ILX
Operating Manual

Trademarks

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Carl Valentin printing systems comply with the following EU directives:

CE EG Low-Voltage Directive 2014/35/EU
    EG Electromagnetic Compatibility Directive 2014/30/EU
    RoHS Directive 2011/65/EU

Table of Contents

1   Introduction

1.1   General Instructions

Basic information and warning references with the corresponding signal words for the danger level are as follows specified in this manual:

DANGER identifies an extraordinarily great and immediate danger which could lead to serious injury or even death.

WARNING identifies a possible danger would could lead to serious bodily injury or even death if sufficient precautions are not taken.

WARNING of cutting injuries.
Pay attention that cutting injuries caused by blades, cutting devices or sharp-edged parts are avoided.

WARNING of hand injuries.
Pay attention that hand injuries caused by closing mechanical parts of a machine/equipment are avoided.

WARNING of hot surfaces.
Pay attention so as not to come into contact with hot surfaces.

CAUTION indicates a potentially dangerous situation which could lead to moderate or light bodily injury or damage to property.

NOTICE gives you tips. They make a working sequence easier or draw attention to important working processes.

Gives you tips on protecting the environment.

$\Rightarrow$ Handling instruction

∗   Optional accessories, special fittings

Datum   Information in the display

1.2   Intended Use

The printing system is a state-of-the-art device which complies with the recognized safety-related rules and regulations. Despite this, a danger to life and limb of the user or third parties could arise and the printing system or other property could be damaged while operating the device.

The printing system may only be used while in proper working order and for the intended purpose. Users must be safe, aware of potential dangers and must comply with the operating instructions. Faults, in particular those which affect safety, must be remedied immediately.

The printing system is solely intended to print suitable media which have been approved by the manufacturer. Any other or additional use is not intended. The manufacturer/supplier is not liable for damage resulting from misuse. Any misuse is at your own risk.

Intended used includes heeding the operating manual, including the maintenance recommendations/regulations specified by the manufacturer.

NOTICE!

The complete documentation is included in the scope of delivery on CD ROM and can also currently be found in the internet.

1.3   Product Description

Labels, textiles and plastic material can be printed with high resolution both in dispenser mode and in passage mode. The assembly of the printing system is possible in horizontal and vertical position and owing to its demountable and displaceable control panel the printing system can be integrated in almost each packaging process without any problems.

The printing system can be used in thermal as well as in thermal transfer applications.

With eight vector fonts, six bitmap fonts and six proportional fonts the printing system has a large selection at different font types. It can be printed inverse, in italic format or 90 degrees turned fonts.

The handling of our durable printing systems is easy and comfortable. The parameter settings are made with the keys of the foil keyboard. At each time the graphic display shows the current status.

Time-saving firmware update is possible by interface. As default, the printing system is equipped with a parallel, serial, USB and Ethernet interface. Additionally, the printing system is equipped with an USB Host that permits the connection of an external USB keyboard and/or an USB memory stick. The printing system automatically recognizes by which interface it is controlled.

The printing system is delivered with a printer driver and the free label software Labelstar Office LITE. Existing labels can be saved to a CF card or an USB stick, opened and/or modified with a PC keyboard and finally stand-alone printed.

2   Safety Instructions

The printing system is designed for power supply systems of
110 … 230 V AC. Connect the printing system only to electrical outlets
with a ground contact.

i NOTICE!

The protective earthing conductor of the socket is to be examined
by a qualified technician.

Couple the printing system to devices using extra low voltage only.

Before making or undoing connections, switch off all devices involved
(computer, printer, accessories etc.).

Operate the printing system in a dry environment only and do not get
it wet (sprayed water, mist etc.).

Do not operate the printing system in explosive atmosphere and not in
proximity of high voltage power lines.

Operate the printing system only in an environment protected against
abrasive dust, swarf and other similar impurity.

Maintenance and servicing work can only be carried out by trained
personnel.

Operating personnel must be trained by the operator on the basis of
the operating manual.

If the printing system is operated with the cover open, ensure that
clothing, hair, jewellery and similar personal items do not contact the
exposed rotating parts.

i NOTICE!

With the printing system (due to construction) the requirements of
EN 62368-1 regarding fire protection casing are not fulfilled.
These must be ensured by the installation into the end device.

The print unit and parts of it (e.g. motor, printhead) can get hot during
printing. Do not touch the printhead during operation. Cool down the
print unit before changing material, removal or adjustment.

Never use highly inflammable consumables.

Carry out only the actions described in these operating instructions.
Any work beyond this may only be performed by the manufacturer or
upon agreement with the manufacturer.

Unauthorized interference with electronic modules or their software
can cause malfunctions.

Other unauthorized work or modifications to the printing system can
endanger operational safety.

Always have service work done in a qualified workshop, where the
personnel have the technical knowledge and tools required to do the
necessary work.

There are warning stickers on the printing systems that draw your
attention to dangers. Therefore the warning stickers are not to be
removed as then you and others cannot be aware of dangers and may
be injured.

Before installing the printing module in the system, the commissioning engineer must ensure that the statutory safety regulations are observed and the necessary safety devices are installed.

NOTICE!

When mounting an optional label applicator, the applicable safety regulations must be observed.

All isolating safety equipment must be installed before starting-up the printing system.

DANGER!

Danger to life and limb from power supply!

$\Longrightarrow$ Do not open the casing.

CAUTION!

Two-pole fuse.

$\Longrightarrow$ Before opening the housing cover, disconnect the printing system from the mains supply and wait for a moment until the power supply unit has discharged.

2.1   Operating Conditions

Before initial operation and during operation these operating conditions have to be observed to guarantee save and interference-free service of our printing systems.

Therefore please carefully read these operating conditions.

Shipment and storage of our printing systems are **only** allowed in original packing.

Installation and initial operation of printing systems is only allowed if operating conditions were **fulfilled**.

Initial operation, programming, operation, cleaning and service of our printing systems are only recommended after careful study of our manuals.

Operation of printing systems is only allowed by especially trained persons.

i   NOTICE!

Perform trainings regularly.Content of the training are chapter 2.1 (Operating Conditions), chapter 2.1 (Loading Media) and chapter 9 (Maintenance and Cleaning).

These indications are also valid for someone else's equipment supplied by us.

Only use original spare and exchange parts.

Please contact the manufacturer with respect to spare/wear parts.

Conditions for installation place

The installation place of printing system should be even, free of vibration and currents of air are to be avoided.

The printing systems have to be installed to ensure optimal operation and servicing.

Installation of power supply

The installation of the power supply to connect our printing systems has to be effected according to the international rules and regulations, especially the recommendations of one of the three following commissions:

• International Electronic Commission (IEC)

• European Committee for Electro technical Standardisation (CENELEC)

• Verband Deutscher Elektrotechniker (VDE)

Our printing systems are constructed according to VDE and have to be connected to a grounded conductor. The power supply has to be equipped with a grounded conductor to eliminate internal interfering voltage.

Technical data of power supply	Power line voltage and power line frequency: See type plate
	Allowable tolerance of power line voltage: +6 % … −10 % of nominal value
	Allowable tolerance of power line frequency: +2 % … −2 % of nominal value
	Allowable distortion factor of power line voltage: ≤ 5 %

Anti-interference measures

In case your net is infected (e.g. by using thyristor controlled machines) anti-interference measures have to be taken. You can use one of the following possibilities:

* Provide separate power supply to our printing systems.

* In case of problems please connect capacity-decoupled isolation transformer or similar interference suppressor in front of our printing systems.

Stray radiation and immunity from disturbance

Emitted interference according to EN 61000-6-4: 2011-09 industrial sector

* Interference voltage to wires according to EN 55024: 2010

* Interference field power according to EN 55024: 2010

* System perturbation according to EN 61000-3-2: 2006 + A1: 2009 + A2: 2009

* Flicker according to EN 61000-3-3: 2013

Stray radiation and immunity from disturbance

Immunity to interference according to EN 61000-6-2: 2006-03 industrial sector

* Stray radiation against discharge of static electricity according to EN 61000-4-2: 2009

* Electromagnetic fields according to EN 61000-4-3: 2006 + A1: 2008 + A2: 2010

* Fast transient burst according to EN 61000-4-4: 2013-04

* Surge according to EN 61000-4-5: 2014

* High-frequency tension according to EN 61000-4-6: 2014

* Magnetic fields immunity EN 61000-4-8: 2010

* Voltage interruption and voltage drop according to EN 61000-4-11: 2004

NOTICE!

This is a machine of type A. This machine can cause interferences in residential areas; in this case it can be required from operator to accomplish appropriate measures and be responsible for it.

Connecting lines to external machines

All connecting lines have to be guided in shielded lines. Shielding has to be connected on both sides to the corner shell.

It is not allowed to guide lines parallel to power lines. If a parallel guiding cannot be avoided a distance of at least 0.5 m has to be observed.

Temperature of lines between: −15 … +80 °C.

It is only allowed to connect devices which fulfil the request 'Safety Extra Low Voltage' (SELV). These are generally devices which are checked corresponding to EN 60950.

Installation of data lines

The data cables must be completely protected and provide with metal or metallised connector housings. Shielded cables and connectors are necessary, in order to avoid radiant emittance and receipt of electrical disturbances.

Allowable lines

Shielded line:

    4 x 2 x 0,14 mm² (4 x 2 x AWG 26)
    6 x 2 x 0,14 mm² (6 x 2 x AWG 26)
    12 x 2 x 0,14 mm² (12 x 2 x AWG 26)

Sending and receiving lines have to be twisted in pairs.

Maximum line length:

    with interface V 24 (RS-232C) - 3 m (with shielding)
    with parallel interface - 3 m (with shielding)
    USB - 3 m
    Ethernet - 100 m

Air convection

To avoid inadmissible heating, free air convection has to be ensured.

Limit values

Ambient temperature °C (operation): Min. +5 Max. +40

Ambient temperature °C (transport, storage): Min. −25 Max. +60

Relative air humidity % (operation): Max. 80

Relative air humidity % (transport, storage): Max. 80
(bedewing of printing systems not allowed)

Guarantee   We do not take any responsibility for damage caused by:

- Ignoring our operating conditions and operating manual.

- Incorrect electric installation of environment.

- Building alterations of our printing systems.

- Incorrect programming and operation.

- Not performed data protection.

- Using of not original spare parts and accessories.

- Natural wear and tear.

When (re)installing or programming our printing systems please control the new settings by test running and test printing. Herewith you avoid faulty results, reports and evaluation.

Only specially trained staff is allowed to operate the printing systems.

Control the correct handling of our products and repeat training.

We do not guarantee that all features described in this manual exist in all models. Caused by our efforts to continue further development and improvement, technical data might change without notice.

By further developments or regulations of the country illustrations and examples shown in the manual can be different from the delivered model.

Please pay attention to the information about admissible print media and the notes to the printer maintenance, in order to avoid damages or premature wear.

We endeavoured to write this manual in an understandable form to give and you as much as possible information. If you have any queries or if you discover errors, please inform us to give us the possibility to correct and improve our manual.

3   Technical Data

3.1   ILX 56/8, 80/8, 54/12, 81/12

	ILX 56/8	ILX 80/8	ILX 54/12	ILX 81/12
Print resolution	200 dpi	200 dpi	300 dpi	300 dpi
Max. print speed	300 mm/s	300 mm/s	300 mm/s	300 mm/s
Print width	56 mm	80 mm	54 mm	81 mm
Passage width	60 mm	90 mm	60 mm	90 mm
Printhead	Flat Type	Flat Type	Flat Type	Flat Type
Labels				
Labels or continuous material	on rolls: paper, cardboard, textile, synthetics			
Material weight	max. 220 g/m² (larger on demand)			
Min. label width	20 mm			
Min. label height	15 mm			
Max. label height	3000 mm			
Max. roll diameter	Internal rewinder: 150 mm External unwinder: 300 mm (option)			
Min. core diameter	40 mm / 76 mm			
Winding	outside or inside			
Label sensor	transmission			
Transfer Ribbon				
Ink	outside or inside			
Max. roll diameter	Ø 80 mm			
Core diameter	25.4 mm / 1″			
Max. ribbon length	450 m			
Max. width	55 mm	85 mm	55 mm	85 mm
Dimensions (mm)				
Width x height x depth	201x241x375	226x241x35	201x241x375	226x241x35
Weight	8.7 kg	9,6 kg	8.7 kg	9,6 kg
Electronics				
Processor	High Speed 32 Bit			
RAM	16 MB			
Slot	for Compact Flash card Type I			
Battery cache	for Real-Time clock (storage of data with shut-down)			
Warning signal	acoustic signal when error			
Interfaces				
Serial	RS-232C (up to 115200 Baud)			
Parallel	SPP			
USB	2.0 High Speed Slave			
Ethernet	10/100 Base T, LPD, RawIP-Printing, DHCP, HTTP, FTP			
2 x USB Master	connection for external USB keyboard and memory stick			
Operation Data				
Nominal voltage	110 … 230 V AC / 50 … 60 Hz			
Nominal current	2.5 A			
Fuse values	2x T5A 250 V			

Operation Data	
Operating temperature	5 … 40 °C
Humidity	max. 80 % (not condensing)
Operation Panel	
Keys	test print, function menu, quantity, CF Card, feed, enter, 4 x cursor
LCD display	graphic display 132 x 64 pixel
Settings	
	date, time, shift times 11 language settings (others on demand) label and device parameters, interfaces, password protection, variables
Monitoring	
Stop printing if	end of ribbon / end of labels
Status report	extensive status print with information about settings e.g. print length counter, runtime counter, photocell interface and network parameters, printout of all internal fonts and all supported bar codes
Fonts	
Font types	6 Bitmap fonts, 8 Vector fonts/TrueType fonts, 6 proportional fonts other fonts on demand
Character sets	Windows 1250 up to1257, DOS 437, 850, 852, 857, UTF-8 all West and East European Latin, Cyrillic, Greek and Arabic (option) characters are supported other character sets on demand
Bitmap fonts	size in width and height 0,8 … 5,6 zoom 2 … 9 orientation 0°, 90°, 180°, 270°
Vector fonts/TrueType fonts	size in width and height 1 … 99 mm variable zoom orientation 0°, 90°, 180°, 270°
Font attributes	depending on character font bold, Italic, Inverse, Vertical
Font width	variable
Bar Codes	
1D bar codes	CODABAR, Code 128, Code 2/5 interleaved, Code 39, Code 39 extended, Code 93, EAN 13, EAN 8, EAN ADD ON, GS1-128, Identcode, ITF 14, Leitcode, Pharmacode, PZN 7 Code, PZN 8 Code, UPC-A, UPC-E
2D bar codes	Aztec Code, CODABLOCK F, DataMatrix, GS1 DataMatrix, MAXICODE, PDF 417, QR Code
Composite bar codes	GS1 DataBar Expanded, GS1 DataBar Limited, GS1 DataBar Omnidirectional, GS1 DataBar Stacked, GS1 DataBar Stacked Omnidirectional, GS1 DataBar Truncated
	all bar codes are variable in height, module width and ratio. orientation 0°, 90 °, 180°, 270° Optionally with check digit and human readable line.
Software	
Configuration	ConfigTool
Process control	NiceLabel
Label software	Labelstar Office Lite, Labelstar Office
Windows driver	Windows 7® 32/64 Bit, Windows 8® 32/64 Bit Windows 8.1® 32/64 Bit, Windows 10® 32/64 Bit Windows Server 2008® (R2) 64 Bit Windows Server 2012® 64 Bit, Windows Server 2012® (R2) 64 Bit

3.2   ILX 103/8, 104/8, 106/12, 106/24, 108/12

	ILX 103/8	ILX 104/8	ILX 106/12	ILX 106/24	ILX 108/12
Print resolution	203 dpi	203 dpi	300 dpi	600 dpi	300 dpi
Max. print speed	300 mm/s	300 mm/s	300 mm/s	100 mm/s	300 mm/s
Print width	104 mm	104 mm	105.7 mm	105.7 mm	108.4 mm
Passage width	116 mm	116 mm	116 mm	116 mm	116 mm
Printhead	Flat Type	Flat Type	Flat Type	Flat Type	Flat Type
Labels					
Labels or continuous material	on rolls: paper, cardboard, textile, synthetics				
Material weight	max. 220 g/m² (larger on demand)				
Min. label width	25 mm				
Min. label height	15 mm				
Max. label height	3000 mm				
Max. roll diameter					
Internal rewinder	150 mm				
External unwinder	300 mm (option)				
Min. core diameter	40 mm / 76 mm				
Winding	outside or inside				
Label sensor	transmission				
Transfer Ribbon					
Ink	outside or inside				
Max. roll diameter	Ø 80 mm				
Core diameter	25.4 mm / 1″				
Max. ribbon length	450 m				
Max. width	110 mm				
Dimensions (mm)					
Width x height x depth	261 x 281 x 375				
Weight	10.5 kg				
Electronics					
Processor	High Speed 32 Bit				
RAM	16 MB				
Slot	for Compact Flash card Type I				
Battery cache	for Real-Time clock (storage of data with shut-down)				
Warning signal	acoustic signal when error				
Interfaces					
Serial	RS-232C (up to 115200 Baud)				
Parallel	SPP				
USB	2.0 High Speed Slave				
Ethernet	10/100 Base T, LPD, RawIP-Printing, DHCP, HTTP, FTP				
2 x USB Master	connection for external USB keyboard and memory stick				
Operation Data					
Nominal voltage	110 … 230 V AC / 50 … 60 Hz				
Nominal current	2.5 A				
Fuse values	2x T5A 250 V				

Operation Data	
Operating temperature	5 … 40 °C
Humidity	max. 80 % (not condensing)
Operation Panel	
Keys	test print, function menu, quantity, CF Card, feed, enter, 4 x cursor
LCD display	graphic display 132 x 64 Pixel, white backlight
Settings	
	date, time, shift times 11 language settings (others on demand) label and device parameters, interfaces, password protection, variables
Monitoring	
Stop printing if	end of ribbon / end of labels
Status report	extensive status print with information about settings e.g. print length counter, runtime counter, photocell interfaceand network parameters, printout of all internal fonts and all supported bar codes
Fonts	
Font types	6 Bitmap fonts, 8 Vector fonts/TrueType fonts, 6 proportional fonts other fonts on demand
Character sets	Windows 1250 up to1257, DOS 437, 850, 852, 857, UTF-8 all West and East European Latin, Cyrillic, Greek and Arabic (option) characters are supported other character sets on demand
Bitmap fonts	size in width and height 0,8 … 5,6 zoom 2 … 9 orientation 0°, 90°, 180°, 270°
Vector fonts/TrueType fonts	size in width and height 1 … 99 mm variable zoom orientation 0°, 90°, 180°, 270°
Font attributes	depending on character font bold, Italic, Inverse, Vertical
Font width	variable
Bar Codes	
1D bar codes	CODABAR, Code 128, Code 2/5 interleaved, Code 39, Code 39 extended, Code 93, EAN 13, EAN 8, EAN ADD ON, GS1-128, Identcode, ITF 14, Leitcode, Pharmacode, PZN 7 Code, PZN 8 Code, UPC-A, UPC-E
2D bar codes	Aztec Code, CODABLOCK F, DataMatrix, GS1 DataMatrix, MAXICODE, PDF 417, QR Code
Composite bar codes	GS1 DataBar Expanded, GS1 DataBar Limited, GS1 DataBar Omnidirectional, GS1 DataBar Stacked, GS1 DataBar Stacked Omnidirectional, GS1 DataBar Truncated
	all bar codes are variable in height, module width and ratio. orientation 0°, 90 °, 180°, 270° Optionally with check digit and human readable line.
Software	
Configuration	ConfigTool
Process control	NiceLabel
Label software	Labelstar Office Lite, Labelstar Office
Windows driver	Windows 7® 32/64 Bit, Windows 8® 32/64 Bit Windows 8.1® 32/64 Bit, Windows 10® 32/64 Bit Windows Server 2008® (R2) 64 Bit, Windows Server 2012® 64 Bit Windows Server 2012® (R2) 64 Bit

Standard equipment
- Dispenserg unit
- Real time clock with printout date and time
  Automatic daylight saving time
  Storage of data with shut-down
- Variables: link field, counter, date/time, currency and shift variable, CF data
- Thermal direct or thermal transfer version
- Right and left version
- Dispenser I/O
- USB host for connection of an external USB keyboard and an USB memory stick
- Ethernet interface
- CVPL protocol and ZPL II® protocol
- Label photocell transmission
- Slot for CF card
- Windows printer driver on CD ROM
- Labelstar Office Lite on CD ROM

Optional equipment
- Unwinder
  (max. outside diameter 300 mm)
- Label applicator APX
- Wipe-on modules WMX
- Label photocell transmission and reflexion from bottom
- Signal lamp
- Carrier plate extension
- CF memory card

3.3   Control Inputs and Outputs

By means of a maximum of 16 control inputs and outputs which, in the following, are also referred to as ports, different functions of the printing system can be triggered and operating states can be displayed.

The ports are provided by means of a D-Sub bushing (26pin HD) at the rear panel of the printing system and are galvanically isolated from protective earth (PE) by means of an optocoupler semi-conductor route.

Each port can be configured as input and as output. This function however, is predefined in the printer software and cannot be changed by the user.
The following parameters can be changed and set by using the menu: debounce times and high or low active.

Printing systems, internal circuitry
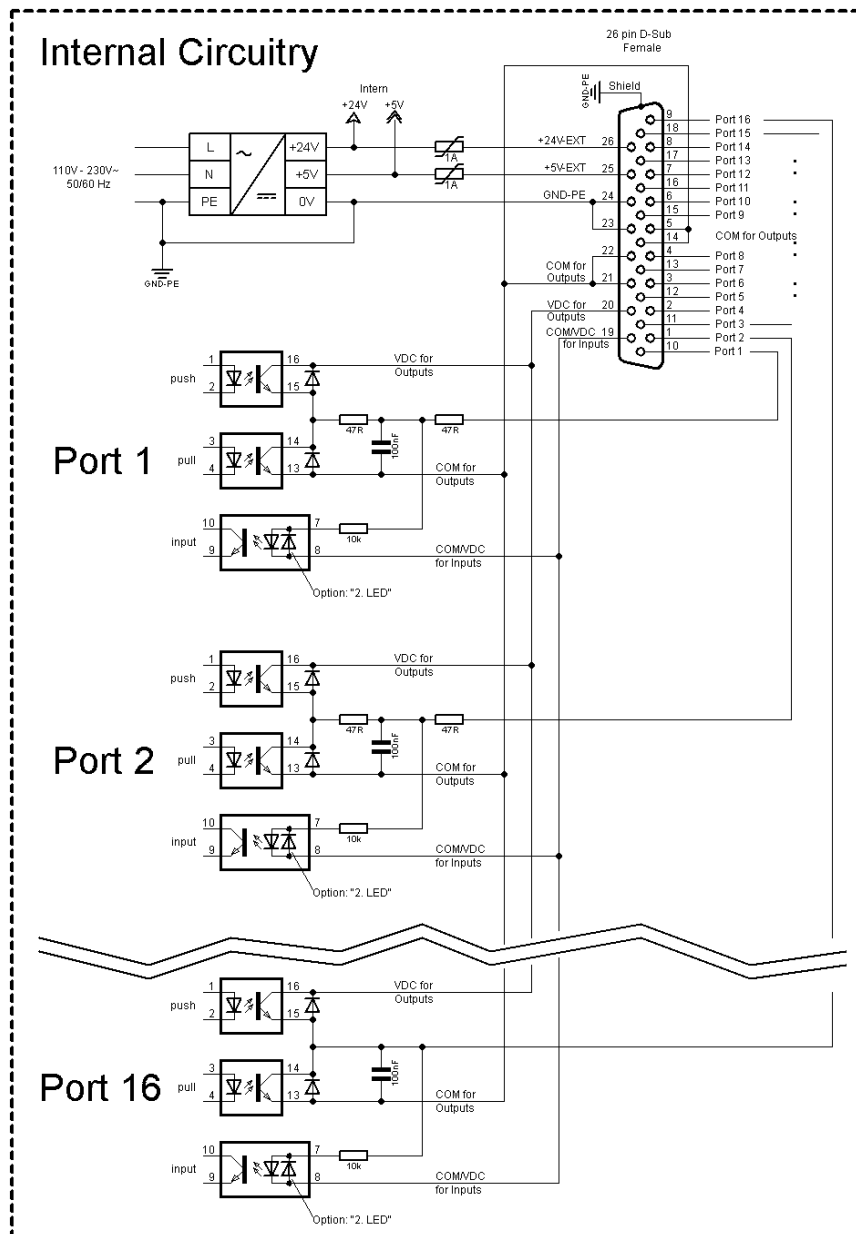
Figure 1

**Configuration of
D-Sub socket**
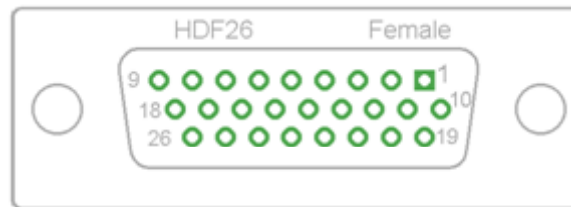
Figure 2

Port 1 to Port 16 = Assignment for I/O Profile *Std_Label*

Identification	Pin	Description / Function
Port 1	10	Print start (Input)
Port 2	1	Reprint last printed label (Input)
Port 3	11	Counter Reset (Input)
Port 4	2	Option applicator only: Start application (Input)
Port 5	12	Error reset (Input)
Port 6	3	Cancel all print jobs (Input)
Port 7	13	Label prewarning (Input)
Port 8	4	External release signal (Input)
Port 9	15	Error (Output)
Port 10	6	Print order activ (Output)
Port 11	16	Dispenser photocell: Label exists at dispenser photocell (Output)
Port 12	7	Single print (Output)
Port 13	17	Ready (Output)
Port 14	8	Option applicator only: Ready for application (Output)
Port 15	18	Option scanner only Bar code not readable (Output)
Port 16	9	End of ribbon / End of label
COM/VDC for Inputs	19	Common reference potential of all control inputs. 'COM/VDC for Inputs' is usually connected with the (-) terminal of the control voltage and the control inputs are switched to active (+). By means of the option '2nd LED', 'COM/VDC for Inputs' can optionally be connected with the (+) terminal of the control voltage. Then, the control inputs are switched to active (-).
VDC for Outputs	20	Common supply connection of all control outputs. 'VDC for Outputs' must be connected with the (+) terminal of the control voltage. Never leave 'VDC for Outputs' open even if no output is used.
COM for Outputs	5,14 21,22	Common reference potential of all control outputs. 'COM for Outputs' must be connected with the (-) terminal of the control voltage. Never leave 'COM for Outputs' open even if no output is used.
GND-PE	23,24	'GND-PE' is the reference potential of the '+5 VDC EXT' and '+24 VDC EXT' voltages provided by the printing system. 'GND-PE' is printer internally connected with protective earth (PE).

