

Translation of the original operating manual

# Markoprint X1JET HP MK3

Part number of documentation 72801031



(GB) English

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## General Information

### General Survey

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Congratulations! You have purchased a high-quality print system. Our concern is to make sure that you profit from this system to your entire satisfaction over many years. In order to ensure this, we strongly recommend you to let our experienced specialists perform the installation.

### Limitation of Liability

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All pieces of information and notes of this manual have been arranged in consideration of applicable standards and regulations, state-of-the-art technology as well as our cognition and experiences over many years.

The manufacturer assumes no liability for damages caused by:

- Non-observance of this manual
- Non-observance of the intended use
- Use of unqualified personnel
- Manipulations at the system
- Technical changes
- Use of spare parts that are not approved by the manufacturer

The actual scope of delivery may differ from the explanations and illustrations provided herein in the case of special designs, additional order options or after recent technical changes.

The obligations of the supply contract the General Trading Conditions as well as the Terms of Delivery of the manufacturer and the valid legal regulations at the moment of conclusion of a contract generally apply.

Technical changes within the scope of improvement and development are subject to change without notice.

### Warranty Clause

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The warranty conditions are conform to the valid General Trading Conditions of the manufacturer at the moment of purchase.

### Copyright Protection

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This documentation or parts of this documentation may only be copied, photocopied, reproduced or translated into other languages for personal use. Without previous expressed written permission of **Weber Marking Systems GmbH** a reproduction for circulation to a third party is not permitted.

## Purpose and Scope of this service manual

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This manual enables safe and effective use of the Markoprint X1JET HP/ -Premium. The Operating manual is a component of the device and must be stored close to the device to be accessible to the staff at all times. The staff must have read this manual thoroughly and understand the content before starting any work. Compliance with all safety notes and instructions given in this manual is a basic prerequisite to safe operation.

Furthermore, the local accident prevention regulations and general safety provisions for the area of application of the device are applicable.

Images in this manual serve to provide a basic understanding and may differ from the actual device version.

In addition to this manual, the instructions in the annexure on the components included are also applicable.

## Hints for Use of this Manual

---

Please find in the following a detailed explanation of the notations and representations used in this manual.

Keys and buttons which you must push appear in squared brackets.

Example: Push [Enter] - button to save changes...

Procedures which should be followed in a specific order are listed in numbered paragraphs.

Step	Procedure
1	Disconnect power plug

---

Important messages are written in bold text and/or highlighted in grey.

### **This is an example for an important message!**

Special notes:



*... refers to a chapter or document.*

---

Images in this manual serve to provide a basic understanding and may differ from the actual system version. Figures may be stated without protection device for clarification.

## Explanation of Technical Terms

Technical Term	Explanation
<b>CartClip</b>	HP cartridge holder for storage of already opened cartridges to protect them against leaking or drying out of nozzle plate
<b>Cartridge</b>	See ink cartridge
<b>Conveyor</b>	The conveyor transports the products, which should be printed and pass them by the print head
<b>DPI</b>	<b>Dots Per Inch</b> 1 Inch = 25,4mm
<b>Encoder</b>	See shaft encoder
<b>Flexbracket</b>	Flexible mounting bracket of the control system
<b>HP</b>	Hewlett Packard – Manufacturer for ink cartridges
<b>Ink cartridge</b>	Original HP-cartridge TIJ 2.5 , model type 45
<b>LED</b>	Light emitting diode
<b>Left hand</b>	Installation of the system with cartridge holder on the left side (Modification to left-hand as described)
<b>Nozzle plate</b>	On the nozzle plate is the two-rowed arrangement of per 300 nozzles, which ejected the ink.
<b>Print direction</b>	Direction of movement of the product on the conveyor belt viewed from the control system in the print direction
<b>Print intensity</b>	Contrast of the print image. If necessary this parameter must be changed to optimize the print image. A higher intensity gives greater blackening and longer ink drying time
<b>Print speed</b>	Print speed = Speed of the conveyor. The speed of the conveyor must be keep constant
<b>Print start delay</b>	Offset print, i.e. by how much is printing delayed in millimeters after the product is detected by the light barrier.
<b>Print width</b>	The number of pixel can be increased or decreased using this parameter. The print image becomes narrower or wider.
<b>Product sensor</b>	A sensor for the detection of the product. Mostly used are optical sensors (photo sensor, light barrier, reflex sensor)
<b>Right hand</b>	Installation of the system with cartridge holder on the right side (standard configuration)
<b>Sensor</b>	See Product-sensor
<b>Shaft encoder</b>	A shaft encoder is used for the automatic detection of the conveyor speed and defines the print speed
<b>TIJ</b>	Thermal Ink Jet - print function of the HP cartridges
<b>ZTV</b>	Bulk Ink Supply System



## Customer Service

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Please contact your local distributor for technical information.

If failures at the print system occur, you should be prepared with the following information:

- Detailed error description.
- All information on the name plate of the print system.
- Version number of the system software and of the idesign Software
- Configuration (Print, Basic, Advanced, Pro)
- Special functions of the software or hardware
- When did the error occur for the first time?

Prior to call our hotline service, please have a look at the manual (→ **Chapter** Faults, **Page** 78) for potential references to eliminate the error.

Furthermore, our staffs are always interested in new information and experiences with the use of the product and which may be valuable for improvements to our products.

# Safety Regulations

## Behavior in Case of an Emergency

The operating personnel have to be familiar with the operation and the location of safety, accident notification-, first aid- and rescue devices.

### What to do in Case of an Emergency?

- Initiate immediately all required emergency measures for injured persons. Observe valid safety regulations in any case in order to avoid further damages to persons.
- Call medical attendance for injured persons.
- Eliminate all accident causes.

## General Safety Regulations

Safety regulations provide information in written and symbol form in order to warn you against dangers and to instruct you to avoid any damage to persons or to properties. Safety regulations are started by signal words indicating the level of danger. Safety regulations may be placed directly at the print system or in documents about this print system.

## Explanation of Danger Degrees



This symbol indicates a hazardous situation which, if not avoided, will result in death or serious injury. All safety regulations have to be observed to avoid any damage to persons.



This symbol indicates a hazardous situation which, if not avoided, could result in death or serious injury. All safety regulations have to be observed to avoid any damage to persons.



This symbol indicates a hazardous situation which, if not avoided, may result in minor or moderate injury. All safety regulations have to be observed to avoid any damage to persons.



This symbol indicates a hazardous situation which, if not avoided, may result in damage to properties. All safety regulations have to be observed to avoid any damage to properties.

## Intended Use

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The working reliability of the print system is ensured only with intended use.

The Markoprint X1JET HP/ -Premium has been designed, built and must be used exclusively for the intended purpose described.

The Markoprint X1JET HP/ -Premium serves to create print images and to print these from the top or side onto smooth and absorbent product surfaces. The product must pass the Markoprint X1JET HP/ -Premium, i.e. positioned on a conveyor belt.

All working conditions and instructions, prescribed in this manual, will be observed.

Any use beyond the intended use or any alternative use of the equipment is regarded as misuse and may lead to hazardous situations.

**Misuse of the device may lead to hazardous situations. Refrain, in particular, from subjecting the apparatus to the following:  
Modification, retrofitting or alteration of the apparatus or individual sub-assemblies.**

Any claims arising from damages due to undesignated use are rejected.

## Reasonably Foreseeable Misuse

---

Another use as fixed in the „Intended Use“ or even more applies as not intended!

For damages caused by not intended use

- the operator bears the complete responsibility,
- the manufacturer assumes no liability.

If you do not use the system according to the regulations, risks may occur!

### Not intended uses are e.g.:

- operation in explosive atmosphere
- the print system comes in contact with food ...

## Retrofitting and Changes at the Print System

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Unauthorized retrofitting and changes at the system lead to an immediate expiration of liability and warranty covered so far by the manufacturer! This is also valid for interventions and program changes at programmable control systems as well as program changes at control units as far as they are not described in this Manual.

The electromagnetic performance of the system can be affected by amendments or changes of any kind.

Do not arrange any changes or amendments at the systems without consultation and written approval of the manufacturer.

## Warning Notices at Print System

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Particular sources of danger at the print system are marked by yellow labels. The used pictograms point out to following dangers:



Danger to Life

## Special hazards

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The following section identifies the remaining risks, determined following a risk analysis.

**Observe the safety notes listed here and the warnings in other chapters of the manual to minimize health hazards and avert hazardous situations.**



### **Danger to life through electric shock!**



#### **DANGER TO LIFE!**

Contact with live parts poses imminent danger to life. Damaged insulation or individual components can be lethal.

Therefore:

- Immediately switch off the power supply and initiate repairs if the insulation is damaged.
- Work on the electrical system may only be performed by electricians.
- Before working on the electrical system, disconnect from the mains (remove mains plug) and check that power is off.
- Always disconnect mains before performing cleaning and repair tasks.
- Keep moisture from live parts. Moisture may cause a short-circuit.



### **Risk of injury through incorrect handling of batteries!**



#### **RISK OF INJURY!**

Rechargeable and primary batteries contain toxic heavy metals. They must be treated as special refuse and deposited at municipal collection points or be disposed of by a specialized company. Batteries must be handled with particular care.

Therefore:

- Never throw batteries into a fire or subject batteries to high temperatures. Explosion hazard.
- Do not charge batteries. Explosion hazard.
- Fluid escaping through incorrect use may cause skin irritations. Avoid contact with the fluid. In case of contact with the fluid, rinse with ample water. If the fluid comes into contact with the eyes, rinse immediately with water for 10 minutes and consult a doctor without delay.

**⚠ CAUTION****Edges and corners pose risk of injury!****RISK OF INJURY!**

Sharp edges and pointed corners may cause abrasions and cuts to the skin.

Therefore:

- Be cautious when working near sharp edges and pointed corners.
  - If in doubt, wear protective gloves.
- 

**⚠ CAUTION****Risk of stumbling posed by dirt, objects lying about and connecting lines!****RISK OF INJURY!**

Dirt, objects lying about and connecting lines for power, data- and signal lines may cause slipping and stumbling resulting in severe injuries.

Therefore:

- Always keep working area clean.
  - Remove objects no longer required.
  - Mark stumbling areas with yellow-black marking tape.
  - Non tension connecting lines to system and pass it that no places of danger do arise
- 

**⚠ WARNING****Observe the Safety Data Sheet (MSDS) for the individual inks and solvents!!!**

Be careful when handling ink cartridges, as a little ink may still be present at the nozzle plate.

Never look into the inkjet nozzle while the device is in operation.

Ink and solvent could be ejected and get into your eyes or mouth!

Therefore:

- When inserting or replacing consumables or spare parts, make sure that the machine has been stopped before starting replacement operations.
  - When performing maintenance operations, such as cleaning or replacing ink cartridges, always wear safety glasses to protect your eyes from possible ink or solvent leakage.
  - Wear appropriate protective gloves to avoid direct contact with ink or solvent.
  - If ink gets on your skin, clean it thoroughly with soap and water.
  - If ink gets into your eyes, rinse them immediately with plenty of water. If you still feel bad or have vision
-

problems after rinsing thoroughly, seek medical attention immediately.

- If you get ink in your mouth, seek medical attention immediately.

The current MSDS are available on request from your supplier.

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## Remaining Risks

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The print system is constructed for a safe operation. Hazards that are not preventable due to construction purposes are limited as far as possible by protection devices. A certain amount of risk is always existent! The knowledge about the remaining risks assists you to arrange your work safer and to avoid incidents. In order to avoid the dangers, please observe additionally the particular security advice in the single chapters.

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## Disposal

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This print system complies with the RoHS EU-Regulation 2002/95/EG with observance of the fixed using prohibitions and avoiding pollutants.

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## Unauthorized persons

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Work at the print system should only be performed by reliable personnel. Please comply with the legal age!

Only trained personnel are allowed to operate the print system. Trainees, apprentices etc. must be supervised by an experienced person while working at the print system.

Prior to start running the labeler the operator has to ensure that the manual of the labeler is available to all users of the machine and that the users have read and understood the manual. Only then the system may be put in operation.

The responsibility for the different tasks at the print system must be clearly specified and kept. There must be no ambiguous authorities for this may put the safety of the users at risk. Arrange a detailed work schedule if several persons work on the machine.

All work on the electrical equipment must be carried out by skilled electricians only. Failures may be eliminated by authorized personnel only.

All work associated with the assembly, adjustment and maintenance at the machine may be carried out only by trained or instructed personnel.

The operator of the machine must ensure that the personnel are trained in dealing with the integrated control system prior to fix machine errors or maintain the system.



## Personal Protective Equipment

**Wear following protective equipment when performing work at the system:**



### SAFETY SHOES

Wear for protection against falling off parts and slipping.



### PROTECTIVE CLOTHING

Are tight-fitting clothes with low tensile strength, with tight sleeve and without distant parts  
Wear a hairnet if applicable  
Do not wear jewelry or wrist watches







### PROTECTIVE GOGGLES

For protection against splashes of detergents and flying parts



### SAFETY GLOVES

For protection against sharp-edged items

Personal Protective Equipment for the following tasks	Protective Clothing	Safety Shoes	Safety Gloves	Protective Goggles
				
Transport	x	x	x	
Setting up and connecting of the system	x	x	x	x
Maintenance Work	x		x	x
The documentation of the manufacturer of the single system components has to be observed!				

**Working Places Operator Personnel**

---

The print system is an automatic working system and does not require any operation for the printing procedure.

## Technical Specifications

### General

<b>Dimensions</b> (H x W x D in mm)	91 x 75 x 122 (excl. bracket, ink cartridge and connections)
<b>Weight</b>	570 g
<b>Environmental Temperature:</b>	5 - 40 ° C
<b>Environmental Conditions:</b>	10-90 % relative humidity (non-condensing)
<b>Protection Rating</b>	IP 40
<b>Maximum operating time</b>	The system is designed for continuous operating

### Electrical

<b>Voltage Power Supply:</b> Four country-specific power plugs	100 - 240 VAC / 50-60Hz (1~)
<b>Input voltage at the device:</b>	12 V – 24V DC
<b>Current consumption:</b>	max. 1,25 A @ 12V, 0,625 A @ 24V
<b>Power consumption:</b>	max. 15 W
<b>Power consumption Standby:</b>	1,6 W

### Data interfaces

<b>EIA 232</b>	Sub-D 15 Pol
<b>Ethernet</b>	RJ45
<b>USB</b>	USB-A socket for stick

**WLAN (Optional)**

<b>Frequency</b>	802.11g
<b>SSID</b>	System serial number (Example: R03652-x1)
<b>Codification</b>	WPA/WPA2/PSK
<b>Password</b>	12345678
<b>Channels</b>	1-5 (Standard 1)
<b>Direct line</b>	DHCP
<b>TCP/IP-Interface</b>	Port: 10200
<b>Web interface of the system</b>	Port: 8080

**Connections**

<b>Input voltage</b>	Sub-D 15 polig
<b>Sensor</b>	Sub-D 15 Pol
<b>Encoder</b>	Sub-D 15 Pol
<b>In-/Outputs</b>	Sub-D 15 Pol
<b>Traffic light</b>	Sub-D 15 Pol

## Performance data

<b>Cable length System unit / Power supply in m</b>	1,8
<b>Text layout</b>	Software idesign
<b>Parameter input</b>	Software idesign
<b>Fonts (optional)</b>	all available Windows fonts customer-specific fonts
<b>Print height in mm</b>	1 to 12,7
<b>Max. print resolution<sup>1)</sup> in dpi</b>	300/600
<b>User language Software:</b>	German, English, French, Spanish, Japanese
<b>Barcodes<sup>1)</sup></b>	EAN 8, EAN 13, EAN 128, Code 2/5, Code 2/5 check, Code 39, Code 39 check, Code 128, DUN14, GS1 Databar
<b>2D-Codes<sup>1)</sup></b>	Datamatrix, GS1 Datamatrix, OR-Code, PPN-Code
<b>Automatic functions<sup>1)</sup></b>	Date, Time, Counter, customer-specific links
<b>Graphic</b>	<b>Monochrome</b> bitmap- graphics can be created i.e. with Paint or other software.
<b>Print image storage</b>	9 print images via direct selection on the device
<b>Print image length</b>	23.600 Pixel = 1m at 300dpi
<b>Storage; optional expandable in GB</b>	1
<b>Storage in MB</b>	32
<b>Max. print speed in m/min at 300dpi, depending on resolution)</b>	
<b>Markoprint X1JET HP/ -Premium <i>Print</i></b>	30
<b>Markoprint X1JET HP/ -Premium <i>Basic</i></b>	30
<b>Markoprint X1JET HP/ -Premium <i>Advanced</i></b>	60
<b>Markoprint X1JET HP/ -Premium <i>Pro</i></b>	90

**Print direction**

L/R or R/L, from top or side.  
Print from bottom is **not**  
possible.

---

<sup>1)</sup> Not available in all Markoprint X1JET HP/ -Premium versions

**The preferred print direction is from left to right. When printing from right to left, the minimum print start is 25 mm to the box front edge. If a lower distance is desired, an external photo sensor must be installed.**

## Inks

---

<b>Specification</b>	<b>Type</b>
<b>Black</b>	Cartridge HP STABL Cartridge HP MIBL 2 Cartridge HP Ultra Black Cartridge HP SDBLK3 Cartridge HP SDBLK4+ Cartridge HP SDBLK5 Cartridge HP SDBLK6 Cartridge HP WDBLK2
<b>Color</b>	Cartridge HP RCBLU Cartridge HP RCRD Cartridge HP WDG2 Cartridge HP SDWHT
<b>Optional</b>	Special inks Cartridge HP UVINV
<b>Other</b>	On request

# Transport, Packaging and Storage

## Transport

Check the delivery for completeness and transport damages immediately upon receipt. Proceed as follows in case of externally visible transport damage:

- Decline delivery or accept with reservation only.
- Record extent of damage in the transport documentation or on the delivery note of the carrier.
- Initiate complaint.

## Scope of Delivery

The scope of delivery of the Markoprint X1JET HP/ -Premium depends on the ordered options and the customer's application. Please control the scope of delivery when receiving the systems on the basis of the delivery note.

Scope of Delivery - Basic:

1 x System unit Markoprint X1JET HP/ -Premium

Optional:

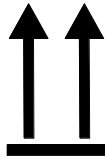
- 40037989 - Power supply 24V / 15W
- 72900535 - USB-Stick, Content: → **Chapter** USB-Stick files, **page** 99
- 72801031 - Operating Manual on the USB-Stick
- 71700015 - idesign-Software on the USB-Stick
- 72801043 - Mounting bracket
- 40009872 – Ethernet patch cable CAT6 2m
- 72800002 - External light barrier
- 72801042 - Shaft encoder



## Symbols on Packaging

---

As part of the installation and further use it may happen that the operator put user or maintenance personnel in charge of handling of packages. Therefore note the following important notes:



### This way up

The arrowheads indicate the top of the package. They must always face upward to avoid damage to the content.

---



### Fragile

Identifies packages with fragile or sensitive contents. Handle the package with care, do not drop or subject to impacts.

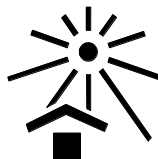
---



### Keep dry

Keep packages away from moisture and keep dry.

---



### Protect from heat

Protect packages from heat and direct sunlight.

---

## Transport and Unpacking

---

### Safety Instructions

#### **NOTICE**

#### **Material damage due to incorrect transport!**

Remove the packaging material and the transportation safety devices on installation site and transport the print system in its original packaging to the place of installation.

#### **CAUTION**

#### **Danger due falling parts!**

- Wear safety shoes!



## Packaging

### On Packaging

---

The individual packages are packed in accordance with the expected transport conditions. Only environmentally-friendly materials were used for packaging. Packaging serves to protect the individual components against transport damage, corrosion and other damage, up to the assembly stage. Do not, therefore, damage the packaging - remove shortly before assembly only.

**Original packaging is available from the manufacturer to ensure optimal dispatch of the system.**

**Please contact your local distributor.**

### Handling of packaging materials

---

Dispose of packaging material in accordance with the applicable statutory provisions and local regulations.

#### **NOTICE**

#### **Environmental damage!**

Packaging materials are valuable raw materials and can, in many cases, be re-used or profitably recycled and re-used.

Therefore:

- Dispose of packaging materials in an environmentally-responsible manner.
  - Observe the locally applicable disposal regulations. If necessary, commission a specialized company for disposal.
-

## Storage

### Controller

---

Store the controller under the following conditions:

- Do not store outdoors.
- Keep dry and free of dust.
- Do not expose to aggressive media.
- Keep away from direct sunlight.
- Avoid mechanical shock.
- Storage temperature: 5°C to 45°C.
- Relative humidity: maximum 60%.

### Ink cartridge

---

New original sealed ink cartridges have a shelf life of up to 1 year. Observe the printed expiry date! The shelf life of different cartridge types differs.

#### **Storage under 2 days:**

Leave the ink cartridges in the print head holder and wipe off or rinse, if necessary, before restart.

→ **Chapter** To rinse the nozzles manually, **page 67**

#### **Storage over 3 days:**

Insert the ink cartridge in a cartridge clip (CartClip).

→ **Chapter** Store Ink cartridge, **page 28**

## Store Ink cartridge

---

If ink cartridges are not used for an extended period of time, they must be stored in a cartridge clip (CartClip) to prevent the ink in the nozzles from drying out. To do this, the ink cartridges must be removed from the controller.

### Instruction

To insert the ink cartridge in the CartClip:

Step	Procedure
1	Close the CartClip over the ink cartridge and press until the top flap of the CartClip snaps into the holder.



