DYNACODE II IP

Ingress Protection Version
Operating Manual

Trademarks

Carl Valentin direct print modules comply with the following EU directives:

- Low-Voltage Directive (2014/35/EU)

- Electromagnetic Compatibility Directive (2014/30/EU)

Table of Contents

1   Introduction

1.1   General Instructions

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

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

WARNING identifies a possible danger 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

Date   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 operating the device.

1.3   Safety Instructions

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

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).

NOTICE!

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

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

Never use highly inflammable consumables.

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

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

Other unauthorized work or modifications to the 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.

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.

$\Longrightarrow$ Do not underestimate the weight of the printing system (9 … 12 kg).

$\Longrightarrow$ Protect the printing system against uncontrolled movement.

2   Machine Overview

The continuous and intermittent operating direct print module is a direct print module with high resolution for installation in horizontal and vertical packaging machines. Not only the easy to change ribbon cassette and/or cleaning cassette is convincing but also different print widths, left and right versions and because of the separate control unit the direct print module can be integrated in almost each packaging process without any problems.

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.

The advanced technology achieves a high 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 direct print module automatically recognizes by which interface it is controlled.

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

2.1   Connection Side of Print Mechanics

A = Pneumatic connection

B = Connecting cable SPI
     (printhead + sensors)

C = Connecting cable Power
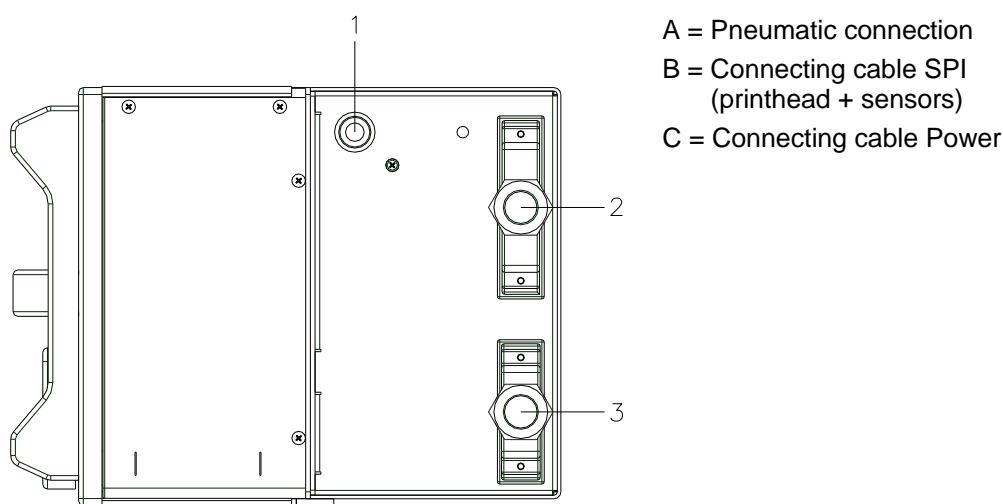
Figure 1

2.2   Connector Assignment of Control Unit

1 - LED green
  Lighting = Speed 100 MBit
  Off = Speed 10 MBit

2 - LED orange
  Lighting = Connection active
  Flashing = Data transfer
  Off = No connection
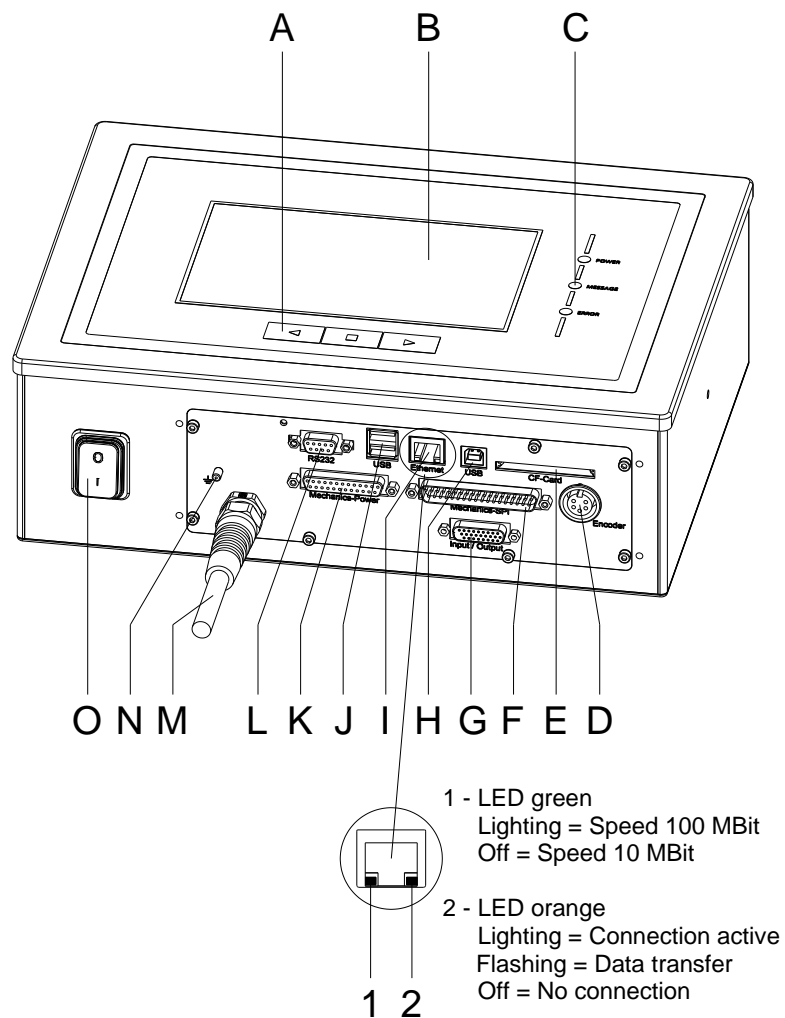
Figure 2

A =   Function keys
B =   Touch Panel
C =   Status LED
D =   Encoder connection
E =   Slot for memory card
F =   Connecting cable SPI
G =   External inputs/outputs
H =   USB port
I =   Ethernet port
J =   USB host for USB keyboard and USB stick
K =   Connecting cable Power
L =   Serial interface RS-232
M =   Power supply
N =   Grounding bolt
O =   Switch

3   Continuous Mode

3.1   Material Speed

Please note that the material has sufficient adhesion at the pressure transducer roll or encoder roll to permit the exact speed by the encoder.

It is only possible to print when respecting the operating conditions, i.e. the speed has to be observed.

3.2   Print Principle
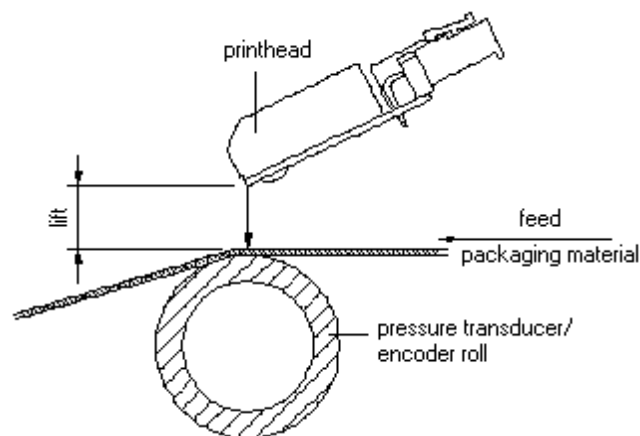
Figure 3

After starting a print order the printhead moves against the print medium. The feed of material is registered by the encoder and then evaluated. The printhead is in start position as long as the printing onto the moving material is finished and then it moves back to its home position.

3.3   Material Guiding
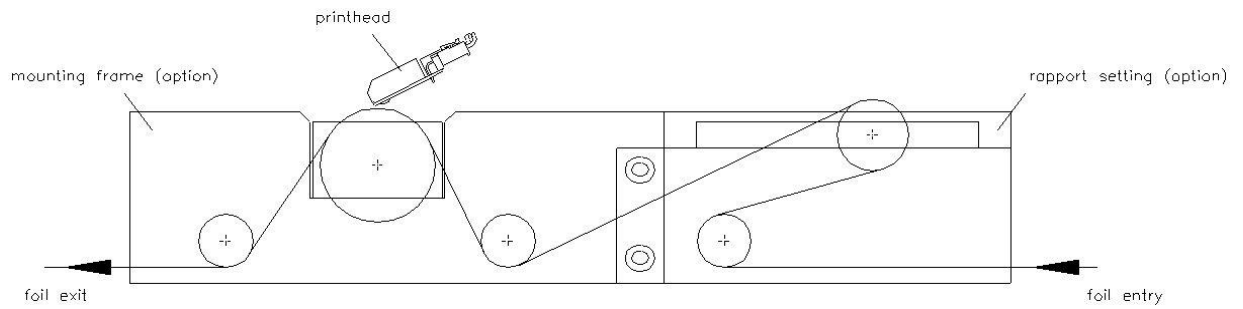
Figure 4

> **NOTICE!**
>
> In case the encoder is connected to the counter-pressure roll or the encoder roll you have to observe that the material has sufficient adhesion at the pressure roll or encoder roll to guarantee an exact speed by the encoder.

4   Intermittent Mode

4.1   Print Principle
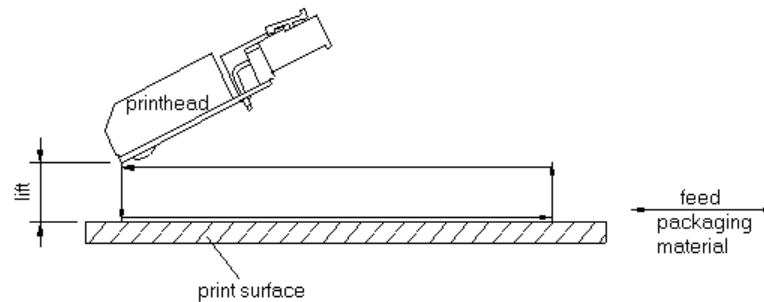
Figure 5

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.

4.2   Print Position

i **NOTICE!**

The direct print module is delivered with a default print length of 65 mm. In order to use the maximum print length of 75 mm, the print position value must be changed to 93 (see chapter 10.5 Machine Parameters (Intermittent Mode), page 62).
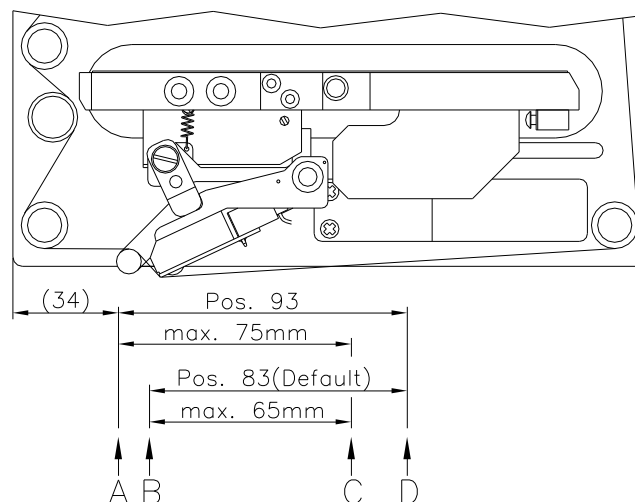
Figure 6

A: Print pos. / Start pos. value = 93   C: Max. position print end
B: Print pos. / Start pos. value = 83   D: Stand-by position

5   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!
Perform trainings regularly.
Content of the training are chapter 5 (Operating Conditions), chapter 8 (Load Transfer Ribbon Cassette) and chapter 12 (Maintenance and Cleaning).

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

Only use original spare and exchange parts.

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

Conditions for installation place

The installation place of 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.

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.

Allowable lines

Shielded line:

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

Sending and receiving lines have to be twisted in pairs.

Maximum 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

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.

6   Technical Data

	Dynacode II IP53	Dynacode II IP107	Dynacode II IP128
Resolution	300 dpi	300 dpi	300 dpi
Print speed			
Continuous mode	50 … 800 mm/s	50 … 600 mm/s	50 … 450 mm/s
Intermittent mode	50 … 600 mm/s	50 … 600 mm/s	50 … 600 mm/s
Back speed	intermittent mode only: max 600 mm/s		
Print width	53.3 mm	106.6 mm	128 mm
Print length			
Continuous mode	6000 mm	3000 mm	3000 mm
Intermittent mode	75 mm	75 mm	75 mm
Frame passage width	customized		
Printhead	Corner Type	Corner Type	Corner Type
Acoustic Emission (measuring distance 1 m)			
Average sound power level	60 dB(A)	65 dB(A)	68 dB(A)
Transf Ribbon			
Ink	outside / inside (option)		
Max. roll diameter	98 mm	82 mm	75 mm
Core diameter	25.4 mm / 1"	25.4 mm / 1"	25.4 mm / 1"
Max. length	900 m	600 m	450 m
Max. width	55 mm	110 mm	130 mm
Dimensions in mm (width x height x depth)			
Print mechanics			
w/o mounting frame	204 x 182 x 235	204 x 182 x 290	204 x 182 x 310
with mounting frame	depends on passage width		
Control unit	314 x 230 x 100 – w/o protective cover, w/o connecting cables 314 x 350 x 100 – with protective corer, w/o connecting cables		
Weight			
Print mechanics	9,5 kg	11 kg	11,7 kg
Electronics (incl. cable)	7 kg – with protective cover, w/o connecting cables		
Electronics			
Processor	High Speed 32 Bit		
RAM	16 MB		
Slot	Compact Flash card type I (inside of control unit)		
Battery cache	for Real-Time clock (storage of data with shut-down)		
Warning signal	acoustic signal when error		
Interfaces			
Serial	RS-232C (bis 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 … 230 V AC / 50-60 Hz		
Nominal current	230 V AC / 1.5 A − 110 V AC / 3 A		
Fuse values	2x T4A 250 V		

Operation Data	
Ingress Protection Rating	IP 65
Temperature	5 … 40 °C
Humidity	max 80 % (non-condensing)
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.

6.1   Control Inputs and Control 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
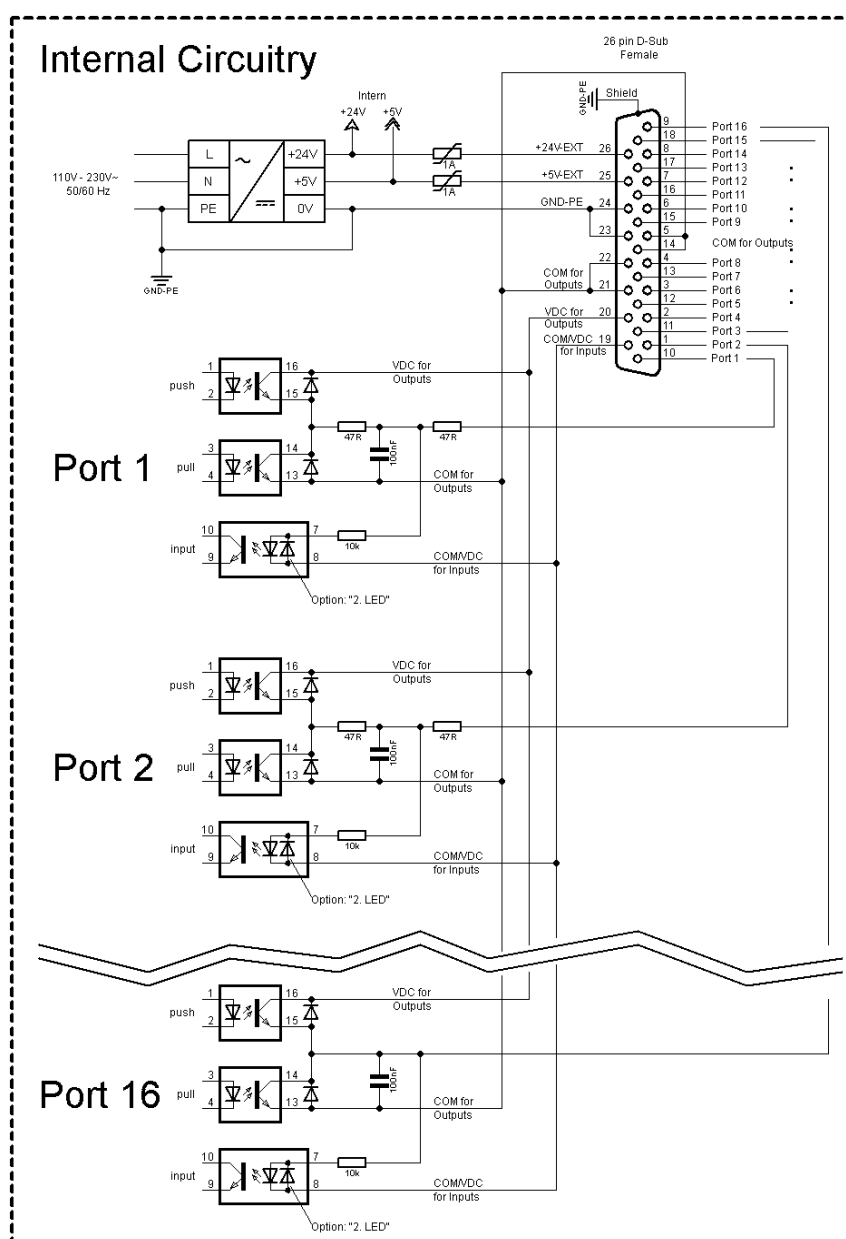
Figure 7

**Configuration of
D-Sub socket**
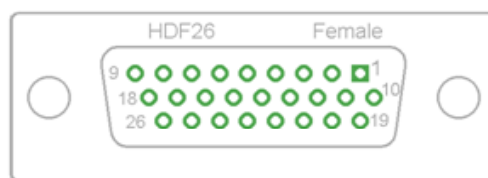
Figure 8

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	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	No function
11 (Output)	16	No function
12 (Output)	7	Printing
13 (Output)	17	Ready
14 (Output)	8	No function
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).

Port	Pin	Description / Function
+ 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.

6.2   Registered Functions/Profiles for Inputs/Outputs

Select menu I/O Parameters / I/O Profile to select the desired profile.

**List of registered
functions for
*Std_Direct***

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

**List of registered
functions for
*Std_Direct2***

Port	Function
1 (Input)	Print start
2 (Input)	Error reset
3 (Input)	Counter reset
4 (Input)	Release signal
5 (Input)	No function
6 (Input)	No function
7 (Input)	No function
8 (Input)	No function
9 (Output)	Error
10 (Output)	Ready
11 (Output)	Cassette open
12 (Output)	Printing
13 (Output)	Return
14 (Output)	Printhead down
15 (Output)	Print position
16 (Output)	Transfer ribbon prior warning

**List of registered
functions for
*StdFileSelDirect***

Port	Function
1 (Input)	Print start
2 (Input)	Error reset
3 (Input)*	Number of the file to load Bit 0 (Input)
4 (Input)*	Number of the file to load Bit 1 (Input)
5 (Input)*	Number of the file to load Bit 2 (Input)
6 (Input)*	Number of the file to load Bit 3 (Input)
7 (Input)*	Number of the file to load Bit 4 (Input)
8 (Input)*	Number of the file to load Bit 5 (Input)
9 (Output)	Error
10 (Output)	Active print order
11 (Output)	Generation
12 (Output)	Printing
13 (Output)	Ready
14 (Output)	Error
15 (Output)	Return
16 (Output)	Transfer ribbon prior warning

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

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

The files can be saved with a file extension.

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

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

List of registered functions for *SP_Direct0*

Port	Function
1 (Input)	Print start
2 (Input)	Reset error
3 (Input)	Counter reset
4 (Input)	No function
5 (Input)	No function
6 (Input)	No function
7 (Input)	No function
8 (Input)	No function
9 (Output)	Ready
10 (Output)	No function
11 (Output)	No function
12 (Output)	No function
13 (Output)	Ready
14 (Output)	Error
15 (Output)	Return
16 (Output)	Transfer ribbon prior warning

List of registered functions for *Old_Direct0*

Port	Function
1 (Input)	Print start
2 (Input)	Reset error
3 (Input)	Counter reset
4 (Input)	No function
5 (Input)	No function
6 (Input)	No function
7 (Input)	No function
8 (Input)	No function
9 (Output)	Error
10 (Output)	Active print order
11 (Output)	Generation
12 (Output)	Printing
13 (Output)	Print-Ready
14 (Output)	Printhead down
15 (Output)	Return
16 (Output)	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.
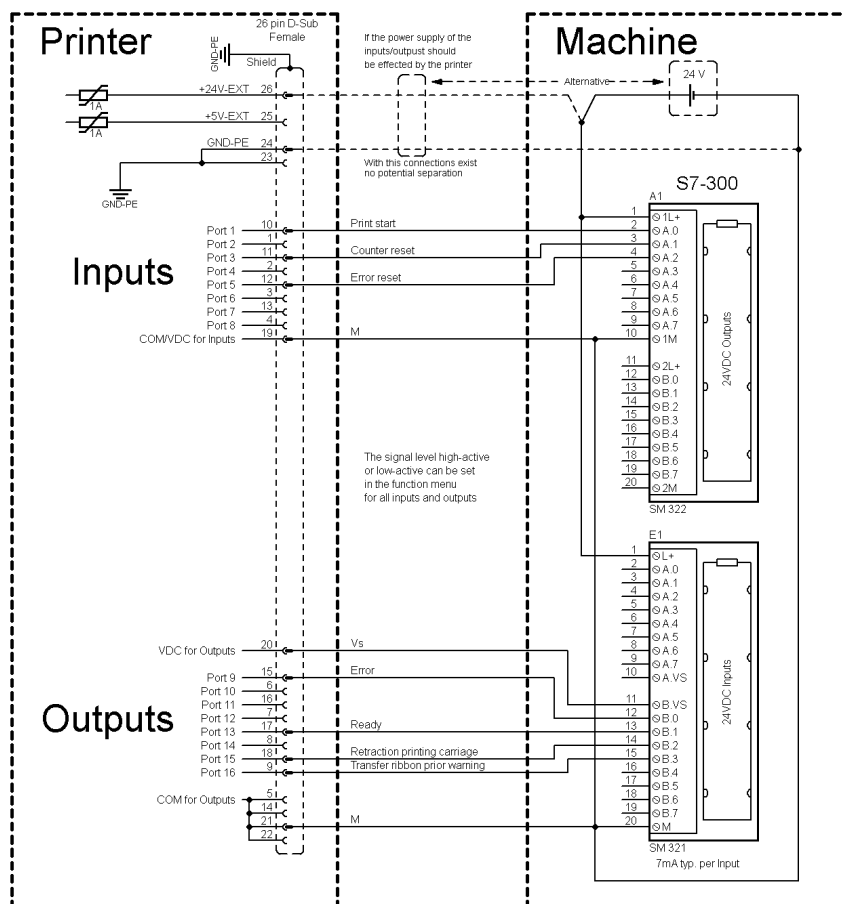
Figure 9

Example 2   Device connection to a operating panel.
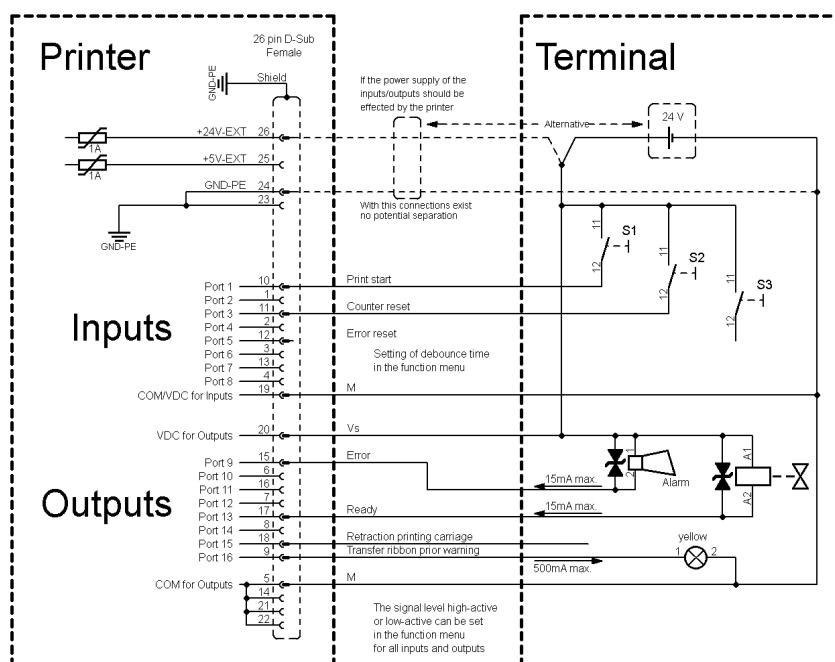
Figure 10

Example 3   Device connection version if 'Option: 2. LED'.
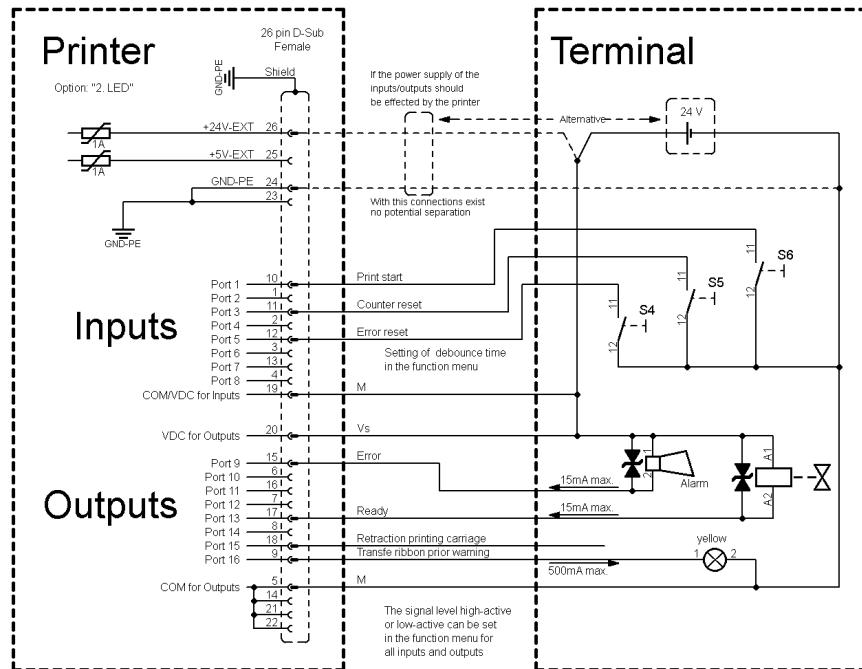
Figure 11

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.