Identification	Pin	Description / Function
+ 5 VDC EXT	25	5 Volt DC output for external use. Max. 1 A. This voltage is provided from direct printing system and can be used e.g. as control voltage. Never apply any external voltage to this output.
+ 24 VDC EXT	26	24 Volt DC output for external use. Max. 1 A. This voltage is provided from direct printing system and can be used e.g. as control voltage. Never apply any external voltage to this output.

Technical data

Plug Connector	
Type	D-Sub connector High Density 26-pin. / connector
Manufacturer	W+P-Products
Reference number	110-26-2-1-20
Output Voltages (connected with GND-PE)	
+ 24 V / 1 A	Fuse: Polyswitch / 30 V / 1 A
+ 5 V / 1 A	Fuse: Polyswitch / 30 V / 1 A
Port 1 - 15	
Input	
Tension	5 VDC … 24 VDC
Impedance	$47\Omega + (100nF \parallel 10\,k\Omega)$
Output	
Tension	5 VDC … 24 VDC
Impedance	$47\Omega + (100nF \parallel 10\,k\Omega \parallel 47\Omega)$
Current max.	High +15 mA Low -15 mA
Port 16	
Input	
Tension	5 VDC … 24 VDC
Impedance	$100nF \parallel 10\,k\Omega$
Output	
Tension	5 VDC … 24 VDC
Impedance	$100nF \parallel 10\,k\Omega$
Current max.	High +500 mA (Darlington BCP56-16) Low - 500 mA (Darlington BCP56-16)
Optocoupler	
Output	TCMT4106, CTR 100 % - 300 %, Vishay or TLP281-4(GB), CTR 100 % - 600 %, Toshiba
Input	TCMT4106, CTR 100 % - 300 %, Vishay or TLP281-4(GB), CTR 100 % - 600 %, Toshiba
Input Option 2nd LED	TCMT4600, CTR 80 % - 300 %, Vishay or TLP280-4, CTR 33 % - 300 %, Toshiba

Example 1   Device connection to a machine with S7-300 SPS.
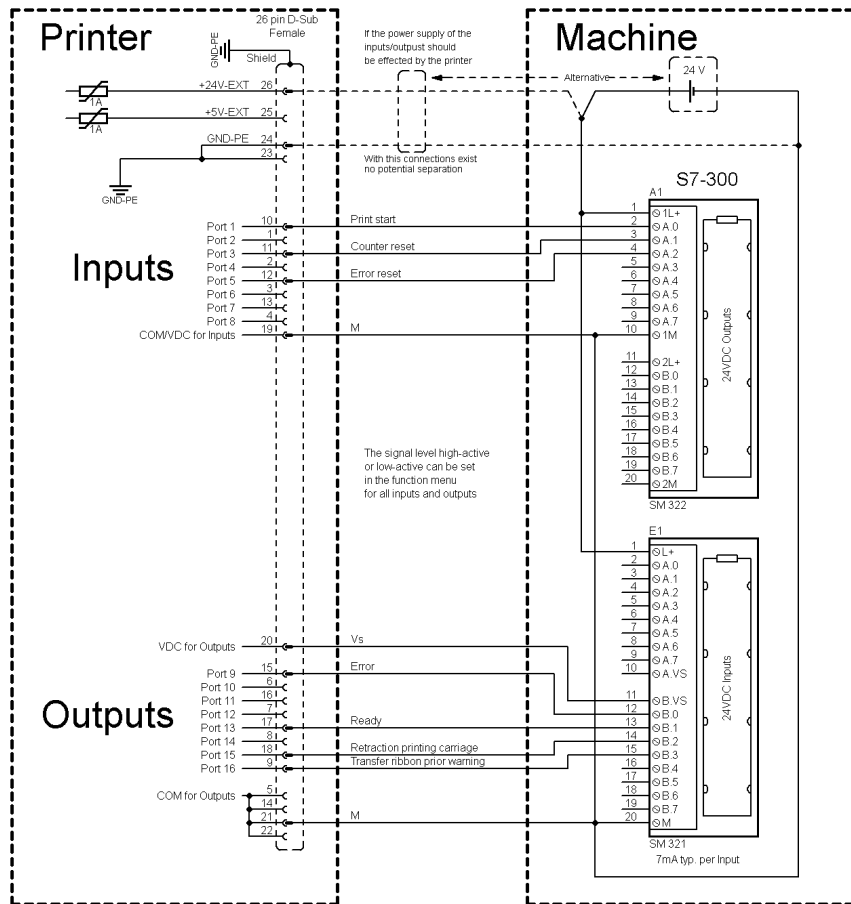
Figure 3

Example 2   Device connection to a operating panel.
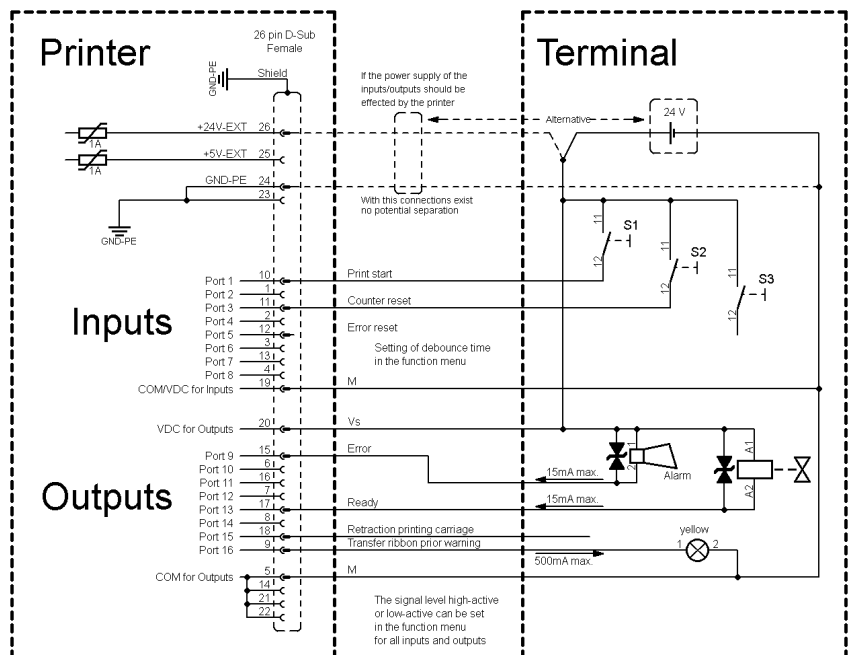
Figure 4

Example 3   Device connection version if 'Option: 2. LED'.
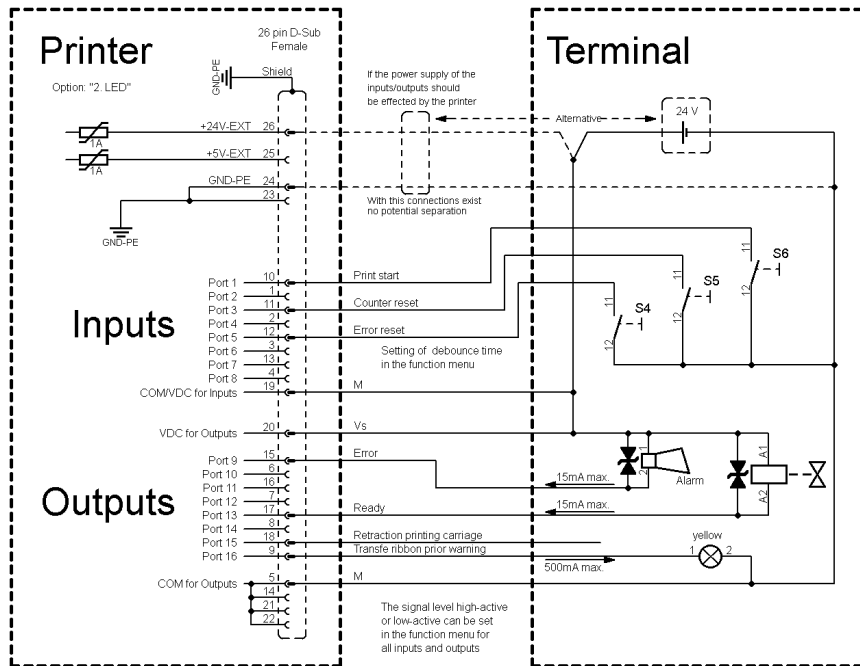
Figure 5

Precautions   When connecting a reed contact with a control input, the contact must have a switching capacity of min. 1 A in order to prevent the contact from sticking due to the inrush current. As an alternative, a suitable resistor can be connected in series.

If one of the printer's internal voltages '+5 VDC EXT' or '+24 VDC EXT' is used, an external fuse e.g. 0.5 AF, should be additionally installed to protect the printer electronics.

In the event of an inductive load, an antiparallel connected diode, for instance, must be used to discharge the induction energy.

In order to minimise the influence of leakage currents at control outputs, a resistor must, depending on what is connected, be installed in parallel with the load.

In order to avoid any damages to the printing system, the max. output currents must not be exceeded or outputs shorted.

4   Installation

Unpack the printing system

$\Longrightarrow$ Lift the printing system out of the box.

$\Longrightarrow$ Check the printing system for transport damages.

$\Longrightarrow$ Remove the foam transportation safeguards near the printhead.

$\Longrightarrow$ Check delivery for completeness.

Scope of delivery

- Printing system.
- Power cable.
- Empty core, mounted on transfer ribbon rewinder.
- Dispensing edge
- Documentation.
- CD with printer drivers.
- Labelstar Office LITE CD ROM

> **NOTICE!**
>
> Retain the original packaging for subsequent transport.

4.1   Set up the Printing System

> **CAUTION!**
>
> The printing system and the print media can be damaged by moisture and water.
>
> $\Longrightarrow$ Set up the printing system only in a dry place protected from sprayed water.

Mount the printing system

On the cover plate of the printing system there are two different mounting ports for flange versions, to integrate the printing system hanging in the production line.

> **CAUTION!**
>
> Damage to the printing system because of inadequate mounting. If the printing system is not correctly fastened then there is a danger that it falls out from the supporting construction. This could result in injury.
>
> $\Longrightarrow$ The printing system must be fitted on a supporting construction for proper use.
>
> $\Longrightarrow$ Use suitable screws which can support the weight of the printing system.

Flange versions

90.74.943

90.74.941

90.74.944

90.74.942
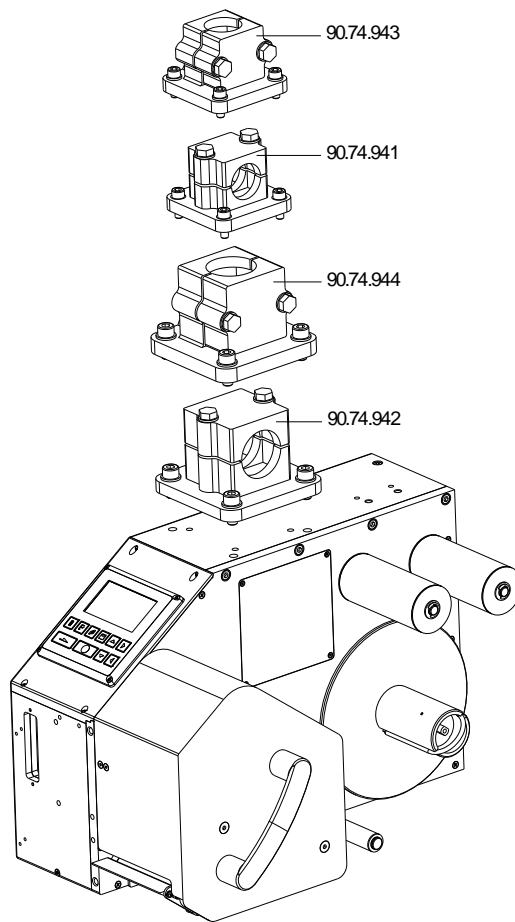
Figure 6

Mounting port
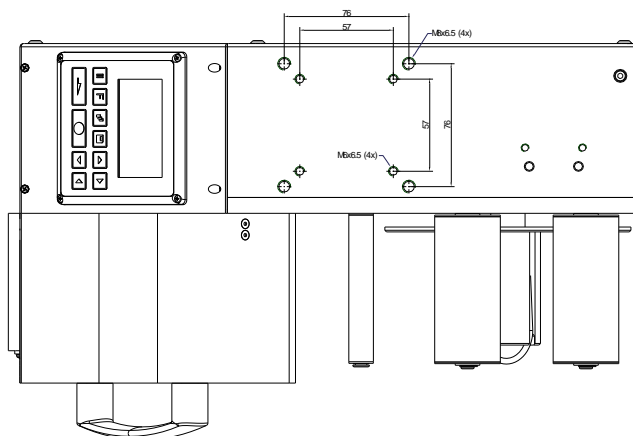
Figure 7

**Schematic overview
of the machine
environment**
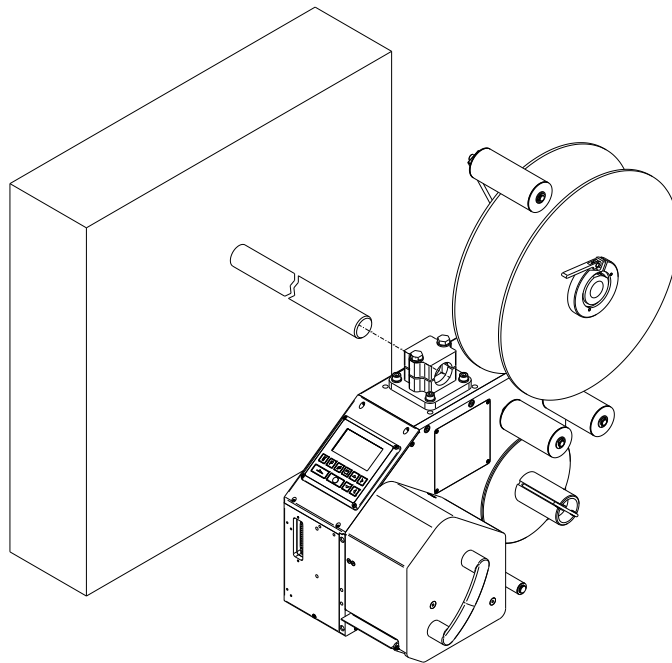
Figure 8

4.2   Connect the Printing System

**Connect to the power
supply**

The printing system is equipped with a versatile power supply unit.
The device may be operated with a mains voltage of 110 … 230 V AC
50 … 60 Hz without any adjustments or modifications.

> **!   CAUTION!**
>
> The printing system can be damaged by undefined switch-on
> currents.
>
> ⟹   Set the power switch to '0' before plugging in the printing
> system.

⟹   Insert the power cable into the power connection socket.

⟹   Insert the plug of power cable into a grounded electrical outlet.

**Connect to a computer
or computer network**

> **ℹ   NOTICE!**
>
> Insufficient or missing grounding can cause faults during
> operation.
>
> Ensure that all computers and connection cables connected to
> the printing system are grounded.

⟹   Connect the printing system to a computer or network with a
suitable cable.

4.3   Connector Pin Assignment (Back Side)

Right version (ILX 56/8, 80/8, 54/12, 81/12)
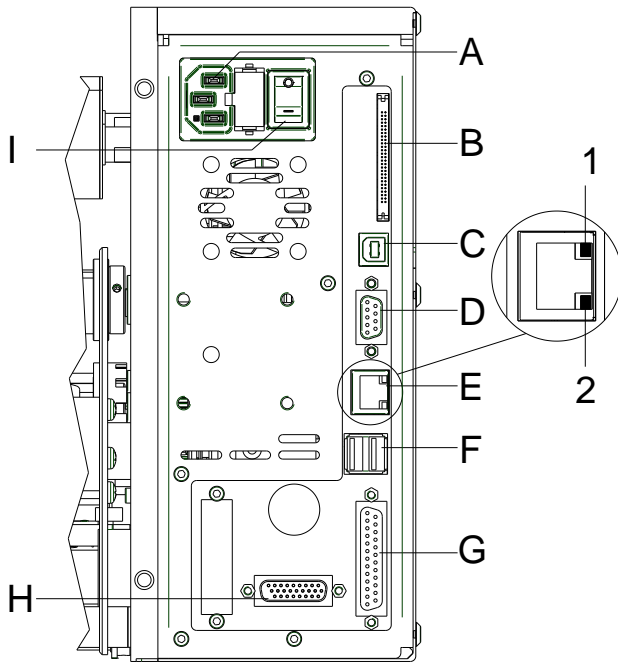
A   Power supply

B   Slot for CF card

C   USB interface

D   Serial interface RS-232

E   Ethernet 10/100

   1 = LED orange
     Lighting = Connection active
     Flashing = Data transfer
     Off = No connection

   2 = LED green
     Lighting = Speed 100 MBit
     Off = Speed 10 MBit

F   USB host for USB keyboard and USB memory stick

G   Parallel interface

H   External output/input

I   Power On/Off switch

Figure 9

Left version (ILX 56/8, 80/8, 54/12, 81/12)
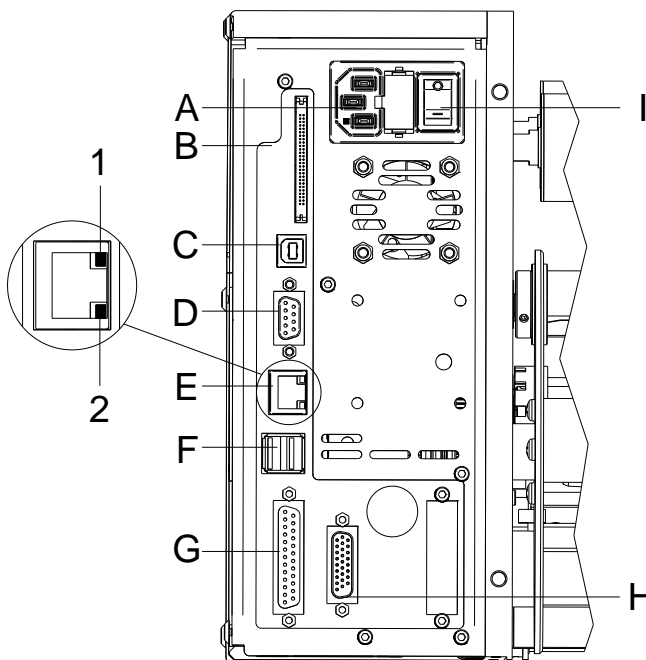
A   Power supply

B   Slot for CF card

C   USB interface

D   Serial interface RS-232

E   Ethernet 10/100

   1 = LED orange
     Lighting = Connection active
     Flashing = Data transfer
     Off = No connection

   2 = LED green
     Lighting = Speed 100 MBit
     Off = Speed 10 MBit

F   USB host for USB keyboard and USB memory stick

G   Parallel interface

H   External output/input

I   Power On/Off switch

Figure 10

Right version (ILX 103/8, 104/8, 106/12, 106/24, 108/12)
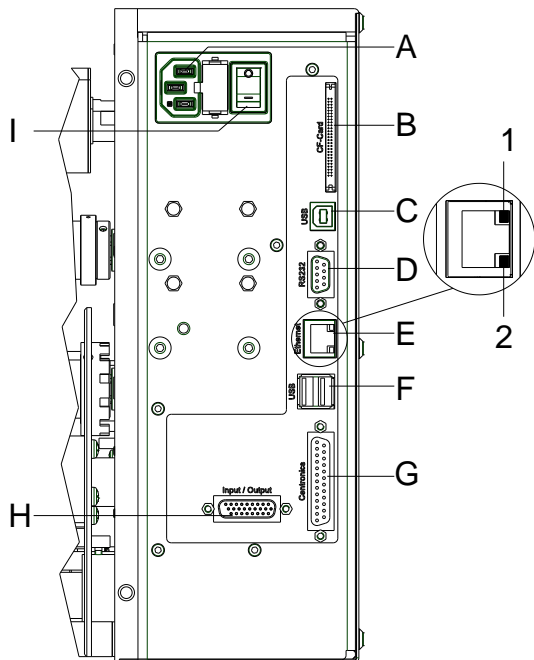
A   Power supply

B   Slot for CF card

C   USB interface

D   Serial interface RS-232

E   Ethernet 10/100

    1 = LED orange
       Lighting = Connection active
       Flashing = Data transfer
       Off = No connection

    2 = LED green
       Lighting = Speed 100 MBit
       Off = Speed 10 MBit

F   USB host for USB keyboard and
    USB memory stick

G   Parallel interface

H   External output/input

I   Power On/Off switch

Figure 11

Left version (ILX 103/8, 104/8, 106/12, 106/24, 108/12)
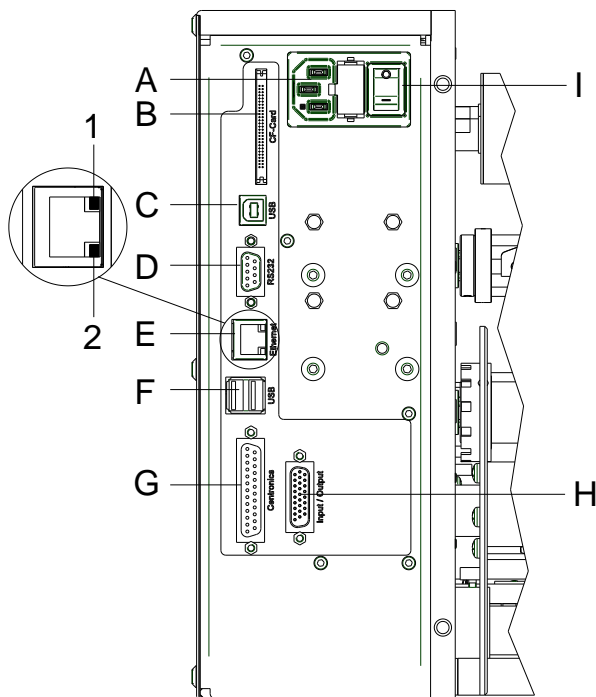
A   Power supply

B   Slot for CF card

C   USB interface

D   Serial interface RS-232

E   Ethernet 10/100

    1 = LED orange
       Lighting = Connection active
       Flashing = Data transfer
       Off = No connection

    2 = LED green
       Lighting = Speed 100 MBit
       Off = Speed 10 MBit

F   USB host for USB keyboard and
    USB memory stick

G   Parallel interface

H   External output/input

I   Power On/Off switch

Figure 12

4.4   Switch On and Off the Printing System

After all connections are completed, switch on the printing system. The main menu appears which shows the printer type, current date and time.

4.5   Initial Operation of Printing System

After switching on the printing system the main menu appears which shows the printer type, current date and time.

Insert label material and transfer ribbon (see chapter 5. Loading Media, page 29).

Go to menu *Label layout*, select the menu item *Measure label* and start measuring (see chapter 6.4 Label Layout, page 41).

Press the key ⬤ to finish measuring.

NOTICE!

To enable correct measuring, at least two complete labels have to be passed through (not for continuous labels).

During measuring the label and gap length small differences can occur. Therefore the values can be set manually in menu *Label layout/Label and Gap*.

