valentin DRUCKSYSTEME

DPM IV

Operating Manual

Quality . Tradition . Innovation

Information on the scope of delivery, appearance, performance, dimensions, and weight reflect our knowledge at the time of printing.

We reserve the rights to make modifications.

Due to the constant further development of our devices discrepancies between manual and device can occur.
Please check www.carl-valentin.de for the latest update.

Trademarks

All named brands or trademarks are registered brands or registered trademarks of their respective owners and may not be separately labelled. It must not be concluded from the missing labelling that it is not a registered brand or a registered trademark.

Carl Valentin print modules comply with the following EU directives

- Low-Voltage Directive (2014/35/EU)
- Electromagnetic Compatibility Directive (2014/30/EU)

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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 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.

⇒ Handling instruction

* Optional accessories, special fittings

`Datum` Information in the display

1.2 Intended Use

The direct print module 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.

The direct print module 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 direct print module 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 direct print module or other property could be damaged while misusing the device.

1.3 Safety Instructions

WARNING!

The print mechanics is designed to be integrated into a machine. It is essential to ensure that national safety regulations are observed. Particular attention must be paid to the following points:

⇒ The print mechanics must be secured so that it is not possible to reach into the working area during the printing process.

⇒ Operation without additional protective measures can lead to dangerous injuries.

⇒ It must be ensured that the required fire-protection device according to IEC 62368-1 is given (see chapter 6.4 in the IEC 62368-1).

The direct print module is configured for a voltage from 110 … 240 V AC. It has to be plugged into a grounded socket only.

NOTICE!

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

The direct print module may only be operated in the commercial area by persons over the age of 14 who have been instructed in its use.

Couple the direct print module to devices using extra low voltage only.

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

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

Do not operate the direct print module in explosive atmosphere and not in proximity of high voltage power lines.

Operate the direct print module 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.

Depending on use, ensure that clothing, hair, jewellery and similar personal items do not contact the exposed rotating parts and/or the moving parts (e.g. print carriage).

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 direct print module can endanger operational safety.

There are warning stickers on the direct print modules 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.

DANGER!

Danger to life and limb from power supply!

⇒ Do not open the casing.

CAUTION!

Two-pole fuse.

⇒ Before opening the housing cover, disconnect the device from the mains supply and wait for a moment until the power supply unit has discharged.

1.4 Decommissioning and Dismantling

NOTICE!

The decommissioning of printing system can only be carried out by trained staff.

CAUTION!

Danger of injury by imprudent handling when lifting or placing the printing system. Risk of crushing by unexpected linear movement of the printing carriage.

⇒ Do not underestimate the weight of the printing system (9 … 16 kg).

⇒ Do not lift the printing system at the hood.

⇒ Protect the printing system against uncontrolled movement.

2 Machine Overview

Flexible labelling of packaging foil is effected either by means of Windows printer driver or by our proven design software Labelstar Office.

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

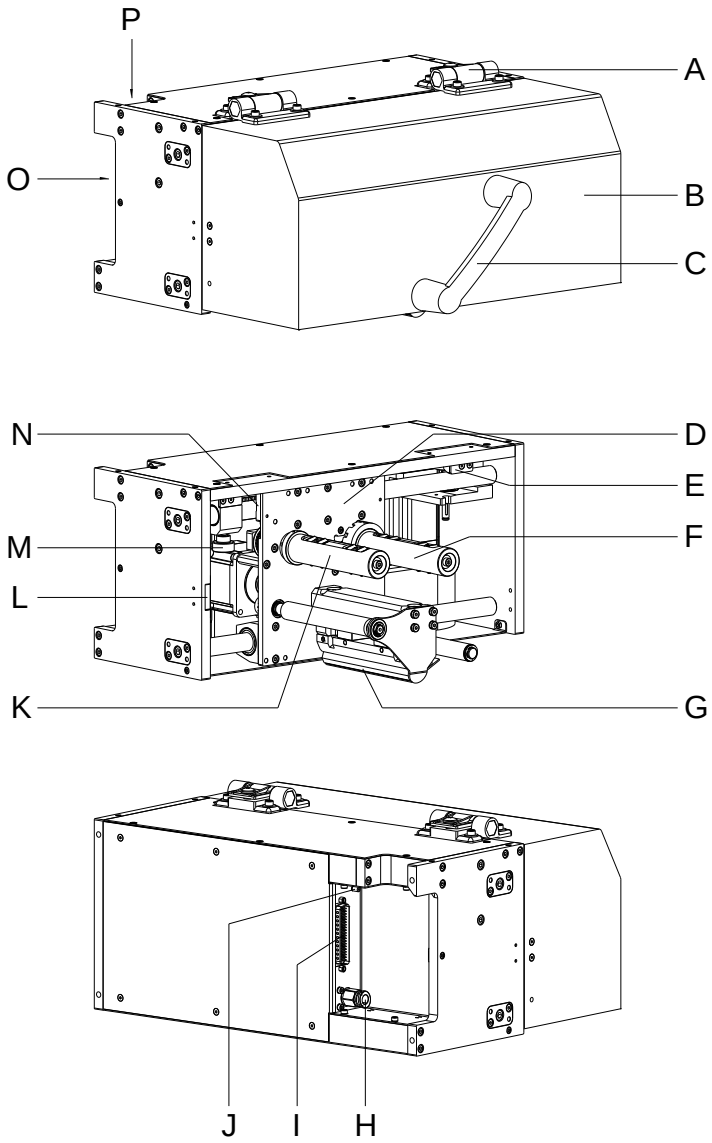
The handling of our durable direct print modules is easy and comfortable. The device settings can be made by the integrated, intuitive touch-screen display.

By using most modern printhead technology, we ensure a high standard of print quality.

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

Thanks to the large number of options and variations the direct print module can be adapted to each task.

2.1 Print Mechanics



A = Hinges, adjustable
B = Covering hood
C = Handle
D = Print carriage
E = End position control
F = Ribbon unwinder
G = Thermal printhead
H = Pneumatic connection
I = Connecting cable connection print mechanics – control unit
J = Grounding bolt
K = Ribbon rewinder
L = Cover sensor
M = Zero adjustment
N = Zero control
O = Cable outlet at side
P = Cable outlet to top

Figure 1

NOTICE!

No print job can be initiated when the covering hood is removed.

An internal cover sensor (L) examines the status of the cover (open/ closed). This sensor does not meet the requirements of a standard-compliant safety switch (see chapter 1.3, Safety Instructions).

2.2 Control Unit (Panel Enclosure)

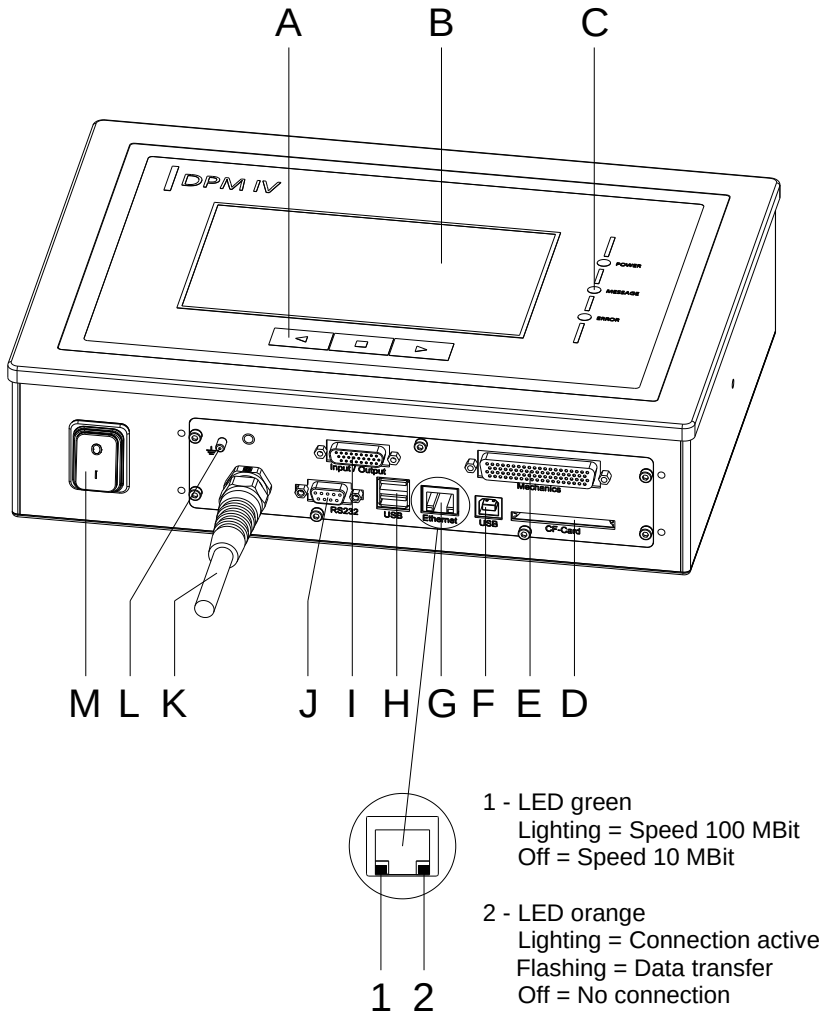


Figure 2

A = Function keys
B = Touch panel
C = Status LED
D = Slot for CF card
E = Connecting cable connection print mechanics – control unit
F = USB port
G = Ethernet interface
H = USB host for USB keyboard and USB stick
I = External inputs/outputs
J = Serial interface RS 232
K = Mains connection
L = Grounding bolt
M = Power switch

2.3 Control Unit (Desktop Enclosure)

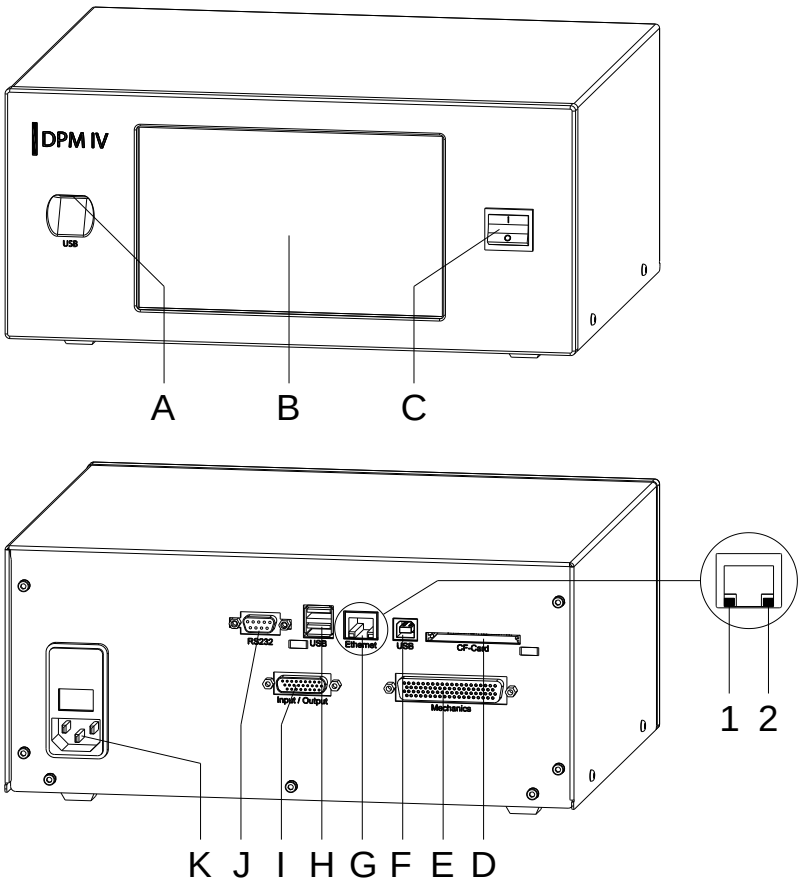


Figure 3

A = USB host for USB keyboard and USB stick

B = Touch panel

C = Power switch

D = Slot for CF card

E = Connecting cable connection
print mechanics – control unit

F = USB port

G = Ethernet interface
1 - LED green
Lighting = Speed 100 Mbit
Off = Speed 10 MBit
2 - LED orange
Lighting = Connection active
Flashing = Data transfer
Off = No connection

H = USB host for USB keyboard and USB stick

I = External inputs/outputs

J = Serial interface RS 232

K = Mains connection

2.4 Print Principle

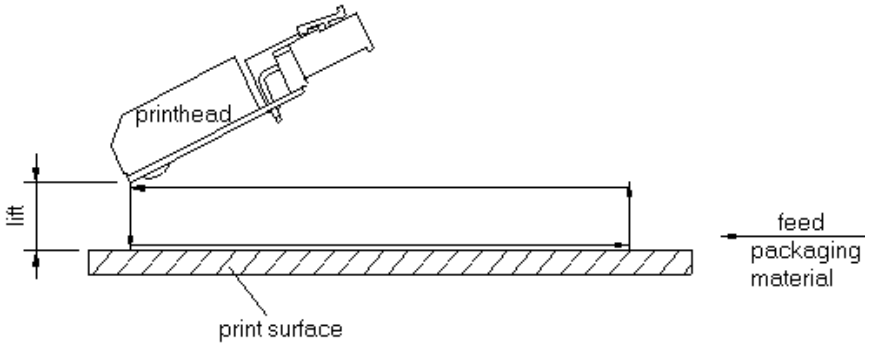


Figure 4

After starting a print order the printhead moves against the print medium. Afterwards the printing carriage moves corresponding to the set or transferred layout length linear over the material which is to be printed. After the print procedure the printhead again lifts up and the printing carriage moves again to the starting position.

3 Operating Conditions

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

Therefore please carefully read these operating conditions.

Shipment and storage of our direct print modules are **only** allowed in original packing.

Installation and initial operation of direct print modules is only allowed if operating conditions were **fulfilled**.

Initial operation, programming, operation, cleaning and service of our direct print modules are only recommended after careful study of our manuals.

Operation of direct print modules is only allowed by especially trained persons.

NOTICE!

Carry out regular training courses.
The content of the training are chapter Operating Conditions, Load Transfer Ribbon and General 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 direct print module should be even, free of vibration and currents of air are to be avoided.

The direct print modules have to be installed to ensure optimal operation and servicing.

Installation of power supply

The installation of the power supply to connect our direct print modules 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 direct print modules 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. Please use one of the following possibilities:

- Provide separate power supply to our direct print modules.
- In case of problems please connect capacity-decoupled isolation transformer or similar interference suppressor in front of our direct print modules.

Stray radiation and immunity from disturbance

Emitted interference according to EN 61000-6-3: 01-2007

Immunity according to EN 61000-6-2: 03-2006

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 62368-1.

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.

Installation of data lines

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)
Maximum cable length:	Interface V 24 (RS-232C) - 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

Protection according IP: 65 (for control unit with option protective cover)

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 direct print modules 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 direct print modules.
- 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 direct print modules 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 direct print modules.

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 direct print module 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.

4 Technical Data

	DPM IV 53	DPM IV 107	DPM IV 128
Print width	53.3 mm	106.6 mm	128 mm
Print lenghts	140 mm, 240 mm, 340 mm, 447 mm, 570 mm, 630 mm		
Resolution	300 dpi		
Print speed	50 …500 mm/s		
Back speed	50 … 700 mm/s		
Printhead	Corner Type		
Acoustic Emission (measuring distance 1 m)			
Average sound power level	75 dB(A)	75 dB(A)	75 dB(A)
Transfer Ribbon			
Ink	outside / inside		
Max. roll diameter	85 mm		
Core diameter	25.4 mm / 1"		
Max. length	450 m		
Max. width	55 mm	110 mm	130 mm
Dimensions in mm (width x height x depth)			
Print mechanics (with cover)[1]	(print length + 230) x 188 x 265	(print length + 230) x 188 x 320	(print length + 230) x 188 x 340
Control unit	panel enclosure: 314 x 230 x 80 (without connection lines) desktop enclosure: 287x127x250 (without connection lines)		
Weight			
Print mechanics	approx 9 … 16 kg (depending on print length/print width)		
Control unit	panel enclosure: approx 5.5 kg (without connection lines) desktop enclosure: approx 4.5 kg (without connection lines)		
Connection cable	approx 0.85 kg (print mechanics – control unit)		
Electronics			
Processor	High Speed 32 Bit		
RAM	16 MB		
Slot	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 115,200 Baud)		
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		
Connection Values			
Pneumatic connection	6 bar dry and free of oil		
Air consumption typical* * hub 1.5 mm; 150 cycle/min 6 bar operating pressure	150 ml/min	300 ml/min	300 ml/min
Nominal voltage	110 … 240 V AC / 50-60 Hz		
Nominal current	110 V AC / 3 A - 240 V AC / 1.5 A		
Fuse values	2x T4A 250 V		
Operation Data			
Temperature	5 … 40 °C		
Humidity	max. 80 % (non-condensing)		

[1] identical with DPM IIIxi

Operation Panel	
Touchscreen Display	colour display: 800 x 480 pixel, screen size 7"
Operating functions	favorites, function menu, memory card, print start, test print, feed, about menu
Settings	
	date, time, shift times 20 language settings (others on demand) print and device parameters, interfaces, password protection
Monitoring	
Stop printing if	end of ribbon / end of layout
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 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°
Vektor 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
Design software	Labelstar Office Lite, Labelstar Office
Windows printer driver	Windows 7® - Windows 10® 32/64 Bit, Windows 11® Windows Server 2008® (R2) - Windows Server 2022®

Technical details are subject to change.

4.1 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 printer 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 printer 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.

Printer internal circuit

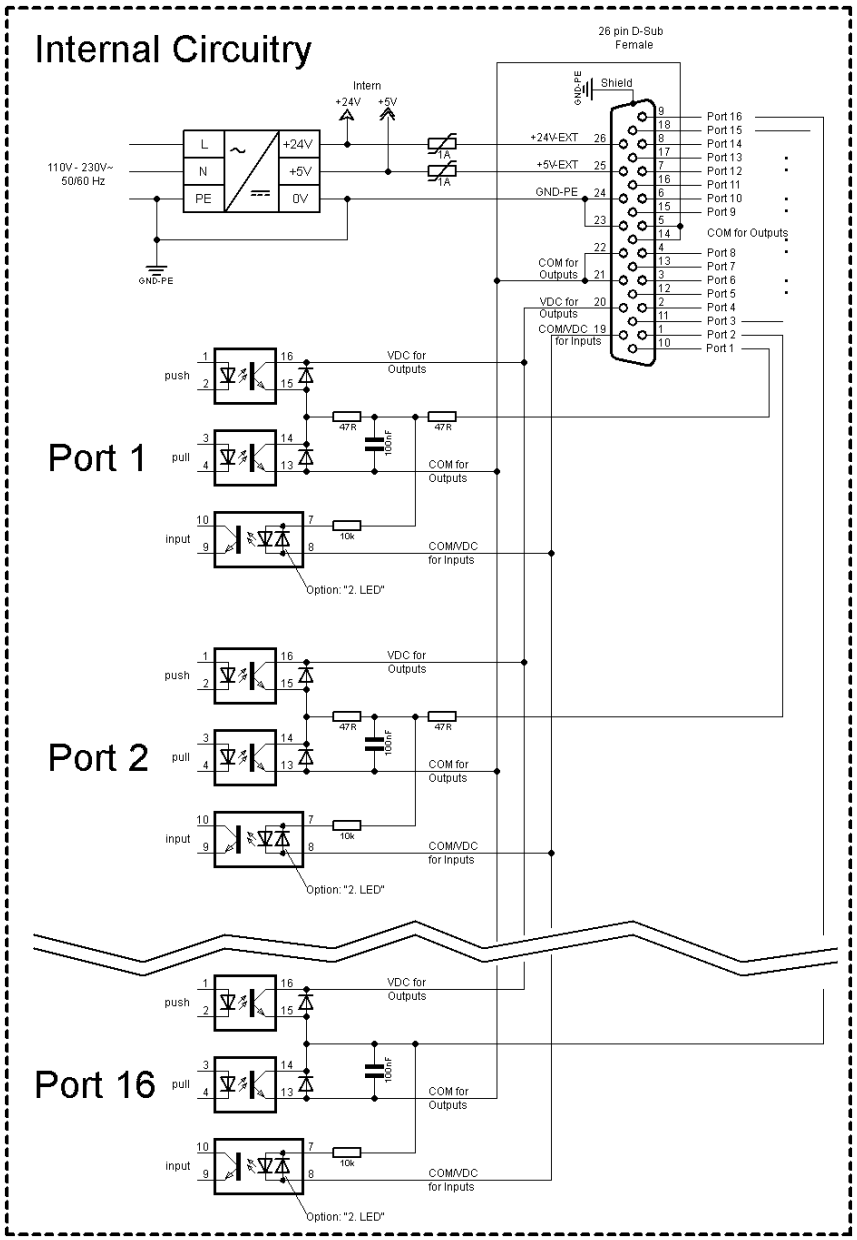


Figure 5

Configuration of D-Sub socket

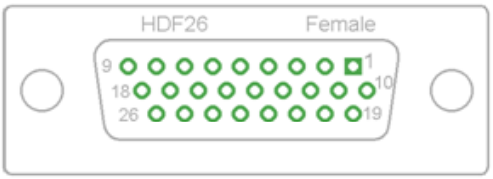


Figure 6

Cable identification

Number	Color
1	white
2	brown
3	green
4	yellow
5	grey
6	pink
7	blue
8	red
9	black
10	violet
11	grey-pink
12	red-blue
13	white-green
14	brown-greed
15	white-yellow
16	yellow-brown
17	white-grey
18	grey-brown
19	white-pink
20	pink-brown
21	white-blue
22	brown-blue
23	white-red
24	brown-red
25	white-black
26	brown-black

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

Port	Pin	Description / Function
1 (Input)	10	Print start
2 (Input)	1	Return printing carriage (operating mode Retracting 'external' only)
3 (Input)	11	Counter reset
4 (Input)	2	Release signal
5 (Input)	12	Error reset
6 (Input)	3	Delete all print orders
7 (Input)	13	No function
8 (Input)	4	No function
9 (Output)	15	Error
10 (Output)	6	Print order active
11 (Output)	16	No function
12 (Output)	7	Printing
13 (Output)	17	Ready
14 (Output)	8	Transfer ribbon error
15 (Output)	18	Return printing carriage
16 (Output)	9	Transfer ribbon prior warning
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 printer system. 'GND-PE' is printer internally connected with protective earth (PE).
+ 5 VDC EXT	25	5 Volt DC output for external use. Max. 1 A. This voltage is provided from direct print module 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 print module and can be used e.g. as control voltage. Never apply any external voltage to this output.

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

Port	Pin	Description / Function
1 (Input)	10	Print start
2 (Input)	1	Error reset
3 (Input)	11	Number of the file to load Bit 0 (Input)
4 (Input)	2	Number of the file to load Bit 1 (Input)
5 (Input)	12	Number of the file to load Bit 2 (Input)
6 (Input)	3	Number of the file to load Bit 3 (Input)
7 (Input)	13	Number of the file to load Bit 4 (Input)
8 (Input)	4	Number of the file to load Bit 5 (Input)
9 (Output)	15	Error
10 (Output)	6	No function
11 (Output)	16	No function
12 (Output)	7	No function
13 (Output)	17	Ready
14 (Output)	8	No function
15 (Output)	18	Return printing carriage
16 (Output)	9	Transfer ribbon prior warning

* The files must be saved onto the CF card in the user directory.

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.

