valentin DRUCKSYSTEME

DYNACODE

Service Instructions

Quality . Tradition . Innovation

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

We reserve the rights to make modifications.

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

Trademarks

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Carl Valentin direct print modules comply with the following safety guidelines:

CE EG Machinery Directive (98/37/EC)
EG Low-Voltage Directive (2006/95/EC)
EG Electromagnetic Compatibility Directive (89/336/EEC)

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Table of contents

1 Notes on this document

1.1 User notes

This service manual is intended for qualified service and maintenance staff.

This manual contains information about hardware and mechanical part of the direct print module.

Information about operation of the direct print module can be taken from our operating manual.

If a problem arises that cannot be solved with help of this service instructionsl, then please contact your responsible dealer.

1.2 Warnings

Warnings are presented with three signal words for the different levels of danger.

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

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

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

DANGER!

Risk of death via electric shock!

⇒ Before opening the housing cover, disconnect the device from the mains supply and wait approx. 2 - 3 minutes until the power supply unit has discharged.

1.3 Cross references

Item numbers

References to specific items in a figure are marked with item numbers. They are identified with parentheses in the text, e.g. (9). If no figure number is provided, item numbers in the text always refer to the graphic directly above the text. If a reference is made to another graphic, the figure number is specified, e.g. (2, in figure 5).

Cross references to chapters and sections

For a cross reference to chapters and sections, the chapter number and page number are specified, e.g. a reference to this section: see chapter 1.3.2, on page 35).

References to other documents

References to other documents have the following form: See *'operating manual'*.

2 Safety instructions

2.1 General safety instructions

Workplace and method of working

⇒ Keep the area around the device clean during and after maintenance.

⇒ Work in a safety-conscious manner.

⇒ Store dismantled device parts in a safe place while maintenance is being performed.

Clothing

CAUTION!

The drawing in of items of clothing by moving parts can lead to injuries.

⇒ If possible, do not wear clothing which could be caught by moving device parts.

⇒ Button or roll up shirt or jacket sleeves.

⇒ Tie or pin up long hair.

⇒ Tuck the ends of scarves, ties and shawls into your clothing or secure them with non-conductive clips.

DANGER!

Risk of death from increased flow of current via metals parts which come into contact with the device.

⇒ Do not wear clothing with metal parts.

⇒ Do not wear jewellery.

⇒ Do not wear glasses with a metal frame.

Protective clothing

If a possible danger to your eyes is present, wear protective goggles, especially in the following cases:

- when knocking in or knocking out pins and similar parts with a hammer
- when using spring hooks
- when loosening or inserting springs, snap rings and gripping rings
- when soldering
- when using solvents, cleaning agents or other chemicals

Protective equipment

WARNING!

Risk of injury in case of missing or faulty protective equipment.

⇒ After performing maintenance work, attach all safety equipment (covers, safety precautions, ground cables etc.).

⇒ Replace faulty parts and those which have become unusable.

2.2 Safety handling when working with electricity

Qualifications of personnel

⇒ The following work may only be performed by instructed and trained electricians:

- work on the electrical assemblies
- work on the device while it is open and connected to the power supply.

General precautions to be heeded when beginning maintenance

⇒ Locate the emergency-stop or power switch so that it can be actuated in case of an emergency.

⇒ Unplug the device from the electrical outlet before performing the following work:

- removing or installing power supply units
- working in the immediate vicinity of exposed power supply parts
- mechanical inspection of power supply parts
- modifying the device circuits.

⇒ Ensure that the device is de-energized.

⇒ Check the workplace for possible sources of danger, e.g. moist floors, defective extension cables, faulty protective conduction connections.

Additional precautions to be heeded for devices with exposed energized parts

⇒ Give another person the task of remaining near the workplace. This person must be familiar with the location and operation of the emergency-stop and power switches and switch off the power if danger arises.

⇒ Use only one hand while working on electrical circuits when a device is switched on. Hold the other hand behind your back or put it in your jacket pocket.
This prevents the electricity from flowing through your body.

Tools

⇒ To not use worn or damaged tools.

⇒ Use only tools and testing equipment that is suitable for the respective task.

What to do in case an accident occurs

⇒ Proceed in a very cautions and calm manner.

⇒ Avoid endangering yourself.

⇒ Switch the power off.

⇒ Request medical help (emergency physician).

⇒ Call for first aid if necessary.

3 General notes

3.1 Continuous mode

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.

Print principle

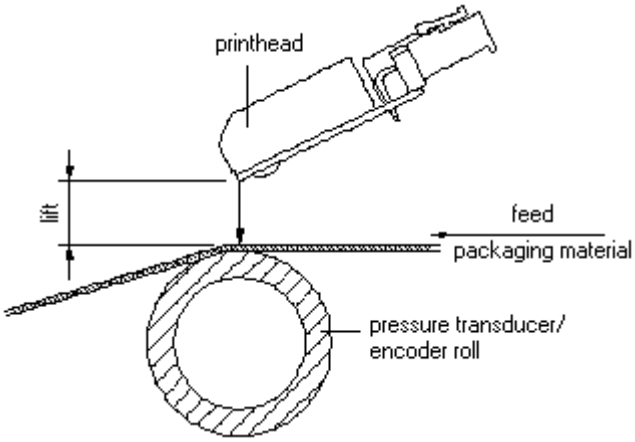


Figure 1
After starting a print order the printhead moves against the print medium. The feed of material is registered by the encoder and then evaluated. The printhead is in start position as long as the printing onto the moving material is finished and then it moves back to its home position.

Material guiding

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.

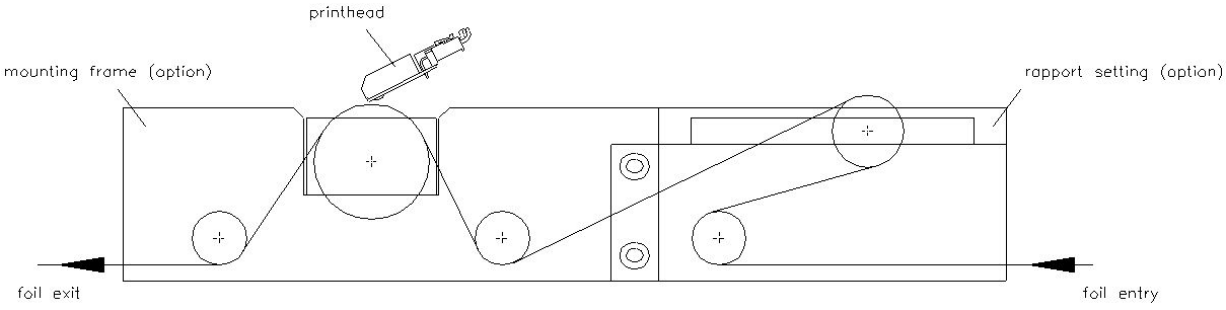


Figure 2

3.2 Intermittent mode

Print principle

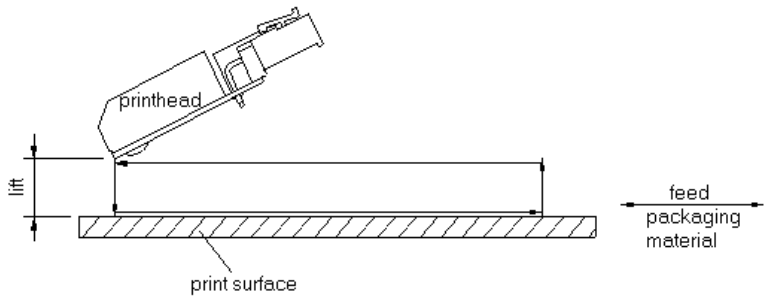
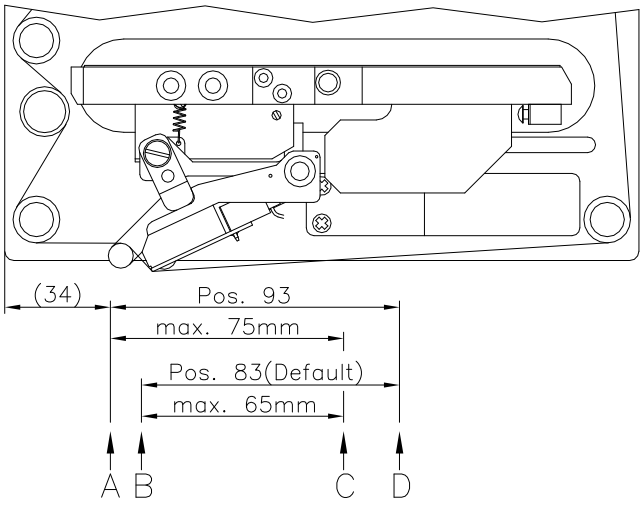


Figure 3
After starting a print order the printhead moves against the print medium. Afterwards the printing carriage moves corresponding to the set or transferred layout length linear over the material which is to be printed. After the print procedure the printhead again lifts up and the printing carriage moves again to the starting position.

Print position

The direct print module is delivered with a default print length of 65 mm. In order to use the maximum print length, the print position value must be changed to 93 (Function Menu: Machine Parameters).



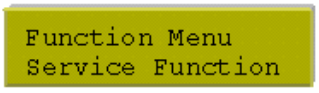
A: Print position/start position value = 93 mm

B: Print position/start position value = 83

C: Max. position print end

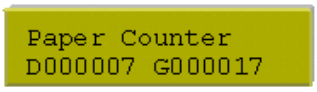
D: Stand-by position

3.3 Change module type



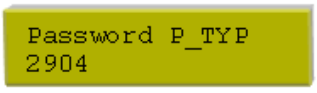
Press key F to access the function menu.

Press key ▙ as long as you arrive at the service functions menu.



Press key ● to select the menu.

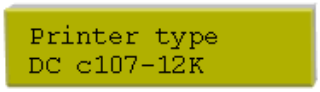
Press key ▙ as long as you arrive at the 'Paper Counter' menu.



Press key 💾 to access the 'Password' menu.

Enter the service password '2904'.

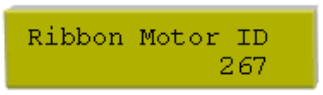
Press key ● to confirm the entry.



Press key ▲ and ▼ to select the module type.

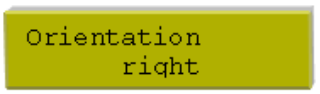
Press key ● to confirm the entry.

The changed module type is indicated in the display.



Press key ▙ to arrive at the next display.

Indication if a standard motor (ID166) or a stronger motor (ID267) is installed.



Press key ▙ to arrive at the next display.

Press key ▲ and ▼ to select if a left or a right print module is mounted.

4 Electronics

DANGER!

Risk of death via electric shock!

⇒ Before opening the housing cover, disconnect the device from the mains supply and wait approx. 2 - 3 minutes until the power supply unit has discharged.

4.1 Replacing primary fuse

Figure 4

The primary fuse is in line filter block that can be accessed from outside.

1. Unplug the machine and then open its cover.
2. Remove the fuse-holder which is behind.
3. Replace the fuse (microfuse 2,0 AT).

4.2 Replacing CPU PCB

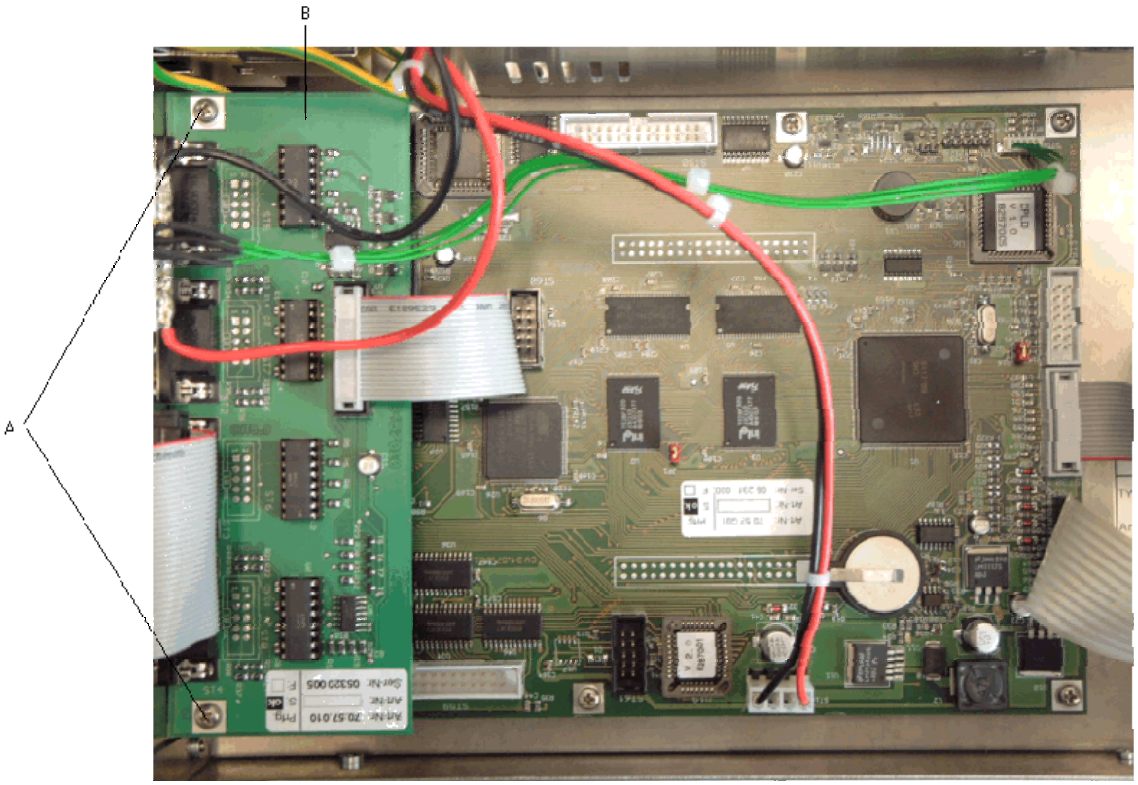


Figure 5

Removing the CPU PCB

1. If possible, save the configuration of module to a CompactFlash card.
2. Unplug the module from the electrical outlet.
3. Remove cover of control unit.
4. Detach all interface cables from the CPU PCB.
5. Remove fixing screws at the Centronics interface.
6. Remove screws (A) from I/I board (B).
7. Remove I/O board.
8. Remove hexagon bolt and all retaining screws at CPU PCB.
9. Carefully remove CPU PCB.