5   Load Media

5.1   Load Label Roll

**ILX 56/8, 80/8,
54/12, 81/12**
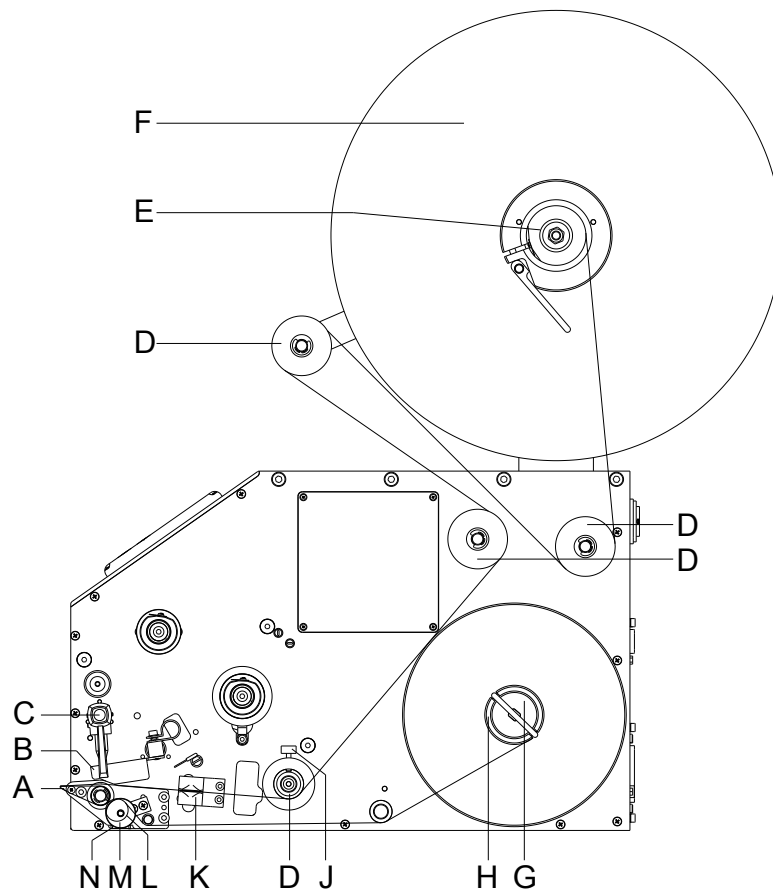
Figure 13

1. Open the printhead (B) by turning the pressure lever (C)
    anticlockwise.

2. Remove the outside label mounting plate (F).

3. Load the label roll with inner winding onto the unwinding roll (E).

4. Attach again the label mounting plate (F).

5. Guide the label material around the reversing shafts (D).
    Pay attention that the label runs through the photocell (K).

6. In order to move the printhead (B) down, turn the pressure lever
    (C) in clockwise direction until it locks.

7. Adjust the adjusting ring (J) of the label guiding to the width of
    material.

8. Press the key **III** to start a test print or release a measuring
    procedure to determine the exact position of the label beginning.

9. Enter the offset value in the menu *Dispenser I/O*.

10. Pull the knurled knob (M) outwards in order to move the dispensing compensator (N) forwards/downwards.

11. Strip some labels from the backing paper and lead the material over the dispensing edge (A) and behind the plastic roller (L).

12. Press again the dispensing compensator (N) to the top until it locks.

13. Fix the backing paper at the rewinding unit (H) with a clamp (G).

ILX 103/8, 104/8, 106/12, 106/24, 108/12
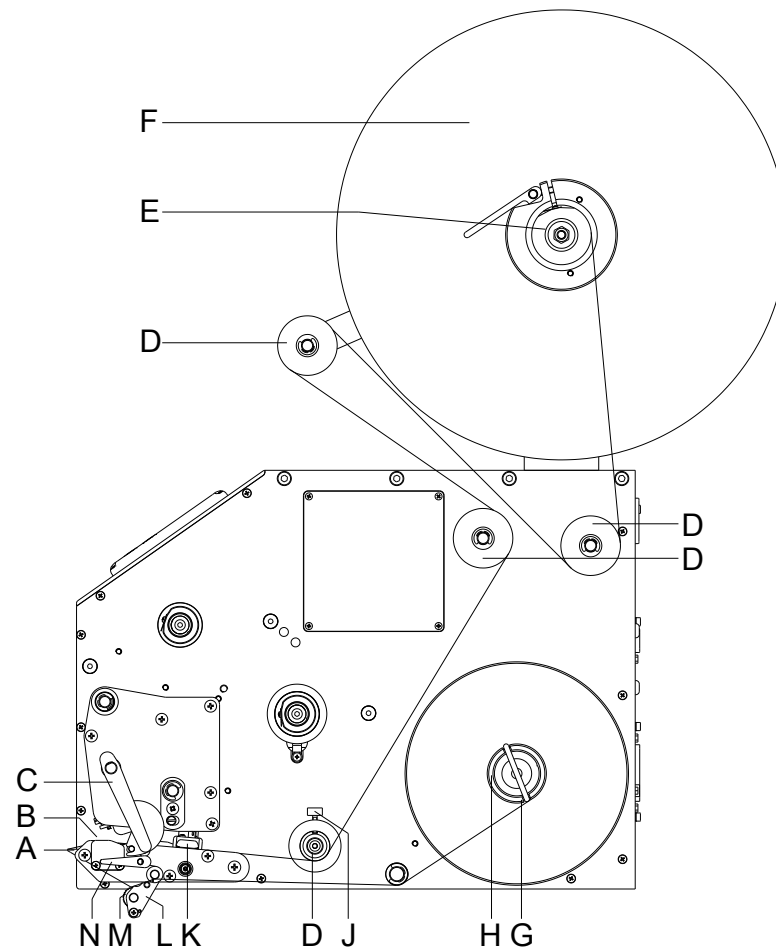
Figure 14

1. Open the printhead (B) by turning the pressure lever (C) anticlockwise.

2. Remove the outside label mounting plate (F).

3. Load the label roll with inner winding onto the unwinding roll (E).

4. Attach again the label mounting plate (F).

5. Guide the label material around the reversing shafts (D).
   Pay attention that the label runs through the photocell (K).

6. In order to move the printhead (B) down, turn the pressure lever (C) in clockwise direction until it locks.

7. Adjust the adjusting ring (J) of the label guiding to the width of material.

8. Press the key [III] to start a test print or release a measuring procedure to determine the exact position of the label beginning.

9. Enter the offset value in the menu *Dispenser I/O*.

10. Turn the locking lever (N) upward in clockwise direction and at the same time turn the dispensing compensator down (L).

11. Strip some labels from the backing paper and lead the backing material over the dispensing edge (A) and between the plastic roll (M) and the dispensing compensator-shaft (L).

12. Press again the dispensing compensator (L) to the top until it locks.

13. Fix the backing paper at the rewinding unit (H) with a clamp (G).

5.2 Load Transfer Ribbon

i **NOTICE!**

For the thermal transfer printing method it is necessary to load a ribbon, otherwise when using the printing system in direct thermal print it is not necessary to load a ribbon. The ribbons used in the printing system have to be at least the same width as the print media. In case the ribbon is narrower than the print media, the printhead is partly unprotected and this could lead to early wear and tear.
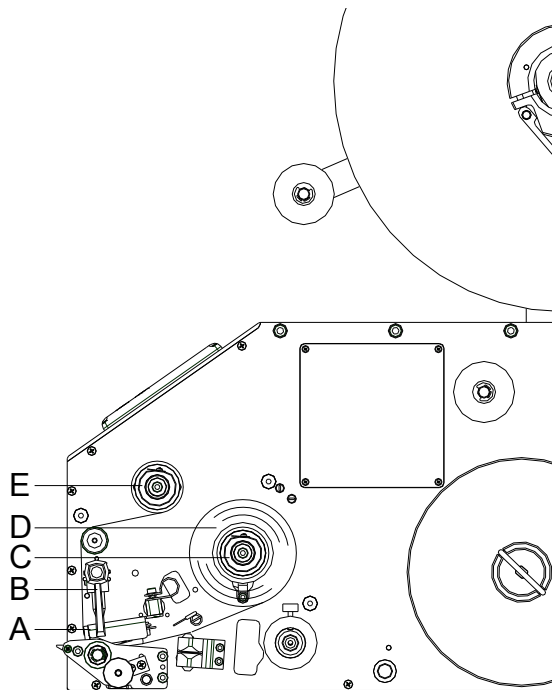
ILX 56/8, 80/8, 54/12, 81/12   **ILX 103/8, 104/8, 106/12, 106/24, 108/12**
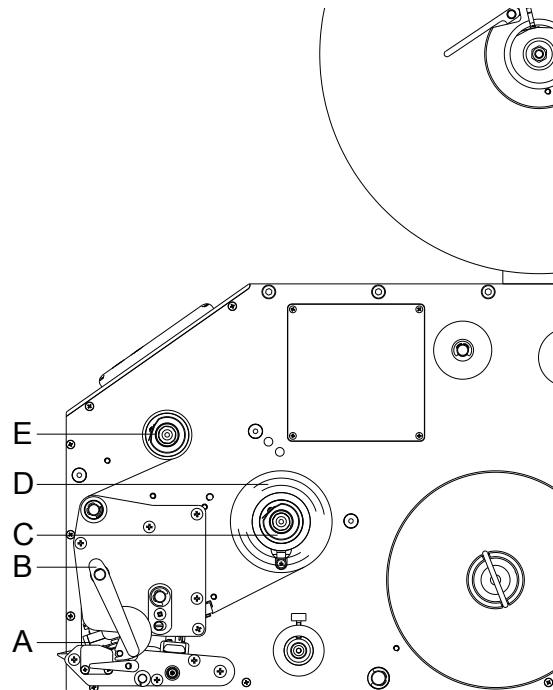
Figure 15

i **NOTICE!**

Before a new transfer ribbon roll is loaded, the printhead must be cleaned using printhead and roller cleaner (97.20.002). For detailed information, please see page 82.

The handling instructions for the use of Isopropanol (IPA) must be observed. In the case of skin or eye contact, immediately wash off the fluid thoroughly with running water. If the irritation persists, consult a doctor. Ensure good ventilation.

1. Open the printhead (A) by turning the pressure lever (B) anticlockwise.

2. Load the transfer ribbon roll (D) with outer winding onto the unwinding roll (C).

3. Place an empty ribbon roll on the winding roll (E) and lead the transfer ribbon below the printhead (A).

4. Fix the beginning of transfer ribbon with an adhesive tape at the empty core of the rewinding roll (E). Please observe the rotation direction of the transfer ribbon rewinding anticlockwise.

5. In order to move the printhead (A) down, turn the pressure lever (B) in clockwise direction until it locks.

NOTICE!

As for the electrostatic unloading the thin coating of the thermal printhead or other electronic parts can be damaged, the transfer ribbon should be antistatic.

The use of wrong materials can lead to printing system malfunctions and the guarantee can expire.

CAUTION!

Folds when using transfer ribbon with coating inside because of the limited retracting movement.

$\Longrightarrow$ Use transfer ribbon with coating outside.

CAUTION!

Impact of static material on people!

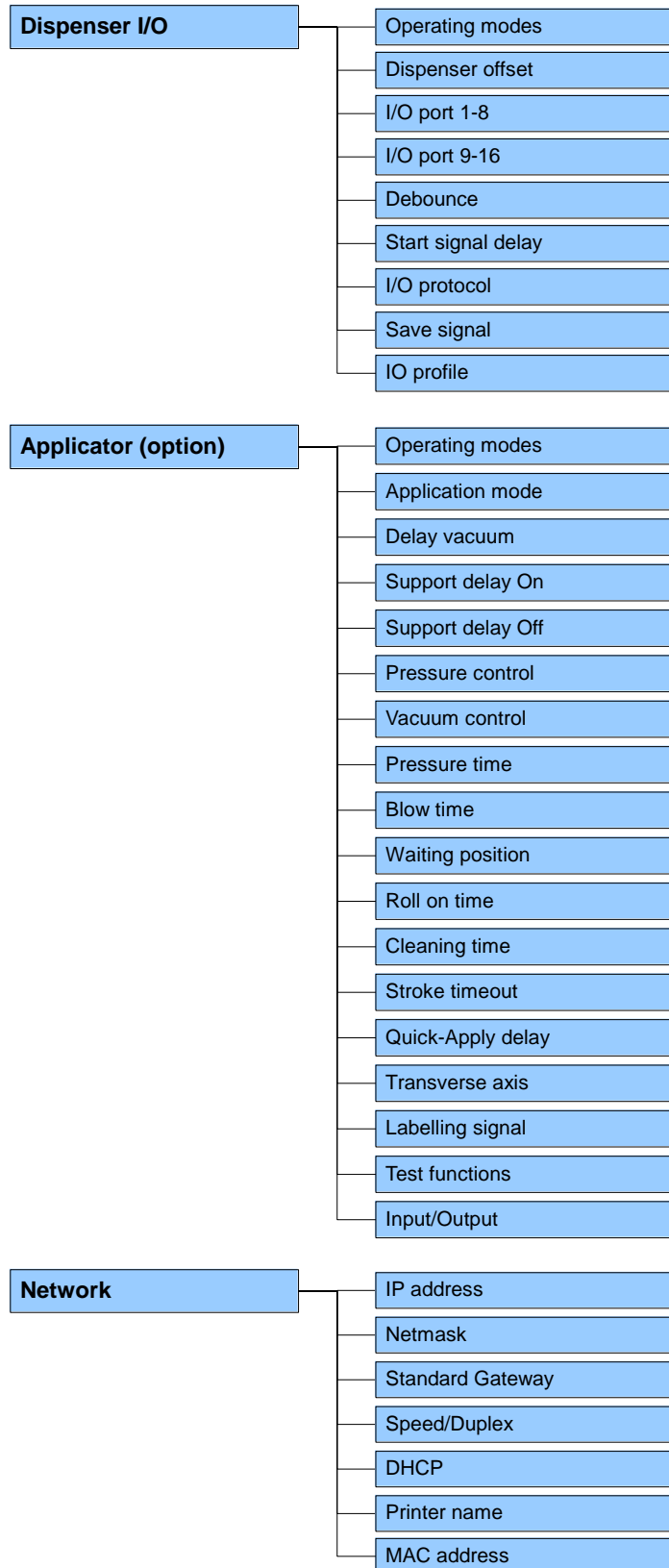$\Longrightarrow$ Use antistatic transfer ribbon, because static discharge can occur when removing.

6   Function Menu

6.1 Operation Panel

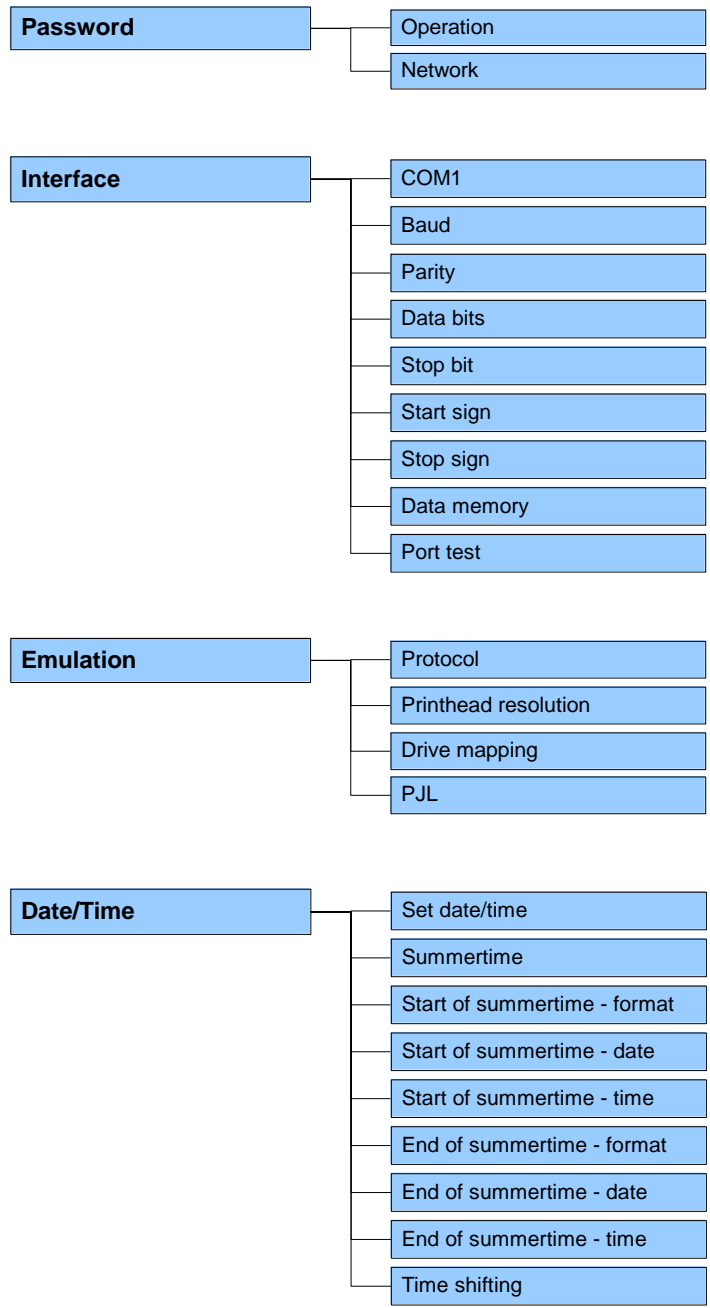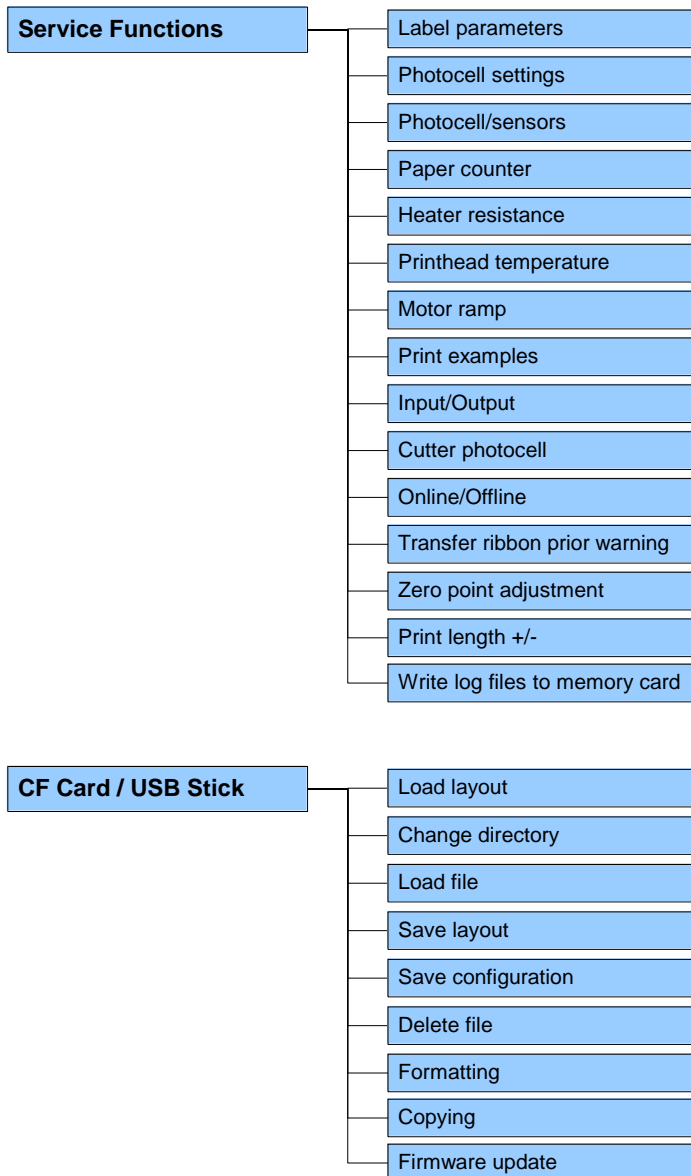|	
	The top line of the graphic display shows the printing system type.
	The graphic display shows information about the current printing system status and the print order, reports errors and shows the device settings in the menus.
III	Back to the main menu. Start a test print. Delete a stopped print order.
F	Change to the function menu. In function menu: one menu item back.
	Change to the quantity (number of pieces) menu. Press keys ▲ and ▼ to select the number of labels that should be printed.
	Change to the menu of the CF card.
➞	In main menu: feed of one label. In function menu: skip to the next menu item.
●	Confirm settings and modifications. Stop and continue current print orders. Delete a stopped print order with key **III**. No further label of the print order is printed.
◀	Return to the previous input field. Press keys ▲ and ▼ to change the values.
▶	Skip to the next input field. Press keys ▲ and ▼ to change the values.
▲	Increase figure at the cursor position.
▼	Decrease figure at the cursor position.

6.2   Menu Structure

Print Settings

- Speed
- Contrast
- Ribbon control
- Y offset
- X offset
- Tear-off offset

Label Layout

- Label length
- Gap length
- Column printing
- Measure label
- Label type
- Material selection
- Photocell
- Scan position
- Label error length
- Synchronisation
- Flip label
- Rotate label
- Alignment

Device Settings

- Field handling
- Codepage
- External parameters
- Buzzer
- Display
- Language
- Keyboard
- Customized entry
- Hotstart
- Autoload
- Manual reprint
- Backfeed
- Delay
- CMI length
- Label confirmation
- Standard label
- Synchronisation at switch on

Dispenser I/O

- Operating modes
- Dispenser offset
- I/O port 1-8
- I/O port 9-16
- Debounce
- Start signal delay
- I/O protocol
- Save signal
- IO profile

Applicator (option)

- Operating modes
- Application mode
- Delay vacuum
- Support delay On
- Support delay Off
- Pressure control
- Vacuum control
- Pressure time
- Blow time
- Waiting position
- Roll on time
- Cleaning time
- Stroke timeout
- Quick-Apply delay
- Transverse axis
- Labelling signal
- Test functions
- Input/Output

Network

- IP address
- Netmask
- Standard Gateway
- Speed/Duplex
- DHCP
- Printer name
- MAC address

Password		Operation
		Network

Interface		COM1
		Baud
		Parity
		Data bits
		Stop bit
		Start sign
		Stop sign
		Data memory
		Port test

Emulation		Protocol
		Printhead resolution
		Drive mapping
		PJL

Date/Time		Set date/time
		Summertime
		Start of summertime - format
		Start of summertime - date
		Start of summertime - time
		End of summertime - format
		End of summertime - date
		End of summertime - time
		Time shifting

Service Functions	Label parameters
	Photocell settings
	Photocell/sensors
	Paper counter
	Heater resistance
	Printhead temperature
	Motor ramp
	Print examples
	Input/Output
	Cutter photocell
	Online/Offline
	Transfer ribbon prior warning
	Zero point adjustment
	Print length +/-
	Write log files to memory card

CF Card / USB Stick	Load layout
	Change directory
	Load file
	Save layout
	Save configuration
	Delete file
	Formatting
	Copying
	Firmware update

6.3   Print settings

Switch on the printing system and the display shows the main menu.

Press the key **F** to access the function menu.

Press the key ● to select the menu *Print settings*.

Speed

Indication of print speed in mm/s (see chapter Technical data, page 13). The print speed can be determined for each print order anew. The setting of print speed affects also the test prints.

Contrast

Indication of value to set the print intensity when using different materials, print speeds or printing contents.
Value range: 10 % … 200 %.
Step size: 10 %.

Press the key ➤ to move to the next menu item.

Ribbon control

Examination if the transfer ribbon roll is to end or if the ribbon was torn at the unwinding roll. The current print order is interrupted and an Error Message appears at the printing system display.

Off: The ribbon control is deselected, i.e. the printing system continues without an error message.

On, weak sensibility (default): The printing system reacts at approx. 1/3 more slowly to the end of the transfer ribbon.

On, strong sensibility: The printing system reacts immediately to the end of the transfer ribbon.

Press the key ➤ to move to the next menu item.

Y displacement

Indication of initial point displacement in mm.
Displacement of the complete print in paper direction. With positive values the print in paper direction starts later.
Value range: −30.0 … +90.0.

Press the key ➤ to move to the next menu item.

X displacement

Displacement of the complete print transverse to the paper direction. The displacement is possible only up to the edges of the printing zone and is determined by the width of the focal line in printhead.
Value range: −90.0 … +90.0.

Press the key ➤ to move to the next menu item.

Tear-off

Indication of value to which the last label of a print order is moved forward and is moved back to the beginning of label at a new print start. Labels can be torn off after terminating the print order without a label loss by tearing up.
Default value: 12 mm.
Value range: 0 … 50.0 mm.

6.4   Label Layout

Switch on the printing system and the display shows the main menu.

Press the key **F** to access the function menu.

Press the key ▬▶ until the menu *Label layout* is displayed.

Press the key ● to select the menu.

Label length	Indication of label length in mm (see chapter Technical data, page 13).
Gap length	Indication of distance between two labels in mm (not for continuous labels). Minimum value: 1 mm.
	Press the key ▬▶ to move to the next menu item.
Column printing	Indication of width of one label as well as how many labels are placed side by side (see chapter 11.1 Column Printing, page 101).
	Press the key ▬▶ to move to the next menu item.
Measure label	Press key ● to start measuring. The printing system stops automatically after termination of measuring. The determined values are displayed and saved.
	Press the key ▬▶ to move to the next menu item.
Label type	Generally adhesive labels are set. Press key ▲ to select continuous labels. If the menu item *Label length/Gap length* contains a gap value, this value is added to the label length..
	Press the key ▬▶ to move to the next menu item.
Material selection	Selection of the used label and transfer ribbon material.
	Press the key ▬▶ to move to the next menu item.
Photocell	Selection of the used photocell. The selection of transmission photocell normal or transmission photocell inverse is possible (see chapter 11.4 Photocells, page 105).
Scan position (AP)	Entry of percental label length by that the label end is searched. Marks onto the label can be skipped.