Port 1 to Port 16 = Assignment for I/O Profile *SP_Direct0*

Port	Pin	Description / Function
1 (Input)	10	Print start
2 (Input)	1	No function
3 (Input)	11	Counter reset
4 (Input)	2	No function
5 (Input)	12	Error reset
6 (Input)	3	No function
7 (Input)	13	No function
8 (Input)	4	No function
9 (Output)	15	Error
10 (Output)	6	Active print order
11 (Output)	16	No function
12 (Output)	7	Printing
13 (Output)	17	Ready
14 (Output)	8	No function
15 (Output)	18	Return
16 (Output)	9	Transfer ribbon prior warning

Port 1 to Port 16 = Assignment for I/O Profile *Old_Direct0*

Port	Pin	Description / Function
1 (Input)	10	Print start
2 (Input)	1	Error reset
3 (Input)	11	Counter reset
4 (Input)	2	No function
5 (Input)	12	No function
6 (Input)	3	No function
7 (Input)	13	No function
8 (Input)	4	No function
9 (Output)	15	Error
10 (Output)	6	Active print order
11 (Output)	16	Generation
12 (Output)	7	Printing
13 (Output)	17	Print-Ready
14 (Output)	8	Printhead up
15 (Output)	18	Return
16 (Output)	9	Transfer ribbon prior warning

Port 1 to Port 16 = Assignment for I/O Profile *Old_Direct1*

Port	Pin	Description / Function
1 (Input)	10	Print start
2 (Input)	1	Error reset
3 (Input)	11	Counter reset
4 (Input)	2	No function
5 (Input)	12	No function
6 (Input)	3	No function
7 (Input)	13	No function
8 (Input)	4	No function
9 (Output)	15	Error
10 (Output)	6	Active print order
11 (Output)	16	Generation
12 (Output)	7	Printing or return
13 (Output)	17	Print-Ready
14 (Output)	8	Printhead up
15 (Output)	18	Return
16 (Output)	9	Transfer ribbon prior warning

Port 1 to Port 16 = Assignment for I/O Profile *Old_Direct2*

Port	Pin	Description / Function
1 (Input)	10	Print start
2 (Input)	1	Error reset
3 (Input)	11	Counter reset
4 (Input)	2	Release signal
5 (Input)	12	No function
6 (Input)	3	No function
7 (Input)	13	No function
8 (Input)	4	No function
9 (Output)	15	Error
10 (Output)	6	Active print order
11 (Output)	16	Generation
12 (Output)	7	Printing or return
13 (Output)	17	Print-Ready
14 (Output)	8	Printhead up
15 (Output)	18	Return
16 (Output)	9	Transfer ribbon prior warning

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	47Ω + (100nF || 10 kΩ)
Output	
Tension	5 VDC … 24 VDC
Impedance	47Ω + (100nF || 10 kΩ || 47Ω)
Current max.	High +15 mA Low -15 mA
Port 16	
Input	
Tension	5 VDC … 24 VDC
Impedance	100nF || 10 kΩ
Output	
Tension	5 VDC … 24 VDC
Impedance	100nF || 10 kΩ
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.

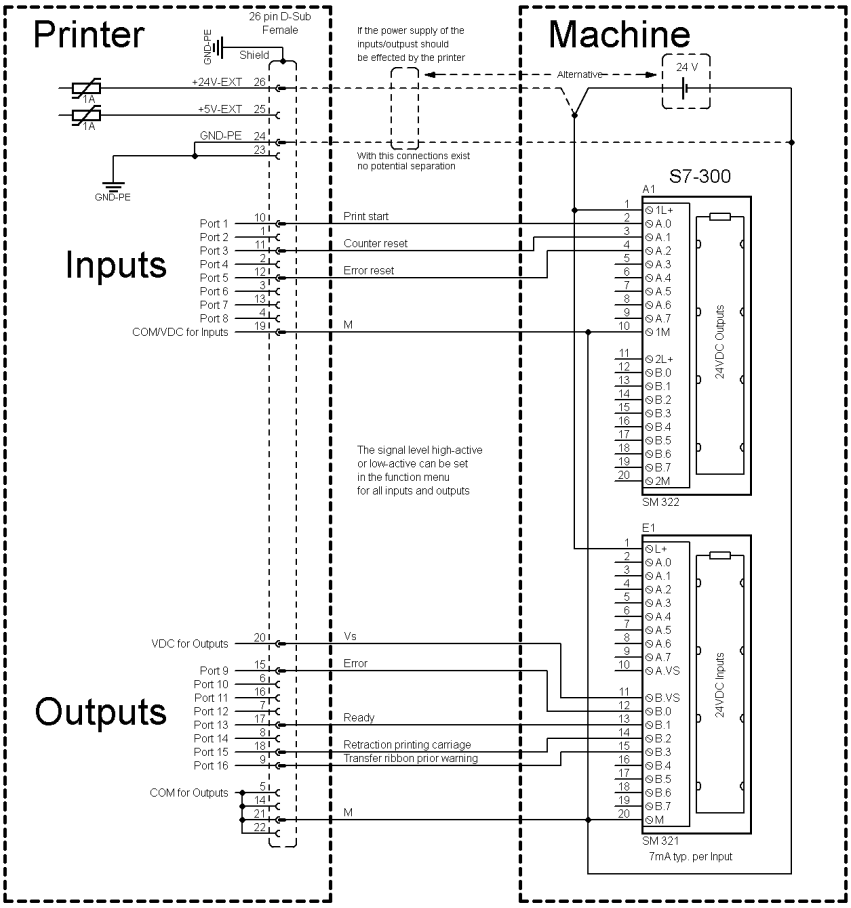


Figure 7

Example 2 Device connection to a operating panel.

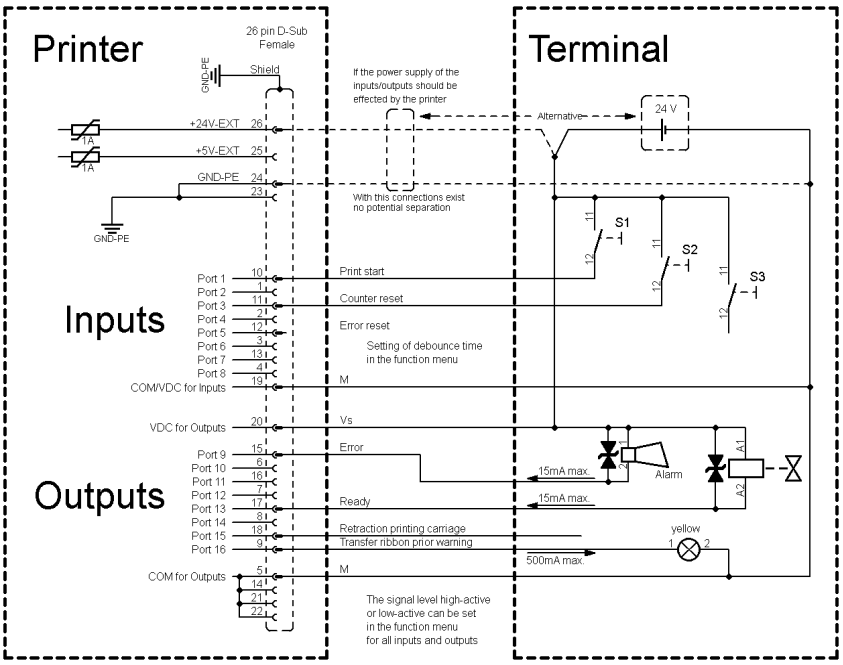


Figure 8

Example 3

Device connection version if 'Option: 2. LED'.

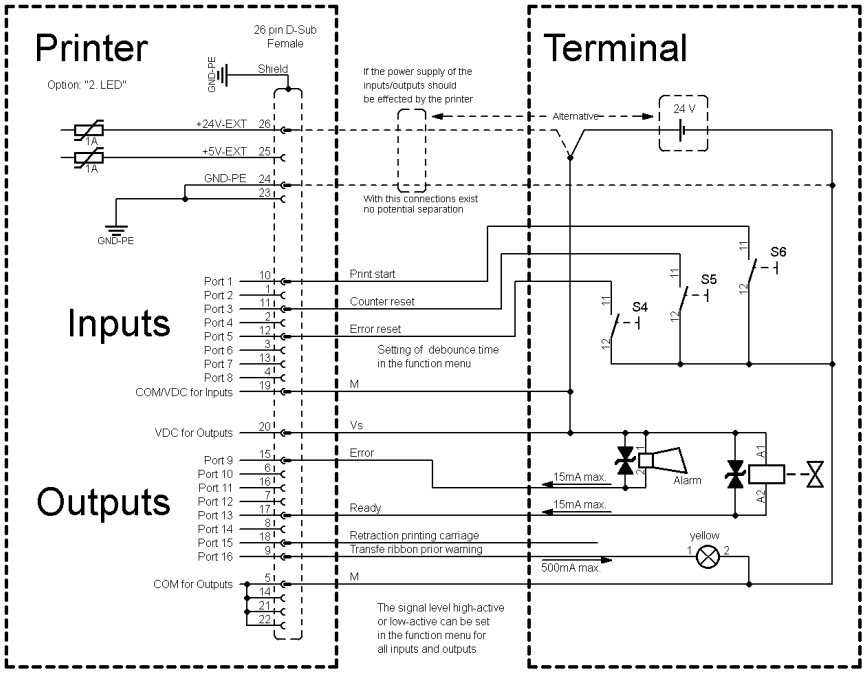


Figure 9

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 minimize 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.

5 Installation and Initial Operation

Unpack/pack the direct print module

CAUTION!

Danger of injury by imprudent handling when lifting or placing the printing system. Risk of crushing by unexpected linear movement of the printing carriage.

⇒ Do not underestimate the weight of the printing system (9 … 16 kg).

⇒ Do not lift the printing system at the hood.

⇒ Protect the printing system against uncontrolled movement.

⇒ Check the direct print module for transport damages.

⇒ Remove the foam transportation safeguards near the printhead.

⇒ Check delivery for completeness.

Scope of delivery

- Print mechanics.
- Control unit with cable.
- Connecting cable.
- Mini controller.
- Manometer.
- Pneumatic tube.
- Push-on connector.
- I/O accessories (mating connector for I/O).
- 1 transfer ribbon roll.
- Empty core, mounted on transfer ribbon rewinder.
- Printhead cleaning foil.
- Product Safety Guide.

NOTICE!

Retain original packaging for subsequent transport.

5.1 Install the Print Mechanics at Machines

NOTICE!

Only trained and qualified technical personnel may carry out mounting, maintenance and repair work in accordance to this instruction.

- At the side parts of print mechanics (C) are two M6 threads (D) on the upper and back side which can be used for the attachment of print mechanics to a machine. The maximum thread depth is 12 mm.
- The connecting cable (A) to control unit can be led from the printing system to top or to the side.
- The pneumatic tube Ø 8 mm (B) can be led from the printing system alternatively to top or to the side.

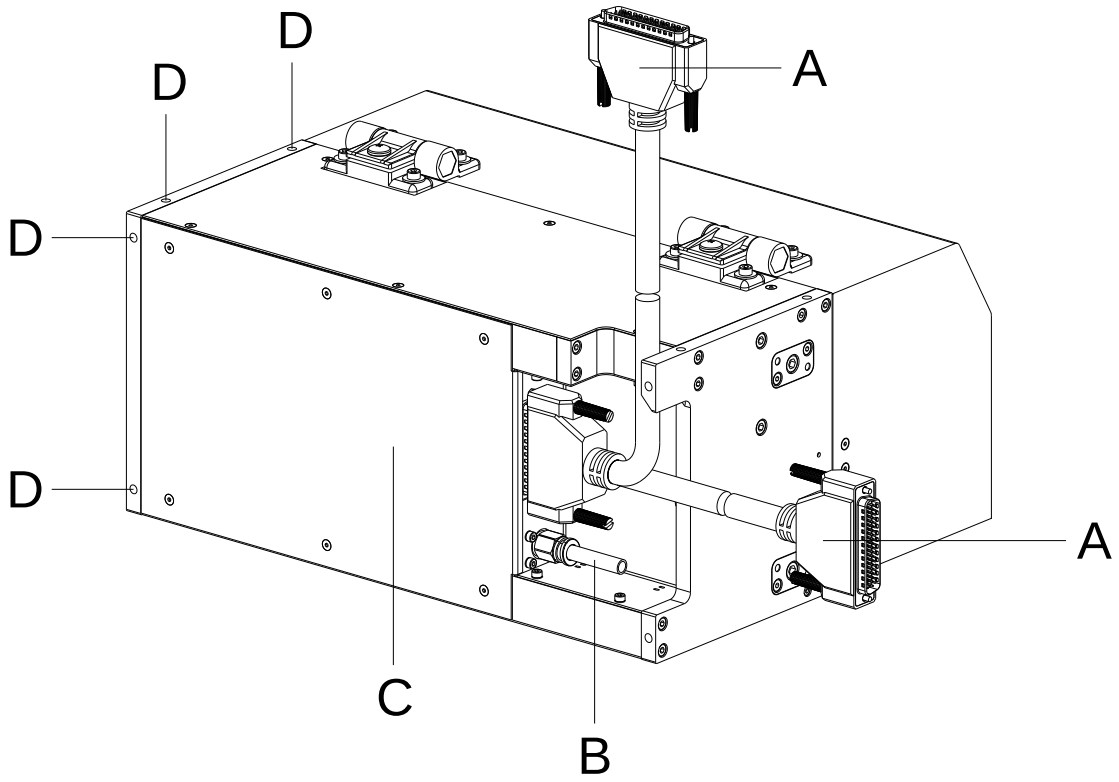


Figure 10

5.2 Installation Position Without Brake

NOTICE!

For integration of the print mechanics into a packaging machine, the following outlined installation positions without the optional brake are approved.

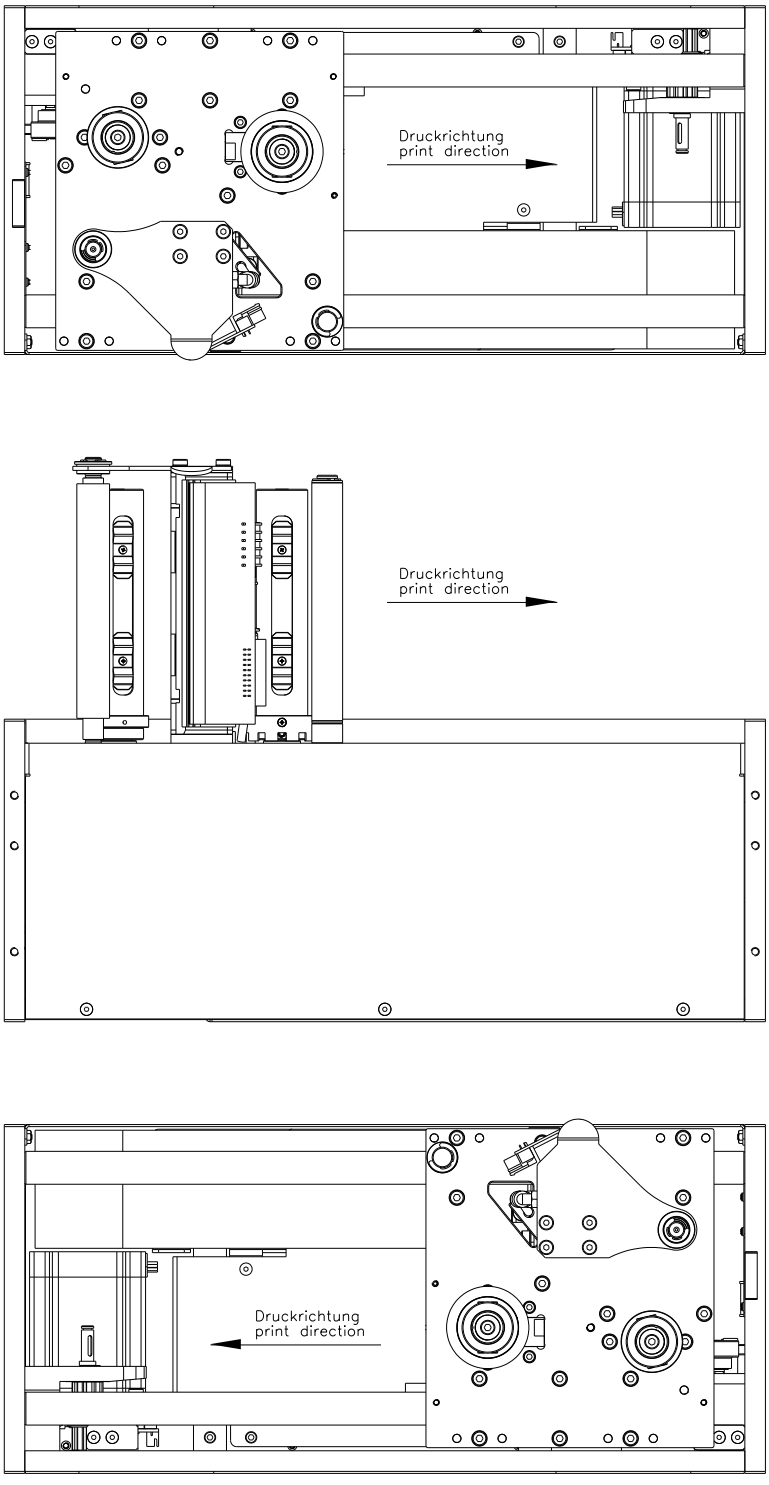


Figure 11

5.3 Installation Position With Brake

The following outlined installation positions are approved.

- Starting from an angle of inclination > 30°, the optionally available brake (A) is mandatory.
- A brake can be dispensed with smaller angles of inclination. However, this must be examined in individual cases.
- Vibrations at the packaging machine can require a brake.

CAUTION!

Danger of injury and malfunctions by uncontrolled movements of the printing carriage.

⇒ Retrofit brake. Otherwise unexpected linear movement of the printing carriage can result (see the outlined installation positions).

⇒ Particularly with zero position at top and in de-energised state (e.g. power failure or switching off the device) the printing carriage moves uncontrolled downwards.

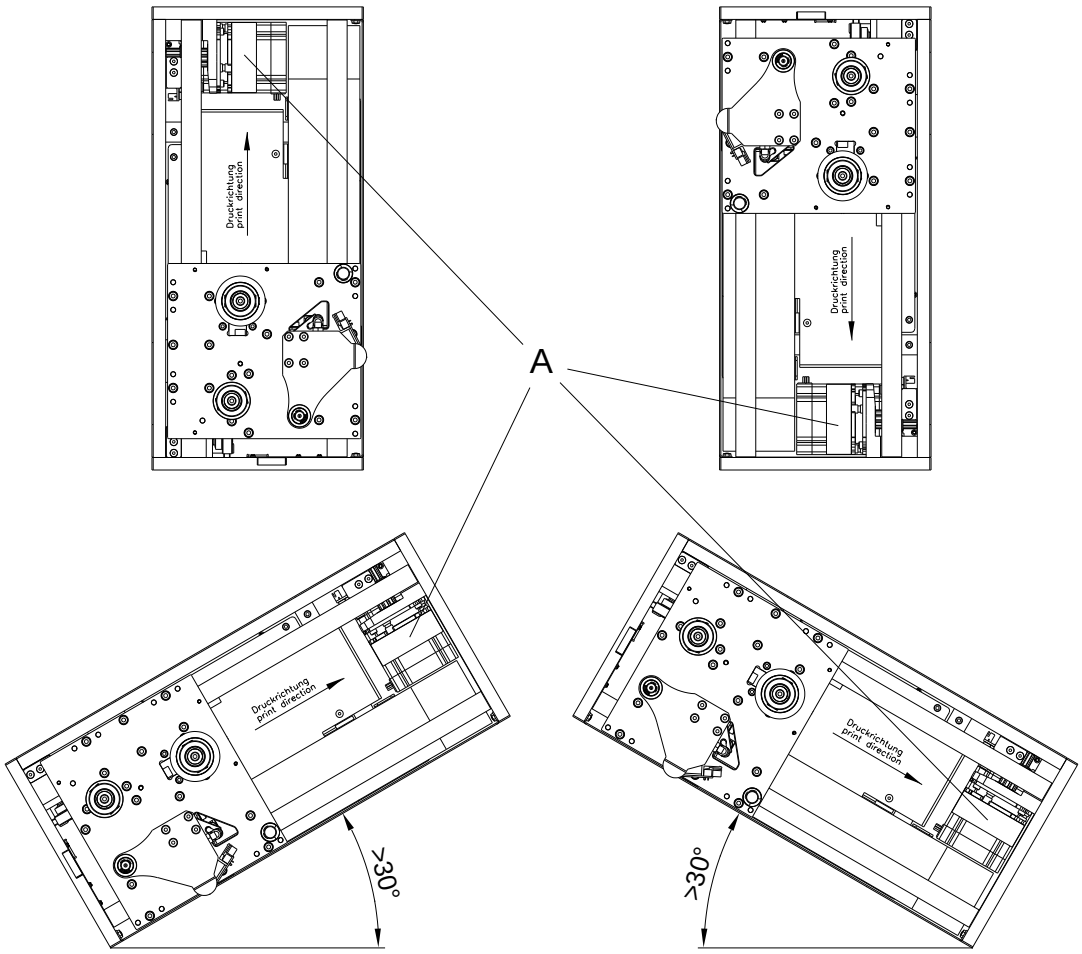


Figure 12

5.4 Mount the Valentin Counter-Pressure Plate

- For the attachment of the optional Valentin counter-pressure plate (A), appropriate threaded holes are designated at the bottom of the print mechanics (D).
  The suitable screws (B) are included with delivery of this option.
- The suitable distance between printhead and counter-pressure plate is already preset (see Figure 14).
- On the bottom face of the carrier of counter-pressure plate (A) are threaded holes M4 (C), which can be used for mounting the unit onto a plate or similar.

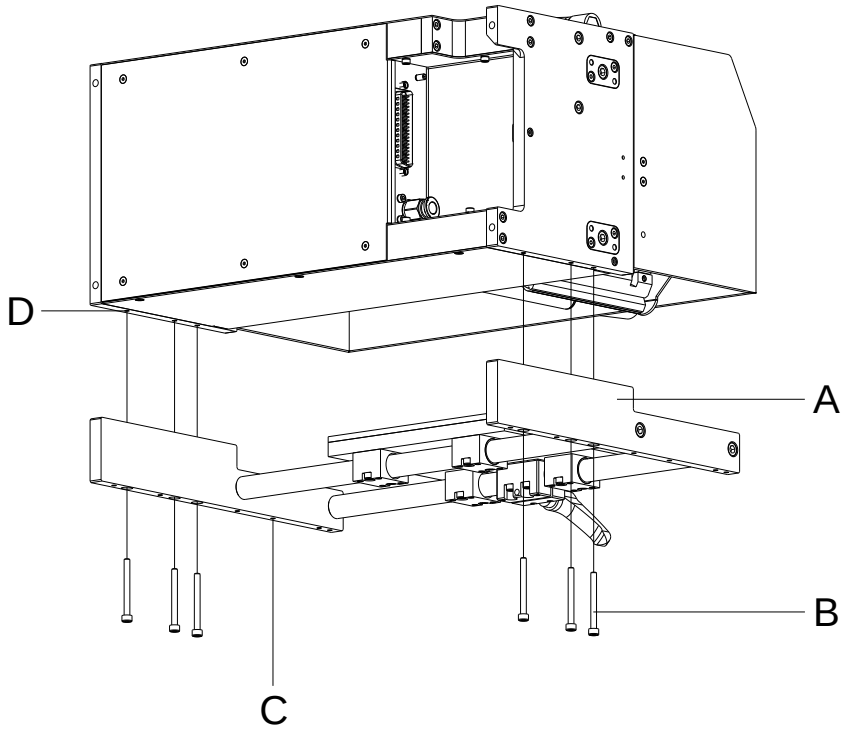


Figure 13

5.5 Use a Customized Counter-Pressure Plate

- The counter-pressure plate (B) should be made of silicone with a hardness of 60 … 65° Shore A and a thickness of 4 mm. The best print results are obtained by vulcanizing the silicone onto an aluminium or steel plate with a thickness of 4 mm. Grind smooth afterwards (average roughness value Ra » 3,2 mm).
- The counter-pressure plate (B) is to be attached parallel to the linear movement of print unit and to the focal line of the printhead (A). Parallelism deviations to the focal line and indentations in the counter-pressure plate of just 1/100 mm can cause a worse print quality at these points.
- The counter-pressure plate must be placed in such a way to get a distance of 1 … 2.5 mm (see illustration) between the printhead (A) and the upper side of the counter-pressure plate (B).

NOTICE!
A distance of 2 mm is recommended.

- For the protection of printhead (A): related to the print length, the counter-pressure plate (B) must be at least 5 mm longer in advance and retardation, i.e. the printhead needs to touch the counter-pressure plate in any case.
- For the protection of printhead (A): related to the printhead width, the counter-pressure plate (B) should be at least 5 mm wider on both sides. Otherwise the edges of the counter-pressure plate can cause damage to the printhead.