Installing the CPU PCB

1. Place CPU PCB onto the retainers.
2. Secure the PCB and I/O board with screws (A).
3. Insert all plug connections on the PCB.
4. Restore all interface connections.
5. Connect the power cable.
6. Update the firmware if necessary.
7. If possible, load the configuration from memory card. Otherwise, set the configuration by the function menu.

4.3 Replacing battery

DANGER!

Danger of explosion when exchanging the battery improper.

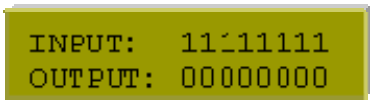
⇒ Pay attention to polarity.

1. Lift up the fixing bracket by means of a non-metallic device (e.g. plastic ruler).
2. Remove the defective battery.
3. Insert a new battery into the support and pay attention to position of polarity.

4.4 Replacing input/output board

The installation and removal of I/O plate is described in chapter 4.2 on page 16.

It is possible to test the inputs/outputs in the Service Functions menu.



In case an input is activated then the position which corresponds to this input changes to 1.

An output can be activated by positioning the cursor at the corresponding position and then using the keys ▲ and ▼ to set the value to 1.

If the value is set to 0, the output is deactivated.

4.5 Replacing power supply unit

Figure 6

1. Remove cover of control unit.

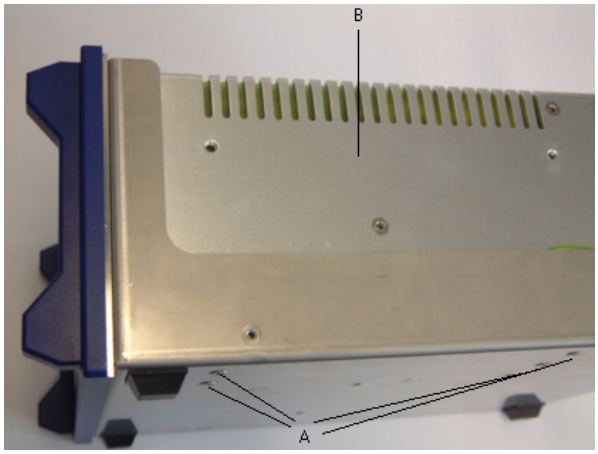


Figure 7

2. Unscrew retaining screws (A) of power supply unit (B) from electronics underside.
   At the same time hold power supply unit.

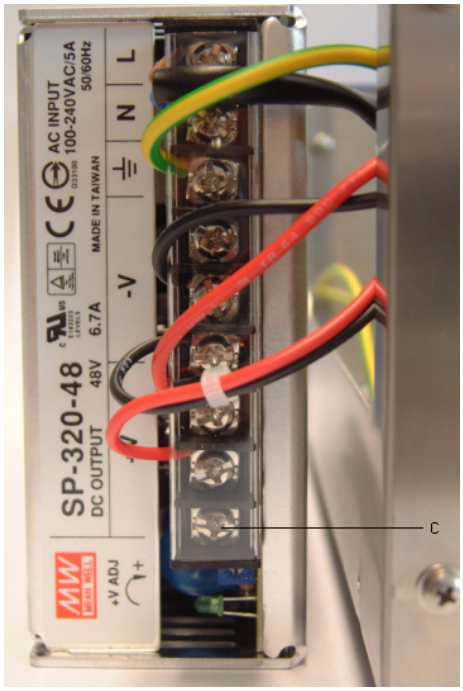


Figure 8

3. Deposit power supply unit next to the control unit (see photo).
4. Remove transparent cover above the clamps (C).
5. Loosen clamps (C) and remove all wires.
6. Insert again the power supply unit in reverse order. At the same time see the correct cable assignment at the clamps!

4.6 Replacing Compact Flash card slot

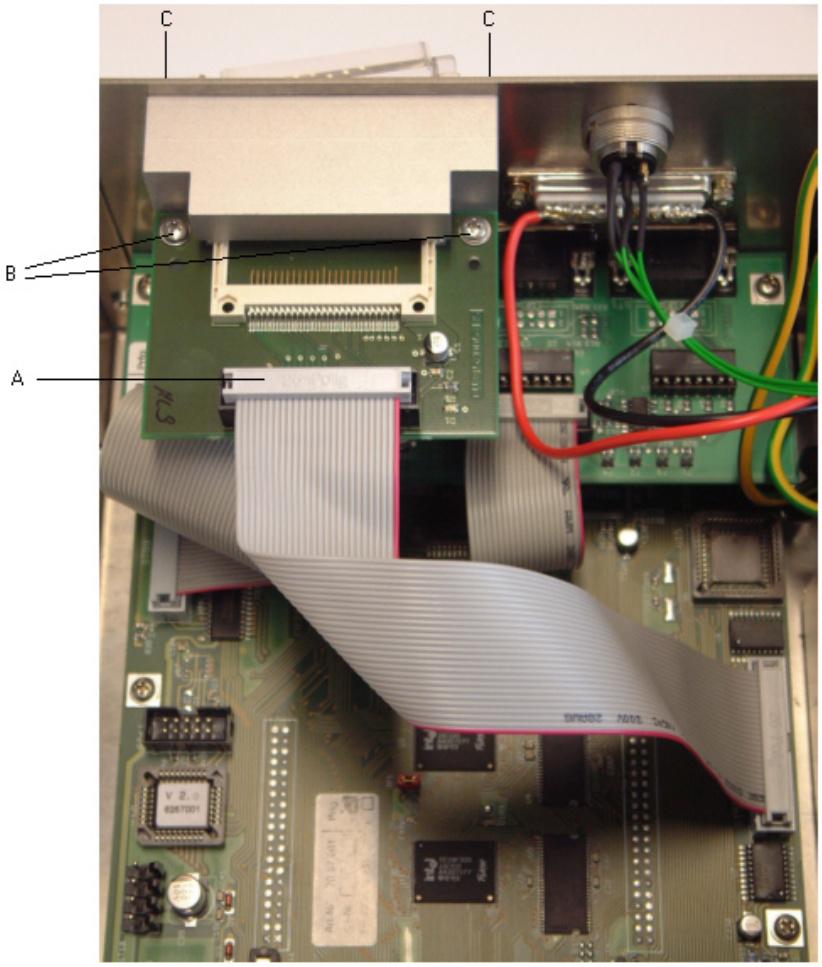


Figure 9

1. Remove cover of control unit.
2. Unplug connecting cable to CPU at slot (A).
3. Unscrew retaining screws (B) at fastener.
4. Remove defective slot.
5. Install a new slot in reverse order.

For damages at the transparent cover, the slot must be dismantled with fastener. For that purpose, remove 4 retaining screws (C) at rear panel.

5 Mechanics

DANGER!

Risk of death via electric shock!

⇒ Before opening the housing cover, disconnect the device from the mains supply and wait approx. 2 - 3 minutes until the power supply unit has discharged.

Cleaning 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.

- Remove ribbon cassette.
- Clean printhead surface with special cleaning pen or a cotton swab dipped in pure alcohol.
- Allow printhead to dry for 2-3 minutes before commissioning the device.

5.1 Replacing printhead

CAUTION!

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

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

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

⇒ Do not touch contacts on the plug connections (2, 3).

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

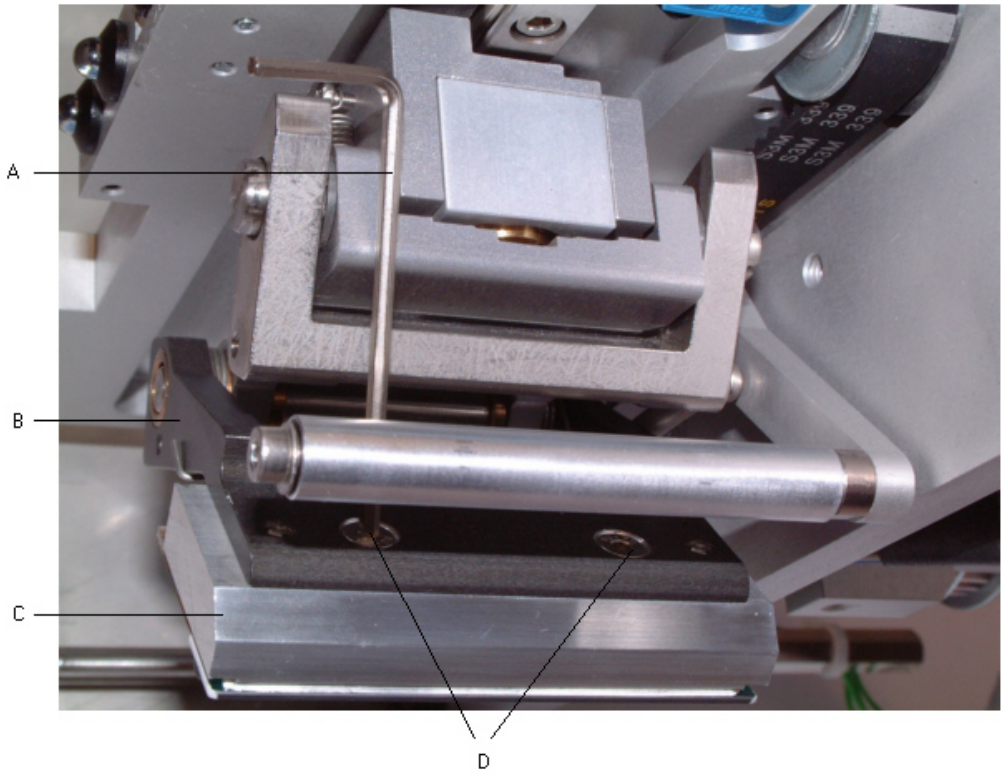


Figure 10

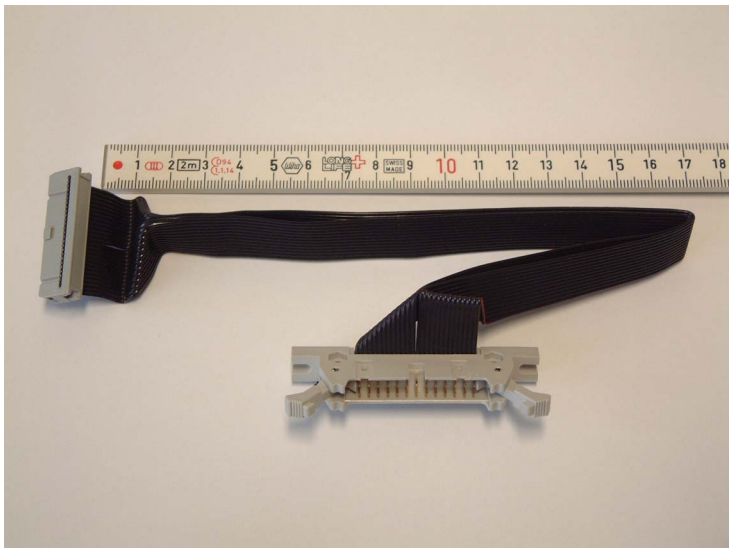
Removing the printhead

- Remove ribbon cassette.
- Move printhead unit in an appropriate service position.
- Press printhead support (B) slightly downwards until an Allen key (2.5) can be inserted in the screws (D).
- Remove screws (D) and afterwards the printhead (C).
- Remove rear-mounted connection assembly from printhead

Installing the printhead

- Insert connection assembly to the new printhead.
- Position printhead in printhead support (B), so the engaging pieces catch in the appropriate holes in the printhead (C).
- Hold printhead holder (B) with a finger slightly on the pressure roll and check the correct position of printhead (C).
- Screw in screw (D) and tighten it with an Allen key.
- Insert again ribbon cassette.
- Enter the resistance value of the new printhead in the service functions (dot resistance). The value is indicated on the type plate of printhead.
- Start a test print to check printhead position.