	Press the key [→] to move to the next menu item.
Label error length	In case an error occurs, indication after how many mm a message appears in the display. Value range:1 mm … 999 mm.
Synchronization	**On:** If a label is missed on the liner an error message is displayed. **Off:** Missing labels are ignored, i.e. it is printed into the gap. Press the key [→] to move to the next menu item.
Flip label	The axis of reflection is in the middle of the label. If the label width was not transferred to the printing system, automatically the default label width i.e. the width of the printhead is used. It is recommended to use labels with the same width as the printhead. Otherwise this can cause problems in positioning. Press the key [→] to move to the next menu item.
Rotate label	According to standard the label is printed ahead with a rotation of 0°. If the function is activated, the label is rotated by 180° and printed in reading direction. Press the key [→] to move to the next menu item.
Alignment	The adjustment of label is effected only after *Flip/Rotate label*, i.e. the adjustment is independent of the functions *Flip label* and *Rotate label*. **Left:** The label is aligned at the left-most position of printhead. **Centre:** The label is aligned at central point of printhead. **Right:** The label is aligned at right-most position of printhead.

6.5   Device Settings

Switch on the printing system and the display shows the main menu.

Press the key **F** to access the function menu.

Press the key [→] until the menu *Device settings* is displayed.

Press the key [●] to select the menu.

Field handling

Off: The complete print memory is deleted.
Keep graphic: A graphic res. a TrueType font is transferred to the printing system once and stored in the internal memory of printing system. For the following print order only the modified data is transferred to the printing system. The advantage is the saving of transmitting time for the graphic data.
The graphic data created by the printing system itself (internal fonts, bar codes, ...) is generated only if they were changed. The generating time is saved.
Delete graphic: The graphics res. TrueType fonts stored in the internal memory of the printing system is deleted but the other fields are kept.
Restore graphic: At the end of the print order the printed order can again be started at the printing module. All graphics and TrueType fonts are again printed.
Exception: With column printing always full columns must be printed (number of pieces always multiple of the columns). Deleted columns are not restored.

Press the key [→] to move to the next menu item.

Codepage

Indication of the font used in the device. The following possibilities are available:

Codepage 1252 West European (former ANSI)

Codepage 437 English

Codepage 850 Western European

Codepage 852 Slavic

Codepage 857 Turkish

Codepage 1250 Central and East European

Codepage 1251 Cyrillic

Codepage 1253 Greek

Codepage 1254 Turkish

Codepage 1257 Baltic

WGL4

Please find the tables referring to the above mentionned character sets on www.carl-valentin.de/Downloads.

Press the key [key] to move to the next menu item.

External parameters	**Label dimension only:** The parameters for label length, gap length and label width can be transferred to the printer. All other parameter settings are to be made directly at the printer. **On:** Sending parameters such as print speed and contrast via our label creation software to the printing system. Parameters which are set directly at the printing system before are no longer considered. **Off:** Only settings made directly at the printing system are considered.

Press the key [key] to move to the next menu item.

Buzzer	**On:** An acoustic signal is audible when pressing a key. Value range: 1 … 7. **Off:** No signal is audible.
Display	Setting of display contrast. Value range: 45 … 75.

Press the key [key] to move to the next menu item.

Language	Selection of language in which you want to display the text in the display. At the moment the following languages are available: German, English, French, Spanish, Finnish, Czech, Portuguese, Dutch, Italian, Danish, Polish, Greek, Hungarian, Russian, Chinese (option), Ukrainian, Turkish, Swedish, Norwegian.

Press the key [key] to move to the next menu item.

Keyboard layout	Selection of region for the desired keyboard layout. The following possibilities are available: Germany, England, France, Greece, Spain, Sweden, US, Russia.

Press the key [key] to move to the next menu item.

Customized entry	**Off:** No question appears at the display. In this case the stored default value is printed. **On:** The question referring the customized variable appears once before the print start at the display. **Auto:** The questions referring the customized variable and the quantity query appear after every printed layout. **Auto without quantity query:** The question referring the customized variable appears after every layout without additional query for the quantity.

Press the key [key] to move to the next menu item.

Hotstart	**On:** Continue an interrupted print order after switching on the printing system anew. **Off:** After switching off the printing system the complete data is lost (see chapter 11.2, page 102).

Press the key [⟶] to move to the next menu item.

Autoload

On: A label which was loaded once from CF card can be loaded again automatically after a restart of printing system.
Procedure: The used label is saved onto CF card. The label is loaded from CF card and printed. After switching the printing system Off and again On, the label is loaded from CF card automatically and can be printed again. Press the key [⊞] to start the print with input of number of labels.

i **NOTICE!**

The last loaded label from CF card is always again loaded after a restart of printing system.

Off: After a restart of printing system the last used label must be again loaded manually from CF card.

i **NOTICE!**

A common use of the functions Autoload and Hotstart is not possible. For a correct Autoload procedure the Hotstart must be deactivated in the printing system.

Press the key [⟶] to move to the next menu item.

Manual reprint

Yes: In case an error occurred and printing system is in stopped mode then you can reprint the last printed labels by means of the keys [▲] and [▼]

No: Only blank labels were advanced.

Press the key [⟶] to move to the next menu item.

Backfeed

The backfeed was optimised in the operating modes dispenser (optional), cutter (optional) and tear off. Now, when driving into the offset, the following label is 'pre-printed' if possible and therefore the backfeed of label is no necessary and time can be saved.

Delay

The adjustable deceleration time is only for mode 'backfeed automatic' of importance (see chapter 11, page 101).

Press the key [⟶] to move to the next menu item.

CMI length

If the print is interrupted in the label, at the printhead this could lead to a small interruption in the printout, showing a fine white line onto the label. To avoid this, a value for the minimum backfeed can be set (0 – 1 mm) at which the label material is moved backwards. At the next print start the free range is overprinted. The setting of CMI length has only an influence at the selection of backfeed mode 'optimised backfeed'.

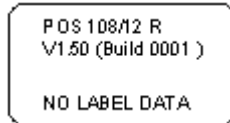Press the key [⟶] to move to the next menu item.

Label confirmation

On: A new print order is only printed after confirmation at the device. An already active continuing print order is printed as long as the confirmation is effected at the device.
Off: No query appears at the display of printing system.

Press the key [▲] to move to the next menu item.

Standard label

On: If a print order is started without previous definition of label, the standard label is printed.

```
POS 108/12 R
V1.50 (Build 0001 )

NO LABEL DATA
```

Off: If a print order is started without previous definition of label, an error message appears in the display.

Press the key [▲] to move to the next menu item.

Synchronzsation at print start

Off: The synchronization is disabled, i.e. the measuring and label feed have to be released manually.
Measure: After switching on the device, the loaded layout is automatically measured.
Feed: After switching on the device the layout is synchronized to the beginning of layout. For this one or multiple layouts are advanced.

6.6 Dispenser I/O

NOTICE!

In order to operate the printing system in dispenser mode a print order has to be started and the printing system has to be in 'waiting' mode.

Switch on the printing system and the display shows the main menu.

Press key **F** to access the function menu.

Press key ▬▶ until the menu *Dispenser I/O* is displayed.

Press key ● to select the menu.

In the upper line of display, the operating mode can be selected.

Offset   In the line below, the dispenser I/O offset (approx. 20 mm) can be set.

Press the key ▲ to move to the next operating mode.

Operating modes   **Off:**
It is printed without the labels are dispensed.

I/O static:
The input signal evaluated, i.e. it is printed as long as the signal exists. The number of labels which was entered at the print start is printed.
The set dispenser offset is not taken into consideration.

I/O static continuous:
For description of this operating mode, see I/O static.
Continuous means that it is printed as long as new data is transferred via interface
The set dispenser offset is not taken into consideration.

I/O dynamic:
The external signal is evaluated dynamically, i.e. is the printing system in 'waiting' mode a single label is printed at each signal changing.
After the print the set dispenser offset is executed, i.e. a backfeed is effected.

I/O dynamic continuous:
For description of this operating mode, see I/O dynamic.
Continuous means that it is printed as long as new data is transferred via interface.

Photocell:
The printing system is controlled via photocell. The printing system prints automatically a label if the user takes away the label at the dispensing ledge. The print order is finished when the target number of labels is reached.

Photocell continuous:
For description of this operating mode, see Photcell.
Continuous means that it is printed as long as new data is transferred via interface.

Additional parameters for Dispenser I/O

After selection of desired Dispenser I/O operating mode, press the key ⬆ to select additional parameters.

Dispenser photocell

First value = Indication of the current sensor level. This indication is for checking purposes and cannot be modified.

Second value = Indication if a label (value = 1) or if no label (value = 0) was found. This indication is for checking purposes if the set switch level leads to a correct label recognition.

Third value = Indication of switch level (Default: 1.2).

Fourth value = Transmission power of label sensor [1..255] Depending on label material (color) the sensor level can be adapted in order to permit a safe label recognition (Default: 80).

NOTICE!

The modification of this value is only taken into consideration for the operating modes *Photocell* and *Photocell continuous*.

Press the key ⬆ to move to the next menu item.

I/O Port 1-8 and I/O Port 9-16

Definition of port functions. 2 sign show the current setting for each port.

The first sign specifies the following:

I = Port operates as Input
O = Port operates as Output
N = Port has no function (not defined)

These settings cannot be modified.

The second sign specifies the following:

+ = Active signal level is 'high' (1)
− = Active signal level is 'low' (0)
x = Port is deactivated
& = Function is executed at each change of the signal level
s = Status can be enquired/influenced[*] by interface
= The internal function of printing system is deactivated.

The modification of the signal level is only taken into consideration for the operating modes I/O static, I/O dynamic, I/O static continuous and I/O dynamic continuous.

Press the key ⬆ to move to the next menu item.

Debounce

Indication of debounce time of the dispenser input. The setting range of the debounce time is between 0 and 100 ms.
In case the start signal is not clear then you can debounce the input by means of this menu item.

[*] in connection with Netstar PLUS

Press the key [→] to move to the next menu item.

Start signal delay   Indication in time per second of the delay for the start signal.
Value range: 0.00 … 9.99.

Press the key [→] to move to the next menu item.

I/O protocol   Indication of interface at which the modifications of input signals and output signals (I/O) are sent.

Press the key [→] to move to the next menu item.

Save signal   **On:** The start signal for the next label can already be released during printing the current label. The signal is registered from the printing system. The printing system starts printing the next label immediately after finishing the current one. Therefore time can be saved and performance be increased.
Off: The start signal for the next label can only be released if the current label is printed to the end and the printing system is again in 'waiting' state (output 'ready' set). If the start signal was released already before, so this is ignored.

Press the key [→] to move to the next menu item.

I/O Profile   Selection of the available configurations *Std_Label* (factory setting), *StdFileSetLabel* or *APL*.
The corresponding assignment is indicated on the following page.

List of registered functions for *Std_Label*

1	Print start (Input)
2	Reprint last printed label (Input)
3	Counter reset (Input)
4	Option applicator only: Start application (Input)
5	Error reset (Input)
6	Cancel all print jobs (Input)
7	Label advance warning (Input)
8	External release signal (Input)
9	Error (Output)
10	Print order active (Output)
11	Dispenser photocell: Label exists at dispenser photocell (Output)
12	Single print (Output)
13	Ready (Output)
14	Option applicator only: Ready for application (Output)
15	Option scanner only Bar code not readable (Output)
16	End of ribbon / End of label

List of registered functions for *StdFileSetLabel*

1	Print start (Input)
2	Error reset (Input)
3*	Number of the file to load Bit 0 (Input)
4*	Number of the file to load Bit 1 (Input)
5*	Number of the file to load Bit 2 (Input)
6*	Number of the file to load Bit 3 (Input)
7*	Number of the file to load Bit 4 (Input)
8*	Number of the file to load Bit 5 (Input)
9	Error (Output)
10	Print order active (Output)
11	Dispenser photocell: Label exists at dispenser photocell (Output)
12	Printing (Output)
13	Ready (Output)
14	No function
15	Option scanner only: Bar code not readable (Output)
16	Transfer ribbon prior warning (Output)

*   The files must be saved onto the CF card in the user directory (see chapter 8.4, pge 71).

The files must start with 1 or 2 digits (1_Etikett.prn, 02_Etikett.prn).

The files can be saved with a file extension.

In the printer status 'ready', 'waiting' or 'stop', a new file can be loaded. The printer order will be started after charging and an already existing printer order will be deleted.

The input signal 000000 does not charge a file and does not delete an already existing print order.

List of registered functions for *APL*

1	Print start (Input)
2	Reprint last printed label (Input)
3	Counter reset (Input)
4	Option applicator only: Start application (Input)
5	Error reset (Input)
6	Cancel all print jobs (Input)
7	No function
8	No function
9	Error (Output)
10	Print order active (Output)
11	Dispenser photocell: Label exists at dispenser photocell (Output)
12	Printing (Output)
13	Ready (Output)
14	Option applicator only: Ready for application (Output)
15	Option applicator only: Pad is in printing position (Output)
16	Transfer ribbon prior warning (Output)

6.7   Network

Switch on the printing system and the display shows the main menu.

Press the key **F** to access the function menu.

Press the key ➔ until the menu *Network* is displayed.

Press the key ● to select the menu.

IP address (DHCP)

Each participant must have a 32 bit address. The IP address is separated by full stops and arranged into four parts. Each part has a number range of 0 … 255.

Network mask (DHCP)

In connection with the IP address of the printer, the netmask determines which IP addresses this device searches in the own network.

Standard gateway (DHCP)

The IP address of the network gateway. If the IP address was referred by DHCP then DHCP is indicated in brackets.

Speed and duplex

Automatic:	Default setting. The speed is recognized automatically. Normally this procedure is reliable. In most cases it is not necessary to change the settings.
10 Mbit half:	Speed 10 Mbit/s in the half-duplex transmission method.
10 Mbit full:	Speed 10 MBit/s in the full-duplex transmission method.
100 Mbit half:	Speed 100 MBit/s in the half-duplex transmission method.
100 Mbit full:	Speed 100 MBit/s in the full-duplex transmission method.

DHCP

DHCP permits the automatic referring of the network parameters IP address, network mask and standard gateway of a DHCP server which must be installed in the network.

Printer name

The name of the installed printer in the network. The printer name in connection with DHCP can be used to respond the printer. If DHCP is active and the name of the printer is changed, the printer logs out itself at the DHCP server and afterwards the printer logs in again. After changing the printer name, the printer can have a new IP address.

MAC address

The MAC address (Media Access Control) is the hardware address of each individual network adapter and serves for the clear identification of the printer in network.

6.8 Password

Switch on the label printer and the display shows the main menu.

Press the key **F** to access the function menu.

Press the key [➤] until the menu *Password* is displayed.

Press the key [●] to select the menu.

With a password different functions can be blocked for the operator. There are different applications with which such a password protection can be used reasonably. To receive a most flexible password protection, the printer functions will be divided into several function groups.

Because of these different function groups the password protection is very flexible. The printer can be adjusted best to its actual order, as only certain functions are blocked.

Operation

Password	Entering a 4-digit numeric password.
	Press the key [➤] to move to the next menu item.
Protection configuration	Printer settings can be changed (contrast, speed, operating mode, ...). The password protection prevents modifications at the printer settings.
	Press the key [➤] to move to the next menu item.
Protection favorites	The password protection prevents the access to the favorites.
	Press the key [➤] to move to the next menu item.
Protection memory card	With the functions of the memory card, labels can be stored, loaded, etc. The password protection has to decide if no access or only readable acces on CF card is allowed.
	No protection: No password protection **Userview only:** Only reading access **Protected:** Access blocked
	Press the key [➤] to move to the next menu item.
Protection Printing	In case the printer is connected to a PC, it can be useful, that the user is not able to produce a print manually. So the password protection prevents that prints can be produced manually.
	Press the key [➤] to move to the next menu item.

In order to execute a blocked function, first of all the valid password has to be entered. If the correct password is entered then the desired function can be executed.

Network

Password	Entering a 15-digit password. The password can consists of alphanumeric and special characters. Press the key [→] to move to the next menu item.
Protection HTTP	The communication by HTTP can be avoided. Press the key [→] to move to the next menu item.
Protection Telnet	The settings of the Telnet service cannot be changed. Press the key [→] to move to the next menu item.
Protection remote access	The password protection prevents the remote control of the printer. Press the key [→] to move to the next menu item. In order to execute a blocked function, first of all the valid password has to be entered. If the correct password is entered then the desired function can be executed.

6.9   Interface

Switch on the printing system and the display shows the main menu.

Press the key **F** to access the function menu.

Press the key [→] until the menu *Interface* is displayed.

Press the key [●] to select the menu.

COM1 / Baud /   **COM1:**
P / D / S   0 - serial interface Off.
                          1 - serial interface On.
                          2 - serial Interface On, no error message occurs in case of a
                          transmission error.

Baud:
Indication of bits which are transferred per second (speed of data transfer).
Value range: 1200, 2400, 4800, 9600, 19200, 38400, 57600 and 115200.

P = Parity:
N - No parity; E - Even; O - Odd
Please observe that the settings correspond to those of the direct printing system.

D = Data bits:
Setting of data bits.
Value range: 7 or 8 Bits.

S = Stop bits:
Indication of stop bits between bytes.
Value range: 1 or 2 stop bits.

Press the key [→] to move to the next menu item.

Start sign / End sign   **SOH:** Start of data transfer block → Hex format 01
ETB: End of data transfer block → Hex formal 17
Two different start / en signs can be set. The settings are normally SOH = 01 HEX and ETB = 17 HEX. Several host computers cannot process these signs and therefore SOH = 5E HEX and ETB = 5F cannot be set.

Press the key [→] to move to the next menu item.

Data memory   **Standard:** After starting a print order the printing system buffer receives data as long as it is filled.
Advanced: During a current print order data is received and processed.
Off: After starting a print order no more data is received.

Press the key [→] to move to the next menu item.

Porttest   Check whether the data are transferred via the interface.

Press the keys [▲] and [▼] to select standard (on). Press the [●] key and the data sent via any port (COM1, LPT, USB, TCP/IP) is printed.

6.10 Emulation

Switch on the printing system and the display shows the main menu.

Press the key **F** to access the function menu.

Press the key [▲] until the menu *Emulation* is displayed..

Press the key [●] to select the menu.

Protocol

CVPL: Carl Valentin Programming Language
ZPL: Zebra® Programming Language
Change between CVPL protocol and ZPL II® protocol.

Press the key [●] to confirm the selection.

The direct printing system performs a restart and ZPL II® commands are transformed into CVPL commands internally by the direct printing system and then executed by the device.

In the menu *Protocol*, press the key [▲] to move to the next menu item.

Printhead resolution

At activated ZPL II® emulation the printhead resolution of the emulated device must be set, e.g. 11.8 Dot/mm (= 300 dpi).

i **NOTICE!**

If the printhead resolution of the Zebra® printer differs from that of the Valentin device, then the size of objects (e.g. texts, graphics) complies not exactly.

Press the key [▲] to move to the next menu item.

Drive mapping

The access to Zebra® drives
B: CF card
R: RAM Disk (standard drive, if not indicated)

is rerouted to the corresponding Valentin drives
A: CF
R: RAM Disk

This can be necessary if the available space on the RAM disk (at present 512 KByte) is not sufficient or if bitmap fonts are downloaded to the device and be stored permanently.

i **NOTICE!**

As the build-in fonts in Zebra® printers are not available in Valentin devices this can cause small differences in the text image.

Press the key [▲] to move to the next menu item.

PJL (Printer Job Language)

Status information regarding the print order can be indicated.

6.11 Date & Time

Switch on the print unit and the display shows the main menu.

Press the key **F** to access the function menu.

Press the key ⬆ until the menu *Date/Time* is displayed.

Press the key ● to select the menu.

Setting of date and time	The upper line of display shows the current date, the second line the current time. Press the key ◀ or ▶ to move to the next input field. Press the key ▲ or ▼ to increase or decrease the figures at the cursor position.
	Press the key ⬆ to move to the next menu item.
Summertime	**On:** Device automatically adjust clock for daylight saving changes. **Off:** Summertime is not automatically recognized and adjusted.
	Press the key ⬆ to move to the next menu item.
Start of summertime – Format	Select the format in which you want to define beginning summertime. The above example indicates the default setting (European format).
	DD = day WW = week WD = weekday MM = month YY = year next day = only next day is taken into consideration
	Press the key ⬆ to move to the next menu item.
Start of summertime – Date	By means of this function you can enter the date at which summertime has to start. This entry refers to the previously selected format.
	Press the key ⬆ to move to the next menu item.
Start of summertime – Time	By means of this function you can define the time when you want to start summertime.
	Press the key ⬆ to move to the next menu item.
End of summertime – Format	Select the format in which you want to define end of summertime. The example above indicates the default setting (European format).
	Press the key ⬆ to move to the next menu item.
End of summertime – Date	By means of this function you can define the date when you want to stop summertime. The entry refers to the previously selected format.
	Press the key ⬆ to move to the next menu item.
End of summertime – Time	By means of this function you can define the time when you want to stop summertime.
	Press the key ⬆ to move to the next menu item.
Time shifting	By means of this function you can enter time shifting in hours and minutes (for automatically adjustment from summer and wintertime). This entry refers to the currently set device time.

6.12 Service Functions

NOTICE!

So that the distributor res. the manufacturer in case of service can offer fast support the necessary information such as selected parameters can be taken directly from the service functions menu of the device.

Switch on the printing system and the display shows the main menu.

Press the key **F** to access the function menu.

Press the key **➤** until the menu *Service functions* is displayed.

Press the key **●** to select the menu.

Label parameters

Indication of label parameters in Volt.
A: Indication of minimum value.
B: Indication of difference between minimum and maximum value.
C: Indication of trigger level. The value is ascertained while measuring and can be changed.

Press the key **➤** to move to the next menu item.

Photocell configuration

This function enables definition of photocell levels.
In case of problems while positioning or measuring of label, levels for label photocell can be set manually. Make sure that a large hub as possible (above the label >3 V, above the gap <1 V) is set.

Press the key **➤** to move to the next menu item.

Photocell parameters

DLS: Indication of transmission photocell level in Volt.
RLS: Indication of reflexion photocell level in Volt.
SLS: Indication of peel off photocell level in Volt.
TR: Indication of transfer ribbon photocell status
(either 0 or 1).

Press the key **➤** to move to the next menu item.

Paper counter

D: Indication of printhead attainment in meters.
G: Indication of printing system attainment in meters.

Press the key **➤** to move to the next menu item.

Heater resistance

To achieve a high print quality, the indicated Ohm value must be set after an exchange of printhead.

Press the key [→] to move to the next menu item.

Printhead temperature   Indication of printhead temperature. The printhead temperature
                              corresponds normally to the room temperature. In case the maximum
                              printhead temperature is exceeded, the current print order is
                              interrupted and an error message appears at the printing system
                              display.

Press the key [→] to to move to the next menu item.

Motor Ramp   This function is often used for high printing speed as the tearing of
                              transfer ribbon can be prevented.
                              The higher the '++' value is set, the slower the feeding motor is
                              accelerated.
                              The smaller the '−−' value is set, the faster the feeding motor is
                              decelerated.

Press the key [→] to move to the next menu item.

Print examples   Settings   =   Printout of all printing system settings such as
                                                       speed, label and transfer ribbon material.

                              Bar codes   =   Printout of all available bar code types.

                              Fonts   =   Printout of all available font types.

Press the key [→] to move to the next menu item.

Input   Indication of input signal level which depends on the set *I/O Profile*
                              (see page 49).
                              0 = Low
                              1 = High

Press the key [→] to move to the next menu item.

Output   Indication of signal level which depends on the set *I/O Profile* (see
                              page 49).
                              0 = Low
                              1 = High

Press the key [→] to move to the next menu item.

I/O Status   Relevant results are counted and registered in RAM memory. The
                              protocole get lost after switching off the device.

                              RInt = Real Interrupts
                              The start input impulses are counted directly at the Interrupt.

                              Dbnc = Debounced
                              The start input impulses that are longer than the set debounce time
                              are counted. Only these start impulses can lead to a print. If a start
                              impulse is too short, no print is released. This is recognized by the fact
                              that RInt is counted, Dbnc not.

                              NPrn = Not Printed
                              The debounced start input impulses that have not lead to a print are
                              counted. Causes: no active print order, print order stopped (manually
                              or because of an error) or the printing system ist still active with the
                              processing of a print order.

                              PrtStrtReset = The counters are reset.

                              PrtStrtTime = Measured length of the last start impulse in ms.

Press the key ⬚▬ to move to the next menu item.

Cutter photocell   1 – Printing system is equipped with a cutter
                              2 – Printing system is not equipped with a cutter

Cutter Home   1 – The cutter is in the initial position and ready for the cutting
                              procedure.
                              0 – The cutter is not in the initial position. Before you are going to
                              release a cutting procedure you first have to place the cutter in its
                              initial position.

                              Press the key ⬚▬ to move to the next menu item.

Online / Offline   This function is activated e.g. if the transfer ribbon is to be changed. It
                              is avoided that a print order is processed although the module is not

                              ready. If the function is activated then press the key ⬚● to change
                              between Online and Offline mode. The respective state is indicated in
                              the display.
                              Standard: Off
                              Online: Data can be received by interface. The keys of the foil
                              keyboard are only active, if you changed in the Offline mode with the

                              key ⬚●.
                              Offline: The keys of the foil keyboard are still active but received data
                              are not processed. If the module is again in Online mode then new
                              print orders can be again received.

                              Press the key ⬚▬ to move to the next menu item.

Transfer ribbon   Before the end of transfer ribbon, a signal is send by the control
advance warning   output.

Warning diameter   Setting of transfer ribbon advance warning diameter.

                              In case you enter a value in mm then a signal appears via control
                              output when reaching this diameter (measured at transfer ribbon roll).