Fig. 1: Inserting the HP ink cartridge in the CartClip

---

### Instruction

To remove the ink cartridge from the CartClip:

Step	Procedure
1	Lift the top flap of the CartClip until the ink cartridge is released.
2	Pull the ink cartridge upward out of the CartClip.

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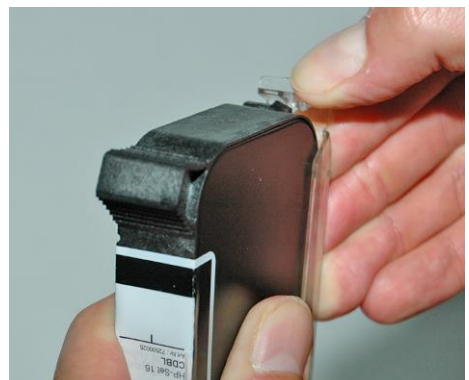


Fig. 2: Removing the HP ink cartridge in the CartClip

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## Construction and function

### Brief description

The Markoprint X1JET HP/ -Premium is a thermal Inkjet Coder of Weber Marking Systems GmbH, for printing images quickly and cleanly onto smooth and absorbent product surfaces.

A print image, for instance, contains product descriptions, graphics, quantities, shelf life data, barcodes and product serial numbers.

The print images can be created directly with PC installed idesign software and can be loaded in/or sent to the Markoprint X1JET HP/ -Premium by means of a USB stick or a network.

Up to 9 print images can call up for printing via keyboard.

The Markoprint X1JET HP/ -Premium comprises the controller and an external 24V power supply

### Controller

The Markoprint X1JET HP/ -Premium comprises essentially a controller with integrated control electronics, cartridge bay with clamp and the connections for the power supply, shaft encoder, external photo sensor, in-/outputs at the back side of the system. At the top are a keypad with 4 control LEDs and a USB-A socket for a data transfer via USB-Stick.

The system unit is directly installed with a optional mounting bracket on the production line. The coder consists of a system unit and a ink cartridge from Hewlett Packard.

Standard the HP cartridge holder is mounted on the right side, also referred to as right-hand.

The preferred print direction is from left to right. When printing from right to left, the minimum print start is 25 mm to the box front edge. If a lower distance is desired, an external photo sensor must be installed. Or the system can be modified to left-hand.

The preferred print direction is than from right to left. When printing from right to left, the minimum print start is 25 mm to the box front edge.

### Ink cartridge

The ink is contained in the cartridge ink ducts and the viscosity and surface tension of the ink prevents it from running out.

A heating element, which generates a steam bubble when current is briefly applied (1.9 µs), is fitted behind each jet opening.

This steam bubble gives the ink between the heating element and the jet opening an impulse and therefore "shoots" a defined quantity of ink out of the opening.

When the steam bubble reforms, a corresponding quantity is drawn from the storage container and the process can begin again. This process of ejecting an ink drop can be repeated 18,000 times a second.

Print images 1 mm to 12.7 mm high can be produced with a wide variety of fonts.

Various special inks are available for coding on many different surfaces.

## SmartCard Functionality

---

The Markoprint X1JET HP print system is equipped in the MK3 version with SmartCard identification of the cartridges. In the HP print heads only original HP cartridges with SmartCard can be used.

The X1JET HP MK3 has an additional contact block which connects the SmartCard chip with the analysis electronics by insertion of the SmartCard cartridge.



View of the SmartCard contacting cartridge



View of the SmartCard

The chip is detected by inserting the cartridge. The LEDs show this:

The Status-LED blinks green for 3 seconds if the SmartCard is detected.

### **NOTICE**

When inserting a cartridge without SmartCard, the LEDs flash green/red. The system operates without the benefit of the SmartCard data.

If the printer is not enabled for the use of cartridges without SmartCard, the LEDs flash red and the printer does not print.

If there is a read error on the SmartCard chip, the LEDs flash yellow/red and the cartridge prints without taking into account the SmartCard data.

---

## SmartCard Functions

---

The SmartCard functions are supported by software version 2.016 and higher.

Automatic storage of the ink filling level in 1% steps. The correct ink level of a cartridge is always detected, even by changing the cartridges. No more missing prints by interchanged cartridges.

Automatic detection of the ink type and automatic setting of the optimal ink parameters. Ink volume, drop size, nozzle voltage and firing time are stored on the SmartCard chip.

The current ink type is displayed for control and prevention of wrong cartridges.

Exact ink consumption calculation. The usable number of drops is calculated by the ink weight (g), specific weight (g/ml) and drop size (in pl). The values are read out of the chip, depending on the ink type.

Warning message with expired shelf life - date of filling and shelf life are stored on the SmartCard chip

Warning message if cartridge is open for too long (installed life) - date of first insertion and maximum operating time are stored on the SmartCard chip.

idesign displays the ink part number for easy reordering.

Following data are stored on the SmartCard chip for checking claims:

Date of the first cartridge insertion, serial number of the controller, firmware version of the controller

Date of the last cartridge insertion, serial number of the controller, firmware version of the controller

Number how many times the cartridge was used.

The ink type can not set manually by using SmartCard cartridges.  
The ink level is set automatically and can not be reset.

## System versions

The Markoprint X1JET HP/ -Premium print system is in five different versions available: Markoprint X1JET HP/ -Premium *Version Print, Basic, Advanced, Pro* and *Ultimate*.

The Markoprint X1JET HP/ -Premium will be delivered as Print version standard. If the requirements exceed the scope of services of the Print version, an upgrade with costs to one of the other versions is available. See also → **Chapter** Software-Upgrade, **page** 98.

The specifications of the separate versions can be found in the following table.

FUNCTION	SYSTEM VERSION				
	<i>Print</i>	<i>Basic</i>	<i>Advanced</i>	<i>Pro</i>	<i>Ultimate</i>
<b>max. Speed at 300 dpi</b>	30	30	60	90	180
<b>Layout length</b>	1m	1m	1m	2m	4m
<b>DPI horizontal</b>	50 - 900	50 - 900	50 - 900	50 - 900	50 – 900
<b>DPI vertical</b>	300	300	300 / 600	300 / 600	300/600
<b>Fonts</b>	Printer + TTF	Printer + TTF	Printer + TTF	Printer + TTF	Printer + TTF
<b>Number of layouts</b>	9	9	9	9	9
<b>Text fields</b>	Yes	Yes	Yes	Yes	Yes
<b>Counter fields</b>	No	No	Yes	Yes	Yes
<b>Date fields</b>	No	Yes	Yes	Yes	Yes
<b>Date offset</b>	No	No	Yes	Yes	Yes
<b>Variables Input</b>	No	No	No	No	No
<b>Logos</b>	Yes	Yes	Yes	Yes	Yes
<b>Barcodes</b>	No	No	Yes	Yes	Yes
<b>2-D Codes</b>	No	No	No	Yes	Yes
<b>Action fields</b>	No	No	Yes	Yes	Yes
<b>USB-Stick Data transfer</b>	Yes	Yes	Yes	Yes	Yes
<b>Ethernet interface</b>	Yes	Yes	Yes	Yes	Yes
<b>Password</b>	No	No	No	No	No
<b>Spitting</b>	Yes	Yes	Yes	Yes	Yes
<b>Warming</b>	Yes	Yes	Yes	Yes	Yes



FUNCTION	SYSTEM VERSION				
	<i>Print</i>	<i>Basic</i>	<i>Advanced</i>	<i>Pro</i>	<i>Ultimate</i>
<b>RS232</b>	Yes	Yes	Yes	Yes	Yes
<b>Internal sensor</b>	Yes	Yes	Yes	Yes	Yes
<b>External sensor</b>	Yes	Yes	Yes	Yes	Yes
<b>Encoder</b>	Yes	Yes	Yes	Yes	Yes
<b>In-/ Outputs</b>	4I / 4O	4I / 4O	4I / 4O	4I / 4O	4I / 4O
<b>Ink level display</b>	LED	LED	LED	LED	LED
<b>WLAN</b>	No	No	No	No	Yes
<b>Interference suppression Rotary encoder</b>	No	No	No	No	Yes
<b>Keylock</b>	No	No	No	No	Yes

**Complete overview X1JET HP MK3**

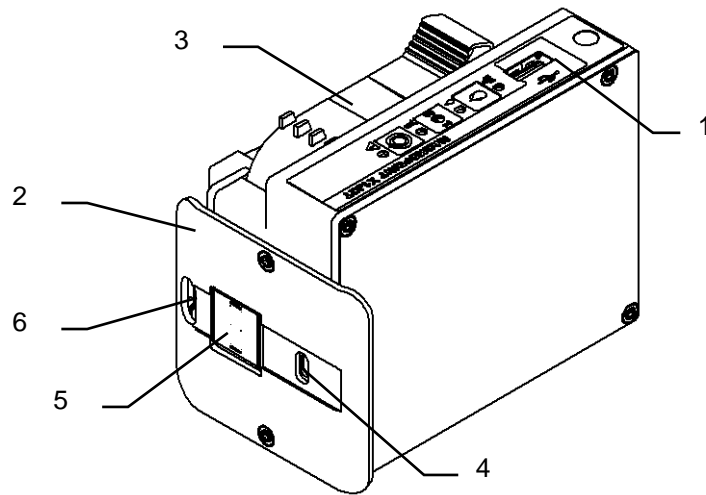


Fig. 3: X1JET HP Premium

No.	Description
1	CONTROL PANEL WITH ENTRY KEYS AND LED-STATUS LIGHTS
2	FRONT PANEL
3	INK CARTRIDGE
4	OPENING FOR INTERNAL LIGHT BARRIER
5	CARTRIDGE NOZZLE PLATE
6	OPENING FOR EXTERNAL LIGHT BARRIER

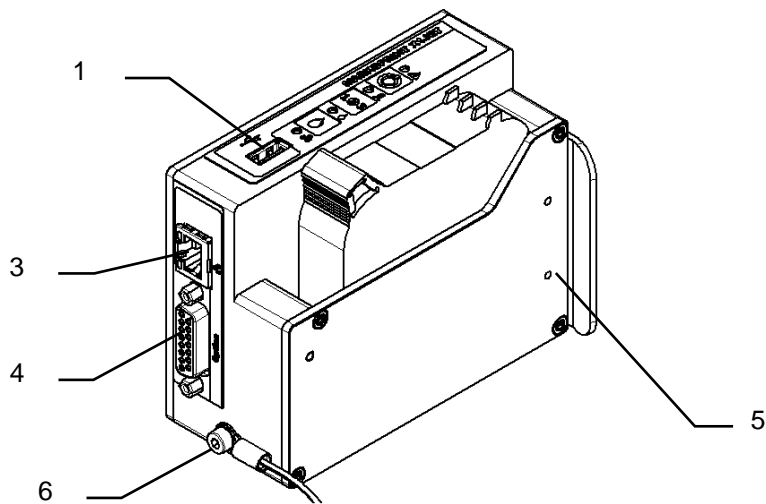


Fig. 4: X1JET HP Premium

No.	Description
1	USB-A SOCKET
3	NETWORK CONNECTION (RJ45)
4	OPTION (SUB-D 15 POL)
5	EXTERNAL LIGHT BARRIER (OPTION)
6	GROUND CONNECTION

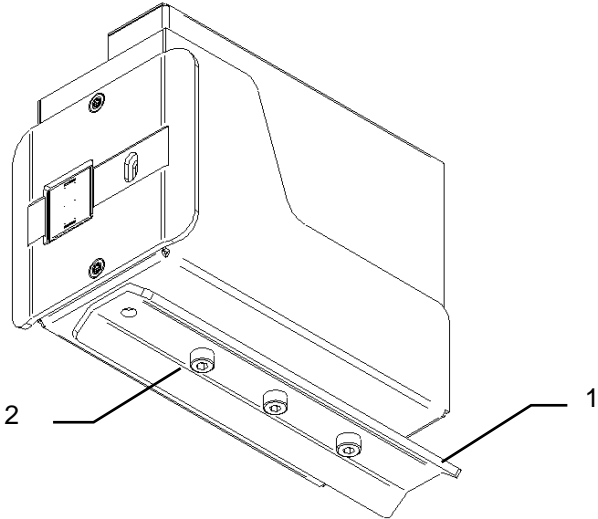


Fig. 7: X1JET HP Righthand-model

No.	Description
1	MOUNTING RAIL; OPTIONAL EXTRAS
2	FASTENING POINTS (M4)

**Complete overview X1JET HP MK3 Premium**

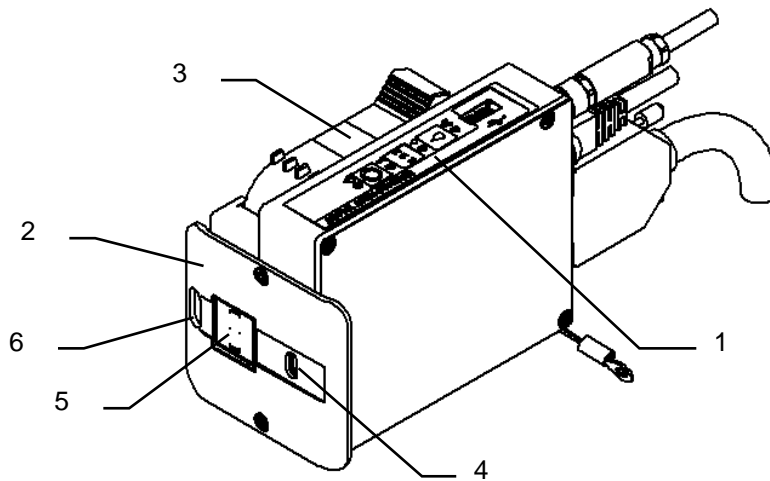


Fig. 5: X1JET HP Premium

No.	Description
1	CONTROL PANEL WITH ENTRY KEYS AND LED-STATUS LIGHTS
2	FRONT PANEL
3	INK CARTRIDGE
4	OPENING FOR INTERNAL LIGHT BARRIER
5	CARTRIDGE NOZZLE PLATE
6	OPENING FOR EXTERNAL LIGHT BARRIER

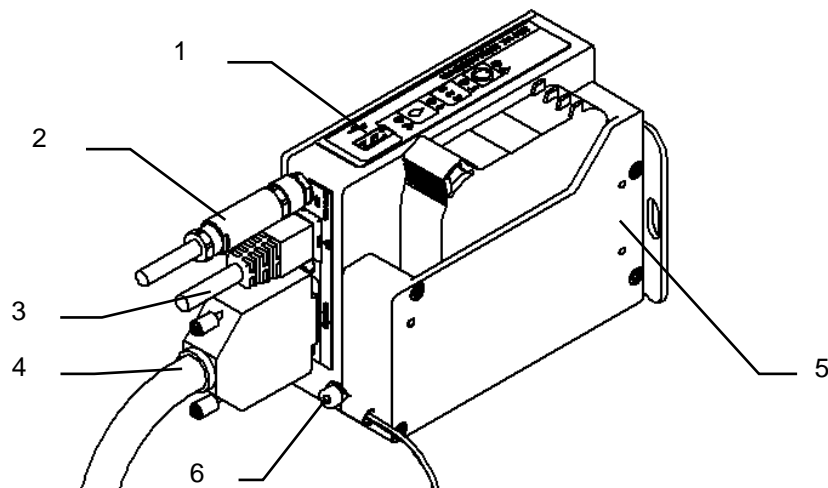


Fig. 6: X1JET HP Premium

No.	Description
1	USB-A SOCKET
2	POWER CONNECTION (M8)
3	NETWORK CONNECTION (RJ45)
4	OPTION (SUB-D 15 POL)
5	EXTERNAL LIGHT BARRIER (OPTION)
6	GROUND CONNECTION

## Flexible bracket (Flexbracket)

The Flexbracket is an optional available mounting bracket, which adjust a variable distance up to 20 mm between print system and product. The print system is provided with a special formed deflector and a linear movable bracket.

The print system is mounted on the production line that the product hit the deflector. The print system is pressed in position, against the spring power of the Flexbracket. After the product passes the print system moves the print system by spring power back in starting position.

**The Flexbracket should use for print speeds up to 30 m/min. For higher speeds is a constant guide not guaranteed and the print result can be manipulate negative.**

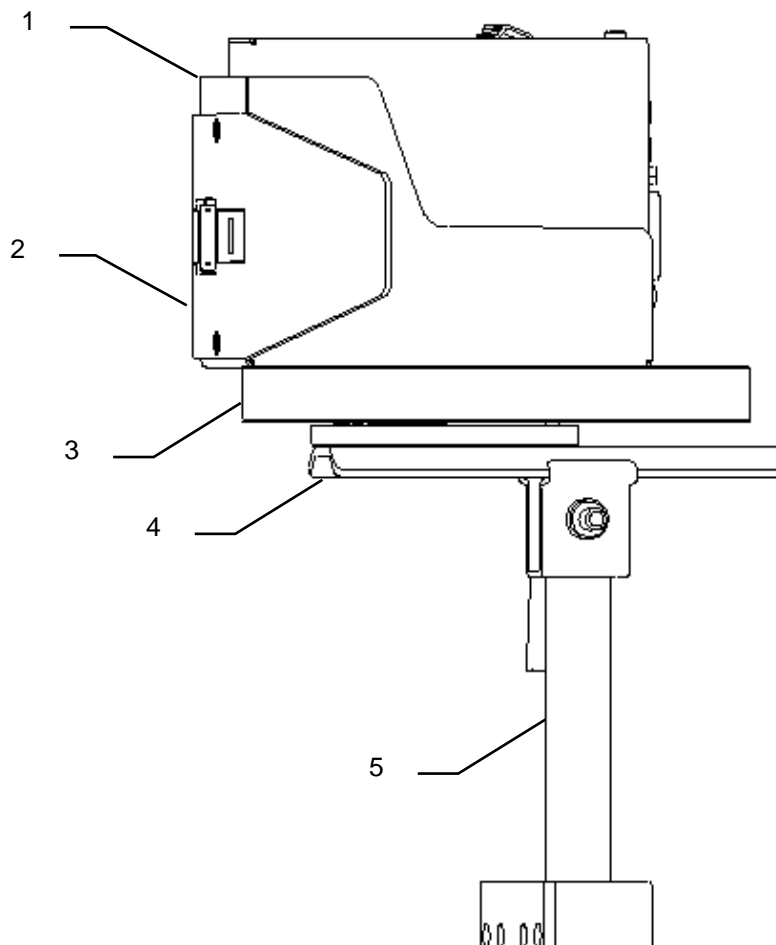


Fig. 8: X1JET HP with Flexbracket and universal mounting bracket

No.	Description
1	CONTROL SYSTEM
2	FLEXBRACKET DEFLECTOR
3	FLEXBRACKET
4	MOUNTING RAIL
5	CLAMP BRACKET

**Name plate**

---

The nameplate is attached to the bottom of the system and displays the following:

- System type
- Serial number
- MAC-address
- Article number
- Supply voltage
- Power consumption
- Address of manufacturer

# Installation and Initial Operation

## Safety notes

### **WARNING**

#### **Danger to life through electric shock!**



#### **DANGER TO LIFE!**

Contact with live parts poses imminent danger to life. Damaged insulation or individual components can be lethal.

Therefore:

- Immediately switch off the power supply and initiate repairs if the insulation is damaged.
- Work on the electrical system may only be performed by electricians.
- Before working on the electrical system, disconnect from the mains (remove mains plug) and check that power is off.
- Always disconnect mains before performing cleaning and repair tasks.
- Keep moisture from live parts. Moisture may cause a short-circuit.

### **CAUTION**

#### **Risk of stumbling posed by dirt, objects lying about and connecting lines!**



#### **RISK OF INJURY!**

Dirt, objects lying about and connecting lines for power, data- and signal lines may cause slipping and stumbling resulting in severe injuries.

Therefore:

- Always keep working area clean.
- Remove objects no longer required.
- Mark stumbling areas with yellow-black marking tape.
- Non tension connecting lines to system and pass it that no places of danger do arise

**Edges and corners pose risk of injury!****RISK OF INJURY!**

Sharp edges and pointed corners may cause abrasions and cuts to the skin.

Therefore:

- Be cautious when working near sharp edges and pointed corners.
  - If in doubt, wear protective gloves.
-



## Installation

---

Only an optimally aligned installation of the system can ensure a continuous operation with a low rate of failures and a minimum wear. For an optimized installation of the system, fine tunings adapted to environmental conditions are essential. For the fine tunings, a complex expert knowledge is required basing on experience with print technique.

The complexity of a wear-optimized installation requires a high measure of specialized knowledge and experience, which cannot be obtained completely by reading this manual. Therefore the installation of the print system must be made by a technician from your local distributor or examined by a final inspection. Damage or damages based on an incorrect installation, represent no case of warranty.

## Requirements to the Site of Installation

---

When choosing the installation location the following conditions apply:

- Consider the generally accepted ergonomic criteria in accordance with workplace ordinances as well as country-specific legislation.
- The installation location must be a dry and dust-free room, ideally with an ambient temperature of approx. 18...25 °C.
- The installation location may not be subject to fast temperature fluctuations (condensation!).
- Do not set up the controller directly next to or above hot surfaces, since this will affect cooling of the controller.
- If the controller is operated on a tripod (accessory), the stability of the tripod on an even foundation must be ensured.
- The controller may not be exposed to flammable, explosive, corrosive gases or chemical vapors.
- The controller may not be installed in the vicinity of high voltage equipment or power supplies.
- The controller may not be subjected to direct vibrations or shocks.
- Keep controller away from oil or water.
- The controller may not be exposed to strong magnetic or electric fields.