5.2 Replacing printhead cable

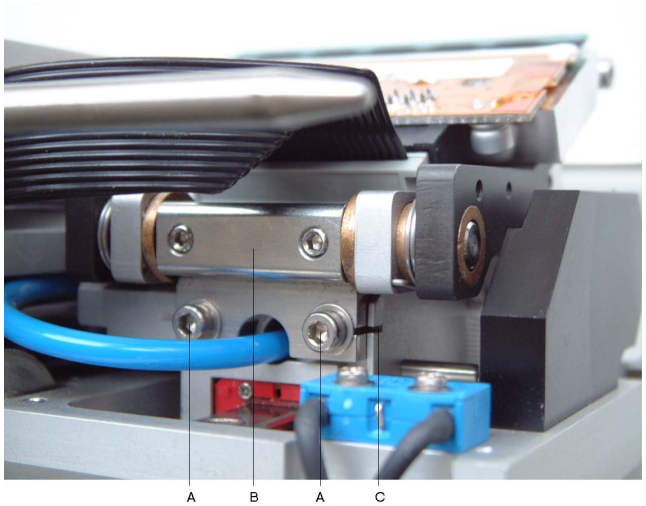


After replacing the printhead cable 'signal', fold the cable as illustrated.

Figure 11

5.3 Angle adjustment (intermittent mode)

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



1. Loosen slightly two Allen head screws (A).
2. Move adjusting part (B) to adjust the angle between printhead and 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. 3 layouts to check the correct unwrinkled ribbon run.

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

Figure 12

CAUTION!

Damage of printhead by unequal use!
Higher wastage of ribbon by faster ripping.

⇒ Change factory settings only in exceptional cases.

5.4 Replacing parties at cassette

View of cassette

Figure 13

Replacing track roller

The track roller can also be removed without previous loosening of roll. For this purpose use a screw driver with max. diameter of 5 mm and remove the screw.

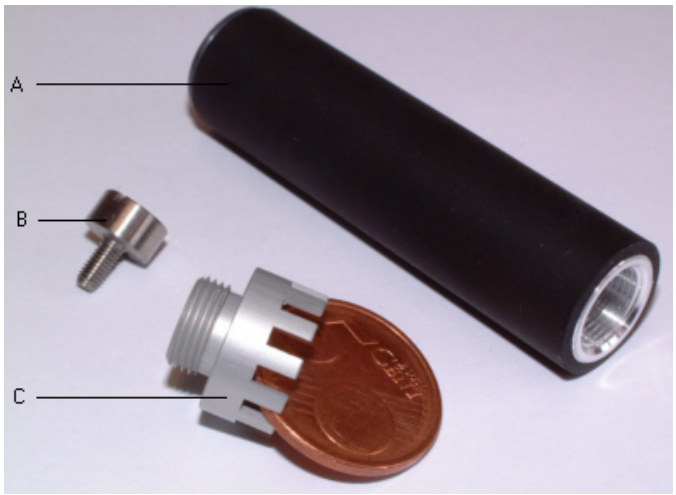


Figure 14

1. Turn off roll (C) from track roller (A). For this purpose you can use a 5 cent piece or another utility.
2. Remove screw (B).
3. Remove track roller (A) from support pillar.
4. The installation of all components is to be effected in reverse order.

The sliding supports of track roller are destined for unlubricated operation and therefore are not to be oiled.

However, a one-time lubrication at installation improves the infeed manner.

Use screw locking adhesive Loctite® 243™ to secure screw (B) against unintentional unscrewing.

Replacing return pulley

Figure 15

1. At cassette outside, remove a vertical strut by loosening 3 socket head screws at the inside.
2. Unscrew the socket head screw (A) of the corresponding roll.
3. Now you can remove bushing (B), centring bearing (D) and return pulley (C).
4. The installation of all components is to be effected in reverse order.

The sliding supports of track roller are destined for unlubricated operation and therefore are not to be oiled. However, a one-time lubrication at installation improves the infeed manner.

Replacing ribbon rewinder/unwinder

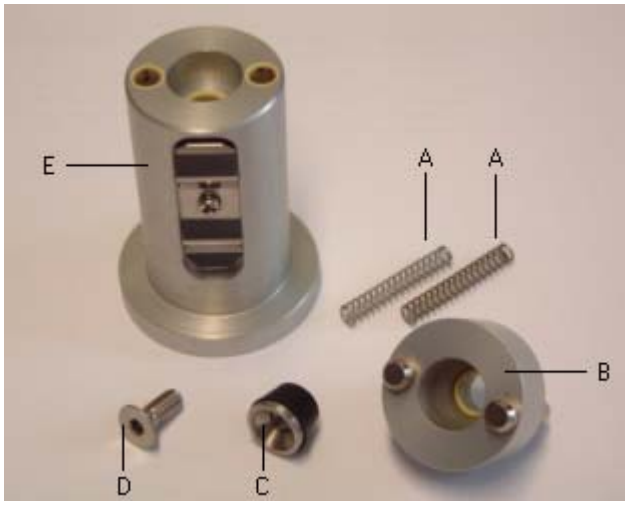


Figure 16

1. Unscrew screw (D) from the corresponding transfer ribbon roll. At the same time, hold the centring bearing (B).
2. Remove chuck cone (C), centring bearing (B), springs (A) and transfer ribbon roll (E).
3. The installation of all components is to be effected in reverse order.

In the environment of chuck cone (C) do not use oil as otherwise the brake function is affected. Clean the chuck cone if necessary.

Use screw locking adhesive Loctite® 243™ to secure screw (C) against unintentional unscrewing.

5.5 Replacing parties at printing carriage

Views of printing carriage

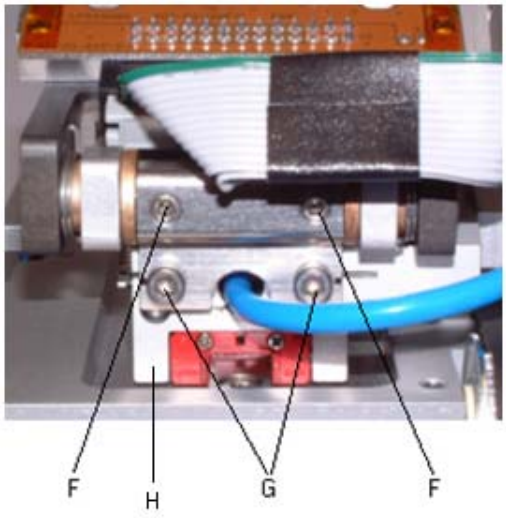


Figure 17

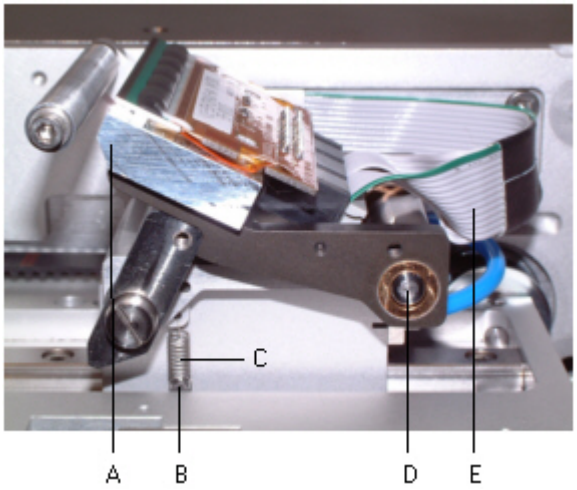


Figure 18

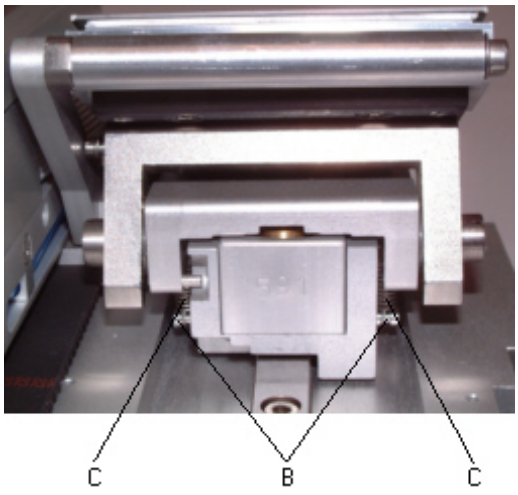


Figure 19

Use screw locking adhesive Loctite® 243™ to secure screws (B+F) against unintentional unscrewing.

Replacing printhead fastener, pressure bail and interlayer

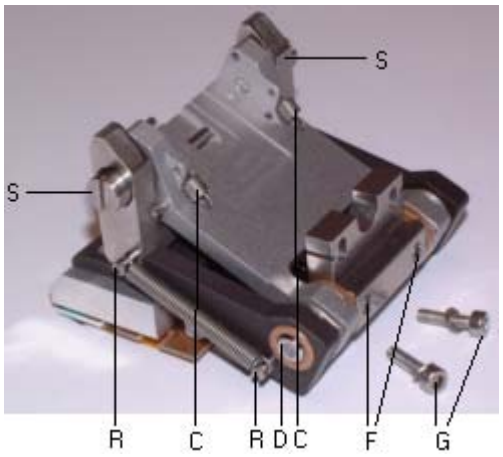


Figure 20

1. Remove cassette.
2. By means of a tweezers, push both tension springs (C) from spring pillar (B).
3. Unplug printhead cable (E) from printhead (A).
4. Remove socket head screws (G).
5. It is now possible to remove the complete printhead unit.
6. Now you can start necessary servicing.

The component can be fractionized further in its individual parts, by removing the printhead shaft (D). For this procedure you have to unscrew the bars (F).

At installation, respect parallelism of slots next to the screws (G) to the slots in guiding carriage (H).

Use screw locking adhesive Loctite® 243™ to secure screw (F, R, S) against unintentional unscrewing.

Replacing guiding carriage

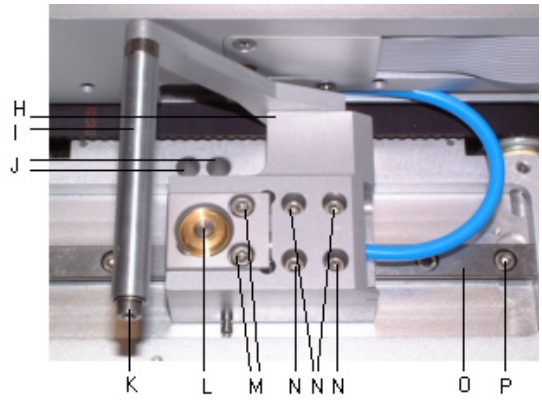


Figure 21

1. For exchange of pneumatic cylinder (L) you have to remove socket head screws (M) and afterwards unplug pneumaic tube.
2. For exchange of linear guiding (O) you have to remove socket head screws (N). Push guiding carriage (H) aside until the track carriage which is underneath appears. Remove socket head screw (P) for exchanging linear guiding (O). The guiding does not have much play in the nut in order to guarantee a parallel run. Lever the linear guiding by means of a screw driver carefully. If the new guiding should have too much play in the nut, press it to the edge and tighten it.
3. For exchange of guiding roll (I) you have to remove socket head screw (K).
4. For exchange of guiding carriage (H) you have to push it over the drillings (J).
   Subsequently insert an Allen key 2.0 bottom-up through the drillings (J) into the screws of the washer lock (not visible). After removing these screws and 4 screws (N) you can remove the guiding carriage (H).

Use screw locking adhesive Loctite® 243™ to secure screws of the washer lock (not visible/J) against unintentional unscrewing.