Ribbon advance   **Warning:** When reaching the transfer ribbon advance warning
warning mode   diamter, the corresponding I/O output is set.
                              Reduced print speed: Speed on which the printing speed is to be
                              reduced.
                              Error: The printing system stops when reaching the transfer ribbon
                              advance warning diameter with the message 'too less ribbon'.

Reduced print speed   Setting of the reduced print speed in mm/s. This can be set in the
                              limits of the normal print speed.

Press the key [key] to move to the next menu item.

Zero point adjustment in Y direction

Indication of value in 1/100 mm.
After replacing the printhead - the print cannot be continued at the same position on the label, the difference can be corrected in printing direction.

[i] **NOTICE!**

The value for zero point adjustment is set ex works. After replacing the printhead, only service personnel are allowed to set this value anew.

Press the key [key] to move to the next menu item.

Zero point adjustment in X direction

Indication of value in 1/100 mm.
After replacing the printhead - the print cannot be continued at the same position on the label, the difference can be corrected across the printing direction.

[i] **NOTICE!**

The value for zero point adjustment is set ex works. After replacing the printhead, only service personnel are allowed to set this value anew.

Press the key [key] to move to the next menu item.

Print length +/−

Indication of print layout correction in percent.
By mechanical influences (e.g. label roll size) the print layout can be printed increased and reduced to its original size.
Value range: +10.0 % … −10.0 %

Press the key [key] to move to the next menu item.

Write log files to memory card

Starting with firmware version 1.70, the printer logs different events internally. In case of service, the error cause can be located faster.

With this command, different log files are saved on an existing storage medium (memory card or USB stick). After the 'Finish' message the storage medium can be removed.

The files are in directory 'log':

LogMemErr.txt: Logged errors with additional information such as date/time and file name/line number (for developers).

LogMemStd.txt: Logging of selected events.

LogMemNet.txt: Data latest send via port 9100.

Parameters.log: All printer parameters in human readable form.

TaskStatus.txt: Status of all printer tasks.

The files *LogMemErr.txt* and *LogMemStd.txt* are written in circle, i.e. old contents are overwritten. The entry logged last is marked with „---„

6.13 Main Menu

Switch on the printing system and the display shows the main menu. The main menu shows information such as device type, current date and time, version number of firmware and the used FPGA.

The selected display is shown for a short time, then the indication returns to the first information.

Press the key [●] to move to the next information display.

7   Options

7.1   Label Applicator

Switch on the printing system and the display shows the main menu.

Press the key **F** to access the function menu.

Press the key ⟶ until the menu *Label applicator* is displayed.

Press the key ● to select the menu.

Press the key ▲ to move to the next mode.

Operating modes

Stamp on:
The label remains in a fixed position. The label is pressed directly onto the product.

Blow on:
The pad moves to a pre-adjusted position approximately 10 mm away from the product. The label is blown onto the product by an air jet stream. The print and apply cycle performs in a fixed position or in linear movement of the product.

Roll on:
The label is dispensed and moved until touching the roller of the roll on pad. In the labelling position, this roll is pressed onto the product. Then the label is applied and rolled on by the movement of product.

Press the key ⟶ to move to the next parameter.

Application mode

The applicator can be operated in two different ways concerning the order of printing and labelling within one labelling cycle.

Print-Apply:
The print of a label is released by an external start signal. At the same time the vacuum on the pad as well as the supporting air from the blow tube are switched on. If the label is printed and picked up completely from tamp, the supporting air is switched off and the lift cylinder is controlled to move the pad down towards the labelling position. A sensor signals when the labelling position is reached.

Following, the vacuum is switched off and the label is transferred to the product. After applying the label, the lift cylinder is so controlled that the pad is again moved back to the starting position.
Now the labelling cycle is finished.

Apply-Print:
Before starting the cyclic operation 'apply-print', the printing and picking up of the first label has to be released separately by a special signal.
The pad with the printed label is in starting position and the vacuum at the pad is switched on.
At start of the cyclic operation when sending the start signal, the first label is already on the pad. The following process is similar to the mode 'print-apply' but at the end of the cycle the next label is printed and picked up by the pad.
Now the labelling cycle is finished.

Press the key [→] to move to the next parameter.

Vacuum delay

The vacuum is connected not immediately with print start, but only if the label were put forward a certain time. This delay causes that the label runs more easily under the pad as it is not sucked and in this way braked.
Value range: 0 … 2500 ms
Step size: 10 ms
Default: 0 ms

Press the key [→] to move to the next parameter.

Support delay On

The supporting air from the blow tube is not immediately switched on at print start but only if the label has covered a distance.
This delay helps to prevent a turning or swinging at the front of the label and consequently avoids faults when the label is being picked up from printing system.
Value range: 0 … 2500 ms
Step size: 0 ms
Default: 0 ms

Press the key [→] to move to the next parameter.

Support delay Off

Delayed to the process of the label being picked up, the supporting air is switched off.
In many cases, after being picked up by the pad the label edge may still stick on the liner. This may affect the accuracy of the label positioning or even cause faults in the labelling. Therefore, switching off the air blow delayed can be useful to separate the label from liner and neatly place the label on the surface of pad.
Value range: 0 … 2500 ms
Step size: 10 ms
Default: 500 ms

Press the key [→] to move to the next parameter.

Pressure control

With activated compressed air control, with help from a compressed air sensor it is checked at each labelling cycle if the compressed air fits with the valve block. If no compressed air is presented, the labelling cycle is stopped and the error message 'compressed air' is displayed.
If the parameter 'pressure control' is set to Off, the error treatment as described above will not be effected. This can be especially helpful for the initial operation of the labelling system.
For standard operation, set the parameter to On.

Press the key [→] to move to the next parameter.

Vacuum control

The label transfer from printing system to applicator is controlled by a vacuum sensor. If the transfer of label fails, the sucking holes on the pad will not be covered by the label and therefore no vacuum can originate on the pad. Afterwards an error message appears and the label strip will be fed back.
If the parameter 'vacuum control' is set to Off, the error treatment as described above will not be effected. This can be especially helpful during adjustments, because the immediate backfeed will be cancelled and therefore it is easier to check the reasons for the faulty transfer.
For standard operation, set the parameter to On.

Press the key ⬓ to move to the next parameter.

Pressure time

This parameter is only active if the operating mode 'stamp on' is selected. The time period can be adjusted while the stamp is kept in the labelling position for applying the label onto the goods.

Press the key ⬓ to move to the next parameter.

Blow time

This parameter is only active if the operating mode 'blow on' is selected. The time period can be adjusted, while the blowing air is switched on for transferring the label onto product.
Value range: 0 … 2500 ms
Step size: 10 ms
Default: 100 ms

Press the key ⬓ to move to the next parameter.

Waiting position

This parameter is only active if the operating mode 'blow on' and mode 'apply-print' are selected.

Waiting position up:
In cyclic mode the pad with the printed label waits in the labelling position near the dispensing edge of printing system for the external start signal.

Waiting position down:
In cyclic mode the printed label is transported to the labelling position at the end of a cycle.
So the next cycle begin with blowing up the label.

Press the key ⬓ to move to the next parameter.

Roll on time

This parameter is only active if the operating mode 'blow on' is selected. The time period can be adjusted while the roll on pad is stopped in labelling position.
Value range: 0 … 5000 ms
Step size: 10 ms
Default: 0 ms

Press the key ⬓ to move to the next parameter.

Cleaning time

This parameter is only active if the operating mode 'blow on' and 'roll on' are selected. The time period can be adjusted for the cleaning period of pad after application procedure.
Value range: 0 … 2500 ms
Step size: 10 ms
Default: 100 ms

Press the key ⬓ to move to the next parameter.

Stroke timeout

Moving up and down of pad.
If the pad does not reach the corresponding final position within the set time, then an error message appears ('final position above' at moving up and/or 'final position below' at moving down).
Value range: 0 … 5000 ms
Step size: 10 ms
Default: 0 ms

Press the key [→] to move to the next parameter.

Delay lower end position	The reaching of the lower end position within the labelling cycle is not checked immediately after the start of the downward movement, but only when the pad has moved downwards for a certain time. This ignores an erroneous release of the lower end position (e.g. by inertia of the pad). Value range: 0 … 1000 ms Step size: 10 ms Default: 0 ms

Press the key [→] to move to the next parameter.

Quick-Apply delay	**Only with available option quick-apply:** With this function, the travel speed of the cylinder may be reduced before it hits the product. The time until the delay commences may be set. The exhaust throttle (bottom) on the cylinder must be opened completely for this. Value range: 0 … 2500 ms Step sizee: 10 ms Default: 0 ms

Press the key [→] to move to the next parameter.

Transverse axis	**Only with available option transverse axis:** This function allows you to set if the pad makes a transversal movement before the upwards movement, and/or accordingly after the upwards movement back into the print position. If the parameter 'transverse axis' is set to On, in each case a transverse movement takes place. At setting Off, no transversal movement takes place and the application procedure begins in the print position.

Press the key [→] to move to the next parameter.

Labelling signal	If printing and applying of the label are to separately released, a separate signal for applying the label can be activated (port 4, start applying). **Off:** No labelling signal is used, i.e. after printing the label and takeover onto the pad, the applying procedure begins immediately. **Print position:** After printing the label and takeover onto the pad, the printer waits in print position for the labelling signal. **Labelling position:** After printing the label and takeover onto the pad, the pad makes a transversal movement into the labelling position. There the printer waits for the labelling signal. With applicators without transversal axis, this setting is identical with the setting 'print position'.

Press the key [→] to move to the next parameter.

Test functions	**Stroke adjust** The arrester can be adjusted and the stroke speed can be set. The pad makes a stroke movement and return again to the basic position after reaching the lower end position.

Press the key [●] to start the stroke movement.

Press the key [⬆] to move to the next parameter.

Input/Output
This menu serves for the applicator setup as well as for error tracing. Input signals of the applicator can be monitored and output signals can be set or reset separately. Press the key [◀] or [▶] to select the corresponding output for set/reset the output signals. Press the key [▶] or [▼] to set/reset the corresponding output.

Input signals

$I_1 =$ Pre-dispense key

        1 = key pressed

        0 = key not pressed

$I_2 =$ Final position up

        1 = pad in final position up

        0 = pad not in final position up

$I_3 =$ Final position down

        1 = pad in final position down

        0 = pad not in final position down

$I_4 =$ Compressed air

        1 = compressed air available

        0 = no compressed air available

$I_5 =$ Vacuum

        1 = vacuum at pad available

        0 = no vacuum at pad available

$I_6 =$ Final position right

        1 = pad in final position right

        0 = pad not in final position right

$I_7 =$ Final position left

        1 = pad in final position left

        0 = pad not in final position left

Output signal

$O_1 =$ Move pad downwards

        1 = On / 0 = Off

$O_2 =$ Move pad upwards

        1 = On / 0 = Off

$O_3 =$ Transverse right

        1 = On / 0 = Off

$O_4 =$ Transverse left

        1 = On / 0 = Off

$O_5 =$ Blowing air

        1 = On / 0 = Off

$O_6 =$ SUpporting air

        1 = On / 0 = Off

$O_7 =$ Vacuum

        1 = On / 0 = Off

8   Compact Flash Card / USB Memory Stick

8.1   General Information

On the back side of the printing system is the slot for the CF card and the USB port for inserting the USB memory stick.

The mass storage menu (memory menu) permits the access to CF cards or USB memory sticks attached to the printing system. Among loading and saving labels simple operations of contents are possible such as delete files/directories, copy files/directories or formatting.

NOTICE!

In case of a malfunction of the original memory medium it is recommend to copy the most important data by means of a commercial Card Reader.

8.2   Display Structure
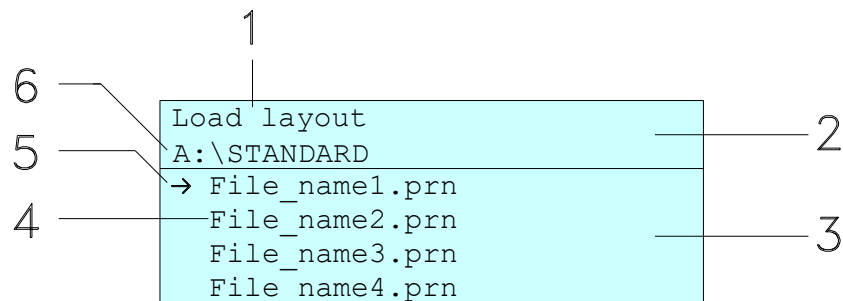
1 = Current function

2 = 2-lined header

3 = Scroll range

4 = File names / directory names

5 = Marking of the selected file (cursor)

6 = Current path (drive:\directory)

The two-line header (2) contains the current function name (1) and the current path (6).

The four-line scroll range indicates a list of files/directories. The first entry (marked with an arrow) is the active one. To this file/directory and/or these files/directories refer all actions.

NOTICE!

Three drives are available.
A:\ indicates the CF card.
U:\ indicates the USB memory stick.
    (only one stick can be inserted)
R:\ indicates the RAM (ZPL Emulation).

8.3   Navigation

The memory menu is operated with the keys of the foil keyboard of the control unit or with different function keys of an attached USB keyboard.

III	Esc	Return to the previous menu.
F	F2	Function *Load layout*: Change to the File Explorer. File Explorer: Change to the 'context menu'.
(select icon)	F7	Select a file/directory if a multiple selection is possible.
(save icon)	F6	Main menu: Access to the memory menu. File Explorer: Create a new file.
●	↵	Start the current function for the active file/directory.
◀	←	Change to the superordinate directory.
▶	→	Change to the currently marked directory.
▲	↑	In the current directory scroll upwards.
▼	↓	In the current directory scroll downwards.

8.4 Define User Directory

NOTICE!

An user directory is to be defined:
before using and/or navigating through the memory menu.
if formatting of CF card is effected at PC and thus the
STANDARD directory was not created automatically.

```
                                    FILE  EXPLORER

                                    A:
                                        ├──────DIR_1
                                        │          └──Layout34
                                        │          └──Layout35
                                        │
              USER  DIR                 ├──────DIR_2
                                        │
         ┌─────────────────────┐        ├──────STANDARD
         │   A:\STANDARD     ┄┄┄┼┄┄┄┄┄┄┄┄┄┄        └──Layout01
         ├─────────────────────┤        │          └──Layout02
         │                     │        │          └──Layout03
         │   Layout01          │        │
         │   Layout02          │        └──────DIR_3
         │   Layout03          │
         │                     │    U:
         └─────────────────────┘        ├──────DIR_23
                                        │
                                        │
                                        └──────DIR_24
```
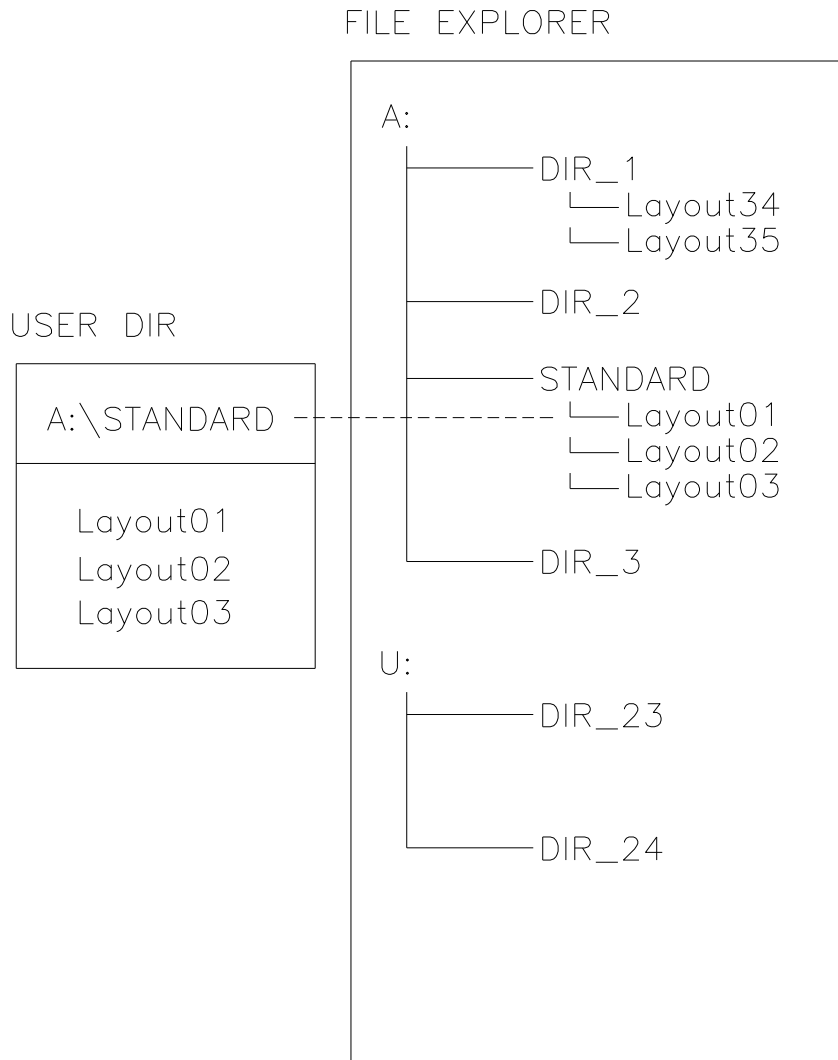
The user directory is the root directory in which the user saves usually
the most frequently used files/layouts. The utilisation of the user
directory permits the quick and direct access to the files saved in the
defined user directory. The definition of an user directory saves thus a
long search of the file to be printed.

Press the key ▣ to access the memory menu.

Press the key **F** to call the File Explorer.

```
File Explorer          Context Menu
A:\                    A:

  [Drives]            →Set as user dir
→<STANDARD>             Format
  <DIR_1>               Copy
```

Press the keys ▲, ▼, ◀, ▶ to select the directory.

Press the key **F** to display all available functions.

Select the function *Set as user dir* and press key ⬤ to confirm the selection.

Press the key ▥ until the printing system is back in the main menu.

At the next start of the memory menu the selected directory is displayed as user directory.

8.5 Load Layout

Loads a layout within a defined user directory. The function allows quick access to the desired layout as only layout files are displayed and directories hidden.

```
Load layout
A:\STANDARD

→File_name1.prn
  File_name2.prn
  File_name3.prn
  File_name4.prn
```

Press the key ▣ to access the memory menu.

Press the keys ▲, ▼, ◀, ▶ to select the layout to be printed.

Press the key ⬤ to confirm the selection.

The display shows automatically the window to insert the number of copies which are to print.

Select the number of copies which are to be printed.

Press the key ⬤ to start the print order.

NOTICE!

The directory can NOT be changed. A change of directory MUST be made in the File Explorer with the function *Change directory*.

8.6   File Explorer

The File Explorer is the file manager of the printing system. The File Explorer provides the main functions for the user interface of memory menu.

In the user directory, press the key $\boxed{\text{F}}$ to access the File Explorer.

Following functions are available:

- Change drive and/or directory

- Load file

- Save layout and/or configuration

- Delete file(s)

- Format CF card

- Copy file(s)

Change drive/directory   Selection of drive and/or directory in which the files are saved.
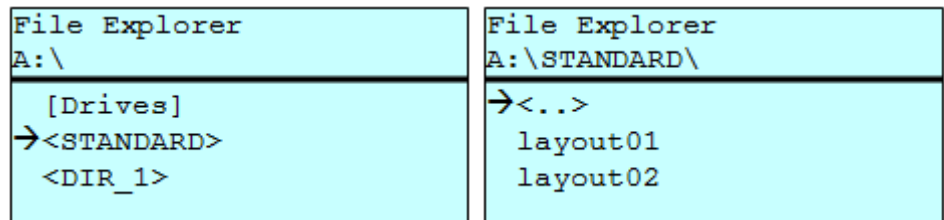
```
File Explorer          File Explorer
A:\                    A:\STANDARD\

  [Drives]             →<..>
→<STANDARD>              layout01
  <DIR_1>                layout02
```

Press the key $\boxed{\blacksquare}$ to access the memory menu.

Press the key $\boxed{\text{F}}$ to call the File Explorer.

Press the keys $\boxed{\blacktriangle}$, $\boxed{\blacktriangledown}$, $\boxed{\blacktriangleleft}$, $\boxed{\blacktriangleright}$ to select the directory.

Press the key $\boxed{\bullet}$ to confirm the selection.

The selected directory is now displayed.

Load file   Loads a file. This can be a configuration saved before, a layout, etc.

```
Load file
A:\STANDARD\

 <..>
→layout01
 layout02
```

Press the key 🖫 to access the memory menu.

Press the key **F** to call the File Explorer.

Press the keys ▲ and ▼ to select the file.

Press the key ● to load the selected file.

If the selected file is a layout, then the number of copies to print can be entered immediately.

Save layout   Saves the currently loaded layout under the selected name.

```
Save file
A:\STANDARD

→Save layout
 Save config.

 noname
```

Press the key 🖫 to access the memory menu.

Press the key **F** to call the File Explorer.

Press the key 🖫 to move to the menu *Save file*.

Selct the function *Savel layout* and confirm the selection with the key ●.

If an USB keyboard is attached a new file name for *noname* can be assigned.

Save configuration   Saves the complete, current configuration under the selected name.

```
Save file
A:\STANDARD

 Save layout
→Save config.

 config.cfg
```

Press the key 🖫 to access the memory menu.

Press the key **F** to call the File Explorer.

Press the key 🖫 to move to the menu *Save file*.

Selct the function *Save configuration* and press the key ⬤ to confirm the selection.

If an USB keyboard is attached a new file name for *config.cfg* can be assigned.

Delete file(s)   Deletes one or more files and/or directories irrevocably. With the deletion of a directory both the contained files and the subdirectories are deleted.

```
File Explorer            Context menu
A:\STANDARD\             2 objects marked

 layout01         *      →Delete
→layout02         *       Copying
 layout03
 layout04
```

Press the key 🖫 to access the memory menu.

Press the key **F** to call the File Explorer.

Press the keys ▲ and ▼ to select the file.

Press the key 🔳 to mark the files which are to be deleted. The marked entries are listed with *. Repeat this procedure until all desired files and/or directories are marked for deletion.

Press the key **F** to call the context menu.

Select the function *Delete* and confirm the selection with the key ⬤.

🛈 **NOTICE!**

The deleting procedure is irreversible!

Format memory card   Formats irrevocably the memory card.

> **ℹ NOTICE!**
>
> USB sticks cannot be formatted at the printing system!

```
File Explorer          Context menu
DRIVES                 A:\
──────────────────     ──────────────────
→A: 954Mb free           Set as user dir
  U: No media          →Formatting
                         Copy
```

Press the key 🔲 to access the memory menu.

Press the key **F** to call the File Explorer.

Select the drive which is to format with the navigation keys.

Press the key **F** to call the context menu.

Select the function *Format* and press the key ⬤ to confirm the selection.

Copy memory card   Creates a duplicate of the original file and/or the original directory to
                         make changes independently of the original.

```
File Explorer            Context menu
A:\STANDARD\             2 objects marked

  layout01        *        Delete
→layout02        *       →Copying
  layout03
  layout04
```

Press the key 🖫 to access the memory menu.

Press the key **F** to call the File Explorer.

Press the keys ▲ and ▼ to select the file.

Press the key ▥ to mark the files which are to be copied. The
marked entries are listed with *. Repeat this procedure until all desired
files and/or directories are marked for copying.

Press the key **F** to call the context menu.

Select the function *Copy* and confirm the selection with the key
　●　.

```
Select Destination
DRIVES

→A:   954Mb free


```

Select the target storage with the navigation keys and press the key
　●　 to confirm the selection.

8.7 Firmware Update

Starting from firmware version 1.58, updates can be performed via the memory menu. Both the USB stick as well as the CF card can be used for this.

Procedure

On the CF card / USB memory stick a directory is created in which the necessary update files are stored (firmware.prn, data.prn). By means of the function *Load file* the file *firmware.prn* is selected/loaded. In the first step the printing system executes the firmware update. After the necessary restart automatically the file *data.prn* is loaded. In this way the remaining components were updated. is After a renewed restart the update procedure is finished.

8.8 Filter

For certain functions a filter mask or a file name of a file which is to be saved can be entered. This input is indicated in the path line. The filter mask can be used to search for specific files. For example, with the input of 'L' only the files are listed whose character string starts with 'L' (regardless of upper and lower cases).

Without filter

```
Load layout
A:\STANDARD
────────────────
→First_file.prn
  Layout_new.prn
  Sample.prn
  12807765.prn
```

With filter

```
Load layout
L
────────────────
→Layout_new.prn
```

9   Maintenance and Cleaning

DANGER!

Risk of death by electric shock!

$\Longrightarrow$ Before opening the housing cover, disconnect the printing system from the mains supply and wait for a moment until the power supply unit has discharged.

NOTICE!

When cleaning the printing system, personal protective equipment such as safety goggles and gloves are recommended.

Maintenance plan

Maintenance task	Frequency
General cleaning (see section 9.1, page 80).	As necessary.
Clean the transfer ribbon drawing roller (see section 9.2, page 81).	Each time the transfer ribbon is changed or when the printout is adversely affected.
Clean the print roller (see section 9.3, page 81).	Each time the label roll is changed or when the printout and label transport are adversely affected.
Clean the printhead (see section 9.4, page 82).	**Direct thermal printing:** Each time the label roll is changed. **Thermal transfer printing:** Each time the transfer ribbon is changed or when the printout is adversely affected.
Clean the label photocell (see section 9.5, page 83).	When replacing the label roll.
Replace the printhead (see section 9.6, page 84).	In case of errors in printout.

NOTICE!