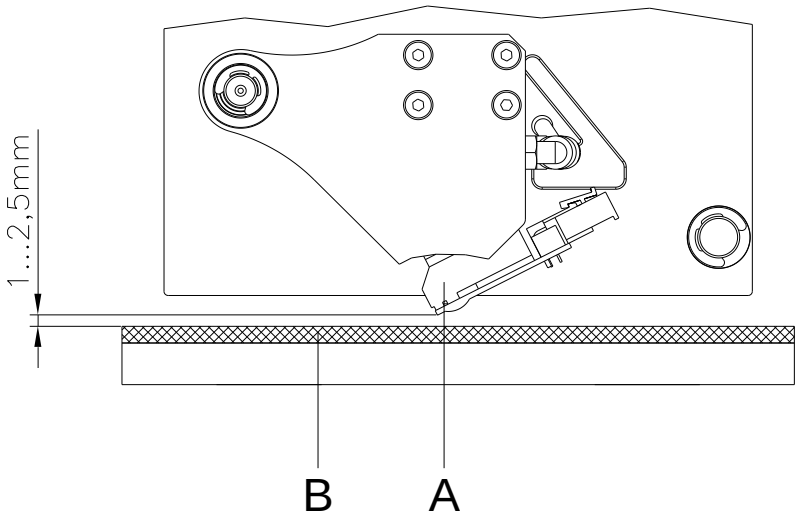


Figure 14

5.6 Connect the Pneumatic Power Supply

- The pneumatic power supply for the printhead mechanics has to be made available a minimum continuous pressure of 4…6 bars in front of the pressure regulator. The maximum pressure in front of the pressure regulator is 10 bars … 4 bars after the pressure regulator.

NOTICE!

A pneumatic power supply of 4…6 bars is recommended.

- The compressed-air has to be dry and oil free.
- The supplied pressure regulator with manometer is connected with a pneumatic tube Ø 8 mm by a push-in fitting to the compressed air supply. The connection between pressure regulator and print mechanics is established by a pneumatic tube Ø 8 mm and an appropriate push-in fitting.

The following points should be observed:

⇒ Place the pressure regulator as near as possible to the print mechanics.

⇒ The pressure regulator is only to operate in the direction of the arrow (see label at pressure regulator). The direction shows the way of the streaming air.

⇒ In no case bend pneumatic tubes.

⇒ Shortening of the pneumatic tubes has to be made with a clean right-angled cut without squashing the tube. If necessary use special tools (available in pneumatic requirements).

⇒ Keep the pneumatic tube as short as possible.

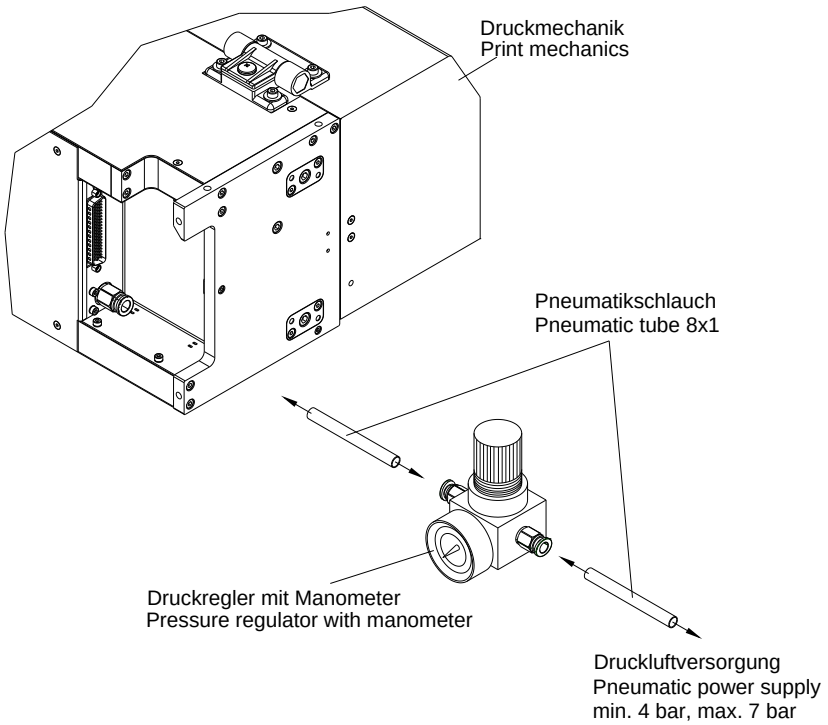


Figure 15

5.7 Install the Control Unit (Panel Enclosure)

- At the side panels of the control unit (A) are two threads M5 which can be used for the attachment of the control unit at a machine. The maximum thread depth is 6 mm.
- At the back panel of control unit (A) are four threads M6 (C) in distance of 57 x 57 mm which can be used for the attachment of the control unit at a machine.
  The maximum thread depth is 8 mm.
- Ex works optionally a mounting bracket (E) is offered which can be used to the pivoting support of control unit (A) to the threaded holes (B). The mounting bracket can be fastened standing or hanging with four screws M6 (D) at a machine.
- Ex works optionally a fixing flange Ø 30 mm or a base clamp Ø 30 mm are offered which can be used to the support of the control unit (A) at the threaded holes (C). The clamping pieces (F) can be integrated into a piping system Ø 30 mm.

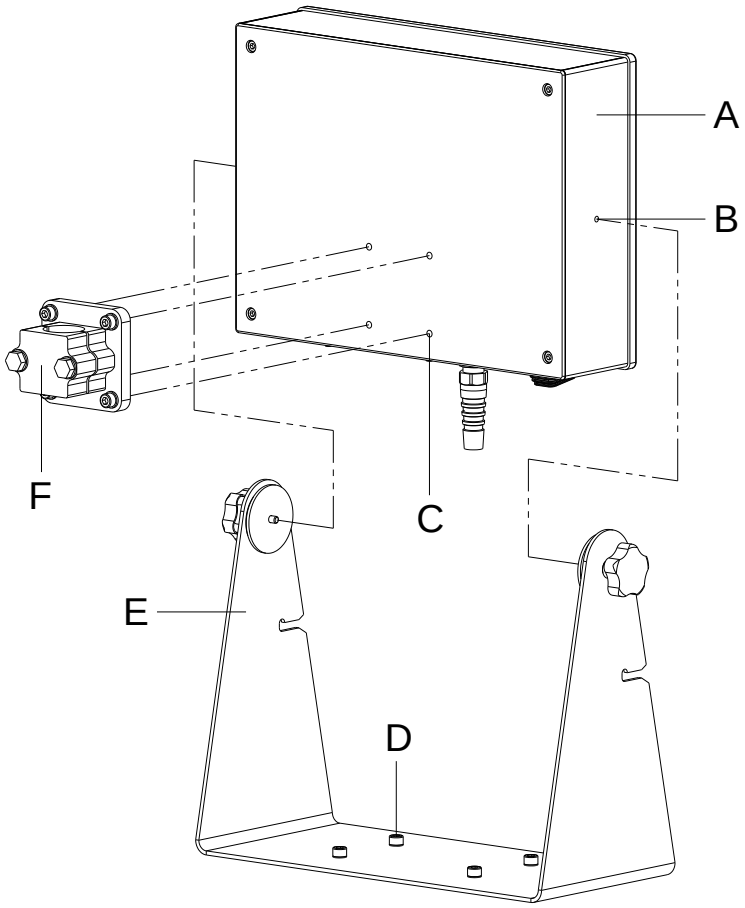


Figure 16

5.8 Install the Control Unit (Desktop Enclosure)

- On the underside of the control unit (A) there are four support feet (B), which are used to place the control unit on a flat surface.
- On the underside of the control unit (A) there are four M6 threads (D) at a distance of 57 x 57 mm, which can be used to attach the control unit to a machine. The maximum thread depth is 8 mm.
- A flange clamp piece Ø 30 mm or a foot clamp piece Ø 30 mm are optionally available ex works, which serve to accomodate the control unit (A)at the threaded holes (D). The clamping parts (C) can be integrated in a pipe system Ø 30 mm.

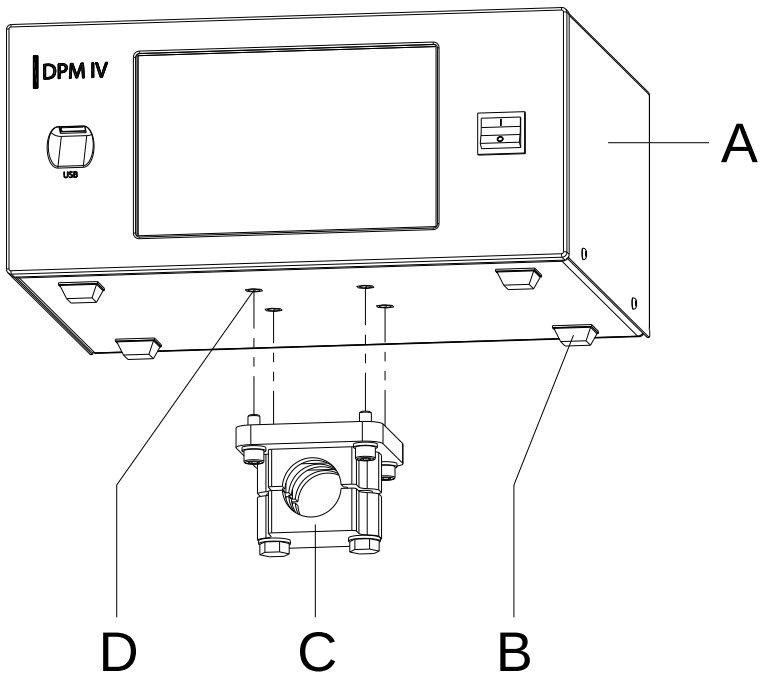


Figure 17

5.9 Install the Protective Cover for the Control Unit (Panel Enclosure)

NOTICE!

By mounting the optional protective cover, the protection class IP 65 according to DIN EN 60529 is achieved for the control unit of DPM IV.

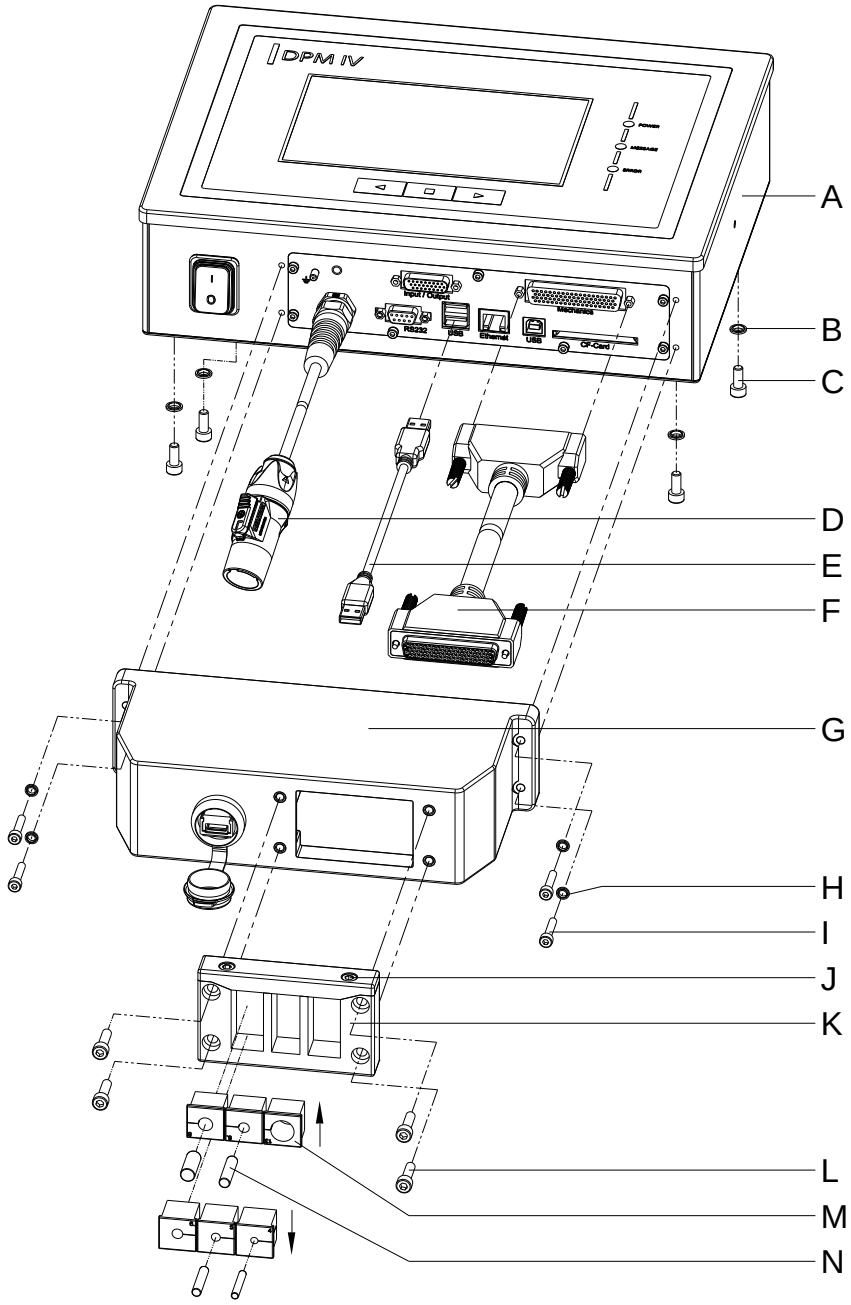


Figure 18

1. Successively remove the four screws (C) on the back on the control unit (A), slide on the sealing rings (B) and screw in the screws (C) again.
2. Connect the connection cable print mechanics/control unit (F) to the control unit (A).
3. If necessary, connect a connection cable for external inputs/outputs to the appropriate socket of the control unit (A).
4. If necessary, connect an Ethernet or USB data cable to the control unit (A).
5. Insert the USB data cable (E) on the inside of the protective cover (E) into the USB socket.
6. Guide the open end of the connection cable print mechanics / control unit (F) through the opening of the protective cover (G). The plug must be tilted sideways. Then guide the power cable (D) and if necessary, the data and I/O cable through the opening of the protective cover (G).
7. Guide the protective cover (G) in the direction of the control unit (A) until the USB data cable (E) can be connected to the control unit (A).
8. Screw the protective cover (G) to the control unit (A) with the four screws (I) and the sealing rings (H).
9. Remove the upper part of the cable entry strip (K) after removing the both screws (J).
10. Remove the cable grommets (M) that fit to the respective connection cables from the cable entry strip (K) and enclose the cables two to three centimeters in front of the protective cover (G).
11. Place the cable entry strip (K) in front of the protective cover and insert the cable grommets (M) with connection cables into the slots. The connection cable print mechanics/control unit (F) must be placed in the upper right corner and the power cable (D) should be placed on the bottom left (see Figure 19).

    NOTICE!

    The side of the cable entry strip (K) with the seal injected must point in the direction of the protective cover (G).

    The smooth, even sides of the grommets (M) must face each other in the middle of the entry strip.

    Unnecessary cable grommets (M) must be closed with the enclosed suitable plugs (N).
12. Fix the upper part of the cable entry strip (K) with the screws (J), so that the connecting cables are still movable.
13. Fix the cable entry strip (K) to the protective cover (G) with the screws (L).
14. Screw tight the upper part of the cable entry strip (K).

NOTICE!

Check that all cables are safely enclosed by the grommets (M) so that no water or dust can enter. Too large grommets and loose cables lead to entering of impurities into the case.

Suitable cable grommets in different sizes are available ex works. The size (diameter) is indicated on the respective grommet.

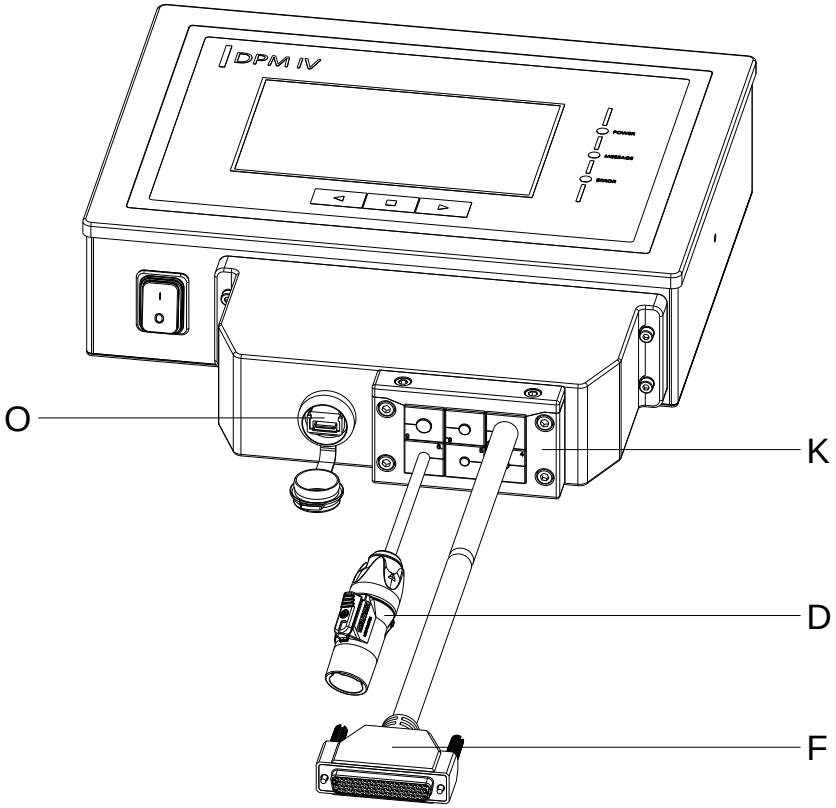


Figure 19

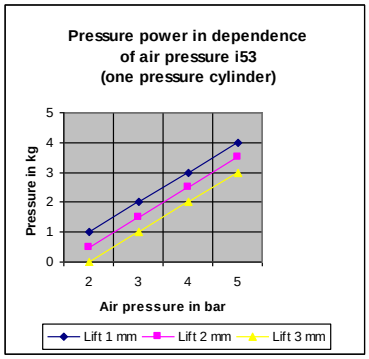
For loading of print data, the integrated USB interface (O) is accessible from the outside.

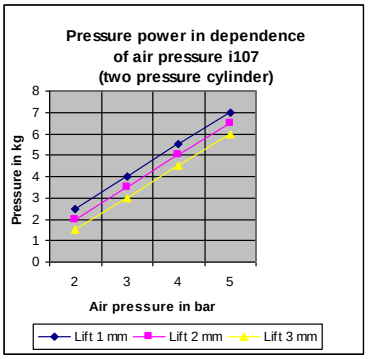
NOTICE!

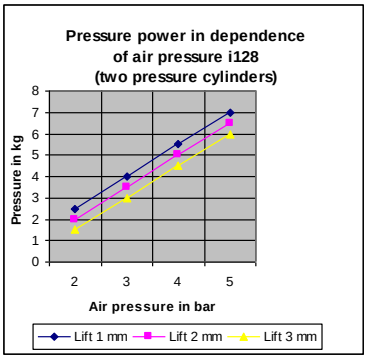
The protection class IP 65 is only achieved if the cap of the interface is firmly closed, i.e. no USB stick or data cable is inserted.

Do not bend the connection cable (D, F and others) directly at the cable entry strip (K).

5.10 Adjust the Pressure Power







The pressure power of the printhead can be set with the pressure regulator. The values are indicated in the following table:

NOTICE!

If the pressure power is set too low then the printhead has no more contact to the counter-pressure plate. This damages the printhead due to the missing heat dissipation during the printout. In case of too low pressure an error message appears. This error message is to protect the printhead for overheating only and is not to use as print quality control (the control suffers with too low pressure, too).

The lift indicates the distance between printhead and brake stator in 'print less' status.

	DPM IV 53	DPM IV 107	DPM IV 128
Recommended pressure power:	30 N	40 N	40 N
Max. pressure power:	36 N	48 N	48 N

As the mechanical wear and tear of the printhead increases with the pressure power, the pressure power should be as low as possible.

5.11 Connect the Direct Print Module

Connect to the power supply

The direct print module is equipped with a versatile power supply unit. The device may be operated with a mains voltage of 110 … 240 V AC 50-60 Hz without any adjustments or modifications.

CAUTION!

The direct print module can be damaged by undefined switch-on currents.

⇒ Set the power switch to '0' before plugging in the direct print module.

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

Connect to a computer or to a computer network

NOTICE!

Insufficient or missing grounding can cause faults during operation.

Ensure that all computers and connection cables connected to the direct print module are grounded.

⇒ Connect the direct print module to a computer or network with a suitable cable.

5.12 Before Initial Operation

1. Mount the print mechanics.
2. Connect all cables between the print mechanics and control unit and protect the cables against unintentional unscrewing.
3. Connect the compressed air line.
4. Connect the control unit and PC by printer interface.
5. Connect the control unit and packaging machine by inputs and outputs.
6. Connect the power cable of control unit.

5.13 Print Control

As the direct print module is always in control mode, print orders can only be transmitted but not started via the existing interfaces (serial, USB or Ethernet). The print is started by a start signal to the ‘print start-control input’. So that the control unit detects when the start signal can be set, it is possible and mostly necessary to track the print status via the control outputs.

5.14 Initial Operation

⇒ After all connections are completed, switch on the control unit.

⇒ Insert transfer ribbon (see chapter 5.15, page 48).

5.15 Load Transfer Ribbon

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 printer malfunctions and the guarantee can expire.

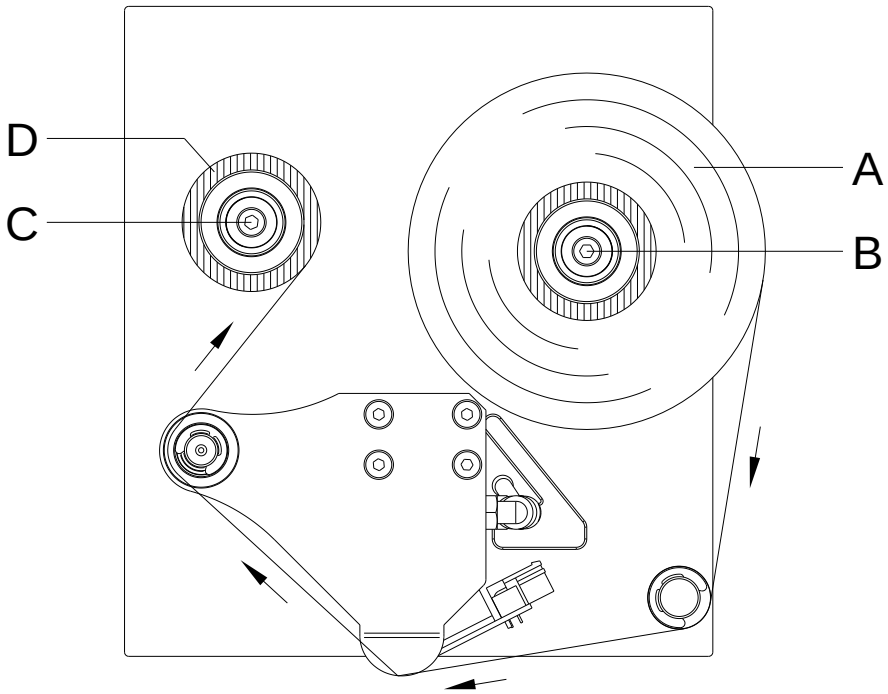


Figure 20

NOTICE!

Before loading a new transfer ribbon roll, we recommend to clean the printhead with printhead and roll cleaner (97.20.002). For detailed information, please see page 102).

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 cover of print mechanics.

CAUTION!

Risk of scraping when inserting the transfer ribbon res. when removing the used transfer ribbon!

⇒ Be careful with the bearing plate edges!

2. Push a new transfer ribbon roll (A) onto the unwinder (B) to stop.

NOTICE!

The colour of the transfer ribbon must be on the outside.

3. Push an empty rewinding roll (D) onto the rewinder (C) to stop.
4. Insert the transfer ribbon as shown in the illustration.
5. Tape the transfer ribbon with an adhesive tape to the empty roll and tighten the transfer ribbon with some turns of the roll.
6. Close the cover of print mechanics.

CAUTION!

Risk of crushing and damage to objects when closing the dust cover!

⇒ When closing the dust cover, ensure that neither parts of the body nor objects (e.g. clothes, jewelery) are clamped!

CAUTION!

Impact of electrostatic material on people!

⇒ Use antistatic transfer ribbon because electrostatic discharge can occur when removing.