## Placing the Print System

---

- The installation position has to provide sufficient access for user and service technician.
- Observe that all mounting parts are fixed sufficiently.
- Consider all points of the "Intended Use" in the chapter safety regulations.

To achieve a clean, sharp print result the distance from the product to be printed to the cartridge nozzle plate is important. The optimum distance is 0 to 4 mm between the deflector and the product. A greater distance will adversely affect the print result, particularly at high conveyor belt speeds.

The higher the print speed the shorter must be the distance. At speeds of less than 20 m/min a distance of up to 4 mm between the nozzle plate and the product may still be acceptable.

## Mounting Positions

---

Preferred mounting position for printing is from the side or from the top  
Or any intermediate position (oblique from above)

When printing from the side and the cartridge is tilted 90° (product direction from top to bottom or vice versa), the cartridge cannot be printed empty. (80-90%).

Functionality with bottom-up print is not guaranteed.

- Due to the direction of droplet flight, the printing distance is small
- Ink mist falls back onto the nozzle plate and contaminates it
- The cartridge prints only a small part of the ink content
- Air in the nozzles prevents complete printing
- Ambient dust and dirt falls on the nozzle plate and thus the print quality suffers.

## Positioning the Print System

---

### NOTICE

#### Material damage due to improper print system installation!

With the print system switched on, a defect may occur in the system electronics.

Therefore:

- Only install the system when it is switched off.
- Network cables only connect or disconnect if the power supply is dead voltage.

### NOTICE

#### Possible material damages!

Product mounting rails prepared by the customer protect the system unit from vibrations and damage whilst the product is passing the system unit. (Position B in Fig. 4)

## Required Resources

- Setscrew wrench (Allen key®)

## Instruction

Please install the print system as follows:

Step	Procedure
1	Attach mounting brackets to the production line.
2	Insert the mounting rail fitted underneath the controller into the clamping piece of the mounting holder and lock.

Step	Procedure
------	-----------

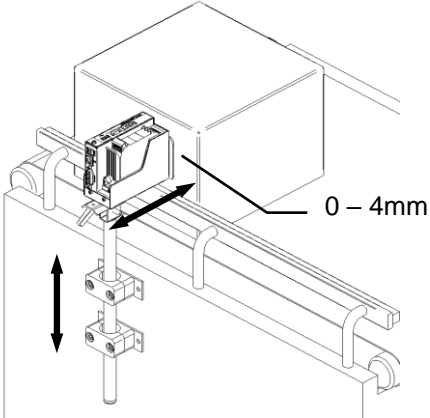


Fig. 9: Installation of the X1JET HP at the production line

<b>3</b>	Set the distance from the print head to the product surface. A distance of 0 to 4 mm is optimal.
----------	--

## Connecting the Print System

---

**NOTICE****Possible material damages!**

To prevent faults due to potential differences, an electro-conductive connection between control unit and conveyor belt must be established.

---

**NOTICE****Material damage due to induced currents!**

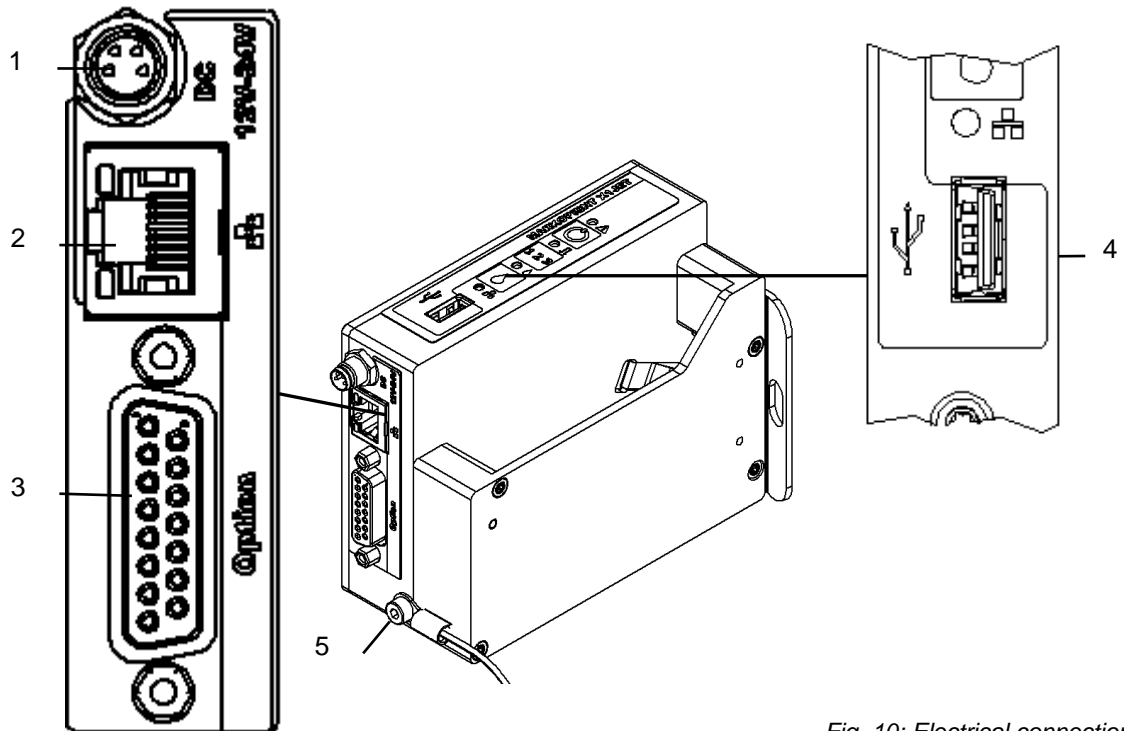
If the connection cables of the controller run close to high voltage or heavy current cables in the cable duct, induction may cause malfunctioning or damage.

Therefore:

- Lay all connection cables of the controller spatially separate from high voltage and heavy current cables.
- 

The Print system needs electricity for its functions. Please find more details in the chapter “Technical Data”.

**Overview of the print system connectors**



*Fig. 10: Electrical connections*

No.	Description
1	POWER CONNECTION
2	ETHERNET
3	OPTIONS
4	USB-A
5	GROUND CONNECTION

## Ground print system

### Instruction

Please connect the ground connection of the print system with ground connection of the conveyor as follows:

Step	Procedure
1	Connect the ground connection of the print system with ground of the conveyor.

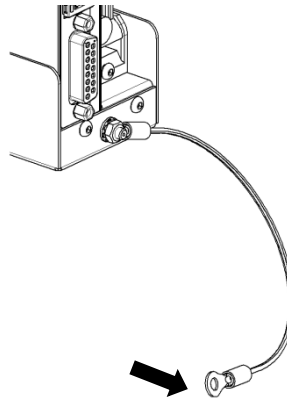


Fig. 11: Ground connection at the print system

## Connecting to Supply Voltage

### Requirements

- Power supply according to "Technical Data" is installed close (max. 1,5 m away) to the printing site.

### Instruction

Please connect the print system with supply voltage as follows:

Step	Procedure
1	Enclosed the power supply are several country-specific power plugs. Mount the right power plug to the power supply.

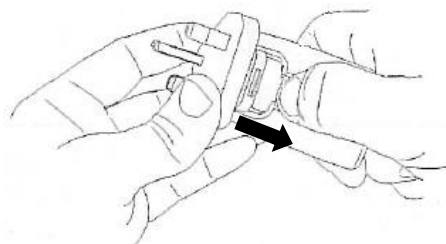


Fig. 12: Installation power plug

2	Connect the power plug to the power socket on the X1JET. (DC 12V).
3	Connect the power pack with the power supply.

## Connecting the optional Shaft Encoder

If more options will be used simultaneously, a splitter-box (Art.-No.: 40102519) can be used.

### Requirements

- The optional shaft encoder is mounted at the production line.
- Ideally runs the measuring wheel of the shaft encoder on the conveyor belt, near the print system.

### Instruction

Please connect the optional shaft encoder with the print system as follows:

Step	Procedure
1	If necessary install the optional shaft encoder on the production line and connect it to the option-connection socket.

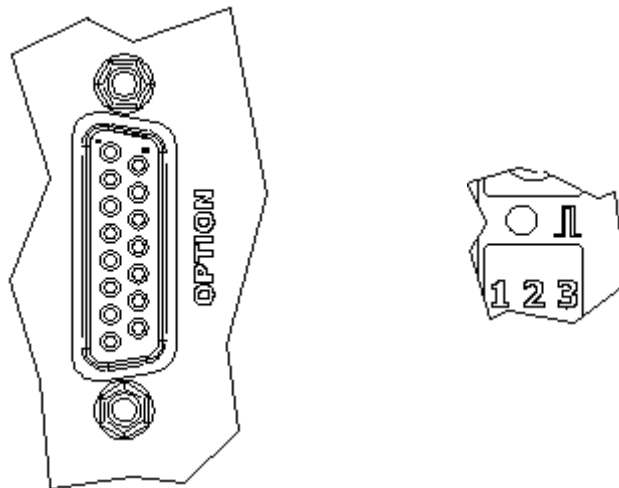


Fig. 13: Option-Socket (Sub-D 15-pole) on the system-back and Sensor-LED on the top side of the system

2	Set the system-clock to Shaft encoder by the idesign software. (System settings – Print parameter)
3	Set the shaft encoder resolution by the idesign software. 600 dpi with the delivered shaft encoder from Weber. (System settings – Print Parameter)
4	Set the intensity by the idesign software so, that the desired effective resolution can be reached. (System settings – Print parameter)
5	The Sensor / Encoder LED lights red, if the shaft encoder isn't connected or doesn't rotate.

## Connecting the optional Product Sensor

If more options will be used simultaneously, a splitter-box (Art.-No.: 40102519) can be used.

### Requirements

- The optional product sensor is mounted at the production line or on the X1JET HP Premium system unit.

When mounting on the production line:

- The sensor is mounted in product running direction, near the X1JET HP.
- Between the sensor and the nozzle plate is maximum a product, because another print activation is otherwise ignored

### Instruction

Please connect the optional product sensor with the print system as follows:

Step	Procedure
1	If necessary install the optional product sensor on the production line or on the X1JET HP Premium and connect it to the option-connection socket.

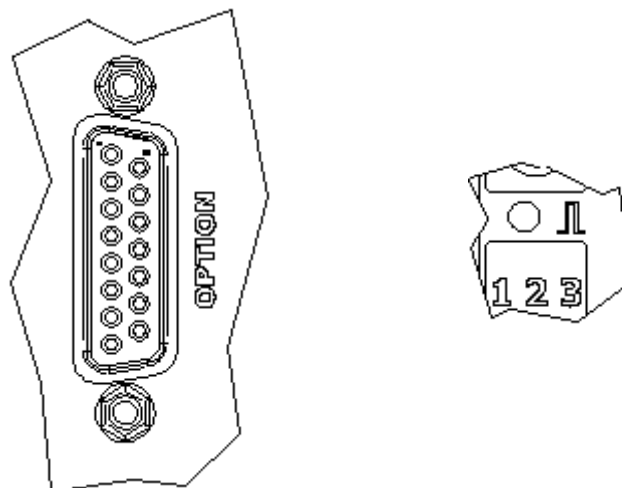


Fig. 14: Option-Socket (Sub-D 15-pole) on the system-back and Sensor-LED on the top side of the system

2	Set the sensor input of the system to External by the idesign software. (System settings – Advanced settings - Periphery)
3	The Sensor LED lights green with print activation from product identification to the end of the print.
4	If no print image is loaded, the Sensor LED lights yellow as long as the sensor is covered.



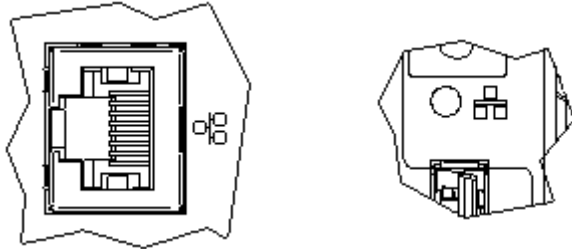
## Connection to a network

A RJ-45-connection allows a connection of the print system to the customer LAN (Local Area Network).

The LED on the top of the system lights green if a network is available. The LED flashes yellow with data communication.

### Instruction

Please connect the print system with the network as follows:

Step	Procedure
1	If required connect the print system to the network by a RJ45 socket.
	
2	Set the desired IP address by the idesign software. (System settings – System Config – IP-Address)
3	Add the system in the idesign software to operate it by the idesign software. (Connections – Add system – Enter name and IP address)

*Fig. 15: Ethernet-socket (RJ 45) on the system-back and network LED on the top side of the system.*

**Each IP address can place in a network once only. Otherwise there is an address conflict and the system can't address. Please contact your system administrator.**

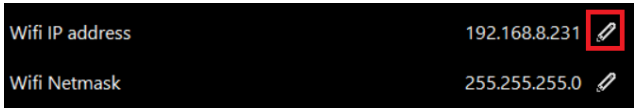
## Setting up a mobile network connection (optional)

The Markoprint X1JET HP MK3 Premium has an optional WLAN interface. This allows the system to be integrated into mobile networks. In this way, a maximum of 4 users have access to the system simultaneously via an access point.

The WLAN module can be ordered or retrofitted. Retrofitting is only possible with X1JET HP MK3 Premium. An additional activation is also necessary.

### Instruction

Please assign an IP address for the W-LAN module as follows:

Step	Procedure
1	Plug a USB stick into the X1JET and wait until the status LED stops flashing.
2	Plug the USB stick into a PC with idesign software. The system is displayed in idesign.
3	Click with the mouse on the system and select: Settings / System / Wifi IP Address Enter the desired address. Confirm with OK and add the connection.
	
4	Plug the USB stick back into the X1JET. The X1JET can now be found at this IP address.

**Each IP address may only be assigned once in a network. Otherwise an address conflict occurs and the system cannot be addressed. Contact your system administrator.**

### **Access via a mobile network connection (optional)**

---

Access can take place from any device with a web browser.

For access via web browser, refer to the chapter on web interface.

→ **Chapter** Web-Interface, **page** 68

### **Instruction**

Please connect the WLAN-enabled device to the print system as follows:

<b>Step</b>	<b>Procedure</b>
1	Use the network configuration of your operating system and connect it to the WLAN of the X1JET HP MK3 Premium. (Serial number of the device, example: R03652-x1)
2	Enter the password of the print system Password: 12345678
3	Your operating system connects to X1JET and receives an IP address from the DHCP server of the X1JET WLAN module.

**Data transfer via WLAN ends in the X1JET. The data sent via WLAN will NOT be forwarded to any wired networks.**

## Insert ink cartridge

### NOTICE

The hazard and safety information for the individual inks and solvents must be observed and complied with.

**Please read the respective safety data sheet (MSDS)!!**

Therefore:

- Wear suitable protective gloves and safety goggles to avoid direct contact with ink or solvent.
- Wash off any ink or solvent that has come into contact with your skin or eyes with soap and water as quickly as possible.
- Work on the device may only be carried out by reliable personnel who observe the hazard and safety instructions.

**If a new ink cartridge is inserted, the cartridge counters must be reset.**

**Only needed when using cartridges with NoSmartCard.**

→ *Chapter* Reset ink counter, *Page* 66

**Use the ink cartridge as soon as possible after having removed the protective foil or the cartclip.**

### Instruction

Please insert the ink cartridge in the print system as follows:

Step	Procedure
1	Remove the protective foil or CartClip from the nozzle plate and insert the ink cartridge in the holder.
2	Before replacement of the cartridge, wipe the nozzle plate once with a lint-free cloth.
3	Insert the ink cartridge in the cartridge holder diagonally.

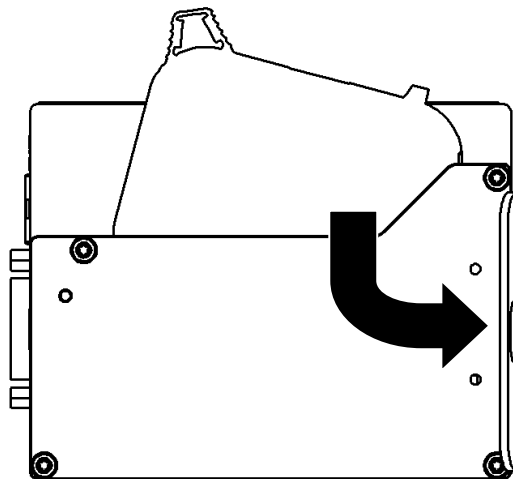


Fig. 16: Insert the ink cartridge

4	Click the ink cartridge by lightly pressure at the end.
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Step	Procedure
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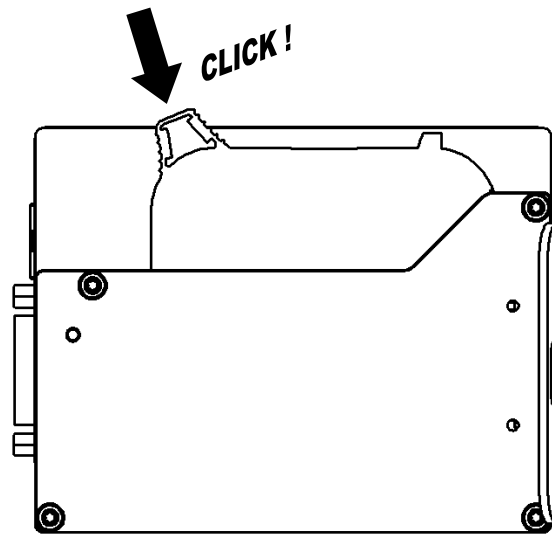
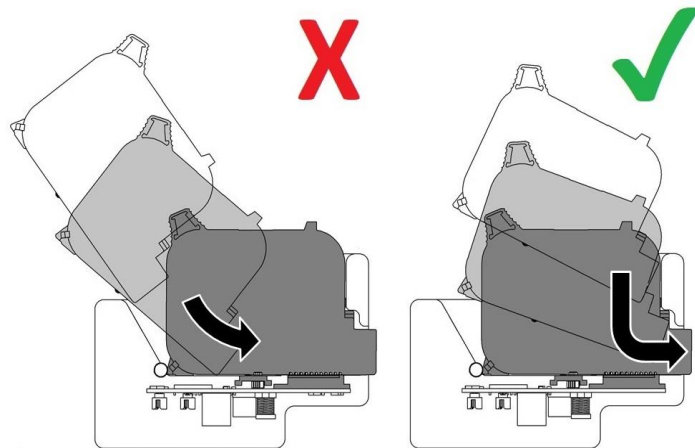


Fig. 17: Fixing the ink cartridge

The correct position of the ink cartridge is displayed by the Ink-LED. The LED lights green after resetting the cartridge counter and after inserting a new ink cartridge.



**Achtung!**

Wenn Sie die Kartusche nicht richtig einsetzen, kann der Druckkopf beschädigt werden.

**Attention!**

If you not insert the cartridge correctly, you risk a damage of your printhead.

go ► [www.markoprint.com](http://www.markoprint.com)

**X1JET HP MK3**

---

**NOTICE****Damages by misuse!**

An electronic fault can't waive with a going print process and simultaneous removing of the cartridge.

Therefore:

- Only change the cartridge when the print process is stopped.
- 

**Instruction**

Please remove the ink cartridge from the print system as follows:

Step	Procedure
1	Press diagonal upwards at the end of cartridge.
2	Tip the cartridge from behind upwards.

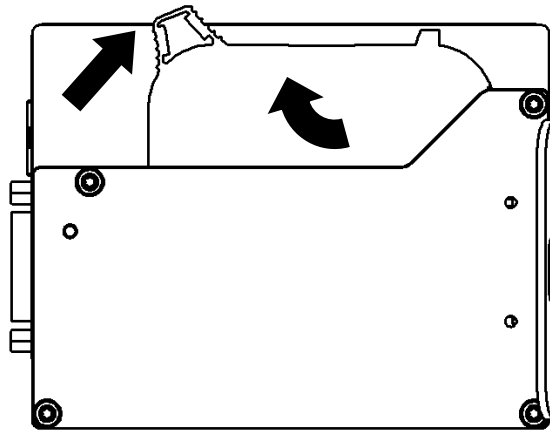


Fig. 18: Remove the ink cartridge

---

## Flexbracket installation

### NOTICE

#### Material damage due to improper print system installation!

With the print system switched on, a defect may occur in the system electronics.

Therefore:

- Only install the system when it is switched off.

### Required Resources

- Screwdriver Torx®, SW TX10
- Allen key ® SW 2,5
- Allen key ®, SW 3

### Instruction

Please install the Flexbracket as follows:

Step	Procedure
1	Disconnect both fixing bolts (this will used again) of the deflector and remove it from the system unit.