7   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.
>
> $\Longrightarrow$ Do not underestimate the weight of the printing system (9 … 16 kg).
>
> $\Longrightarrow$ Do not lift the printing system at the hood.
>
> $\Longrightarrow$ Protect the printing system against uncontrolled movement.

$\Longrightarrow$ Check the direct print module for transport damages.

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

$\Longrightarrow$ Check delivery for completeness.

Scope of delivery

- Print mechanics.
- Control unit with cable.
- Cleaning cassette.
- Connecting cable.
- Mini controller.
- Manometer.
- Pneumatic tube.
- Push-on connector.
- I/O accessories (mating connector for I/Os).
- Protective cover for control unit IP 65.
- 1 transfer ribbon roll.
- Empty core, mounted on transfer ribbon rewinder.
- Cleaning foil for printhead.
- Product Safety Guide.

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

7.1 Install the Print Mechanics at Machines

i NOTICE!

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

Installation with mounting frame

At the bottom of the mounting frame are two M8 threads that can be used for the attachment at the machine. Additionally multi-functional connecting parts are supplied.

Please observe the following conditions:

- The maximum thread engagement of the M8 threads is 10 mm.

- The print mechanics has to be installed with a distance from printhead to brake stator of 2 … 3 mm (see illustration).

  i NOTICE!

  A distance of 2 mm is recommended.
  A smaller distance is not possible due to the sealing strip at the bottom of the print mechanics, otherwise the counter-pressure plate or pressure roller can touch the print mechanics

- The best print results can be received if the silicon of the pressure roll consists of a hardness of approx. 40° … 50 ° Shore A and/or the elastometer of the counter-pressure plate shows a hardness of approx. 60 ± 5 Shore A (average value of roughness Ra ≥ 3,2 mm).

- The pressure roll/counter-pressure plate has to be installed parallel to the linear movement of print unit and the focal line of printhead. Discrepancies to the focal line and cavities in the print surface can lead to an inferior print quality at these positions.

Folie Foil
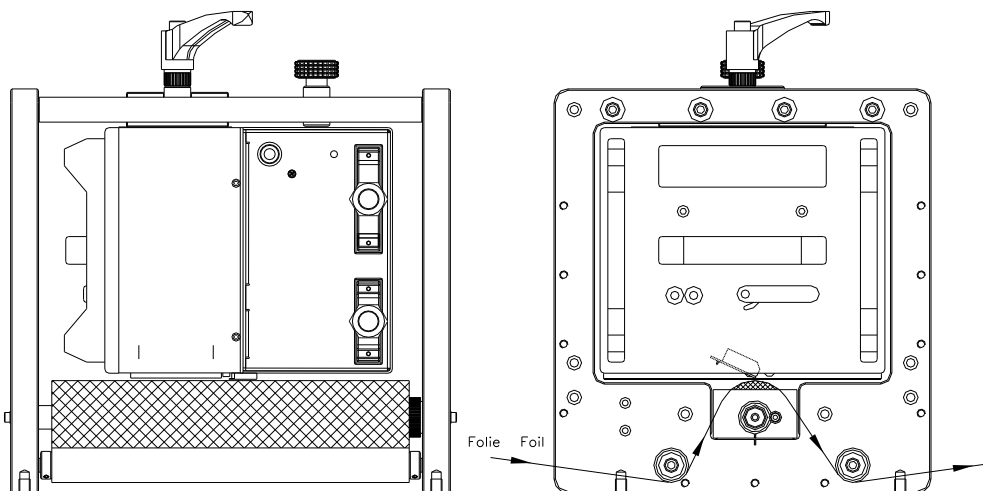
Figure 12

Installation without mounting frame

In case the machine is used without mounting frame, then the print module is to be fixed from the top with four M6 screws.

The maximum thread engagement of the M6 threads is 6 mm. (position of printhead see illustration)

7.2   Required Space for Cable Outgoing

Standard:
Cable outgoing
sideways

128 (Dynacode 53)   107   204   104

178

4.5
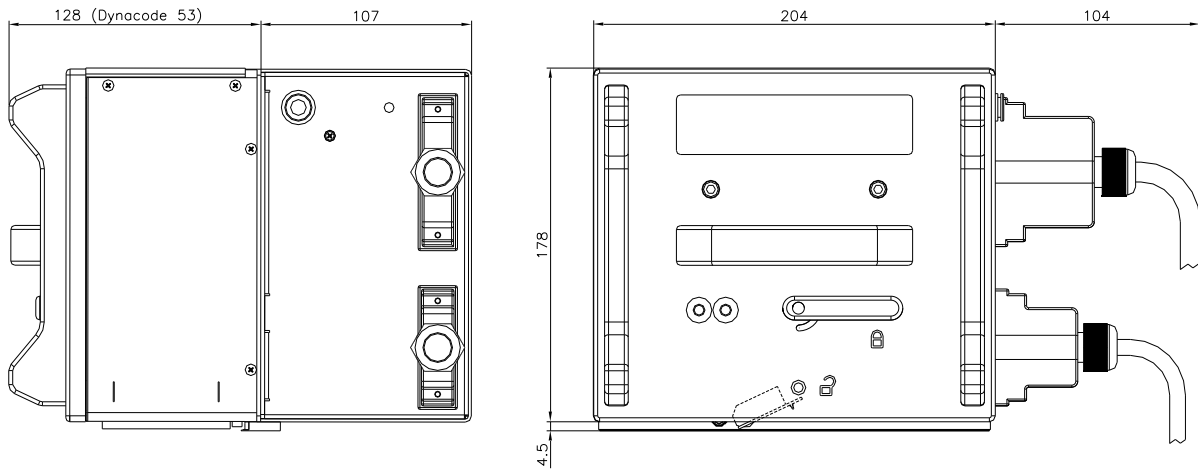
Figure 13

Option:
Cable outgoing behind

128 (Dynacode 53)   121   104   204   22

178

4.5
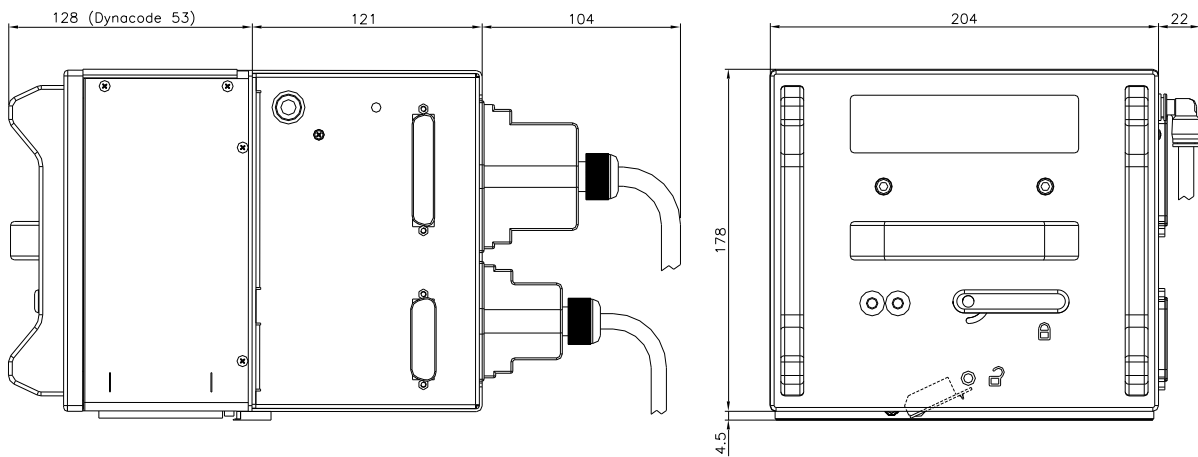
Figure 14

7.3   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 7 bars and 4 bars after the pressure regulator.

> **i** **NOTICE!**
>
> A pneumatic power supply of 4 bars is recommended.

The compressed-air has to be dry and oil free.

The supplied pressure regulator with manometer is to connect with a pneumatic tube Ø 8 mm via a plugging bolting to the pneumatic power supply. It is necessary to make a connection between the pressure regulator and the print mechanics via a pneumatic tube Ø 8 mm.

Please observe the following notes:

1. Position the pressure regulator as near as possible to the print mechanics.

2. The pressure regulator is only to operate in the direction that is indicated on its underside. The direction shows the way of the streaming air.

3. It is not allowed to bend the pneumatic tubes.

4. 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).

5. Please observe a possible short length of the 8 mm pneumatic tubes.

Druckmechanik
Print mechanics

Pneumatikschlauch
Pneumatic tube 8x1

Druckregler mit Manometer
Pressure regulator with manometer

Druckluftversorgung
Pneumatic power supply
min. 4 bar, max. 7 bar
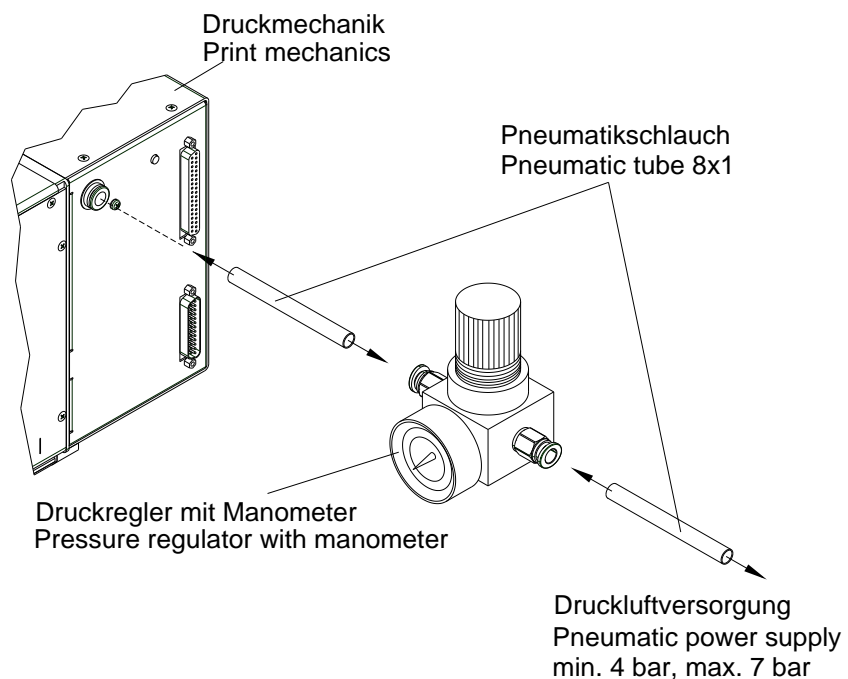
Figure 15

7.4   Install the protective cover for control unit IP65

i   **NOTICE!**

By mounting the optional protective cover, the protection class IP 65 according to DIN EN 60529 is achieved.
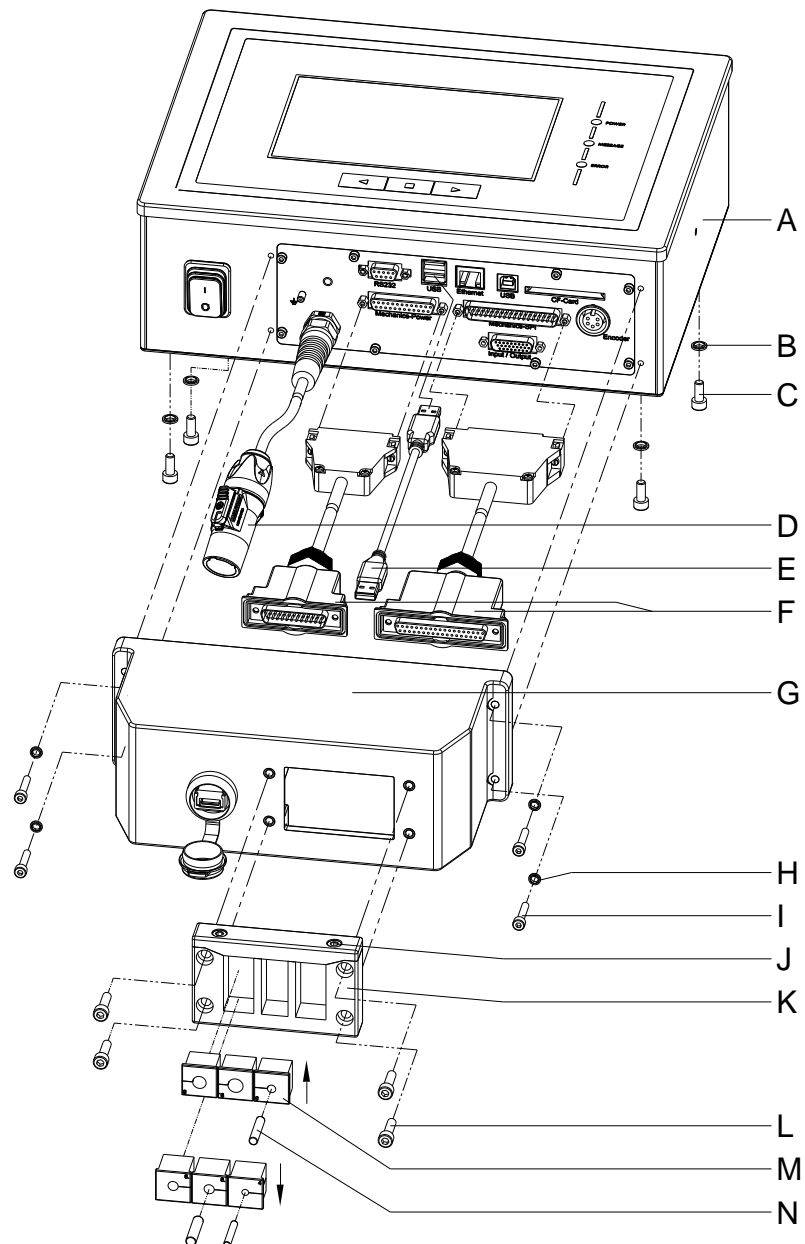
Figure 16

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. Guide the connection cable print mechanics/control unit (F) with the non-sealed side from the outside through the protective cover (G).

3. Connect the connection cable print mechanics/control unit (F) to the control unit (A).

4. If necessary, connect a connection cable for external inputs/outputs to the appropriate socket of the control unit (A).

5. If necessary, connect an Ethernet or USB data cable to the control unit (A).

6. Insert the USB data cable (E) on the inside of the protective cover (E) into the USB socket.

7. Guide the power cable (D) and if necessary, the data and I/O cable through the opening of the protective cover (G).

8. 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).

9. Screw the protective cover (G) to the control unit (A) with the four screws (I) and the sealing rings (H).

10. Remove the upper part of the cable entry strip (K) after removing the both screws (J).

11. 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).

12. 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 cables print mechanics/control unit (F) must be placed in the upper left corner and the power cable (D) should be placed on the bottom left (see Figure 17).

> **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).

13. Fix the upper part of the cable entry strip (K) with the screws (J), so that the connecting cables are still movable.

14. Fix the cable entry strip (K) to the protective cover (G) with the screws (L).

15. 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.

O

K

D

F
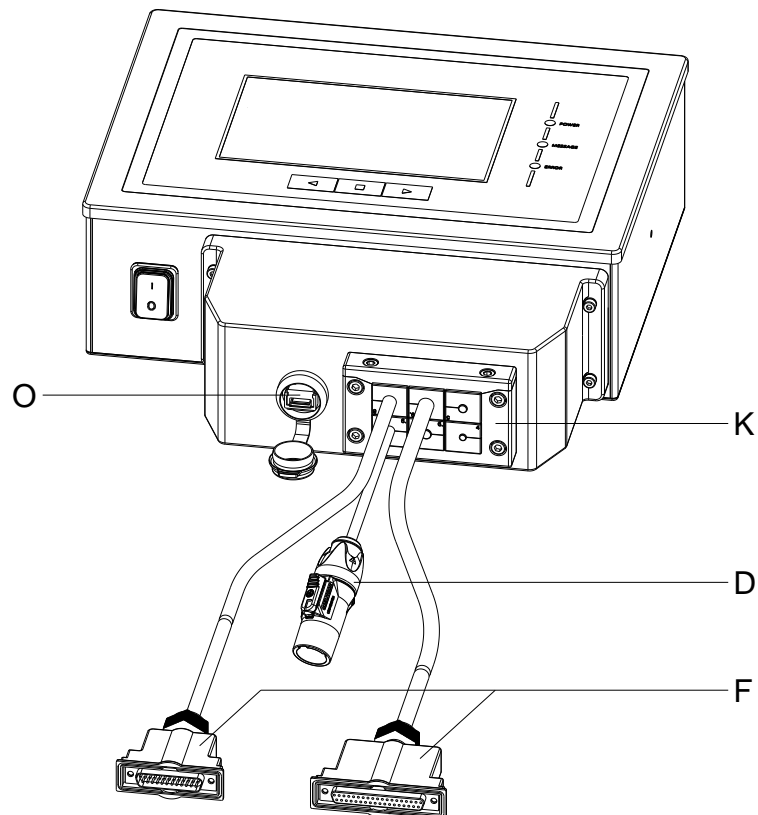
Figure 17

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).

7.5   Adjust the Pressure Power

Pressure power in dependence of air pressure c53 / i53 (one pressure cylinder)

Pressure power in dependence of air pressure c107 / i107 (two pressure cylinder)

Pressure power in dependence of air pressure c128 / i128 (two pressure cylinders)
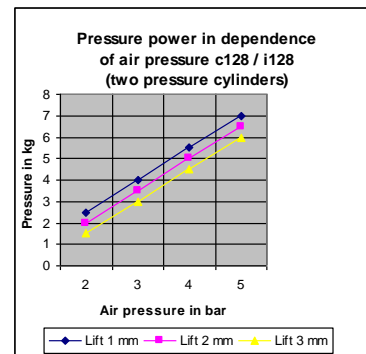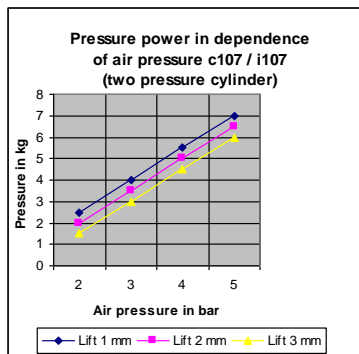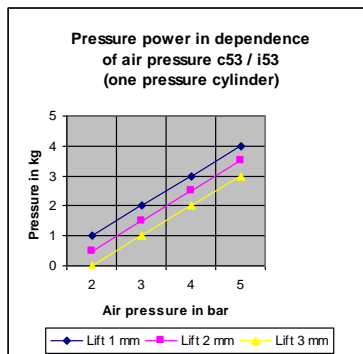
The pressure power of the printhead can be set with the pressure regulator. The values are indicated in the following table:

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 the printhead and counter-pressure plate in idle mode of the device.

	DC II IP53	DC II IP107	DC II IP128
Recommended pressure power:	40 N	40 N	40 N
Max. pressure power:	45 N	45 N	45 N

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

7.6   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 … 230 V AC 50-60 Hz without any adjustments or modifications.

> **!   CAUTION!**
>
> The direct print module can be damaged by undefined switch-on currents.
>
> $\implies$ Set the power switch to '0' before plugging in the direct print module.

$\implies$ Insert the plug of power cable into a grounded electrical outlet.

Connect to a computer or to a computer network

> **i   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.

$\implies$ Connect the direct print module to a computer or network with a suitable cable.

7.7   Before Initial Operation

1. Mount the print mechanics.

2. Connect all cables between the print mechanics and control unit. Protect cables against unintentional unscrewing.

3. Install the compressed air connection.

4. Connect the control unit and PC by direct print module interface.

5. Connect the control unit and packaging machine by inputs and outputs.

6. Connect the power cable of control unit.

7.8   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, parallel, 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.

7.9   Initial Operation

$\Longrightarrow$ After all connections are completed, switch on the control unit.

$\Longrightarrow$ Insert the ribbon cassette (see chapter 8, page 43).
After loading the transfer ribbon cassette the measuring of transfer ribbon begins and the printhead is moved to the print position.

8   Load Transfer Ribbon Cassette

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 direct print module malfunctions and the guarantee can expire.

NOTICE!

Before a new transfer ribbon roll is loaded, the printhead must be cleaned using the printhead and roller cleaner (97.20.002). For detailed information, please see page 126.
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.

8.1   Transfer Ribbon with Coating Outside
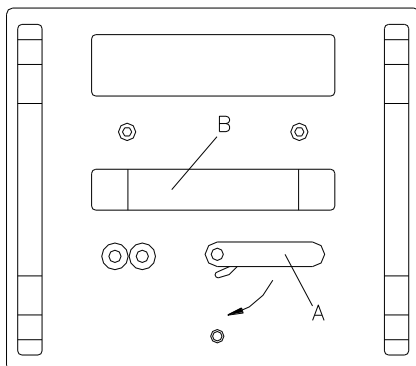
1. Turn the lever (A) 90° in clockwise direction.

2. Remove the ribbon cassette from the print mechanics by pulling handle (B).

3. Load a new ribbon roll as far as it will go onto the unwinding roll (C).

4. Load an empty cardboard roll as far as it will go onto the rewinding unit (D).

5. Insert the ribbon according to illustration.

6. Fix the ribbon with an adhesive tape at the empty roll and tighten it by some turns of the core.

7. Push the ribbon cassette again onto print mechanics and take care that the ribbon not rip.

8. Turn the lever (A) 90° anticlockwise.
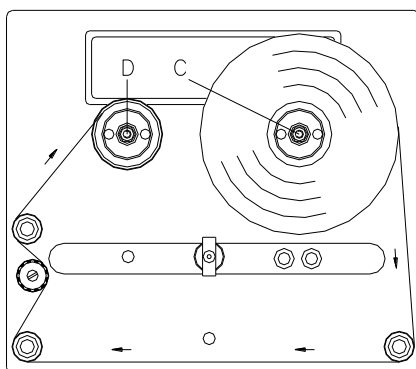
NOTICE!

The above illustration shows a left-hand printing system. If you are using a right-hand system, then the new roll is to be inserted at the left and the cardboard core is to be inserted at the right side.

Figure 18

CAUTION!

Impact of electrostatic material on people!