5.16 Zero Point Adjustment

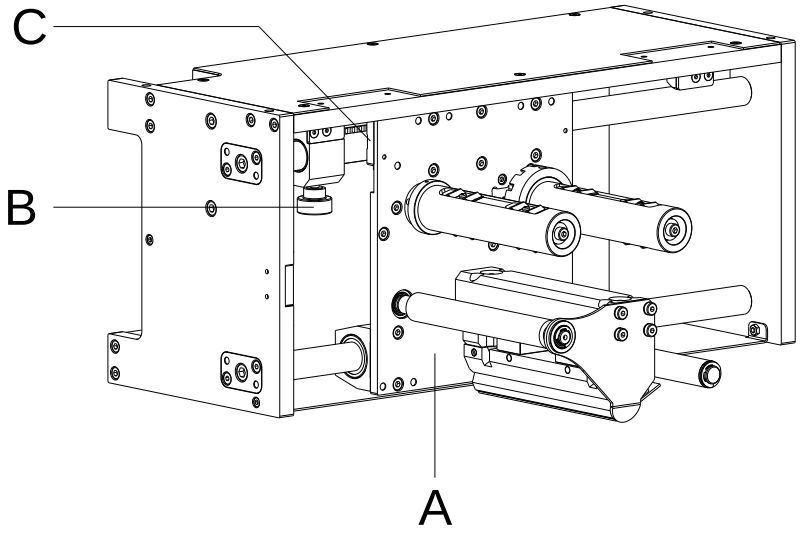
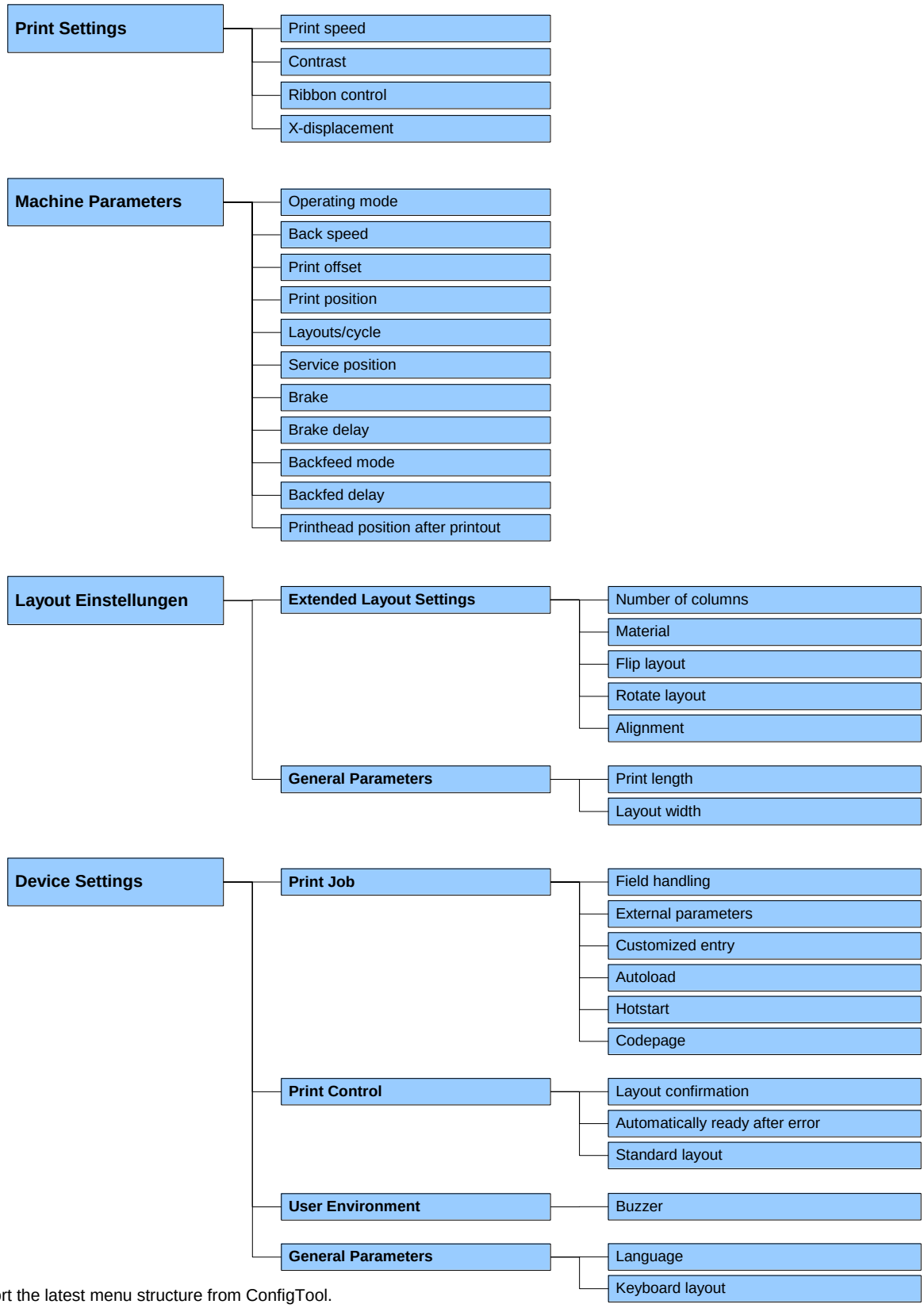


Figure 21

1. Move the start position of the printing carriage (A) with the slider (B).
2. If the slider is at shaft end (side panel), the maximum print length is available.
3. By adjusting the printer zero point, the usable print area is shortened.
4. Use the zero point adjustment for adjusting the print position onto the foil.
5. The zero point monitoring is made by an inductive proximity switch (C).

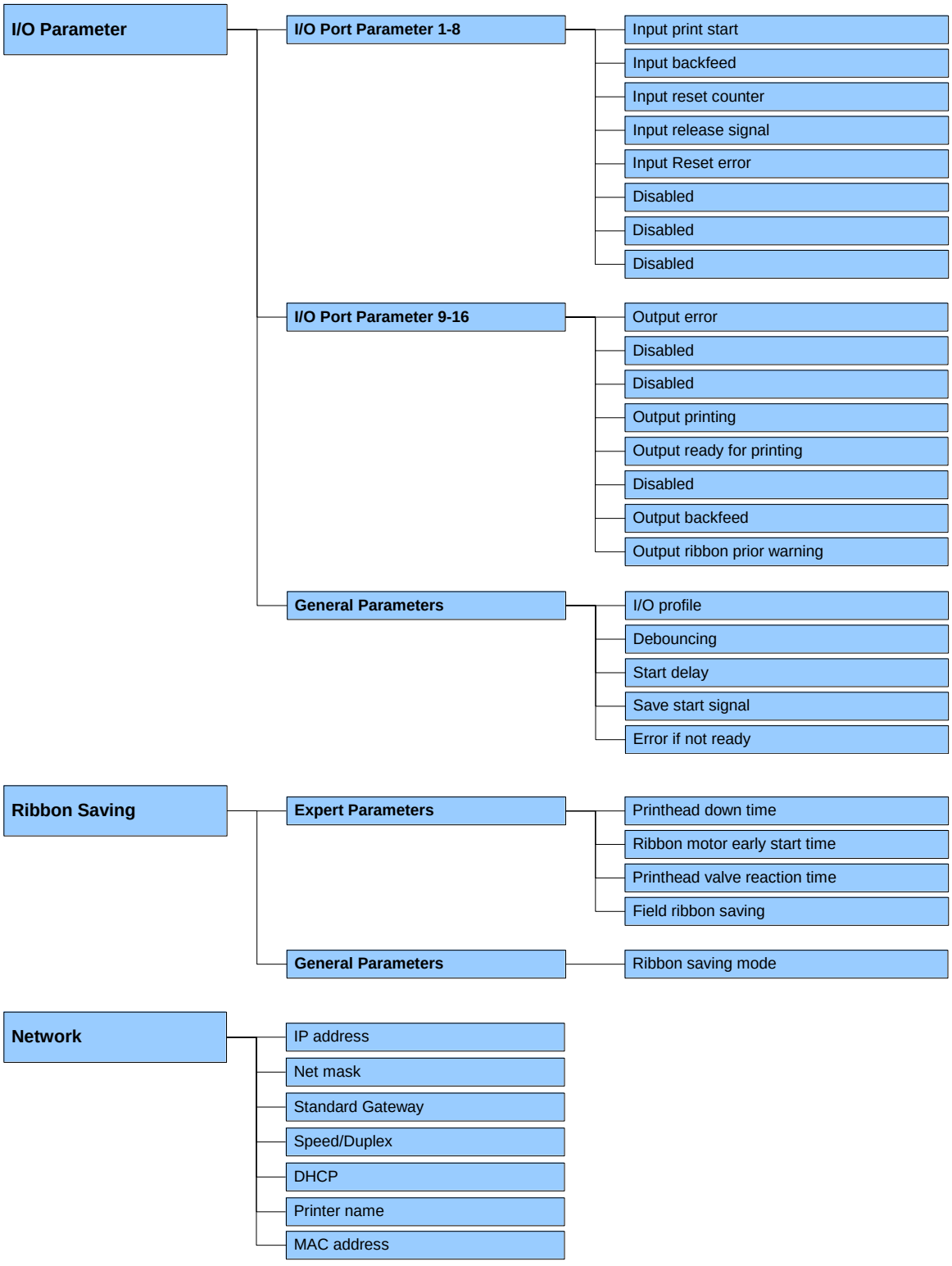
6 Function Menu

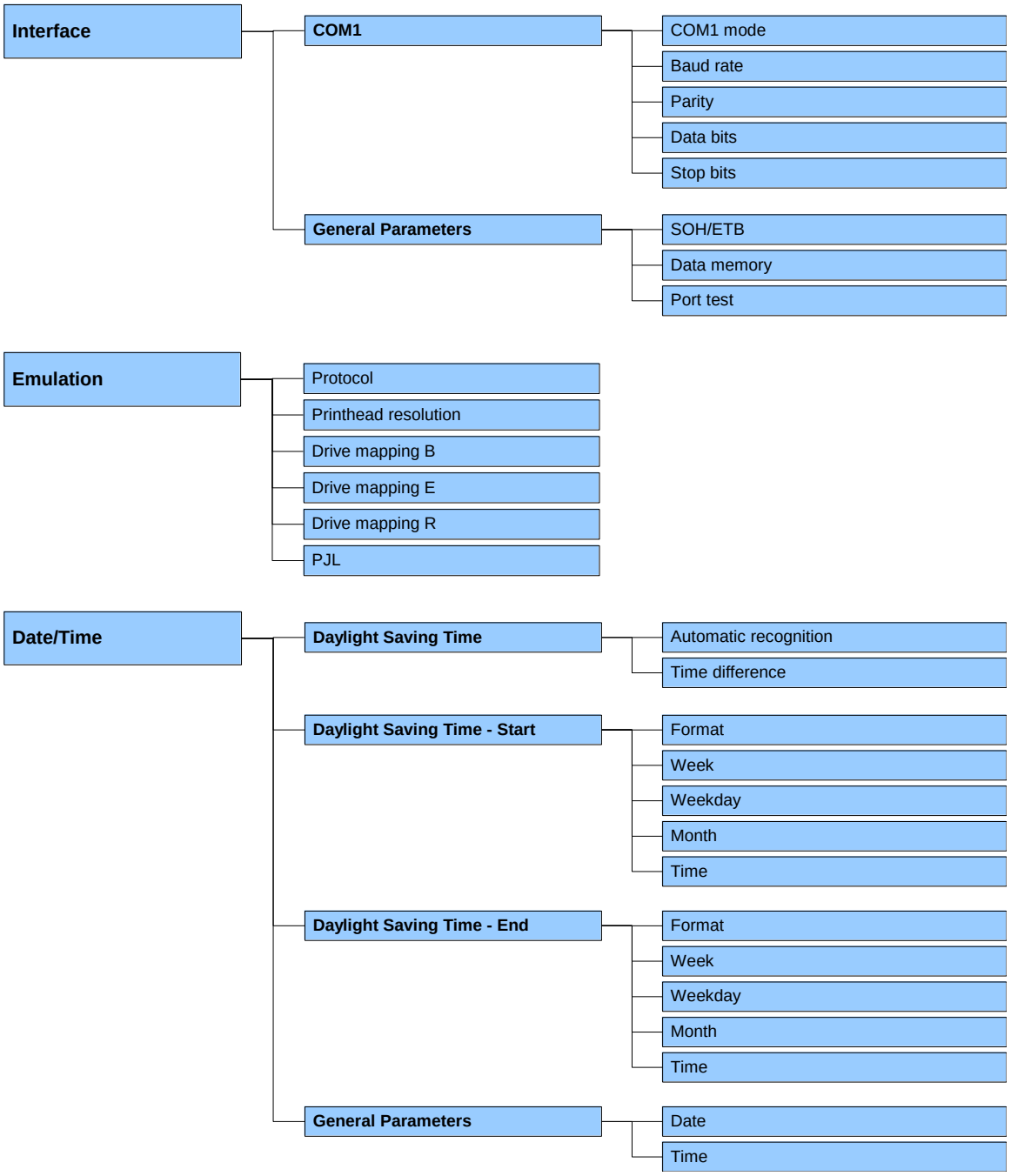
6.1 Menu Structure

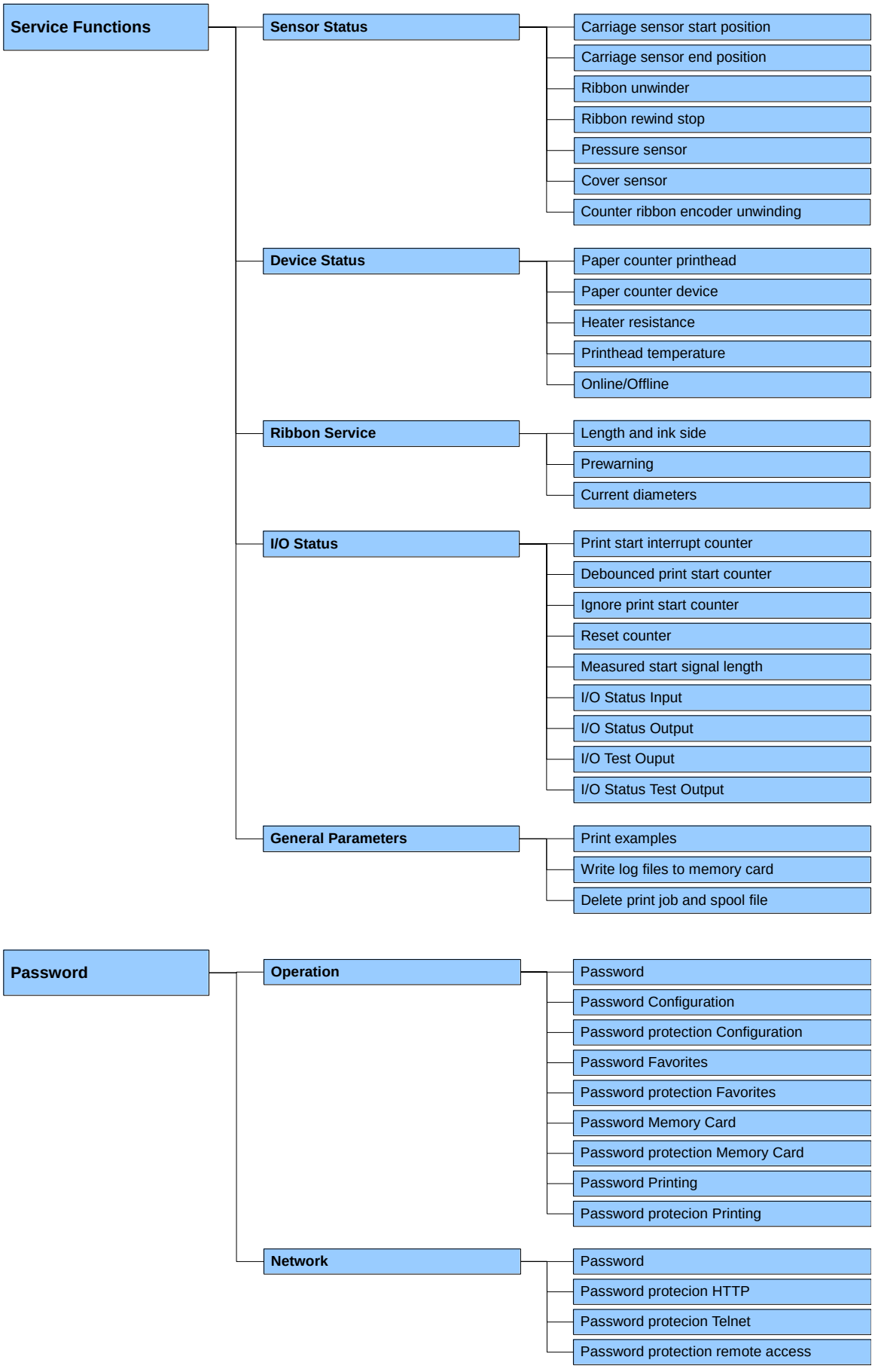


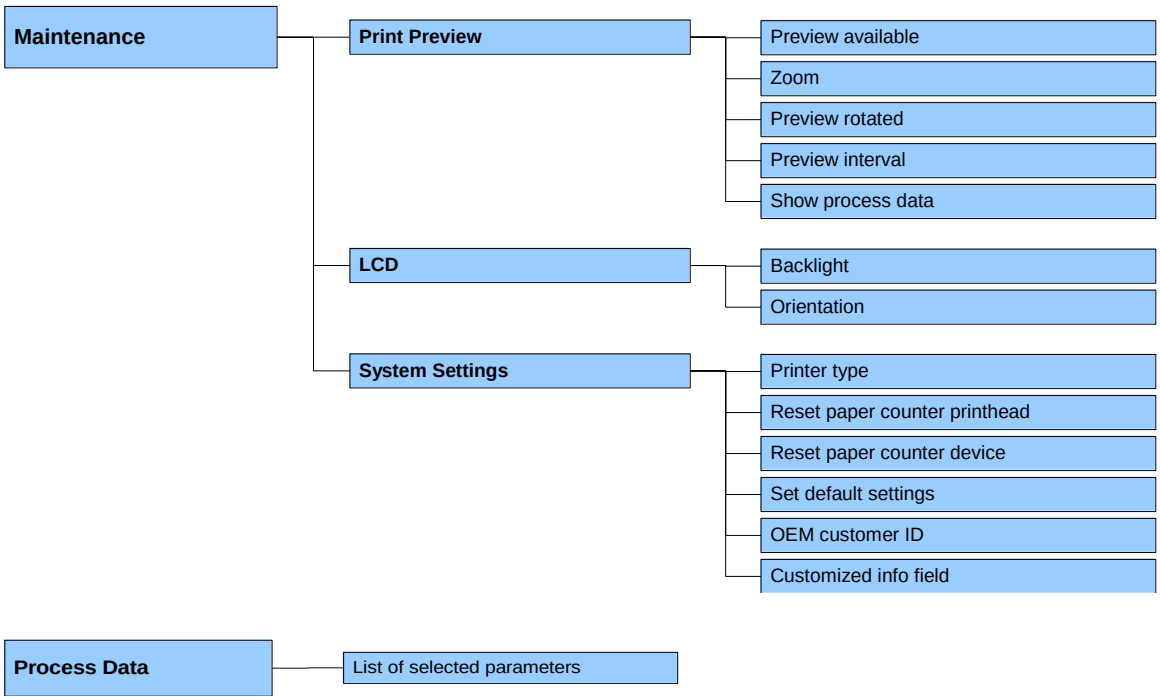
Export the latest menu structure from ConfigTool.

Printer settings --> Configuration --> Export

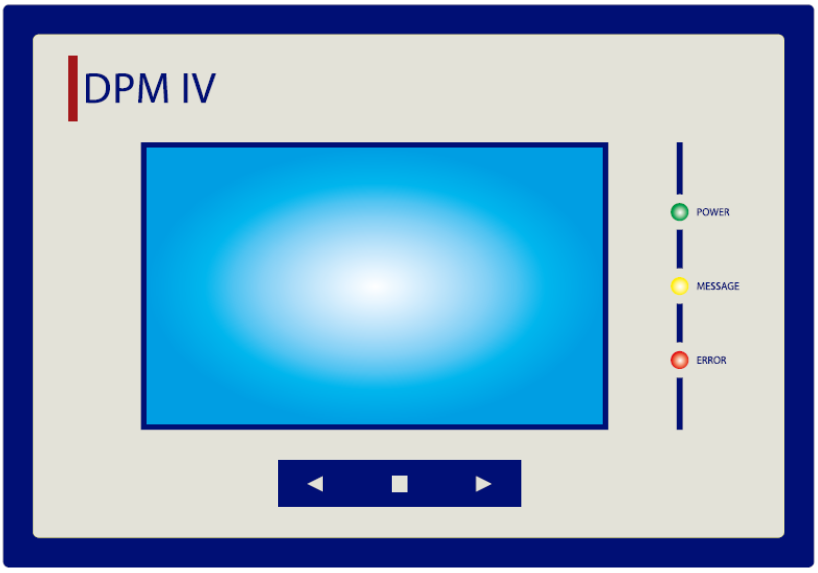

I/O Parameter
I/O Port Parameter 1-8
Input print start
Input backfeed
Input reset counter
Input release signal
Input Reset error
Disabled
Disabled
Disabled
I/O Port Parameter 9-16
Output error
Disabled
Disabled
Output printing
Output ready for printing
Disabled
Output backfeed
Output ribbon prior warning
General Parameters
I/O profile
Debouncing
Start delay
Save start signal
Error if not ready
Ribbon Saving
Expert Parameters
Printhead down time
Ribbon motor early start time
Printhead valve reaction time
Field ribbon saving
General Parameters
Ribbon saving mode
Network
IP address
Net mask
Standard Gateway
Speed/Duplex
DHCP
Printer name
MAC address


Interface
COM1
COM1 mode
Baud rate
Parity
Data bits
Stop bits
General Parameters
SOH/ETB
Data memory
Port test
Emulation
Protocol
Printhead resolution
Drive mapping B
Drive mapping E
Drive mapping R
PJL
Date/Time
Daylight Saving Time
Automatic recognition
Time difference
Daylight Saving Time - Start
Format
Week
Weekday
Month
Time
Daylight Saving Time - End
Format
Week
Weekday
Month
Time
General Parameters
Date
Time


Service Functions
Sensor Status
Carriage sensor start position
Carriage sensor end position
Ribbon unwinder
Ribbon rewind stop
Pressure sensor
Cover sensor
Counter ribbon encoder unwinding
Device Status
Paper counter printhead
Paper counter device
Heater resistance
Printhead temperature
Online/Offline
Ribbon Service
Length and ink side
Prewarning
Current diameters
I/O Status
Print start interrupt counter
Debounced print start counter
Ignore print start counter
Reset counter
Measured start signal length
I/O Status Input
I/O Status Output
I/O Test Ouput
I/O Status Test Output
General Parameters
Print examples
Write log files to memory card
Delete print job and spool file
Password
Operation
Password
Password Configuration
Password protection Configuration
Password Favorites
Password protection Favorites
Password Memory Card
Password protection Memory Card
Password Printing
Password protecion Printing
Network
Password
Password protecion HTTP
Password protecion Telnet
Password protection remote access


Maintenance
Print Preview
Preview available
Zoom
Preview rotated
Preview interval
Show process data
LCD
Backlight
Orientation
System Settings
Printer type
Reset paper counter printhead
Reset paper counter device
Set default settings
OEM customer ID
Customized info field
Process Data
List of selected parameters

6.1 Operation Panel



Display	The header of the display indicates the printing system type. The display provides information about the status of the printing system and the print job, indicates errors and displays the device settings in the menu.
◄	No print job active or stopped: Return from service position.
■	Pause and resume the current print job.
►	Print job active, not stopped: Manual print start. Print job active, stopped: Move to service position.
	Power LED Printing system is switched On.
	Message LED No function.
	Error LED The printing system is in error mode. The display shows the error number (see chapter 10, page 113).

6.2 Print Settings

Speed

Indication of print speed in mm/s (see Technical Data). The print speed can be determined for each print order anew.
The setting of print speed affects also the test prints.
Value range: 50 … 500 mm/s
Step size: 10 mm/s

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 %

Ribbon control

Examination if the transfer ribbon roll is empty and/or if the ribbon was torn at the unwinding roll. The current print order is interrupted and an Error Message appears at the printer display.

Off: The ribbon control is deselected, i.e. the printer continues without an error message.
On, weak sensibility (default): The printer reacts at approx. 1/3 more slowly to the end of the transfer ribbon.

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

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.

6.3 Machine Parameters

Operating mode

Number of pieces:
A print order with a defined number of pieces is transferred. After the generating process the target number and the actual number of pieces is shown in the display. A cycle is started via signal input 1. With each cycle the actual number of pieces is increased by the number of printed layouts. In case the target number of pieces is reached the print order is finished and the display shows again the main menu.