5.6 Replacing motor circuit board

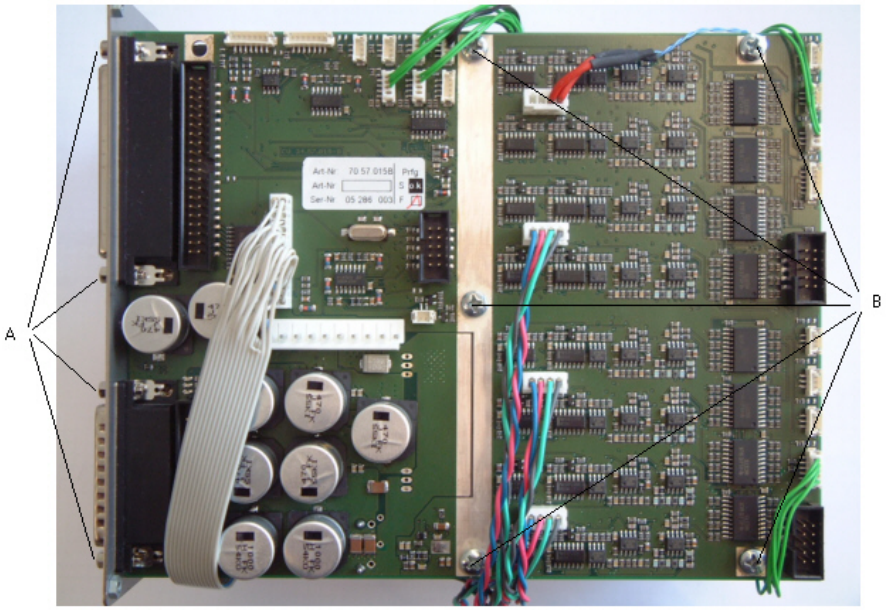


Figure 22

1. Remove rear-mounted mechanics cover after loosening the collateral screws.
2. Unplug all wires at motor circuit board and remove the connecting cables between control unit and print mechanics.
3. Lever the retaining screws (B).
4. Remove hexagon bolts (A) at connecting plugs.
5. Remove the motor circuit board.
6. The installation is to be effected in reverse order.

Use screw locking adhesive Loctite® 243™ to secure hexagon bolts (A) against unintentional unscrewing.

5.7 Replacing parties at print mechanics

Replacing pneumatic valve and pressure control device

DANGER!

Risk of injury via a short-circuit.

Because of technical reasons, the adjusting screw of pressure control device unit is on a tension potential of 5V.

⇒ Use isolated tools.

⇒ Do not touch components connected with mass.

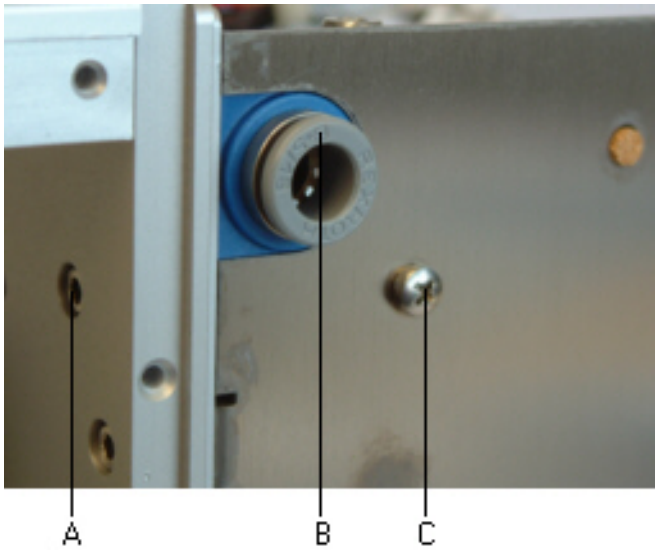


Figure 23

1. Remove rear-mounted mechanics cover after loosening the collateral screw.
2. Unscrew screws (A, C and G).
3. Loosen piece of tube (E) from plug-in connection of valve (B) and remove pressure control device unit (H) outwards.
4. Loosen piece of tube (diameter 4 mm) at the bottom side of valve (not visible) and remove valve.
5. Remove valve from aluminium fastener by loosing screw (D).
6. At a defective pressure control device you have to remove the screw in union (F) including seals and the flat connection (I)
7. The installation of all components is to be effected in reverse order.

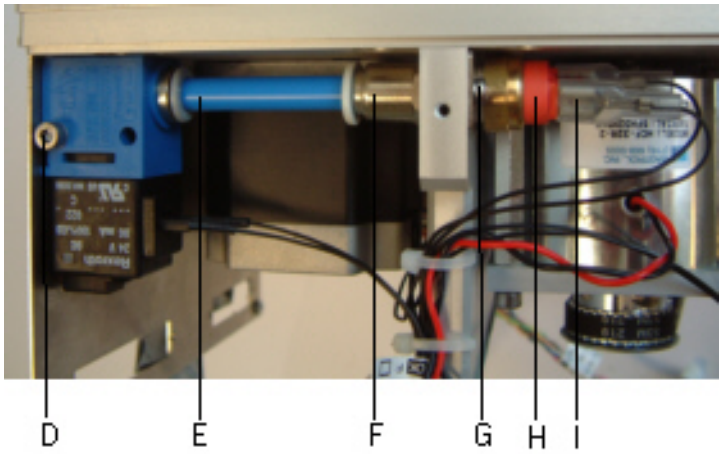


Figure 24

At the new pressure control device you have to set the switch-point. For this procedure, the compressed air supply is set to 2 bars at manometer. In the 'Service Functions' menu the value 'P' for compressed-air control is examined. Turn at the adjusting thread of pressure control device (between flat connections!) until the value changes from 0 to 1.
If you set at manometer a value smaller 2 bar, then value 'P' must be again set to 0. Adjust finely again if necessary.

5.8 Replacing encoder

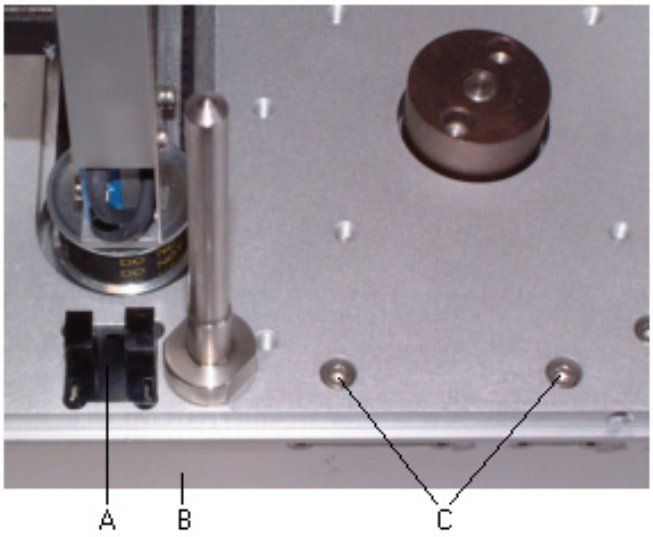


Figure 25

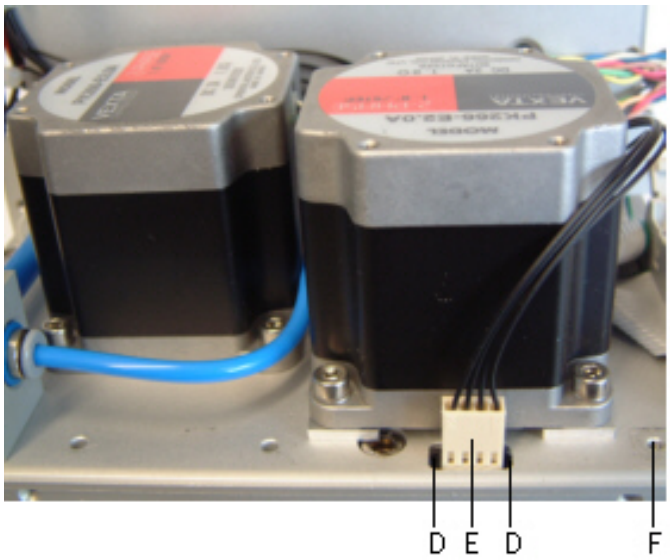


Figure 26

1. Remove rear-mounted mechanics cover after loosening the collateral screw.
2. Unplug the connecting cables between print mechanics and control unit at the mechanics.
3. Remove the hexagon bolts at the plugs (see chapter 5.6 on page 28).
4. Remove screws (C) and (F) as well as the fixing screw at valve fastener (see chapter 5.7 on page 29).
5. Remove connection plate (B).
6. Remove connector assembly (E).
7. Press the snap-fits (D) of encoder (A) inwards and push forwards the encoder from the aluminium plate.
8. The installation of a new encoder is to be effected in reverse order.

5.9 Dual reflective encoder

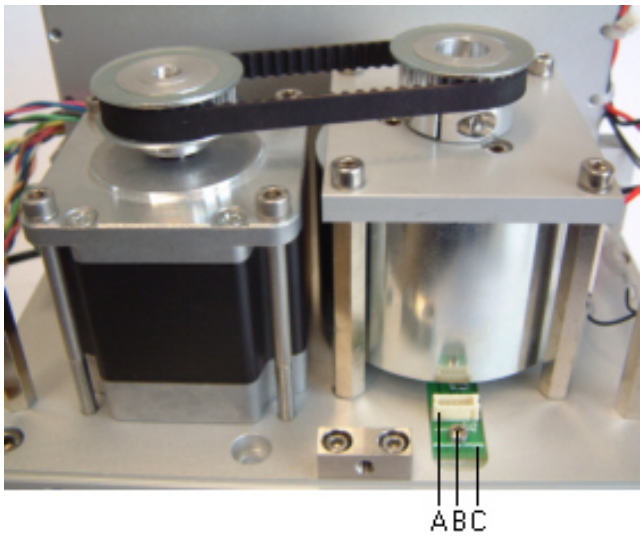


Figure 27

1. Remove rear-mounted mechanics cover after loosening the collateral screw.
2. Remove connecting line (A) for dual reflective encoder (C).
3. Unscrew screw (B).
4. Remove the dual reflective encoder (C) carefully from the nut.
5. The installation of a new encoder is to be effected in reverse order.

5.10 Replacing limit switch, cover switch and LED

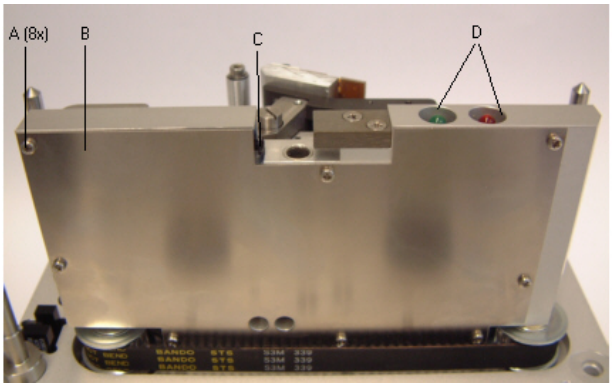


Figure 28

1. Remove rear-mounted mechanics cover after loosening the collateral screw.
2. Unscrew screws (A) of cover plate (B). After removal of cover plate, the cover switch (C) and LED (D) are visible. The limit switch is at the bottom side of aluminium plate.
3. Unscrew the screws of defective switch.
4. Follow the connecting line and remove it from the motor circuit board.
5. Remove the switch.
6. Press the fastener of LED forwards from the drilling in aluminium plate. Now you can press out the defective LED from the fastener backwards.
7. The installation of all components is to be effected in reverse order.

6 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 X value). Check rotation and font.
3 Character set	One res. several characters of the text is res. are not available in the selected font.	Change text. Change font.
4 Unknown code type	Selected code is not available.	Check code type.
5 Unvalid position	Selected position is not available.	Check position.
6 CV font	Selected font is not available.	Check font.
7 Vector font	Selected font is not available.	Check font.
8 Measuring label	While measuring no label was found. Set label length is too large.	Check label length and if labels are inserted correctly. Restart measuring anew.
9 No label found	No label available. Soiled label photocell. Labels not inserted correctly.	Insert new label roll. Check if labels are inserted correctly. Clean the label photocell.
10 No ribbon	During the print order the ribbon roll becomes empty. Defect at the transfer ribbon photocell.	Change transfer ribbon. Check transfer ribbon photocell (service functions).
11 COM FRAMING	Stop bit error.	Check stop bits. Check baud rate. Check cable (printer and PC).
12 COM PARITY	Parity error.	Check parity. Check baud rate. Check cable (printer and PC).
13 COM OVERRUN	Loss of data at serial interface (RS-232).	Check baud rate. Check cable (printer and PC).

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

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

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

Error message	Cause	Remedy
64 Zero point	Defective photocell.	Change photocell.
65 Compressed air	Pressure air is not connected.	Check pressure air.
66 External releaser	External print release signal is missing.	Check input signal.
67 Row too long	Wrong definition of column width res. number of columns.	Reduce the column width res. correct the number of columns.
68 Scanner	The connected bar code scanner signals a device error.	Check the connection scanner/printer. Check scanner (dirty).
69 Scanner NoRead	Bad print quality. Printhead completely soiled or defective. Print speed too high.	Increase contrast. Clean printhead or exchange (if necessary). Reduce print speed.
70 Scanner data	Scanned data does not correspond to the data which is to print.	Exchange printhead.
71 Invalid page	As page number either 0 or a number > 9 is selected.	Select a number between 1 and 9.
72 Page selection	A page which is not available is selected.	Check the defined pages.
73 Page not defined	The page is not defined.	Check the print definition.
74 Format user guiding	Wrong format for customised entry.	Check the format string.
75 Format date/time	Wrong format for date/time.	Check the format string.
76 Hotstart CF	No CF card found.	If option hotstart was activated, a CF card must be inserted. 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.