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

8.2 Transfer Ribbon with Coating Inside
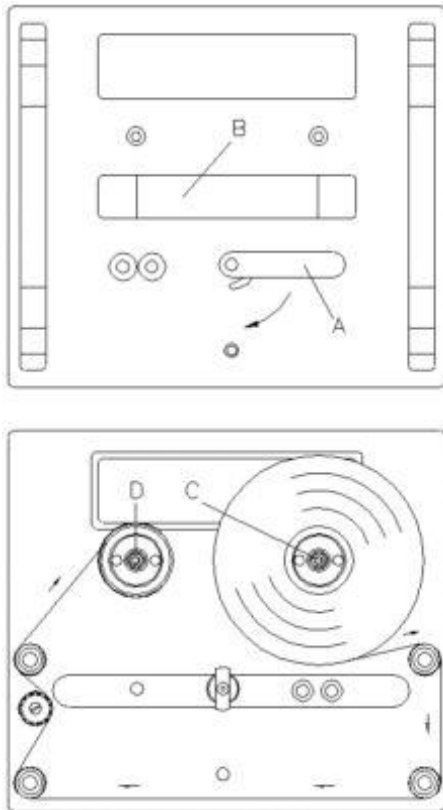
1. Turn the lever (A) 90° in clockwise direction.

2. Remove the ribbon cassette from the print mechanics by pulling handle (B).

3. Load a new ribbon roll as far as it will go onto the unwinding roll (C).

4. Load an empty cardboard roll as far as it will go onto the rewinding unit (D).

5. Insert the ribbon according to illustration.

6. Fix the ribbon with an adhesive tape at the empty roll and tighten it by some turns of the core.

7. Push the ribbon cassette again onto print mechanics and take care that the ribbon not rips.

8. Turn the lever (A) 90° anticlockwise.

> **i** **NOTICE!**
>
> The above illustration shows a left-hand printing system. If you are using a right-hand system, then the new roll is to be inserted at the left and the cardboard core is to be inserted at the right side.

Figure 19

> **!** **CAUTION!**
>
> Impact of electrostatic material on people!
>
> $\Rightarrow$ Use antistatic transfer ribbon because electrostatic discharge can occur when removing.

8.3   Increase the Clamping Force for Ribbon Roll

i **NOTICE!**

The use of high-quality transfer ribbon with a cardboard core is recommended. A sample ribbon roll is included in the scope of delivery. The clamping force of transfer ribbon roll placed on the rewinding/unwinding unit is designed for this quality.
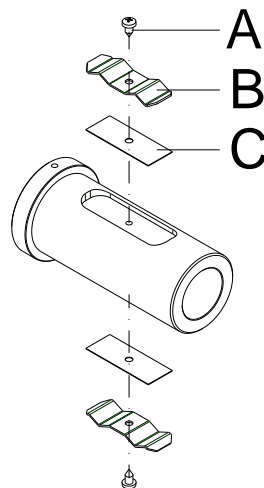
Figure 20

If other transfer ribbons are used, it can occur that the clamping force of the spring plates (B) is not sufficient, in order to position the rolls surely and to protect it against rotating.

When using transfer ribbons with plastic cores a safe positioning of the roles cannot be ensured.

! **CAUTION!**

Slippage of transfer ribbon roll placed on the rewinding/unwind unit or the empty cardboard core leads to malfunctions.

$\implies$ When using transfer ribbon rolls with plastic cores the groove must be shimmed.

Increase the clamping force

1. Remove the screws (A) and spring plates (B).

2. Insert the shims (C) into the groove. The shims are available from us (part number 52.57.110).

3. Fasten again the spring plates (B) and shims (C) with screws (A).

4. Insert the transfer ribbon roll and empty cardboard core on the rewinding/unwinding unit.
   Check firm position!

9   Water and Dust Protection Unit

After installing all of the necessary connections at the control unit and the covers of the not used connections with the appropriate accessories (contained in delivery) the control unit is protected from water and dust at each time in accordance to the degree of protection of enclosure IP65.

Owing to the conditions during the operation of direct print modules of this construction type the print mechanics cannot be protected at the time of printing completely from ingress of water.

However it is possibly by means of the special *Cleaning Cassette* (contained in delivery) to protect the print mechanics according to the degree of protection of enclosure IP65 during standstill times of machinery from ingress of water and dust.

9.1   Transfer Ribbon Cassette / Cleaning Cassette

Transfer ribbon cassette
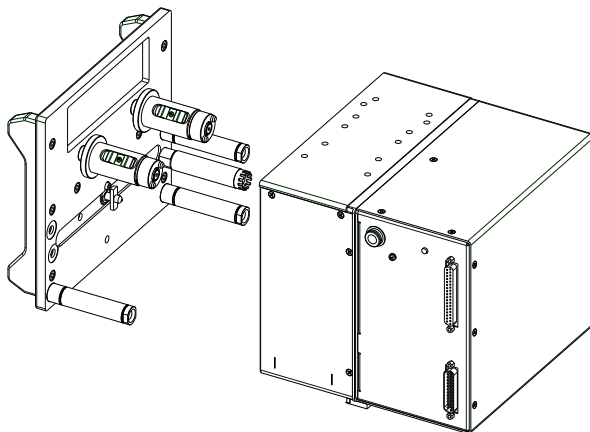
Cleaning cassette

Figure 21
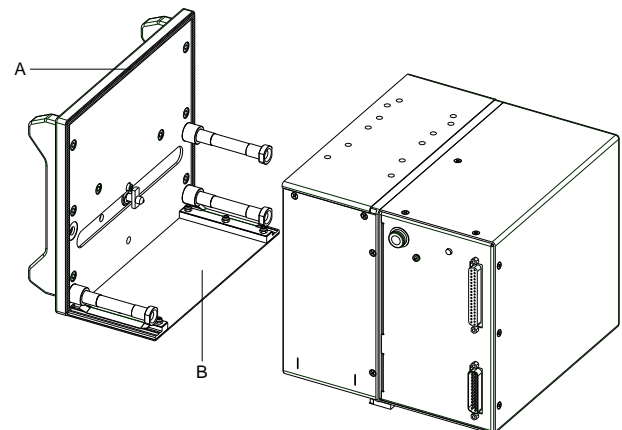
Figure 22

A = Sealing profile
B = Cover plate below with mounted parts

9.2   Use the Cleaning Cassette

1.   Remove the transfer ribbon cassette necessary for printing (see chapter 8, page 43.

2.   Push and lock the cleaing cassette in the same way.

3.   By an inserted sealing profile (A, Figure 22) and a cover (B, Figure 23) the print mechanics is protected in such a way for ingress of water and dust.

4.   The pneumatic tube and the connection cables to the control unit with the waterproof housings may not be removed.

5.   Indications for maintenance and cleaning are described in chapter 12, page 125.

6.   Before the resumption of printing the cleaning cassette must be changed again with the transfer ribbon cassette.

> **!**   **CAUTION!**
> The direct print module can be damaged by ingress of water due to incorrect operation/locking.
>
> $\Longrightarrow$ After removing the cleaning cassette examine the print mechanics for ingress of water.
>
> $\Longrightarrow$ Before the device is again taken into operation, dry the approriate place well.

10 Function Menu

10.1 Menu Structure (Continuous Mode)

Print Settings
- Contrast
- Ribbon control
- X-displacement

Machine Parameters
- Operating mode
- Unit of print offset
- Print offset
- Print position
- Layouts/cycle
- Resolution
- Material feed 360°
- Material speed

Layout Settings
- **Extended Layout Settings**
  - Number of columns
  - Material
  - Flip layout
  - Rotate layout
  - Alignment
- **General Parameters**
  - Print length
  - Layout width

Device Settings
- **Print Job**
  - External parameters
  - Field handling
  - Customized entry
  - Autoload
  - Hotstart
  - Codepage
- **Print Control**
  - Layout confirmation
  - Automatically ready after error
  - Standard layout
- **User Environment**
  - Buzzer
- **General Parameters**
  - Language
  - Keyboard layout

Export the latest menu structure from ConfigTool.

Printer settings --> Configuration --> Export

I/O Parameter

I/O Port Parameter 1-8
- Input print start
- Input reset error
- Input reset counter
- Input release signal
- Disabled
- Disabled
- Disabled
- Disabled

I/O Port Parameter 9-16
- Output error
- Output print order active
- Output generation
- Output printing
- Output ready for printing
- Output error
- Output backfeed
- Output ribbon prior warning

General Parameters
- I/O profile
- Debouncing
- Start delay
- Error if not ready

Ribbon Saving

Operating Mode Parameters
- Ribbon correction

Performance Data
- Min distance between prints
- Max number of cycles
- Ribbon utilization

Expert Parameters
- Printhead down time
- Ribbon motor early start time
- Min print speed
- Printhead valve reaction time
- Field ribbon saving
- Ribbon saving priority
- Save start signal
- Ignore empty lines

General Parameters
- Ribbon saving mode
- Max print speed

Network
- IP address
- Netmask
- 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	Cover / Pressure
		Ribbon rewinder
		Ribbon unwinder
		Carriage sensor
		Material encoder
		Carriage sensor left
		Carriage sensor right
		Counter ribbon rewinder
		Counter ribbon unwinder
		Counter encoder
	Device Status	Paper counter printhead
		Paper counter device
		Heater resistance
		Printhead temperature
		Print mechanics temperature
		Online/Offline
	Transfer Ribbon	Length and ink side
		Prewarning
		Current diameters
	Brake Service	Brake power
		Brake pressure power
	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 Output
		I/O Status Test Output
	Encoder Service	Print profile in file
		Last print min speed
		Last print max speed
	General Parameters	Print examples
		Device operating mode
		Write lof files to memory card
		Delete print job and spool file

Password		Operation		Password
				Password Configuration
				Password protection Configuration
				Password Favorites
				Password protection Favorites
				Pasword Memory card
				Password protection Memory card
				Password Printing
				Password protection Printing
		Network		Password
				Password protection HTTP
				Password protection Telnet
				Password protection remote access

Maintenance		Test Function		Printhead up/down
				Carriage position printing/parking
		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

10.2 Menu Structure (Intermittent Mode)

Print Settings
- Print speed
- Contrast
- Ribbon control
- X-displacement

Machine Parameters
- Operating mode
- Back speed
- Unit of print offset
- Print offset
- Print position
- Layouts/cycle

Layout Settings
- **Extended Layout Settings**
  - Number of columns
  - Material
  - Flip layout
  - Rotate layout
  - Alignment
- **General Parameters**
  - Print length
  - Layout width

Device Settings
- **Print Job**
  - External parameters
  - Field handling
  - Customized entry
  - Autoload
  - Hotstart
  - Codepage
- **Print Control**
  - Layout confirmation
  - Automatically ready after error
  - Standard layout
- **User Environment**
  - Buzzer
- **General Parameters**
  - Language
  - Keyboard layout
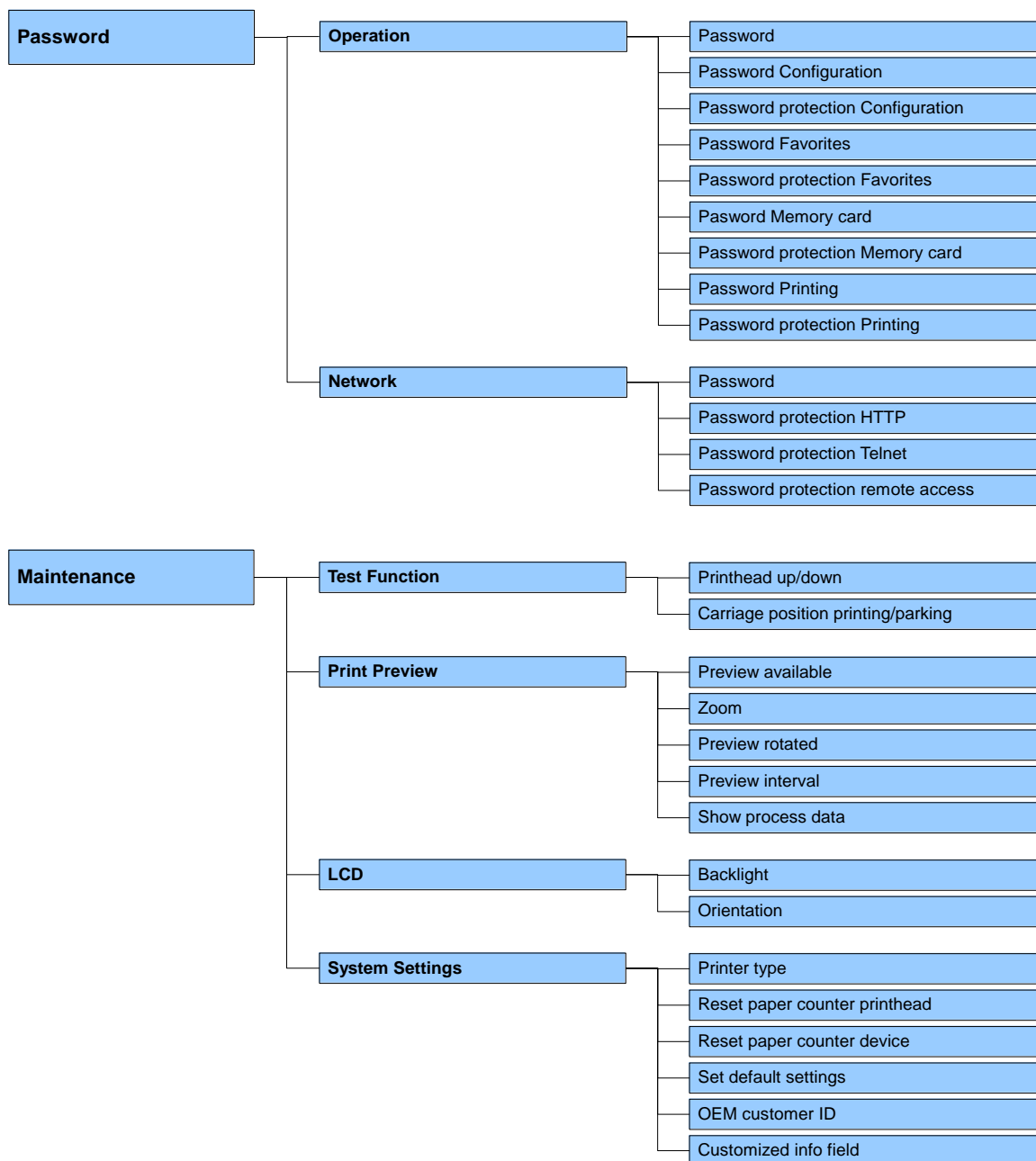
Export the latest menu structure from ConfigTool.

Printer settings --> Configuration --> Export

I/O Parameter

I/O Port Parameter 1-8
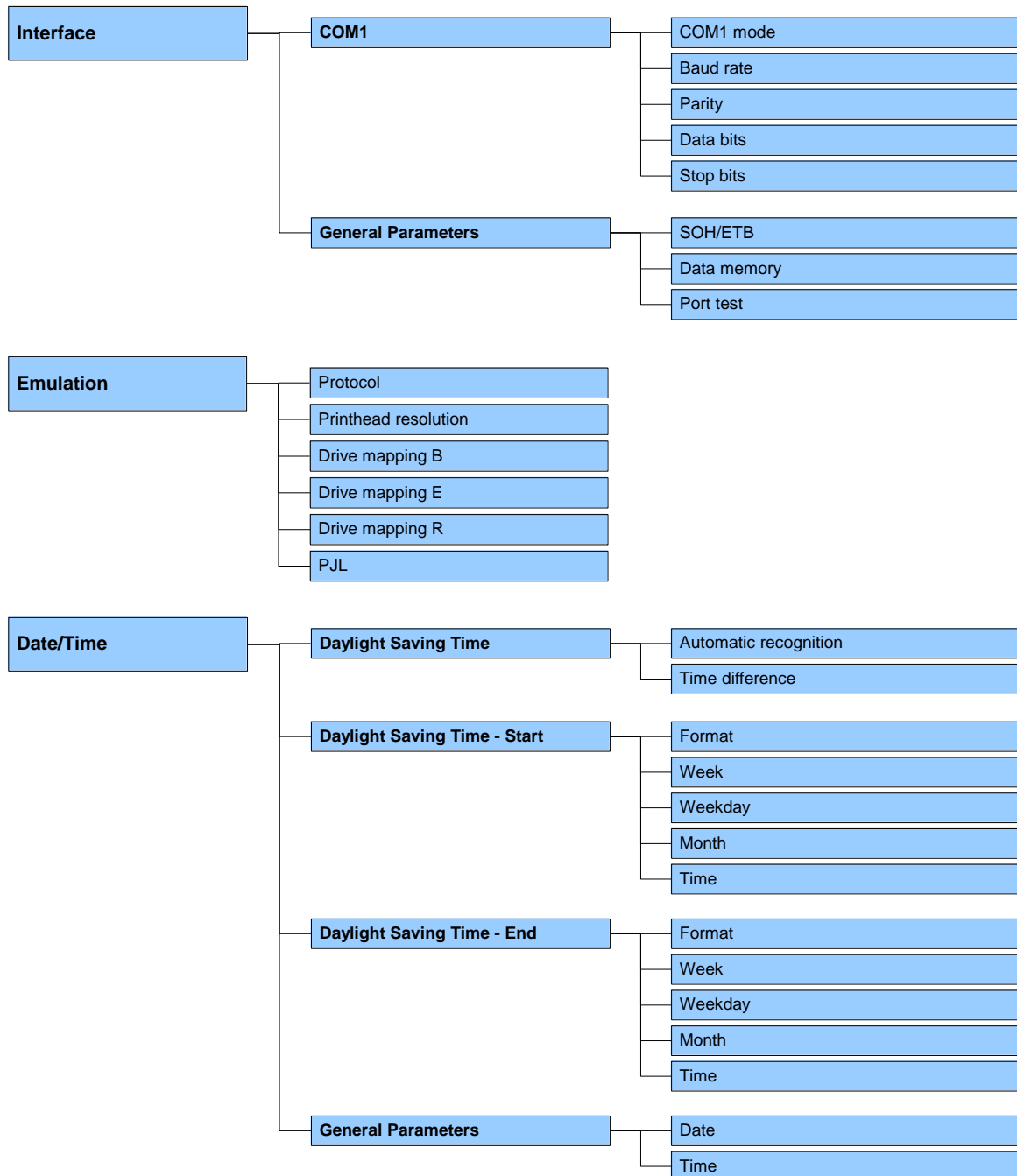- Input print start
- Input reset error
- Input reset counter
- Input release signal
- Disabled
- Disabled
- Disabled
- Disabled

I/O Port Parameter 9-16
- Output error
- Output print order active
- Output generation
- Output printing
- Output ready for printing
- Output error
- Output backfeed
- Output ribbon prior warning

General Parameters
- I/O profile
- Debouncing
- Start delay
- Save start signal
- Error if not ready

Ribbon Saving

Operating Mode Parameters
- Ribbon correction

Expert Parameters
- Printhead down time
- Printhead valve reaction time

General Parameters
- Ribbon saving mode
- Max print speed

Network
- IP address
- Netmask
- 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	Cover / Pressure
		Ribbon rewinder
		Ribbon unwinder
		Carriage sensor
		Material encoder
		Carriage sensor left
		Carriage sensor right
		Counter ribbon rewinder
		Counter ribbon unwinder
		Counter encoder
	Device Status	Paper counter printhead
		Paper counter device
		Heater resistance
		Printhead temperature
		Print mechanics temperature
		Online/Offline
	Transfer Ribbon	Length and ink side
		Prewarning
		Current diameters
	Brake Service	Brake power
		Brake pressure power
	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 Output
		I/O Status Test Output
	Encoder Service	Print profile in file
	General Parameters	Print examples
		Device operating mode
		Write lof files to memory card
		Delete print job and spool file

Password — **Operation**
- Password
- Password Configuration
- Password protection Configuration
- Password Favorites
- Password protection Favorites
- Pasword Memory card
- Password protection Memory card
- Password Printing
- Password protection Printing

Network
- Password
- Password protection HTTP
- Password protection Telnet
- Password protection remote access

Maintenance — **Test Function**
- Printhead up/down
- Carriage position printing/parking

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

10.3 Print Settings

Speed
(intermittent
mode only)

Indication of print speed in mm/s (see Technical Data, page 21). The print speed can be determined for each print order anew.
The setting of print speed affects also the test prints.
Value range: 50 … 600 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.

10.4 Machine Parameters (Continuous Mode)

Operating mode

The print procedure cannot be started via the interface. The machine is always in control mode and the print is released by the control input *Print Start*. The operating mode is normally transferred with each layout otherwise mode *I/O dynamic continuous* is used as standard operating mode.
The following modes are available:

IO static:
The input signal is evaluated, i.e. it is printed as long as the signal exists. The number of layouts, which was entered at print start, is printed (level evaluation of print start signal).

IO static continuous:
Corresponds to IO static. Continuous means that not only a defined number of pieces is processed but the same layout is printed as long as new data is transferred by interface.

IO dynamic:
The external signal is evaluated dynamically, i.e. in case the direct print module is in 'waiting' mode a single layout is printed at each signal changing (flank evaluation of print start signal).

IO dynamic continuous:
Corresponds to IO dynamic. Continuous means that not only a defined number of pieces is processed but the same layout is printed as long as new data is transferred by interface.

Unit of print offset   Selection for the unit of print offset.
                             It is possible to choose between mm or ms.

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.

                             Settings possible either in mm or ms.
                             Value range: 1 … 999 mm

Position bei Startsignal

Druck-Offset
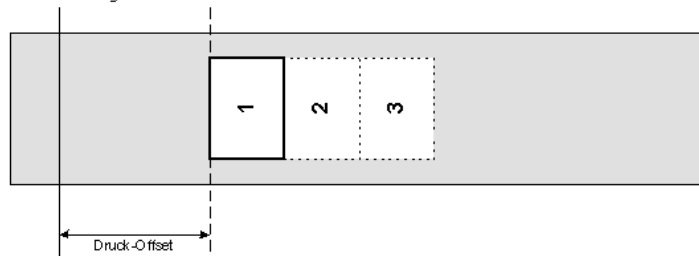
Print position   Indication of position of print carriage in mm.
                             Value range: 12 … 93 mm

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

position at start signal
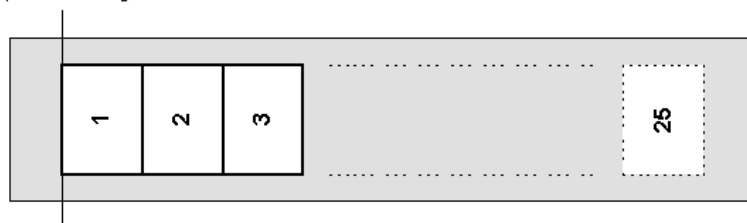
Resolution   Indication of resolution of used encoder.

**Material feed 360
degrees**   Indication of material feed per rotation of encoder in mm. These
                             settings help measuring the material speed.
                             The material feeding per encoder rotation corresponds for instance, in
                             a 1:1 translation between the encoder and the roller, to the roller
                             circumference.

Material speed   Indication of material speed in mm/s (only for reading purposes).
                             Value range: 12 … 93 mm/s

10.5 Machine Parameters (Intermittent Mode)

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 … 600 mm/s.

Unit of print offset   Selection for the unit of print offset.
                                  It is possible to choose between mm or ms.

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

Position bei Startsignal

Druck-Offset
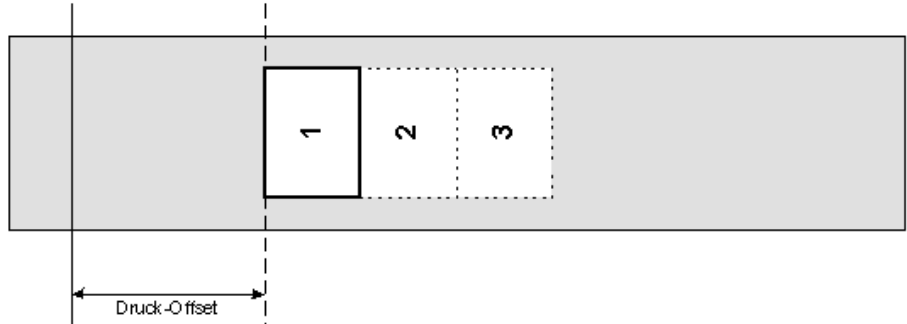
Print position   Indication of start position of print carriage in mm.
                                  Value range: 0 … 93 mm
                                  Default: 83 mm

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

Position bei Startsignal
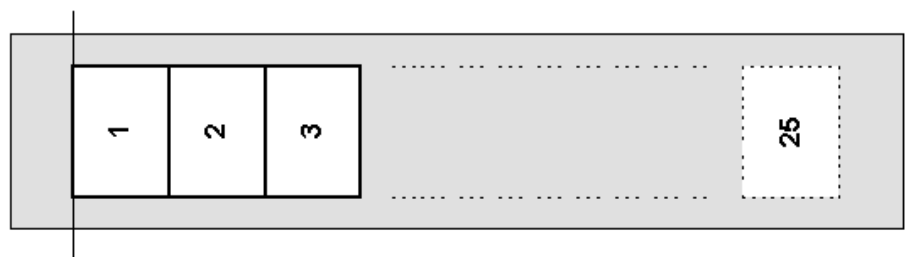
10.6 Layout Settings

10.6.1 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.