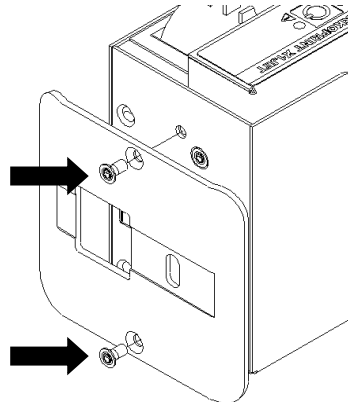
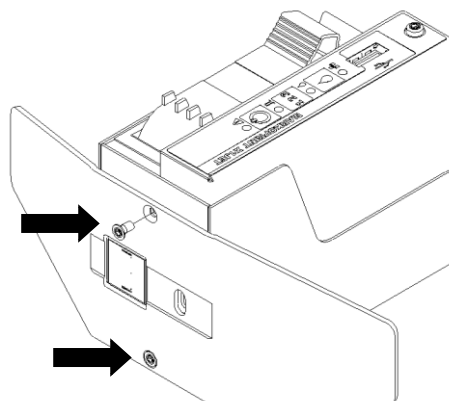


Fig. 19: Disassembly deflector

2	Put the Flexbracket-deflector on the system unit and tighten it with both fixing bolts.
---	---



Step	Procedure
------	-----------

Fig. 20: Flexbracket-deflector installation

3	If a mounting rail is already mounted under the system unit, disconnect the fixing bolts and remove the mounting rail.
---	--

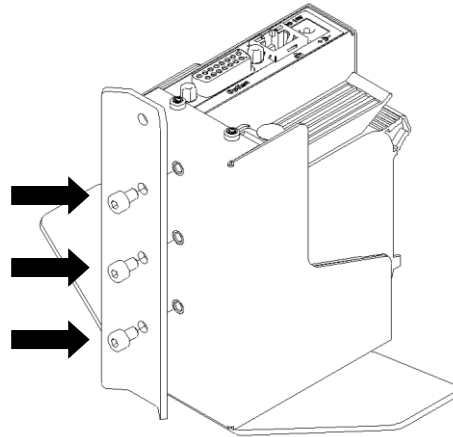


Fig. 21: Disassembly mounting rail

4	<p>The slide of the Flexbracket must be pull in such a position that the borings for the insertion and tightening of the fixing bolts are available. Furthermore the pull spring at the Flexbracket must be push away laterally.</p>
---	--

Set the fixing bolts in the counterbore of the Flexbracket. Positioning the Flexbracket on the system unit and tighten.

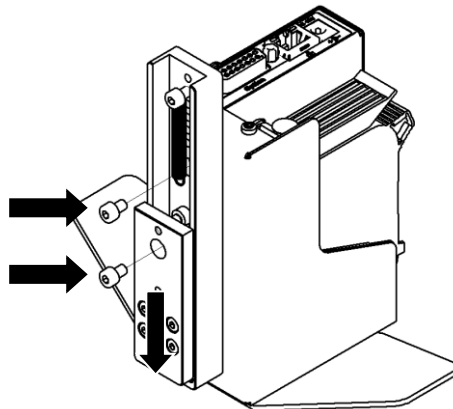


Fig. 22: Flexbracket installation

5	Proceed with the installation like described in → <b>Chapter</b> Positioning the Print System, <b>page 42</b>
---	---



# Operation

## User interface of the print system

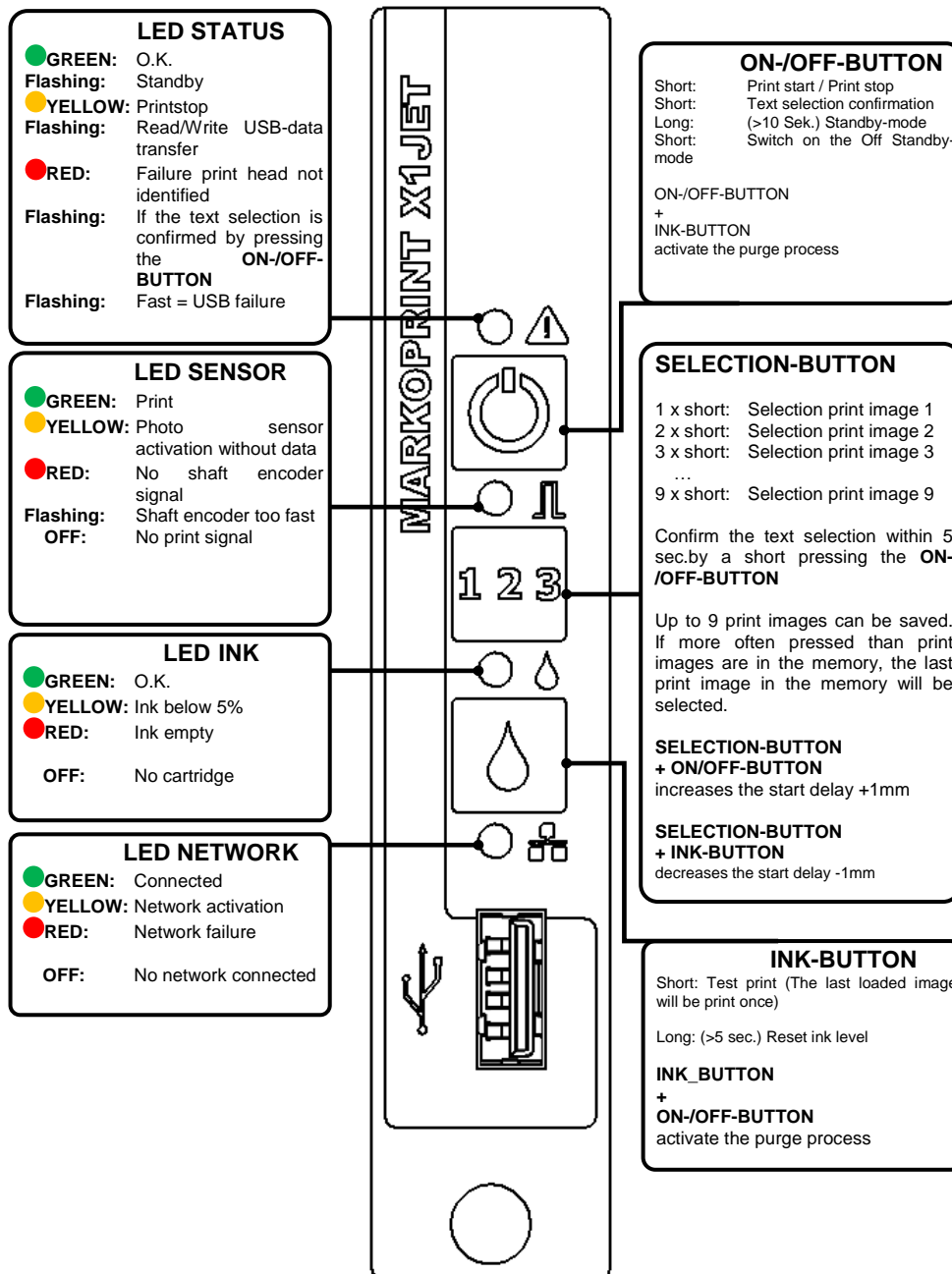


Fig. 23: User interface on the top side of the system

When starting the system unit the progress of the starting process can be monitored on the LED's. If errors occur during booting, an error code is transmitted via the LED's and can be analyzed in more detail.

→ *Chapter* Boot-LED messages, *Page* 100

## Switching ON

---

Connect the power supply.

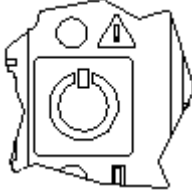
**Alternatively, when the system is in standby:**

### Requirements

- The print system is connected with power.
- The system is in standby-mode

### Instruction

Please switch the print system on as follows:

Step	Procedure
1	Press short on the [ON-/OFF]-Button on the top side of the print system.
	
<p><i>Fig. 24: ON-/OFF-BUTTON on the top side of the system</i></p>	
2	The system conducts a self-test and is ready to use after approx. 10 seconds.

## Switching OFF/Standby mode

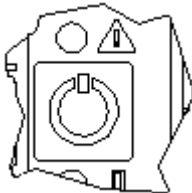
---

### Requirements

- The print system is connected with power and switched on.
- To use the standby mode, it must be activated in idesign.
- The settings for the standby mode in idesign :  
Functions >> Settings >> System >> Special settings

### Instruction

Please switch the print system off as follows:

Step	Procedure
1	Keep the [ON-/OFF]-Button on the top side of the print system pressed for approx. 10 seconds. The print system passes to standby mode.
	
<p><i>Fig. 25: ON-/OFF-BUTTON on the top side of the system</i></p>	
2	The Status LED flashes every 10 seconds shortly in the standby-mode.

Step	Procedure
3	Disconnect the power supply from the print system for a completely switch off.

## Print Stop

### Instruction

Please activate a Print Stop / a Print Pause as follows:

Step	Procedure
1	Presses once short the [ON-/OFF]-Button on the top side of the print system.

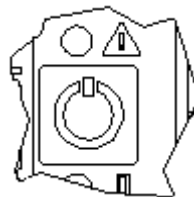


Fig. 26: ON-/OFF-BUTTON on the top side of the system

2	The Power LED lights yellow on print stop.
---	--

## Print Start

### Instruction

Please activate a Print Start as follows:

Step	Procedure
1	Presses once short the [ON-/OFF]-Button on the top side of the print system.

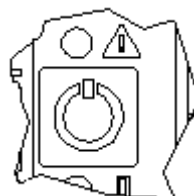


Fig. 27: ON-/OFF-BUTTON on the top side of the system

2	The Power LED lights green with successful print activation.
---	--

## Select Print Image

Up to nine print images can be saved in the memory of the Markoprint X1JET HP/ -Premium for a direct call up at the system unit.

### Instruction

Please select a print image as follows:

Step	Procedure
1	To select the saved print image, ranks third, press the [SELECT]-Button three times short.
<div data-bbox="778 566 938 734" data-label="Image"> </div> <div data-bbox="820 734 1426 763" data-label="Caption"> <p>Fig. 28: SELECT-BUTTON on the top side of the system</p> </div>	
2	To confirm the text selection pressing the [ON-/OFF]-Button within 5 seconds.
<div data-bbox="770 891 962 1077" data-label="Image"> </div> <div data-bbox="820 1077 1426 1106" data-label="Caption"> <p>Fig. 29: ON-/OFF-BUTTON on the top side of the system</p> </div>	
3	After pressing the [ON-/OFF]-Button, the selected text is confirmed with the flashing STATUS LED. I.e. if text 3 is selected, the STATUS LED flashes three times.
<div data-bbox="791 1267 930 1384" data-label="Image"> </div> <div data-bbox="900 1391 1426 1420" data-label="Caption"> <p>Fig. 30: Status-LED on the top side of the system</p> </div>	
4	The print images 1.00I to 9.00I can selected for printing in this way.

## Loading Print Image

---

Print Images can load to the Markoprint X1JET HP/ -Premium print system as follows:

- USB-Stick
- Software idesign with existing network connection via RJ45 or
- By serial interface EIA 232

Load print images incl. fonts, logos and parameter with a USB-stick automatically.

The files can load to a USB-stick by idesign.

After the connection of a USB stick an automatic run of commands will be made to query the system status.

At the same time a directory „Markoprint“ and a subdirectory with the name of the serial number of the system, i.e. „L12003-x1“ will be created in the main directory of the USB stick. There will be saved all system specific data.

The stick must be connected once on the system to post this information, so that the idesign software can work with the system after that.

The transfer of the data and commands happen by the Markoprint X1JET HP/ -Premium directly after the connection of the stick. After this the „Status.ast“ file is created.

### Process:

After the connection and identification of the stick, the data will be read from the stick and the Status LED flashes quickly meanwhile (4x/second)

Thereafter, data written on the stick and the Status LED flashes slowly meanwhile (2x/second)

If the LED lights constant, the stick can removed after 2 seconds.

## Load print image with a USB-Stick

---

### Needed tools

- USB-Stick

### Requirements

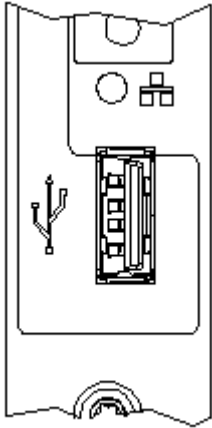
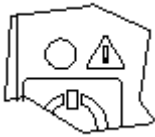
- The used USB stick was connected for a „Initialisierung“ to the Markoprint X1JET HP/ -Premium print system.
- The print image, created with the idesign Software, is transferred to the USB stick.

### Instruction

Please load the print image from the USB-Stick to the memory of the Markoprint X1JET HP/ -Premium print system:

Step	Procedure
1	Connect the USB-Stick to the USB-socket on the top side of the print system.

---

Step	Procedure
	 <p data-bbox="869 683 1428 712"><i>Fig. 31: USB-A socket on the top side of the system</i></p>
2	Wait until the data exchange is completed. The STATUS LED flashes during the data exchange and lights constant after finishing.
	 <p data-bbox="869 1019 1428 1048"><i>Fig. 32: STATUS-LED on the top side of the system</i></p>
3	Remove the USB-Stick from the print system (2 seconds after the LED flashes constantly).

**If the USB-stick is removed early or during data transfer, it can happen a data loss.**

## Set print start delay

Change the print start delay on the system with a key combination.

### Instruction

Please set the print start delay on the system as follows:

Step	Procedure
1	Press the [SELECT]-button and [ON-/OFF]-button to increase the print start delay.

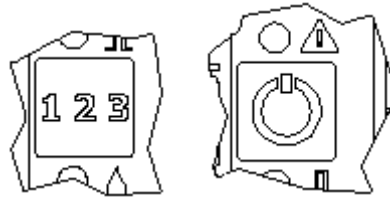


Fig. 33: SELECT-BUTTON and ON-/OFF-BUTTON

2	The delay increases about 1 mm with each keypress.
3	Press the [SELECT]-button and the [INK]-button to decrease the print start delay.

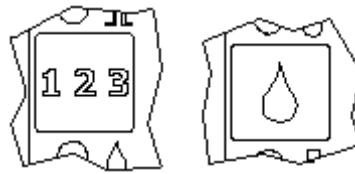


Fig. 34: SELECT-BUTTON and INK-BUTTON

4	The delay decreases about 1 mm with each keypress.
---	--

## Loading Print Image with idesign

### Requirements

- The Markoprint X1JET HP/ -Premium print system is connected with the idesign Software by a network or serial interface.

### Instruction

Please load a print image from idesign to the memory of the Markoprint X1JET HP/ -Premium print system as follows:

Step	Procedure
1	Select the menu Functions on the left side of idesign
2	If several print systems are connected with the idesign software, click on the illustration of the corresponding print system which shall be selected.
3	Click on the button [Print].
4	Select the desired directory by pressing the directory button. The print images, saved in idesign can be found in the directory C:\user\public\idesign\label standard.
5	Click to select the desired print image. The selected print image is shown in the preview.
6	Click on the button [Print start] to print the selected print image. A window with "Print start ok" is shortly shown for the confirmation.



Fig. 35: Print image selection in idesign



## Setting of the parameter by idesign software, i.e. Print Start Delay

The print start delay can be set in this menu, i.e. by how much is printing delayed in millimeters after the product is detected by the light barrier.

The delay can be selected between 0 and 999 millimeters.

The print start delay relates to the beginning of the print layout.

### Requirements

- The Markoprint X1JET HP/ -Premium print system is connected with the idesign software via a network or serial interface.

### Instruction

Please set the print start delay via the idesign software as follows:

Step	Procedure
1	Select the menu Functions on the left side of idesign.
2	If several print systems are connected with the idesign software, click on the illustration of the corresponding print system which shall be selected.
3	Click on the button [Settings].
4	Click on the menu slide „Print parameter“ to call up the corresponding menu.
5	Set up the print start delay by click on the arrow keys or by input via keypad.

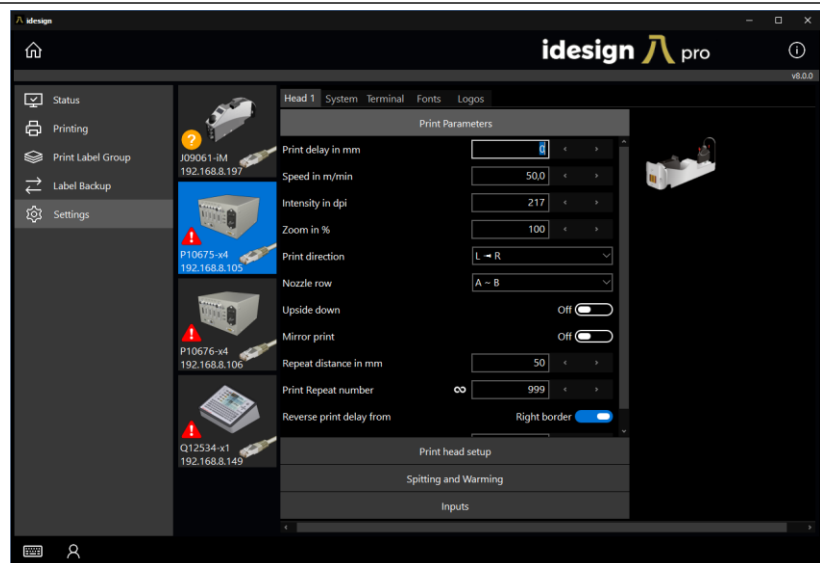


Fig. 36: Set up the print start delay in idesign

## Reset ink counter

### NOTICE

The ink counter can and must only be reset when the Smart Card settings are deactivated. This is not necessary for systems with Smart Card function!

The ink counter must be reset after inserting a new ink cartridge.  
Not necessary for MK3 system with SmartCard control

### Instruction

Please reset the ink counter as follows:

Step	Procedure
1	Press the [Ink]-button longer than 5 seconds.

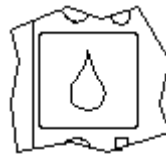


Fig. 37: INK-BUTTON on the top side of the system

2	The green Ink LED lights after a successful reset.
---	--

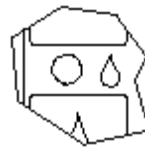


Fig. 38: INK-LED on the top side of the system

**The Ink LED lights yellow by nearly empty cartridge (<5%).  
The Ink LED lights red by empty cartridge.**

## Calculate ink content

An ink HP cartridge contains 42 ml of ink, equivalent to 1.26 billion ink droplets of approx. 33 pl each. The system counts the ink droplets printed and uses this to calculate the ink consumption.

This function is only correct if the ink counter is reset when a new ink cartridge is inserted.

The ink content can also be determined by weighing: A full HP cartridge weighs approx. 110 g ± 3 g. An empty cartridge weighs approx. 70 g ± 5 g. The residual ink in an empty cartridge is 3 ml max.

## To rinse the nozzles manually

### NOTICE

#### Material damage due to squirting ink!

During spitting, squirting ink soils the surroundings.

Therefore:

- Hold an absorbent cloth in front of the ink cartridge nozzle plate.

After extended periods of no printing, it may be necessary to rinse the ink cartridges to open up clogged nozzle channels again.

During rinsing (purging), all ink cartridge nozzle ducts are addressed to eject some ink. The rinse process takes max. 2 seconds or rather so long as the button will be pressed and hold.

#### Needed tools

- Absorbent cloth
- Or paper / cardboard

#### Instruction

Please rinse the nozzle channels as follows:

Step	Procedure
1	Hold a absorbent cloth on front of the nozzle plate of the ink cartridge.
2	Press the [ON / OFF]-button and the [INK]-button on the top of the system simultaneously.

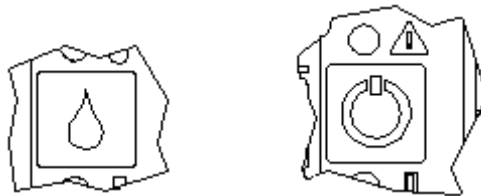


Fig. 39: [ON / OFF]-button and [INK]-button on the top of the system

3	Wipe the nozzle plate off carefully to remove excess ink.
---	---

## Web-Interface

---

The WEB Interface basically behaves like the X2JET / X4JET plus Touch operation.

The WEB Interface can only be called from one terminal at the same time!

If the WEB Interface of a print system should be operated by another terminal, the existing connection must stop before!

An intro is displayed after starting the WEB Interface.

To skip the intro, click on this.



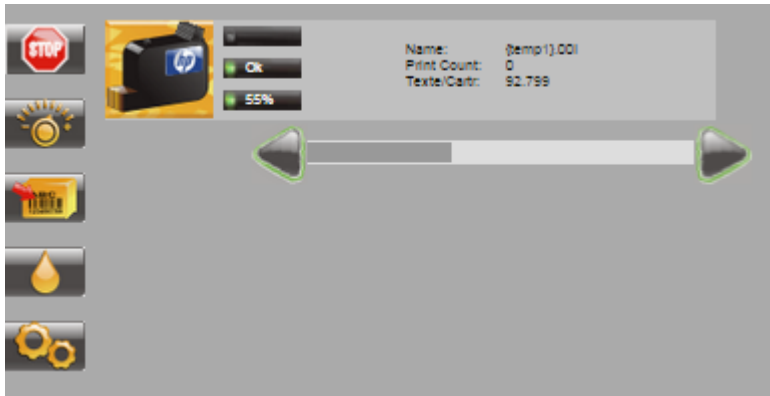
The version number of the system firmware is also displayed.


After that, the status screen is displayed, from which can be navigated.




Use the arrow keys to scroll through the print image.

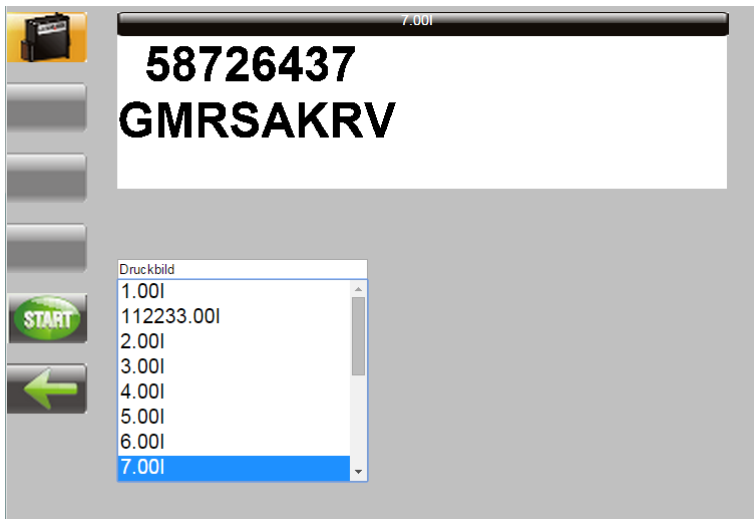
By a click on the print image, the print image name, the number of the previously print image and the number of prints of the selected print image, which can be print with a full cartridge, are displayed.