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

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

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

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

7 Control inputs and outputs

7.1 Version I

Plug connection - back side of control unit

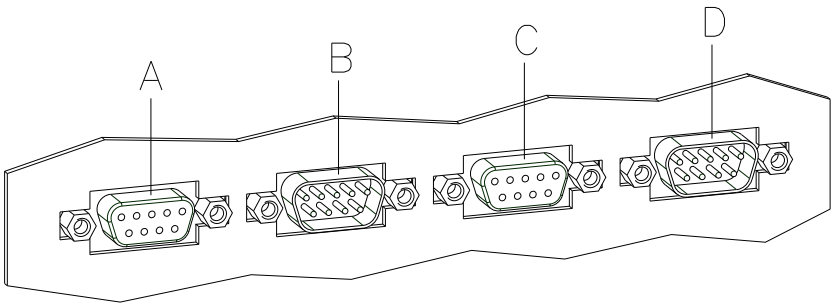


Figure 29

A = External output 1-4 (Output I)
B = External input 1-4 (Input I)
C = External output 5-8 (Output II)
D = External input 5-8 (Input II)

Control outputs

By means of the signal outputs different operating states of the print module can be queried.

The signal outputs are provided by two 9-pin SUB-D-bushings (OUTPUT I and OUTPUT II) on the back side of the control unit.

They consist of optocoupler semiconductor sections, which are connected through and/or blocked according to different operating states.

The maximum allowable current in a semiconductor section is Imax = 30 mA.

Output I
Figure 29, A

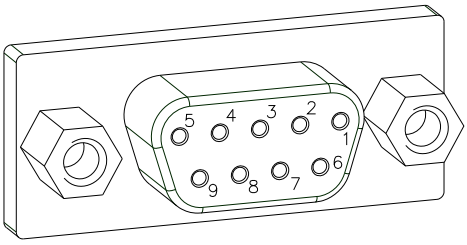
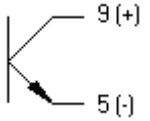
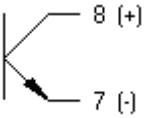
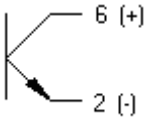
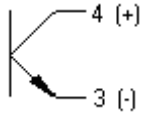


Figure 30

PIN (bushing)	Output I
	Out 1: Error message Each error status such as ribbon error is displayed.
	Out 2: Print order The print module was activated by a print order.
	Out 3: Generation The print module is filled with current layout data.
	Out 4: Layout print The content of print memory is transferred on the printable medium by means of the printhead.

Example Connection of a lamp to a 24V relay by Out 1:

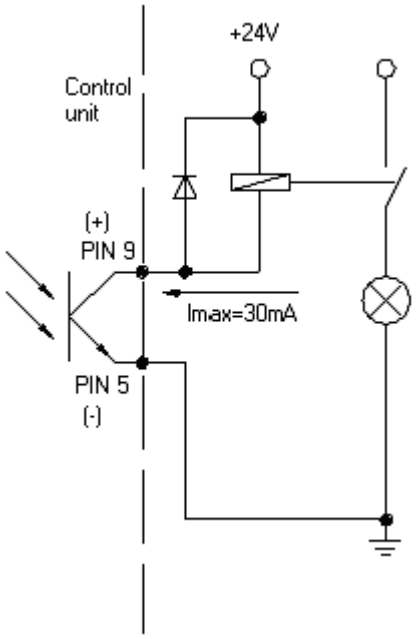


Figure 31

Output II
Figure 29, C

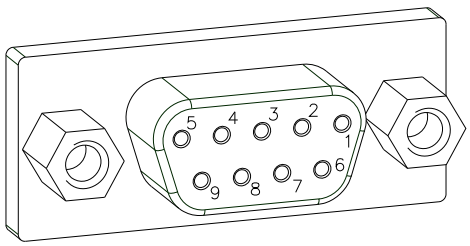
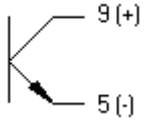
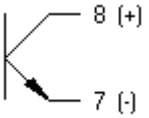
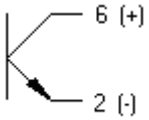
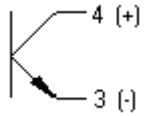


Figure 32

PIN (bushing)	Output II
	Out 5: Print-Ready signal It is indicated if the print module is ready to process a start impulse. In contrary to the print order signal, the generating time is taken into consideration.
	Out 6: Printhead up The printhead has reached the upper rest position (e.g. return to zero point).
	Out 7: Return to start After termination of print procedure the flexible part of the print module is moved back to the start position. After the start position was reached a new start can be released.
	Out 8: Prior warning of transfer ribbon end

Control inputs

By means of the control inputs it is possible to control printing. The control inputs at Input I are electroplated separated and have to be provided with an external tension source. The signal level is active "HIGH".

Input I
Figure 29, B

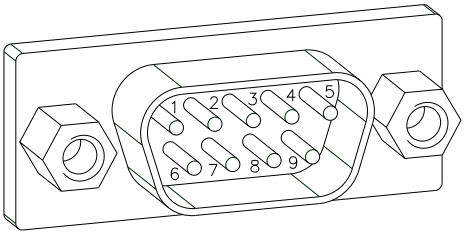
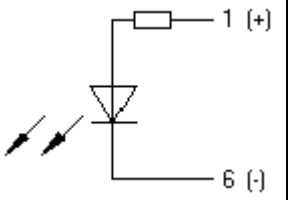
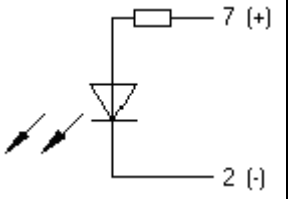
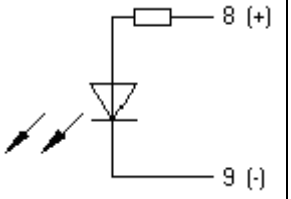
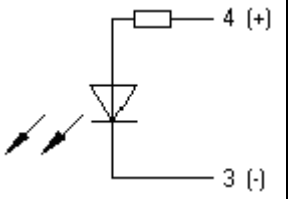


Figure 33

PIN (pin)	Input I
	In 1: Print start
	In 2: Not used
	In 3: Reset external counter
	In 4: Not used

Example

Connection of a switch with 24V voltage supply by In 1:

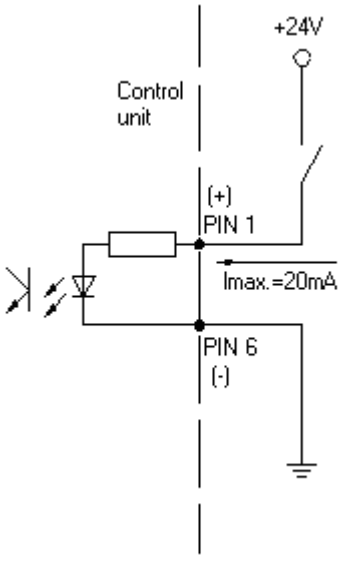


Figure 34

Input II
Figure 29, D

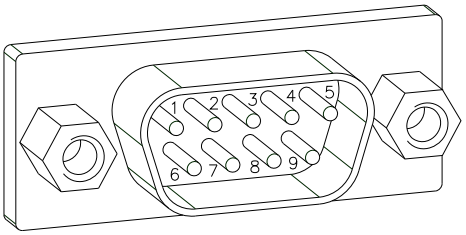
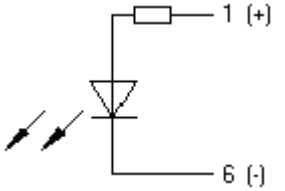
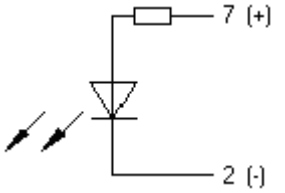
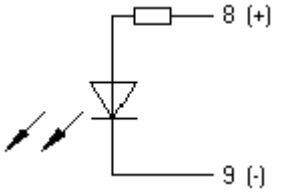
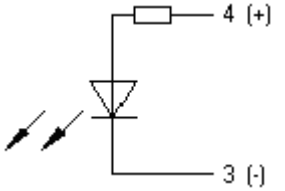


Figure 35

PIN (pin)	Input II
	In 5: Not used
	In 6: Not used
	In 7: Not used
	In 8: Not used

7.2 Version II

Plug connection - back side of control unit

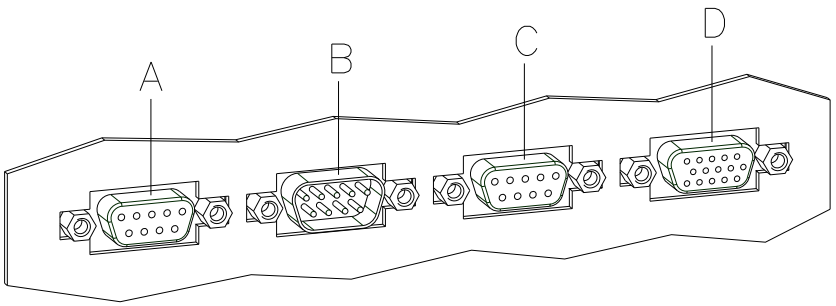


Figure 36

A = External output 1-4 (Output I)
B = External input 1-4 (Input I)
C = External output 5-8 (Output II)
D = External bushing 15pin (I/O-24)

Control outputs

By means of the signal outputs different operating states of the print module can be queried.

The signal outputs are provided by two 9-pin SUB-D-bushings (OUTPUT I and OUTPUT II) on the back side of the control unit.

They consist of optocoupler semiconductor sections, which are connected through and/or blocked according to different operating states.

The maximum allowable current in a semiconductor section is

Imax = 30 mA.

Output I
Figure 36, A

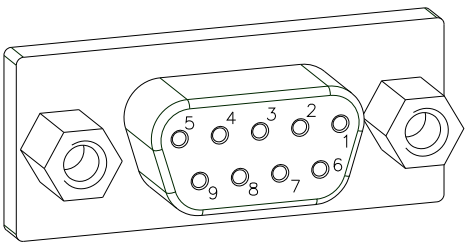
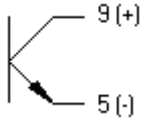
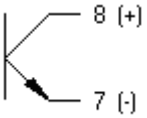
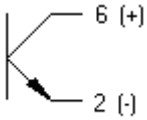
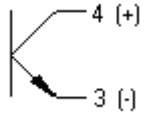


Figure 37

PIN (bushing)	Output I
	Out 1: Error message Each error status such as ribbon error is displayed.
	Out 2: Print order The print module was activated by a print order.
	Out 3: Generation The print module is filled with current layout data.
	Out 4: Layout print The content of print memory is transferred on the printable medium by means of the printhead.

Example Connection of a lamp to a 24V relay by Out 1:

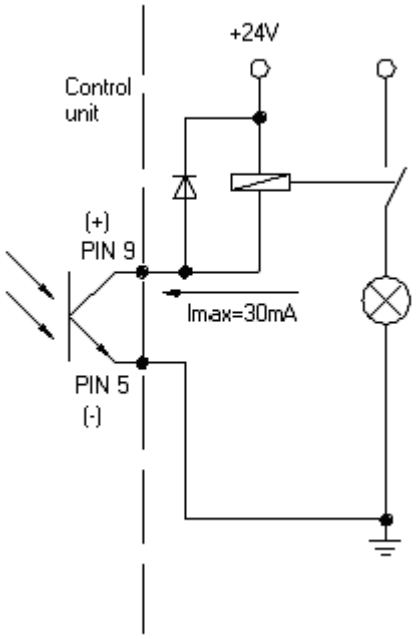


Figure 38

Output II
Figure 36, C

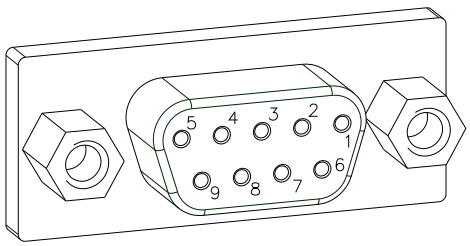
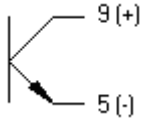
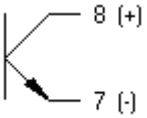
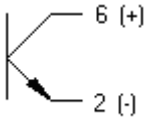
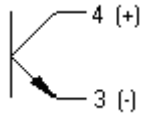


Figure 39

PIN (bushing)	Output II
	Out 5: Print-Ready signal It is indicated if the print module is ready to process a start impulse. In contrary to the print order signal, the generating time is taken into consideration.
	Out 6: Printhead up The printhead has reached the upper rest position (e.g. return to zero point).
	Out 7: Return to start After termination of print procedure the flexible part of the print module is moved back to the start position. After the start position was reached a new start can be released.
	Out 8: Prior warning of transfer ribbon end

Control inputs

By means of the control inputs it is possible to control printing. The control inputs at Input I are galvanic separated and have to be provided with an external tension source. The signal level is active "HIGH".