10.6.2 General Parameters

Print length Indication of the print length in mm.
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.

10.7 Device Settings

10.7.1 Print Job

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.

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.

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.

> **i 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.

> **i NOTICE!**
>
> A common use of the functions Autoload and Hotstart is not possible. For a correct Autoload procedure the Hotstart must be deactivated in the 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 15.1, page 149).

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.

10.7.2 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, cassette open), then the module changes after the error correction (e.g. cassette closed again) 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.

> P OS 108/12 R
> V1.50 (Build 0001)
>
> NO LABEL DATA
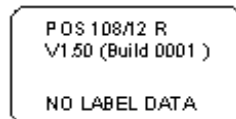
Off: If a print order is started without previous definition of layout, an error message appears in the display.

10.7.3 User Environment

Buzzer   **On (1-7):** An acoustic signal is audible when pressing a key.
Off: No signal is audible.

10.7.4 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.

10.8 I/O Parameters

10.8.1 I/O Port Parameter 1-8

Input print start

Input reset error

Input reset counter

Input external print release (default: disabled)

Disabled

Disabled

Disabled

Disabled

10.8.2 I/O Port Parameter 9-16

Output error

Output print order active

Output generation

Output printing

Output ready

Output error

Output backfeed

Output ribbon prior warning

10.8.3 General Parameters

I/O profil	Selection of the available confiruration *Std_Direct* (factory setting), *Std_Direct2, StdFileSelDirect, SP_Direct0* or *Old_Direct0*. The corresponding assignment is indicated in chapter 6.1, 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	Indication in time per second of the delay for the start signal. Value range: 0.00 … 9.99.

**Save signal
(intermittent mode
only)**

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.
Speed only: If the print speed falls below the minimum, an error message is displayed.

10.9 Ribbon Saving / Foil Saving

Layout   Ribbon saving = maximum utilisation of transfer ribbon

**Transfer ribbon
without ribbon saving**

\--/   \--/
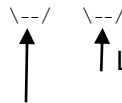
Layout ribbon saving

Field ribbon saving

**Transfer ribbon
with ribbon saving**
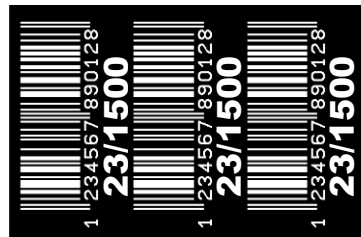
Procedure   In principle the ribbon saving is achieved by the way that the transfer
ribbon in phases in those no printing is effected stopped or
decelerated. If sufficient time is available, the transfer ribbon which
was not used for printing can be retracted to print on it afterwards.
The possibilities of ribbon saving and in this way of the print quality
are to be connected with the available time which is needed for
decelerating and accelerating of transfer ribbon.
There are two different types of ribbon saving:

Field ribbon saving   It is tried to save transfer ribbon with gaps within the layout. Because
of the fact that the gaps are usually very small, only little time is
available. Therefore a feedback is not reasonable (lack of time).

Layout ribbon saving   The gaps between the layouts are optimised. Usually more time is
available here. The loss of transfer ribbon between the layouts which
result from accelerating and decelerating of transfer ribbon can be
corrected by means of the return.

10.10 Ribbon Saving STANDARD (Continuous Mode)

10.10.1 Required Parameters

Max. print speed

Determination of max. print speed.
On the base of this value all necessary calculations e.g. feedback distance and smallest possible print offset are being calculated.

Example

Speed = 400   Very good ribbon saving result between
Mode = Standard   50 mm/s and 400 mm/s.

However, if you print with a speed higher than 400 mm/s, then the ribbon saving result is decreased and/or the ribbon saving can no longer be executed, because the back-feed way was designed to 400 mm/s.

Please consider: if speed is set to 400 and only 300 mm/s are printed, then a smaller number of cycles is reached as if speed is set to 300, however a reserve of 100 mm/s is still available.

Therefore the speed value should be always set to the maximum print speed. If the number of cycles is not sufficient, the rewind correction should be applied.

Ribbon correction

0 mm = It is always so far retracted that an optimal ribbon saving is reached (no loss of transfer ribbon). This is rather rarely realised, as the ribbon position can deviate because of inaccuracies at speed measurement (encoder).
Default: -1 mm

−**xx mm** = The feedback can be made smaller. It causes loss of transfer ribbon but the number of cycles is increased. If the value is increased to the complete backfeed length then the direct print module sets automatically the max. value and no more backfeed is accomplished.

+xx mm = The feedback can be made larger. This causes that it is printed onto the transfer ribbon in the previous printout.

Example

Transfer ribbon

Selection of transfer ribbon in meters that is used. Standard, Fast and Low indicate the tightening force with which the transfer ribbon is wound up.

Standard (Std) = used for normal transfer ribbon (for KCE printheads).

Low = is selected if the transfer ribbon was torn in Standard mode or the transfer ribbon can no longer be removed from the cassette. The transfer ribbon is not accelerated as much as with Standard and therefore it is also suitable when using thin transfer ribbon.

Fast = the transfer ribbon is accelerated faster and therefore a higher number of cycles can be achieved. It can occur that the transfer ribbon can no longer be removed from the cassette. To avoid this, an optional cassette is available on request.

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.

Settings possible either in mm or ms.
Value range: 1 … 999 mm

Min. distance between prints

The smallest possible distance between two prints with full ribbon saving (the print offset must be set to the minimum value). As basis for the calculation the set ribbon saving parameters are used, as well as mode and especially the indicated max. print speed.

10.10.2 Print Performance Information

Min. distance between prints

The smallest possible distance between two prints with full ribbon saving (the print offset must be set to the minimum value). As basis for the calculation the set ribbon saving parameters are used, as well as mode and especially the indicated max. print speed.

measured distance sa
sa = smallest possible distance between two printouts
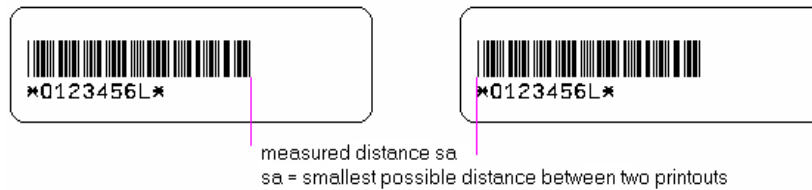
A detailed description can be found on page 151.

Max. number of cycles

Max. number of cycles per minute.

Ribbon utilization

Indicates the loss of ribbon saving, i.e. how many mm transfer ribbon is effectively lost.

so = loss of ribbon savings

10.10.3 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.

Min. print speed

If the min. print speed is increased, the max. number of cycles is also increased.

Minimization print offset

The smallest possible print offset is automatically set in the menu *Machine parameters/Print offset*.

On: The print offset value range is set to the smallest possible value that can be achieved with the current settings (e.g. print speed).

Off: The print offset value range remains at the default setting.

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.

Ribbon saving priority

If the measured speed fluctuation of the material exceeds the processing capability of the printing system, either the optimisation may be reduced, or the print position shifted.

Save start signal

The "SaveStrt" optimisation mode already exists. If a start signal is active during an active print, the transfer ribbon transport is controlled in such a way that the next layout is printed directly after completion of offset travel of the last start signal. To achieve this, however, an optimisation with transfer ribbon retraction is not possible.

To enable a start signal during printing with retraction, this option can be enabled. In this case, however, sufficient print offset for transfer ribbon retraction must be ensured.

Ignore empty lines

In the default operation, the printing system stops for the entire layout length until a new layout can be printed, even if the layout is mainly empty. As some label programs do not provide any layout length, issues may occur in connection with the number of cycles, as the layout length remains constant despite varying lengths of the range to be printed. With this option, all empty lines can be ignored in the beginning, at the end or both.

Set print offset to minimum

Quick selection to set the print offset to the smallest possible value.

On: The print offset value is reset to the smallest possible value.

Off: The value remains at the preset print offset value.

10.10.4 General Parameters

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.

Max. print speed

Determination of max. print speed.
On the base of this value all necessary calculations e.g. feedback distance and smallest possible print offset are being calculated.

10.11 Ribbon Saving SHIFT (Continuous Mode)

10.11.1 Required Parameters

Max. print speed

Determination of max. print speed.
On the base of this value all necessary calculations e.g. feedback distance and smallest possible print offset are being calculated.

Ribbon correction

0 mm = It is always so far retracted that an optimal ribbon saving is reached (no loss of transfer ribbon). This is rather rarely realised, as the ribbon position can deviate because of inaccuracies at speed measurement (encoder).
Default: -1 mm

−xx mm = The feedback can be made smaller. It causes loss of transfer ribbon but the number of cycles is increased. If the value is increased to the complete backfeed length then the direct print module sets automatically the max. value and no more backfeed is accomplished.

+xx mm = The feedback can be made larger. This causes that it is printed onto the transfer ribbon in the previous printout.

Example

Transfer ribbon

Selection of transfer ribbon in meters that is used. Standard, Fast and Low indicate the tightening force with which the transfer ribbon is wound up.

Standard (Std) = used for normal transfer ribbon (for KCE printheads).

Low = is selected if the transfer ribbon was torn in Standard mode or the transfer ribbon can no longer be removed from the cassette. The transfer ribbon is not accelerated as much as with Standard and therefore it is also suitable when using thin transfer ribbon.

Fast = the transfer ribbon is accelerated faster and therefore a higher number of cycles can be achieved. It can occur that the transfer ribbon can no longer be removed from the cassette. To avoid this, an optional cassette is available on request.

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.

Settings possible either in mm or ms.
Value range: 1 … 999 mm

Min. distance between prints

The smallest possible distance between two prints with full ribbon saving (the print offset must be set to the minimum value). As basis for the calculation the set ribbon saving parameters are used, as well as mode and especially the indicated max. print speed.

A detailed description can be found on page 151.

10.11.2 Ribbon Saving SHIFT Parameters

X-Shift　　　　　　　Indication of displacement of the printout in X direction. The printout can be displaced by the entry of a positive or negative value in both directions.

Y-Shift　　　　　　　Indication of displacement of the printout in printing direction. Enter value 0 in order to achieve a print result in which the columns are arranged side by side on the transfer ribbon.

Lane repeats　　　　　Indication of number of lanes printed side by side.

Lane Repeat Shift　　　Indication of distance when changing to a new lane.

Example　　　　　　　X-Shift: 2 mm; Y-Shift: −3 mm　　　X-Shift: 2 mm; Y-Shift: −3 mm
　　　　　　　　　　　　Lanes: 2; R-Shift: −5　　　　　　　Lanes: 2; R-Shift: +3 mm

Layout

Transfer ribbon
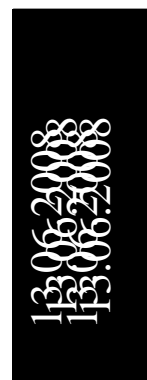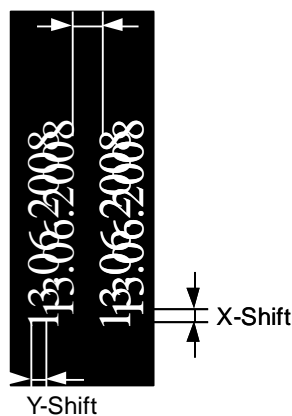
Print result
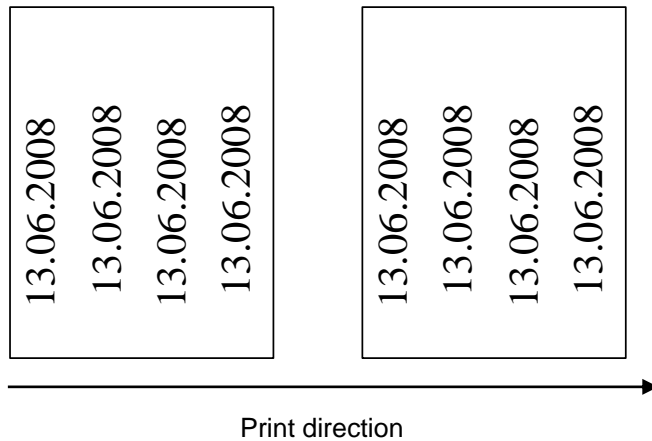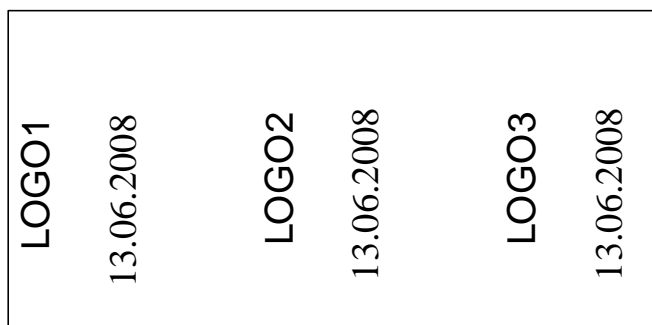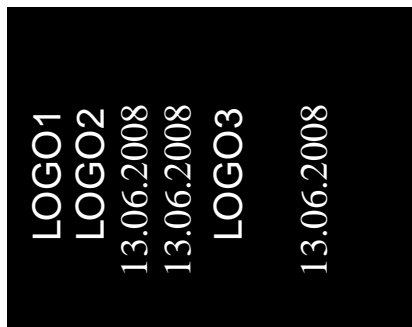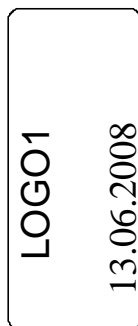
13.06.2008 13.06.2008 13.06.2008 13.06.2008

13.06.2008 13.06.2008 13.06.2008 13.06.2008

Print direction

Example – Cycle printing

X-Shift: 0 mm; Y-Shift: −10 mm; Lanes: 2; R-Shift: 0 mm

LOGO1 13.06.2008

LOGO1 LOGO2 13.06.2008 13.06.2008 LOGO3 13.06.2008

LOGO1 13.06.2008 LOGO2 13.06.2008 LOGO3 13.06.2008

Supposed that the print speed is so high that no field ribbon saving is possible, but after a lane enough time is available then by means of the shift ribbon saving the gap of the fields can be filled with suitable layouts

10.11.3 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.

Min. print speed If the min. print speed is increased, the max. number of cycles is also increased.

Minimization print offset The smallest possible print offset is automatically set in the menu *Machine parameters/Print offset*.

On: The print offset value range is set to the smallest possible value that can be achieved with the current settings (e.g. print speed).

Off: The print offset value range remains at the default setting.

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.

Ribbon saving priority If the measured speed fluctuation of the material exceeds the processing capability of the printing system, either the optimisation may be reduced, or the print position shifted.

Save start signal The "SaveStrt" optimisation mode already exists. If a start signal is active during an active print, the transfer ribbon transport is controlled in such a way that the next layout is printed directly after completion of offset travel of the last start signal. To achieve this, however, an optimisation with transfer ribbon retraction is not possible.

To enable a start signal during printing with retraction, this option can be enabled. In this case, however, sufficient print offset for transfer ribbon retraction must be ensured.

Ignore empty lines   In the default operation, the printing system stops for the entire layout length until a new layout can be printed, even if the layout is mainly empty. As some label programs do not provide any layout length, issues may occur in connection with the number of cycles, as the layout length remains constant despite varying lengths of the range to be printed. With this option, all empty lines can be ignored in the beginning, at the end or both.

Set print offset to minimum   Quick selection to set the print offset to the smallest possible value.

On: The print offset value is reset to the smallest possible value.

Off: The value remains at the preset print offset value.

10.11.4 General Parameters

Ribbon saving mode SHIFT   Layout data can be printed several times laterally displaced. A maximum utilization of transfer ribbon can be achieved.

Max. print speed   Determination of max. print speed.
On the base of this value all necessary calculations e.g. feedback distance and smallest possible print offset are being calculated.

10.12 Ribbon Saving SAVESTRT (Continuous Mode)

10.12.1 Required Parameters

Max. print speed

Determination of max. print speed.
On the base of this value all necessary calculations e.g. feedback distance and smallest possible print offset are being calculated.

Ribbon correction

0 mm = It is always so far retracted that an optimal ribbon saving is reached (no loss of transfer ribbon). This is rather rarely realised, as the ribbon position can deviate because of inaccuracies at speed measurement (encoder).
Default: -1 mm

−xx mm = The feedback can be made smaller. It causes loss of transfer ribbon but the number of cycles is increased. If the value is increased to the complete backfeed length then the direct print module sets automatically the max. value and no more backfeed is accomplished.

+xx mm = The feedback can be made larger. This causes that it is printed onto the transfer ribbon in the previous printout.

Example

Transfer ribbon

Selection of transfer ribbon in meters that is used. Standard, Fast and Low indicate the tightening force with which the transfer ribbon is wound up.

Standard (Std) = used for normal transfer ribbon (for KCE printheads).

Low = is selected if the transfer ribbon was torn in Standard mode or the transfer ribbon can no longer be removed from the cassette. The transfer ribbon is not accelerated as much as with Standard and therefore it is also suitable when using thin transfer ribbon.

Fast = the transfer ribbon is accelerated faster and therefore a higher number of cycles can be achieved. It can occur that the transfer ribbon can no longer be removed from the cassette. To avoid this, an optional cassette is available on request.

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.

Settings possible either in mm or ms.
Value range: 1 … 999 mm

Min. distance between prints

The smallest possible distance between two prints with full ribbon saving (the print offset must be set to the minimum value). As basis for the calculation the set ribbon saving parameters are used, as well as mode and especially the indicated max. print speed.

measured distance sa
sa = smallest possible distance between two printouts

A detailed description can be found on page 151.

10.12.2 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.

Min. print speed

If the min. print speed is increased, the max. number of cycles is also increased.

Minimization print offset

The smallest possible print offset is automatically set in the menu *Machine parameters/Print offset.*

On: The print offset value range is set to the smallest possible value that can be achieved with the current settings (e.g. print speed).

Off: The print offset value range remains at the default setting.

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.
Ribbon saving priority	If the measured speed fluctuation of the material exceeds the processing capability of the printing system, either the optimisation may be reduced, or the print position shifted.
Save start signal	The "SaveStrt" optimisation mode already exists. If a start signal is active during an active print, the transfer ribbon transport is controlled in such a way that the next layout is printed directly after completion of offset travel of the last start signal. To achieve this, however, an optimisation with transfer ribbon retraction is not possible. To enable a start signal during printing with retraction, this option can be enabled. In this case, however, sufficient print offset for transfer ribbon retraction must be ensured.
Ignore empty lines	In the default operation, the printing system stops for the entire layout length until a new layout can be printed, even if the layout is mainly empty. As some label programs do not provide any layout length, issues may occur in connection with the number of cycles, as the layout length remains constant despite varying lengths of the range to be printed. With this option, all empty lines can be ignored in the beginning, at the end or both.
Set print offset to minimum	Quick selection to set the print offset to the smallest possible value. **On:** The print offset value is reset to the smallest possible value. **Off:** The value remains at the preset print offset value.

10.12.3 General Parameters

Ribbon saving mode   No start signal loss, direct print module regulates the ribbon saving
SAVESTRT   quality automatically according to requirement.
Automatic layout ribbon saving and field ribbon saving, each without
feedback.

Max. print speed   Determination of max. print speed.
On the base of this value all necessary calculations e.g. feedback
distance and smallest possible print offset are being calculated.

10.13 Ribbon Saving STANDARD (Intermittent Mode

10.13.1 Required Parameters
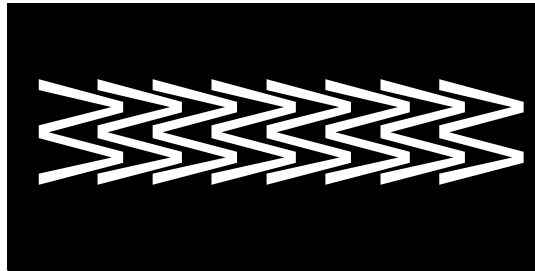
Ribbon correction

0 mm = It is always so far retracted that an optimal ribbon saving is reached (no loss of transfer ribbon). This is rather rarely realised, as the ribbon position can deviate because of inaccuracies at speed measurement (encoder).
Default: -1 mm

−**xx mm** = The feedback can be made smaller. It causes loss of transfer ribbon but the number of cycles is increased. If the value is increased to the complete backfeed length then the direct print module sets automatically the max. value and no more backfeed is accomplished.

+xx mm = The feedback can be made larger. This causes that it is printed onto the transfer ribbon in the previous printout.

Example

Transfer ribbon

Selection of transfer ribbon in meters that is used. Standard, Fast and Low indicate the tightening force with which the transfer ribbon is wound up.

Standard (Std) = used for normal transfer ribbon (for KCE printheads).

Low = is selected if the transfer ribbon was torn in Standard mode or the transfer ribbon can no longer be removed from the cassette. The transfer ribbon is not accelerated as much as with Standard and therefore it is also suitable when using thin transfer ribbon.
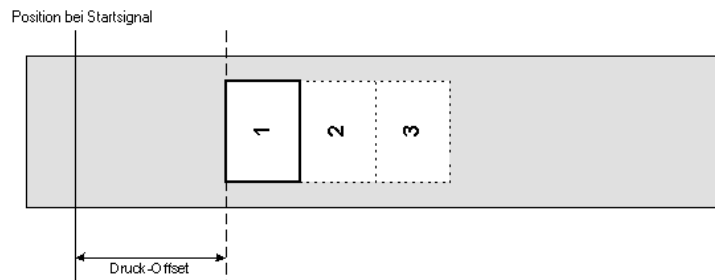
Fast = the transfer ribbon is accelerated faster and therefore a higher number of cycles can be achieved. It can occur that the transfer ribbon can no longer be removed from the cassette. To avoid this, an optional cassette is available on request.

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.

Settings possible either in mm or ms.
Value range: 1 … 999 mm |

10.13.2 Expert Parameters

Printhead down time	Is used from the ribbon saving algorithm to calculate the start of the printhead downwards movement.
Printhead valve react time	The time is calculated when the printhead upwards movement is started.
Ignore empty lines	In the default operation, the printing system stops for the entire layout length until a new layout can be printed, even if the layout is mainly empty. As some label programs do not provide any layout length, issues may occur in connection with the number of cycles, as the layout length remains constant despite varying lengths of the range to be printed. With this option, all empty lines can be ignored in the beginning, at the end or both.
Set print offset to minimum	Quick selection to set the print offset to the smallest possible value.
On: The print offset value is reset to the smallest possible value.
Off: The value remains at the preset print offset value.

10.13.3 General Parameters

Ribbon saving mode 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.

10.14 Ribbon Saving SHIFT (Intermittent Mode)

10.14.1 Required Parameters

Ribbon correction

0 mm = It is always so far retracted that an optimal ribbon saving is reached (no loss of transfer ribbon). This is rather rarely realised, as the ribbon position can deviate because of inaccuracies at speed measurement (encoder).
Default: -1 mm

−xx mm = The feedback can be made smaller. It causes loss of transfer ribbon but the number of cycles is increased. If the value is increased to the complete backfeed length then the direct print module sets automatically the max. value and no more backfeed is accomplished.

+xx mm = The feedback can be made larger. This causes that it is printed onto the transfer ribbon in the previous printout.

Example

Transfer ribbon

Selection of transfer ribbon in meters that is used. Standard, Fast and Low indicate the tightening force with which the transfer ribbon is wound up.

Standard (Std) = used for normal transfer ribbon (for KCE printheads).

Low = is selected if the transfer ribbon was torn in Standard mode or the transfer ribbon can no longer be removed from the cassette. The transfer ribbon is not accelerated as much as with Standard and therefore it is also suitable when using thin transfer ribbon.

Fast = the transfer ribbon is accelerated faster and therefore a higher number of cycles can be achieved. It can occur that the transfer ribbon can no longer be removed from the cassette. To avoid this, an optional cassette is available on request.