Continuous:
A print order is transferred. After the generating process the number of printed layouts is shown in the display. A cycle is started via signal input 1. With each cycle the number of printed layouts is increased. The print order is active as long as it is terminated by the user or in case of new data transmission.

Test mode:
This operating mode corresponds to mode 2. After the return of the print unit to the zero point of the machine, however, internally a further cycle is started (endurance test).

Direct start:
A print order is transferred. After termination of generating process the print order is executed without an external signal.

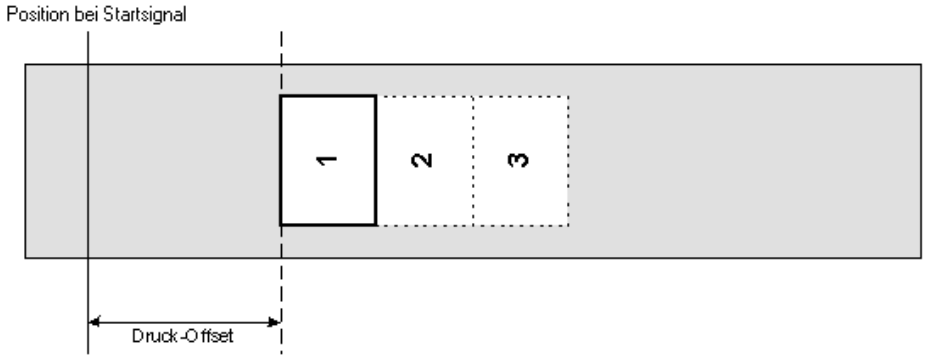
Back speed

Indication of back speed of print mechanics after print end in mm/s. Each cycle of the machine consists of printing and return to the zero point of machine. The print speed and back speed can be set separately.
Because of this value you can select for low machine clock cycles an operating method which saves the material and increases in this way the life of the printhead.

Because of the mass moment of inertia it could be better to reduce the speed at an installation position of the print unit at >30° horizontal.
Value range: 50 … 700 mm/s.

Print offset

Indication of distance of the layout (res. the first layout in case more layouts per cycles are to be printed) to the zero point of machine.
Value range: 0 … 93 mm
Default: 0 mm

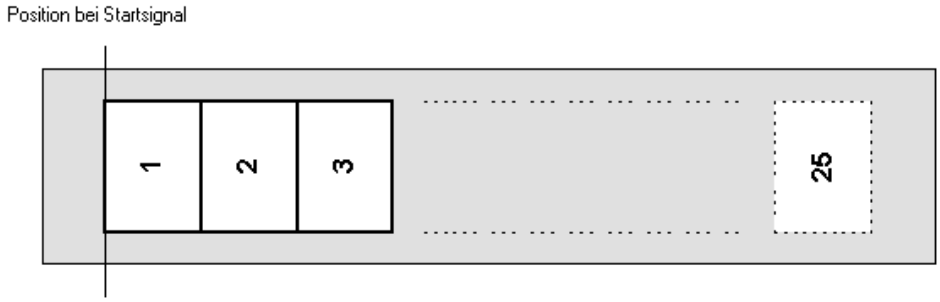


Print position

Indication of start position of print carriage in mm.
Value range: 0 … 630 mm
Default: 0 mm

Layouts/cycle

Indication of the number of printed layouts per print start (cycle).
Value range: 1 … 25.



Brake

If the printing system is mounted in vertical position, the optional brake must be available and set to **On**. If the printing system is mounted in horizontal or in varying position, the optional brake (if available) is set to **Off**, in order to avoid a decelerating during printing.

Brake delay

Indication of delay in 1/100 seconds. The closing of brake can be delayed. If during the delay time no start impulse for printing a new cycle is effected, then the brake is closed. If the delay time is set to 0, the brake is closed immediate after return to zero point of machine.

Backfeed mode

Automatic: At the end of the print cycle, the printing carriage automatically moves back to the start position and the printer waits for the next start signal

External: At the end of the print cycle, the printing carriage stops res. moves to the *Printhead position after printout*, if this is set. The return of the printing carriage in the start position is released by the control input *Backfeed*.

Backfeed delay

Time setting between end of print cycle and start of return of the printing carriage to zero point.
Default: 50 ms.

Printhead position after printout

Indication of position (relative to the start point) which is approached at the end of the print cycle, if the *Backfeed mode* is set to *External*. The printer waits in this position until the control input *Backfeed* is set and then moves back to the start position.
Value range: 0 … 999.9 mm

NOTICE!

With the setting 0 mm, the printing cycle stops immediately at the end of the print cycle.

6.4 Layout Settings

6.4.1 Extended Layout Settings

Number of columns

Indication of width of one layout as well as how many layouts are placed side by side on the backing paper.
With this print module, several columns can be printed, i.e. the information of one column can be printed several times (depending on its width) on a layout. Caused by this the use of the complete print width is possible and the generating time is enormously reduced.

Material

Selection of the used transfer ribbon material.

Flip layout

The axis of reflection is in the middle of the layout. If the layout width was not transferred to the direct print module, automatically the default layout width i.e. the width of the printhead is used. It is recommended to use layouts with the same width as the printhead. Otherwise this can cause problems in positioning.

Rotate layout

According to standard the layout is printed ahead with a rotation of 0°. If the function is activated, the layout is rotated by 180° and printed in reading direction.

Alignment

The adjustment of layout is effected only after *Flip/Rotate layout*, i.e. the adjustment is independent of the functions *Flip layout* and *Rotate layout*.

Left = The layout is aligned at the left-most position of printhead.

Centre = The layout is aligned at central point of printhead.

Right = The layout is aligned at right-most position of printhead.

6.4.2 General Parameters

Print length

Indication of way the print mechanics has to move. The print length depends on the length of the print mechanics.

Layout width

Indication of the layout width in mm.

6.5 Device Settings

6.5.1 Print Job

Field handling

Off: The complete print memory is deleted.
Keep graphic: A graphic res. a TrueType font is transferred to the direct print module once and stored in the direct print module internal memory. For the following print order only the modified data is transferred to the direct print module. The advantage is the saving of transmitting time for the graphic data.
The graphic data created by the direct print module 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 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 direct print module. All graphics and TrueType fonts are again printed.

NOTICE!

Exception: With column printing always full columns must be printed (number of pieces always multiple of the columns). Deleted columns are not restored.

External parameters

Layout dimension only: The parameters for layout length, gap length and layout width can be transferred to the printing system. All other parameter settings are to be made directly at the printing system.
On: Sending parameters such as speed and contrast via our design 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.

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.

Autoload

On: A layout loaded once from CF card, can be reloaded after a restart of the printing system automatically.

Procedure: The used layout is saved onto CF card. The layout is loaded from CF card and printed. After switching the printing system Off and again On, the layout is loaded from CF card automatically and can be printed again.

NOTICE!

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

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

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 printer.

Hotstart

On: Continue an interrupted print order after switching on the printer anew
Off: No question appears at the display. In this case the stored default value is printed 11.1, page 123).

Codepage

Indication of the font used in the direct print module.
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 mentioned character sets on www.carl-valentin.de/downloads/codepages

6.5.2 Print Control

Layout confirmation

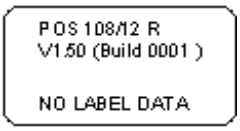
On: A new print order is only printed after confirmation at the device. An already active continuing print order is printed as long as the confirmation is effected at the device.
Off: No query appears at the display of control unit.

Auto ready after error

On: If an error occurred during printing, whose removal can be recognized by the module (e.g. transfer ribbon end), then the module changes after the error correction immediately in the 'ready' mode.
Off: After removal and confirmation of error, the module changes into 'stopped' mode.

Standard layout

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



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

6.5.3 User Environment

Buzzer

On (1-7): An acoustic signal is audible when pressing a key.

Off: No signal is audible.

6.5.4 General Parameters

Language

Selection of language the display indicates texts in the graphic 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, Estonian.

Keyboard layout

Selection of region for the desired keyboard layout. The following possibilities are available: German, English, French, Greek, Spanish, Swedish, US American, Russian.

6.6 I/O Parameters

6.6.1 I/O Port Parameters 1-8

Input print start

Input reset error

Input reset counter

Input external print release (default: disabled)

Disabled

Disabled

Disabled

Disabled

6.6.2 I/O Port Parameters 9-16

Output error

Output print order active

Output generation

Output printing

Output ready

Output error

Output backfeed

Output ribbon prior warning

6.6.3 General Parameters

I/O profile

Selection of existing configurations *Std_Direct* (factory setting), *StdFileSelDirect, SP_Direct0* or *Old_Direct0*.

The corresponding assignment is indicated in chapter 4.1, page 23.

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.

Start signal delay (intermittent mode)

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

Save signal

On: The start signal for the next layout can already be released during printing the current layout. The signal is registered from the printing system. The printing system starts printing the next layout immediately after finishing the current one. Therefore time can be saved and performance be increased.
Off: The start signal for the next layout can only be released if the current layout 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.

Not ready: error

On: If a print order is active but the direct print module is not ready to process the order (e.g. if it is already in 'printing' mode), then an error message appears.
Off: No error message appears.

6.7 Ribbon Saving

Ribbon saving mode	Off	No ribbon saving.
	Standard	Maximum ribbon saving performance, i.e. with this setting there is no loss of transfer ribbon (apart from the safety distance of 1 mm, so the print fields are not printed one into the other). No settings are allowed with which the ribbon saving no more cannot be achieved. This particularly applies for the print offset, which can only be adjusted now in the valid range.

6.7.1 Expert Parameters

Printhead down time

This is used from ribbon saving algorithm for the calculation of start time of printhead downwards movement.

Ribbon motor early start time

This value is added to the acceleration time of transfer ribbon movement. Time indication for the time between 'motor reached material speed' and 'printhead burns'.

If the same value is entered as for PhDownT, the printhead upwards movement is not started before the transfer ribbon motor reached the material speed.

Printhead valve react time

It is calculated when the printhead upwards movement is started.

Field ribbon saving mode

Off: Field ribbon saving mode Off.
PHOnly: Only the printhead is moved. The transfer ribbon is not stopped.
Normal: Field ribbon saving is executed only if the transfer ribbon motor is completely stopped.
Strong: Field ribbon saving is executed, even if the transfer ribbon motor is not stopped.

6.8 Network

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.

6.9 Interface

6.9.1 COM1

COM1 mode
Off: serial interface Off
On (mode 1): serial interface On
On (mode 2): serial interface On; no error message appears in case of a transmission error

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

Parity
None: No parity
Even: Even parity
Odd: Odd parity

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

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

6.9.2 General Parameters

SOH/ETB
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.

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

Port test
Check whether the data are transferred via the interface.

6.10 Emulation

Protocol

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

The printer performs a restart and ZPL II® commands are transformed into CVPL commands internally by the printer and then executed by the printer.

Printhead resolution

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

NOTICE!

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

Drive mapping

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

is rerouted to the corresponding Valentin drives
A: CF
R: RAM disk
U: USB stick

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 printer and be stored permanently.

NOTICE!

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

PJL (Printer Job Language)

Status information regarding the print order can be indicated.

6.11 Date/Time

6.11.1 Daylight Saving Time (DST)

Daylight saving time
On: Printer automatically adjust clock for daylight saving changes.
Off: Summertime is not automatically recognized and adjusted.

DST difference (HH:MM
Indication of time difference in hours and minutes for summer/winter time changeover.

6.11.2 Start Daylight Saving Time

DST start (format)
Selection of format to enter the start of the daylight saving time (European format).

DD = day	WW = week	WD = weekday
MM = month	YY = year	NWD = only next day is taken into consideration

DST start date (week)
Selection of the week when the daylight saving time should begin.

DST start date (weekday)
Selection of weekday when the daylight saving time should begin.

DST start date (month)
Selection of month when the daylight saving time should begin.

DST start time (HH:MM)
Selection of time when the daylight saving time should begin.

6.11.3 End Daylight Saving Time

DST end (format)
Selection of format to enter the end of the daylight saving time.
The example shows the standard settings (European format).

DST end date (week)
Selection of the week when the daylight saving time should end.

DST end date (weekday)
Selection of the weekday when the daylight saving time should end.

DST end date (month)
Selection of the month when the daylight saving time should end.

DST end time (HH:MM)
Selection of time when the daylight saving time should end.

6.11.4 General Parameters

Date (DD.MM.YY)
Indication of current date.

Time (HH:MM:SS)
Indication of current time.

6.12 Service Functions

6.12.1 Sensor Status

Carriage sensor left Verifies the left stop of printing carriage.

Carriage sensor right Verifies the right stop of printing carriage.

Ribbon encoder winder Indication of value 0 to 3 for the status of transfer ribbon rewinding roll. Indication of transfer ribbon rewinding roll status.
4 states are indicated (no marking in photocell, marking from right, marking from left, marking completely in photocell).

Pressure sensor Indication of 0 or 1 for compressed air control
0 = Compressed air not available
1 = Compressed air available

Head Indication of 0 or 1 for position of cover
0 = cover open
1 = cover closed

6.12.2 Device Status

Paper counter printhead Indication of printhead attainment in meters.

Paper counter machine Indication of direct print module attainment in meters.

Heater resistance To achieve a high print quality, the indicated Ohm value must be set after replacing the printhead.

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 direct print module display.

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

Standard: Off

Online: Data can be received by interface.

Offline: Received data are not processed. If the module is again in Online mode then new print orders can be again received.

6.12.3 Ribbon Service

Length and ink side

Selection of the used transfer ribbon length (see Technical Data). With smaller ribbons, a higher number of cycles can be reached.

Selection of the coating side of transfer ribbon, either outside or inside.
Default: Coating outside

Prewarning

Ribbon prior warning: Before the end of transfer ribbon, a signal is send by the control output.

Ribbon prior 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 prior warning mode:
Warning: When reaching the transfer ribbon advance warning diamter, the corresponding I/O output is set.
Error: The printing system stops when reaching the transfer ribbon advance warning diameter with the message 'too less ribbon'.

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

Current diameters

Roll diameter: Indication how much transfer ribbon is still on the transfer ribbon roll. For a correct display some layouts must be reprinted.

Time left: Indication during a current print order, how long it can be printed with the existing transfer ribbon.

Diameter ribbon rewinder: Indication how much transfer ribbon is already on the rewinding roll, i.e. how much transfer ribbon was already used.

Diameter ribbon unwinder: Indication how much transfer ribbon is still on the unwinding roll.

Remaining roll length: Indication how much transfer ribbon in meters is still on the ribbon roll available.

6.12.4 I/O Status

PrtStrtIntsReal The start input impulses are counted directly at the Interrupt.

PrtStrtIntsDebounced 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.

PrtStrtIntsNoPrint 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 is still active with the processing of a print order.

PrtStrtReset The counters are reset.

PrtStrtTime Measured length of the last start impulse in ms.

I/O status input Indication of input signal level
0 = Low
1 = High

Port		Function
1	=	Print start
2	=	Reset error
3	=	Counter reset
4	=	No function
5	=	No function
6	=	No function
7	=	No function
8	=	No function

I/O status output Indication of output signal level
0 = Low
1 = High

Port		Function
9	=	Error
10	=	Print order active
11	=	Generating
12	=	Print end
13	=	Ready
14	=	Error
15	=	Return
16	=	Ribbon prior warning

6.12.5 General Parameters

Print examples

Settings: Printout of all device settings such as speed and transfer ribbon material.
Bar codes: Printout of all available bar code types.
Fonts: Printout of all available font types.

Write log files to memory card

The printing system 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 Password

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 printing system functions will be divided into several function groups.

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

6.13.1 Operation

Password

Entering a 4-digit numeric password.

Protection configuration

Device settings can be changed (contrast, speed, operating mode, ...). The password protection prevents modifications at the device settings.

Protection favorites

The password protection prevents the access to the favorites.

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

Protection Printing

In case the printing system 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.

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.

6.13.2 Network

Password

Entering a 15-digit password. The password can consist of alphanumeric and special characters.

Protection HTTP

The communication by HTTP can be avoided.

Protection Telnet

The settings of the Telnet service cannot be changed.

Protection remote access

The password protection prevents the remote control of the printer.

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.

6.14 Maintenance

6.14.1 Print Preview

Preview available

With activated print preview a picture of the currently printed layout is shown on the display. If the function is not activated, the field remains empty.

Zoom

Selection of a certain zoom value for the representation of print preview.

Label: The complete layout is fit to the indication zone.

Fields: Only the print range is fit to the indication zone.

1 .. 8: Manual zoom factor to scale the complete layout down.

Preview rotated

The display of label preview can be rotated on the touch-screen display.
On: The label preview is shown rotated by 180° on the display.
Off: The label preview is represented in read direction.

Preview interval

During a running print order the preview is refreshed in the set interval.

Show process data

With activated print preview, the currently printed layout is shown on the display. Wipe to the right to change to the process data view.

In order to show the process data, the parameter must be activated before in the menu *Maintenance/Print preview*.

6.14.2 LCD

Backlight

Setting of contrast of background lighting.
Value range: 0 … 100 %.

LCD orientation

Landscape 180°: The display is represented turned by 180 degres to the function 'Landscape'.

Landscape: The display is represented turned by 90 degres to the reading direction.

Portrait: The display is represented in reading direction.

Portrait 180°: The display is represented turned by 180 degres.

6.14.3 System Settings

NOTICE!

All settings and modifications in system settings require the respective password.

The following system settings can be made:

- Device type
- Reset paper counter printhead
- Reset paper counter device
- Set default settings
- OEM client ID
- Customized info field

6.15 Main Menu

Switch on the direct print module and the display shows the Home screen

Press button  to display information such as module type, current date and time, version number of firmware and used FPGA.

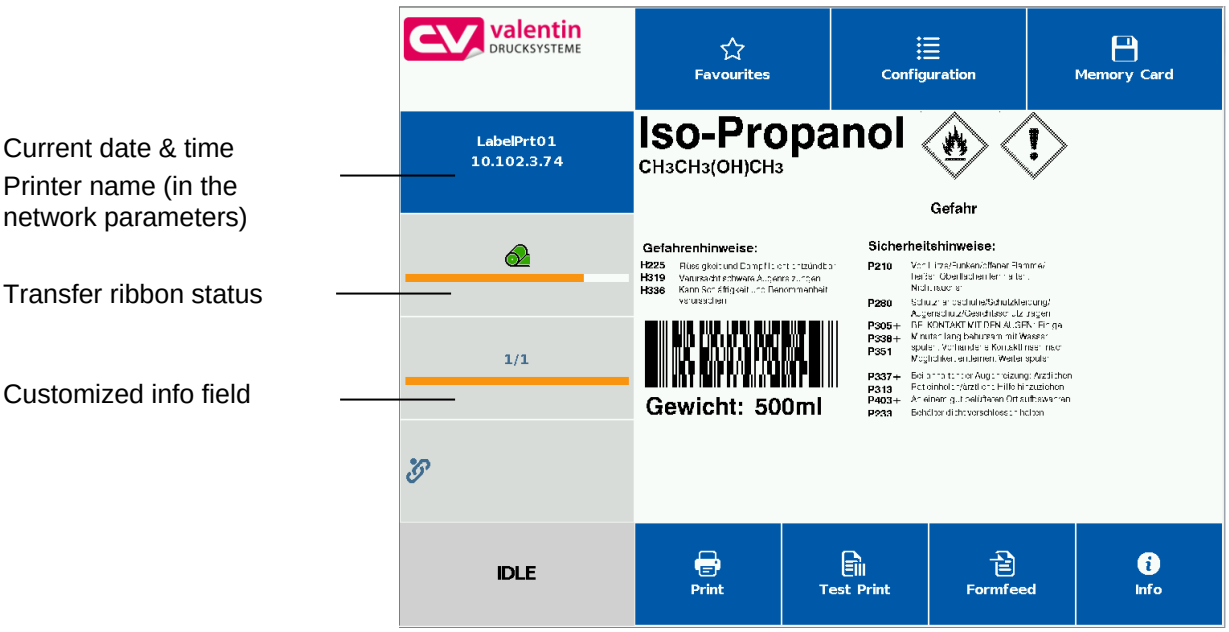
7 Touch-Screen Display

7.1 Touch-Screen Display Structure

The touch-screen display shows an intuitive graphic user interface with well-defined symbols and buttons.

The touch-screen display informs about the current device status and status of the print order, alerts in case of an error and indicates the device settings in the menu.

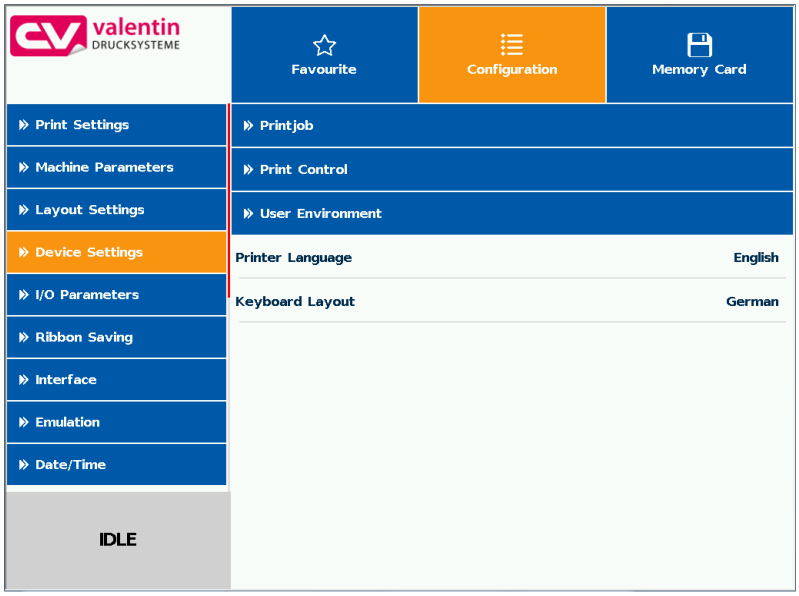
The desired settings are made by selecting the buttons on the touch-screen display.



Favorites	Display favorites list
Configuration	Select parameter settings
Memory Card	Access to memory card menu
Print	Start print job
Test print	Start test print
Formfeed	Start layout feed
Info	List of the installed components

7.2 Indication of Menus

Indication of main menus

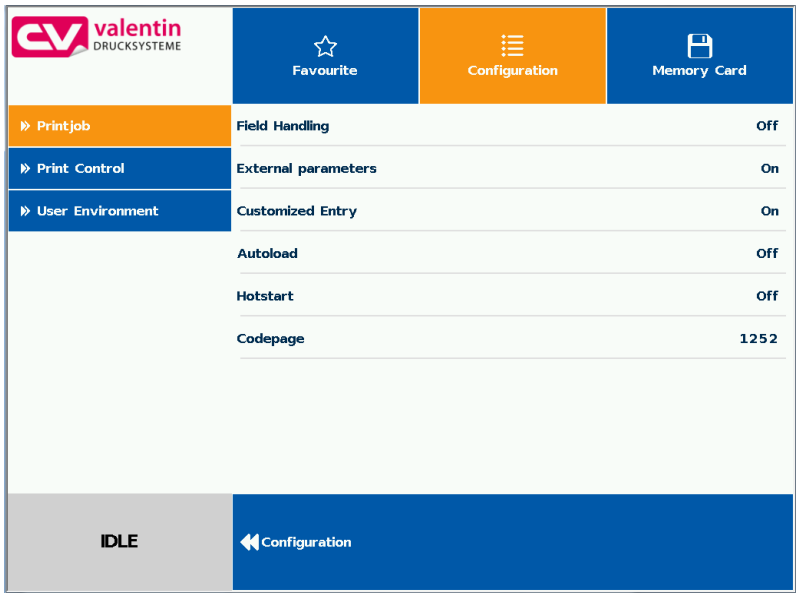


The selected (active) menu is highlighted on orange background.

If a selected menu contains so-called submenus, these are blue highlighted.

Indication of submenus

Different parameters are combined in a submenu.

