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

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

Carl Valentin 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 the electronics and the 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 Instructions

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

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

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

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

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

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

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

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

Gives you tips on protecting the environment.

⇒ Handling instruction

* Optional accessories, special fittings

`Date` Information in the display

DANGER!

Risk of death via electric shock!

⇒ 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.

CAUTION!

Two-pole fuse.

⇒ 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.

1.3 Cross References

Drawings

References to specific items in a figure are marked with letters. They are identified with parentheses in the text, e.g. (A). If no figure number is provided, letters 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. (A, 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, 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.

General safety instructions

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

NOTICE!

When changing the mains voltage the fuse value is to adapt accordingly.

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 60950-1/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.

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

There are warning stickers on the 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.

The direct printing unit must be integrated with the Emergency Stop circuit when it is incorporated into the overall machine.

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

DANGER!

Danger to life and limb from power supply!

⇒ Do not open the casing.

CAUTION!

Two-pole fuse.

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

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

⇒ Do 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

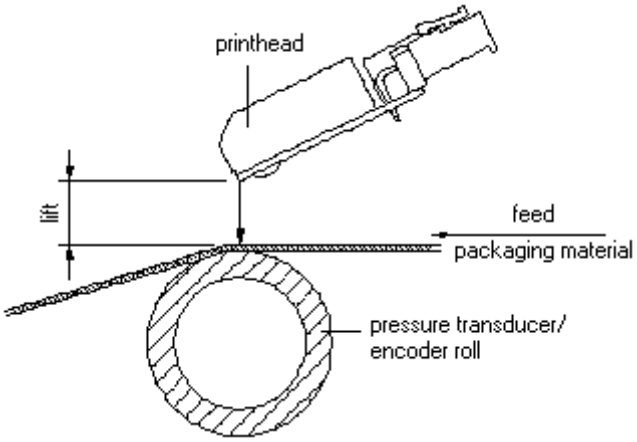


Figure 1
After starting a print order the printhead moves against the print medium. The feed of material is registered by the encoder and then evaluated. The printhead is in start position as long as the printing onto the moving material is finished and then it moves back to its home position.

Material guiding

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.

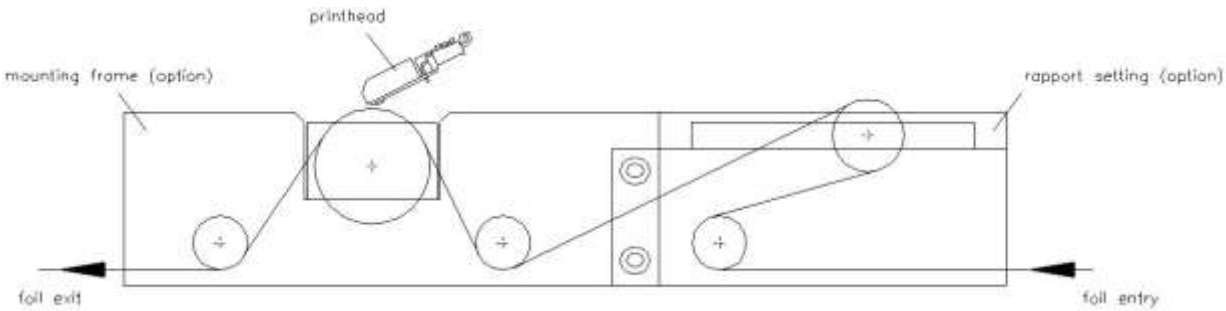


Figure 2

3.2 Intermittent Mode

Print principle

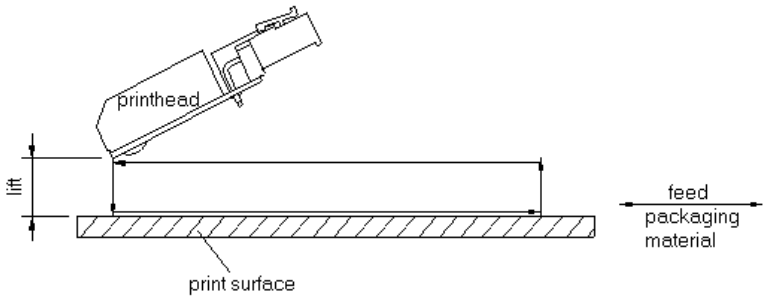


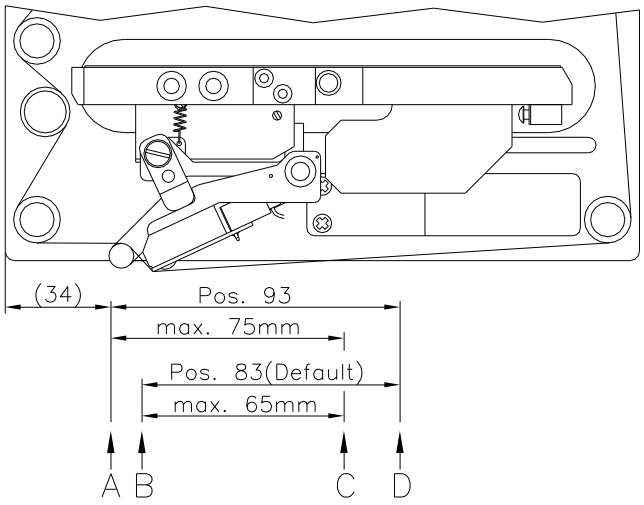
Figure 3

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

NOTICE!

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).