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.

                            Settings possible either in mm or ms.
                            Value range: 1 … 999 mm

Position bei Startsignal

1   2   3

Druck-Offset

10.14.2 Ribbon Saving SHIFT Parameters

X-Shift   Indication of displacement of the printout in X direction. The printout
                            can be displaced by the entry of a positive or negative value in both
                            directions.

Y-Shift   Indication of displacement of the printout in printing direction. Enter
                            value 0 in order to achieve a print result in which the columns are
                            arranged side by side on the transfer ribbon.

Lane repeats   Indication of number of lanes printed side by side.

Lane repeat shift   Indication of distance when changing to a new lane.

Example   X-Shift: 2 mm; Y-Shift: −3 mm   X-Shift: 2 mm; Y-Shift: −3 mm
                            Lanes: 2; R-Shift: −5   Lanes: 2; R-Shift: +3 mm

Layout

13.06.2008   13.06.2008

Transfer ribbon

X-Shift

Y-Shift

Print result

13.06.2008 13.06.2008 13.06.2008 13.06.2008

13.06.2008 13.06.2008 13.06.2008 13.06.2008

Print direction

Example – Cycle printing

X-Shift: 0 mm; Y-Shift: −10 mm; Lanes: 2; R-Shift: 0 mm

LOGO1
13.06.2008

LOGO1 LOGO2
13.06.2008 13.06.2008 LOGO3
13.06.2008

LOGO1 13.06.2008 LOGO2 13.06.2008 LOGO3 13.06.2008

Supposed that the print speed is so high that no field ribbon saving is possible, but after a lane enough time is available then by means of the shift ribbon saving the gap of the fields can be filled with suitable layouts.

10.14.3 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.

Ignore empty lines

In the default operation, the printing system stops for the entire layout length until a new layout can be printed, even if the layout is mainly empty. As some label programs do not provide any layout length, issues may occur in connection with the number of cycles, as the layout length remains constant despite varying lengths of the range to be printed. With this option, all empty lines can be ignored in the beginning, at the end or both.

Set print offset to minimum

Quick selection to set the print offset to the smallest possible value.

On: The print offset value is reset to the smallest possible value.

Off: The value remains at the preset print offset value.

10.14.4 General Parameters

Ribbon saving mode SHIFT

Layout data can be printed several times laterally displaced. A maximum utilisation of transfer ribbon can be achieved.

10.15 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.

10.16 Interface

10.16.1 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.

10.16.2 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.

10.17 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)

The processing of PJL commands (Hewlett Packard® Print Job Language) can be switched On/Off. Status information relating to the print order can be queried.

10.18 Date/Time

10.18.1 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.

10.18.2 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.

10.18.3 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.

10.18.4 General Parameters

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

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

10.19 Service Functions

10.19.1 Sensor Status

Cover / Pressure   Cover: Only available at devices with cover switch.
Indication of value 0 or 1 for cover open and/or cover closed
Pressure: Indication of value 0 or 1 or compressed air control.

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).

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

Carriage sensors   Indication of print carriage position.

Material encoder   Indication of current state of encoder

Carriage sensor left   Verifies the left stop of printing carriage.

Carriage sensor right   Verifies the right stop of printing carriage.

**Counter ribbon
encoder rewinder**   In the case of a full rotation of the transfer ribbon encoder rewinder,
the counter should be increased/decreased by the second value
(depending on the direction of rotation). If this is not the case, there
may be a problem with the sensor.

**Counter ribbon
encoder unwinder**   In the case of a full rotation of the transfer ribbon encoder unwinder,
the counter should be increased/decreased by the second value
(depending on the direction of rotation). If this is not the case, there
may be a problem with the sensor.

**Material encoder
counter**   Indication of counter status of encoder.

10.19.2 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.

Mechanics temperature
Indication of print mechanics temperature.

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. The respective state is indicated in the display.
Standard: Off

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

10.19.3 Ribbon Service

Length and ink side

Transfer ribbon width:
Selection of the used transfer ribbon width (depending on printhead either 53 mm, 107 mm or 128 mm).

Transfer ribbon:
Selection of the used transfer ribbon length (300 m, 450 m, 600 m, 900 m or 1000 m). With smaller ribbons, a higher number of cycles can be reached. Standard, Fast and Low indicate the tightening force with which the transfer ribbon is wound up.

Standard (Std) = used for normal transfer ribbon (for KCE printheads).

Low = is selected if the transfer ribbon was torn in Standard mode or the transfer ribbon can no longer be removed from the cassette. The transfer ribbon is not accelerated as much as with Standard and therefore it is also suitable when using thin transfer ribbon.

Fast = the transfer ribbon is accelerated faster and therefore a higher number of cycles can be achieved. It can occur that the transfer ribbon can no longer be removed from the cassette. To avoid this, an optional cassette is available on request.

Maximum diameter for consumption display:
The maximum diameter of the consumption display is automatically generated and set by selecting the transfer ribbon length. The transfer ribbon diameter can also be measured and entered manually. The consumption display is shown on the left side of the Home screen from 0 … 100 %.

i **NOTICE!**

Depending on the transfer ribbon used, deviations may occur in the determination. Depending on the thickness of the transfer ribbon, the value must be increased or decreased.

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

Prewarning

Ribbon prior warning: Before the end of transfer ribbon, a signal is sent 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).
Value range: 0 … 255 mm

Ribbon prior warning mode:
Warning: When reaching the transfer ribbon advance warning diameter, 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'.

Current diameters	**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.
	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.

10.19.4 Brake Service

Brake power	Adjustment of brake power for acceleration and braking in %.
Brake power print	Adjustment of brake power during printing.

10.19.5 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 led 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

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

I/O test output   Quick selection of the required output. Then the signal level must be
                              selected with *I/O status test output*.

I/O status test output   Selection of the output signal level previously selected under I/O test
                              output.
                              0 = Low
                              1 = High

10.19.6 Encoder Service

Encoder profile   The encoder values with print start in logging files are registered on
                              CF card. By means of this data, a graphic chart of the encoder curve
                              can be created.
                              For further information please contact our support department.

Last print min. speed*   Indicates the speed fluctuation within one layout measured by the
                              rotary encoder.
                              Measured minimum speed of the last layout.

Last print max. speed*   Indicates the speed fluctuation within one layout measured by the
                              rotary encoder.
                              Measured maximum speed of the last layout.

* continuous mode only

10.19.7 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.

Device operating mode   Define whether the printing system is used in continuous mode (see page 13) or in intermittent mode (see page 15).

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 „---„

Delete print job and spool file   The current print order and all pending print orders are deleted.

10.20 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.

10.20.1 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 access 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.

10.20.2 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.

10.21 Maintenance

10.21.1 Test Function

Printhead up/down   The printhead can be moved manually downward and upwards.

Carriage position   The printing carriage can be moved manually into the print and park
print/park   position.

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

                               Add parameters to process data:
                               The associated selection is displayed by pressing and holding (2 s) on
                               a parameter. With *Add to process data* the selected parameter is
                               added to the list of process data.

                               Remove parameters from process data:
                               The associated selection is displayed by pressing and holding (2 s) on
                               a parameter. With Remove from process data the selected parameter
                               is deleted from the list.

                               Changing the display process data – print preview:
                               When the print preview is activated, an image of the currently printed
                               layout is shown on the display. The change to process data view can
                               be done by swiping to the right.

10.21.3 LCD

Backlight

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

LCD orientation

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

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

Portrait: The display is represented in reading direction.

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

10.21.4 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

10.22 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.

11   Touch-Screen Display

11.1 Touch-Sscreen 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.

Current date & time
Printer name (in the network parameters)

Transfer ribbon status

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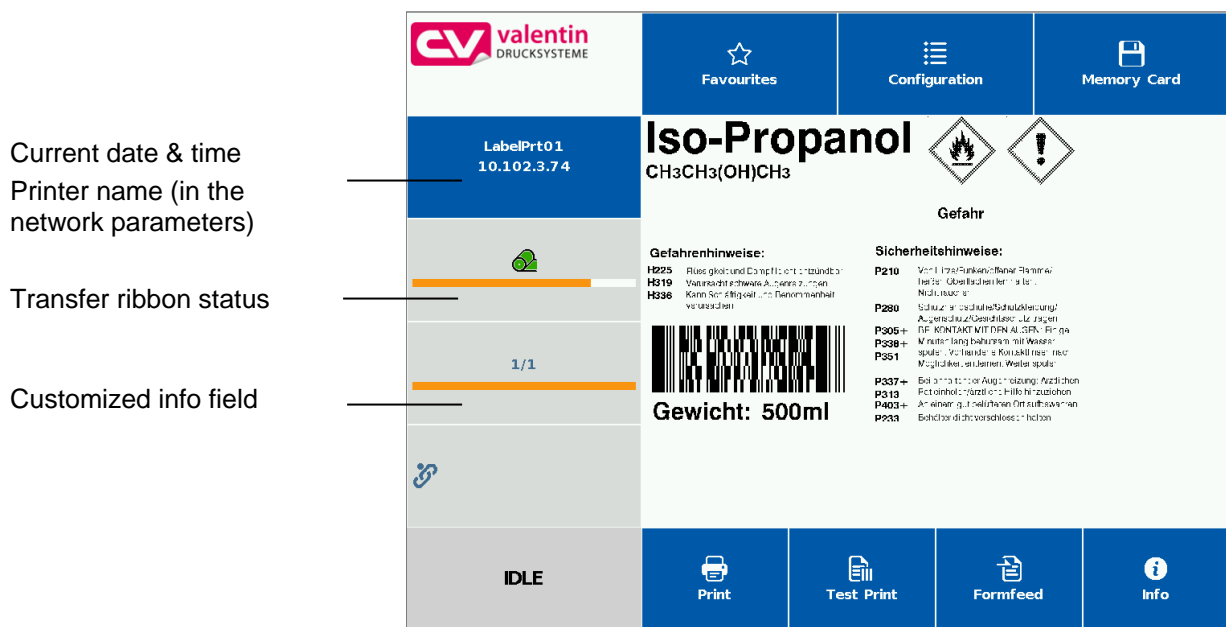
Favorites	Display favorites list
Configuration	Select parameter settings
Memory Card	Access to memory card menu
Print	Start print job
Test print	Start test print
Formfeed	Start layout feed
Info	List of the installed components

11.2 Different Menus

Indication of main menus
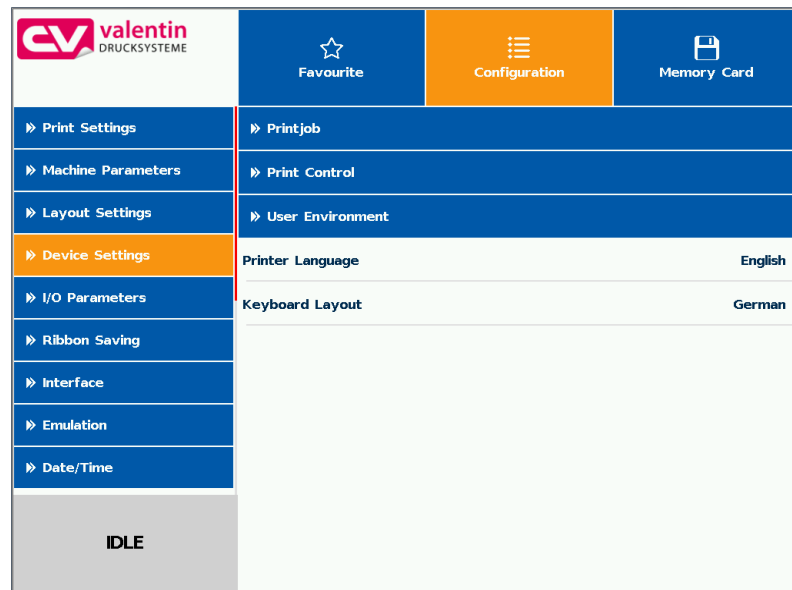
The selected (active) menu is highlighted on orange background.

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

Indication of submenus

Different parameters are combined in a submenu.
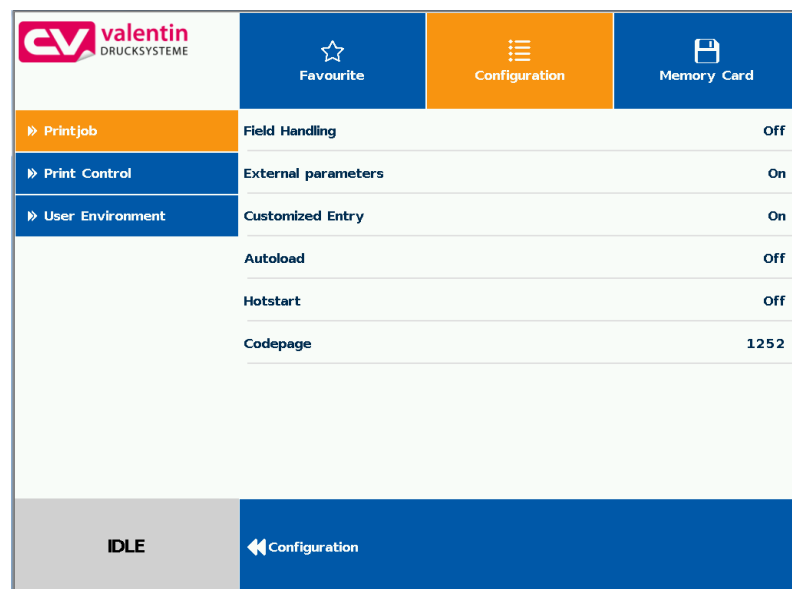
The left display side shows the available submenus. The currently selected (active) submenu is highlighted on orange background.

Press ⟨⟨ to return one level.

11.3 User-Defined Info Field

From the predefined contents, the user can define the display of the user-defined info field (green).
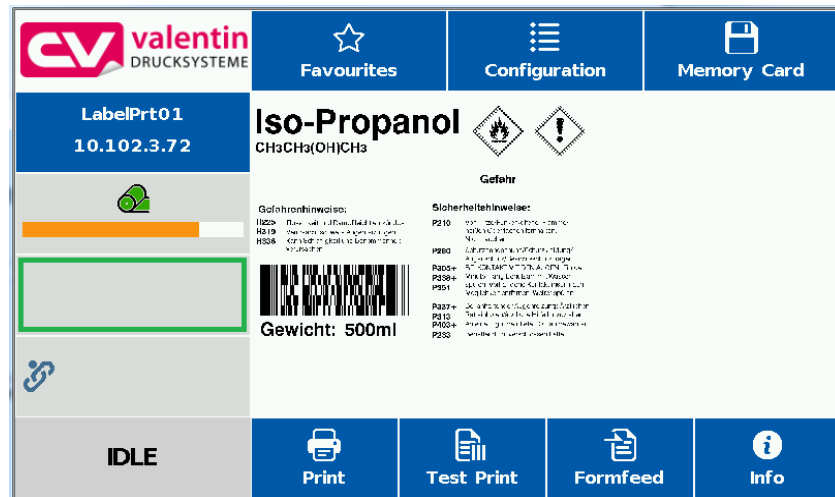
Select the menu *Maintenance/System settings/User-defined info field* to specify what is to be displayed in the user-defined info field.
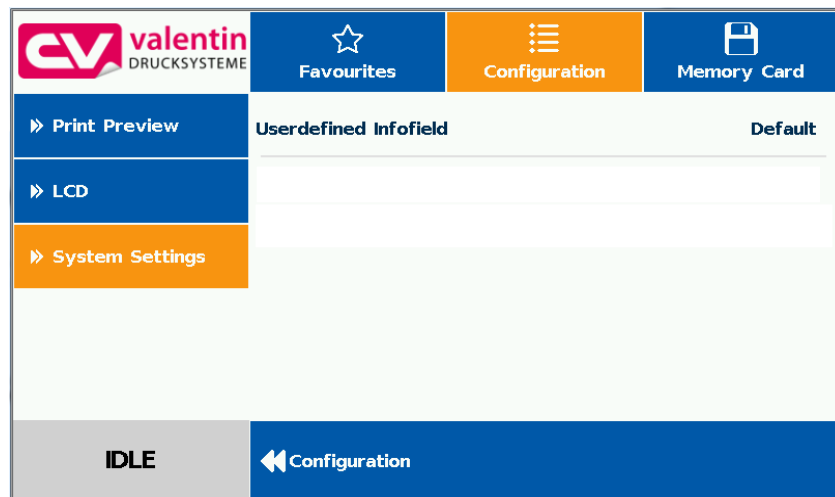
Selection of parameters
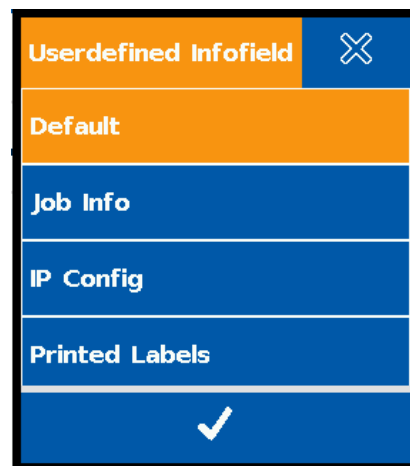
Standard:	Horizontal display orientation: Empty info field
	Vertical display orientation: Indication of job info (label name and number of printed labels)
Job info:	Indication of label names and the number of already printed
IP configuration:	Indication of IP address and MAC address of printing system
Printed labels:	Indication of printed labels as enlarged text output

Display of predefined configuration
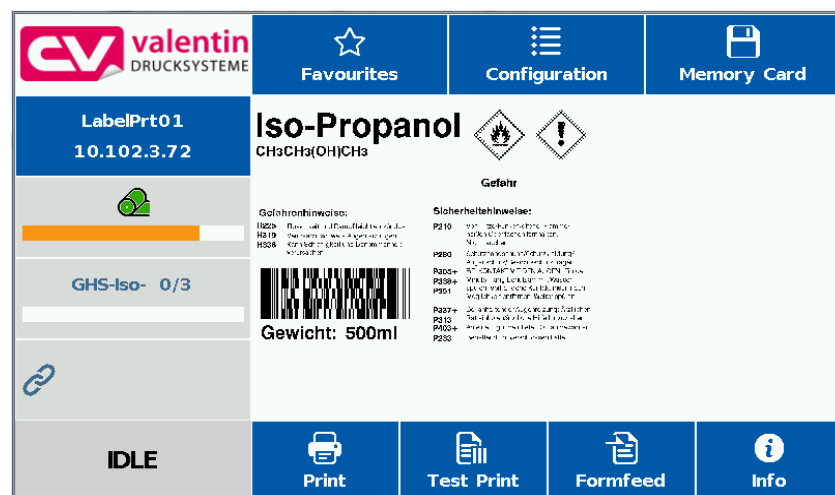
11.4 Favorites List

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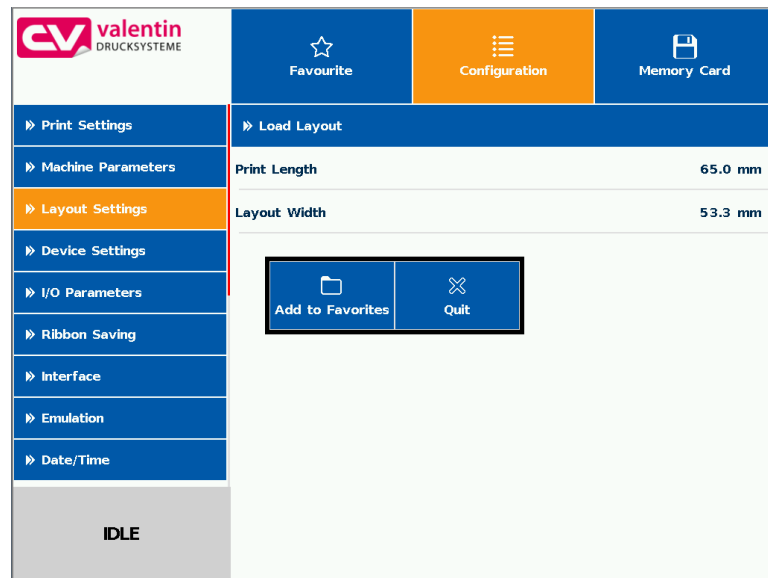
Press long (2 s) on a parameter (e.g. print speed) to display the appropriate selection.

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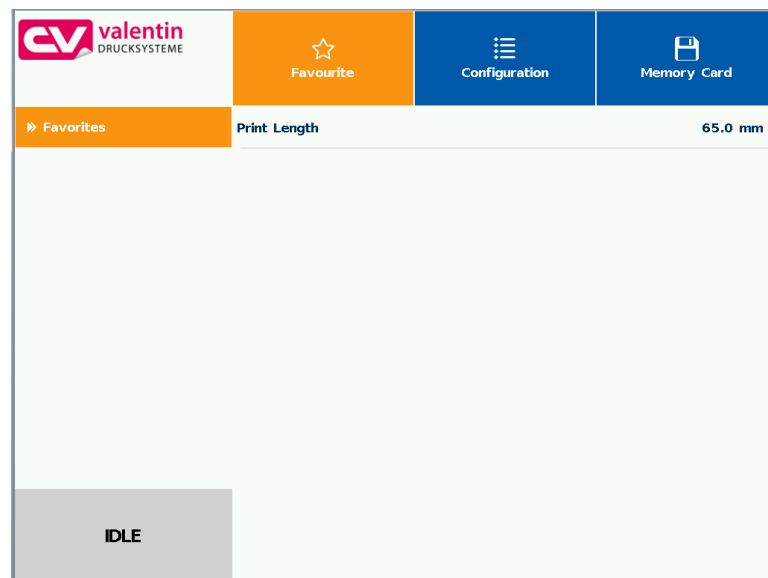
**Remove parameters
from favorites**
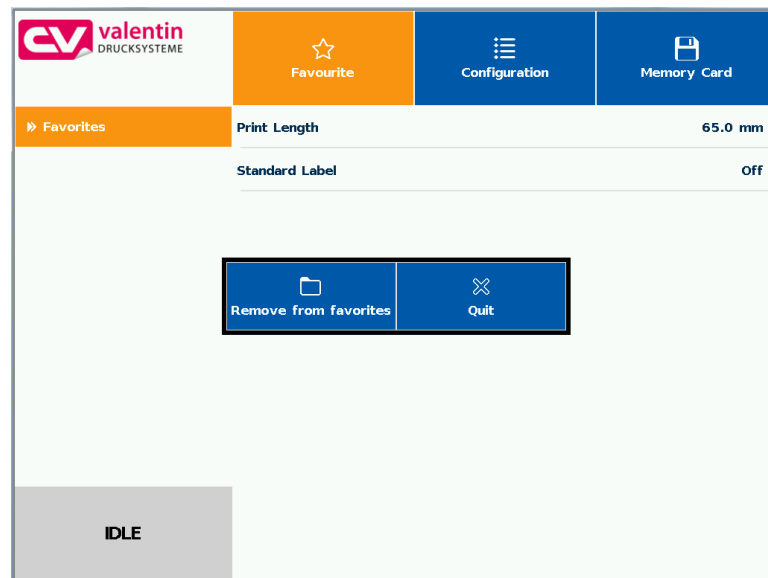
Press long (2 s) on a parameter (e.g. print speed) to display the
appropriate selection. Press *Remove from favorites* to remove the
selected parameter from the favorites list.

11.5 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 not permissible, the button ✓ is blocked.

Selection from list
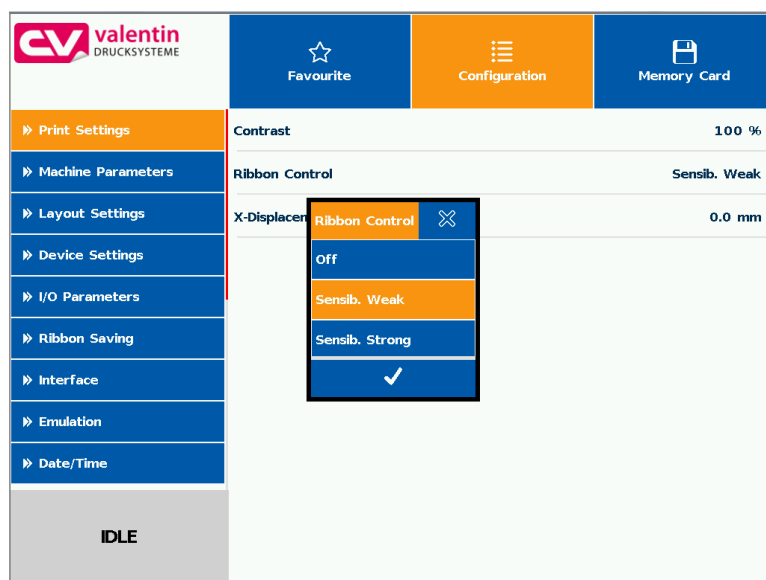
Select the parameter for which you want to change the selection.