Input I
Figure 36, B

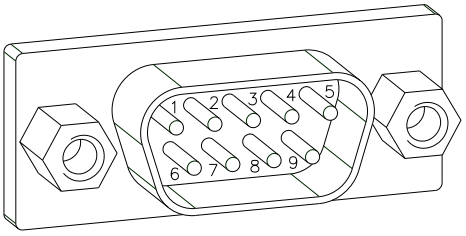
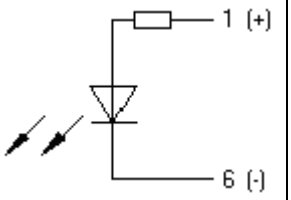
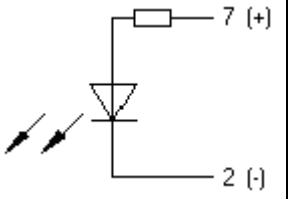
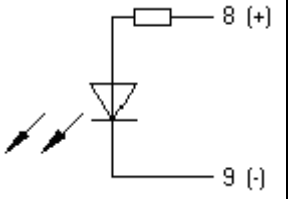
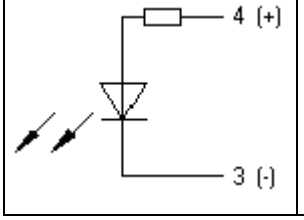


Figure 40

PIN (pin)	Input I
	In 1: Print start
	In 2: Not used
	In 3: Reset external counter
	In 4: Not used

Example

Connection of a switch with 24V voltage supply by In 1:

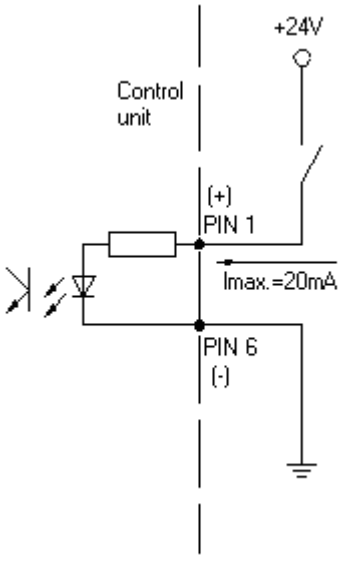


Figure 41

External bushing I/O-24
Figure 36, D

This input is executed as 15-pole and provides user-sided 24V/100mA.
In case of using this bushing, exists **no galvanic separation**.

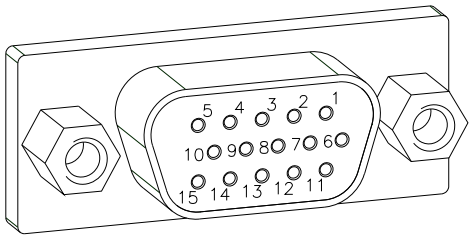
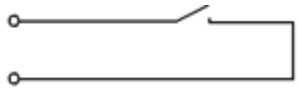
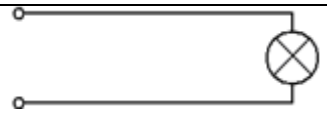
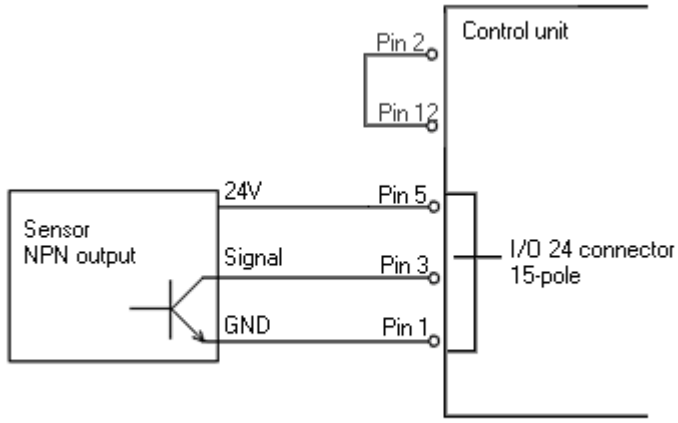


Figure 42

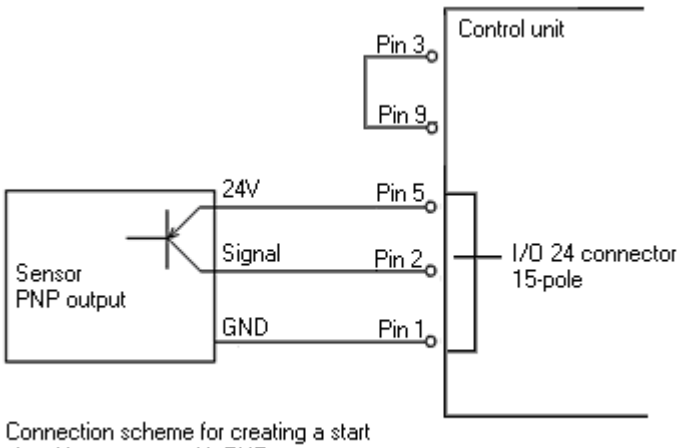
PIN	Function
1, 6	Gnd
5, 10	24 V / 100 mA
3	Print start (NPN initiator)
2	Print start (PNP initiator)
4 14	 Print start by potential-free contact
7 13	 Signal lamp 24 V / 100 mA (error)

Example 1



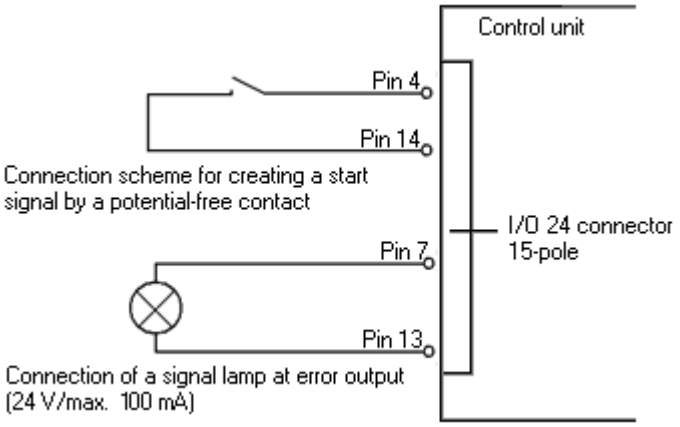
Connection scheme for creating a start signal by a sensor with NPN output

Example 2



Connection scheme for creating a start signal by a sensor with PNP output

Example 3


Control unit
Pin 4
Pin 14
Connection scheme for creating a start signal by a potential-free contact
I/O 24 connector 15-pole
Pin 7
Pin 13
Connection of a signal lamp at error output (24 V/max. 100 mA)