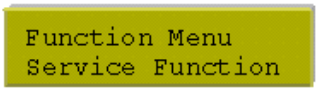
A: Print position/start position value = 93 mm

B: Print position/start position value = 83

C: Max. position print end

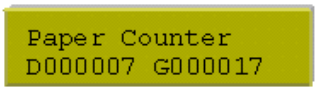
D: Stand-by position

3.3 Change the Module Type



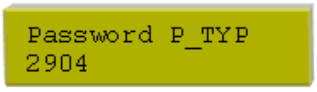
Press the key F to access the function menu.

Press the key ▁◣ until the menu *Service Functions* is displayed.



Press the key ● to select the menu.

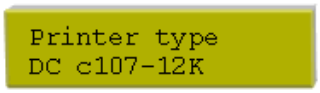
Press the key ▁◣ until the menu item *Paper Counter* is displayed.



Press the key 🖫 to access the menu *Password*.

Enter the service password '2904'.

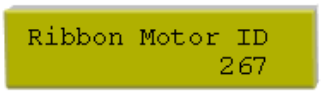
Press the key ● to confirm the entry.



Press the key ▲ and ▼ to select the module type.

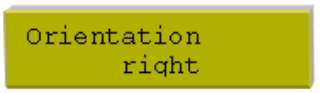
Press the key ● to confirm the entry.

The changed module type is indicated in the display.



Press the key ▁◣ to move to the next menu item.

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



Press the key ▁◣ to move to the next menu item.

Press the 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 printing system from the mains supply and wait for a moment until the power supply unit has discharged.

4.1 Replace the 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 two T4A 250 V).

4.2 Replace the CPU PCB

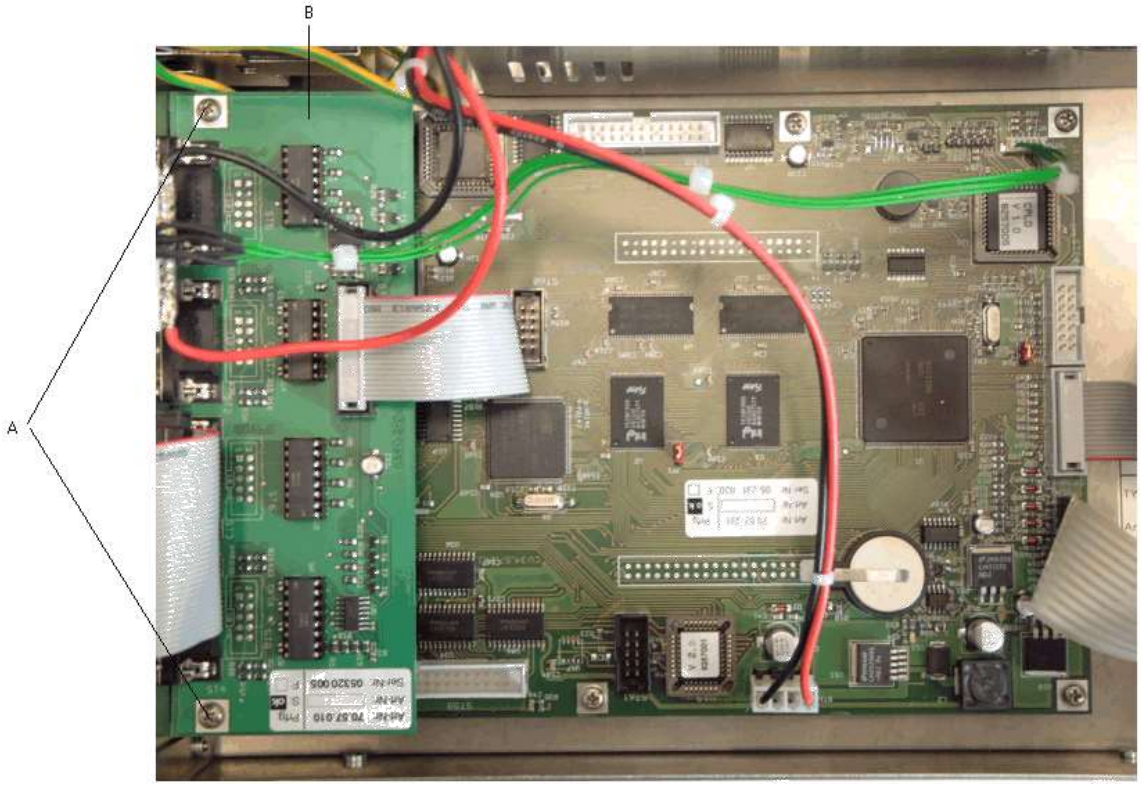


Figure 5

Remove 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 the cover of control unit.
4. Detach all interface cables from the CPU PCB.
5. Remove the fixing screws at the Centronics interface.
6. Remove the screws (A) from I/O board (B).
7. Remove the I/O board.
8. Remove the hexagon bolt and all retaining screws at the CPU PCB.
9. Carefully remove the CPU PCB.

Install the CPU PCB

1. Place the 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 Replace the Battery

DANGER!

Danger of explosion due to improper replacement of the battery!

⇒ Use non-conductive tools.

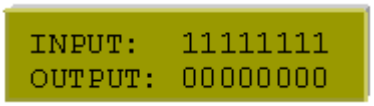
⇒ Pay attention to polarity.

1. Lift up the fixing bracket by means of a non-metallic device (e.g. plastic ruler).
2. Remove the battery.
3. Insert a new battery (CR 2032) into the support and pay attention to position of polarity.

4.4 Replace the Input/Output Board

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

In the Service Functions menu the inputs/outputs can be controlled.