The currently selected value is highlighted on orange background.

Press to confirm the selection.

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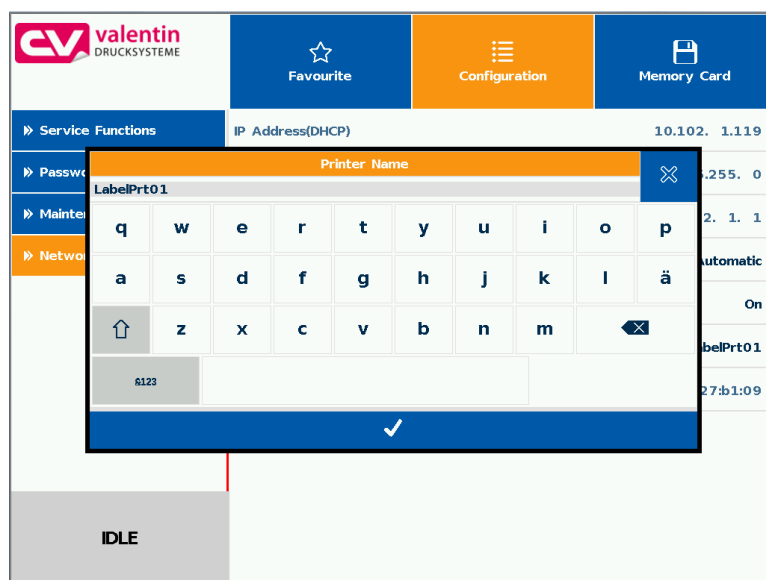
The alphanumeric input is shown in the header of input dialog.

Press to confirm the selection.

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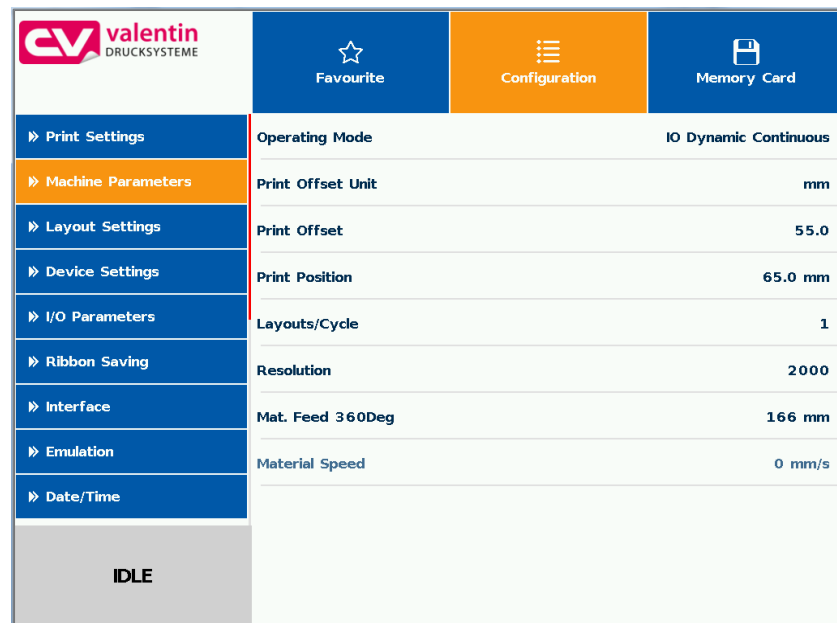
The respective navigation zone can be moved with an appropriate swipe movement from top to bottom or from the bottom up.

NOTE!

With the used resistive touch screen variant, a certain pressure on the display is needed.
With the swipe movement to the left and right (well-known from smartphones) with the finger, cannot be navigated on the display.

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.

11.7 Maintenance Zone

Different settings for the display indication can be done.

Maintenance - Print preview
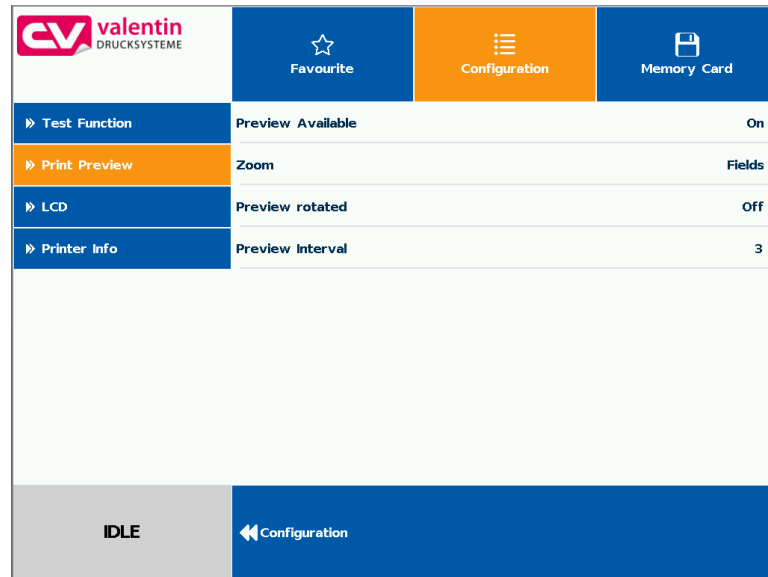
Print preview activated On/Off

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.
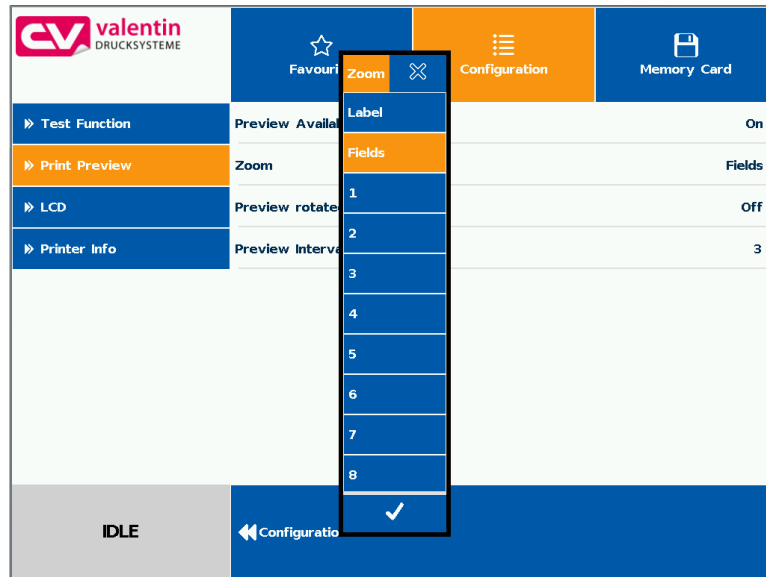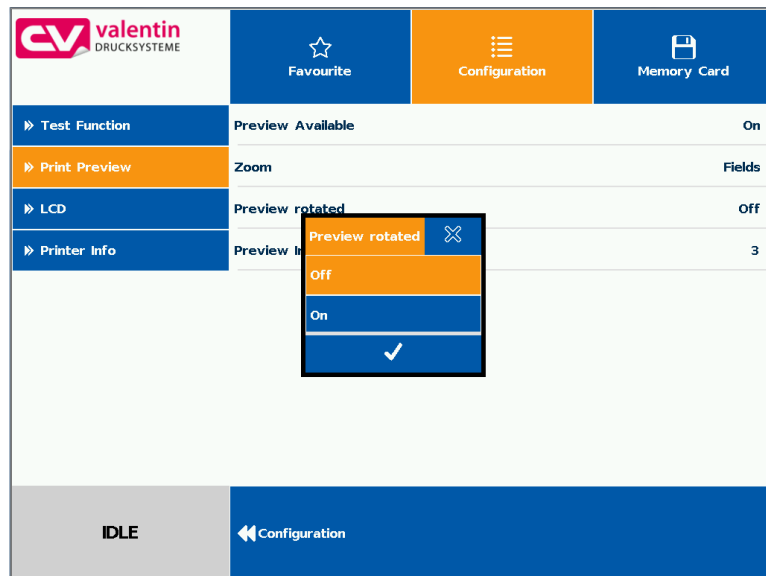

Label: The complete layout is fit to the indication zone.

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.
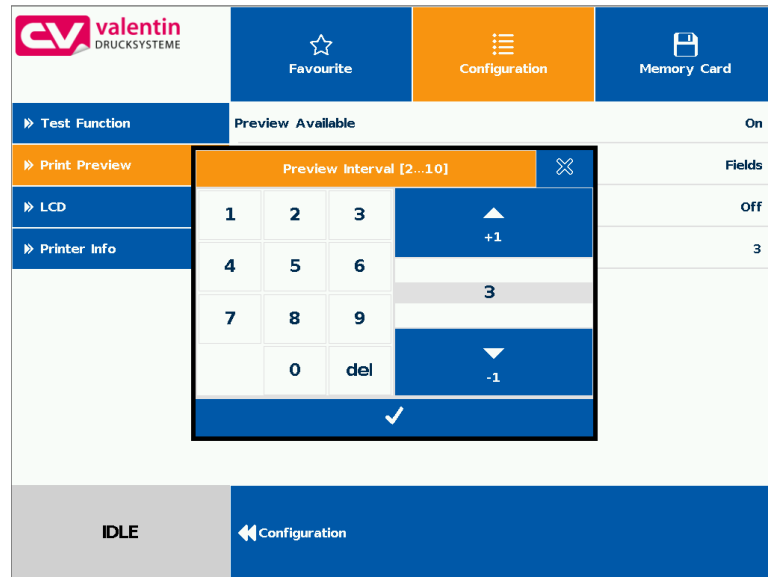

On: The label preview is shown rotated by 180° on the display.

Off: The label preview is represented in read direction.

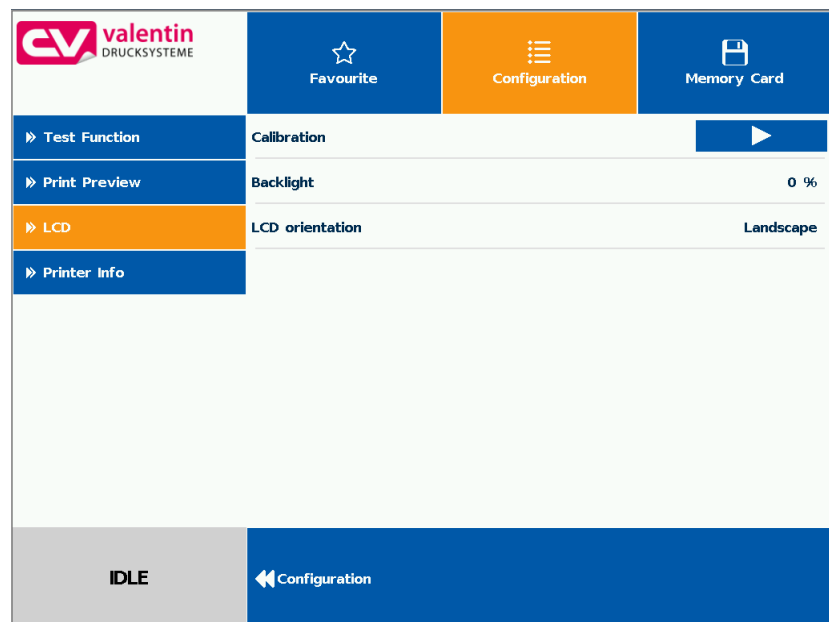**Print preview – Interval**   During a running print order the preview is refreshed in the set
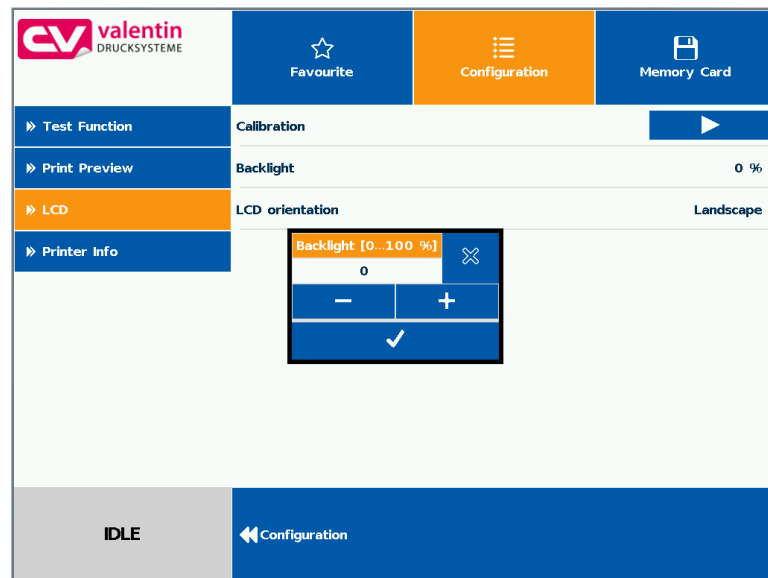   interval.

Value range: 0 .. 10 seconds

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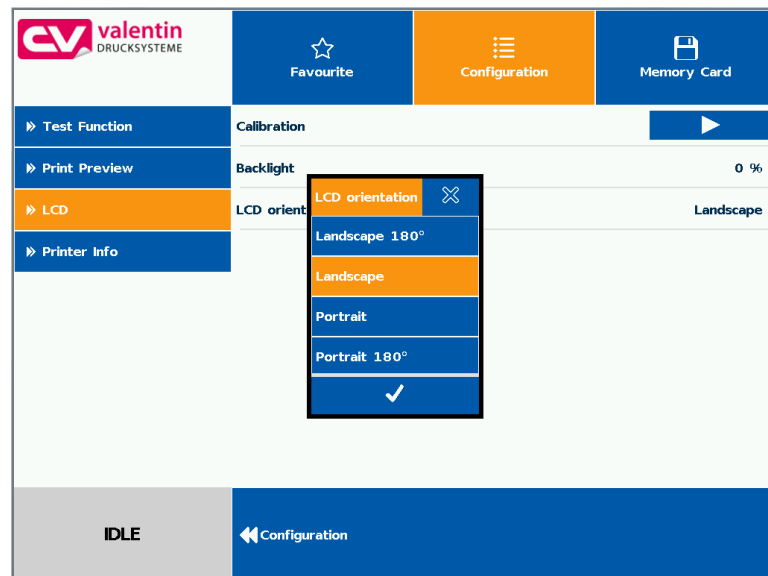   screeen display can be set.

LCD – Backlight   Setting the brightness of background lighting.

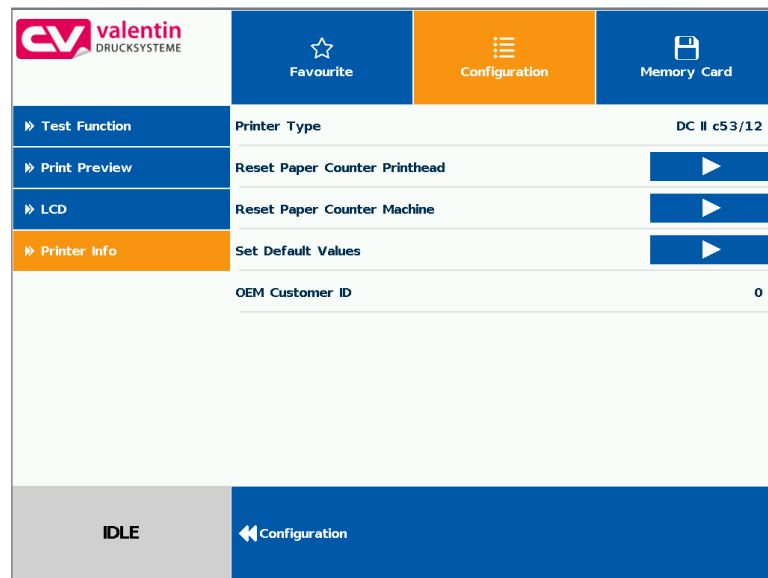Value range: 0 .. 100 %.

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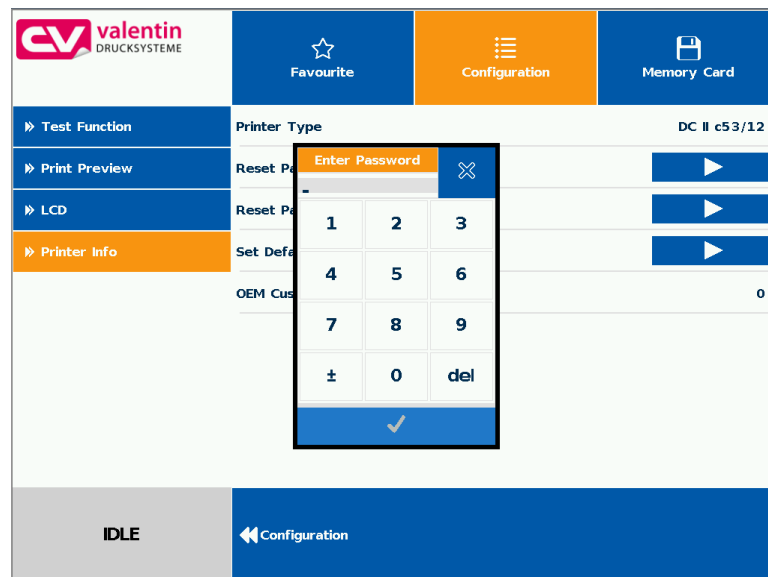
Portrait 180°: The display is represented turned by 180 degres.

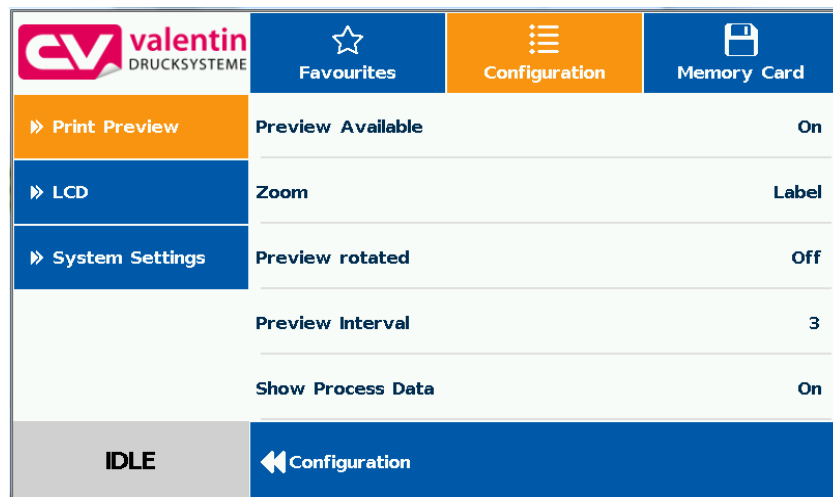**Maintenance - System settings**

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

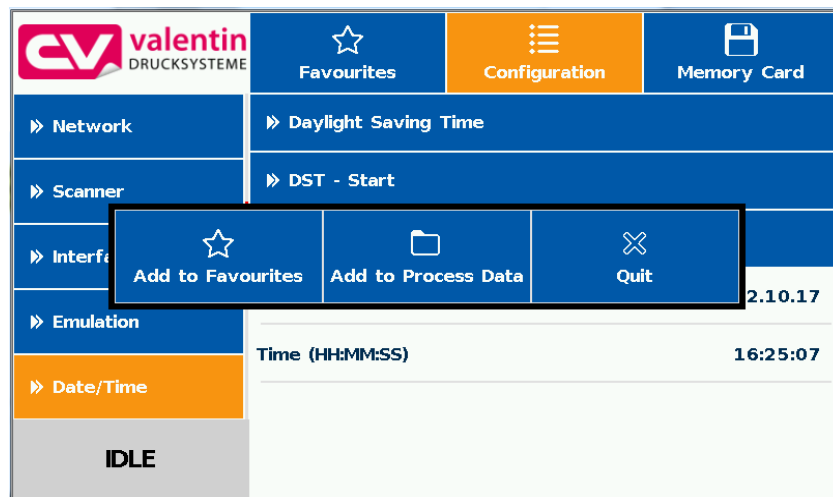However, for the settings the corresponding password is necessary.

11.8 Process Data

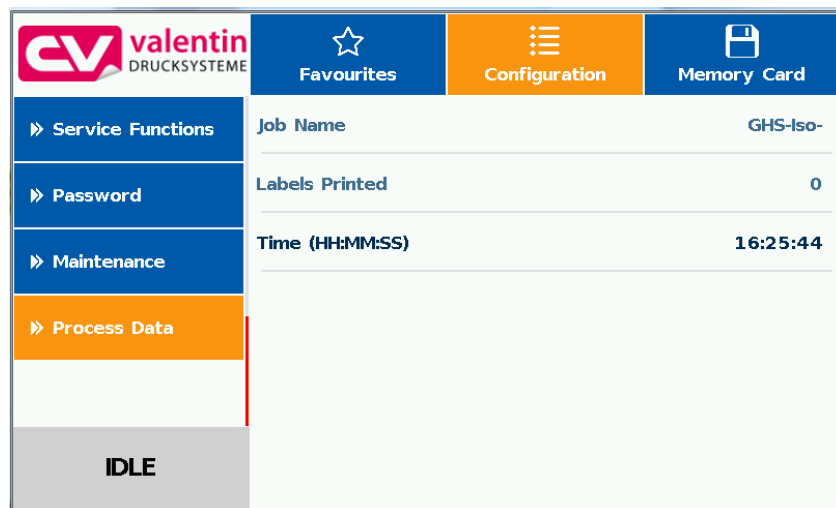**Activation of display
for process data**

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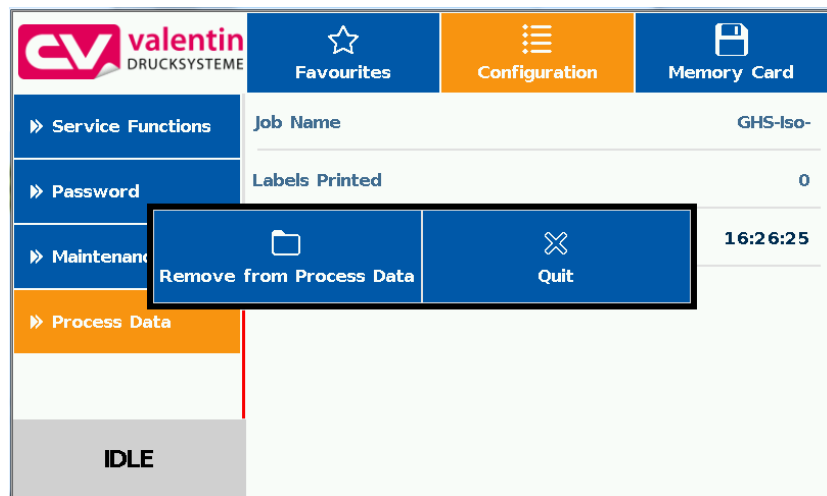
**Add parameter to
process data**

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.

11.9 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.
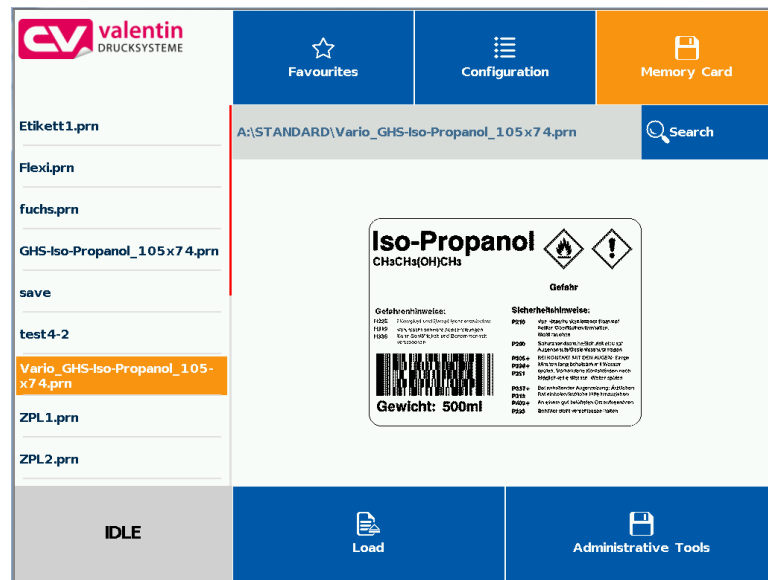
Load: The selected layout is loaded. After the number of copies have been entered, the print order is started.