8 Wiring plans

8.1 Electronics

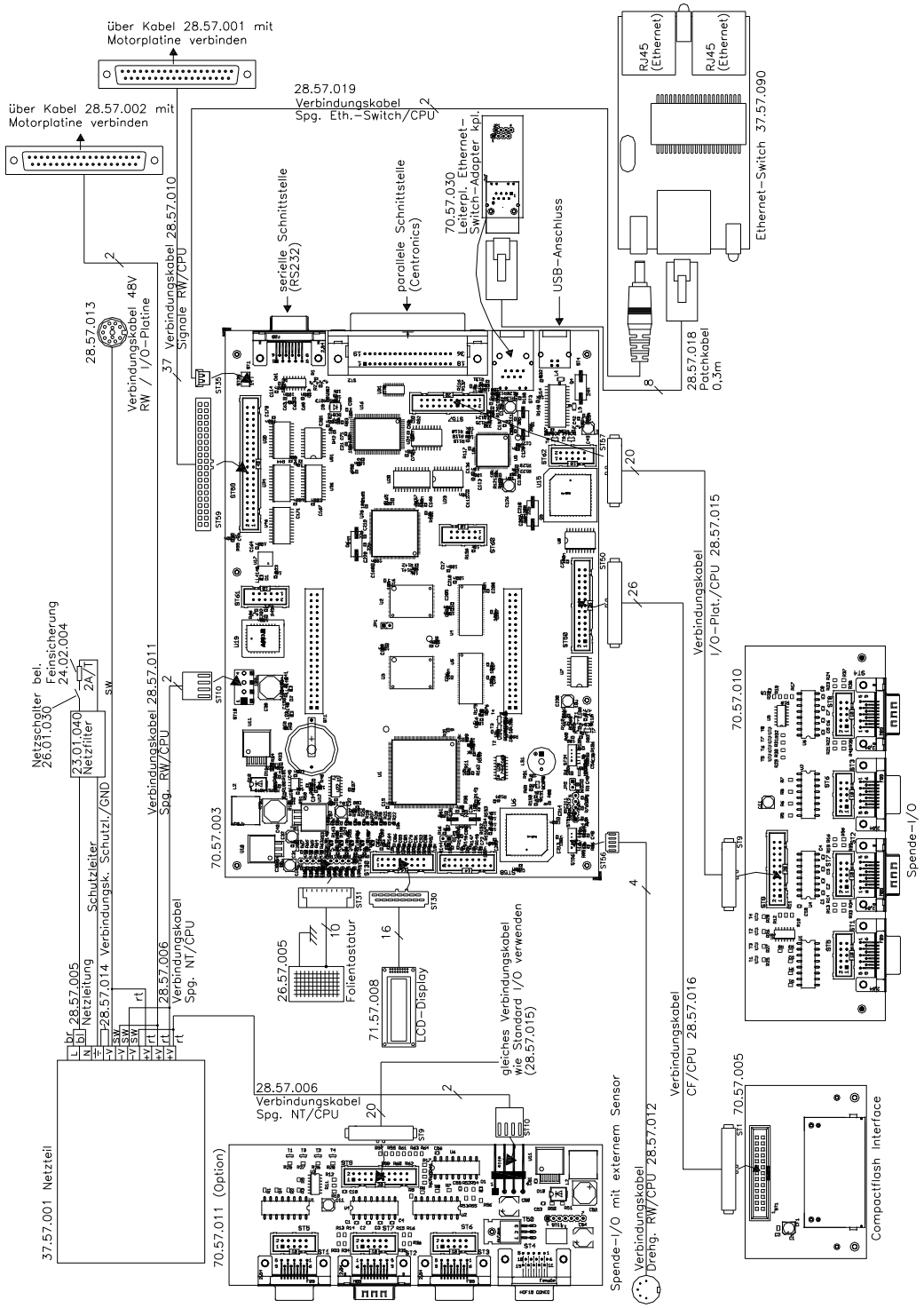


Figure 43

8.2 Mechanics

Dynacode 53

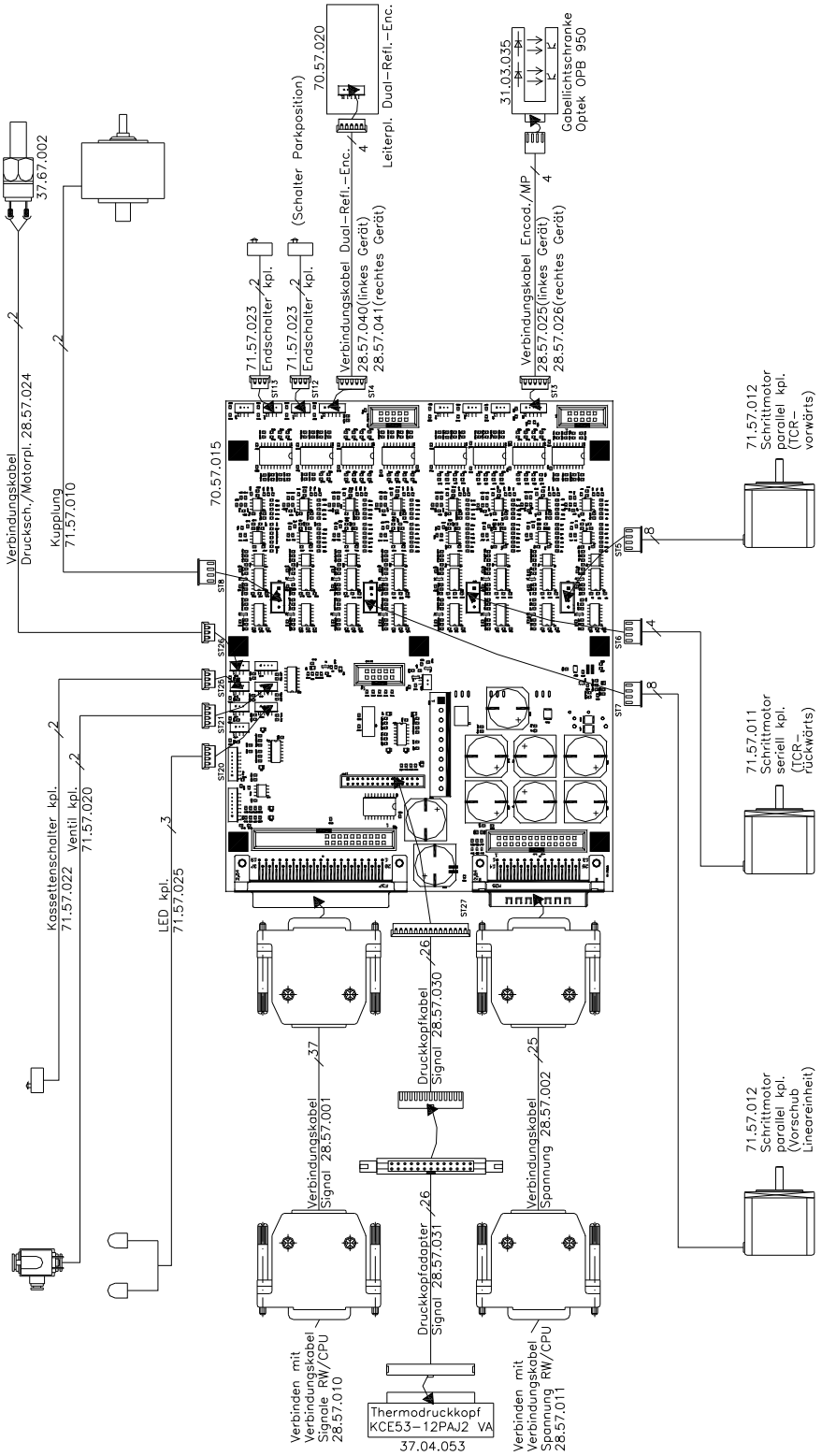


Figure 44

Dynacode 107

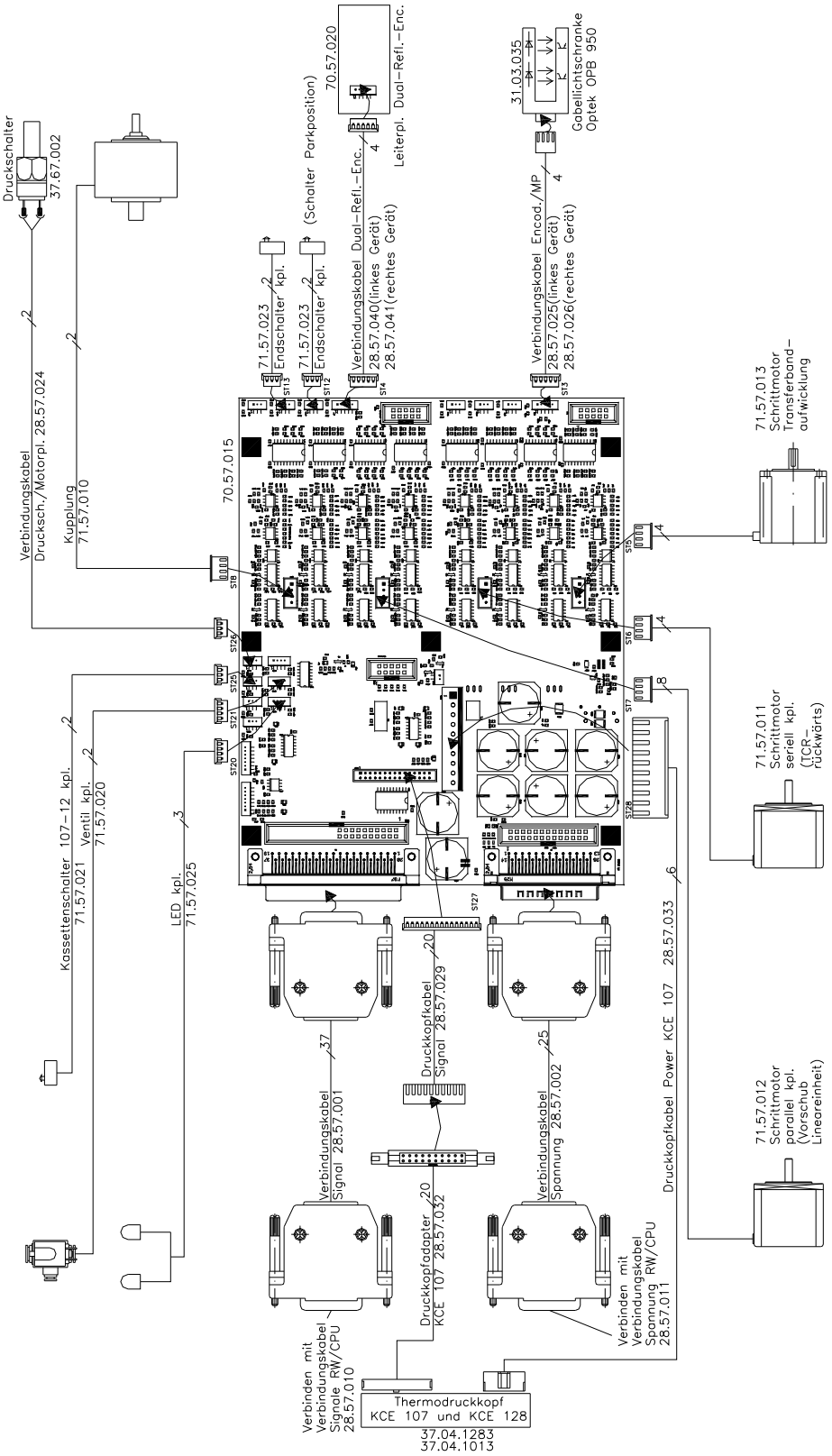


Figure 45

Dynacode 128

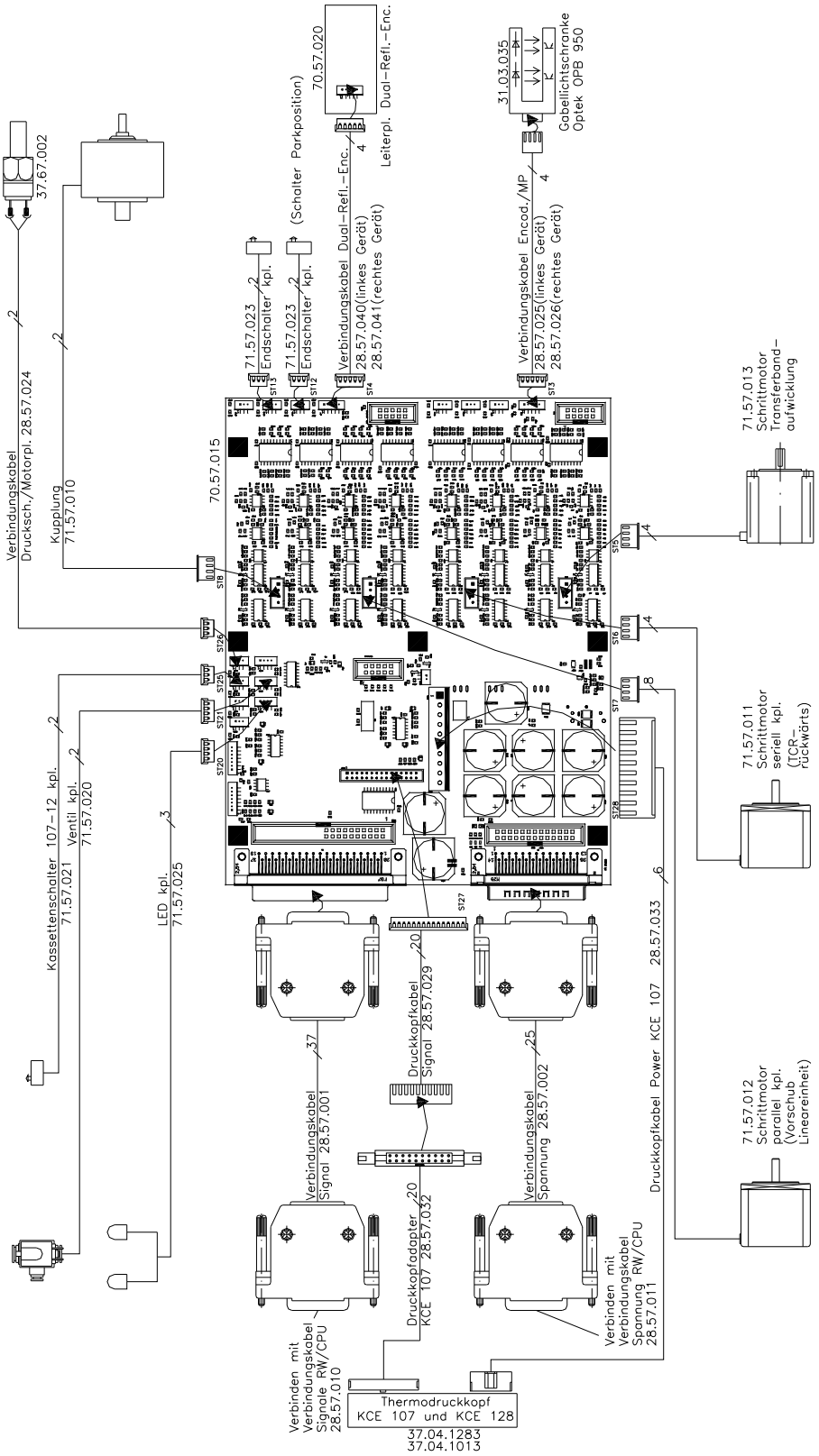


Figure 46

9 Layout diagrams

9.1 CPU

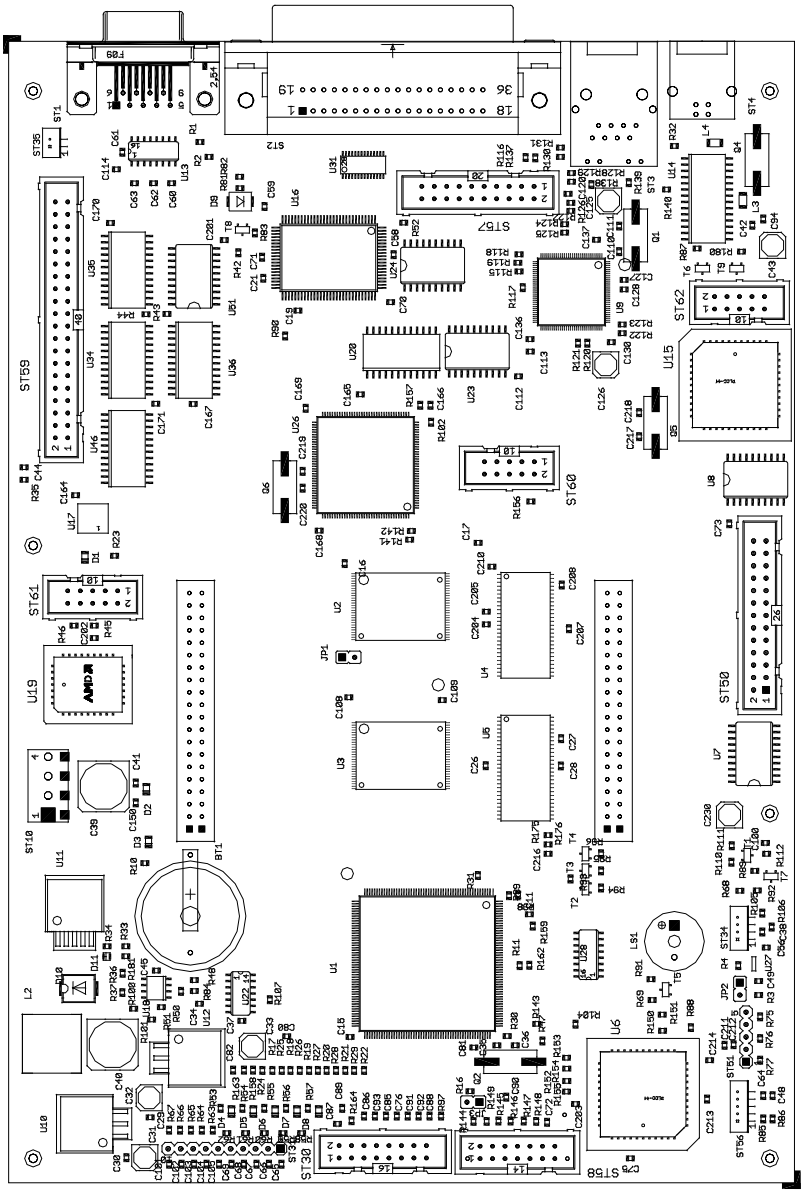


Figure 47

Jumper plan

JP1	closed
JP2	open
JP3	closed

9.2 Power supply unit

Figure 48

V+	48V output
V-	GND
⏚	protective conductor connection
N	88~264VAC input
L	

9.3 Compact Flash card slot

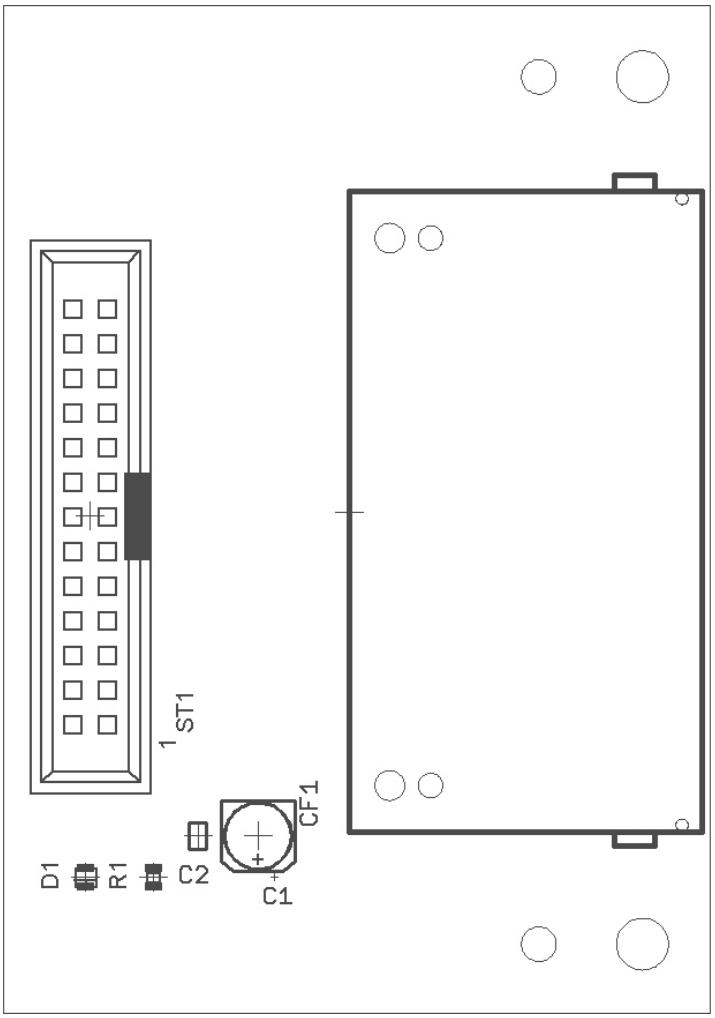


Figure 49

The following CompactFlash cards can be used:

- 512 MB
- 1 GB
- 2 GB

9.4 I/O board 24V

I/O board with external sensor

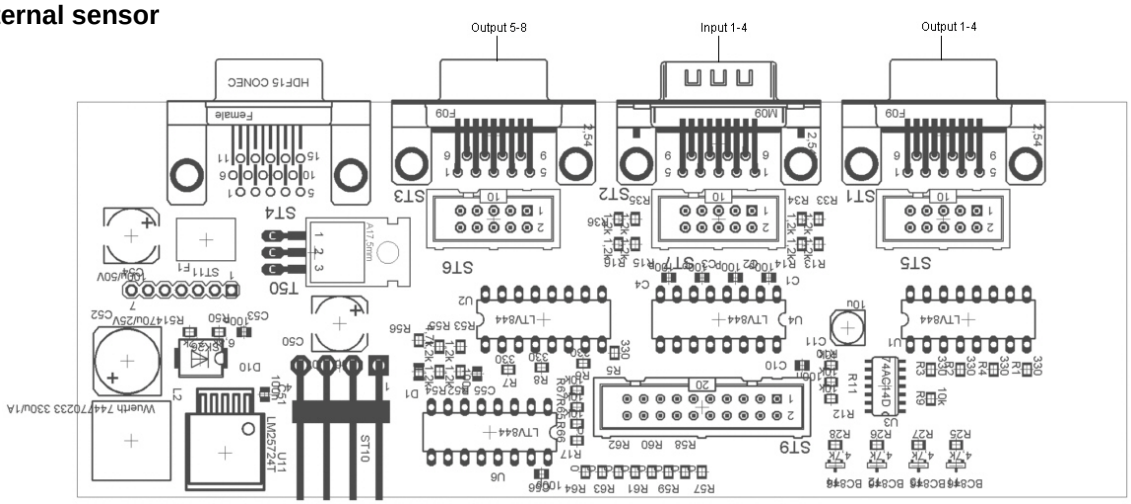


Figure 50

In the function menu the verification of I/Os can be done in menu service functions.

The signal levels input low are indicated as '-' and signal levels input high as %.

By means of keys ▲ and ▼, in the service functions menu it is possible to set and/or reset all output signals (0 = low, 1 = high).for test purposes.

Error at input 1-4:	Exchange of opto-coupler U4
Error at input 5-8:	Exchange of opto-coupler U6
Error at output 1-4:	Exchange of opto-coupler U1
Error at output 5-8:	Exchange of opto-coupler U2

9.5 Motor circuit board

Top side

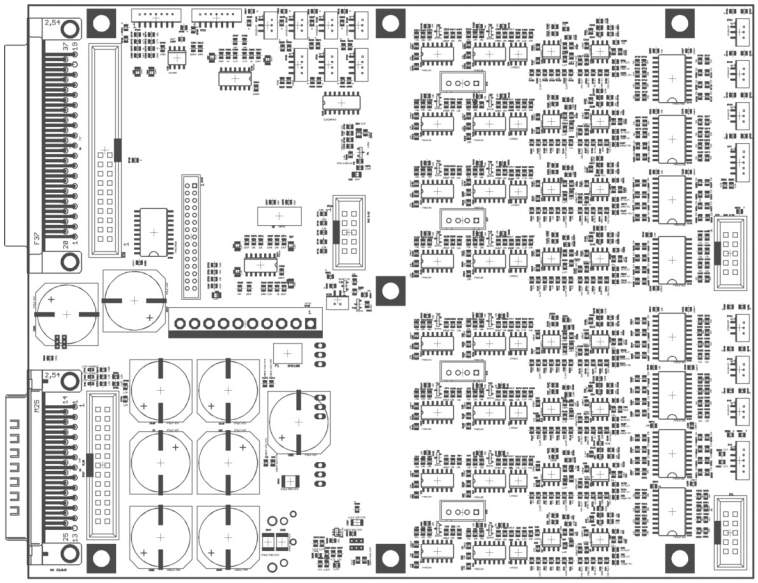


Figure 51

Bottom side

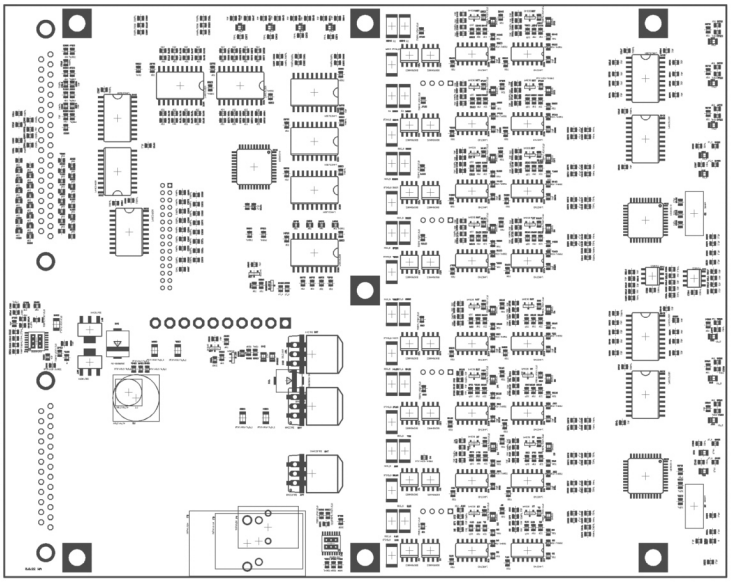


Figure 52

LEDs for tension control

LED	Tension	Tension
D46	5V	power supply for CPU
D48	24V	printhead tension
D38	48V	motor tension

10 Connection plan of back panel plugs

10.1 Tension

Figure 53

PIN	Signal
1-7, 14-19	48V
8-13, 21-25	GND

10.2 Printhead signals

Figure 54

PIN	Signal
1	Printhead 7
2	Printhead 8
3	Printhead 6
