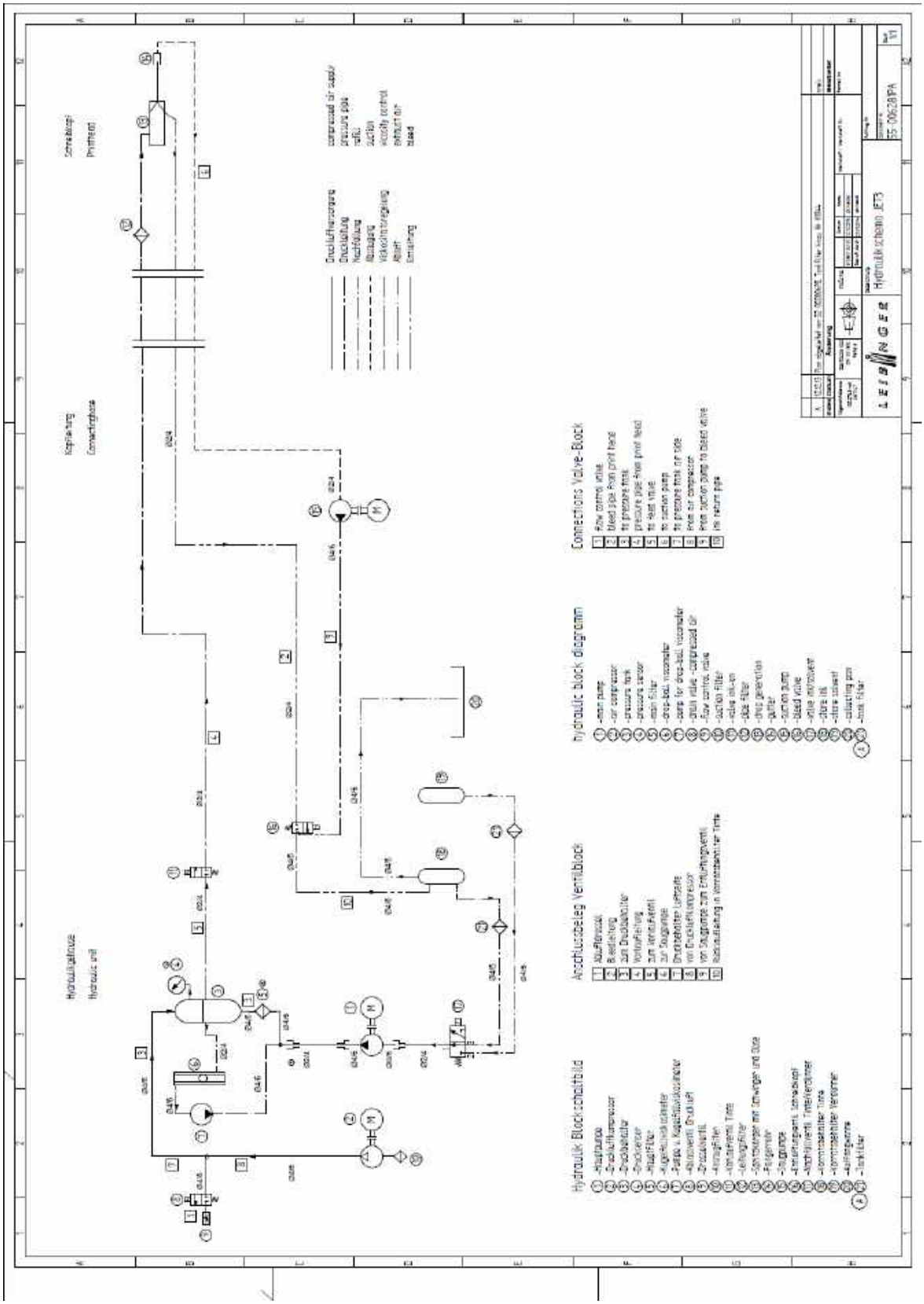
This rule is also valid for all other external connected signals or devices like e.g. PrintGo-sensor, input-signals, output-signals, Ethernet interface and so on.