The handling instructions for the use of Isopropanol (IPA) must be observed. In the case of skin or eye contact, immediately wash off the fluid thoroughly with running water. If the irritation persists, consult a doctor. Ensure good ventilation.

WARNING!

Risk of fire by easily inflammable label soluble!

$\Longrightarrow$ When using label soluble, dust must be completely removed from the printing system and cleaned.

9.1   General Cleaning

CAUTION!

Abrasive cleaning agents can damage the printing system!

⟹   Do not use abrasives or solvents to clean the outer surface of the printing system.

⟹   Remove dust and paper fuzz in the printing area with a soft brush or vacuum cleaner.

⟹   Clean the outer surfaces with an all-purpose cleaner.

9.2   Clean the Transfer Ribbon Drawing Roller

A soiled drawing roller can lead to reduced print quality and can affect transport of material.

1.   Open the cover of printing system.

2.   Remove labels and transfer ribbon from the printing system.

3.   Remove deposits with roller cleaner and a soft cloth.

4.   If the roller appears damaged, replace it.

9.3   Clean the Printer Roller

A soiled print roller can lead to reduced print quality and can affect transport of material.

> **!** **CAUTION!**
>
> Printer roller can be damaged!
>
> $\Longrightarrow$ Do not use sharp or hard objects to clean the printer roller.
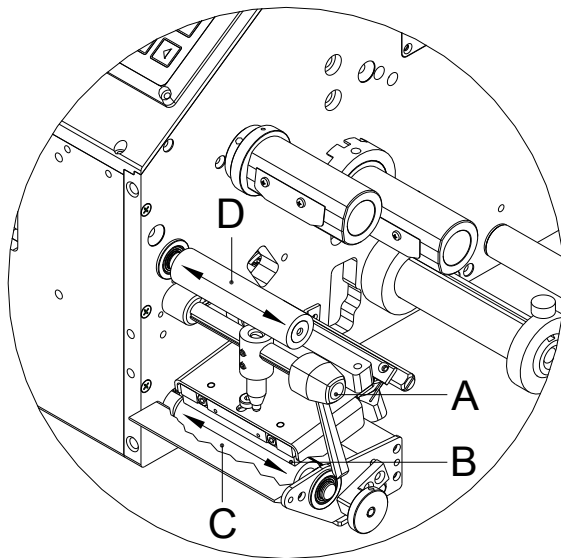
ILX 56/8, 80/8, 54/12, 81/12   **ILX 103/8, 104/8, 106/12, 106/24, 108/12**
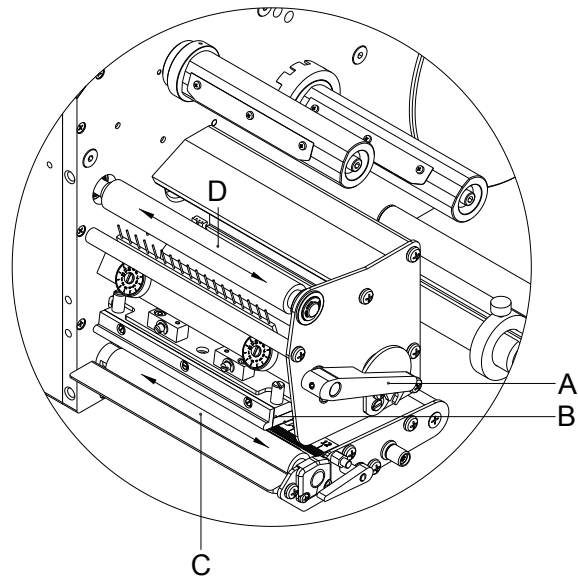
Figure 16

1. Turn the lever (A) counter clockwise to lift up the printhead (B).

2. Remove labels and transfer ribbon from the printing system.

3. Remove deposits with the roller cleaner and a soft cloth.

4. Turn the roller (C + D) manually step by step to clean the complete roller (only possible when printing system is switched off, as otherwise the step motor is full of power and the roller is kept in its position).

9.4 Clean the Printhead

Printing can cause accumulation of dirt at printhead e.g. by colour particles of transfer ribbon, and therefore it is necessary to clean the printhead in regular periods depending on operating hours, environmental effects such as dust etc.

> ⚠ **CAUTION!**
>
> Printhead can be damaged!
>
> ⟹   Do not use sharp or hard objects to clean the printhead.
>
> ⟹   Do not touch protective glass layer of the printhead.
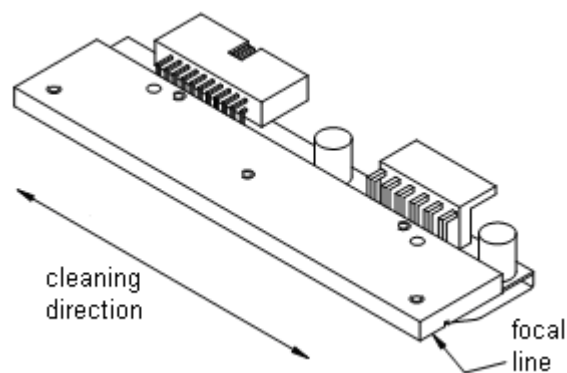
Figure 17

1. Turn the lever (A, in Figure 9) anticlockwise to lift up the printhead.

2. Remove labels and transfer ribbon.

3. Clean the printhead surface with special cleaning pen or a cotton swab dipped in pure alcohol.

4. Before using the printing system, let the printhead dry for about two to three minutes.

9.5   Clean the Label Photocell

!   **CAUTION!**

Label photocell can be damaged!

$\Rightarrow$ Do not use sharp or hard objects or solvents to clean the label photocell.

The label photocell can be soiled with paper dust. This may affect the label scanning.
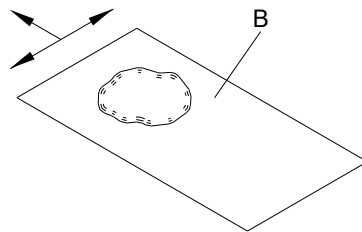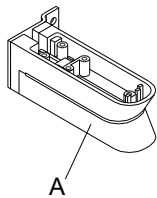
ILX 56/8, 80/8, 54/12, 81/12   **ILX 103/8, 104/8, 106/12, 106/24, 108/12**
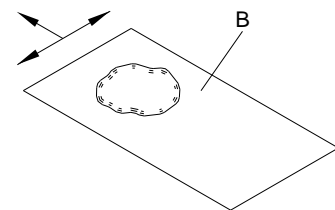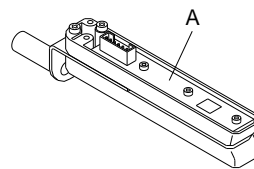
Figure 18

1. Turn the lever counter clockwise to lift up the printhead.

2. Remove labels and transfer ribbon from the printing system.

3. Blow out the photocell (A) with pressure gas spray.
   Observe strictly the instructions on the spray can!

4. Clean the label photocell (A) additionally with a cleaning card (B) before soaked in pure alcohol. Move the cleaning card from one side to the other (see illustration).

5. Reload the labels and transfer ribbon (see chapter 5 Loading Media, page 29).

9.6   Replace the Printhead (General Information)

NOTICE!

The printhead (D) is preinstalled on a head plate (A) and precisely aligned at the factory. Do not loosen the screws (G) under any circumstances.

ILX 56/8, 80/8, 54/12, 81/12   **ILX 103/8, 104/8, 106/12, 106/24, 108/12**
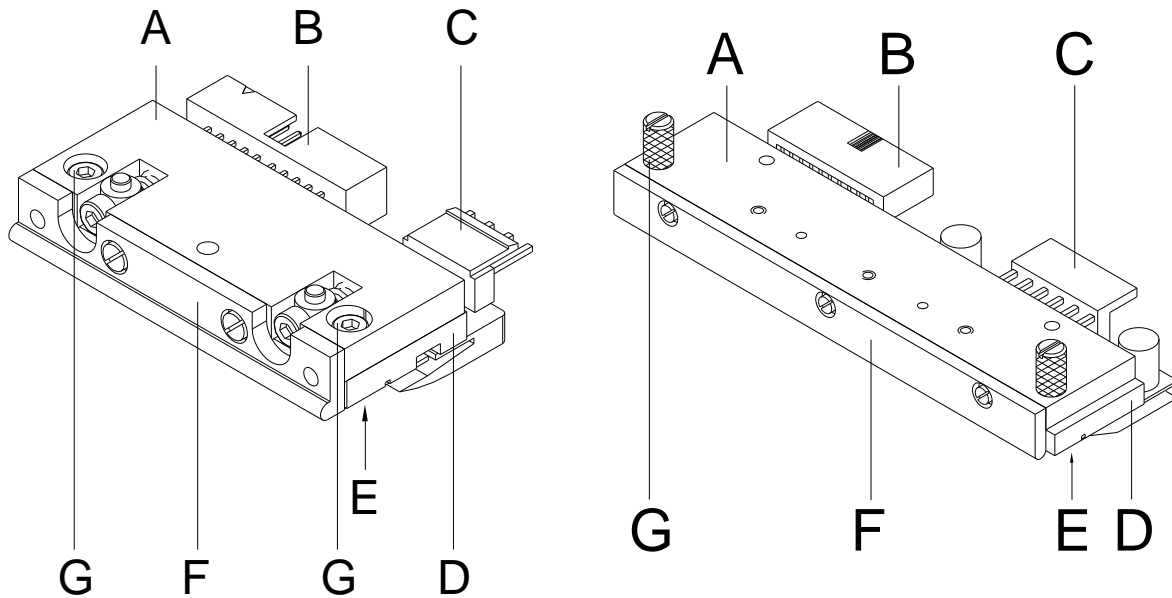
Figure 19

A	Head plate
B	Plug connection
C	Plug connection
D	Printhead
E	Focal line
F	Guiding
G	Screw

CAUTION!

The printhead can be damaged by static electricity discharges and impacts!

⟹   Set up the printing system on a grounded, conductive surface.

⟹   Ground your body, e.g. by wearing a grounded wristband.

⟹   Do not touch contacts on the plug connections (B, C).

⟹   Do not touch printing line (E) with hard objects or your hands.

9.7   Replace the Printhead

**ILX 56/8, 80/8,
54/12, 81/12**
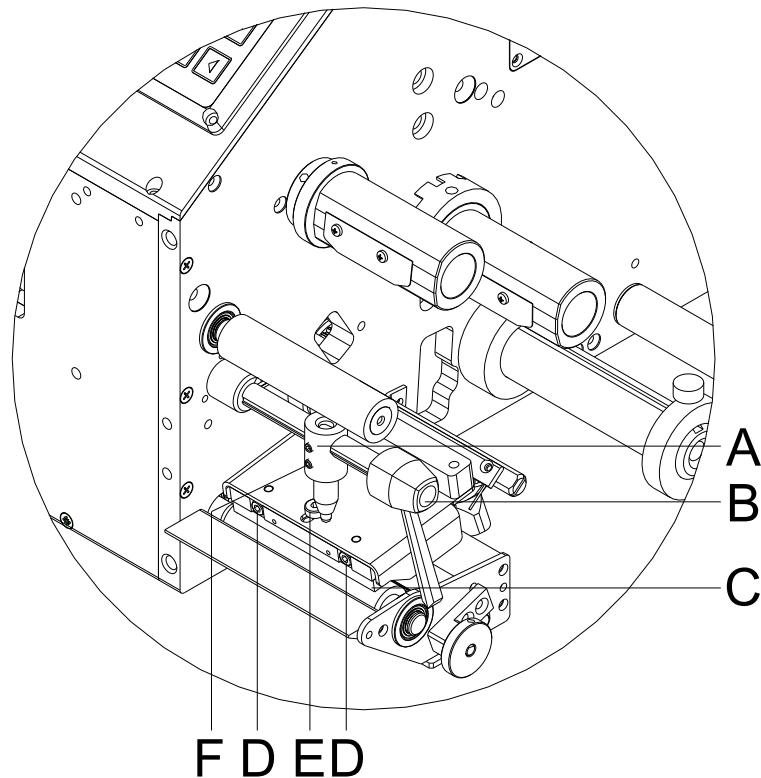
Figure 20

Remove the printhead

1. Remove labels and transfer ribbon from the printing systam.

2. When the printhead is closed, loosen the fixing screw (E).

3. Turn the lever (B) counter clockwise to lift up the printhead (C).

4. If the printhead (C) is not disengaged on the pressure roller, continue loosen the fixing screw (E).

5. Remove the printhead carefully to the front until you can reach the plug connections.

6. Remove the plug connections and then remove printhead (C).

**Install the
printhead**

1. Attach the plug connections.

2. Position the printhead in printhead mounting bracket in such a way that the pins are secured in the corresponding holes in the head plate.

3. Lightly keep the printhead mounting bracket on the printer roller with one finger and check for correct positioning of the printhead.

4. Screw in the fixing screw (E) and tighten it.

5. Reload labels and transfer ribbon (see chapter 5 Loading Media, page 29).

6. Check the resistance value on the type plate of printhead and if necessary change the value in the menu *Service functions/Heater resistance*.

**ILX 103/8, 104/8,
106/12, 106/24, 108/12**
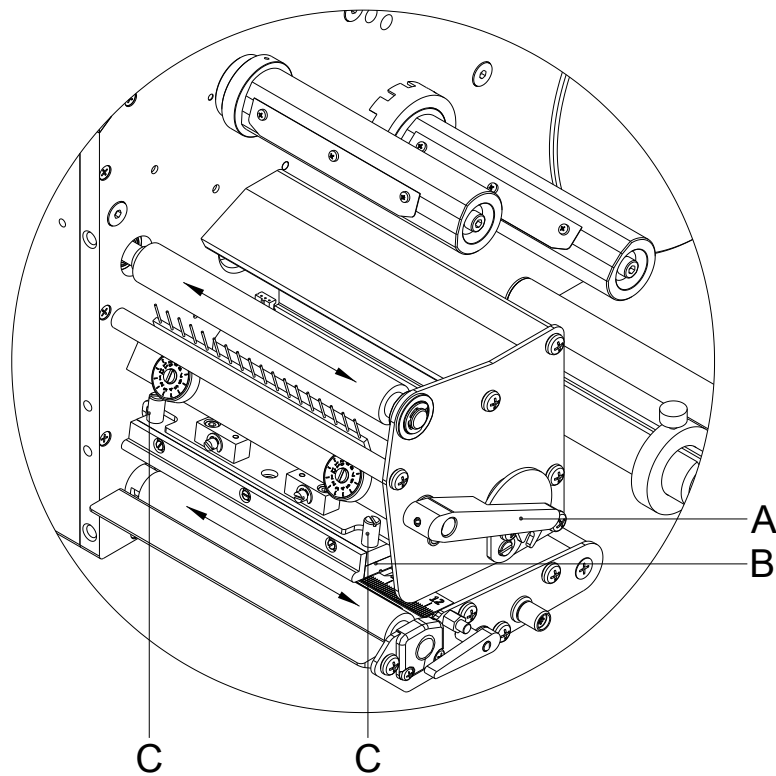
Figure 21

Remove the printhead

1. Remove labels and transfer ribbon from the printing systam.

2. When the printhead is closed, loosen the knurled screw (C).

3. Turn the lever (A) counter clockwise to lift up the printhead (B).

4. If the printhead (B) is not disengaged on the pressure roller, continue loosen the knurled screws (C).

5. Remove the printhead (B) carefully to the front until you can reach the plug connections.

6. Remove the plug connections and then remove the printhead (B).

Install the printhead

1. Attach the plug connections.

2. Position the printhead (B) in the printhead mounting bracket in such a way that the pins are secured in the corresponding holes in the intermediate layer.

3. Lightly keep the printhead mounting bracket on the printer roller with one finger and check for correct positioning of the printhead.

4. Screw in the knurled screw (C) and tighten it.

5. Reload labels and transfer ribbon (see chapter 5 Loading Media, page 29).

6. Check resistance value on the type plate of printhead and if necessary change the value in the menu *Service functions/Heater resistance*.

9.8 Adjust the Printhead

**ILX 56/8, 80/8,
54/12,81/12**
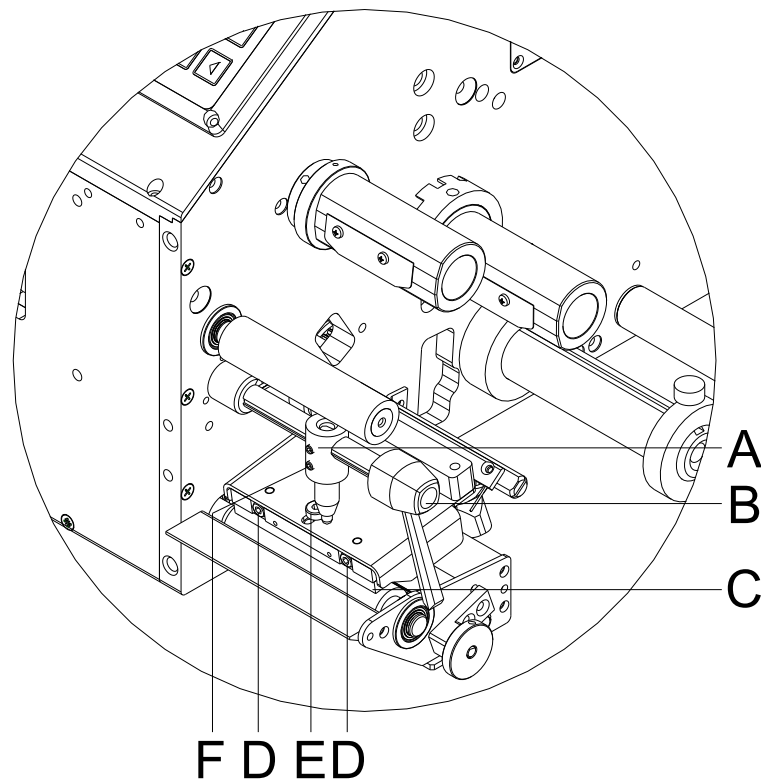
Figure 22

Parallelism

ⓘ **NOTICE!**

An important characteristic for a high quality print is the parallelism of the focal line of the thermal printhead to the pressure roll. Because of the fact that the position of focal line of the printhead depends on fluctuations caused by production, it is necessary to adjust the parallelism.

1. Loosen the fixing screw (E, Figure 13) with a hexagon key by approx. ¼ rotations.

2. Adjust the parallelism with the adjusting screws (D, Figure 13).
   Clockwise = printhead moves forwards
   Counter clockwise = printhead moves backwards

3. Adjust the parallelism as long as the printing result comes up to your full expectation.

4. Tighten again the fixing screw (E, Figure 13).

5. Start a print order with approx. 10 labels and control the correct passage of transfer ribbon.

Pressure

Increasing the head contact pressure leads to an improvement of the print image density on the corresponding side and to a shifting of the ribbon feed path in the corresponding direction.

> **！ CAUTION!**
>
> Damage of printhead by unequal use!
>
> $\Rightarrow$ Only change the factory settings in exceptional cases.

The selection of the smallest value can optimise the life cycle of printhead.

1. Turn the pressure screws (F, Figure 13) to change the pressure of printhead.
2. Turning the pressure screws
   in clockwise direction increases the pressure
   anticlockwise reduces the pressure.
3. The printhead is pushed on via two plungers (A, Figure 13). The location of the right plunger must be set to the width of the label medium used so as to:

   - achieve even print quality across the entire label width,

   - prevent wrinkles in the feed path of the transfer ribbon,

   - prevent premature wearing of the print roller and printhead.

**ILX 103/8, 104/8,
106/12, 106/24, 108/12**
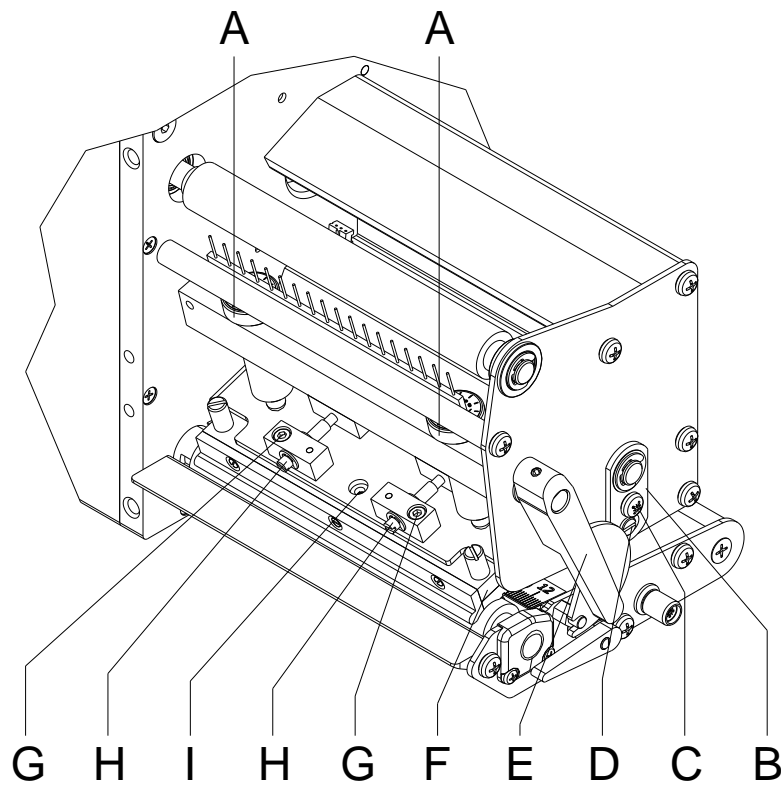
Figure 23

Parallelism

> ℹ **NOTICE!**
>
> An important characteristic for a high quality print is the parallelism of the focal line of the thermal printhead to the pressure roll. Because of the fact that the position of focal line of the printhead depends on fluctuations caused by production, it is necessary to adjust the parallelism.

1. Loosen the fixing screw (G) with a hexagon key by approx. ¼ rotations.

2. With the screws (H) the parallelism of the focal line of printhead to the pressure roller can be aligned.
   Turning clockwise moves the printhead backward.

3. Start a test print.

4. If the horizontal lines in the test grid are not parallel with the label edges, continue adjusting the parallelism with the screws (H).

5. Set the best possible image quality by maintaining parallelism via turning the screws (H) in an alternating fashion.
   Differences in the density between the two sides are still permissible.

6. Tighten again the fixing screws (G).

Pressure balance right/left

i **NOTICE!**

After adjusting parallelism and no even strong pressure exists over the complete print width, by means of a plate (B, Figure 23) you can set the balance.

1. Loosen the screw (C, Figure 23) with a screwdriver by approx. ¼ rotations.
2. In order to achieve a pressure balance, turn the eccentric bolt (D, Figure 23) as long as the printing result comes up to your full expectation.
3. Tighten again the screw (C, Figure 23).
4. Start a print order with approx. 10 labels and control the correct passage of transfer ribbon.

Pressure

i **NOTICE!**

Change the head contact pressure with the screws (A, Figure 23) at the inside and outside of the printhead. Increasing the head contact pressure leads to an improvement of the print image density on the corresponding side and to a shifting of the ribbon feed path in the corresponding direction.

! **CAUTION!**

Damage of printhead by unequal use!

⟹ Only change the factory settings in exceptional cases.

The selection of the smallest value can optimise the life cycle of printhead.

1. Turn the pressure screws (A, Figure 23) to change the pressure of printhead.
2. Turning of pressure screws (A, Figure 23) as far as they will go in clockwise direction results in a pressure increase of 10N in contrast to the factory settinsg.
3. Turning of pressure screws (A, Figure 23) exactly one rotation from the right stop position counter clockwise results in the factory settings.

i **NOTICE!**

It is importantly that the knurled button which is coated with protective lacquer is not removed from the pressure screw as otherwise the above mentioned settings are faulty.

10   Error Correction

Error message	Cause	Remedy
1 Line too high	Line rises up completely or partly over the upper edge of label.	Move line down (increase Y value). Check rotation and font.
2 Line too low	Line rises up completely or partly over the bottom edge of label.	Move line up (reduce Y value). Check rotation and font.
3 Character set	One res. several characters of the text is res. are not available in the selected font.	Change text. Change font.
4 Unknown code type	Selected code is not available.	Check code type.
5 Invalid position	Selected position is not available.	Check position.
6 CV font	Selected font is not available.	Check font.
7 Vector font	Selected font is not available.	Check font.
8 Measuring label	While measuring no label was found. Set label length is too large.	Check label length and if labels are inserted correctly. Restart measuring anew.
9 No label found	No label available. Soiled label photocell. Labels not inserted correctly.	Insert new label roll. Check if labels are inserted correctly. Clean the label photocell.
10 No ribbon	During the print order the ribbon roll becomes empty. Defect at the transfer ribbon photocell.	Change transfer ribbon. Check transfer ribbon photocell (service functions).
11 COM FRAMING	Stop bit error.	Check stop bits. Check baud rate. Check cable (printer and PC).
12 COM PARITY	Parity error.	Check parity. Check baud rate. Check cable (printer and PC).
13 COM OVERRUN	Loss of data at serial interface (RS-232).	Check baud rate. Check cable (printer and PC).