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 Replace the Power Supply Unit

Figure 6

1. Remove the cover of control unit.

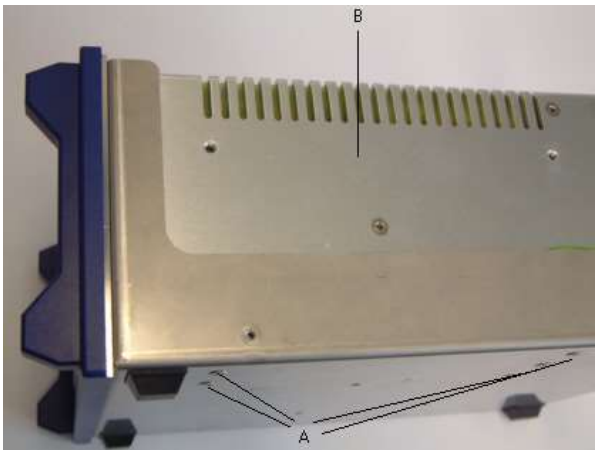


Figure 7

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

Figure 8

3. Deposit the power supply unit next to the control unit (see photo).
4. Remove the transparent cover above the clamps (C).
5. Loosen the 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 Replace the Compact Flash Card Slot

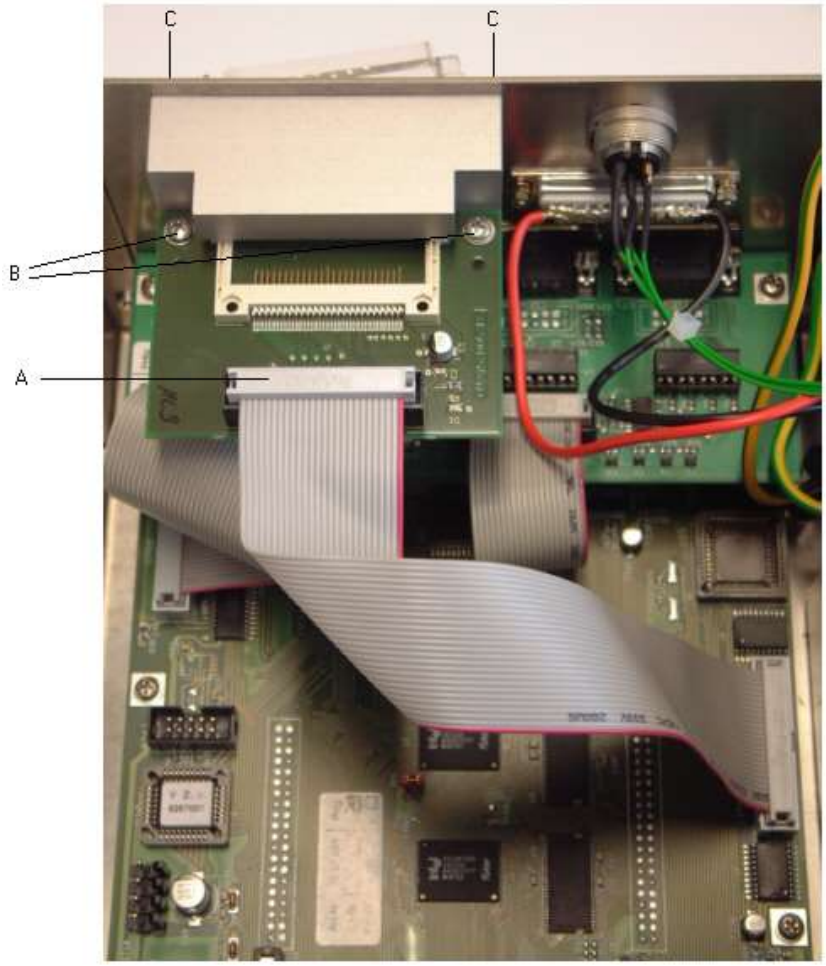


Figure 9

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

NOTICE!

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 printing system from the mains supply and wait for a moment until the power supply unit has discharged.

Clean the printhead

Printing can cause accumulation of dirt at the 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 the ribbon cassette.
- Clean the printhead surface with a special cleaning pen or a cotton swab dipped in pure alcohol.
- Before using the printing system, let the printhead dry for about two to three minutes.

5.1 Replace the Printhead

CAUTION!

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

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

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

⇒ Do not touch the contacts on the plug connections.

⇒ Do not touch the printing line with hard objects or your hands.