Therefore we want to point out, that the plugging of any connectors while the printer is connected to the mains, can cause serious damages of the external devices and also of the printer controller itself.

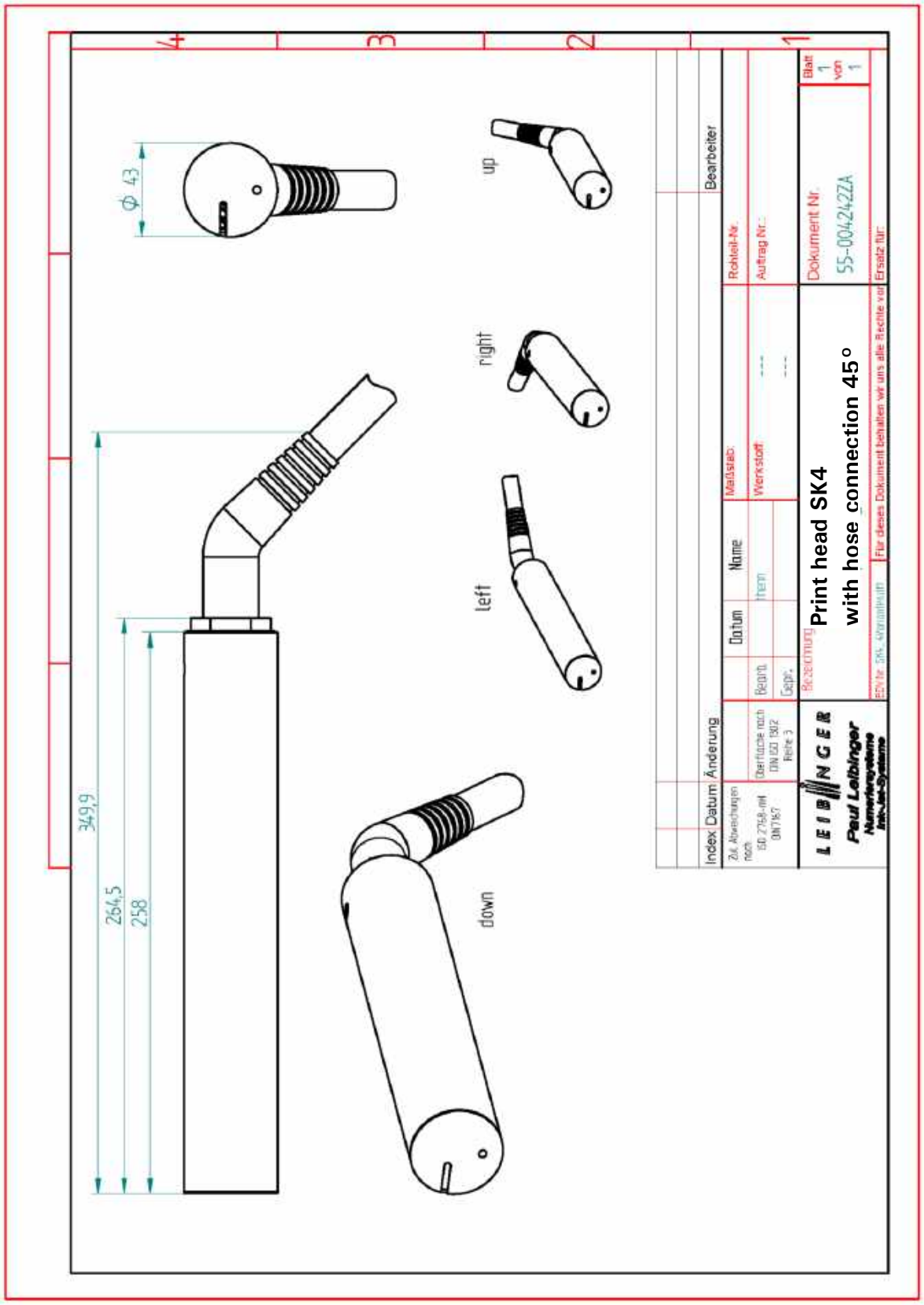
Therefore we strictly recommend to shut-down the printer and disconnect it from the mains, before plug and unplug any connectors.