Error message	Cause	Remedy
14 Field numer	Received line number is invalid at RS-232 and parallel interface.	Check sent data. Check connection PC - printer.
15 Length mask	Invalid length of received mask statement.	Check sent data. Check connection PC - printer.
16 Unknown mask	Transferred mask statement is invalid.	Check sent data. Check connection PC - printer.
17 Missing ETB	No end of data found.	Check sent data. Check connection PC - printer.
18 Invalid character	One res. several characters of the text is res. are not available in the selected font.	Change text. Change font.
19 Invalid statement	Unknown transferred data record.	Check sent data. Check connection PC - printer.
20 Invalid check digit	For check digit control the entered res. received check digit is wrong.	Calculate check digit anew. Check code data.
21 Invalid SC number	Selected SC factor is invalid for EAN res. UPC.	Check SC factor.
22 Invalid number of digits	Entered digits for EAN res. UPC are invalid < 12; > 13.	Check number of digits.
23 Check digit calculation	Selected check digit calculation is not available in the bar code.	Check calculation of check digit. Check bar code type.
24 Invalid extension	Selected zoom factor is not available.	Check zoom factor.
25 Offset sign	Entered sign is not available.	Check offset value.
26 Offset value	Entered offset value is invalid.	Check offset value.
27 Printhead temperature	Printhead temperature is too high. Defective printhead sensing device.	Reduce contrast. Change printhead.
28 Cutter error	With cut an error occurred. Paper jam.	Check label run. Check cutter run.
29 Invalid parameter	Entered data do not correspond to the characters allowed from the application identifier.	Check code data.

Error message	Cause	Remedy
30 Application Identifier	Selected application identifier is not available in GS1-128.	Check code data.
31 HIBC definition	F Missing HIBC system sign. Missing primary code.	Check definition of HIBC code.
32 System clock	Real Time Clock function is selected but the battery is empty. Defective RTC.	Change battery. Change RTC component.
33 No CF interface	Interrupted connection CPU - CF card. Defective CF card interface.	Check connection CPU - CF card interface. Check CF card interface.
34 No print memory	No print CF found.	Check CF assembly on CPU.
35 Printhead open	At start of a print order the printhead is open.	Close the printhead and start print order anew.
36 BCD invalid format	BCD error Invalid format for the calculation of Euro variable.	Check entered format.
37 BCD overflow	BCD error Invalid format for the calculation of Euro variable.	Check entered format.
38 BCD division	BCD error Invalid format for the calculation of Euro variable.	Check entered format.
39 FLASH ERROR	Flash component error.	Run a software update. Change CPU.
40 Length command	Invalid length of the received command statement.	Check data sent. Check connection PC - printer.
41 No drive	CF card not found / not correctly inserted.	Insert CF card correctly.
42 Drive error	Impossible to read CF card (faulty).	Check CF card, if necessary change it.
43 Not formatted	CF Card not formatted.	Format CF card.
44 Delete current directory	Attempt to delete the actual directory.	Change directory.
45 Path too long	Too long indication of path.	Indicate a shorter path.

Error message	Cause	Remedy
46 Drive write-protected	Memory card is write-protected.	Deactivate write protection.
47 Directory not file	Attempt to indicate a directory as file name.	Correct your entry.
48 File already open	Attempt to change a file during an access is active.	Select another file.
49 No file/directory	File does not exist on CF card.	Check file name.
50 Invalid file name	File name contains invalid characters.	Correct entry of name, remove special characters.
51 Internal file error	Internal file system error.	Please contact your distributor.
52 Root full	The max. number (64) of main directory entries is reached.	Delete at least one main directory entry and create subdirectories.
53 Drive full	Maximum CF capacity is reached.	Use new CF Card, delete no longer required files.
54 File/directory exists	The selected file/directory already exists.	Check name, select a different name.
55 File too large	During copying procedure not enough memory space onto target drive available.	Use a larger target card.
56 No update file	Errors in update file of firmware.	Start update file anew.
57 Invalid graphic file	The selected file does not contain graphic data.	Check file name.
58 Directory not empty	Attempt to delete a not empty directory.	Delete all files and sub-directories in the desired directory.
59 No interface	No CF card drive found.	Check connection of CF card drive. Contact your distributor
60 No CF card	No CF card is inserted.	Insert CF card in the slot.
61 Webserver error	Error at start of web server.	Please contact your distributor.
62 Wrong FPGA	The direct printing system is equipped with the wrong FPGA.	Please contact your distributor.
63 End position	The label length is too long. The number of labels per cycle is too much.	Check label length res. the number of labels per cycle.

Error message	Cause	Remedy
64 Zero point	Defective photocell.	Change photocell.
65 Compressed air	Pressure air is not connected.	Check pressure air.
66 External releaser	External print release signal is missing.	Check input signal.
67 Row too long	Wrong definition of column width res. number of columns.	Reduce the column width res. correct the number of columns.
68 Scanner	The connected bar code scanner signals a device error.	Check the connection scanner/printer.\n\nCheck scanner (dirty).
69 Scanner NoRead	Bad print quality.\n\nPrinthead completely soiled or defective.\n\nPrint speed too high.	Increase contrast.\n\nClean printhead or replace (if necessary).\n\nReduce print speed.
70 Scanner data	Scanned data does not correspond to the data which is to print.	Replace printhead.
71 Invalid page	As page number either 0 or a number > 9 is selected.	Select a number between 1 and 9.
72 Page selection	A page which is not available is selected.	Check the defined pages.
73 Page not defined	The page is not defined.	Check the print definition.
74 Format user guiding	Wrong format for customised entry.	Check the format string.
75 Format date/time	Wrong format for date/time.	Check the format string.
76 Hotstart CF	No CF card found.	If option hotstart was activated, a CF card must be inserted.\n\nSwitch off the printer before inserting the memory card.
77 Flip/Rotate	Selection of print of several columns and also mirror/rotate.	It is only possible to select one of both functions.
78 System file	Loading of temporary hotstart files.	Not possible.
79 Shift variable	Faulty definition of shift times (overlapping times).	Check definition of shift times.
80 GS1 Databar	General GS1 Databar error.	Check definition and parameter of GS1 Databar code.
81 IGP error	Protocol error IGP.	Check sent data.

Error message	Cause	Remedy
82 Time generation	Printing creation was still active at print start.	Reduce print speed. Use printers' output signal for synchronization. Use bitmap fonts to reduce generating time.
83 Transport protection	Both DPM position sensors (start/end) are active.	Displace zero point sensor Check sensors in service functions menu
84 No font data	Font and web data is missing.	Run a software update.
85 No layout ID	Label ID definition is missing.	Define label ID onto the label.
86 Layout ID	Scanned data does not correspond to defined ID.	Wrong label loaded from CF card.
87 RFID no label	RFID unit cannot recognise a label.	Displace RFID unit or use an offset.
88 RFID verify	Error while checking programmed data.	Faulty RFID label. Check RFID definitions
89 RFID timeout	Error at programming the RFID label.	Label positioning. Faulty label.
90 RFID data	Faulty or incomplete definition of RFID data.	Check RFID data definitions.
91 RFID tag type	Definition of label data does not correspond with the used label.	Check storage partitioning of used label type
92 RFID lock	Error at programming the RFID label (locked fields).	Check RFID data definitions. Label was already programmed.
93 RFID programming	Error at programming the RFID label.	Check RFID definitions.
94 Scanner timeout	The scanner could not read the bar code within the set timeout time. Defective printhead. Wrinkles in transfer ribbon. Scanner wrong positioned. Timeout time too short.	Check printhead. Check transfer ribbon. Position scanner correctly, corresponding to the set feeding. Select longer timeout time.

Error message	Cause	Remedy
95 Scanner layout difference	Scanner data does not correspond to bar code data.	Check adjustment of scanner. Check scanner settings / connection.
96 COM break	Serial interface error.	Check settings for serial data transmission as well as cable (printer-PC).
97 COM general	Serial interface error.	Check settings for serial data transmission as well as cable (printer-PC).
98 No software printhead FPGA	No printhead-FPGA data available.	Please contact your responsible distributor.
99 Load software printhead FPGA	Error when programming printhead-FPGA.	Please contact your responsible distributor.
100 Upper position	Option applicator Sensor signal up is missing	Check input signals / compressed-air supply.
101 Lower position	Option applicator Sensor signal down is missing	Check input signals / compressed-air supply.
102 Vacuum plate empty	Option applicator Sensor does not recognise a label at vacuum plate	Check input signals / compressed-air supply.
103 Start signal	Print order is active but device not ready to process it.	Check start signal.
104 No print data	Print data outside the defined label. Selection of wrong module type (design software).	Check selected module type. Check selection of left/right version.
105 Printhead	No original printhead is used.	Check the used printhead. Contact your distributor.
106 Invalid Tag type	Wrong Tag type. Tad data do not match the Tag type in the printer.	Adapt data or use the correct Tag type.
107 RFID invalid	RFID module is not activated. No RFID data can be processed.	Activate RFID module or remove RFID data from label data.
108 GS1-128 invalid	Transferred GS1-128 bar code is invalid.	Verify bar code data (see GS1-128 bar code specification).
109 EPC parameter	Error at EPC calculation.	Verify data (see EPC specification).

Error message	Cause	Remedy
110 Housing open	When starting the print order the housing cover is not closed.	Close the housing cover and start the print order anew.
111 EAN.UCC code	Transferred EAN.UCC code is invalid.	Verify bar code data (see corresponding specification).
112 Print carriage	Printing carriage does not move.	Check gear belt (possibly broken).
113 Applicator error	Option applicator Error while using applicator.	Check applicator.
114 Left position	Option applicator Left final position switch is not in correct position.	Check LEFT final position switch for correct function and position. Check function of pneumatics for cross traverse.
115 Right position	Option applicator Right final position switch is not in correct position.	Check RIGHT final position switch for correct function and position. Check function of pneumatics for cross traverse.
116 Print position	Option applicator The print position is not correct.	Check TOP and RIGHT final position switch for correct function and position. Check pneumatics for function
117 XML parameter	The parameters in the XML file are not correct.	Please contact your responsible distributor.
118 Invalid variable	Transferred variable is invalid with customized entry.	Select correct variable without customized entry and transfer it.
119 No ribbon	During the print order the ribbon roll becomes empty. Defect at the transfer ribbon photocell.	Change transfer ribbon. Check transfer ribbon photocell (service functions).
120 Wrong directory	Invalid target directory when copying.	Target directory must not be within the source directory. Check target directory.
121 No label found	No label found at the rear printhead (DuoPrint). Soiled label photocell. Labels not inserted correctly.	Insert new label roll. Clean the label photocell. Check if labels are inserted correctly.
122 IP occupied	The IP address was already assigned.	Assign a new IP address.

| Error message	Cause	Remedy
123 Print asynchronous	The label photocell do not work in the order as it is expected according to print data.	Check label size and gap size.
	The settings of the photocell are not correct.	Check label photocell settings.
	Settings of label size and gap size are not correct.	Check correct loading of label material.
	No label found at the rear printhead.	Insert new label roll.
	Soiled label photocell.	Clean the label photocell.
	Labels not inserted correctly.	Check if labels are inserted correctly.
124 Print too slow	The print speed is too slow.	Increase the speed of the customers' machine.
125 DMA send buffer	Communication problem HMI.	Restart the printer.
126 UID conflict	Configuration RFID programming faulty.	Run RFID initialising.
127 Module not found	RFID module not available.	Check the RFID module connection.
		Please contact your responsible distributor.
128 No release signal	No print release by higher-level control (customer machine).	Activate release signal at the higher-level control.
129 Wrong firmware	Firmware does not match the used printer type.	Use firmware that fits to the printer type.
		Please contact your responsible distributor.
130 Language missing	Language file for the set printer language is not available.	Please contact your responsible distributor.
131 Wrong material	Label material does not fit to printing data.	User label material with suitable label and/or gap length.
132 Invalid mark-up tag	Invalid mark-up formatting characters in text.	Correct the formatting characters in the text.
133 Script not found	LUA script file not found.	Check the file name.
134 Script failure	LUA script is incorrect.	Check the script.

Error message	Cause	Remedy
135 Script user error	Error in LUA script user input.	Correct the input value.
136 No reprint available	No label data for reprinting available.	Send new label data to the printer.
137 Printhead short circuit	Electrical short at the printhead.	Check the used printhead. Please contact your distributor.
138 Too little ribbon	Transfer ribbon ends.	Change transfer ribbon.
139 Hardware error	A hardware component could not be found.	Please contact your responsible distributor.

11   Additional Information

11.1 Column Printing

With this printing system several columns can be printed, i.e. the information of one column can be printed several times (depending on its width) on a label. Caused by this the use of the complete print width is possible and the generating time is enormously reduced.

For example four columns with a width of 25 mm or two columns with a width of 50 mm can be printed onto a label with a width of 100 mm. Please note that the first layout is always the one with the largest x coordinate, i.e. it has the largest distance to the printhead.
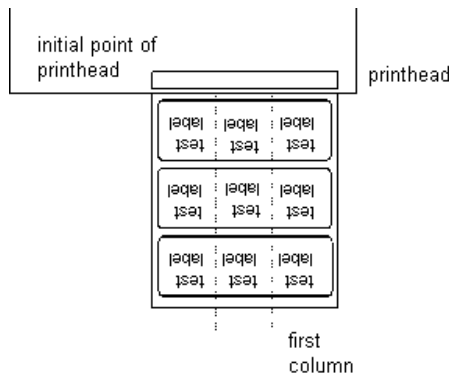
Setting the print of several columns

Press the key **F** to access the function menu.

Press the key ⟶ until the menu *Label layout* is displayed

Press the key ● to confirm the selection.

Press key ⟶ until the menu item *Width/Columns* is displayed

Press the keys ▲ and ▼ to set the label width. The *Width* is the width of one column, e.g. 20.0 mm.

Press the keys ◀ and ▶ to arrive the *Column* input field.

Press the keys ▲ and ▼ to change the number of columns, e.g. four columns with a layout width of 20.0 mm.

Press the key to start the print with input of number of labels and number of lines. The number of labels corresponds to the number of layouts that should be printed.
e.g. Columns: 3, Items: 4

The first four labels were printed but not labels 5 and 6.

11.2 Hotstart

i **NOTICE!**

The data is saved onto CF card. Therefore the CF card is a condition for the *Hotstart* menu item.

The function *Hotstart* contains e.g. that in case of a power failure the currently loaded label can be further processed without any loss of data. Moreover a print order can be interrupted and to be continued after switching on the printing system anew.

i **NOTICE!**

At an active Hotstart all necessary data is stored on the CF card therefore do not remove the card during operation. When removing during operation, this causes the loss of all data on the CF card.

Save current label

In case the Hotstart function is set to on, at the start of a print order the data of the current label is saved to the corresponding directory of the CF card.
However the following conditions have to be fulfilled:

- CF card inserted in drive A.
- CF card not write-protected.
- Enough free storage space onto CF card.

An error message appears in case these conditions are not fulfilled.

Save print order state

At switching off the printing system the state of the current print order is saved to the corresponding directory of the CF card.
However the following conditions have to be fulfilled:

- CF card inserted in drive A.
- CF card not write-protected.
- Enough free storage space onto CF card.

Load label and print order state

When restarting the printing system (if the function *Hotstart* is activated) the saved label data and the status of print order were loaded from the corresponding file on the CF card. Because of this reason, when switching on the printing system a CF card has to be inserted in the appropriate drive. If the data cannot be loaded an error message appears.

Start print order   In case at switching off the printing system a print order was active,
                               then a print start is released automatically and the required res. actual
                               number of printed labels is refreshed. In case the print order was
                               stopped at switching off the printing system, it is again set to the
                               stopped mode after switching on the printing system anew. In case a
                               customized entry was active during switching off the printing system,
                               the window for the first customized variable is displayed.

Refresh variable   As in the intended file only the start values of the counter are saved,
counter   they are refreshed at a new start of the print order by means of the
                               number of printed labels. Each counter is counted corresponding from
                               its start value. Afterwards the position of the current and the next
                               counter update are correctly set by means of the update intervals.

                               NOTICE

                               Make sure that in case graphics are onto the label they have to
                               be saved onto CF card.

11.3 Backfeed/Delay

**Backfeed operating
modes**

In continuous dispenser mode (IO dynamic continuous, IO static continuous, IO photocell continuous) no optimised backfeed is possible. Because of the fact when changing the print order, then the current label in the offset sector is already printed from the old print order.

With activated double cut no optimised backfeed is possible.

In the sector that is printed when preprint the following label, no date/time variable should be existing, because this could be refreshed before the next start impulse.

Standard

Peel off: After printing the label, it is driven into the dispenser offset and waited there, until the label was removed (photocell) or a new start signal is given (IO dynamic). Afterwards it is again backtracked to the beginning of label and then the next label is printed.

Automatic

Peel off: After printing the label it is driven into the dispenser offset and then backtracked to the beginning of label either immediately or after the set delay time. When releasing a new start signal (IO dynamic) the next label is immediately printed.

No backfeed

Peel off: After printing the label it is driven into the dispenser offset and there waited. When releasing a new start signal (IO dynamic) then the next label is immediately printed. Because of the fact that the label is already in the offset, the label is only printed from beginning of offset position, i.e. at the definition of label an accordingly large range must be left free at the top margin of label, because these data are otherwise not printed.

Optimised backfeed

Peel off: After printing the label, during driving into dispenser offset the following label is 'pre-printed', if this is already available (generated). When releasing a new start signal (IO dynamic) the already 'pre-printed' label is printed to the end and when driving into the dispenser offset the following label is again 'pre-printed'. In case the following label is not yet available or at the last label of a print order, the dispenser offset is driven as until now, and then for the next label before printing the backfeed to the beginning of label is executed.

11.4 Photocells

Transmission photocell normal

For this photocell type the transmitter is at the top res. the receiver at the bottom, i.e. the infra-red light is sent from the top. In this way the label detection is also from the top. This photocell type is used for standard adhesive labels with gap.

Option: Reflexion photocell normal

For this photocell type the transmitter and receiver are at the bottom, i.e. the light is reflected by the label and taken over from the receiver. This photocell type is used for white (light) continuous labels with a black (dark) bar. The bar is the separator, i.e. it indicates the position of gap and in this way the label start.

Transmission photocell inverse

For this photocell type the transmitter is at the top res. the receiver at the bottom, i.e. the infra-red light is sent from the top. The label detection is, same as for the **transmission photocell normal**, from the top. However, it is printed differently as for normal photocells, in the translucent place; the printing system recognizes the opaque place as gap. This photocell type is used frequently when printing foils.

> **i NOTICE!**
>
> When using transmission photocells inverse, the printing system must measure a difference of 2.5 V between translucent and opaque material. Otherwise the printing system does not recognize a difference between label and gap (bar).

Option: Reflexion photocell inverse

For this photocell type the transmitter and receiver are at the bottom, i.e. the light is reflected by the label and taken over from the receiver. This photocell type is used for black (dark) continuous labels with a white (light) bar. This bar is the separator, i.e. it indicates the position of gap and in this way the start of label.

> **i NOTICE!**
>
> When using reflection photocells you should observe that the label printer cover is closed and in this way other light (e.g. working lamp) on the photocell is prevented.

12   Applicator Interface

Valves may be controlled and limit position sensors may be prompted via different control inputs and outputs.

The control inputs and outputs are made available via a D-sub bushing (25 pins, female) on the front plate of the printing system and are _NOT GALVANICALLY ISOLATED_.
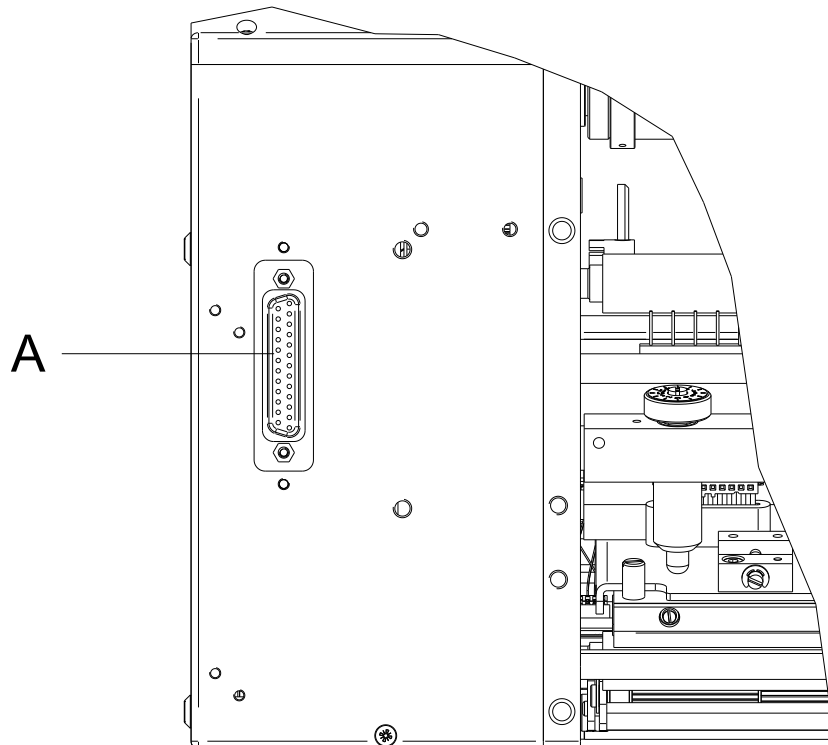
Figure 24

12.1 Printer Internal Circuitry
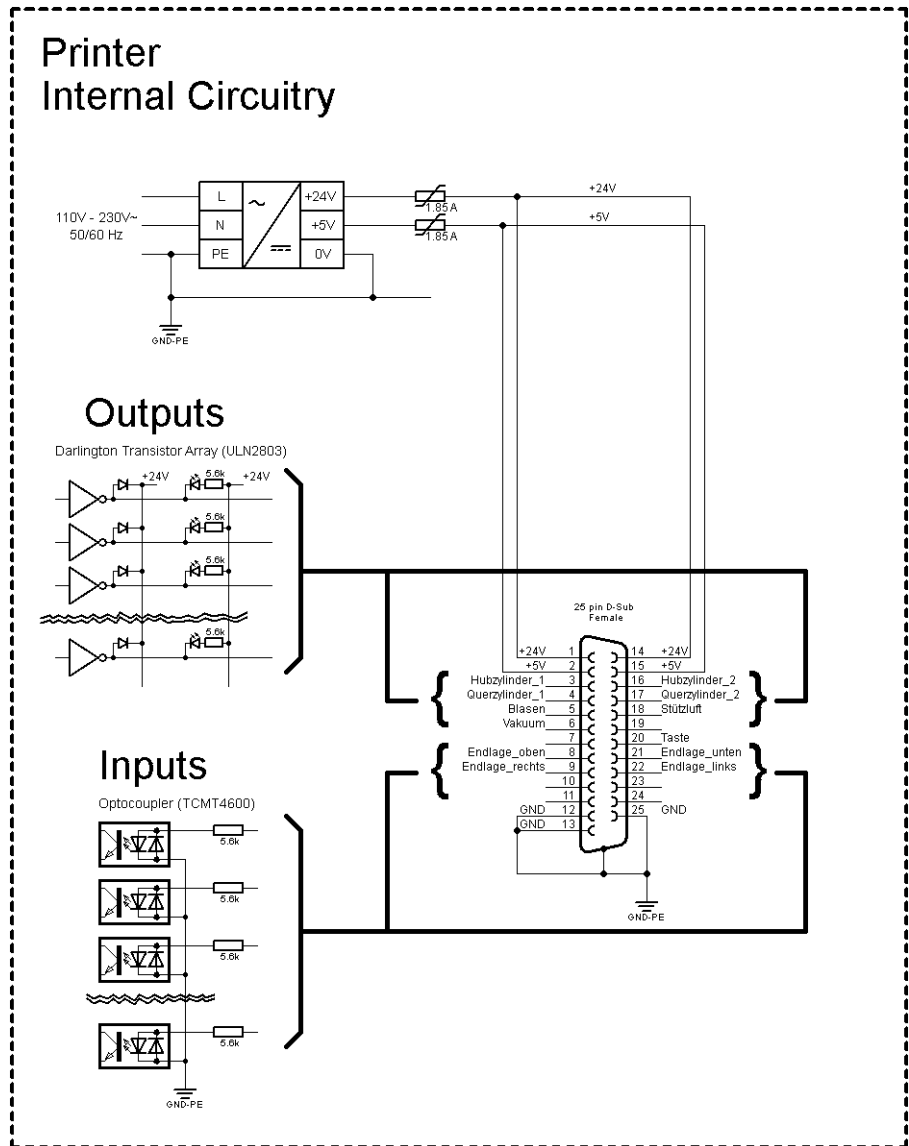
Figure 25

12.2 Pin Assignment D-Sub Bushing
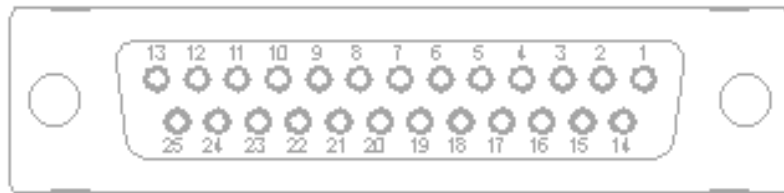
Figure 26

Signal assignment

Pin	Signal	Pin	Signal	Description / Function
1	24V	14	24V	24 Volt DC output for external use max 1 A.
2	5V	15	5V	5 Volt DC output for external use max 1 A.
3	Stroke cylinder 1	16	Stroke cylinder 2	Outputs (open Collector) 24 V / 0,1 A
4	Lateral cylinder 1*	17	Lateral cylinder 2*	
5	Blow on	18	Supporting air	
6	Vacuum	19		
7		20	Switch	Digital inputs 24 V
8	Top end position	21	Bottom end position	
9	Right end position	22	Left end position	
10		23	Vacuum control	
11	Pressure control	24		
12	GND	25	GND	GND-PE
13	GND			