The print can pause with .



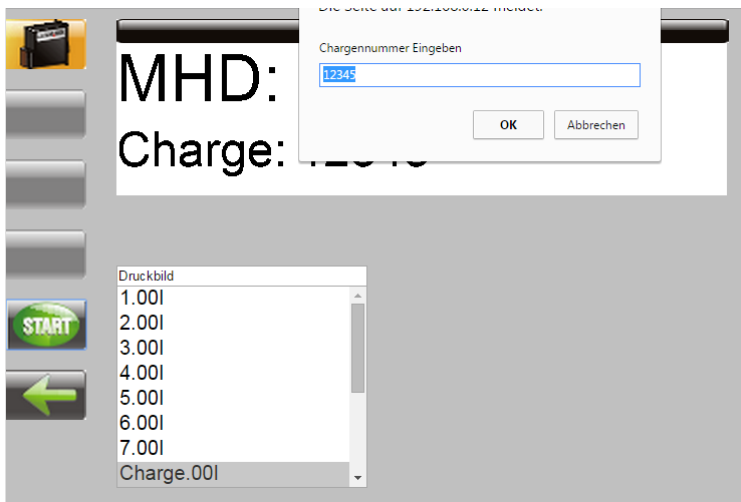
The print can start again or another print image can select with .



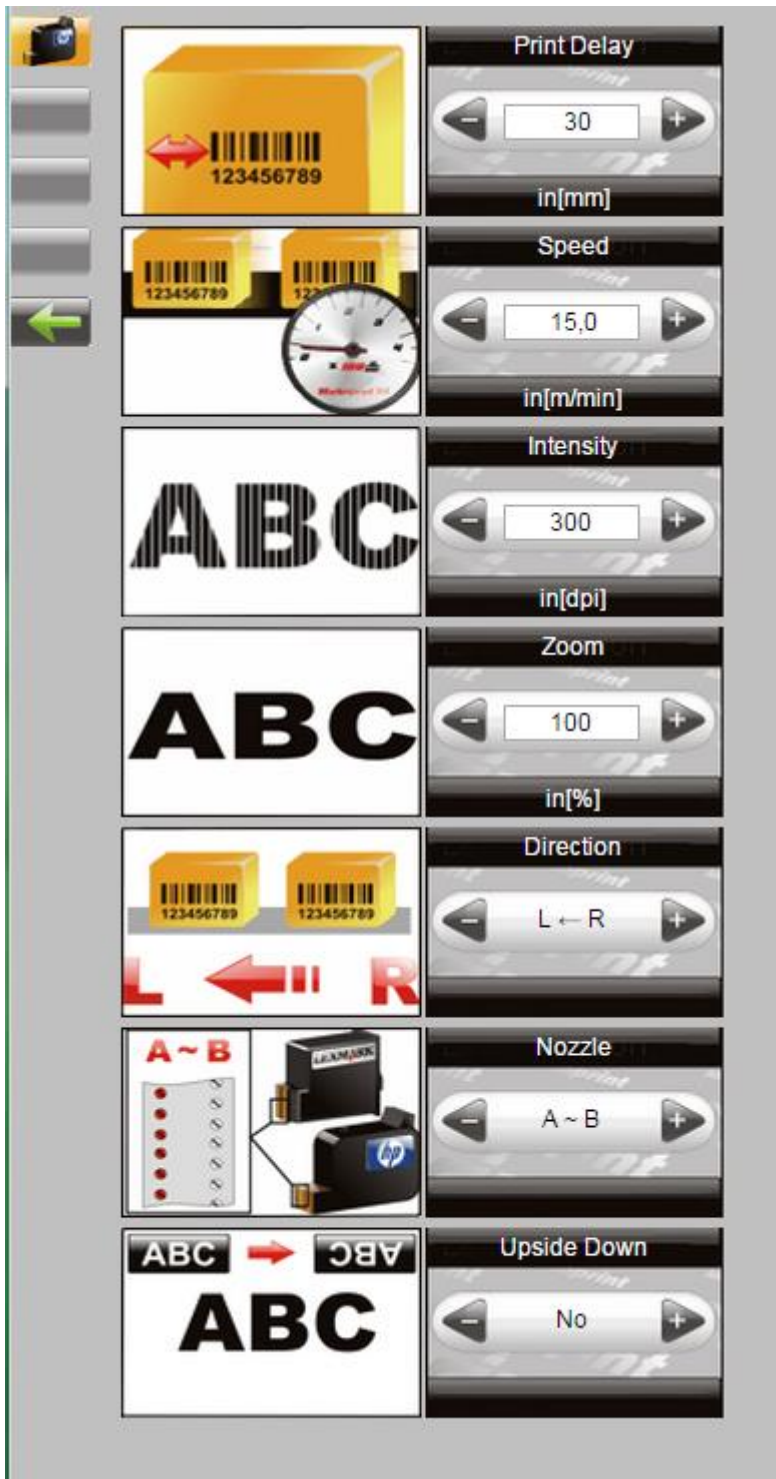
The selected print image can start with .

The last loaded and paused print image restarts with .

Variable fields are queried each time before a print image starts:



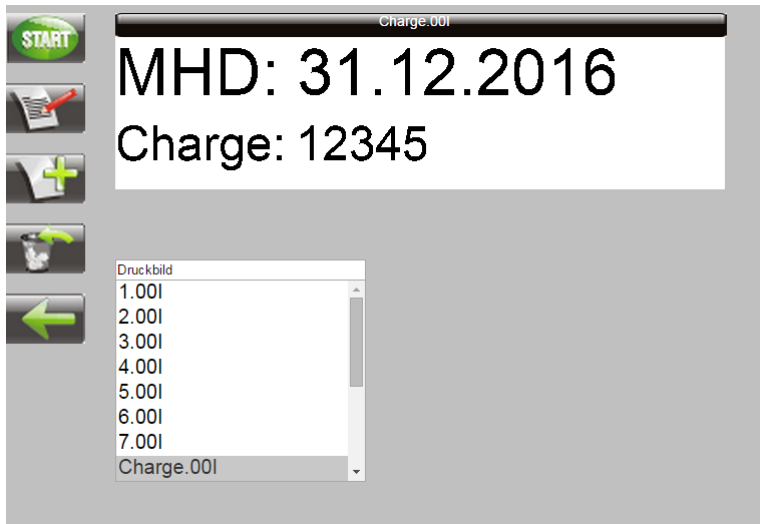
Parameter settings can be selected and changed with :




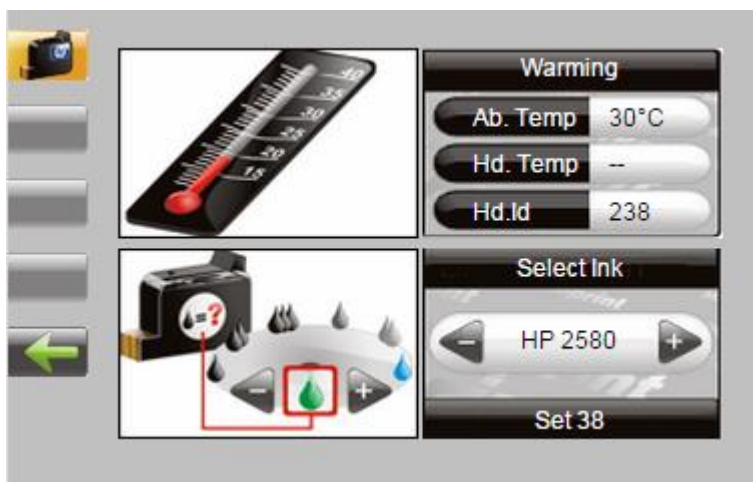
With the  button:

- a print image can call up for print start
- a print image can be changed
- a new print image can be created.


See also Operation Manual X2JET / X4JET plus Touch.

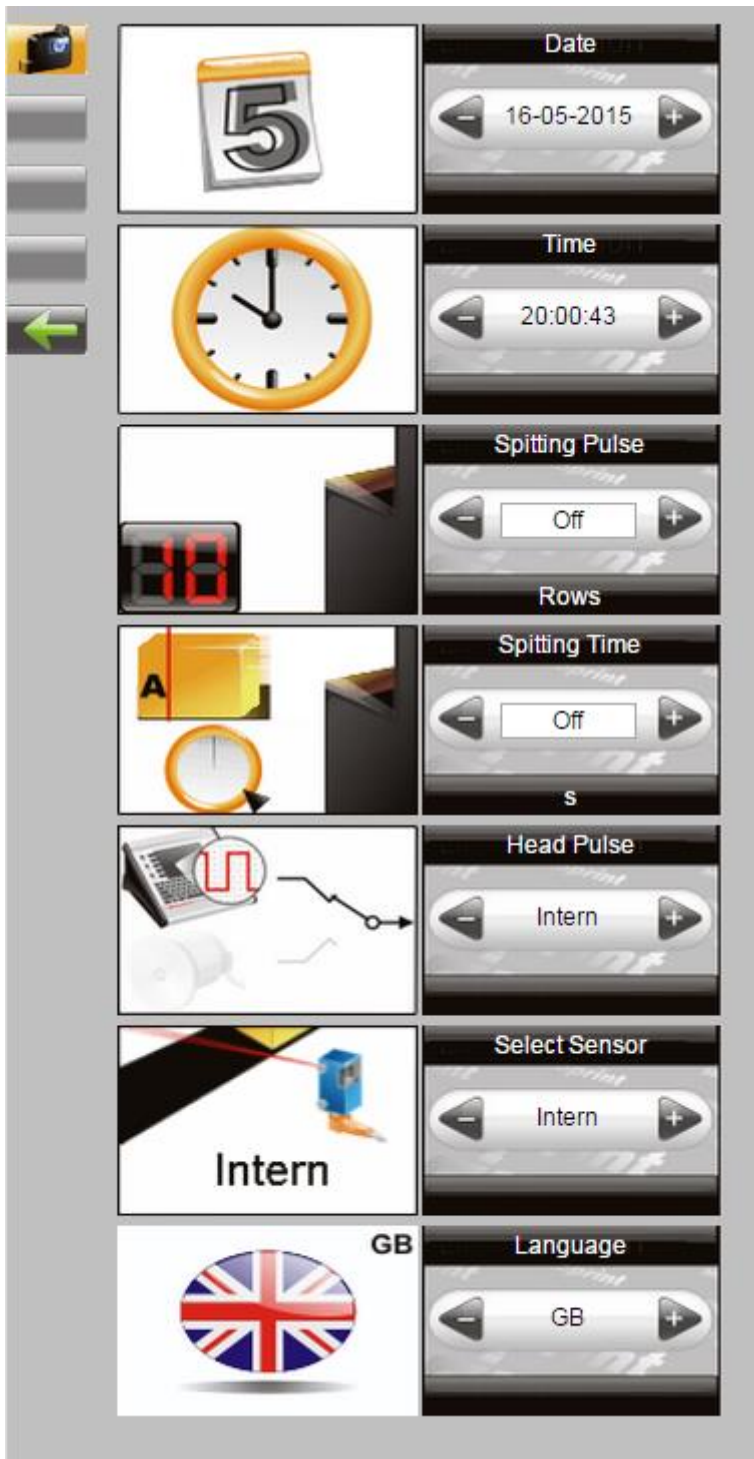


Change the ink settings with .





Call up and change the system settings with :



## Configurable In-/Outputs

### NOTICE

#### Material damage due to short-circuit!

The outputs are open Collector outputs and may load with max. 100 mA.

The **Markoprint X1JET HP/ -Premium** has at the 15-pole option socket two in- and four outputs. A variety of configurations are possible and so the connectors for output of status messages (OK, Warning, Error), cartridge level messages (5% low / empty), print ready and print pulse are possible to use. On the input side signals for heating, spitting, print direction, upside print, stop and text selection are possible.

The texts for input 1 must be called „!EXT00.00!“ and „!EXT01.00!“ with an external text selection by the inputs. The texts „!EXT00.00!“ to „!EXT03.00!“ can be assigned if both inputs are used.

The setting can be done with idesign Software in *Functions* → *System settings* → *Advanced settings* or via Web-Browser in *Settings* → *Advanced settings*.

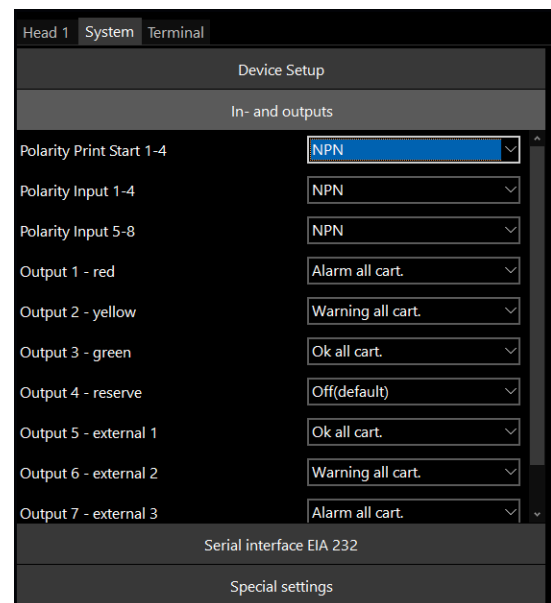


Fig. 40: User interface Software idesign

## Settings by idesign software

Following print parameter can set up with the idesign software (Note the instructions of the provided idesign software manual):

- Print start delay
- Print direction
- Overhead
- Zoom
  
- Fixed speed
- Speed (Only adjustable if fixed speed is adjusted)
- Intensity (Only adjustable if fixed speed is adjusted)
  
- Shaft encoder
- Shaft encoder resolution (only adjustable if shaft encoder is adjusted)
- Shaft encoder divider (only adjustable if shaft encoder is adjusted)

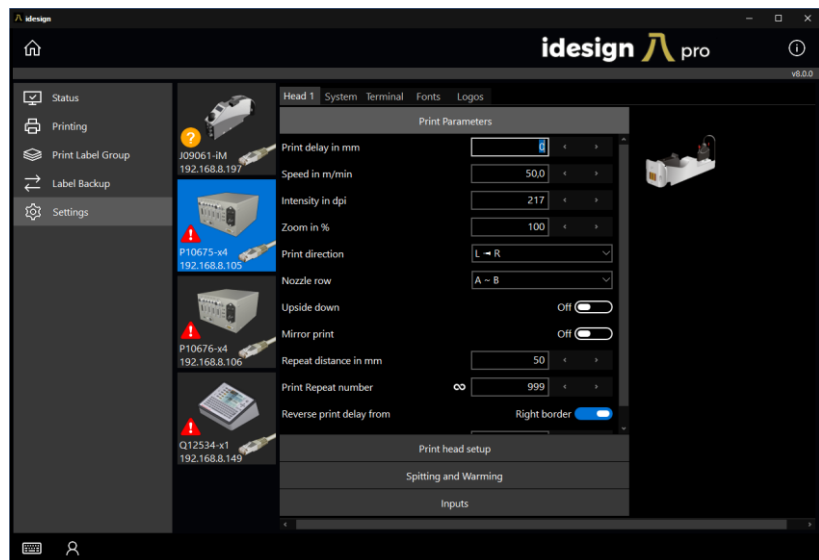


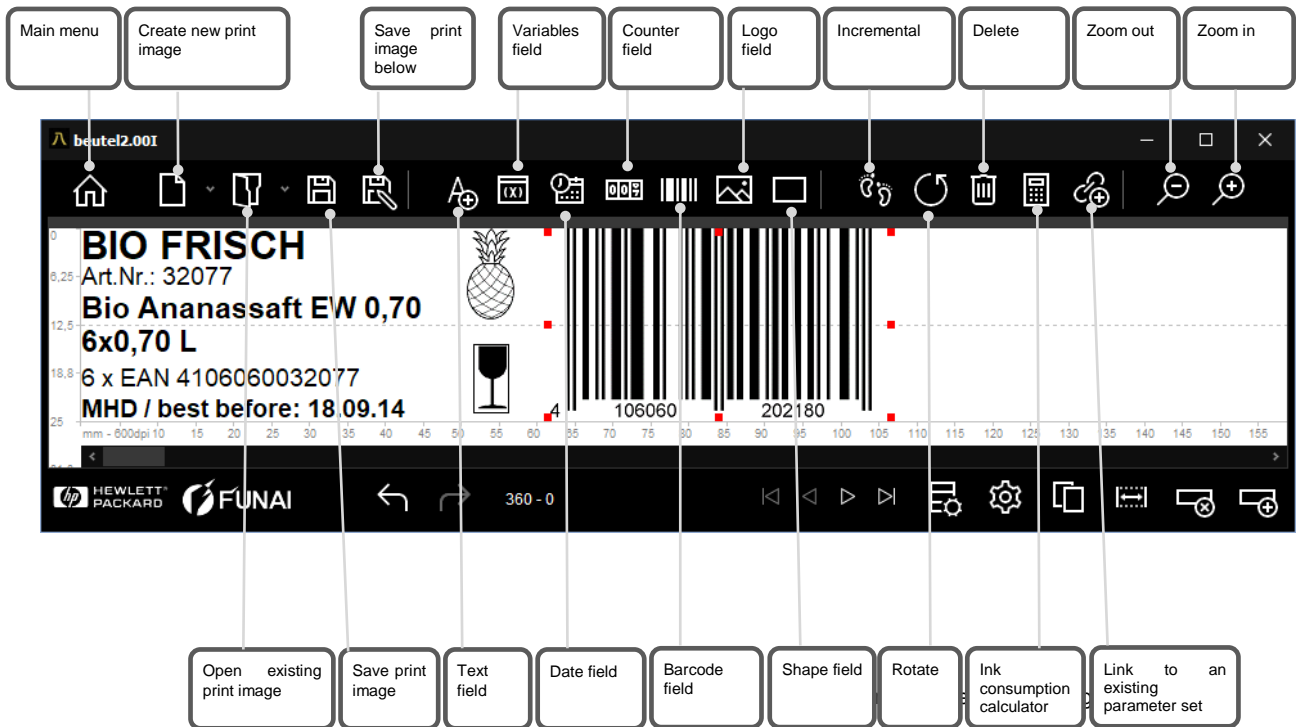
Fig. 41: Set print parameter by idesign

# idesign

## Create a print image

No print images can be created on the X1JET HP system unit itself. Print images can be created and processed with the idesign software stored on the USB stick. For this purpose, this must be installed on a commercially available PC (follow the enclosed idesign operating instructions).

The diagram below shows the operating surface of the idesign software



## Ethernet Connection establishing

---

To establish an Ethernet connection to the printer you have to know a free Ethernet address.

Please ask your system administrator.

### Instruction

How to set the Ethernet address in the system:

Step	Procedure
1	Connect a USB stick to the X1JET and wait that the status LED stops blinking.
2	Connect the USB stick to a PC with idesign software. The system will be shown in idesign.
3	Click in idesign with the mouse on the system icon and enter the requested IP address under Functions / Settings / System / IP address. Confirm the IP address and add the connection to idesign.
4	Now connect the USB stick again to the X1JET. The X1JET should now be visible under the desired IP address.

## Faults

The following chapter describes possible causes of malfunctions and how to remedy these.

In case of frequent faults, reduce the service intervals depending on the actual work load.

**Please contact your local distributor with regard to faults that cannot be remedied with the information provided below.**

## Safety

### Staff

- The fault remediation work described here, unless specified otherwise, can be performed by the operator.
- Some tasks may only be performed by specially trained specialized staff or exclusively by the manufacturer; this is specifically pointed out in the description of the individual faults.
- Work on the electrical system may only be performed by electricians.



**WARNING**

**Danger to life through electric shock!**



**DANGER TO LIFE!**

Contact with live parts poses imminent danger to life. Damaged insulation or individual components can be lethal.

Therefore:

- Immediately switch off the power supply and initiate repairs if the insulation is damaged.
- Work on the electrical system may only be performed by electricians.
- Before working on the electrical system, disconnect from the mains (remove mains plug) and check that power is off.
- Always disconnect mains before performing cleaning and repair tasks.
- Keep moisture from live parts. Moisture may cause a short-circuit.

**Risk of injury by improper fault remediation!****WARNING!**

Improper fault remediation may cause severe injury to persons, or material damage.

Therefore:

- Ensure adequate working space before starting any work.
  - Keep the working area clean and tidy! Loosely stacked or scattered components and tools are potential causes of accidents.
-

**Table of faults**

<b>Faults</b>	<b>Possible causes</b>	<b>Troubleshooting</b>	<b>Recovered by</b>
System unit does not start	No power supply	Check power supply	Electrician
	No 12V DC	Check 12V voltage, Change power supply	Electrician Instructed Person
System unit does not produce a print image	System on Standby	Press On / Off button	Instructed Person
	Print image not assigned	Assign print image	Instructed Person
	Stop print	Start print	Instructed Person
	Missing start pulse	Check photo sensor and connection cable	Electrician
	Missing ink cartridge	Insert ink cartridge	Instructed Person
	Empty ink cartridge	Insert new ink cartridge	Instructed Person
	Defect ink cartridge	Insert new ink cartridge	Instructed Person
	Dry up ink cartridge	Clean ink cartridge	Instructed Person
	Ink cartridge not inserted correctly	Remove and reinsert ink cartridge	Instructed Person
	Print parameter incorrect	Check print parameter, adjust if necessary	Instructed Person
Bad and fuzzy print image	Fault in the electronics of the controller or the print head	Send controller or print head in for repairs	Manufacturer
	Faulty rotary encoder or incorrect rotary encoder settings	Check rotary encoder and encoder settings	Instructed Person
	The distance between print head and product is too big	Reduce distance to 0 -4 mm ...5 mm	Qualified person
Bad and fuzzy print image	Low intensity	Increase intensity	Instructed Person
	Empty ink cartridge	Change ink cartridge	Instructed Person
	Blocked nozzles	Spitting and wipe the nozzle plate if necessary.	Instructed Person



## Trouble shooting tasks

### Cleaning the ink cartridge

#### NOTICE

#### Material damage due to incorrect cleaning!

Incorrect cleaning may scratch the nozzles of the ink cartridges, causing blurred print images since the scratches around the nozzles divert the ink.