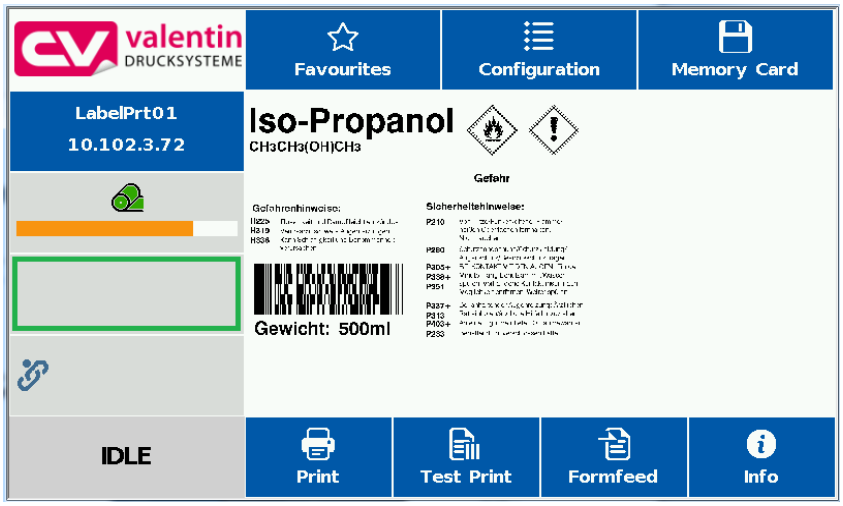


The left display side shows the available submenus. The currently selected (active) submenu is highlighted on orange background.

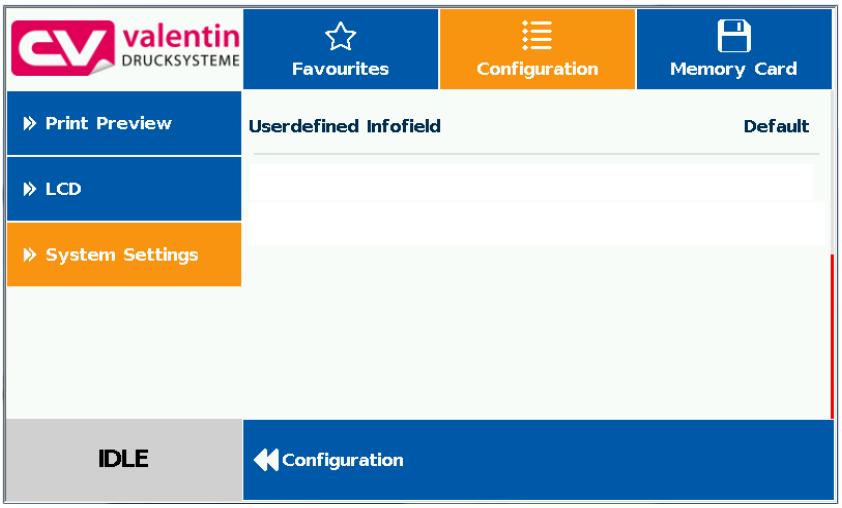
Press to return one level.

7.3 User-Defined Info Field

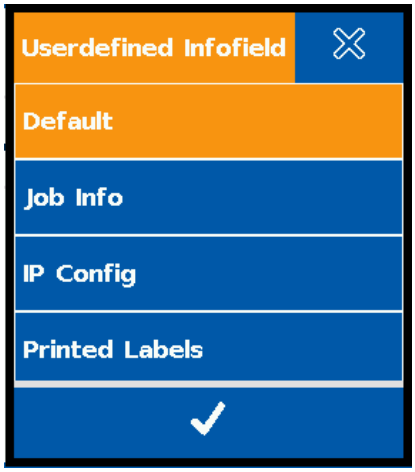
From the predefined contents, the user can define the display of the user-defined info field (green).



Select the menu *Maintenance/System settings/User-defined info field* to specify what is to be displayed in the user-defined info field.

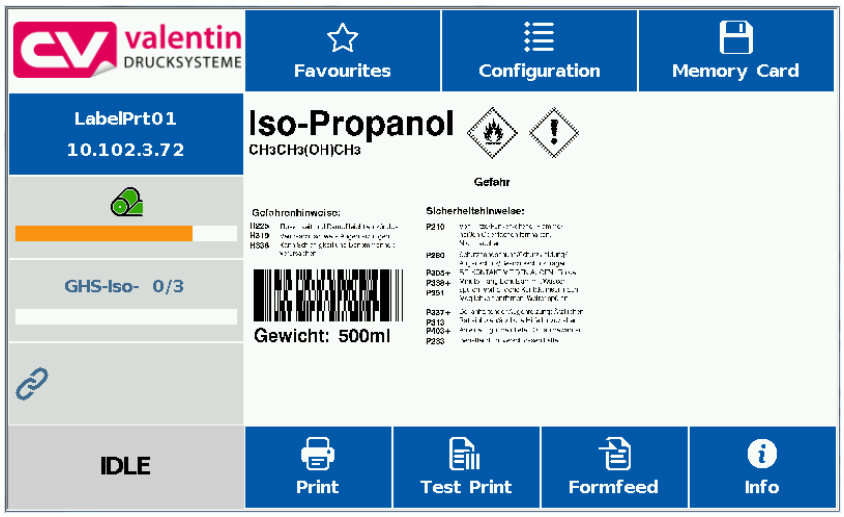


Selection of parameters



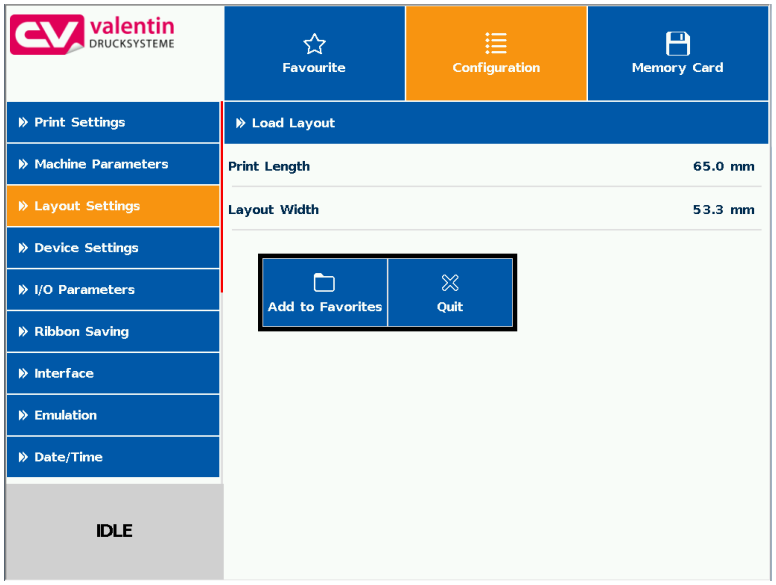
Standard:	Horizontale display orientation: Empty info field **Vertical display orientation:** Indication of job info (label name and number of printed labels)
Job info:	Indication of label names and the number of already printed
IP configuration:	Indication of IP address and MAC address of printing system
Printed labels:	Indication of printed labels as enlarged text output

Display of predefined configuration



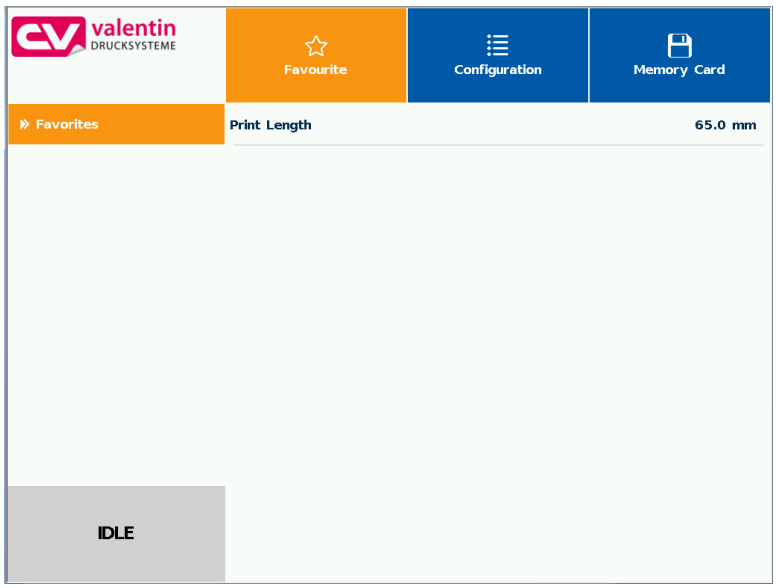
7.4 Favorites List

Add parameters to favorites

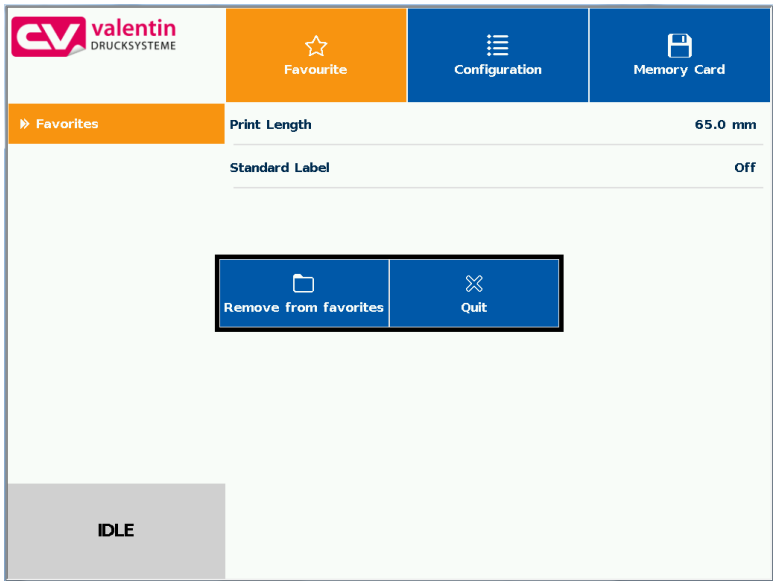


Press long (2 s) on a parameter (e.g. print speed) to display the appropriate selection.

Press *Add to favorites* to add the selected parameter to the favorites list.



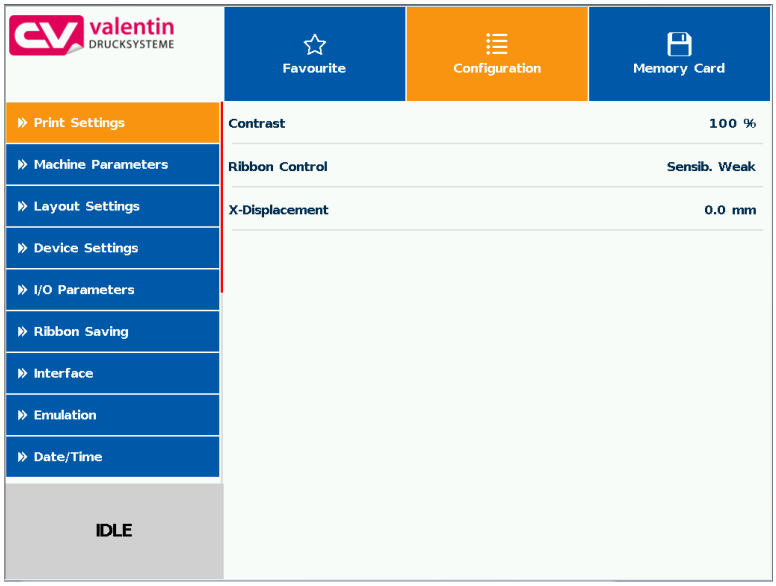
Remove parameters from favorites



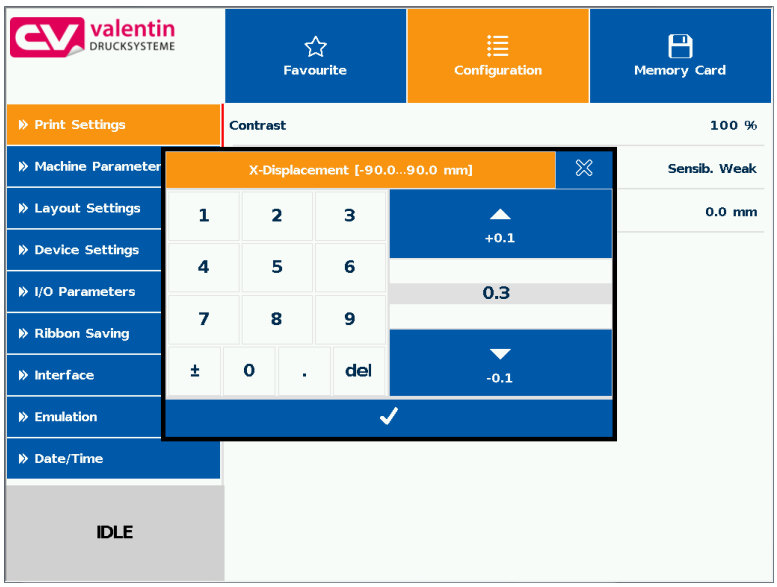
Press long (2 s) on a parameter (e.g. print speed) to display the appropriate selection. Press *Remove from favorites* to remove the selected parameter from the favorites list.

7.5 Parameter Input

Parameter input

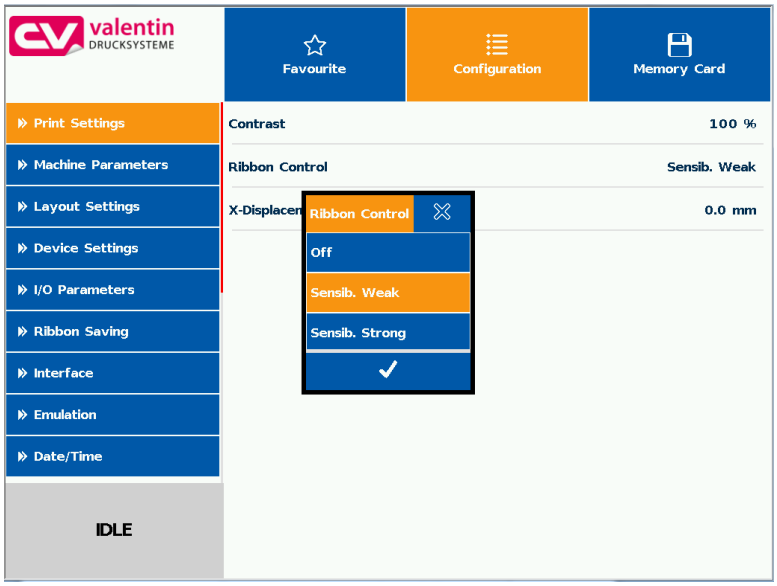


Numeric input



In the header of input dialog the name of the parameter and the permissible value range are shown. The input is checked for validity. If the entered value is not permissible, the button is blocked.

Selection from list

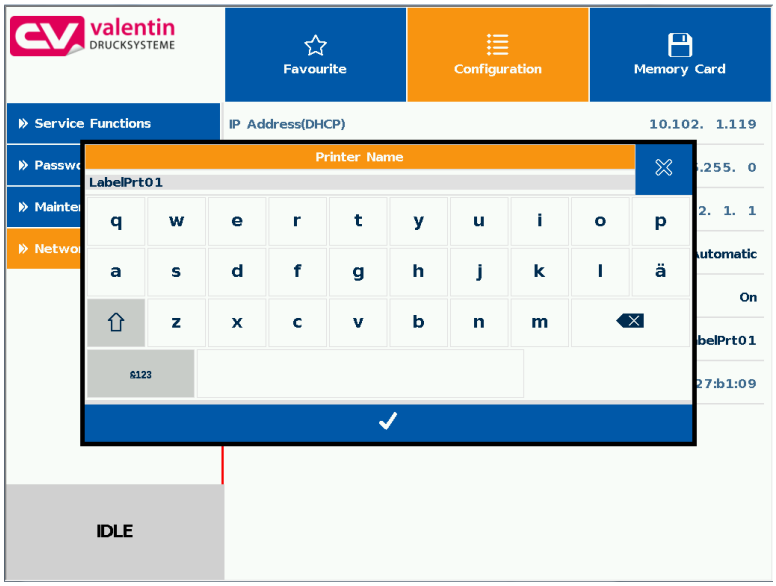


Select the parameter for which you want to change the selection.

The currently selected value is highlighted on orange background.

Press to confirm the selection.

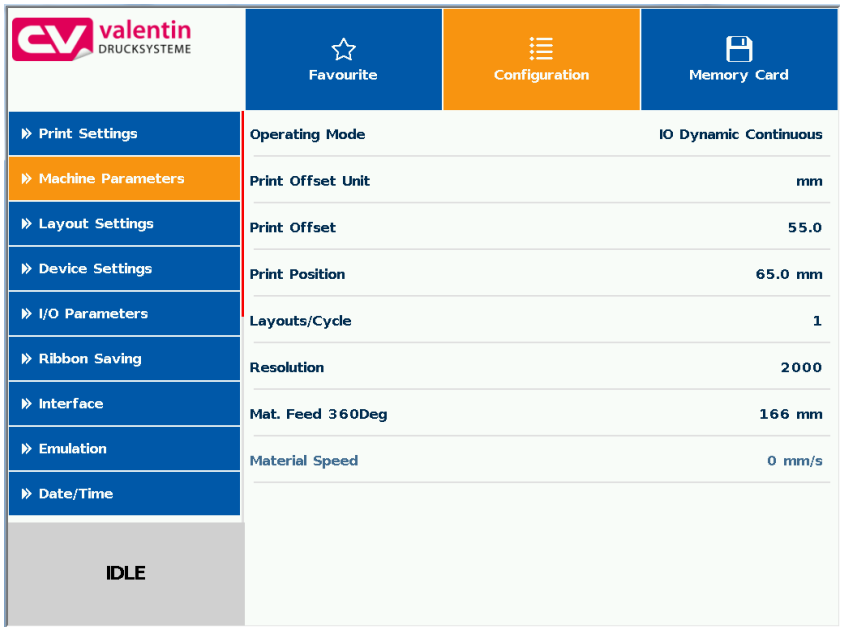
Alphanumeric input



The alphanumeric input is shown in the header of input dialog.

Press to confirm the selection.

7.6 Navigation Zones



The respective navigation zone can be moved with an appropriate swipe movement from top to bottom or from the bottom up.

NOTE!

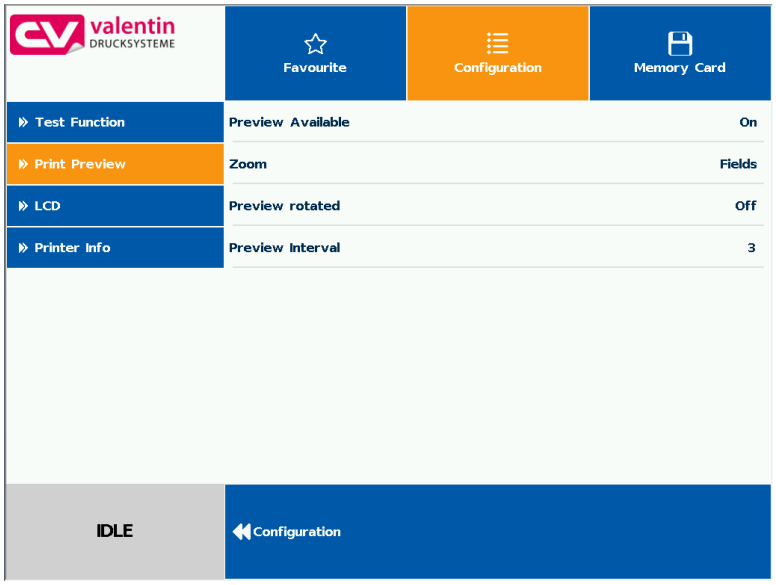
With the used resistive touch screen variant a certain pressure on the display is needed.
It is not possible to navigate on the display with the swipe movement to the left and right with a finger (well-known from smartphones).

The position indications signalise the detail of the total list currently visible. If no position indication is visible then the total list can be displayed on the display. A swipe movement from top to bottom and/or from the bottom up is not possible.

7.7 Maintenance Zone

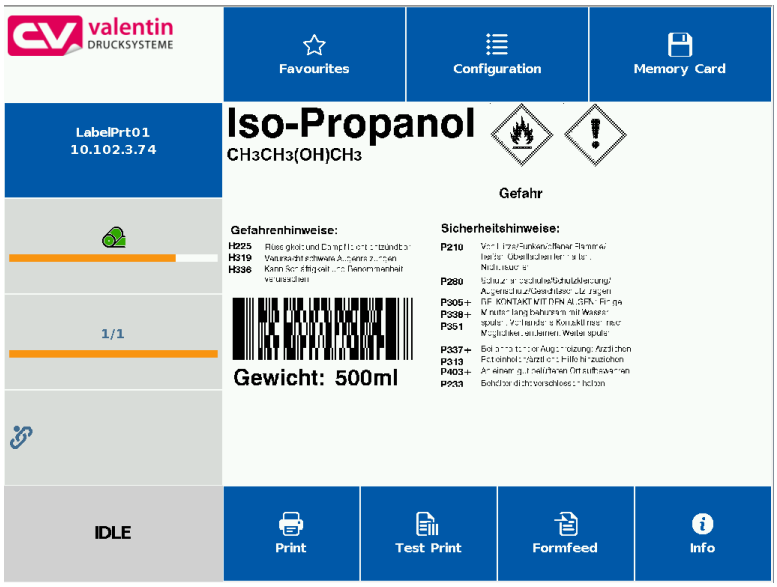
Different settings for the display indication can be done.

Maintenance - Print preview



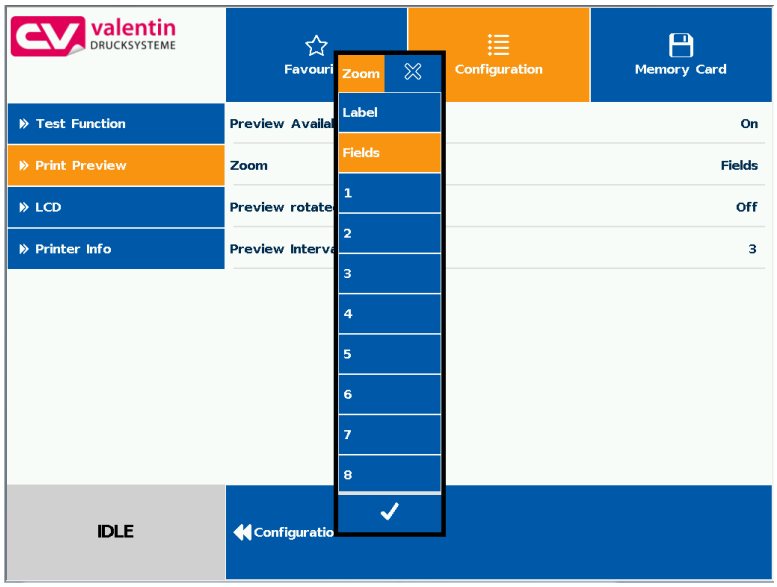
Print preview activated On/Off

With activated print preview a picture of the currently printed layout is shown on the display. If the function is not activated, the field remains empty.



Print preview – Zoom

Selection of a certain zoom value for the representation of print preview.



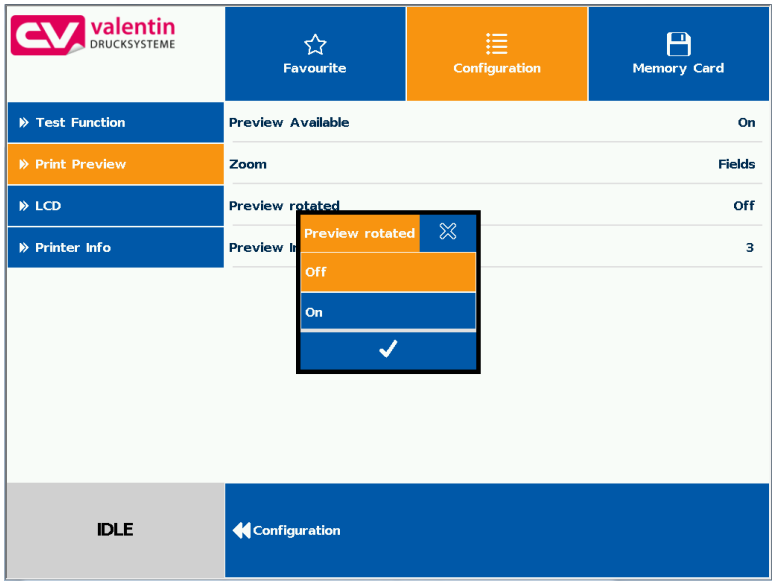
Label: The complete layout is fit to the indication zone.

Fields: Only the print range is fit to the indication zone.

1 .. 8: Manual zoom factor to scale the complete layout down.

Print preview – Preview rotated

The display of label preview can be rotated on the touch-screen display.