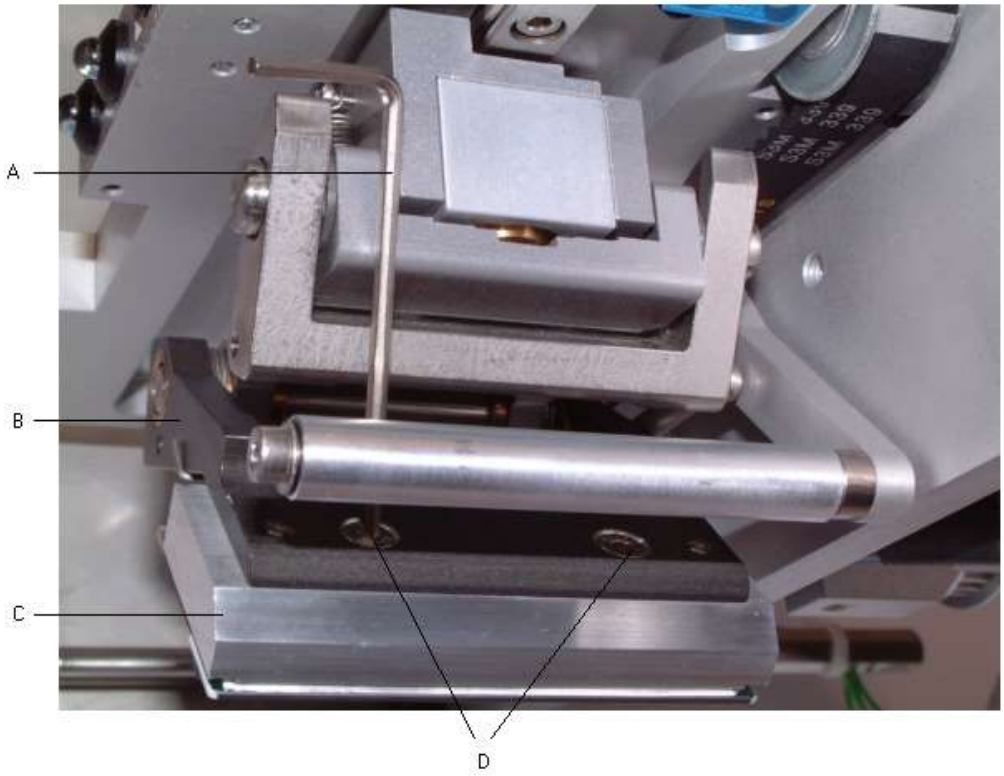


Figure 10

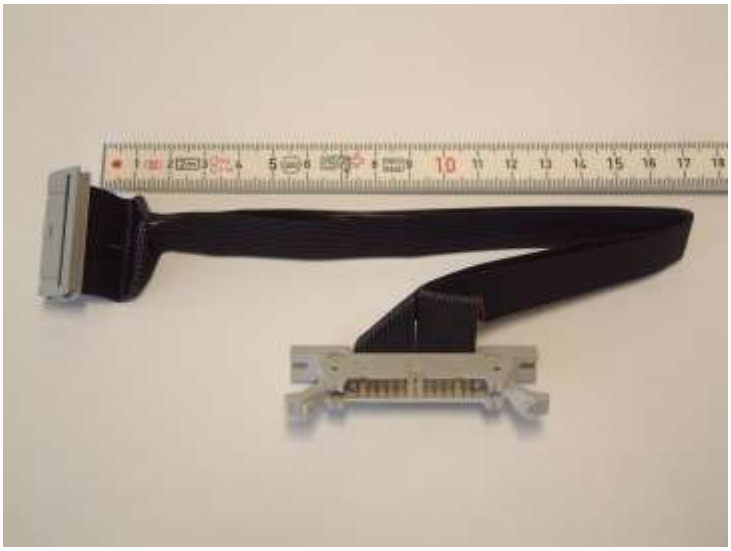
Remove the printhead

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

Install the printhead

- Insert the connection assembly to the new printhead.
- Position the printhead in the printhead support (B), so the engaging pieces catch in the appropriate holes in the printhead (C).
- Hold the printhead holder (B) with a finger slightly on the pressure roll and check the correct position of printhead (C).
- Screw in the screw (D) and tighten it with an Allen key.
- Insert again the 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 the printhead position.

5.2 Replace the 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 the printhead and mechanics can require another angle.

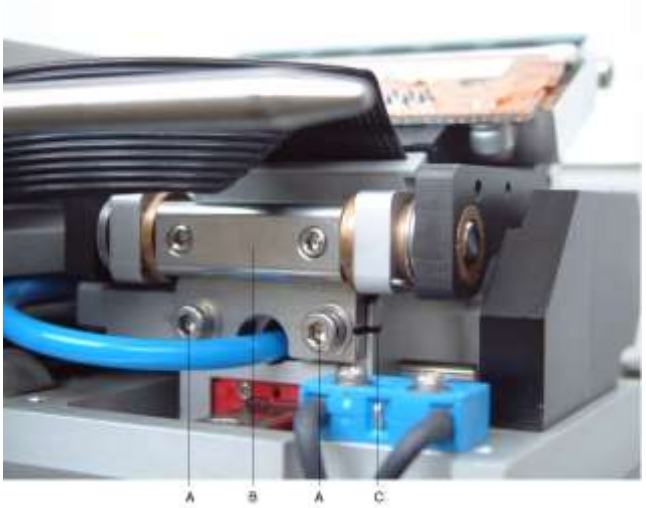


Figure 12

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

NOTICE!

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

CAUTION!

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

⇒ Only change the factory settings in exceptional cases.

5.4 Replace Parts at the Cassette

View of cassette

Figure 13

Replace the track roller

NOTICE!

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.

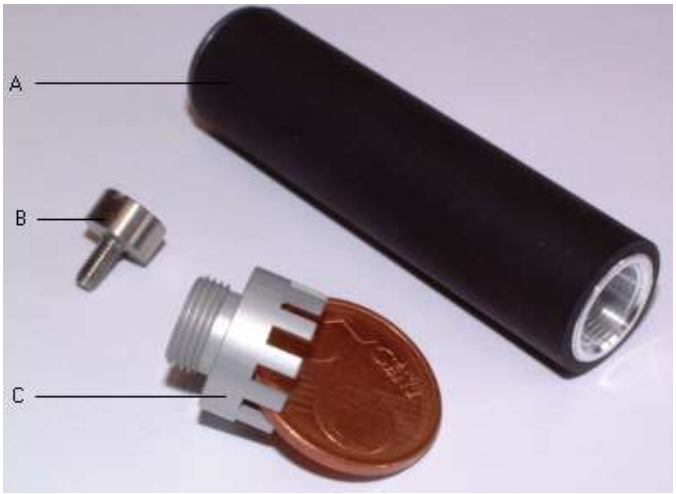


Figure 14

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

NOTICE!

The sliding supports of the 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.

NOTICE!

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

Replace the return pulley

Figure 15

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

NOTICE!

The sliding supports of the 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.