12.4 Technical drawings

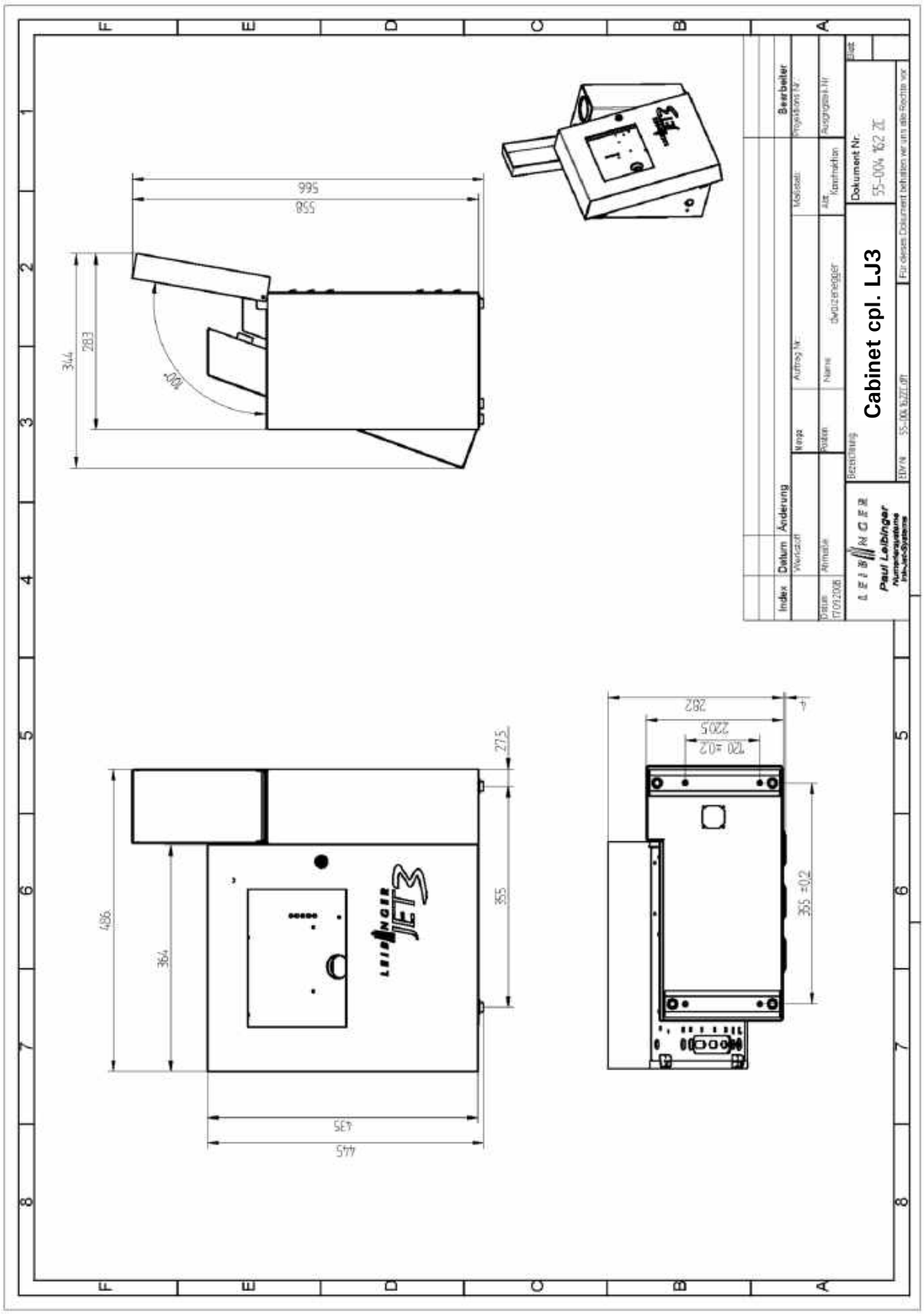
12.4.1 Hydraulic diagram LJ3



12.4.2 Print head SK 4



12.4.3 Cabinet LJ3



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