* Option, on demand only

Technical data

Connection plug	
Type	D-Sub connector 25 pin / connector
Producer/distributor	MPE Garry / Schukat
Order no.	LPBL25RZM
Output tensions (connected with GND-PE)	
+ 24 V / 1 A	Fuse: Polyswitch / 30 V / 1.85 A
+ 5 V / 1 A	Fuse: Polyswitch / 30 V / 1.85 A
Digital outputs	
Driver	ULN2803A (open Collector)
Tension	24 VDC
Current max	-0,1A
Impedance	Pull up 5,6 kΩ
Digital inputs	
Optocoupler	TCMT4600, CTR 80 % - 300 %
Tension	24 VDC
Impedance	5,6 kΩ
Analogue inputs (optional, on demand only)	
OP	LMV393
Tension	0..5 VDC
Impedance	>100 kΩ

12.3 Examples

Example 1

Device connection to a machine with S7-300 SPS.
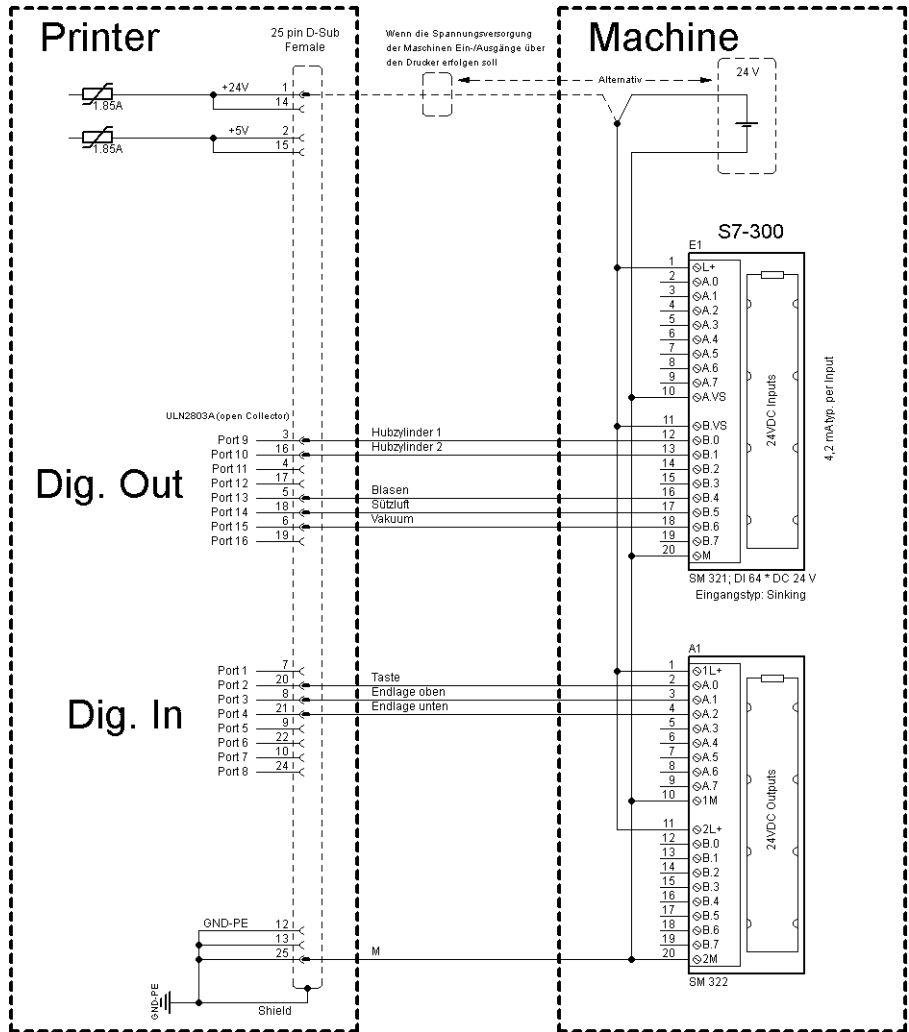
Figure 27

Example 2   Device connection to an applicator.
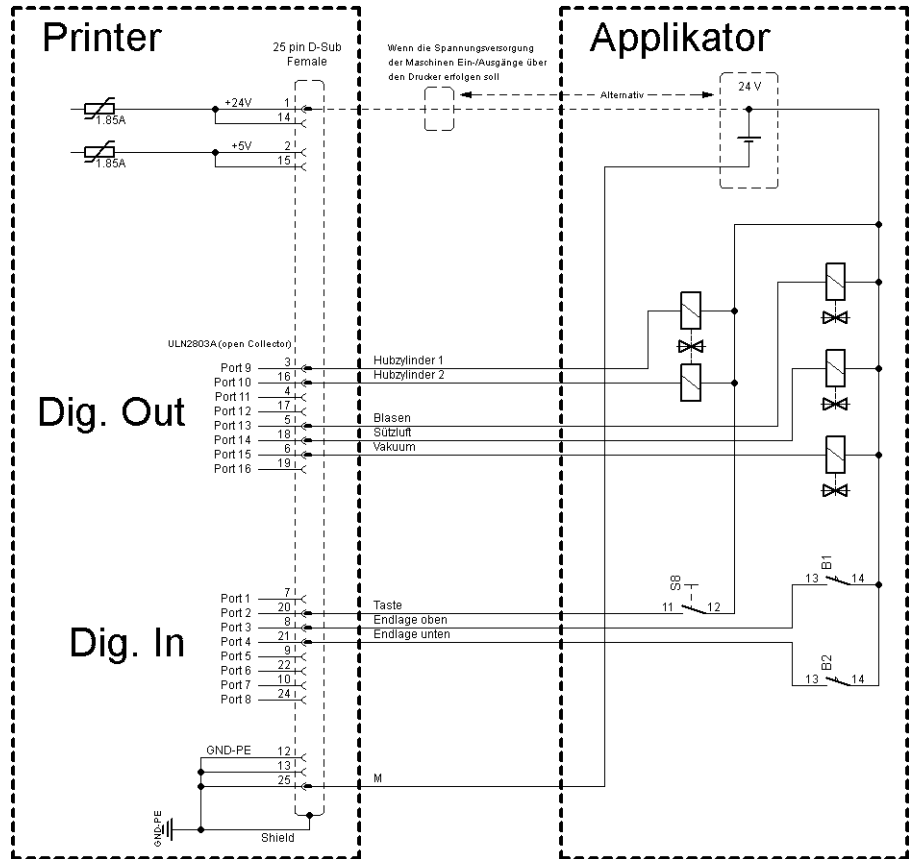
Figure 28

13 Signal Diagrams

13.1 Print – Apply (w/o transverse axis)
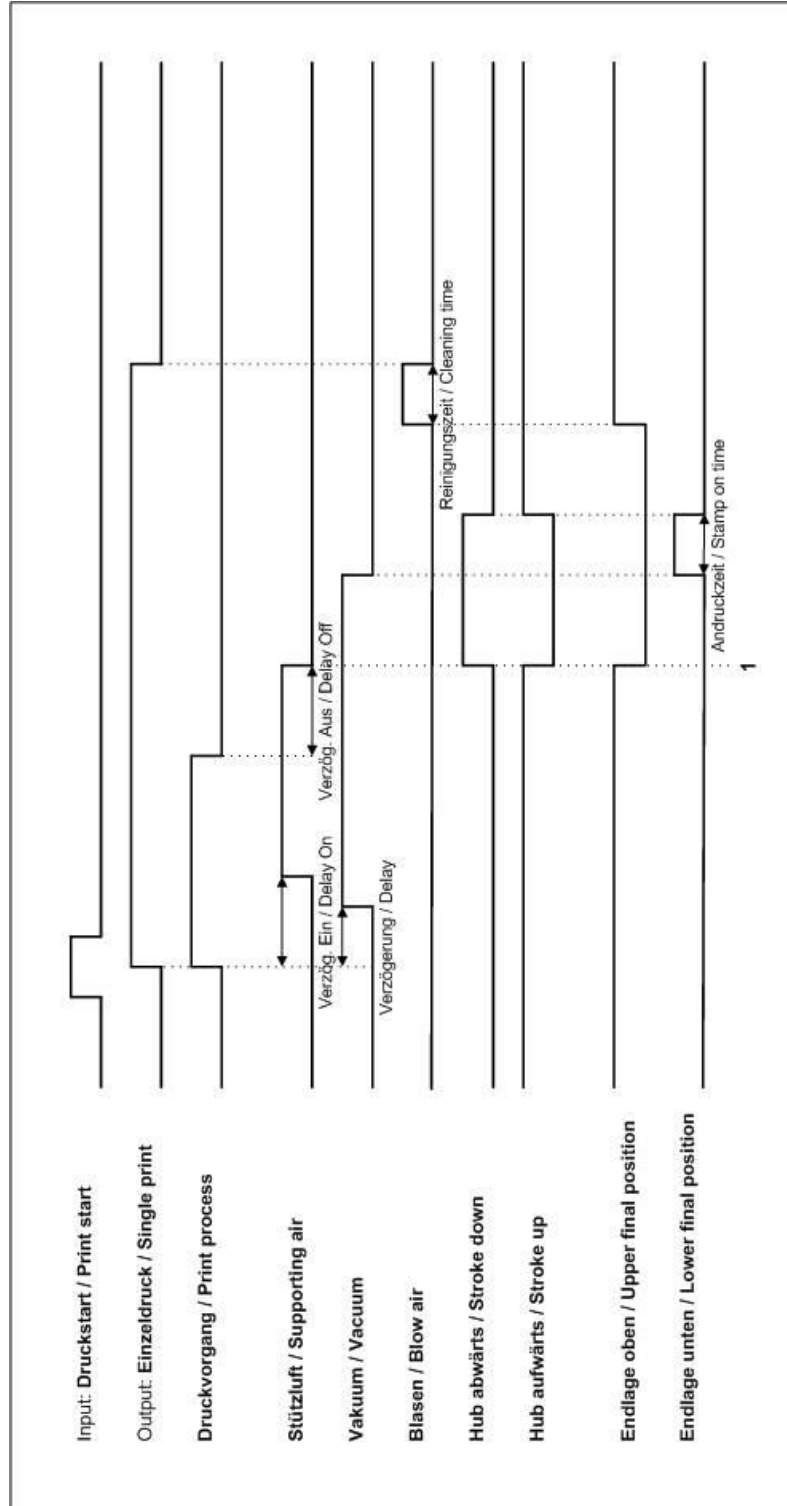
(1) At labelling signal = print position/labelling position, the printer waits here in the print position (identical with the labelling position) for the signal 'applying start' before the label is applied.

13.2 Print – Apply (with transverse axis)
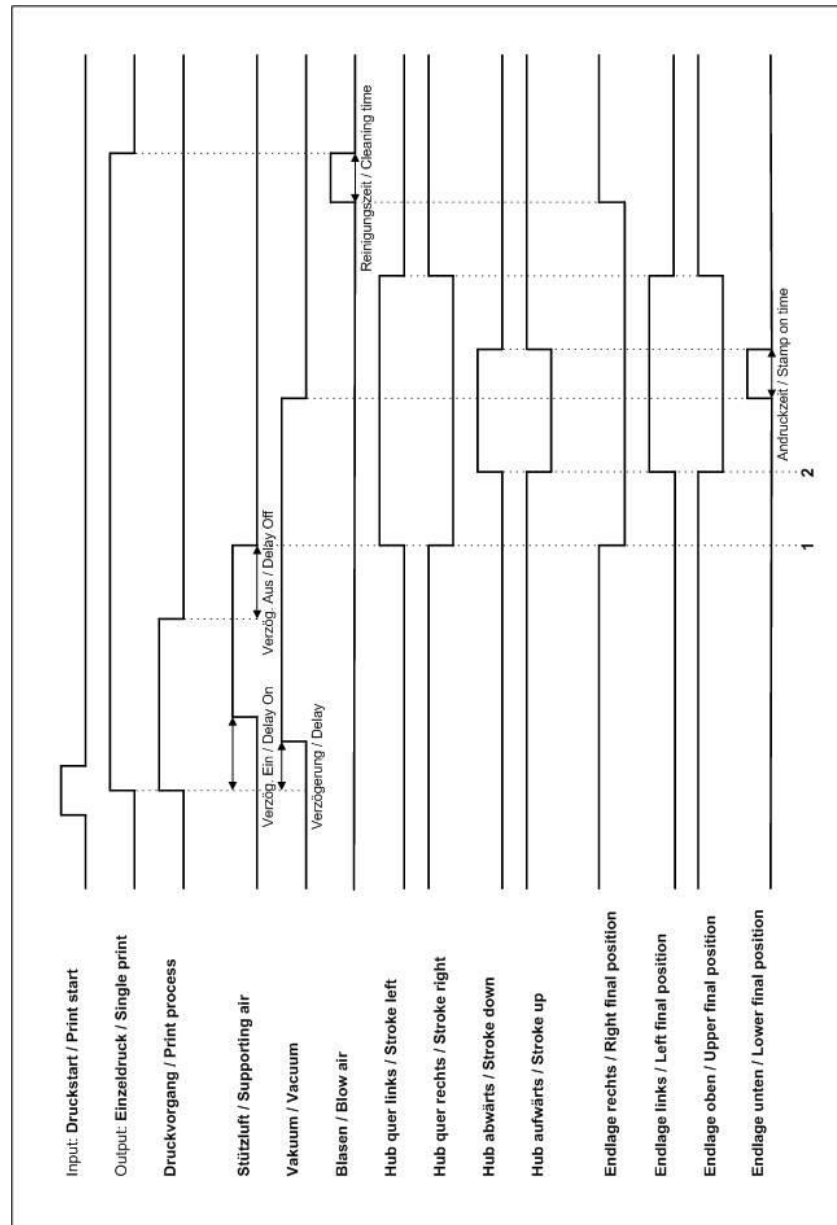
(1) At labelling signal = print position, the printing system waits in this position for the signal 'Start Applying' befor the transverse movement is carried out and the label is applied.

(2) At labelling signal = labelling position, the printing system waits in the labelling position for the signal 'Start Applying' before the label is applied.

13.3 Apply – Print (w/o transverse axis)

Input: **Druckstart / Print start**

Output: **Einzeldruck / Single print**

Druckvorgang / Print process

Stützluft / Supporting air

Vakuum / Vacuum

Blasen / Blow air

Hub abwärts / Stroke down

Hub aufwärts / Stroke up

Endlage oben / Upper final position

Endlage unten / Lower final position

Verzög. Ein / Delay On

Verzögerung / Delay

Reinigungszeit / Cleaning time

Andruckzeit / Stamp on time

Verzög. Aus / Delay Off

Verzög. Ein / Delay On

Verzögerung / Delay

13.4 Apply – Print (with transverse axis)
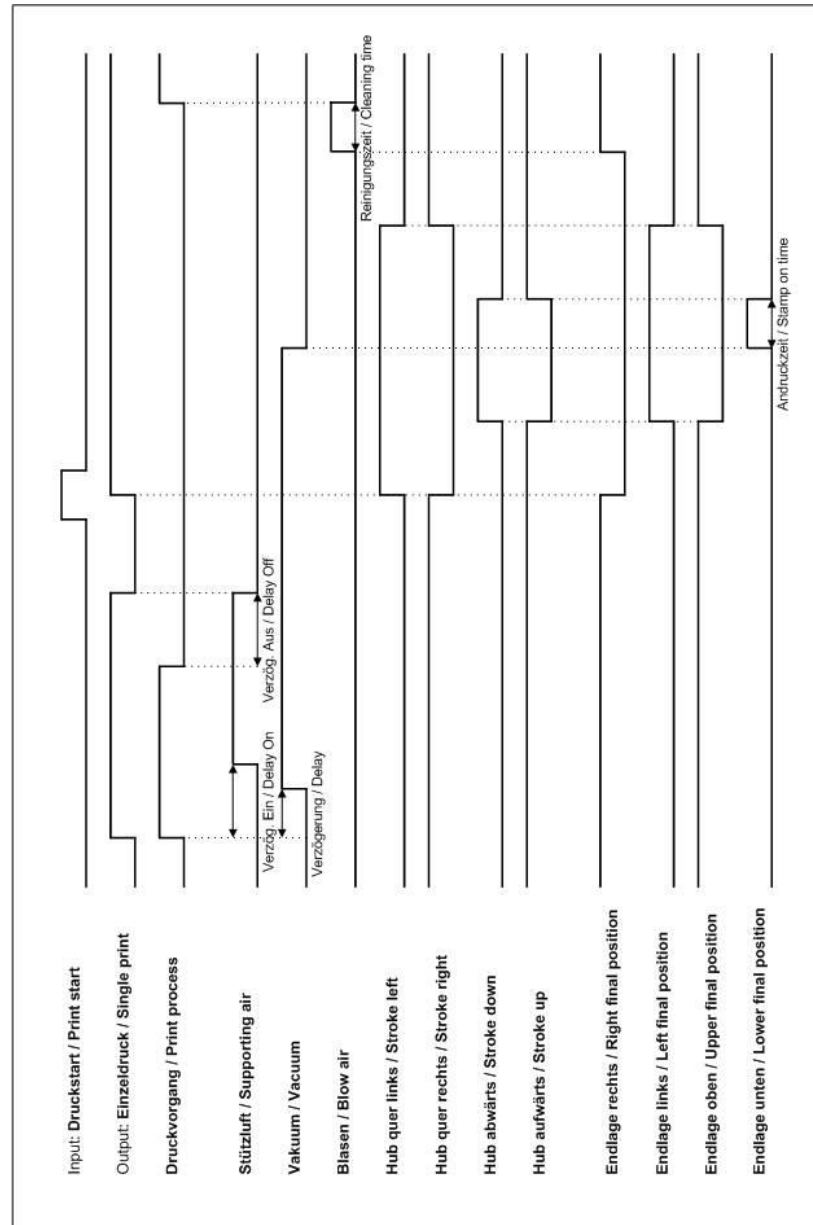
14   Pressure Control/Vacuum Control

The applicator preparation provides all necessary control signals to connect an applicator to the printing system. In case the pressure control/vacuum control is needed, the following steps are to be observed.

NOTICE!

At a Valentin applicator, the pressure control and vacuum control is already installed and configured. The following explanations for the connection of a pressure control and vacuum control, are only for external applicators.

The external sensors can be connected by the D-Sub connector according to the pin assignment (see chapter 12.2, page 107). Please note that the used sensors have the required output signal.

14.1 Electrical Properties

Analog signal	Min [V]	Max [V]	Required output signal [V]	Note
VAC-IN (vacuum sensor)	0	+5	0.5 – 3.5	After carrying the label to the pad plate, the vacuum value is verified. If the value is below the switching threshold, the error message 'Vacuum plate empty' is displayed.
AIR-IN (pressure sensor)	0	+5	0.5 – 2.5	The compressed air is verified after each label print. If the value is below the switching threshold, the error message 'Compressed air' is displayed.

For the setting of switching threshold for the sensors, the following points are to be observed:

Setting of switching threshold vacuum control

Press the key **F** to access the function menu.

Press the key ⬤━ until the menu *Label applicator* is displayed.

Press the key ⬤ to select the menu.

Press the key ▲ until the inputs and outputs are represented.

With the keys ◀ and ▶ the appropriate output for setting and/or resetting of output signals can be selected.

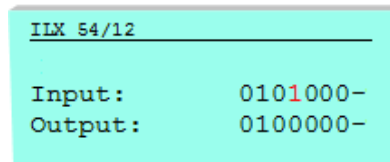With the keys ▲ and ▼ the appropriate ouput can be set and/or reset.

Press the key ▶ to change to output O_7 and switch on the vacuum valve with the key ▼ (1 = On).

Place the label which is to be printed below the pad so that all suction holes are covered by the label. By the applied vacuum the label remains under the pad.

In case of correct operation, the input value I_5 should represent the value 1 (see display). Otherwise the switching threshold of vacuum sensor must be set with the right rotary potentiometer (B, see Figure 29) in that way that the switching threshold changed the value from 0 to 1. Turn the rotary potentiometer (B, Figure 29) clockwise and/or counterclockwise.

Remove the label from the pad. The input value I_5 should indicate the value 0. If a label is sucked again to the pad, the value should change to 1.

ILX 54/12		ILX 54/12	
Input:	0101000-	Input:	0101100-
Output:	0100001-	Output:	0100001-

Switching limit vacuum sensor
Input I_5 = 0

Vacuum is switched On
(Output O_7 = 1)

The system recognizes that <u>no</u> label is under the pad

Switching limit vacuum sensor
Input I_5 = 1

Vacuum is switched On
(Output O_7 = 1)

The system recognizes that <u>a</u> label is under the pad

Setting of switching threshold compressed air control

Press the key $\boxed{\text{F}}$ to access the function menu.

Press the key $\boxed{\rightarrow}$ until the menu *Label applicator* is displayed.

Press the key $\boxed{\bullet}$ to select the menu.

Press the key $\boxed{\blacktriangle}$ until the inputs and outputs are represented.

With the keys $\boxed{\blacktriangleleft}$ and $\boxed{\blacktriangleright}$ the appropriate output for setting and/or resetting of output signals can be selected.

With the keys $\boxed{\blacktriangle}$ and $\boxed{\blacktriangledown}$ the appropriate ouput can be set and/or reset.

The air pressure is set to a minimum pressure of 2.5 bar. The input value I_4 should now represent the value 1 (see display). Otherwise the switching threshold of pressure sensor must be set with the left rotary (A, Figure 29) in that way that the switching threshold changed the value from 0 to 1. Turn the rotary potentiometer (A, Figure 29) clockwise and/or counterclockwise.

The air pressure is set to < 2.5 bar. The input value I_4 should now represent the value 0. If the air pressure is set to > 2.5 bar, the value should again change to 1.

```
ILX 54/12

Input:    0100000-
Output:   0100000-
```

```
ILX 54/12

Input:    0101000-
Output:   0100000-
```
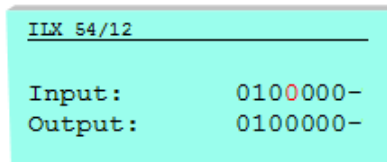
Switching limit pressure sensor Input $I_4 = 0$

Switching limit pressure sensor Input $I_4 = 1$

The system recognizes that the minimum pressure of 2.5 bar is not set

The system recognizes that the working pressure is ≥ 2,5 bar
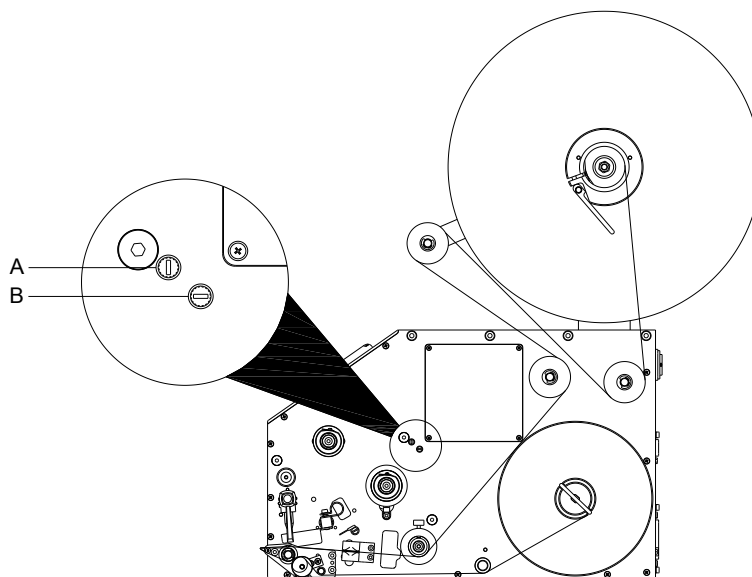
Figure 29

14.2 Precautions

When connecting a reed contact with a control input, the contact must have a switching capacity of min. 1 A in order to prevent the contact from sticking due to the inrush current. As an alternative, a suitable resistor can be connected in series.

If one of the printing system's internal voltages '+5 VDC EXT' or '+24 VDC EXT' is used, an external fuse e.g. 0.5 AF, should be additionally installed to protect the printing system electronics.

In the event of an inductive load, an antiparallel connected diode, for instance, must be used to discharge the induction energy.

In order to minimise the influence of leakage currents at control outputs, a resistor must, depending on what is connected, be installed in parallel with the load.

In order to avoid any damages to the printing system, the max. output currents must not be exceeded or outputs shorted.

15   Environmentally-Friendly Disposal
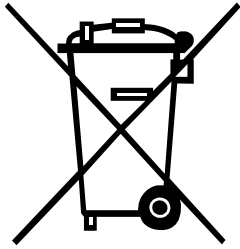
Manufacturers of B2B equipment are obliged to take back and dispose of old equipment that was manufactured after 13 August 2005. As a principle, this old equipment may not be delivered to communal collecting points. It may only be organised, used and disposed of by the manufacturer. Valentin products accordingly labelled can therefore be returned to Carl Valentin GmbH.

This way, you can be sure your old equipment will be disposed of correctly.

Carl Valentin GmbH thereby fulfils all obligations regarding timely disposal of old equipment and facilitates the smooth reselling of these products. Please understand that we can only take back equipment that is sent free of carriage charges.

The electronics board of the printing system is equipped with a battery. This must only be discarded in battery collection containers or by public waste management authorities.

Further information on the WEEE directive is available on our website www.carl-valentin.de.

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