Replace the ribbon rewinder/unwinder

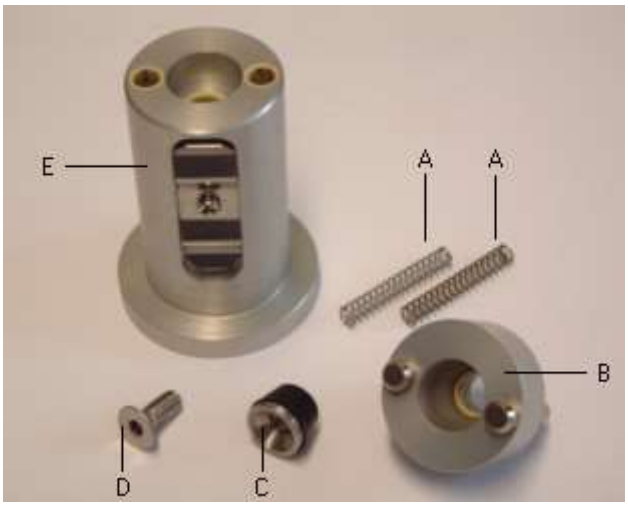


Figure 16

1. Unscrew the screw (D) from the corresponding transfer ribbon roll. At the same time, hold the centring bearing (B).
2. Remove the 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.

NOTICE!

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

NOTICE!

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

5.5 Replace Parts at the Printing Carriage

Views of printing carriage

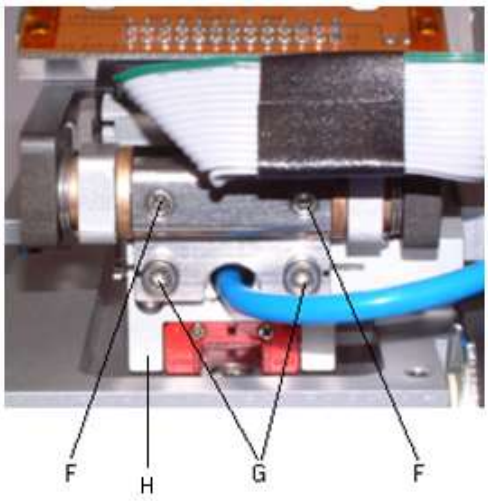


Figure 17

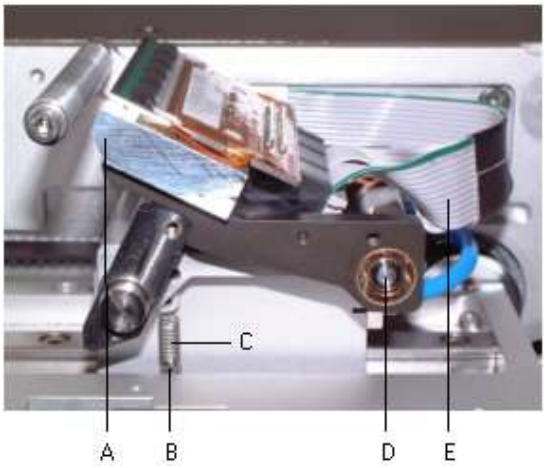


Figure 18

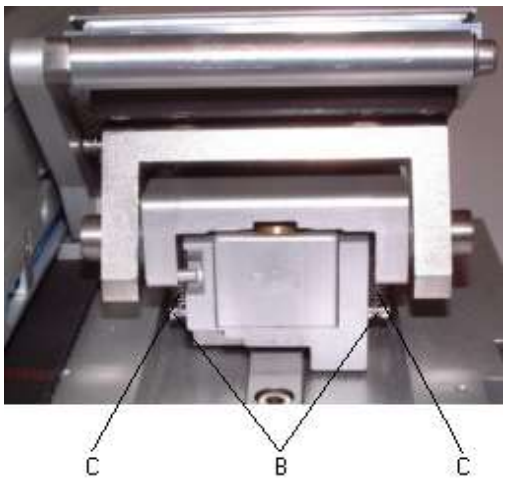


Figure 19

NOTICE!

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

Replace the printhead fastener, pressure bail and interlayer

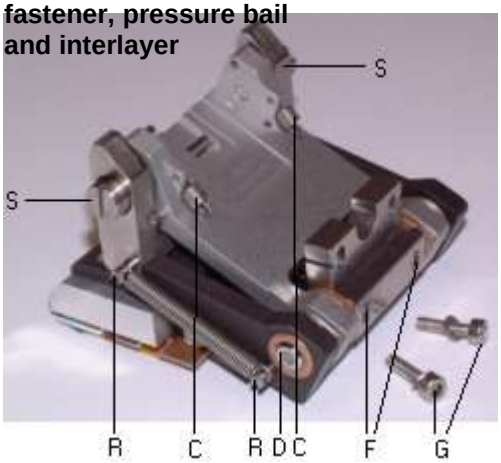


Figure 20

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

NOTICE!

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 the slots next to the screws (G) to the slots in guiding carriage (H).

NOTICE!

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

Replace the guiding carriage

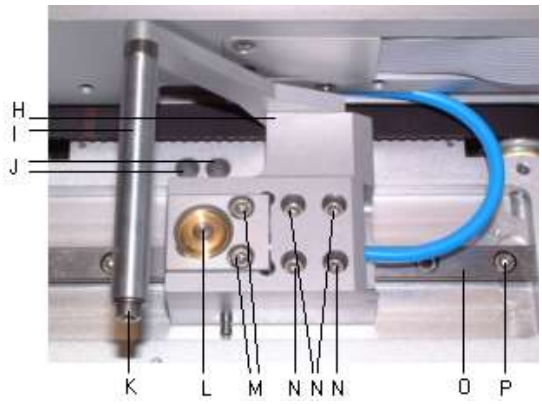


Figure 21

1. For replace of pneumatic cylinder (L) you have to remove the socket head screws (M) and afterwards unplug the pneumaic tube.
2. For replace of linear guiding (O) you have to remove the socket head screws (N). Push guiding carriage (H) aside until the track carriage which is underneath appears. Remove the socket head screw (P) for exchanging the 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 replace of guiding roll (I) you have to remove the socket head screw (K).
4. For replace 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 four screws (N) you can remove the guiding carriage (H).