Admininstrative   Switching to the file manager (File Explorer).
tools:

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.

11.10 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.

11.11 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 (see page **Fehler! Textmarke nicht definiert.**). Press ⊠ to change to the previous view.
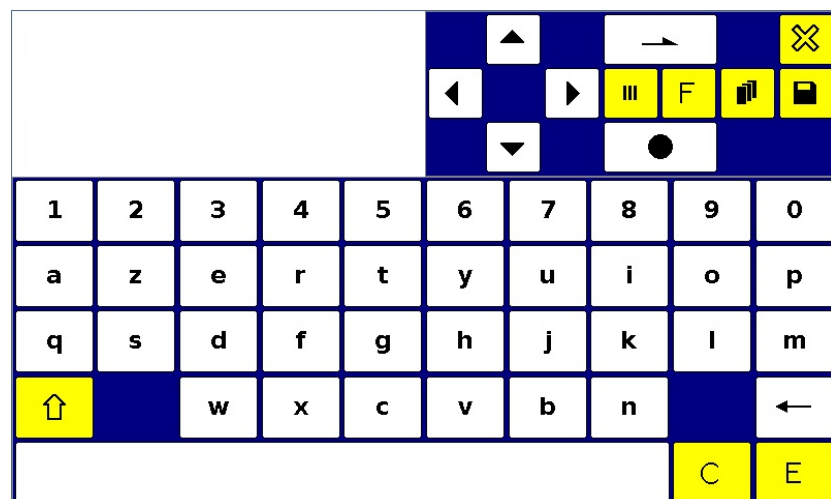
12   Maintenance and Cleaning

DANGER!

Risk of death by electric shock!

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

NOTICE!

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

Maintenance plan

Maintenance task	Frequency
General cleaning (see chapter 12.1, page 125).	As necessary.
Clean the transfer ribbon roller (see chapter 12.2, page 126).	Each time the transfer ribbon is changed or when the printout is adversely affected.
Clean the printhead (see chapter 12.3, page 126).	Each time the transfer ribbon is changed or when the printout is adversely affected.
Replace the printhead (see chapter 12.4, page 127).	In case of errors in printout.

NOTICE!

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

12.1 General Cleaning

CAUTION!

Abrasive cleaning agents can damage the direct print module!

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

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

$\Longrightarrow$ Clean the outer surfaces with an all-purpose cleaner.

12.2 Clean the Transfer Ribbon Roller

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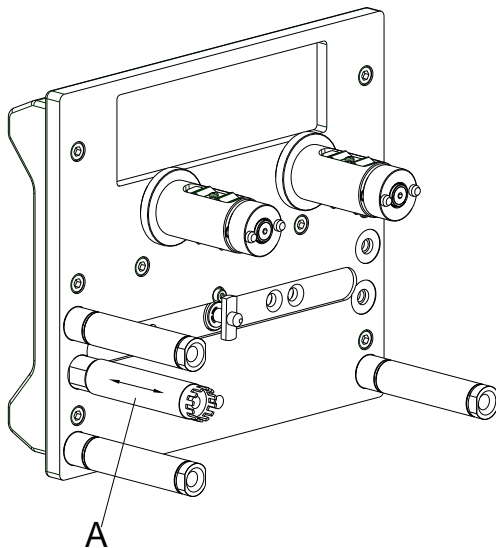
1. Remove the transfer ribbon cassette.

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

3. If the roller (A) appears damaged, replace it.

4. Push the ribbon cassette again onto print mechanics and take care that the ribbon not rip.

Figure 23

12.3 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.

1. Remove the transfer ribbon cassette.

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

3. Push the ribbon cassette again onto print mechanics and take care that the ribbon not rip.

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

12.4 Replace the Printhead

> **!** **CAUTION!**
>
> The printhead can be damaged by static electricity discharges and impacts!
>
> ⇒ Set up the device on a grounded, conductive surface.
>
> ⇒ Ground your body, e.g. by wearing a grounded wristband.
>
> ⇒ Do not touch the contacts on the plug connections.
>
> ⇒ Do not touch the printhead with hard objects or your hands.
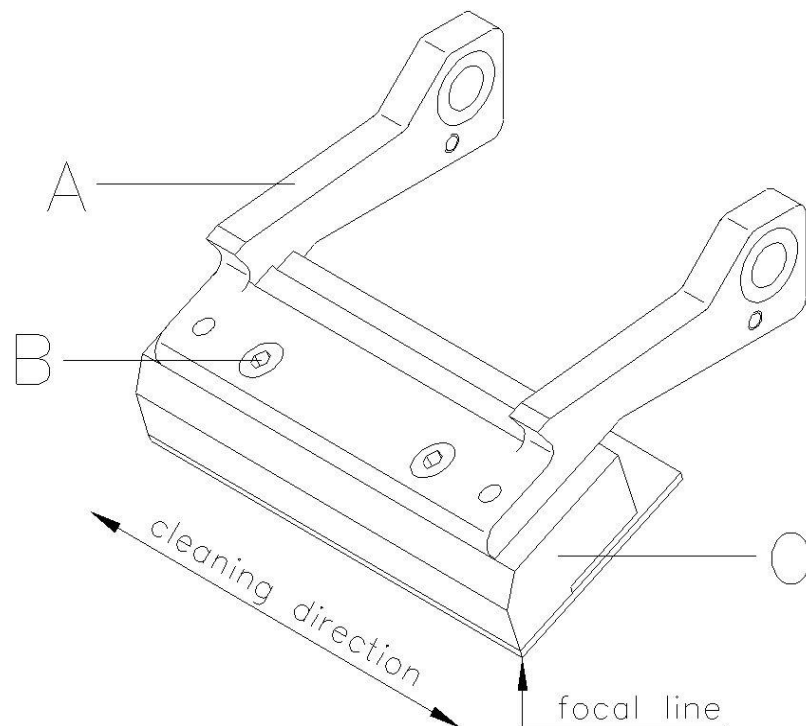
Figure 24

Remove the printhead

1. Remove the ribbon cassette.
2. Move the printhead unit in an appropriate service position.
3. Press the printhead support (A) slightly downwards until an Allen key can be inserted in the screws (B).
4. Remove the screws (B) and afterwards the printhead (C).
5. Remove the rear-mounted connection assembly from the printhead.
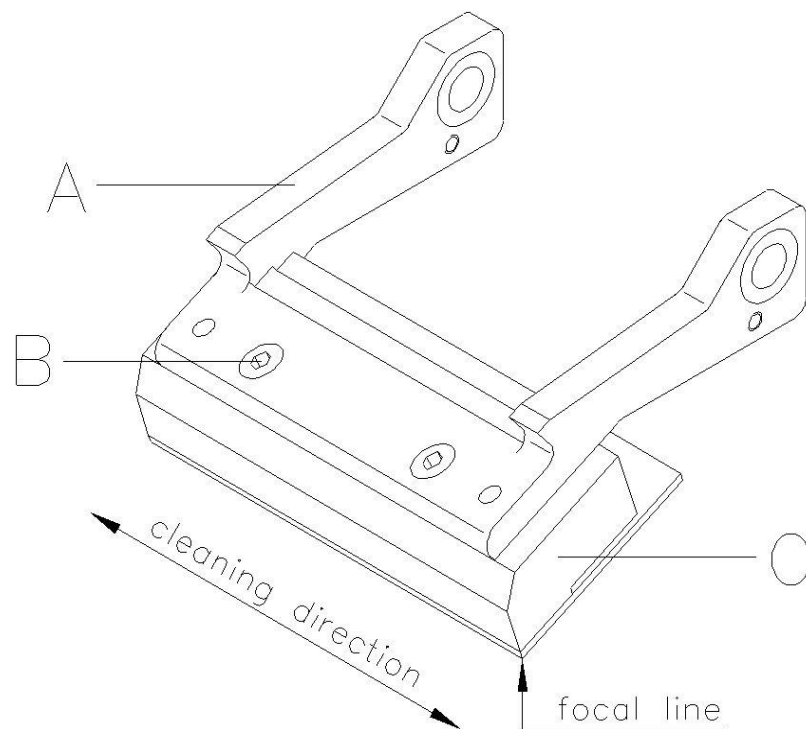
Figure 25

Install the printhead

1. Insert the connection assembly to the new printhead.

2. Position the printhead in the printhead support (A), so the engaging pieces catch in the appropriate holes in the printhead support (A).

3. Hold the printhead holder (A) with a finger slightly on the pressure roll and check the correct position of printhead (C).

4. Screw in the screw (B) and tighten it with an Allen key.

5. Push the ribbon cassette again onto print mechanics and take care that the ribbon not rip (see chapter 8, page 43).

6. Enter the resistance value of the new printhead in the menu *Service Functions/Heater resistance*. The value is indicated on the type plate of printhead.

7. Start a test print to check printhead position.

12.5 Angle Adjustment (Intermittent Mode)
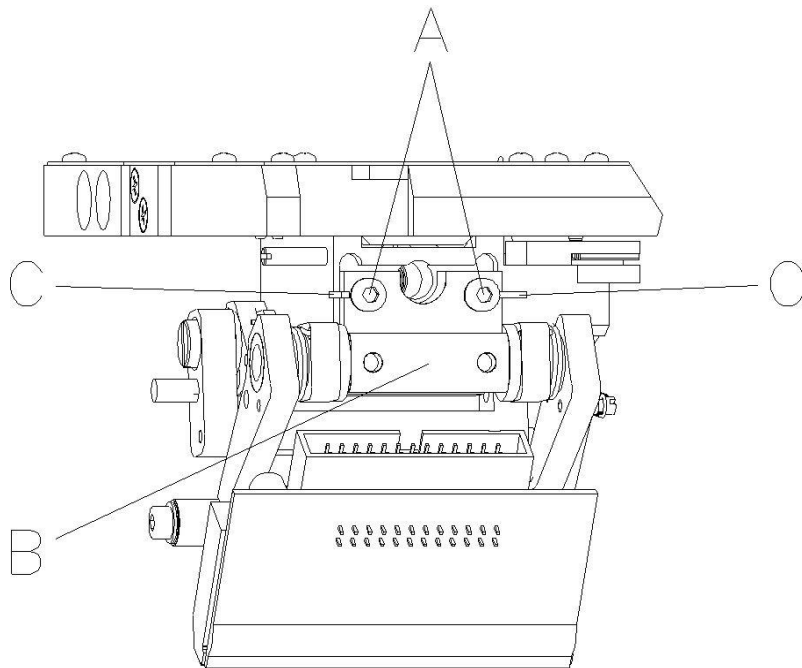
Figure 26

The installation angle of the printhead is default 26° to the print surface. However, manufacturing tolerances of printhead and 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 adjusting part (B) to adjust the angle between the printhead and the printhead support.
    move downwards = decrease angle
    move upwards = increase angle

3. Tighten again the Allen head screws (A).

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

ⓘ NOTICE!

The slots (C) serve for position control. Pay attention to a parallel adjustment.

12.6 Print Quality Optimisation

The following table shows some possibilities to improve the print quality.
Generally you have to note: the higher the print speed the lower the print quality.

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

12.7 Cycle Optimisation (Intermittent Mode)

i **NOTICE!**
The cycle is a finished print cycle per a unit of time.
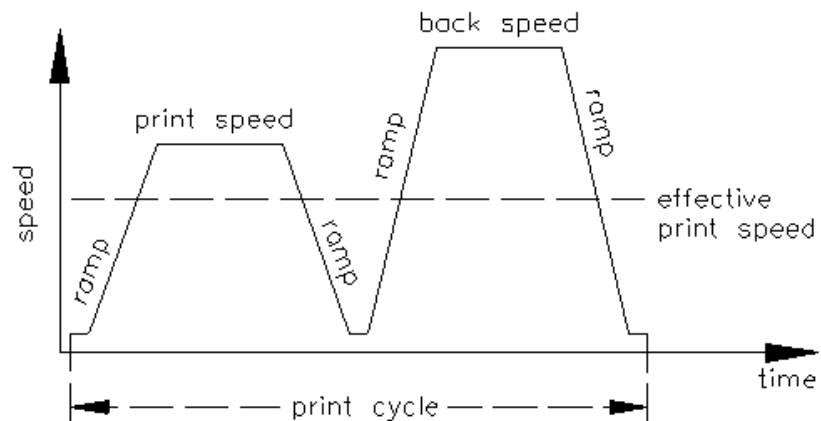
Figure 27

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 it 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 the machine.

- Avoid vertical installation position of the print mechanics. Install the machine in horizontal position.

- Control the short distance between the printhead and the print surface.

- Switch off the foil saving automatic.

- Optimise the layout to a short print way, i.e. less blanks, no borders at the top res. bottom, rotate the layout.

13   Signal Diagrams

13.1 Continuous Mode

> **NOTICE!**
> The line 'data receipt' indicates when the direct print module receives data.

Dispenser mode: Dynamic

Number of layouts per print order: 1
Data memory: standard
Ribbon saving: On
Trigger input print start: increasing slope
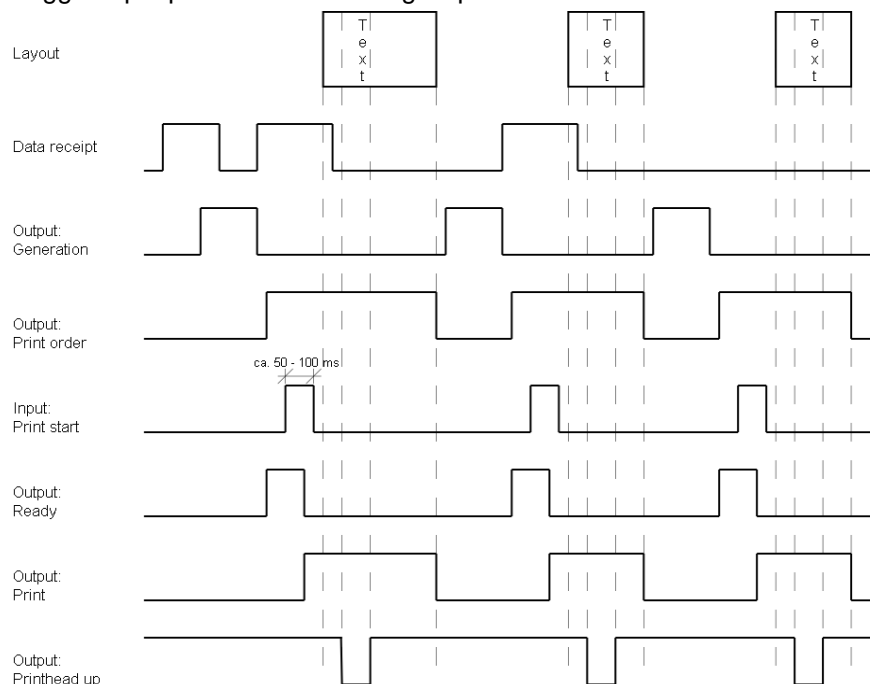
Figure 28

Layout

In 'dispenser mode: dynamic' the layout distance onto the material is not determined by the layout length but by the time between start impulse and print start input.

Because of the fact that the setting 'data memory: standard' the next print order is generated after the previous one is finished and a print order is only finished after the feed of the complete layout, the smallest possible time between two start impulses depends also from the layout length.

In case the printable data is only at the beginning of the layout and the rest of the layout is empty, then the time of start impulse by minimising the layout length (not for 'data memory: extended') can be decreased.

Data receipt

As soon as the generation of a layout is finished, a new one is send to the direct print module. The time of receipt for the first layout is normally shorter because at this time the direct print module has no further action. At receipt of the following layout, the time of receipt is longer because the direct print module receives data and prints at the same time.

Number of layouts per print order: 1
Data memory: extended
Ribbon saving: On
Trigger input print start: increasing slope
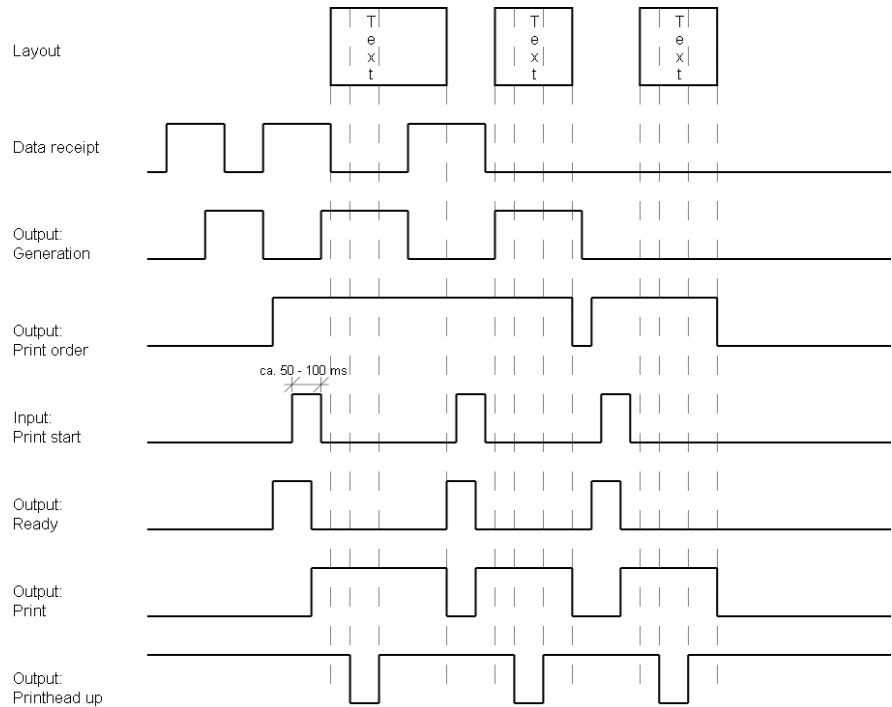
Figure 29

| Layout | For a better comparison we used the same layouts as before. |

Layout   For a better comparison we used the same layouts as before.

Data receipt   As soon as the generation of the layout is finished a new one is send to the direct print module.

Data receipt/   The time of receipt for the first layout is normally shorter because at
generation   this time the direct print module has no further action. At receipt of the following layout, the time of receipt is longer because the direct print module receives data and prints at the same time.

Generation   In mode 'data memory: extended' already received data is always generated after the start of a print order.

Print order   Before the current print order is finished the next one is already generated. The signal output is therefore active and the next start impulse can be send.

Print   Before the next start impulse is send, the print has to be finished as otherwise the impulse is ignored.

Number of layouts per print order: 3
Data memory: Off/standard/extended
Ribbon saving: On
Trigger input print start: increasing slope
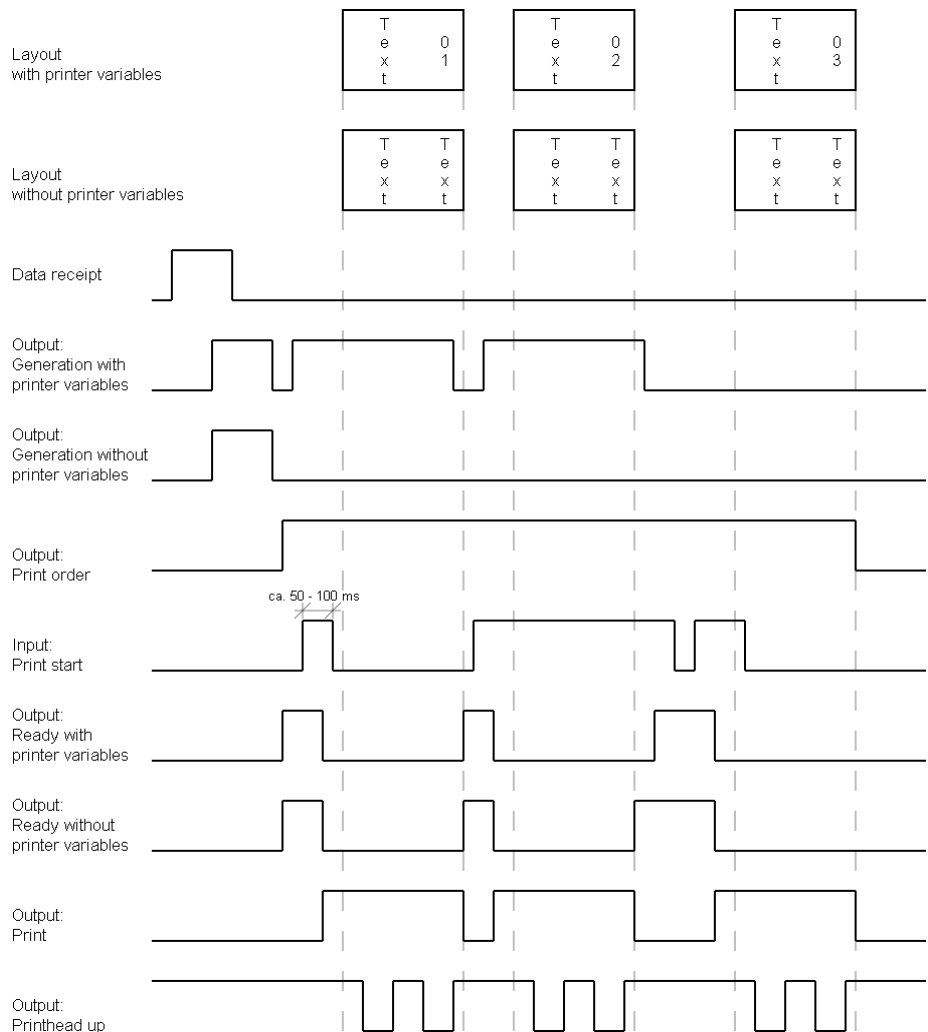
Figure 30

Layout/generation with module variables	The use of printer variables means that each layout is different and the direct print module has to generate several parts of the layout anew, e.g. variable counter.
Layout/generation without module variables	Each of the 3 layouts which are to print are the same and therefore it is only necessary to generate the layout once.
Data receipt	Because only 1 print order is send, the direct print module has only to receive once.
Print order	As the print order consists of 3 layouts, the print order output is active as long as all 3 layouts are printed.
Print start/print	In dispenser mode dynamic only the slope of the start impulse is recognised as valid print start signal. However, the impulse should have a minimum impulse width of 50 ms.

Dispenser Mode: Static   Number of layouts per print order: 4
Data memory: Off/standard/extended
Ribbon saving: On
Trigger input print start: level High
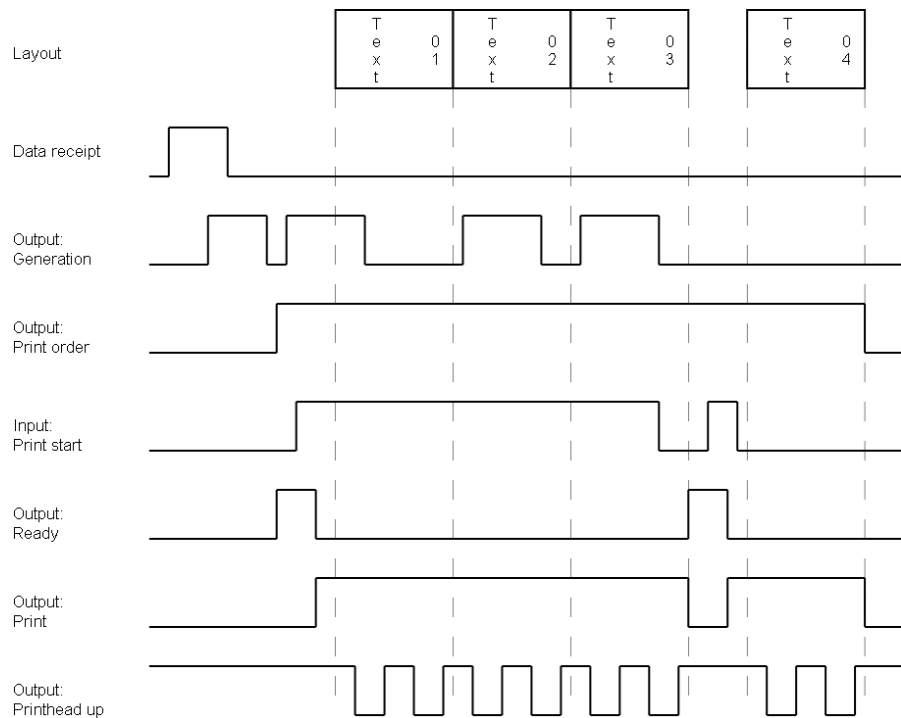
Figure 31

Layout   4 layouts with counter.