4	Printhead 9
5	Printhead 5
6	Printhead 10
7	Printhead 4
8	Printhead 11
9	Printhead 3
10	Printhead 12
11	Printhead 2
12	Printhead 13
13	Printhead 1
14	Printhead 14
15	Printhead 10
16	Printhead 15
17	TPH Temp
18	M 3/4 INT
19	I/O INT

PIN	Signal
20	M 1/2 INT
21	Reset 3
22	-
23	SPI-SS3
24	-
25	Reset 2
26	GND
27	SPI-SS2
28	GND
29	Reset 1
30	GND
31	SPI-SS1
32	GND
33	SPI-MOSI
34	GND
35	SPI-MISO
36	GND
37	SPI-SCK

10.3 Touch Panel

Power supply for touch panel: 12-pole DIN bushing

Illustration: connector - soldering side

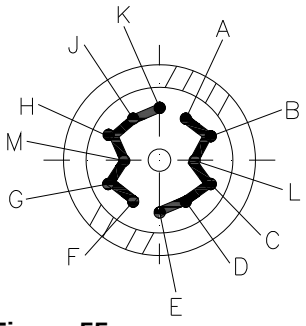


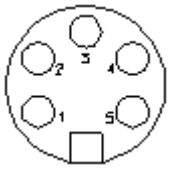
Figure 55

PIN	Signal
A, B, C, D, E, L	48V
F, G, H, J, K, M	GND

10.4 Encoder (continuous mode)

5-pin connecting bushing, contacts according to DIN 45322

Connector socket encoder



PIN1 = 5 VDC

PIN2 = Encoder signal (channel A)

PIN3 = Encoder signal (channel B)

PIN4 = GND

Figure 56

Electrical data of encoder

Operating voltage:	5 VDC
Output signal:	TTL level
Resolution:	Can be set at print module

Connection of encoder

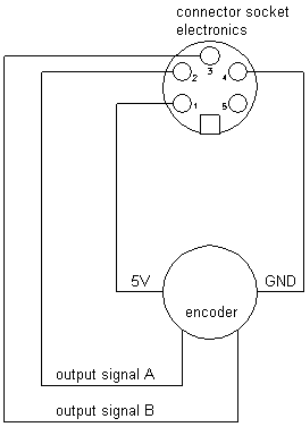


Figure 57

11 Connection plan of interfaces

11.1 Centronics

Figure 58

PIN	Signal
1	STROBE
2-9	DATA1-8
10	ACK
11	BUSY
12	PERROR
13	SELECT
14	AUTOFD
15-16	GND
18	VCC1284 (4,7V)
19-30	GND
31	INIT
32	FAULT
33-35	XXX
36	SELECTIN

11.2 RS-232

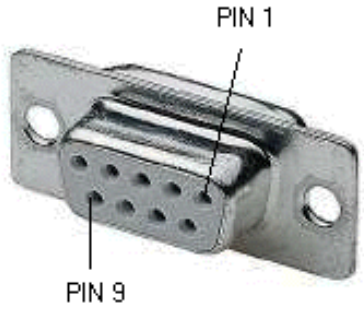


Figure 59

PIN	Signal
1	XXX
2	RXD
3	TXD
4-5	GND
6-9	XXX

11.3 Ethernet

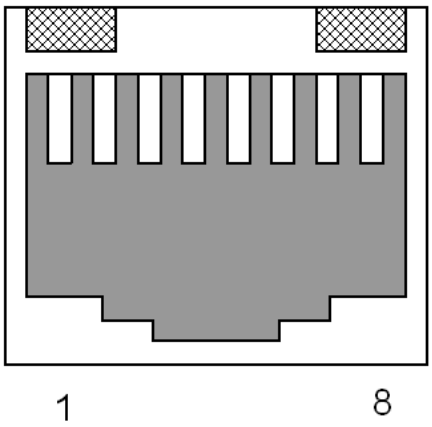


Figure 60

PIN RJ45-Buchse	Bezeichnung	
1		TX+
2		TX−
3		RX+
4	n/c	
5	n/c	
6		RX−
7	n/c	
8	n/c	

11.4 USB 1.0

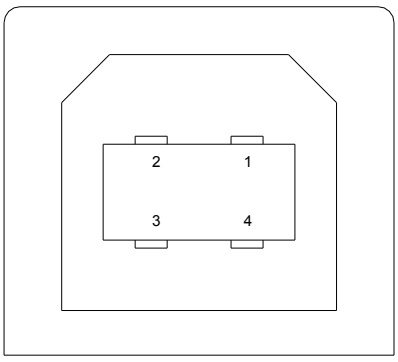


Figure 61

PIN	Signal
1	n/c
2	D−
3	D+
4	GND

12 Index

I

J

L

M

N

P

R

S

T

U

W

valentin
DRUCKSYSTEME

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