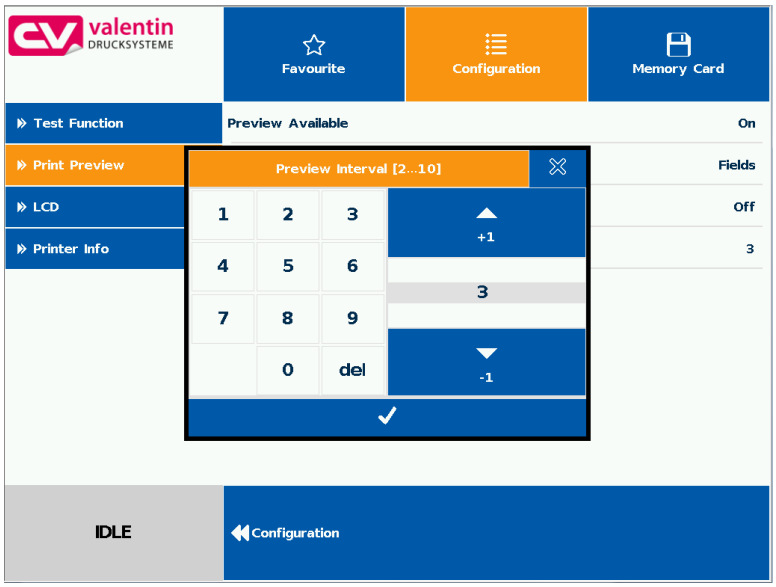


On: The label preview is shown rotated by 180° on the display.

Off: The label preview is represented in read direction.

Print preview – Interval

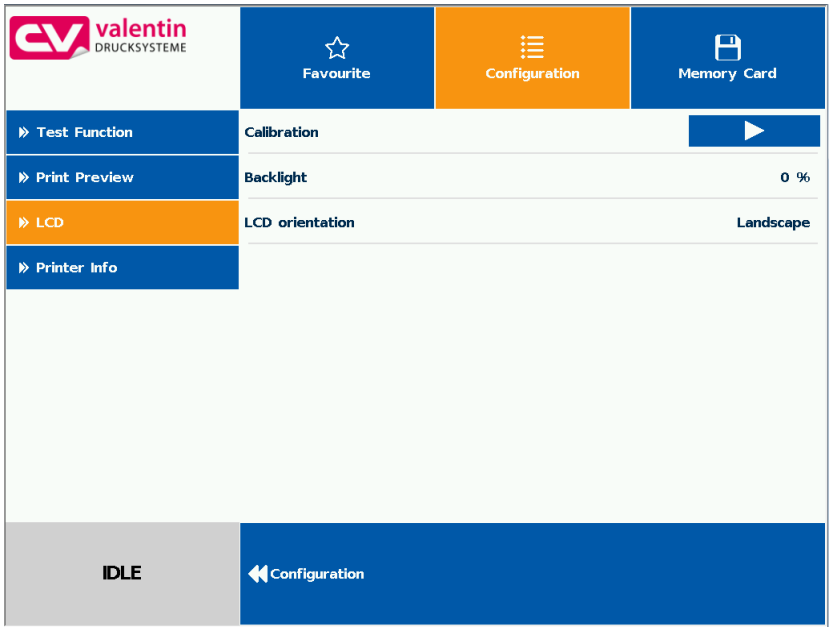
During a running print order the preview is refreshed in the set interval.



Value range: 0 .. 10 seconds

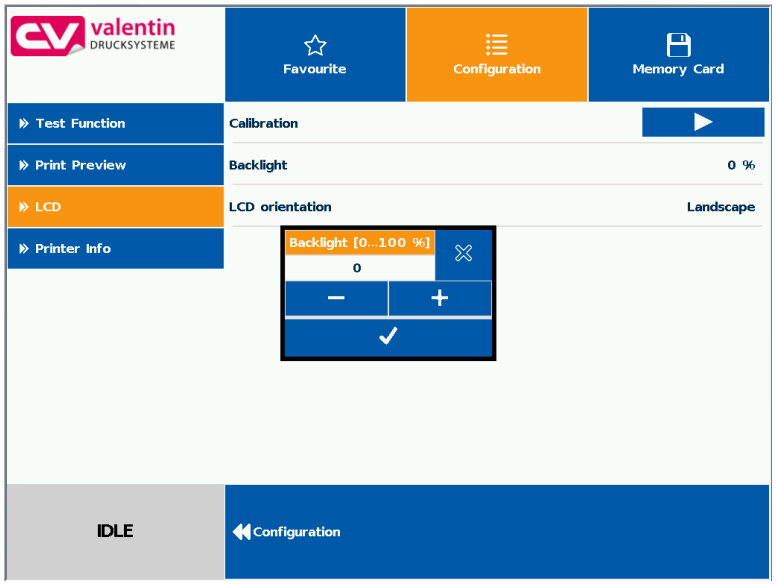
Maintenance - LCD

In the LCD maintenance sector, different parameters to the touch-screeen display can be set.



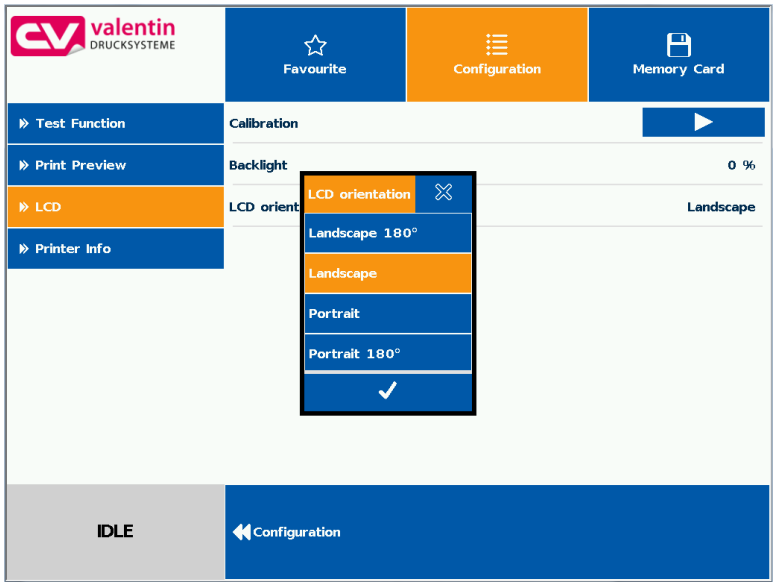
LCD – Backlight

Setting the brightness of background lighting.



Value range: 0 .. 100 %.

LCD - Orientation



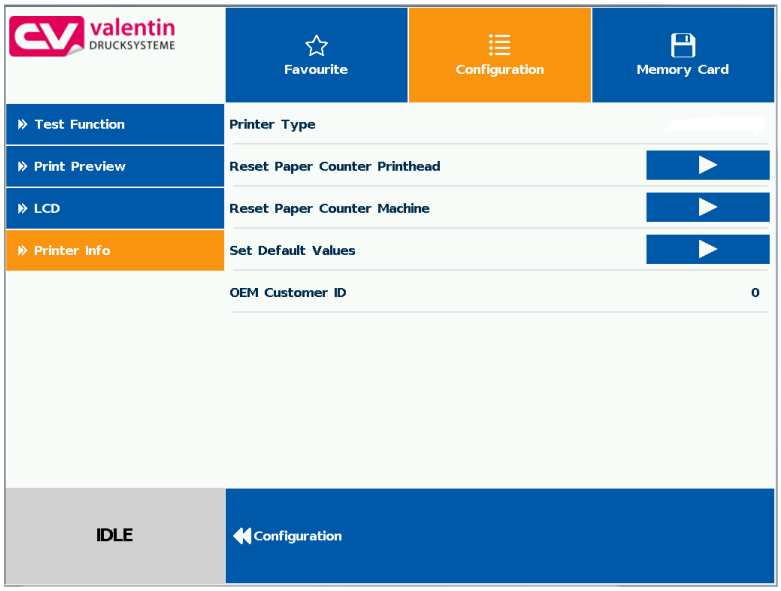
Landscape 180°: The display is represented turned by 180 degres to the function 'Landscape'.

Landscape: The display is represented turned by 90 degres to the reading direction.

Portrait: The display is represented in reading direction.

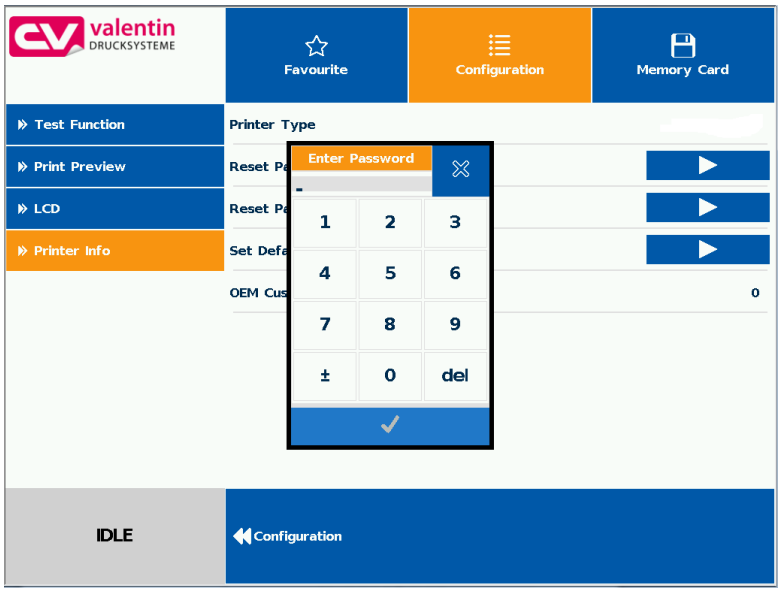
Portrait 180°: The display is represented turned by 180 degres.

Maintenance - System settings



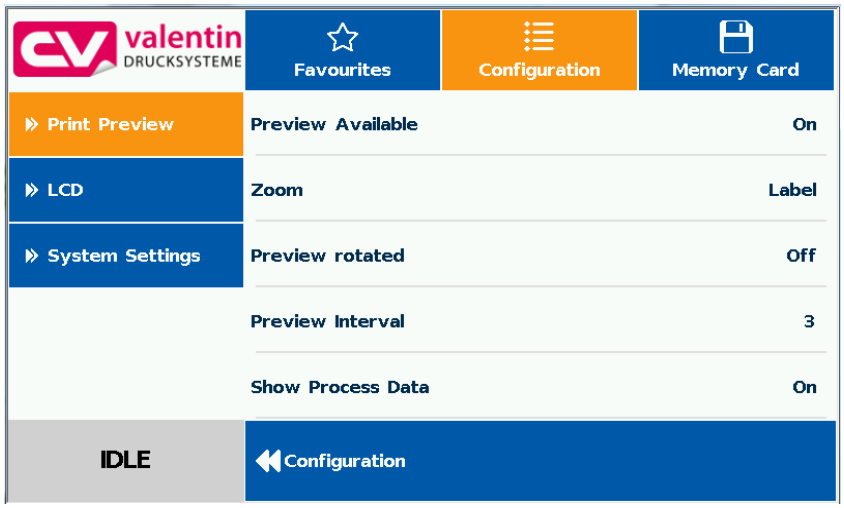
Different system settings such as set printer type, reset paper counter etc. can be made.

However, for the settings the corresponding password is necessary.



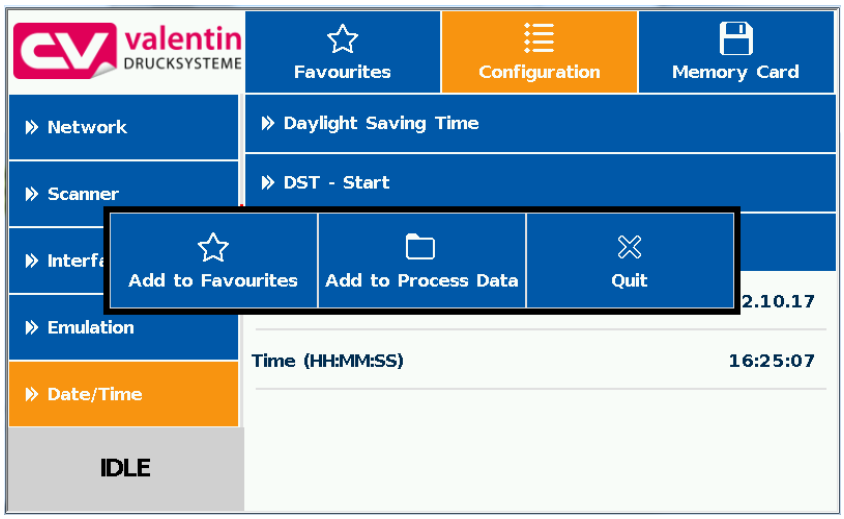
7.8 Process Data

Activation of display for process data



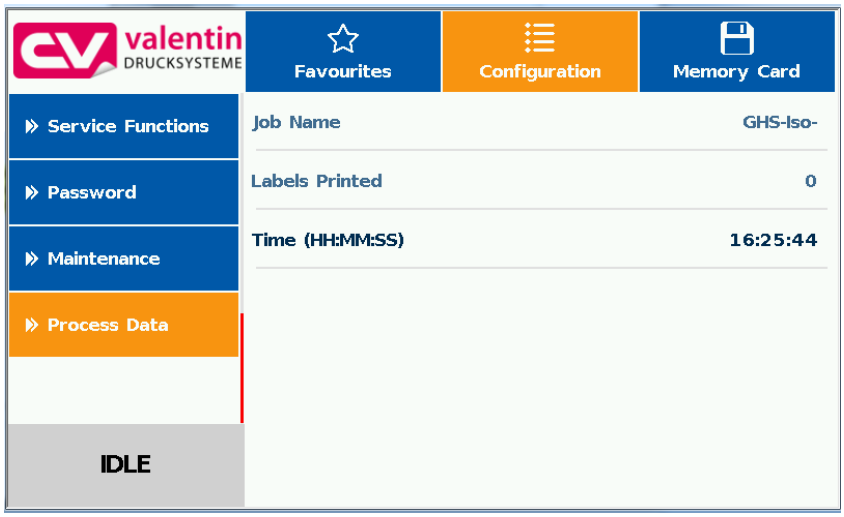
In order to show the process data, the parameter must be activated before in the menu *Maintenance/Print preview*.

Add parameter to process data

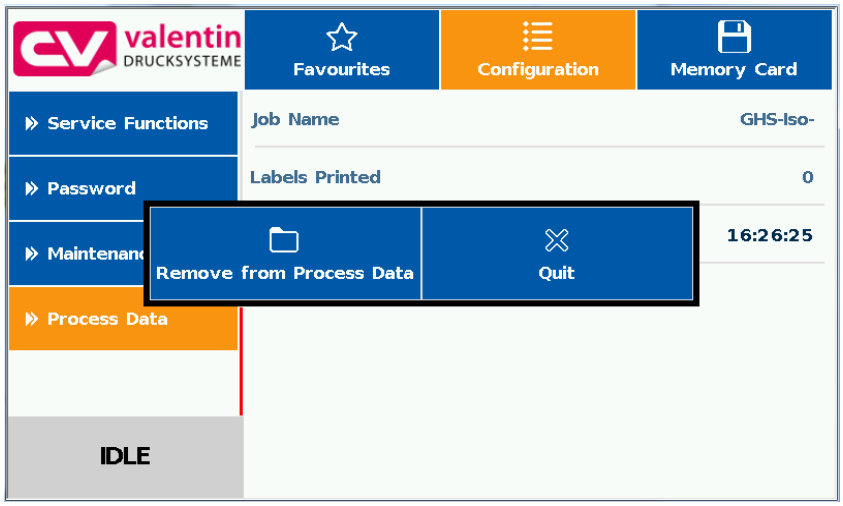


Press long (2 s) on a parameter (e.g. current time) to display the appropriate selection.

Press *Add to process data* to add the selected parameter to the process data list.



Remove parameter from process data



Press long (2 s) on a parameter (e.g. current time) to display the appropriate selection. Press *Remove from process data* to remove the selected parameter from the process data list.

Change of display vies Process data – Print preview

With activated print preview, the display shows a picture of the currently printed layout. The change to the process data view is effected by wiping to the right.

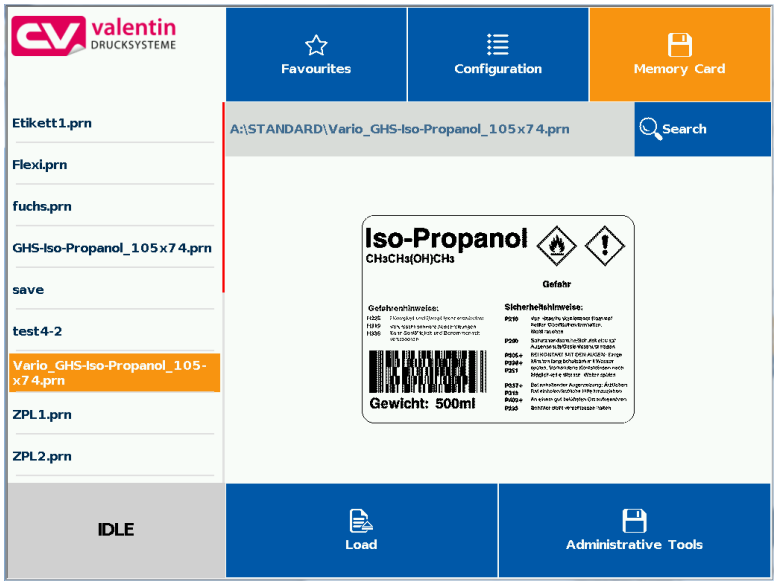
With activated print preview on the display a picture of the up-to-date printed layout is shown.

7.9 Memory Menu

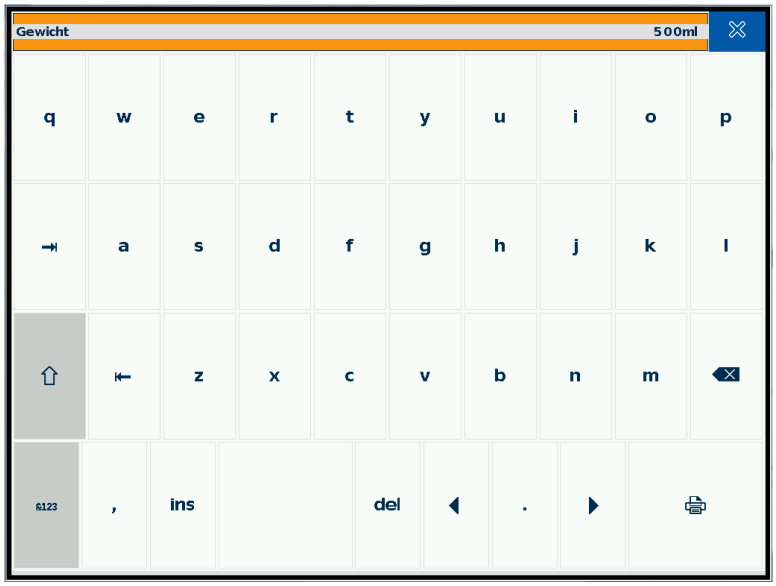
Compact Flash Card
USB Stick

On the left side, the content of the currently selected directory is shown one below the other.

The preview zone in on the right side is. If available, the preview of the selected layout is shown.



Load:	The selected layout is loaded. After the number of copies have been entered, the print order is started.
Admininstrative tools:	Switching to the file manager (File Explorer).



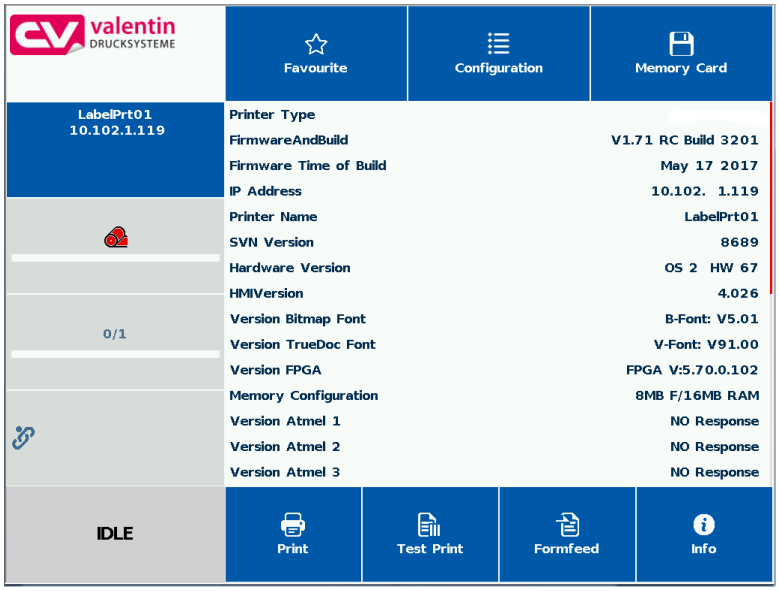
The user query can be entered at the cursor position.

Press to change to the input of number of copies.

Number of copies

Enter the number of layouts to be printed.

7.10 Information Zone

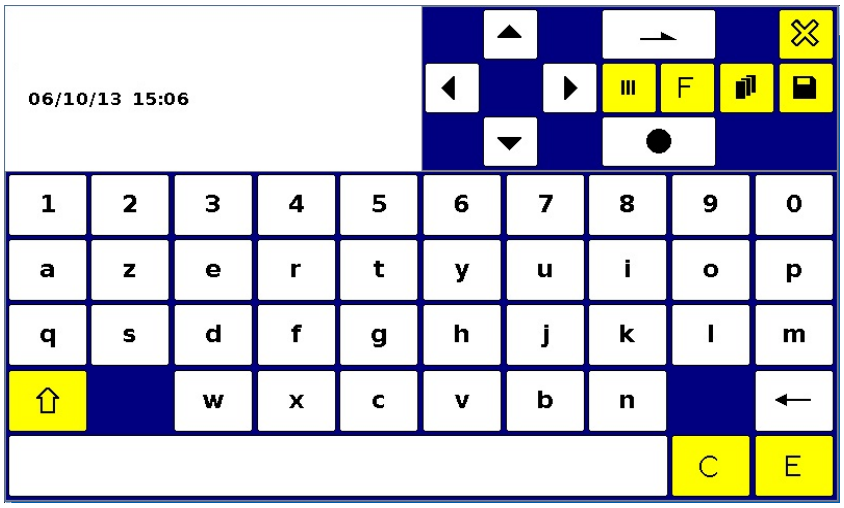


By pressing the **Info** button the versions of the installed components are displayed.

By pressing the **Info** button once more, the **Home** view is again displayed.

7.11 Change to Foil Keyboard

Press long (> 3 s) on the company logo left above, and the display changes to the indication of a conventionalized foil keyboard. The settings can be done by the standard operating panel. Press  to change to the previous view.



For more information about the use of printer and its foil keyboard can be found in chapter 6, page 51.

8 Maintenance and Cleaning

DANGER!

Risk of death by electric shock!

⇒ Before opening the housing cover, disconnect the device 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.

For maintenance work, the service manual must be observed.

Maintenance plan

Maintenance task	Frequency
General cleaning (see chapter 8.1, page 101).	As necessary.
Clean the transfer ribbon roller (see chapter 8.2, page 102).	Each time the transfer ribbon is changed or when the printout is adversely affected.
Clean the printhead (see chapter 8.3, page 102).	Each time the transfer ribbon is changed or when the printout is adversely affected.
Replace the printhead (see chapter 8.4, page 104).	In case of errors in the printout.

NOTICE!

The handling instructions for the use of Isopropanol (IPA) must be observed. In 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.

8.1 General Cleaning

CAUTION!

Abrasive cleaning agents can damage the direct print module!

⇒ Do not use abrasives or solvents to clean the outer surface of the direct print module.

⇒ 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.

8.2 Clean the Transfer Ribbon Roller

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

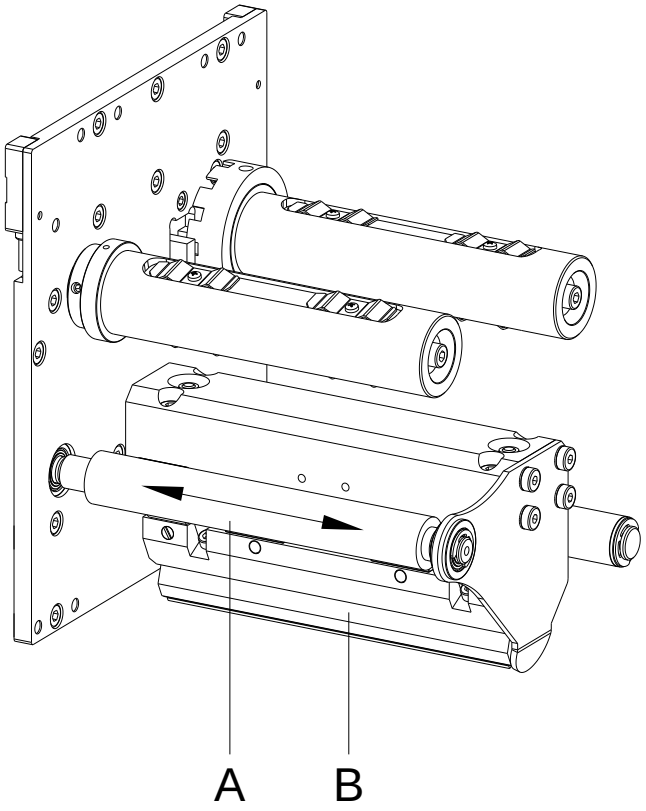


Figure 22

1. Open the cover of print mechanics.
2. Remove the transfer ribbon.
3. Remove deposits with a roller cleaner and a soft cloth.
4. If the roller (A) appears damaged, replace it.
5. Insert again the transfer ribbon material.
6. Close the cover of print mechanics.