NOTICE!

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

5.6 Replace the Motor Circuit Board

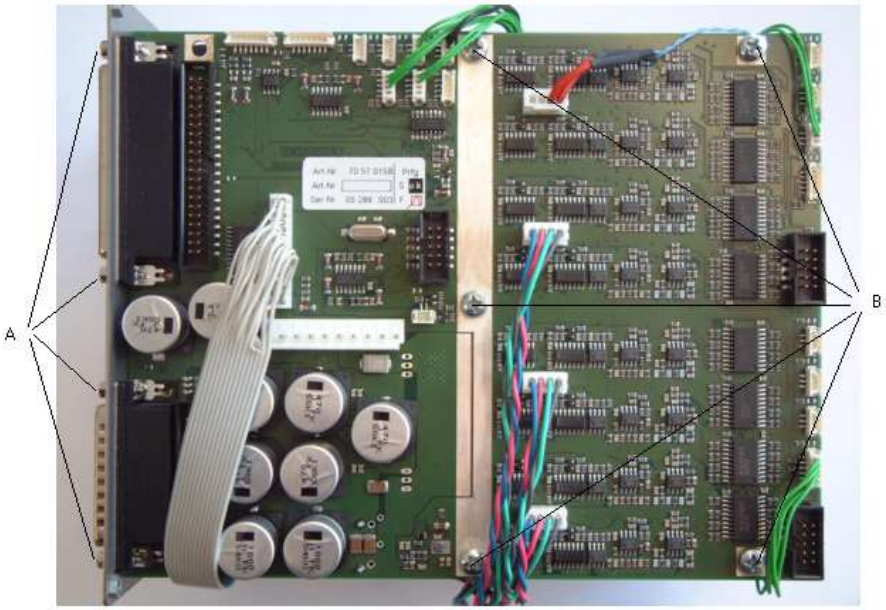


Figure 22

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

NOTICE!

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

5.7 Replace Parts at the Print Mechanics

Replace the 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 voltage potential of 5V.

⇒ Use isolated tools.

⇒ Do not touch the components connected with mass.

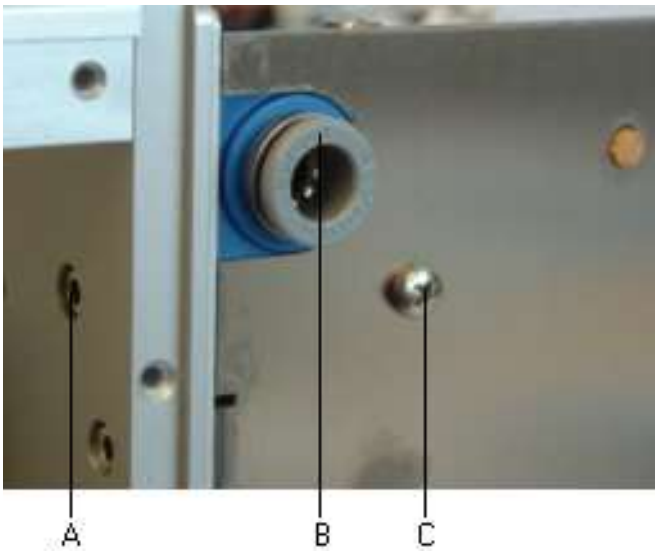


Figure 23

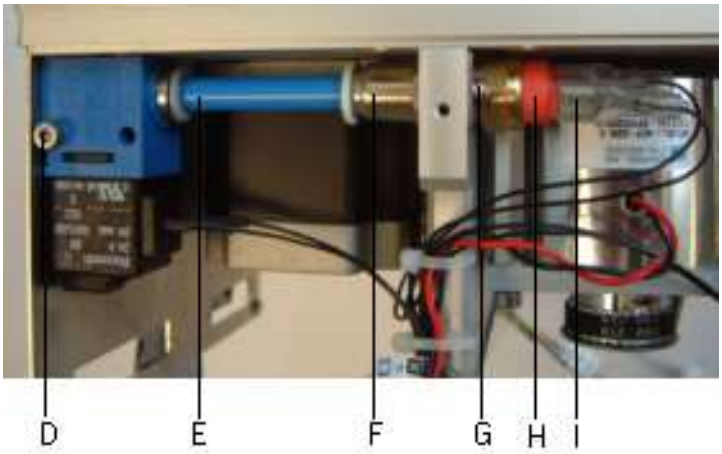


Figure 24

1. Remove the rear-mounted mechanics cover after loosening the collateral screw.
2. Unscrew the screws (A, C and G).
3. Loosen the piece of tube (E) from the plug-in connection of the valve (B) and remove the pressure control device unit (H) outwards.
4. Loosen the piece of tube (diameter 4 mm) at the bottom side of the valve (not visible) and remove the valve.
5. Remove the valve from the aluminium fastener by losing the 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.

NOTICE!