Therefore:

- Use only lint-free and absorbent cloths to clean the cartridges.
- Wipe slowly without pressure.

- To be done by instructed person.
- To be done if print quality deteriorates during printing or after extended period of non-use.

During printing the print quality may deteriorate due to dust and ink vapor. In this case, wipe the nozzle plate of the ink cartridge with a lint-free cloth.

#### Needed tools

- Absorbent cloth

#### Instruction

Please clean the nozzle plate as follows:

Step	Procedure
1	Remove the ink cartridge from the holder.
2	Hold the ink cartridge with the nozzle plate facing downward.
3	Slowly wipe across the nozzle plate in the direction of the arrow, using a lint-free cloth. Do not shake the ink cartridge!

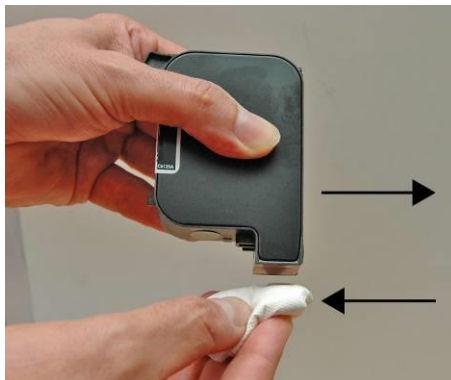


Fig. 42: Cleaning the nozzle plate

- |   |  |
|---|--|
| 4 | Reinsert the ink cartridge in the holder. → <b>Chapter</b> Insert ink cartridge, <b>Page 52.</b> |
|---|--|

## Rinsing and de-aerate the ink cartridge with the ink activator

### NOTICE

#### Material damage due to ink leavings!

Please secure the environment against ink leavings by removing the cartridge or take off the injection.

Therefore:

- Absorb the excess ink with an absorbent cloth.

- Applied by instructed person.
- Apply if, even after wiping the nozzle plate, the print quality does not improve.

Ink cartridges exposed for an extended period may dry up to such an extent that simple cleaning by wiping is inadequate.

Open ink cartridges subjected to severe shock or shaking may result in air entering the nozzles. These results in increased nozzle failures during printing or the ink cartridges stop printing altogether.

In this case, the cartridge nozzles can be rinsed with the ink activator. The ink activator consists of a holder and an injection.

#### Needed tools

- Ink-Activator
- Injection

#### Instruction

Please de-aerate the ink cartridge as follows:

Step	Procedure
1	Insert the ink cartridge in the ink activator holder as shown in the figure.
2	Press the ink cartridge in the direction of the arrow until the cartridge is firmly seated in the holder.



Fig. 43: Inserting ink cartridge in den Ink-Activator

3	Insert the injection in the opening of the holder.
---	--

Step	Procedure
------	-----------



Fig. 44: Extracting ink

4	Slowly and steadily extract approx. 1 to 2 ml of ink from the cartridge. In case of foam formation in the injection, continue extraction until the ink appears in the injection.
5	Remove the syringe from the holder.
6	Remove the ink cartridge from the holder.
7	Wipe the nozzle plate of the ink cartridge. → <b>Chapter</b> Cleaning the ink cartridge, <b>Page</b> 81
8	Check if ink is flowing out of the nozzles.
9	If no ink is flowing, re-use the cartridge.

### Air in the cartridge

Air in the cartridge makes noticeable loss nozzles. This covers an ever wider area. Air into the nozzle can occur if the cartridges be left open for long, especially when MIBL2, as these contain alcohol. Or when a cartridge is dropped, severely shaken, or is exposed to strong vibrations. To remove the air from the nozzles, the ink activator can be used as described in the manual. A typical failure screen looks like this:



Fig. 45: Example of a print image with loss of nozzles

## Disassembly

When end of the useful life expires, the system must be disassembled and disposed in an environmentally-friendly manner.

### Safety

#### Staff

---



**WARNING**

**Danger to life through electric shock!**



**DANGER TO LIFE!**

Contact with live parts poses imminent danger to life. Damaged insulation or individual components can be lethal.

Therefore:

- Immediately switch off the power supply and initiate repairs if the insulation is damaged.
  - Work on the electrical system may only be performed by electricians.
  - Before working on the electrical system, disconnect from the mains (remove mains plug) and check that power is off.
  - Always disconnect mains before performing cleaning and repair tasks.
  - Keep moisture from live parts. Moisture may cause a short-circuit.
- 



**CAUTION**

**Risk of injury caused by improper disassembly!**



**WARNING!**

Stored residual energy, sharp-edged components, points and corners on and inside the apparatus or on the required tools may cause injuries.

Therefore:

- Ensure adequate space before starting any work.
  - Handle exposed sharp-edged components with care.
  - Keep the work area clean and tidy! Loosely stacked or scattered components and tools are potential causes of accidents.
  - Secure components to prevent falling down or falling over.
  - Consult the manufacturer if uncertain.
-

- Disassembly may only be performed by specially trained specialised staff.
- Work on the electrical system may only be performed by electricians

## Disposal

---

### **NOTICE**

#### **Environmental damage due to incorrect disposal!**

Electrical scrap, electronic components, lubricants and other auxiliary materials are subject to hazardous waste treatment regulations and may only be disposed of by approved specialized companies!

---

Unless return or disposal agreements were made, submit disassembled components for recycling:

- Scrap metals.
- Submit plastic components for recycling.
- Dispose of other components according to material composition.

The local municipal authorities or specialized disposal companies provide information on environmentally compatible disposal.

## List of Accessories and Spare parts

### **NOTICE**

#### **Safety hazard due to incorrect spare parts!**

Incorrect or faulty spare parts may affect safety and cause damage, malfunctions or failure.

Therefore:

- Only use original spare parts from the manufacturer.

---

Procure spare parts via contracted dealers or directly from the manufacturer.

## HMI-Display (Human-Machine-Interface)

The print system can be extended by a display. With the HMI display, the current settings can be edited and checked. The HMI display is connected to the 15-pin Sub-D connector of the X1JET by an adapter cable.

Via 4 status LEDs, various information of the system can be checked and changed. The HMI display has a start and a stop button to start a print start or stop.

**To use the HMI display, the HMI function must be enabled. Please contact your local distributor.**

### Activate the HMI-Display

The HMI display can be activated via the local network or with an "initialized" USB stick.

#### Instruction

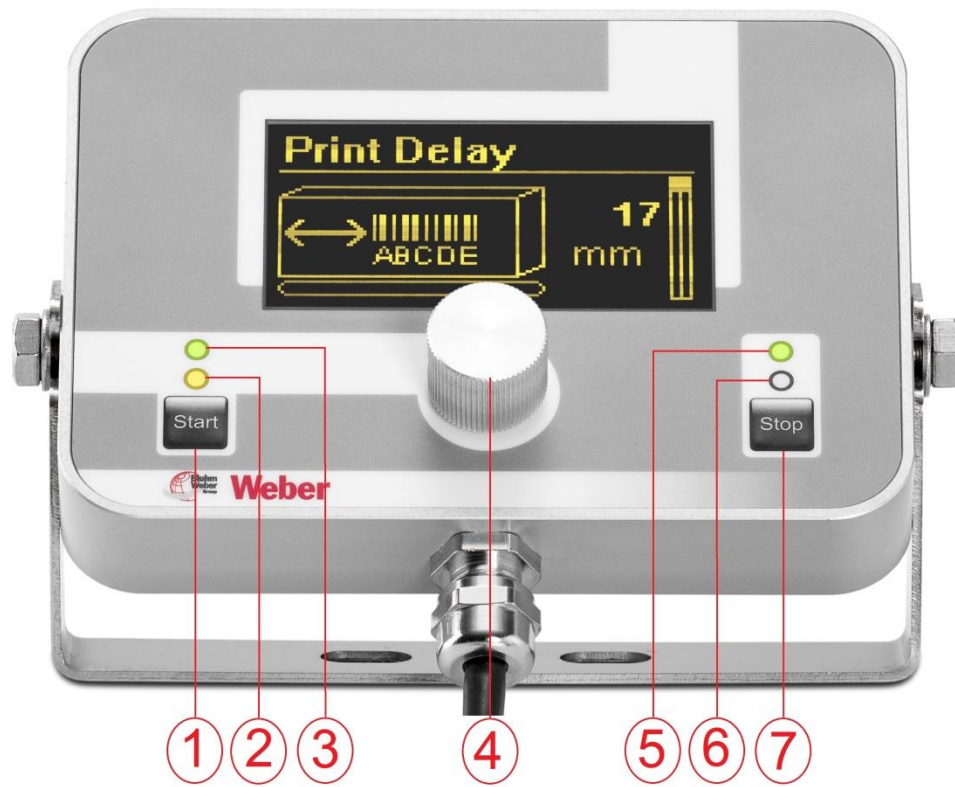
How to connect the HMI display with the print system

#### Conditions:

- The device is switched on.
- A PC with the current idesign software is available.
- The print system has firmware version 2020g or higher.
- The HMI function has been activated by your responsible distributor.

Schritt	Vorgehen
1	Connect the 5-pin connector of the HMI display with the HMI connection cable or the HMI Y-cable
2	Connect the 15-pin Sub D connector of the HMI connection cable or the 15-pin Sub D connector of the Y-cable with the print system
3	Activate the HMI function via idesign with the PC  Settings >> System >> Special settings >> X1JET HMI
4	Now the system properties of the print system and the variables of the print image can be changed and the print image can be selected via the HMI display

## Description of the HMI-Display



1.	Start	Restart after Stop.
2.	Device status	Indicates the status of the connected device. <b>Red</b> Error, No Cartridge in the System. <b>Yellow</b> Printstop <b>Green</b> OK
3.	HMI-status	Status of the HMI-Display <b>Green</b> Display OK
4.	iLogic	Use to navigate in the menus. Rotate Selection of different menus Push Select sub menu Halten Return to previous menu



---

5	Sensor	Indicates the status of the sensor. The LED is only active when the sensor is triggered.
		<b>Red</b> Encoder-signal lost
		<b>Yellow</b> Sensor active at printstop
		<b>Green</b> Print busy
6	Ink cartridge	Indicates the status of the ink cartridge
		<b>Red</b> Cartridge empty
		<b>Yellow</b> Ink level under 5%
		<b>Green</b> OK
7	Stop	Printstop. The device does not print when the sensor is triggered

---

## Ink cartridges

---

**NOTICE****Material damage can be caused by spraying ink!**

Spitting results in increased ink consumption and can lead to undesirable contamination of the environment.

Therefore:

- Hold an absorbent cloth in front of the nozzle plate of the ink cartridge.
- 

**The specified drying times can be reduced by additional heat treatment (hot-air blower, IR heater). The open time can be extended by spit pulse programming.**

**Please note** the ink specific settings for head voltage, fire time, spitting and warming. There is the possibility to set up the ideally standard values for the respective ink type on the idesign software or Web interface.

It makes sense to change the values carefully depending on the application.

**After the insertion of a new cartridge the ink counter must be reset.**

**Ink level:** → *Chapter* Reset ink counter, *Page* 66

The settings can be made with the idesign software below **Functions / System settings / Advanced settings**.

Pos.	Name	Description	Art.no
1	Cartridge HP STABL	1x ink cartridge, color black, volume per cartridge 42 ml. Specially developed, highly pigmented HP ink. Well suited for sharp edged print on absorbent materials. <b>Drying:</b> Good on absorbent surfaces; ink does not dry on poorly absorbent surfaces since the pigments remain on the surface. <b>Open time without loss of quality:</b> Approx. 15 minutes (depending on print resolution and print image).	40050841
2	Cartridge HP UVINV	1x ink cartridge, colour transparent, volume each 42 ml. Specially developed HP ink, readable under UV light. Well suited for sharp edged print on poorly absorbent materials.	72500100
3	Cartridge HP MIBL 2	1x ink cartridge, colour black, volume each 42 ml. Specially developed, solvent-containing, pigmented HP ink. Well suited for sharp edged print on lacquered materials.	72500102
4	Cartridge HP RCBLU	1x ink cartridge, colour blue, content per 42 ml. Specially developed, solvent-containing HP ink. Well suited for printing on poorly absorbent material. <b>Drying:</b> On poorly absorbent surfaces within a few seconds, on absorbent surfaces immediately. Good marginal sharpness on poorly absorbent surfaces. <b>Open time without loss of quality:</b> Up to 2 hours (depending on intensity and print image).	72500124
5	Cartridge HP RCRD	1x ink cartridge, colour red, content per 42 ml. Specially developed, solvent-containing HP ink. Well suited for printing on poorly absorbent material.	72500127
6	Cartridge HP WDCN2	1x ink cartridge, colour green, content per 42 ml. Specially developed, solvent-containing HP ink. Well suited for printing on poorly absorbent material.	40023402
7	Cartridge HP Ultra Black	1x ink cartridge, colour black, content per 42 ml. Specially developed, non-pigmented dye-based ink. Well suited for pin sharp prints on absorbent and semi-absorbent materials. Delivered as SmartCard cartridge.	40050844
8	Cartridge HP 2580	1x ink cartridge, colour black, content per 35 ml. Specially developed, dye-based ink (solvent based). Good adhesion qualities on different non-absorbent surfaces. Long open time (approx. 900 minutes) Delivered as SmartCard cartridge.	40050843
9	Cartridge HP SDBLK3	1x ink cartridge, colour black, content per 35 ml. Specially developed, dye-based ink (solvent based). High blackness, abrasion-resistant on some non-absorbent surfaces. Delivered as SmartCard cartridge.	40017072
10	Cartridge HP WDBLK1	1x ink cartridge, colour black, content per 42 ml. Specially developed, non-pigmented dye-based ink. Well suited for printing on absorbent and semi-absorbent surfaces. Delivered as SmartCard cartridge.	40010705

Pos.	Name	Description	Art.no
11	Cartridge HP WDBLK2	1x ink cartridge, colour black, content per 42 ml. Specially developed, non-pigmented dye-based ink. Well suited for printing on absorbent and semi-absorbent surfaces. Open time: up to 4 hours without loss of quality. Delivered as SmartCard cartridge.	40016702
12	Cartridge HP SDWHT	1x ink cartridge, colour white, content per 35 ml. Specially developed highly pigmented ink. Well suited for printing on absorbent and semi-absorbent surfaces. <b>Open time without loss of quality:</b> up to 1 hour. Delivered as SmartCard cartridge.	40046665
13	Cartridge HP DIBL	1x ink cartridge, colour black, content per 42 ml. Specially developed dye-based ink. Well suited for printing on absorbent and semi-absorbent surfaces. <b>Open time without loss of quality:</b> 10 minutes.	40050842
14	Cartridge HP SDBLK4	1x ink cartridge, colour black, content per 35 ml. Specially developed dye-based ink. Well suited for printing on absorbent and semi-absorbent surfaces. <b>Open time without loss of quality:</b> up to 2 hours. Delivered as SmartCard cartridge.	40039379

## Spitting and Warming

Category	Setting	Value
Print Parameters	Print Parameters	
Print head setup	Print head setup	
Spitting and Warming	Spitting	disabled
Spitting and Warming	Spit on after in sec	1
Spitting and Warming	Spit rows in pixel	1
Spitting and Warming	Spit interval in sec	1
Spitting and Warming	Spit auto off in min	1
Warming	Warming	disabled
Warming	Warming temperature °C	20
Warming	Warming off timer in sec	1
Calibration	Calibration	
Inputs	Inputs	

Fig. 46: idesign Advanced settings


**Mounting brackets**

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<b>Pos.</b>	<b>Article</b>	<b>Description</b>	<b>Order no.</b>
<b>1</b>	Mounting bracket System unit <b>X1JET HP</b>	for a fixing on a conveyor from the side, with quick fastener to take the system unit out of the mounting bracket without technical tools. Model „Dovetail“	72801043
<b>2</b>	Mounting bracket System unit <b>X1JET HP TOP</b>	for a fixing on a conveyor from the top, with quick fastener to take the system unit out of the mounting bracket without technical tools. Model „Dovetail“	72801045
<b>3</b>	Flexbracket Kit <b>X1 JET HP</b>	flexible bracket to compensate variable distances between control system and product. Maximum travel length 20mm; maximum print speed 30 m/min.	72900584

## Other

Pos.	Figure	Assembly	Description	Order no.
1		Power supply	Power supply X1JET 24V	40037989
2		Mounting bracket	Universal Mounting bracket	72801043
3		Mounting bracket Top	Universal Mounting bracket Top	72801045
4		X1JET Accessories set	consisting of: -Power supply 24V -Universal mounting bracket -USB-stick -Network cable	40038357
5		Light barrier NPN, 10...30V DC Standard M8	including 5.0 m connecting cable and universal holder	72800002
6		Shaft encoder <b>X1JET HP</b> Spring arm holder	Push-pull output, 5,000 pulses/rev, with spring arm and friction wheel optimized to 600 dpi, including mounting holder and connecting cable M12 Splitter cable necessary	72801042
7		Rotary encoder <b>X1JET HP</b> Angle holder	Push-pull output, 5,000 pulses/rev., with angle holder, friction wheel and connecting cable M12 Splitter cable necessary	72801041
8		<b>X1JET</b> USB-data stick	Version 1	72901203
9		CartClip	for retaining ink cartridges type 15/45	72900074
10		Ink-Activator	for de-aerating and cleaning the ink cartridges	72900108
11		Measuring wheel	Measuring wheel with O-ring for shaft encoder, optimized for 600 dpi	72900454

Pos.	Figure	Assembly	Description	Order no.
12		O-Ring	O-Ring for encoder measuring wheel (600 dpi) Dimensions: 55x5; NBR	72900455
13		Splitter cable	Splitter cable for the connection of more than 2 options, alarm, RS232, sensor, encoder	40102519
14		Ethernet patch cable 2m	Ethernet patch cable CAT6 - 2m	4009872
15		Ethernet patch cable 5m	Ethernet patch cable CAT6 - 5m	22801341
16		Alarm box	Alarmbox for connecting an alarmlight 3 color M12	72801072
17		Alarm light	Alarmlight 3 color M12	22702287
18		Flexbracket kit X1JET HP	consisting of: -Flex bracket deflector -Flex bracket -Screws	72900584
19		Y-cable 1x 15pol Sub-D connector to 1x 15pol Sub-D socket and 1x M12 socket B-coded for HMI	15 pol Sub-D connector with metallized housing and screws. All 15 pins are interconnected and 1x 5pol M12 socket B-coded for HMI.  Cable length 25cm, Cable Color Black.	40037993
20		Adapter cable 15pol Sub-D connector to M12 socket B-Coded for HMI	15 pol Sub-D connector with metallized housing and screws. to 5pol M12 socket B-coded for HMI  Cable length 25cm, Cable Color Black.	40038349



## Appendix

### Ink chart

The X1JET HP has a deposit ink chart. The optimal parameter of an ink will be automatically adopted by the ink selection.

If the parameters were changed in the idesign software, the changed parameters stay active till a new ink type will be select on the X1JET HP.

The ink tables are stored as excel tables in the HMI account: „InkPar.csv“.

The chart can be adapted customized with an HMI update →**Chapter** Software-Update, **Page** 96 and can load to the memory of the X1JET HP/-Premium.