8.3 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.

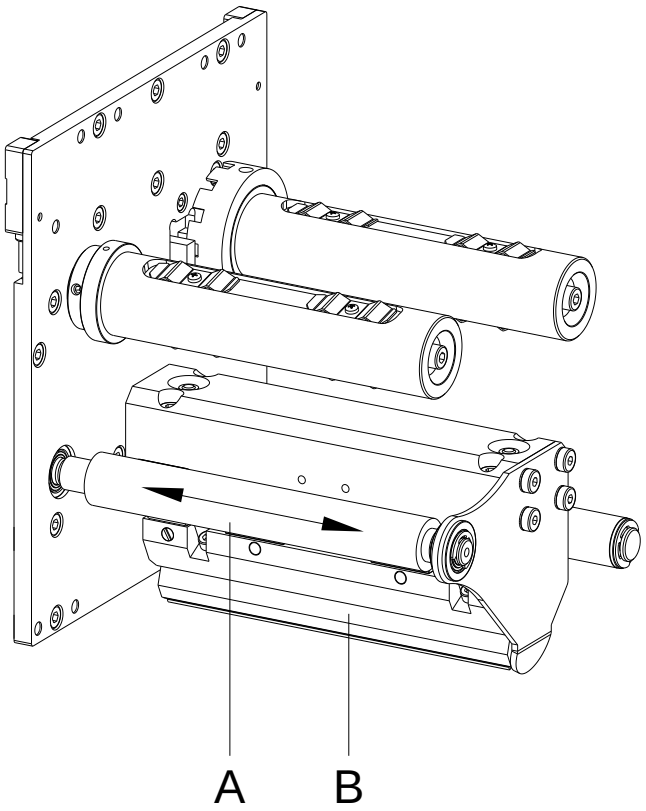


Figure 23

1. Open the cover of print mechanics.
2. Remove the transfer ribbon.
3. Clean the printhead surface with a special cleaning pen or a cotton swab dipped in pure alcohol.
4. Before using the printing systm, let the printhead dry for about two to three minutes.
5. Insert again the transfer ribbon material.
6. Close the cover of print mechanics.

8.4 Replace the Printhead

CAUTION!

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

⇒ Set up the direct print module on a grounded, conductive surface.

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

⇒ Do not touch contacts on the plug connections.

⇒ Do not touch printing line (5) with hard objects or your hands.

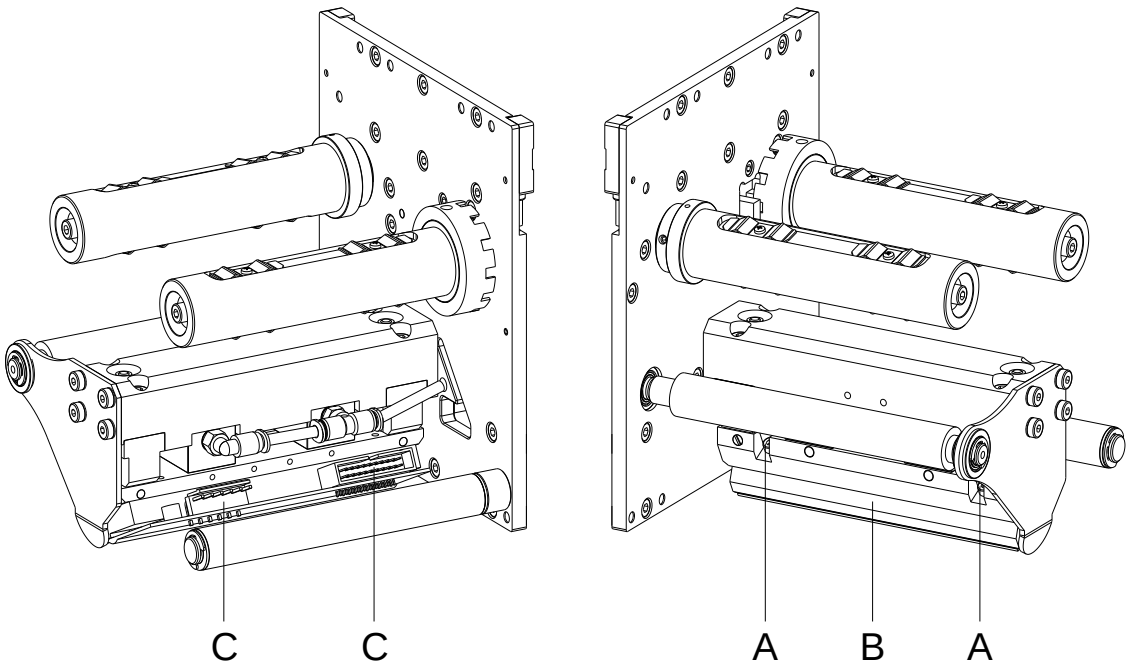


Figure 24

Remove the printhead

1. Open the cover of print mechanics.
2. Remove the transfer ribbon.
3. Move the printhead unit in an appropriate service position.
4. Remove the printhead cable (C).
5. Remove the screws (A) and afterwards the printhead (B).

Install the printhead

1. Do not touch the contacts of printhead.
2. Position the printhead in the printhead support.
3. Screw again the screws (A) and tighten them.
4. Connect again the printhead cable (C).
5. Insert again the transfer ribbon (see 5.15. on page 48).
6. Close the cover of print mechanics.
7. Enter the resistance value of the new printhead in the 'Service Functions' (heater resistance). The value is indicated on the type plate of printhead.
8. Start a test print to check printhead position.

8.5 Transfer Ribbon Tension

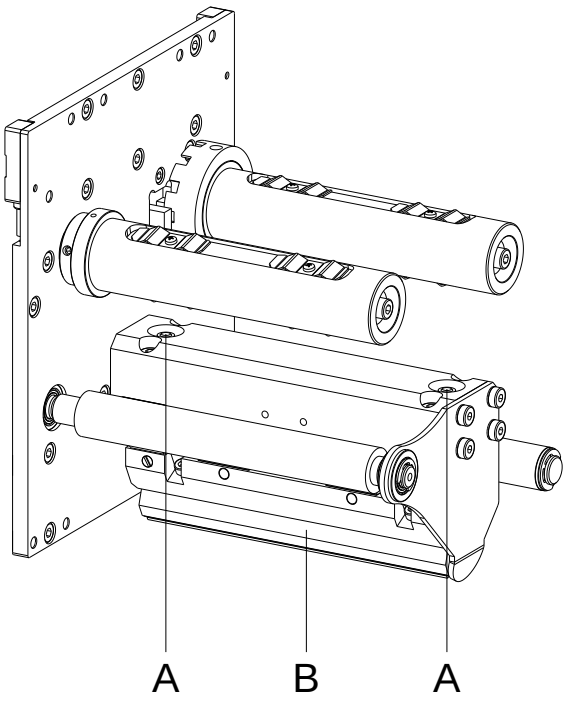


Figure 25

For a regular print quality it is necessary that the transfer ribbon is to tighten even over its width. Use the nuts (A) to regulate a different transfer ribbon tension by a sideways overturn of the printhead.

CAUTION!

Folding at transfer ribbon!

⇒ Only change the factory settings in exceptional cases.

1. By loosen a nut, the printhead moves down at the corresponding side.
   The transfer ribbon tension is increased.
2. By tightening a nut, the printhead moves up at the corresponding side.
   The transfer ribbon tension is reduced.

NOTICE!

A strong regulation has result to the pressure power of printhead.

3. Start a print order with approx. three layouts to check the correct unwrinkled ribbon run.

8.6 Angle Adjustment

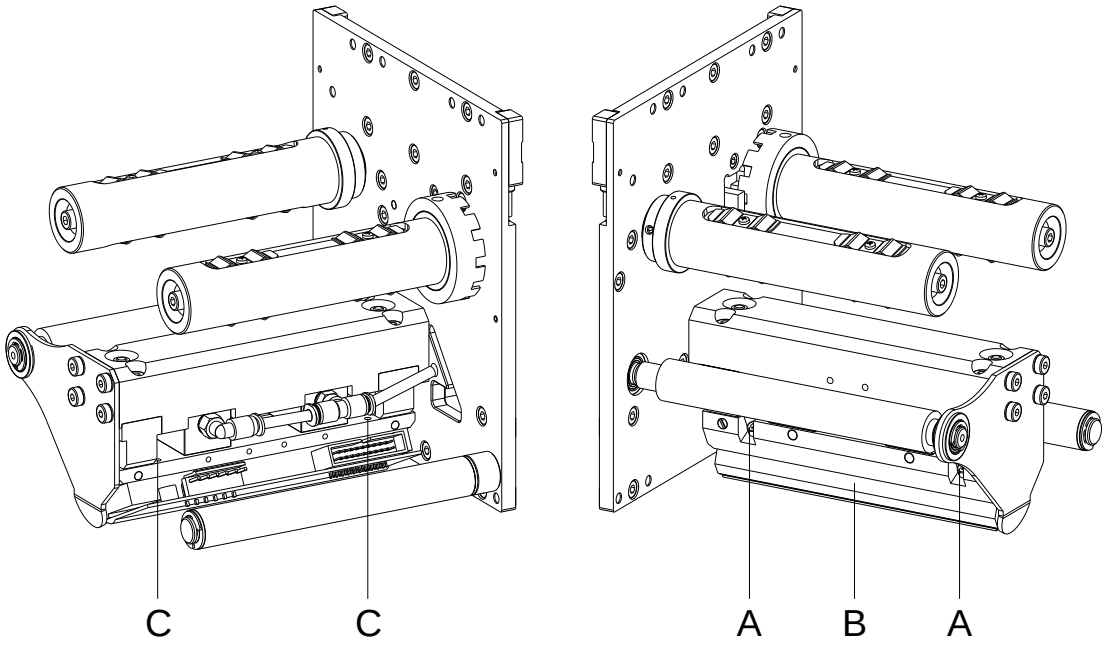


Figure 26

The installation angle of the printhead (B) is default 26° to the print surface. However, manufacturing tolerances of the printhead and the mechanics can require another angle.

CAUTION!

Damage of printhead by unequal use!

Higher wastage of ribbon by faster ripping.

⇒ Only change the factory settings in exceptional cases.

1. Loosen slightly two Allen head screws (A).
2. Move the threaded screws (C) to adjust the angle between the printhead and the printhead support.
   Tighten = decrease angle
   Loosen = increase angle
3. Both threaded screws (C) must be adjusted with the very same number of turns.
4. Tighten again the Allen head screws (A).
5. Start a print order with approx. three layouts to check the correct unwrinkled ribbon run.

8.7 Print Quality Optimisation

The following table shows some possibilities to improve the print quality. Please note: the higher the print speed, the lower the print quality.

Problem	**Possible solution**
Regular inferior print quality	• Increase contrast • Increase pressure • Reduce print speed • Reduce transfer ribbon speed • Reduce distance between printhead and print surface • Change combination of transfer ribbon and print medium • Control print surface (hardness) • Change printhead angle
Partial inferior print quality (on one side)	• Align surface parallel to printhead • Set regular transfer ribbon tension • Set regular printhead angle
Partial inferior print quality (periodical)	• Sand and smooth the surface • Reinforce surface against bending

8.8 Cycle Optimisation

Cycle = completed print cycle per time unit

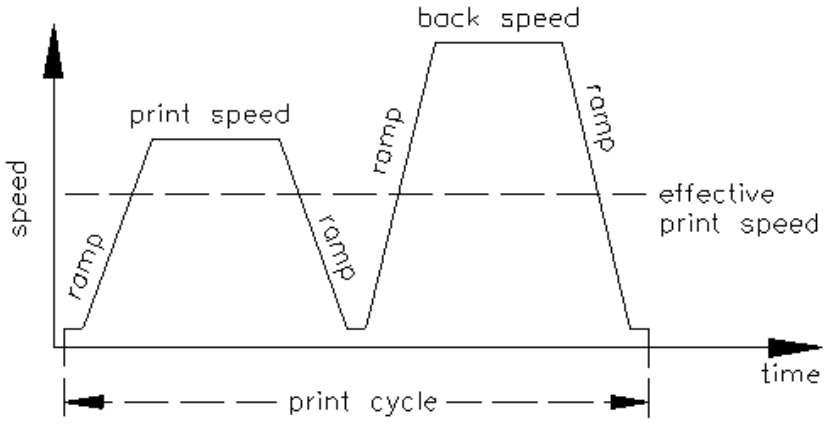


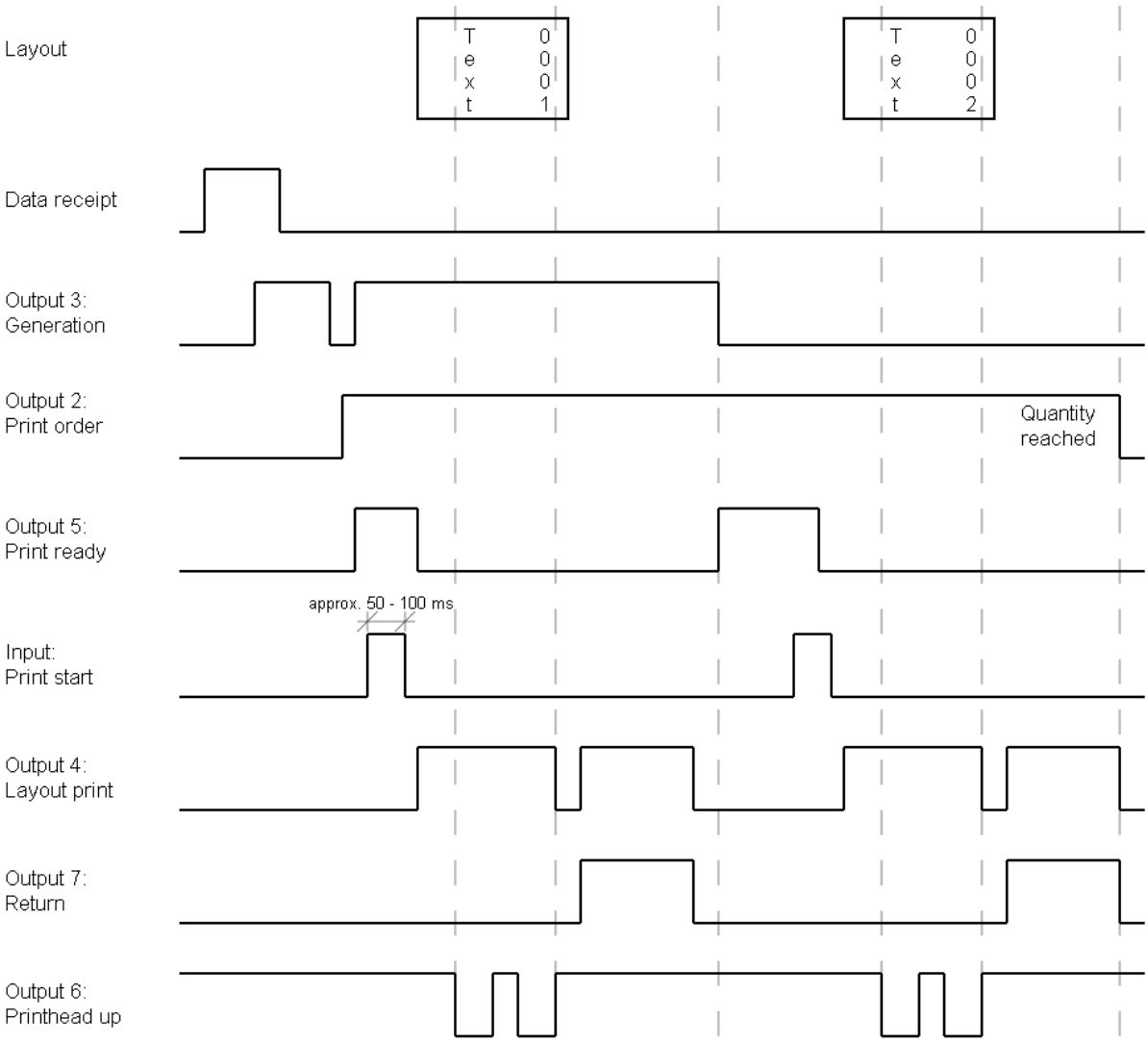
Figure 27

In case of 'time critical' applications you have the possibility with a good selection of different device parameters to increase the effective print speed and in this way the clock cycle.

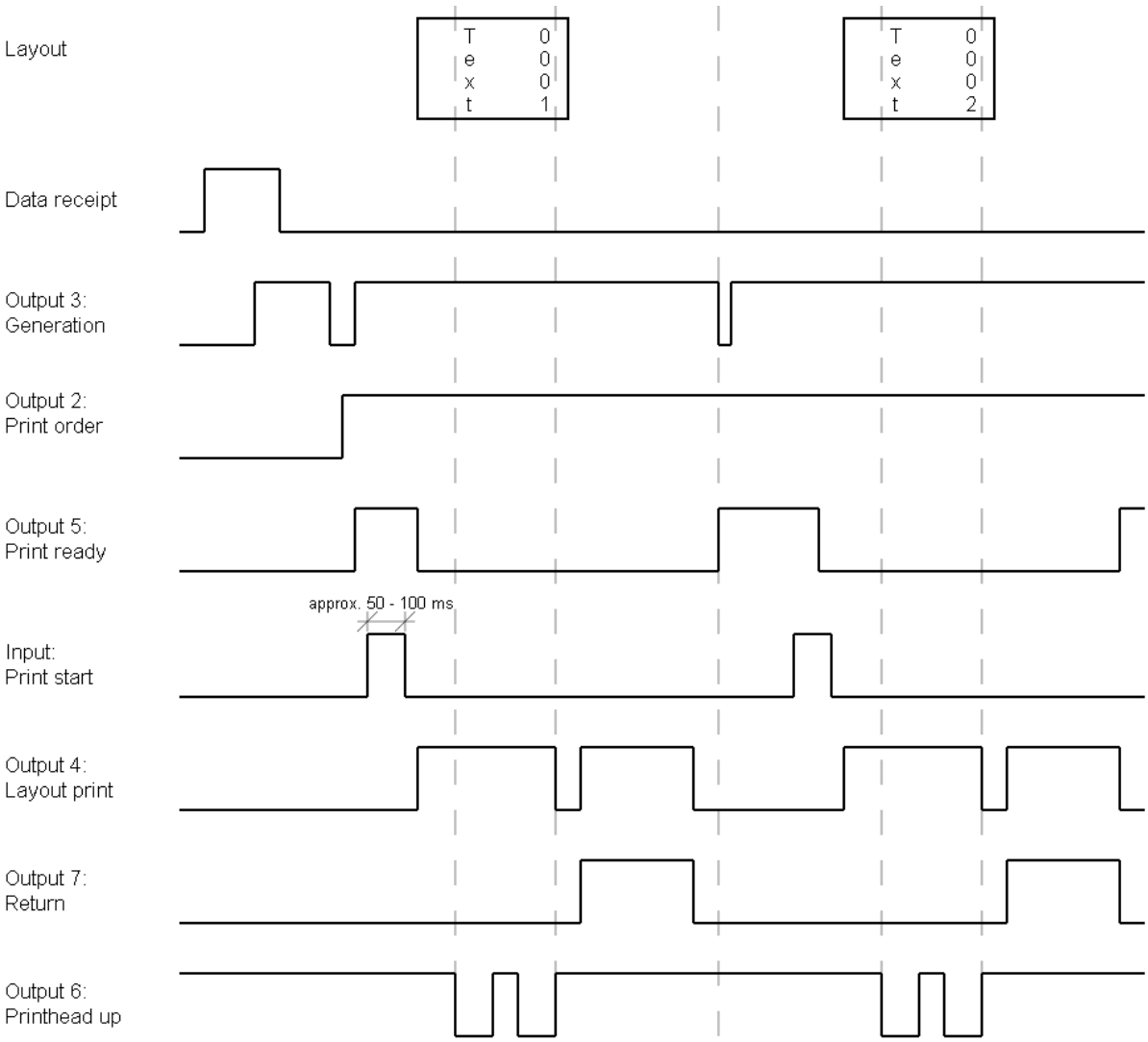
- Generally increase the print speed.
- Generally increase the back speed.
- Increase the acceleration and brake ramp.
- Change the zero point of machine.
- Avoid vertical installation position of the print mechanics. Install the machine in horizontal position.
- Control the short distance between the printhead and print surface.
- Optimise the layout to a short print way, i.e. less blanks, no borders at the top res. bottom, rotate the layout.

9 Signal Diagrams

9.1 Mode 1 (Single Item Processing)



9.2 Mode 2 (Continuous Mode)



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 BC type	Selected code is not available.	Check code type.
5 Illegal rotation	Selected rotation is not available.	Check rotation.
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).
14 Field number	Received line number is invalid.	Check sent data. Check connection PC - printer.

Error message	Cause	Remedy
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 bar code is res. are not valid.	Change bar code data. 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 code	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 Type check digit	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	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	Not enough print memory available.	Check CF assembly on CPU.
35 Cover open	The cover hood is open.	Close the hood.
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 Unformatted	CF Card not formatted.	Format CF card.
44 Delete directory	Attempt to delete the actual directory.	Change directory.
45 Invalid path	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 CF interface	No CF card drive found.	Check connection of CF card drive. Contact your distributor
60 No media	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 PH FPGA	The direct print module 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 release	External print release signal is missing.	Check input signal.
67 Column too wide	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. Check scanner (dirty).
69 Scanner NoRead	Bad print quality. Printhead completely soiled or defective. Print speed too high.	Increase contrast. Clean printhead or replace (if necessary). Reduce 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 Undefined page	The page is not defined.	Check the print definition.
74 Format user guiding	Wrong format for customized 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. Switch 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.

Error message	Cause	Remedy
81 IGP error	Protocol error IGP.	Check sent data.
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	Layout ID definition is missing.	Define layout 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 recognize 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 recognize 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. Please 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 inactive	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 applicator is not in the print position when trying to print a label.	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 PH2	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 does 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 Speed too low	The print speed is too slow.	Increase the speed of customers' machine.
125 DMA 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 less ribbon	Transfer ribbon ends.	Change transfer ribbon.
139 Rewinder error	Label band is torn	Load a new label roll. Stick together the label band.
140 Rewinder motor blocked	External rewinder motor is blocked.	Switch off the printing system and check mechanical resistance. Change the full label roll.
141 Hardware error	A hardware component could not be found.	Please contact your responsible distributor.
142 No print mechanics	No print mechanics connected.	Check connection (print mechanics – control unit)

11 Additional Information

11.1 Hotstart

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 layout can be further processed without any loss of data. Moreover a print order can be interrupted and to be continued after switching on the direct print module anew.

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 layout

In case the *Hotstart* function is set to on, at the start of a print order the data of the current layout 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 direct print module 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 layout and print order state

When restarting the direct print module (if the function *Hotstart* is activated) the saved layout 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 direct print module 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 direct print module a print order was active, then a print start is released automatically and the required res. actual number of printed layouts is refreshed. In case the print order was stopped at switching off the direct print module, it is again set to the stopped mode after switching on the direct print module anew. In case a customized entry was active during switching off the direct print module, the window for the first customized variable is displayed.

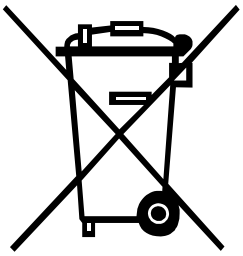
Refresh variable counter

As in the intended file only the start values of the counter are saved, they are refreshed at a new start of the print order by means of the number of printed layouts. 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 layout they have to be saved onto CF card.

12 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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valentin
DRUCKSYSTEME

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