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 Replace the Encoder

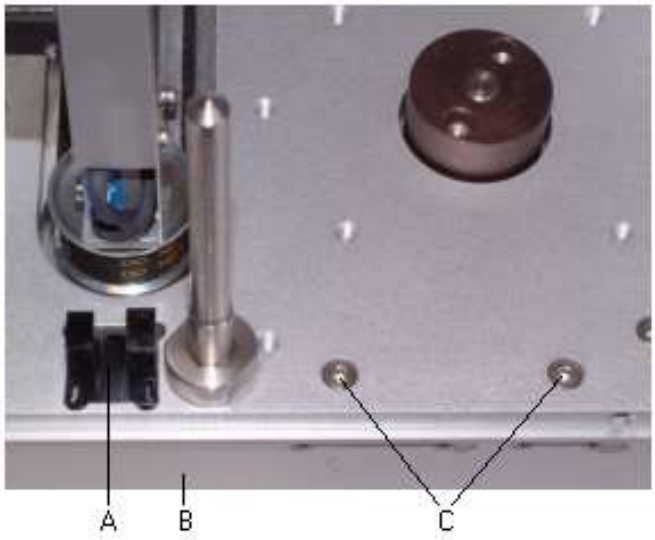


Figure 25

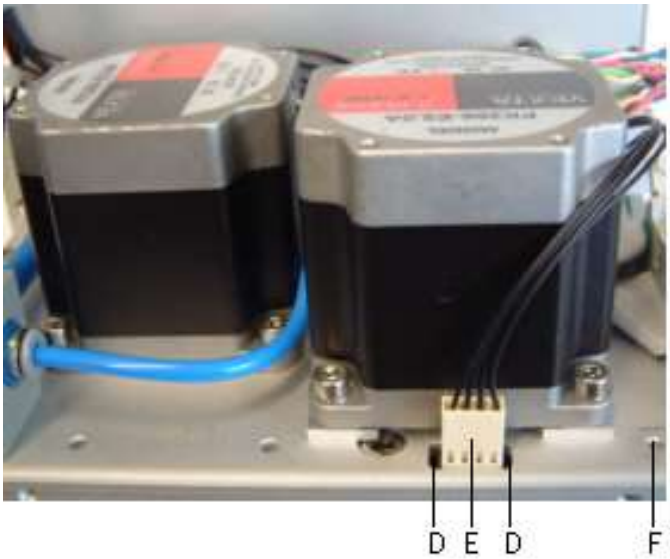


Figure 26

1. Remove the rear-mounted mechanics cover after loosening the collateral screw.
2. Unplug the connecting cables between the print mechanics and the control unit at the mechanics.
3. Remove the hexagon bolts at the plugs (see chapter 5.6 on page 28).
4. Remove the screws (C) and (F) as well as the fixing screw at the valve fastener (see chapter 5.7 on page 29).
5. Remove the connection plate (B).
6. Remove connector assembly (E).
7. Press the snap-fits (D) of the 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 Replace the Dual Reflective Encoder

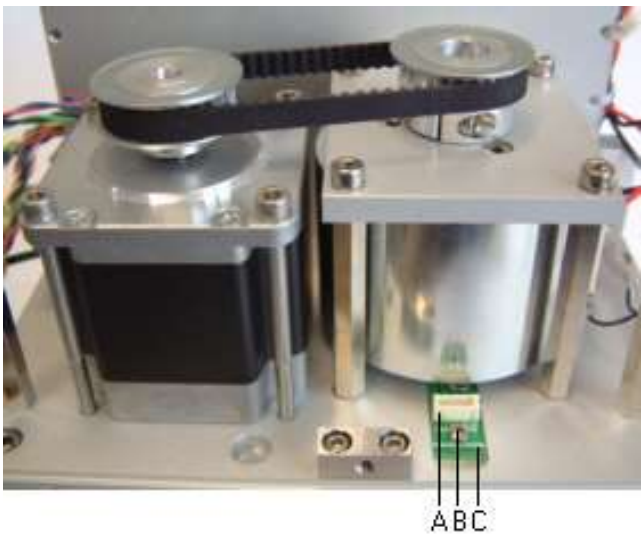


Figure 27

1. Remove the rear-mounted mechanics cover after loosening the collateral screw.
2. Remove the connecting line (A) for dual reflective encoder (C).
3. Unscrew the 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 Replace the Limit Switch, Cover Switch and LED

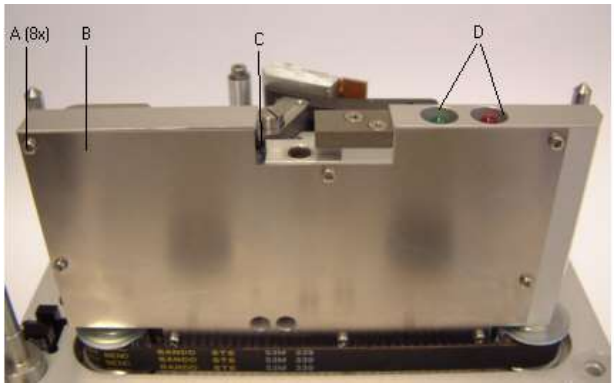


Figure 28

1. Remove the rear-mounted mechanics cover after loosening the collateral screw.
2. Unscrew the screws (A) of the cover plate (B).
   After removal of the 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 the 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 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.
28 Cutter error	With cut an error occurred. Paper jam.	Check label run. Check cutter run.
29 Invalid parameter	Entered data do not correspond to the characters allowed from the application identifier.	Check code data.