**Changes of the ink parameter can cause bad print images and should conduct from specialized staff.**

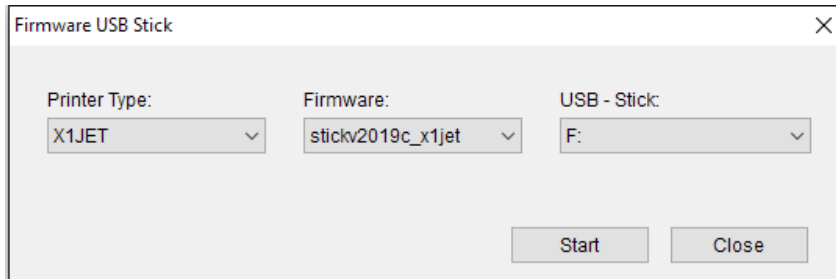
SET Nr.	Bezeichnung S-Nr	Inhalt	Spannung	Fire Time	Spitting	Spit Rows	Spit Delay	Warming	Warm Temp	Warm time	Sub Fire	Spit Interval	Auto Off	Order No	Correction
1	STABL	4	100	110	190 Off	0	0	No	20	0	190	0	0	0	B3F57A
2	DIBL	5	100	110	190 Off	0	0	No	20	0	190	0	0	0	
3	MIBL2	14	129	105	190 Off	0	0	No	20	0	190	0	0	0	
4	SCRD	8	100	110	190 Off	0	0	No	20	0	190	0	0	0	
5	SCGN	9	100	110	190 Off	0	0	No	20	0	190	0	0	0	
6	SCBLU	10	100	110	190 Off	0	0	No	20	0	190	0	0	0	
7	WEBL	11	100	110	190 Off	0	0	No	20	0	190	0	0	0	
8	UVC1	28	100	110	190 Off	0	0	No	20	0	190	0	0	0	
9	BEABL	30	100	80	240 before	25	5	Yes	45	1	190	0	0	0	
10	UVINV	12	100	110	190 Off	0	0	No	20	0	190	0	0	0	
11	IRINV	13	100	110	190 Off	0	0	No	20	0	190	0	0	0	
12	G1BL	15	100	110	190 Off	0	0	No	20	0	190	0	0	0	
13	CMBLK	25	100	110	190 Off	0	0	No	20	0	190	0	0	0	
14	RCBLU	26	100	110	190 Off	0	0	No	20	0	190	0	0	0	
15	RCRD	27	100	110	190 Off	0	0	No	20	0	190	0	0	0	
16	UltraBlack	31	100	110	190 Off	0	0	No	20	0	190	0	0	0	
17	FastSolid	33	100	80	240 before	25	60	Yes	45	1	190	0	0	0	
18	CMBLK2	34	100	110	190 Off	0	0	No	20	0	190	0	0	0	
19	NPBLK	35	100	80	240 before	25	60	Yes	45	1	190	0	0	0	
20	Bulk400	99	952	110	190 Off	0	0	No	20	0	190	0	0	0	
21	FSBLK	36	100	80	240 before	25	60	Yes	45	1	190	0	0	0	
22	PTBLK	37	75	87	180 Off	0	0	No	20	0	190	0	0	0	
23	HP 2580	38	75	87	180 Off	0	0	No	20	0	190	0	0	0	B3F58A
24	WDBLK1	39	100	110	190 Off	0	0	No	20	0	190	0	0	0	
25	WDBLK2	40	100	110	190 Off	0	0	No	20	0	190	0	0	0	40016702
26	SDBLK1	41	75	110	230 Off	0	0	No	20	0	190	0	0	0	
27	SDBLK2	42	75	86	180 Off	0	0	No	20	0	190	0	0	0	REORDER PN
28	SDBLK3	43	75	86	230 Off	0	0	No	20	0	190	0	0	0	40017072

## Software-Update

### Software-update with USB-Stick

#### Requirements

- The program directories „HMI“, „Html“ and „SYSTEM“ are copied in the main directory of an empty USB-stick. You can use the function “USB stick firmware” in order to transfer the files to the stick.



- The Markoprint X1JET HP/ -Premium is not connected to the power supply.

#### Instruction

Please proceed the software-update as follows:

Step	Procedure
1	Connect the Markoprint X1JET HP/ -Premium with the power supply and press the [Ink]-button simultaneously and press it as long as the Sensor LED flashes green/red.
2	Connect the USB-stick in the USB socket on the top side of the system.
3	The Sensor LED flashes yellow/red if the program is load.
4	Confirm by pressing the start-button and wait until the system is restart.
5	Remove now the USB-stick.

## Software-Upgrade

A software upgrade with costs is comfortably possible via the Weber Marking Partner Portal.

Please contact your consultant or local distributor to get a software-upgrade.

**You can find a detailed instruction of the software upgrade below the search key „Configuration upgrade“ in the Wiki of the Weber Marking Partner Portal.**

## USB-Stick files

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Following files are saved on the USB-stick:

- idesign-Software (as download link, internet connection required)
- Manual X1JET HP
- Manual idesign Software
- Leaflet

The required files for software updates:

- HMI-directory
- HTML-directory
- System-directory

































### Directory structure:

<i>Markoprint</i>	<i>L12003-x1</i>	Status.ast	
	<i>L12004-x1</i>	Status.ast	
		Command.ast	
		Result.ast	
		Log.txt	
	<i>Label</i>	1.00I	
		2.00I	
	<i>Fonts</i>	A4mm.ft3	
		A6mm.ft3	
	<i>Logos</i>	Cow.bmp	
		HP.bmp	
- Global.ast			Is only executed if no Command.ast exists for the system.
- Result.ast			Result of Global.ast

The 9 print images which can call up with the keys: 1.00I to 9.00I.








## Boot-LED messages

During booting of the system progress can be determined by means of the LED. If the system stops during booting the cause can be determined by means of the LED. FC means flashing. An error can be determined on the basis of the number of flashes.

Status-LED 	Sensor-LED 	Description
 ye	 ye	Boot BF-Intern
 rd	—	Write 64MB memory
—	 rd	Read/invert 64MB memory
 ye	—	Read/test 64MB memory
—	 ye	Test ok / Load BootMain from SPI
 ye	 rd	Programming and start of BootMain
—	—	BootMain initialization
 rd	 rd	Fatal error
 rd	FC:  rd	Boot-error 4x = SPI; 5x = GA; 6x = Displ; 7x = SD-Card; 8x = USB; 9x = RTC; 10x = Task
 rd	FC:  gn	Init-error 1x = Dev; 2x = FS; 3x= UsrCl
 ge	 gn	Read SD-Card
 ye	 rd /  gn	Wait for Stick
 ye	 rd / —	No boot data
 ye	 ye /  gn	Booting of stick?
 ye	 ye /  rd	Copying of stick?
 ye	 gn / —	Copy Ok
 gn	—	Main program loaded and started

## HP MK3 LED messages

When inserting a cartridge, the SmartCard function can be checked with the help of the LEDs.

Status-LED 	Description
FC:  gn	HP SmartCard cartridge
FC:  rd	No SmartCard cartridge, print locked
FC:  rd /  gn	No SmartCard cartridge, print enabled
FC:  ye /  rd	HP SmartCard cartridge, chip error, print locked

## Plug connections

### Voltage input

**Operating voltage:** 12 - 24V direct current, min 1,25A

**Connector:** Sub-D Plug male 15pin

PIN	Description	Value	Unit
1	GND	0	V
15	Power min 1250 mA	+12-24	V

### Voltage input at the Premium Version

**Operating voltage:** 12 to 24V DC, min 1,25A

**Connector:** M8 connector

PIN	Description	Value	Unit
1	Power min 1250 mA	+ 12 - + 24	V
2	GND	0	V

## Ethernet

### Connection

Network input RJ 45 on the back side of the system.

PIN	Description
1	Transmit+
2	Transmit-
3	Receive+
6	Receive-

## USB A

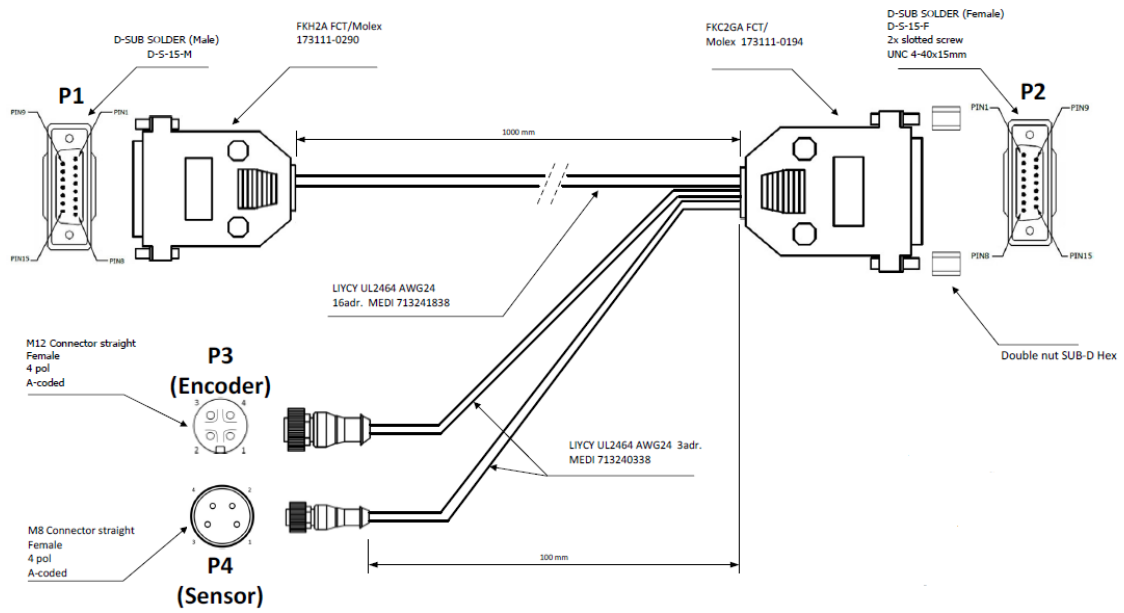
The USB sockets are standard sockets, as used in commercial PCs and USB devices. Insert the USB-stick without force effect normal to the top side of the system in the USB socket.

PIN	Name	Color	Description
1	VCC	Red	+5 V
2	D-	White	Data -
3	D+	Green	Data +
4	GND	Black	Mass

**Option****Option socket:** 15 pol Sub-D connector

<b>PIN</b>	<b>Description</b>	<b>Value</b>	<b>Unit</b>
1	GND	0	V
2	Output 1 (Alarm)	Open Collector, max 24V / 100mA	
3	Input 1	Input Standard: NPN	
4	Input 2	Input Standard: NPN	
5	Output 3 (Ok)	Open Collector, max 24V / 100mA	
6	Output 4 (Reserve)	Open Collector, max 24V / 100mA	
7	EIA 232	TXD	
8	GND	0	V
9	Output 2 (Warning)	Open Collector, max 24V / 100mA	
10	Start pulse	Input Standard: NPN	
11	Shaft encoder	Input Standard: NPN	
12	Input 3	Input Standard: NPN	
13	Input 4	Input Standard: NPN	
14	EIA 232	RXD	
15	Power	+12-24	V

**Splitter cable (40102519)**



P1		P2		P3		P4	
PIN Nr.	Color	PIN Nr.	Color	PIN Nr.	Color	PIN Nr.	Color
1	BK	1	BK				
2	BN	2	BN				
3	RD	3	RD				
4	OG	4	OG				
5	YE	5	YE				
6	GN	6	GN				
7	BLU	7	BLU				
8	VT	8	VT	3	BL	3	BL
9	GY	9	GY				
10	WH	10	WH			4	BK
11	WH/BK	11	WH/BK	4	BK		
12	WH/BN	12	WH/BN				
13	WH/RD	13	WH/RD				
14	WH/OG	14	WH/OG				
15	WH/YE	15	WH/YE	1	BN	1	BN

**Splitter cable HMI (40037993)**

15 pol connector	Sub-D	15 pol Sub-D socket	M12 socket 5pol B-Coded (HMI)	Description
Pin1		Pin1	PIN3	GND
Pin2		Pin2		Output 1 (Alarm)
Pin3		Pin3		Input 1
Pin4		Pin4		Input 2
Pin5		Pin5		Output 3 (Ok)
Pin6		Pin6		Output 4 (Reserve)
Pin7		Pin7	PIN4	EIA 232
Pin8		Pin8		GND
Pin9		Pin9		Output 2 (Warning)
Pin10		Pin10		Start pulse
Pin11		Pin11		Shaft encoder
Pin12		Pin12		Input 3
Pin13		Pin13		Input 4
Pin14		Pin14	PIN2	EIA 232
Pin15		Pin15	PIN1	Power

**Adapter cable HMI (40038349)**

15 pol Sub-D-connector	M12 socket 5pol B-Coded (HMI)	Description
PIN 1	PIN 3	0V
PIN 7	PIN 4	TxD > RxD
PIN 14	PIN 2	RxD > TxD
PIN 15	PIN 1	12/24V



## Sensors

---

**Sensor input:**
**Standard:** NPN (switching to GND)

**Voltage:** 12-24V depends on the input voltage

**Threshold level:** 7V

If switching the input to PNP a resistor of 2kOhm (12V) or 4kOhm (24V) must be connected between input (Pin10) and ground (Pin1)

## Encoder

---

**Encoder input:**
**Standard:** Push-pull or NPN (switching to GND)

**Voltage:** 12-24V depends on the input voltage

**Threshold level:** 7V

**Frequency:** Max. 150 kHz

If more systems should be connected together the sensor and encoder signal can be connected parallel. Max. 5 systems because of the power used.

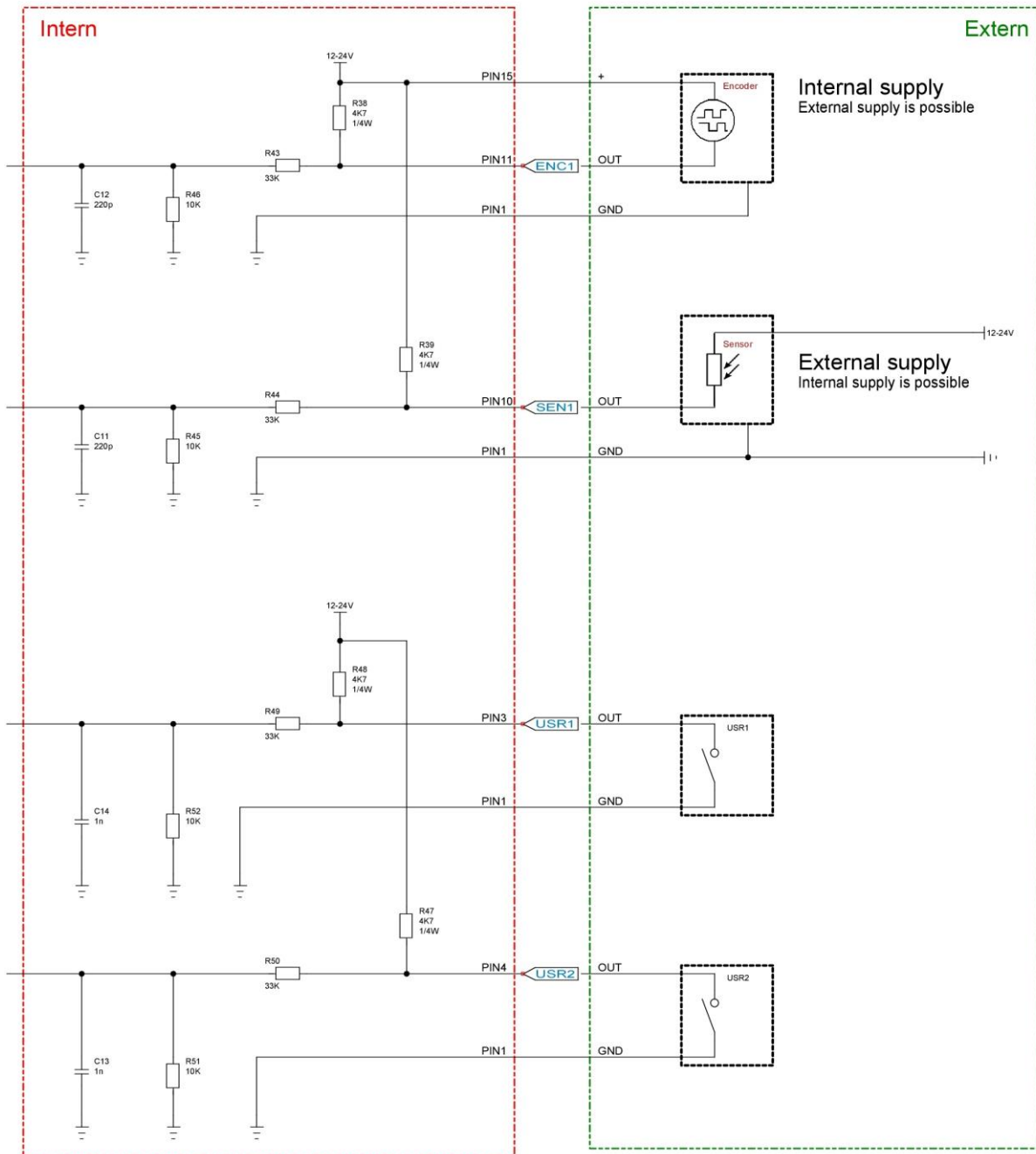
alternativ for up to 8 heads the connection box art.no. 40006827 can be used.

The +12V power should be only connected between one system and sensor / encoder not between the systems !

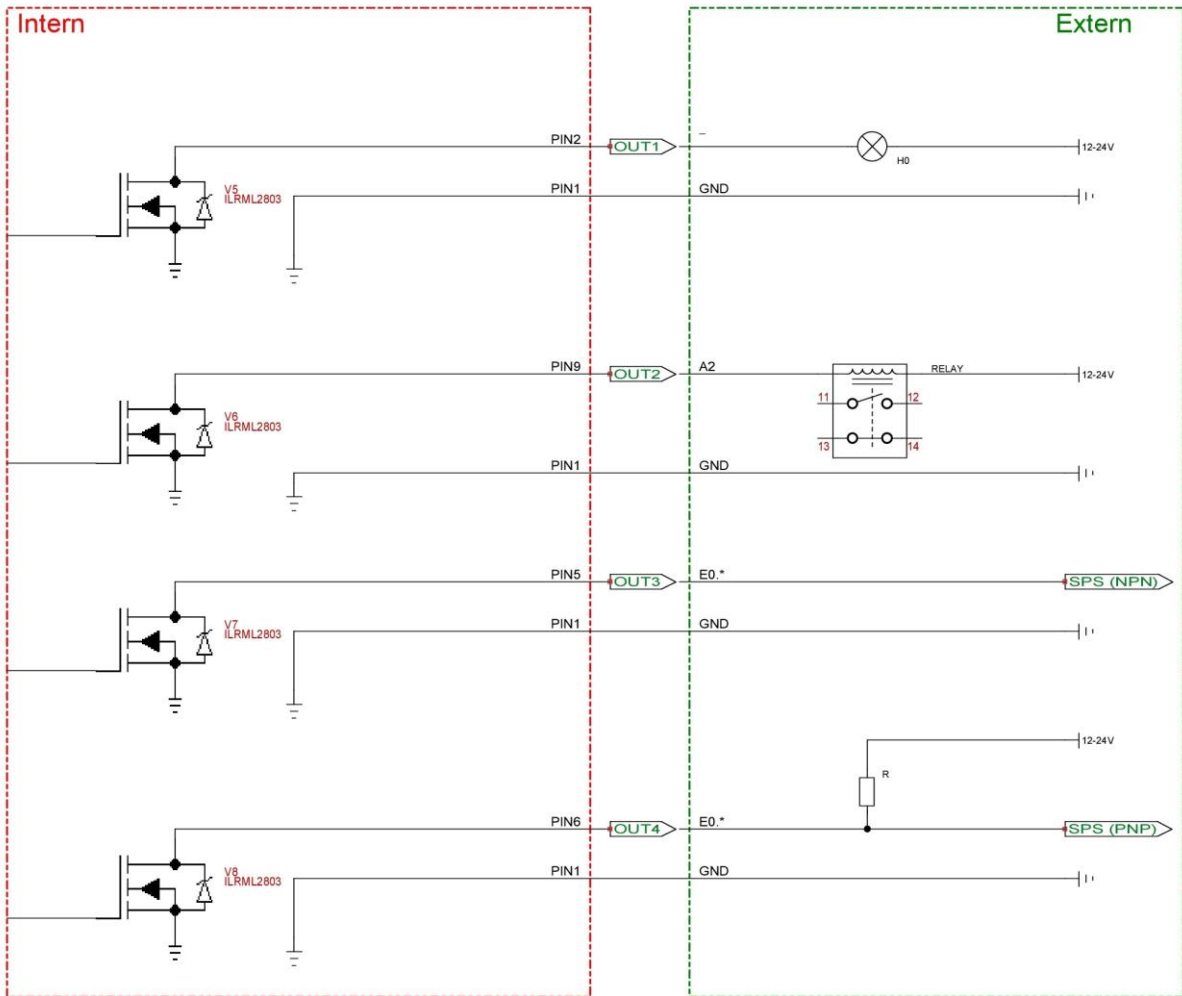
15 pol Sub-D-female	15 pol Sub-D-male	15 pol Sub-D-male	Up To 5 Systems	15 pol Sub-D-male	15 pol Sub-D-female
PIN 1 – GND	PIN 1	PIN 1	PIN 1	PIN 1	PIN 1
PIN 8 – GND	PIN 8	PIN 8	PIN 8	PIN 8	PIN 8
PIN 10 – Sensor	PIN 10	PIN 10	PIN 10	PIN 10	PIN 10
PIN 11 – Encoder	PIN 11	PIN 11	PIN 11	PIN 11	PIN 11
PIN 15 – +12V	PIN 15	Not connected	Not connected	PIN 15	PIN 15

### Input / output connection for 15 pin Sub-D socket with examples

Examples input:



Examples output:



## Mac address

---

The MAC address of the respective Markoprint X1JET HP/ -Premium can be seen on the name plate of the system. In addition, the Mac address can be seen in the idesign software.

### Instruction

Please see the MAC address by the idesign software as follows:

Step	Procedure
1	Select the menu Functions on the left side of the idesign software.
2	If several print systems are connected with the idesign software, click on the illustration of the corresponding print system which shall be selected.
3	Click on the button [Status].
4	Click on the menu slide „Configuration“ to call up the corresponding menu.
5	The MAC address can be seen in the corresponding line.

Range from:	To:
00:50:C2:A6:50:00	00:50:C2:A6:5F:FF

## Mounting the optional WLAN module

---

- The work may only be carried out by specially trained personnel.
- Work on the electrical system may only be carried out by qualified electricians.



### Danger to life through electric shock!



### DANGER TO LIFE!

Contact with live parts poses imminent danger to life. Damaged insulation or individual components can be lethal.

Therefore:

- Immediately switch off the power supply and initiate repairs if the insulation is damaged.
  - Work on the electrical system may only be performed by electricians.
  - Before working on the electrical system, disconnect from the mains (remove mains plug) and check that power is off.
  - Keep moisture from live parts. Moisture may cause a short-circuit.
- 



### Risk of injury due to improper system expansions!



### WARNING!

Improper system expansion can lead to serious personal injury or property damage.