Print start/print   In 'dispenser mode: static' the level of the start impulse is recognised
as valid start signal. In case the level is activated then the print is
continued immediately if the following layout is already generated.
After deleting the signal, the machine prints until the end of the current
layout and then the direct print module waits for the next start impulse.

13.2 Intermittent Mode

**Mode 1
(single item
processing)**

Layout

Data receipt

Output 3:
Generation

Output 2:
Print order

Quantity
reached

Output 5:
Print ready

approx. 50 - 100 ms

Input:
Print start

Output 4:
Layout print

Output 7:
Return

Output 6:
Printhead up
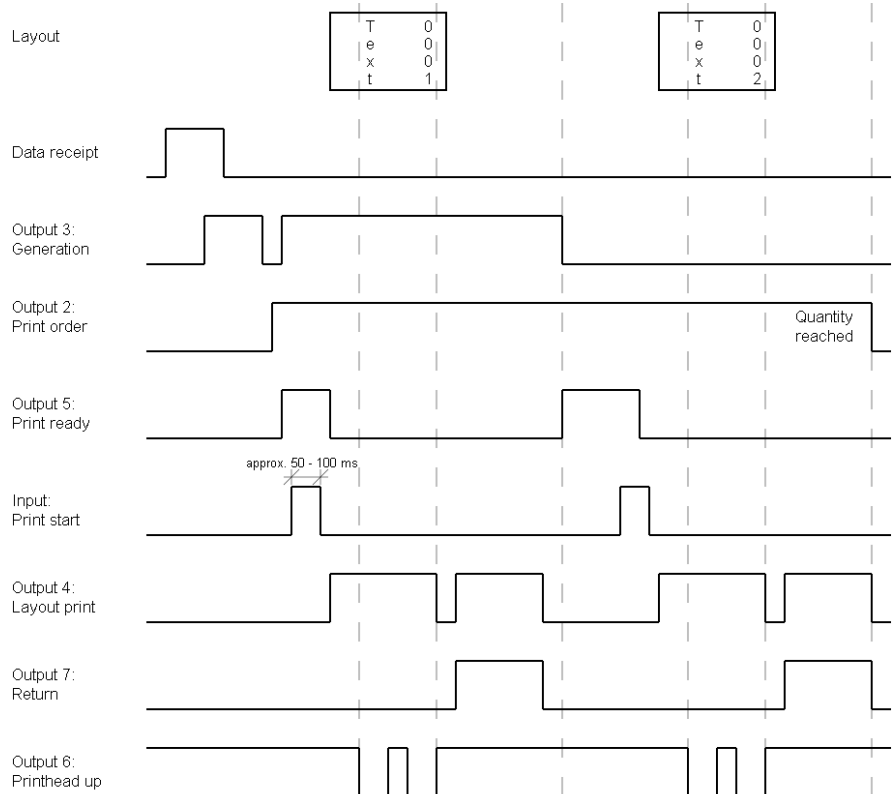
Figure 32

**Mode 2
(continuous mode)**

Layout

Data receipt

Output 3:
Generation

Output 2:
Print order

Output 5:
Print ready

approx. 50 - 100 ms

Input:
Print start

Output 4:
Layout print

Output 7:
Return

Output 6:
Printhead up
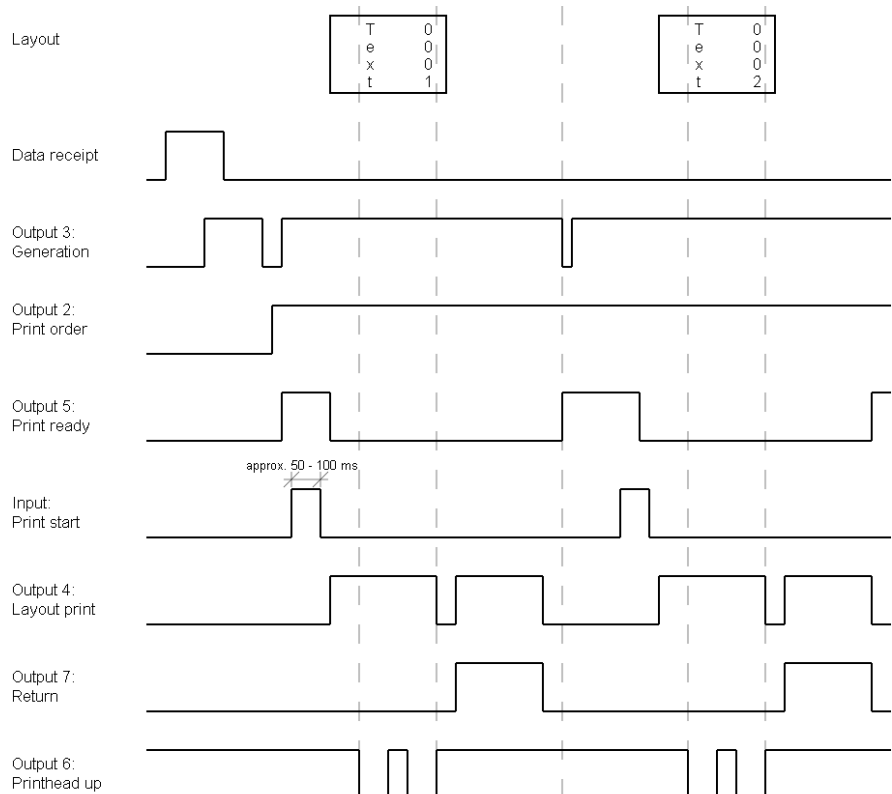
Figure 33

14 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).

Error message	Cause	Remedy
14 Field number	Received line number is invalid.	Check sent data. Check connection PC - printer.
15 Length mask	Invalid length of received mask statement.	Check sent data. Check connection PC - printer.
16 Unknown mask	Transferred mask statement is invalid.	Check sent data. Check connection PC - printer.
17 Missing ETB	No end of data found.	Check sent data. Check connection PC - printer.
18 Invalid character	One res. several characters of the 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.

Error message	Cause	Remedy
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.
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 Printhead open	Transfer ribbon cassette is not inserted or not locked.	Insert the transfer ribbon cassette and lock it with the lever.
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.

Error message	Cause	Remedy
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.
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.

Error message	Cause	Remedy
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.
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.

Error message	Cause	Remedy
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.
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

Error message	Cause	Remedy
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.
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.

Error message	Cause	Remedy
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. 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).
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.

Error message	Cause	Remedy
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.
123 Print asynchronous	The label photocell do not work in the order as it is expected according to print data. The settings of the photocell are not correct. Settings of label size and gap size are not correct. No label found at the rear printhead. Soiled label photocell. Labels not inserted correctly.	Check label size and gap size. Check label photocell settings. Check correct loading of label material. Insert new label roll. Clean the label photocell. Check if labels are inserted correctly.
124 Speed too low	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.

Error message	Cause	Remedy
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.
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)

15 Additional Information

15.1 Hotstart

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

The function *Hotstart* contains e.g. that in case of a power failure the currently loaded 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.

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

Save current 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   As in the intended file only the start values of the counter are saved,
counter   they are refreshed at a new start of the print order by means of the
                                 number of printed 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.

15.2 Cycles for the continuous mode

sa/mm: The smallest possible distance between two prints with full ribbon saving (the print offset must be set to the minimum value).

measured distance sa
sa = smallest possible distance between two printouts
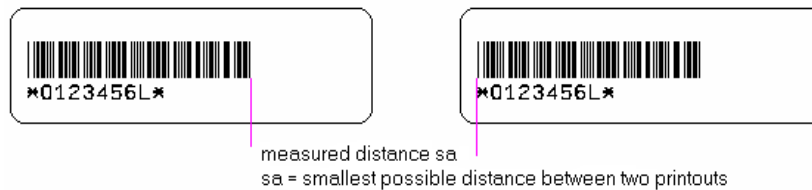
Example 1:

Layout: 75 mm printing surface sa at 200 mm/s = 30 mm

The total distance that can be covered in one minute at 200 mm/s:

s = v * t = 200 mm/s * 60 s = 12 m.

A path of print length + sa = 75 mm + 30 mm = 105 mm is required for a printout. The result is the number of cycles of 12 m / 105 mm = 114 prints per minute.

Example 2:

Bag length: 300 mm

Print length: 40 mm

What is the maximum print speed for Dynacode II IP53?

sa = 300 mm - 40 mm = 260 mm

Search in the tables for sa: 260 mm

The table Dynacode II IP c53, transfer ribbon length 900 m (page 151) indicates that the maximum print speed is approx. 650 mm/s.

Cycles in continuous mode for Dynacode II IP53

| Speed in mm/s | Transfer ribbon length | | | |
	900 m sa in mm	600 m sa in mm	450 m sa in mm	300 m sa in mm
50	7	6	6	6
60	7	7	6	6
70	7	7	6	6
80	7	7	6	6
90	7	7	6	6
100	8	8	6	6
110	11	10	10	9
120	14	11	10	9
130	14	11	10	9
140	15	14	11	10
150	16	14	11	10
160	19	15	14	10
170	22	16	14	11
180	22	21	15	11
190	24	22	18	14
200	27	23	19	14
210	30	26	20	15
220	33	31	22	18
230	36	32	28	21
240	38	35	29	24
250	43	37	32	27
260	45	42	35	28
270	47	44	37	28
280	53	45	40	32
290	54	51	43	35
300	57	52	44	36
310	62	56	48	37
320	67	60	52	42
330	72	65	54	43
340	75	67	58	46
350	80	69	60	47
360	82	74	63	50
370	87	75	65	52
380	89	80	68	53
390	96	86	72	56
400	100	88	74	57
410	102	92	78	63
420	109	101	82	66
430	115	103	87	68

| Speed in mm/s | Transfer ribbon length | | | |
	900 m sa in mm	600 m sa in mm	450 m sa in mm	300 m sa in mm
440	121	105	89	69
450	123	110	93	72
460	129	116	95	74
470	136	120	100	78
480	141	123	104	79
490	146	128	108	80
500	153	133	110	86
510	156	138	114	88
520	169	144	120	94
530	172	150	125	96
540	177	156	129	99
550	184	159	135	103
560	189	165	137	105
570	196	171	142	108
580	201	176	145	112
590	208	181	150	116
600	216	186	154	120
610	222	194	161	122
620	232	201	167	129
630	243	210	175	135
640	249	217	181	139
650	262	225	184	142
660	270	230	192	148
670	278	240	199	154
680	289	247	206	159
690	301	258	215	164
700	308	261	218	171
710	319	273	227	175
720	333	283	235	183
730	345	294	244	190
740	352	302	249	195
750	367	310	259	201
760	375	320	265	204
770	389	332	274	212
780	401	338	282	220
790	411	350	291	227
800	427	360	299	232

**Cycles in continuous
mode for
Dynacode II IP107**

Speed in mm/s	Transfer ribbon length		
	600 m sa in mm	450 m sa in mm	300 m sa in mm
50	8	7	6
60	8	7	7
70	8	7	7
80	9	7	7
90	9	7	7
100	12	8	8
110	15	11	10
120	18	14	11
130	21	14	11
140	24	15	14
150	25	16	14
160	29	19	15
170	33	22	16
180	37	22	21
190	39	24	22
200	44	27	23
210	49	30	26
220	55	33	31
230	57	36	32
240	63	38	35
250	68	43	37
260	74	45	42
270	79	47	44
280	84	53	45
290	91	54	51
300	96	57	52
310	102	62	56
320	109	67	60
330	113	72	65
340	120	75	67
350	124	80	69
360	128	82	74
370	134	87	75
380	140	89	80
390	143	96	86
400	149	100	88
410	157	102	92
420	164	109	101
430	172	115	103

| Speed in mm/s | Transfer ribbon length | | |
	600 m sa in mm	450 m sa in mm	300 m sa in mm
440	178	121	105
450	184	123	110
460	192	129	116
470	198	136	120
480	204	141	123
490	213	146	128
500	219	153	133
510	227	156	138
520	236	169	144
530	244	172	150
540	251	177	156
550	261	184	159
560	266	189	165
570	277	196	171
580	285	201	176
590	294	208	181
600	301	216	186

Cycles in continuous mode for Dynacode II IP128

Speed in mm/s	Transfer ribbon length	
	450 m	300 m
	sa in mm	sa in mm
50	8	7
60	8	7
70	8	7
80	9	7
90	9	7
100	12	8
110	15	11
120	18	14
130	21	14
140	24	15
150	25	16
160	29	19
170	33	22
180	37	22
190	39	24
200	44	27
210	49	30
220	55	33
230	57	36
240	63	38
250	68	43
260	74	45
270	79	47
280	84	53
290	91	54
300	96	57
310	102	62
320	109	67
330	113	72
340	120	75
350	124	80
360	128	82
370	134	87
380	140	89
390	143	96
400	149	100
410	157	102
420	164	109
430	172	115
440	178	121
450	184	123

15.3 Cycles for the intermittent mode

Dynacode II IP53:
Transfer ribbon length
900 m

C = cycles per minute
tP = print
tB = return
Back speed = 600 mm/s

print speed in mm/s

speed		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
600	C:	315	260	230	206	193	181	171	162	153	150	142	136	133	127	122
	tP:	120	140	160	170	180	190	200	210	220	230	240	250	250	260	270
	tB:	70	90	100	120	130	140	150	160	170	170	180	190	200	210	220
550	C:	315	260	230	206	193	181	171	162	153	150	142	136	130	125	120
	tP:	120	140	160	170	180	190	200	210	220	230	240	250	270	270	280
	tB:	70	90	100	120	130	140	150	160	170	170	180	190	200	210	220
500	C:	315	260	230	206	193	181	171	162	153	146	139	133	127	122	117
	tP:	120	140	160	170	180	190	200	210	220	240	260	260	270	280	290
	tB:	70	90	100	120	130	140	150	160	170	170	190	190	200	210	220
450	C:	315	260	230	206	193	181	166	157	150	146	139	133	125	120	115
	tP:	120	140	160	170	180	190	210	220	230	240	250	260	280	290	300
	tB:	70	90	100	120	130	140	150	160	170	170	180	190	200	210	220
400	C:	315	260	230	206	193	176	166	157	146	142	136	127	122	117	111
	tP:	120	140	160	170	180	200	210	220	240	250	260	280	290	300	320
	tB:	70	90	100	120	130	140	150	160	170	170	180	190	200	210	220
350	C:	315	260	230	206	187	176	162	153	142	139	130	122	117	111	107
	tP:	120	140	160	170	190	200	220	230	250	260	280	300	310	330	340
	tB:	70	90	100	120	130	140	150	160	170	170	180	190	200	210	220
300	C:	315	260	230	200	181	171	157	146	136	133	125	117	111	107	101
	tP:	120	140	160	180	200	210	230	250	270	280	300	320	340	350	370
	tB:	70	90	100	120	130	140	150	160	170	170	180	190	200	210	220
250	C:	315	250	222	193	176	162	150	139	130	125	115	109	103	98	93
	tP:	120	150	170	190	210	230	250	270	290	310	340	360	380	400	420
	tB:	70	90	100	120	130	140	150	160	170	170	170	190	200	210	220
200	C:	315	250	214	187	166	150	139	127	117	113	105	98	93	88	84
	tP:	120	150	180	200	230	260	280	310	340	360	390	420	440	470	490
	tB:	70	90	100	120	130	140	150	160	170	170	180	190	200	210	220
150	C:	300	240	200	171	150	136	122	111	103	96	90	84	80	75	71
	tP:	130	160	200	230	270	300	340	380	410	450	480	520	550	590	620
	tB:	70	90	100	120	130	140	150	160	170	170	180	190	200	210	220
100	C:	285	206	171	142	125	109	98	89	81	75	70	65	61	57	54
	tP:	140	200	250	300	350	410	460	510	570	620	670	720	780	830	880
	tB:	70	90	100	120	130	140	150	160	170	170	180	190	200	210	220
50	C:	230	153	120	95	80	69	61	55	49	45	41	38	36	33	31
	tP:	190	300	400	510	620	720	830	930	1040	1150	1250	1360	1460	1570	1680
	tB:	70	90	100	120	130	140	150	160	170	170	180	190	400	210	220

print length in mm

Dynacode II IP107: C = cycles per minute
Transfer ribbon length tP = print
600 m tB = return
Back speed = 600 mm/s

print speed in mm/s		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
600	C:	285	240	206	187	176	162	153	146	139	133	127	122	120	115	111
	tP:	130	140	160	170	180	190	200	210	220	230	250	250	250	260	270
	tB:	80	110	130	150	160	180	190	200	210	220	240	240	250	260	270
550	C:	285	240	206	187	176	162	153	146	139	133	127	122	117	113	109
	tP:	130	140	160	170	180	190	200	210	220	230	240	250	260	270	280
	tB:	80	110	130	150	160	180	190	200	210	220	230	240	250	260	270
500	C:	285	240	206	187	176	162	153	146	139	130	125	120	115	111	107
	tP:	130	140	160	170	180	190	200	210	220	240	250	260	270	280	290
	tB:	80	110	130	150	160	180	190	200	210	220	230	240	250	260	270
450	C:	285	240	206	187	176	162	150	142	136	130	125	120	113	109	105
	tP:	130	140	160	170	180	190	210	220	230	240	250	260	280	290	300
	tB:	80	110	130	150	160	180	190	200	210	220	230	240	250	260	270
400	C:	285	240	206	187	176	157	150	142	133	127	122	115	111	107	101
	tP:	130	140	160	170	180	200	210	220	240	250	260	280	290	300	320
	tB:	80	110	130	150	160	180	190	200	210	220	230	240	250	260	270
350	C:	285	240	206	187	171	157	146	139	130	125	117	111	107	101	98
	tP:	130	140	160	170	190	200	220	230	250	260	280	300	310	330	340
	tB:	80	110	130	150	160	180	190	200	210	220	230	240	250	260	270
300	C:	285	240	206	181	166	153	142	133	125	120	113	107	101	98	93
	tP:	130	140	160	180	200	210	230	250	270	280	300	320	340	350	370
	tB:	80	110	130	150	160	180	190	200	210	220	230	240	250	260	270
250	C:	285	230	200	176	162	146	136	127	120	113	105	100	95	90	86
	tP:	130	150	170	190	210	230	250	270	290	310	340	360	380	400	420
	tB:	80	110	130	150	160	180	190	200	210	220	230	240	250	260	270
200	C:	285	230	193	171	153	136	127	117	109	103	96	90	86	82	78
	tP:	130	150	180	200	230	260	280	310	340	360	390	420	440	470	490
	tB:	80	110	130	150	160	280	190	200	210	220	230	240	250	260	270
150	C:	272	222	181	157	139	125	113	103	96	89	84	78	75	70	67
	tP:	140	160	160	230	270	300	340	380	410	450	480	520	550	590	620
	tB:	80	110	110	150	160	180	190	200	210	220	230	240	250	260	270
100	C:	260	193	157	133	117	101	92	84	76	71	66	62	58	55	52
	tP:	150	200	250	300	350	410	460	510	570	620	670	720	830	830	880
	tB:	80	110	130	150	160	180	190	200	210	220	230	240	260	260	270
50	C:	206	146	113	90	76	66	58	53	48	43	40	37	35	32	30
	tP:	210	300	400	510	620	720	830	930	1040	1150	1250	1360	1460	1570	1680
	tB:	80	110	130	150	160	180	190	200	210	220	230	240	250	260	270
		5	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**

print length in mm

Dynacode II IP128 C = cycles per minute
Transfer ribbon length tP = print
450 m tB = return
Back speed = 600 mm/s

print speed in mm/s

		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
600	C:	285	240	206	187	176	162	153	146	139	133	127	122	120	115	111
	tP:	130	140	160	170	180	190	200	210	220	230	250	250	250	260	270
	tB:	80	110	130	150	160	180	190	200	210	220	240	240	250	260	270
550	C:	285	240	206	187	176	162	153	146	139	133	127	122	117	113	109
	tP:	130	140	160	170	180	190	200	210	220	230	240	250	260	270	280
	tB:	80	110	130	150	160	180	190	200	210	220	230	240	250	260	270
500	C:	285	240	206	187	176	162	153	146	139	130	125	120	115	111	107
	tP:	130	140	160	170	180	190	200	210	220	240	250	260	270	280	290
	tB:	80	110	130	150	160	180	190	200	210	220	230	240	250	260	270
450	C:	285	240	206	187	176	162	150	142	136	130	125	120	113	109	105
	tP:	130	140	160	170	180	190	210	220	230	240	250	260	280	290	300
	tB:	80	110	130	150	160	180	190	200	210	220	230	240	250	260	270
400	C:	285	240	206	187	176	157	150	142	133	127	122	115	111	107	101
	tP:	130	140	160	170	180	200	210	220	240	250	260	280	290	300	320
	tB:	80	110	130	150	160	180	190	200	210	220	230	240	250	260	270
350	C:	285	240	206	187	171	157	146	139	130	125	117	111	107	101	98
	tP:	130	140	160	170	190	200	220	230	250	260	280	300	310	330	340
	tB:	80	110	130	150	160	180	190	200	210	220	230	240	250	260	270
300	C:	285	240	206	181	166	153	142	133	125	120	113	107	101	98	93
	tP:	130	140	160	180	200	210	230	250	270	280	300	320	340	350	370
	tB:	80	110	130	150	160	180	190	200	210	220	230	240	250	260	270
250	C:	285	230	200	176	162	146	136	127	120	113	105	100	95	90	86
	tP:	130	150	170	190	210	230	250	270	290	310	340	360	380	400	420
	tB:	80	110	130	150	160	180	190	200	210	220	230	240	250	260	270
200	C:	285	230	193	171	153	136	127	117	109	103	96	90	86	82	78
	tP:	130	150	180	200	230	260	280	310	340	360	390	420	440	470	490
	tB:	80	110	130	150	160	280	190	200	210	220	230	240	250	260	270
150	C:	272	222	181	157	139	125	113	103	96	89	84	78	75	70	67
	tP:	140	160	160	230	270	300	340	380	410	450	480	520	550	590	620
	tB:	80	110	110	150	160	180	190	200	210	220	230	240	250	260	270
100	C:	260	193	157	133	117	101	92	84	76	71	66	62	58	55	52
	tP:	150	200	250	300	350	410	460	510	570	620	670	720	830	830	880
	tB:	80	110	130	150	160	180	190	200	210	220	230	240	260	260	270
50	C:	206	146	113	90	76	66	58	53	48	43	40	37	35	32	30
	tP:	210	300	400	510	620	720	830	930	1040	1150	1250	1360	1460	1570	1680
	tB:	80	110	130	150	160	180	190	200	210	220	230	240	250	260	270

print length in mm

16   Environmentally-Friendly Disposal
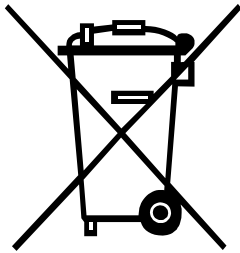
Hersteller von B2B-Geräten sind seit 23.03.2006 verpflichtet Altgeräte, die nach dem 13.08.2005 hergestellt wurden, zurückzunehmen und zu verwerten. Diese Altgeräte dürfen grundsätzlich nicht an kommunalen Sammelstellen abgegeben werden. Sie dürfen nur vom Hersteller organisiert verwertet und entsorgt werden. Entsprechend gekennzeichnete Valentin Produkte können daher zukünftig an Carl Valentin GmbH zurückgegeben werden.

Die Altgeräte werden daraufhin fachgerecht entsorgt.

Die Carl Valentin GmbH nimmt dadurch alle Verpflichtungen im Rahmen der Altgeräteentsorgung rechtzeitig wahr und ermöglicht damit auch weiterhin den reibungslosen Vertrieb der Produkte. Wir können nur frachtfrei zugesandte Geräte zurücknehmen.

Die Elektronikplatine des Drucksystems ist mit einer Lithium Batterie ausgestattet. Diese ist in Altbatteriesammelgefäßen des Handels oder bei den öffentlich-rechtlichen Entsorgungsträgern zu entsorgen.

Weitere Informationen finden Sie in der WEEE Richtlinie oder auf unserer Internetseite www.carl-valentin.de.

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