Therefore:

- Before starting work ensure sufficient freedom of assembly.
  - Pay attention to order and cleanliness at the installation site! Loose components and tools lying on top of or around each other are sources of accidents.
  - **Use only original parts!**
-

It is possible to use an optional WLAN module with the X1JET HP MK3 Premium. This can be mounted on the side of the system for retrofitting existing devices.

**To use the WLAN option, this software must be activated. For this, please contact your responsible distributor.**


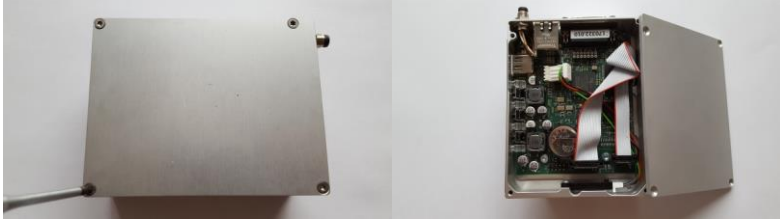

**The WLAN option can only be used with the X1JET HP MK3 Premium print system.**

### Requirements

- Screwdriver T10
- Side panel X1JET WLAN module
- The WLAN option has been activated by your distributor

### Instruction

Please add a WLAN module to the system:

Step	Procedure
1	Remove the two screws on the front of the X1JET HP MK3 and remove the deflector plate
	
2	Remove the 4 screws from the X1JET HP MK3 side and remove the side panel.
	
3	Connect the connector on the side panel with integrated WLAN module to the free connector on the X1JET HP MK3 board. The blue marking points upwards.
	

- 
- 4 Close the cover and mount it with the existing screws.
- 



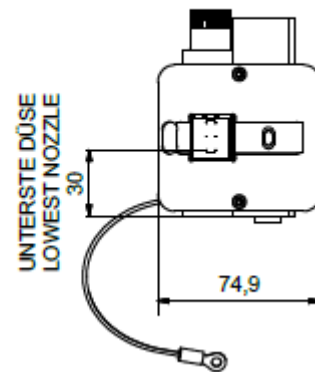
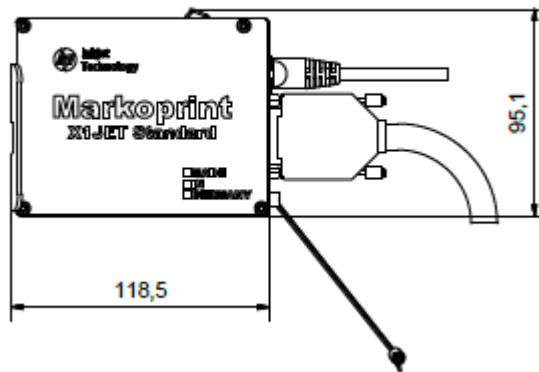
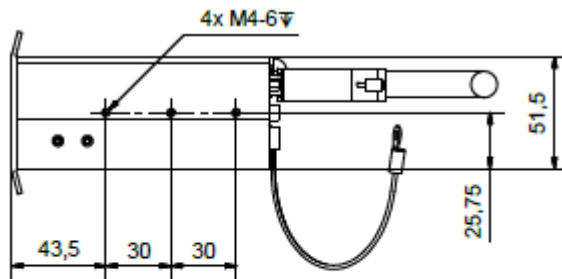
- 
- 5 Mount the deflector plate with the screws provided.
- 



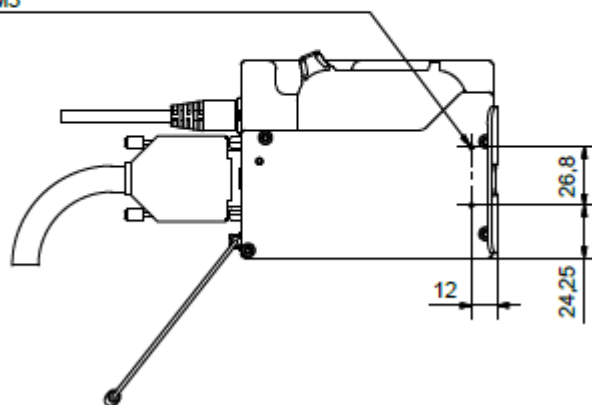
- 
- 6 The device can now be installed and configured. Use the instructions for installing and configuring the WLAN module.
-

## Technical drawings

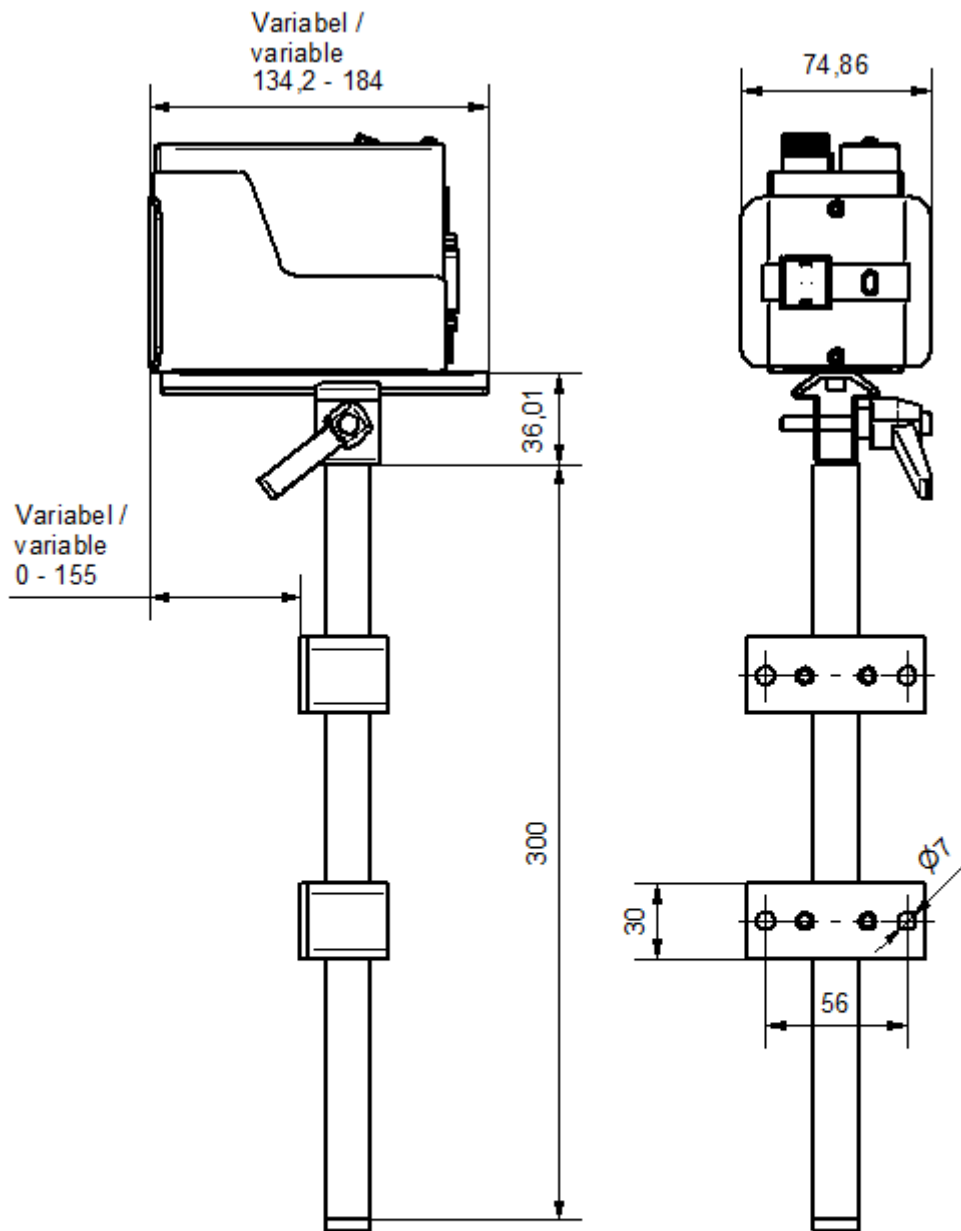
### System unit X1JET HP

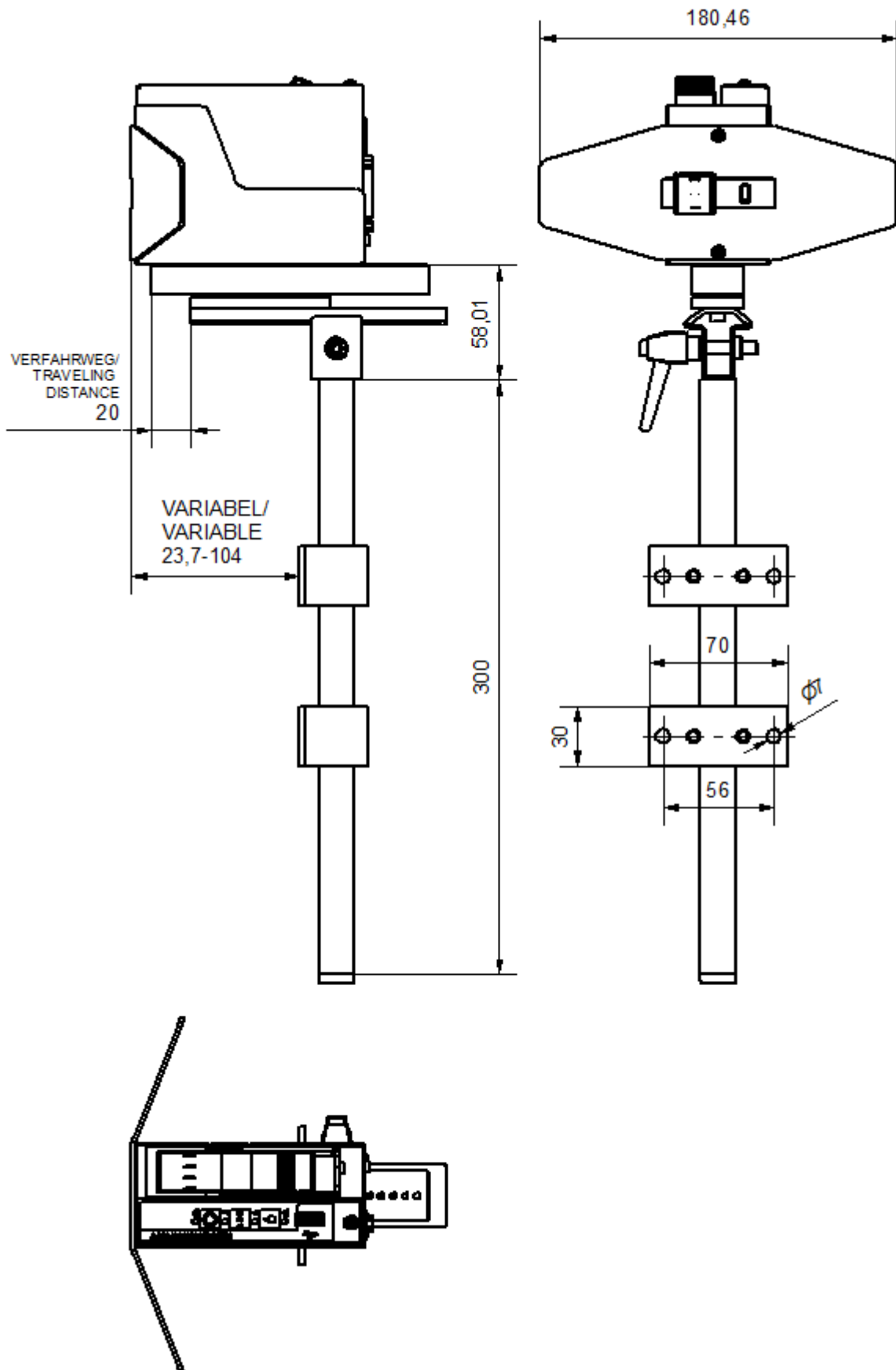


BEFESTIGUNG EXTERNER SENSOR  
FASTENING EXTERNAL SENSOR  
M3

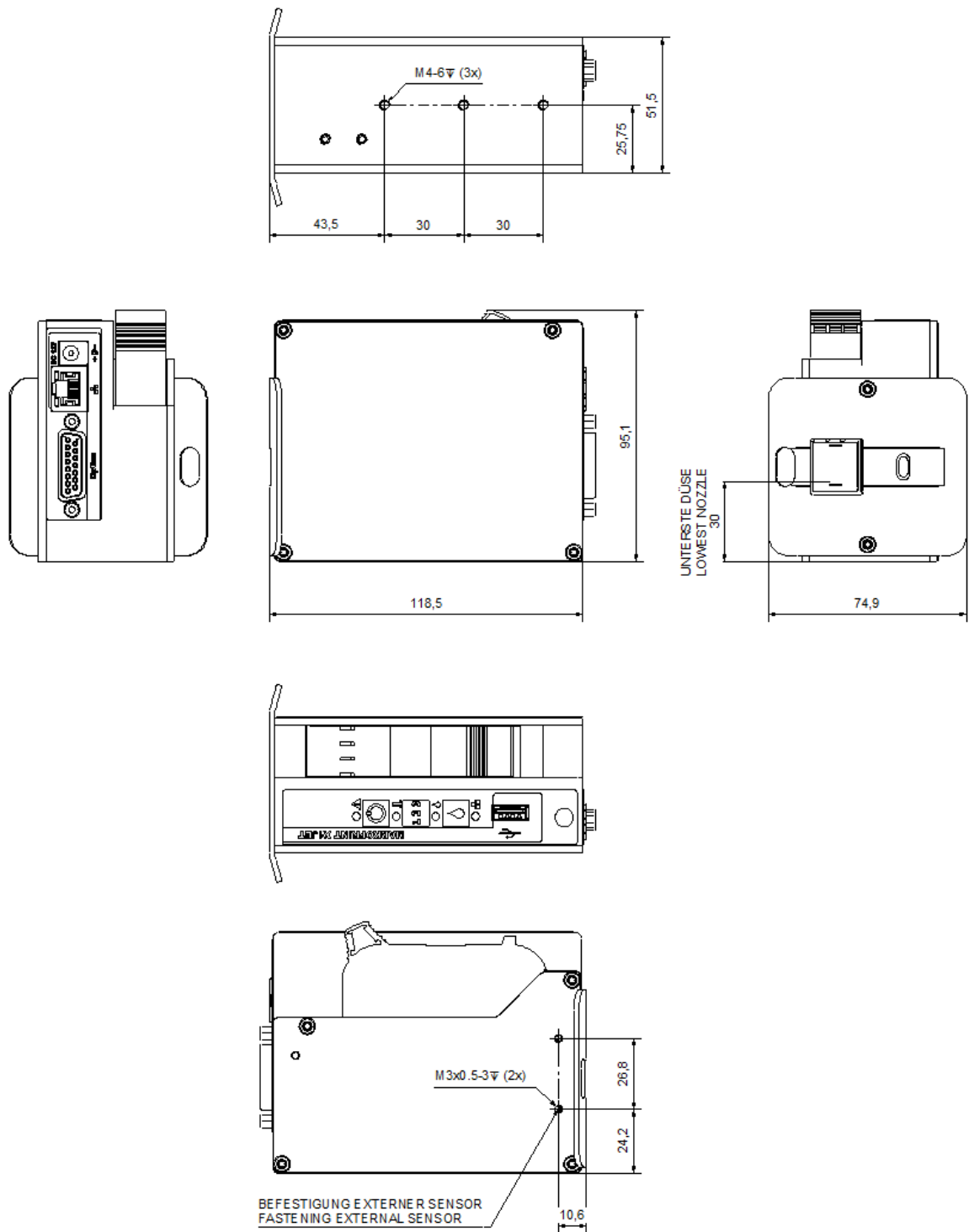


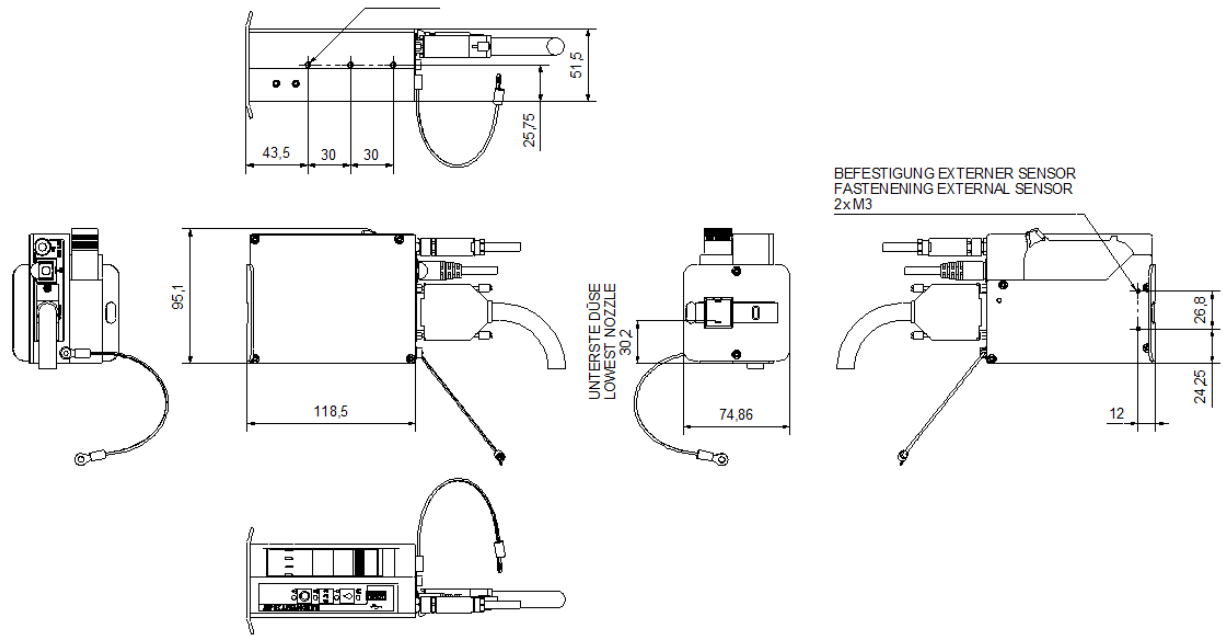


**System unit with mounting bracket**

**System unit with Flexbracket and mounting bracket**

**System unit X1JET HP Premium 12-24V**



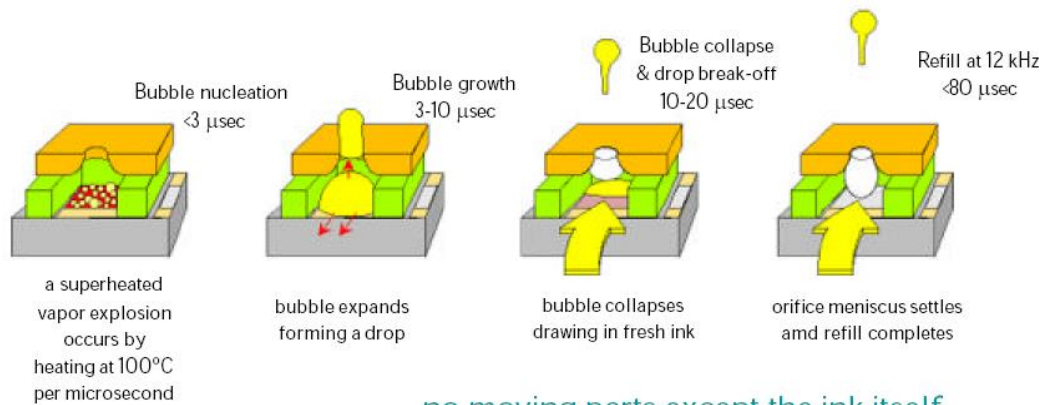
**System unit X1JET HP MK3 Premium**

## Operation of the ink cartridges

### Elements of HP TIJ Technology

TIJ drop ejection process

- ✓ an electrical resistor heats ink at more than 1,000,000 °C/second
- ✓ a film of ink about 0.1 micrometer thick is heated to about 340 °C
- ✓ a vapor bubble forms to expel the ink - it doesn't "boil"



no moving parts except the ink itself

Fig. 0-1: Operation of the ink cartridges



## Parameter list

Parameter	After Reset	Min.	Max.	Current value	Unit
Print start delay	10	0	999		mm
Speed	15	1,0	300,0		m/min
Divider shaft encoder	4	1	50		-
Intensity	300	50	900		dpi
Print width	100	10	900		%
Direction	R -->L	R -->L	L--> R		-
Nozzle row	A~B	A	A+B		-
Overhead	no	no	yes		-
Sensor	Internal	Internal	External		-
Encoder	Internal	Internal	External		-
IP-address		0.0.0.0	255.255.255.255		-
IP-mask	255.255.255.0	0.0.0.0	255.255.255.255		-
Gateway	0.0.0.0	0.0.0.0	255.255.255.255		-
Voltage	11,0	4,0	11,2		V
Fire time	190	50	300		s
Fire pause	190	100	300		s
Ink Min	5	0	99		%
Spitmode	Off	Before	Intervall		-
Columns	1	1	99		-
Delay	1	1	999		s
Intervall	1	1	999		s
Auto Off	0	1	999		min.
Repeat Delay	0	0	999		mm
Repeat Number	0	0	999		
Warming	No	yes	no		
Warming Temp.	20	20	80		°C
Warming off timer	0	0	999		s
Language	Englisch				-
Ink type	STABL				-
User 1	0	0	4		-