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

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

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

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

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

Error message	Cause	Remedy
110 Housing open	When starting the print order the housing cover is not closed.	Close the housing cover and start the print order anew.
111 EAN.UCC code	Transferred EAN.UCC code is invalid.	Verify bar code data (see corresponding specification).
112 Print carriage	Printing carriage does not move.	Check gear belt (possibly broken).
113 Applicator error	Option applicator Error while using applicator.	Check applicator.
114 Left position	Option applicator Left final position switch is not in correct position.	Check LEFT final position switch for correct function and position. Check function of pneumatics for cross traverse.
115 Right position	Option applicator Right final position switch is not in correct position.	Check RIGHT final position switch for correct function and position. Check function of pneumatics for cross traverse.
116 Print position	Option applicator: The applicator is not in the print position when trying to print a label.	Check TOP and RIGHT final position switch for correct function and position. Check pneumatics for function
117 XML parameter	The parameters in the XML file are not correct.	Please contact your responsible distributor.
118 Invalid variable	Transferred variable is invalid with customized entry.	Select correct variable without customized entry and transfer it.
119 No ribbon	During the print order the ribbon roll becomes empty. Defect at the transfer ribbon photocell.	Change transfer ribbon. Check transfer ribbon photocell (service functions).
120 Wrong directory	Invalid target directory when copying.	Target directory must not be within the source directory. Check target directory.
121 No label PH2	No label found at the rear printhead (DuoPrint). Soiled label photocell. Labels not inserted correctly.	Insert new label roll. Clean the label photocell. Check if labels are inserted correctly.
122 IP occupied	The IP address was already assigned.	Assign a new IP address.

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

Error message	Cause	Remedy
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 Hardware error	A hardware component could not be found.	Please contact your responsible distributor.

7 Control Inputs and Outputs

7.1 Version I

Plug connection - back side of control unit

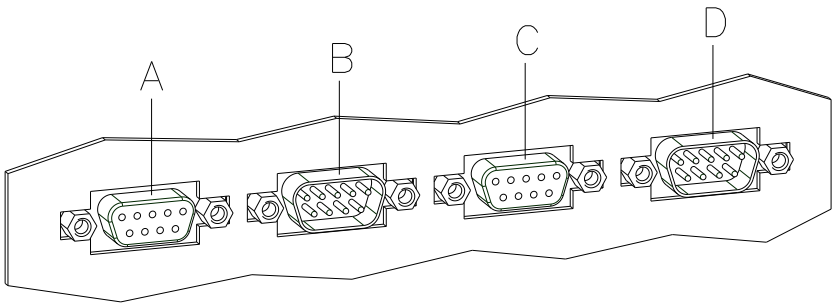


Figure 29

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

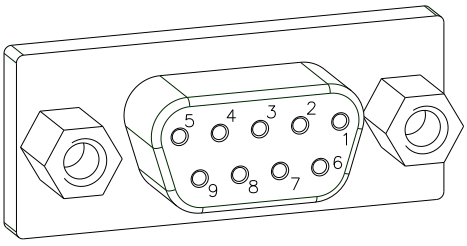
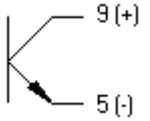
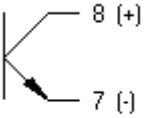
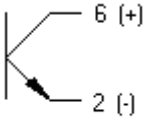
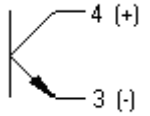


Figure 30

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:

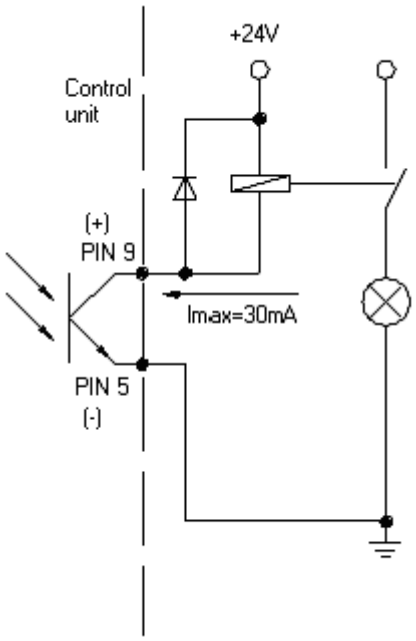


Figure 31

Output II
Figure 29, C

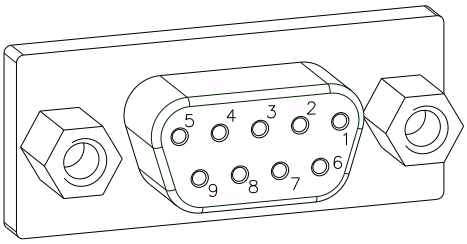
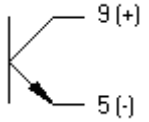
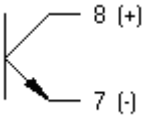
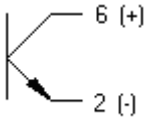
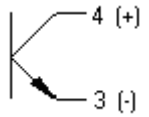


Figure 32

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 the print procedure can be controlled. The control inputs at Input I are electroplated separated and have to be provided with an external voltage source. The signal level is active "HIGH".

Input I
Figure 29, B

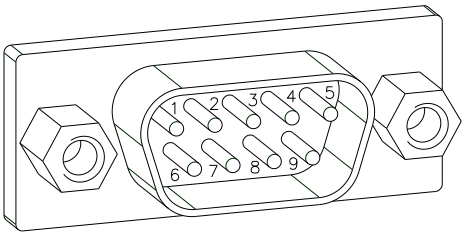
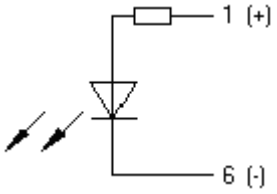
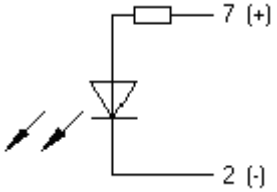
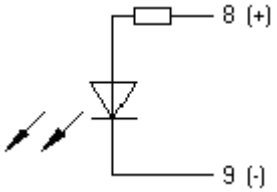
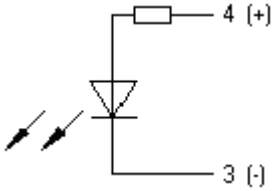


Figure 33

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:

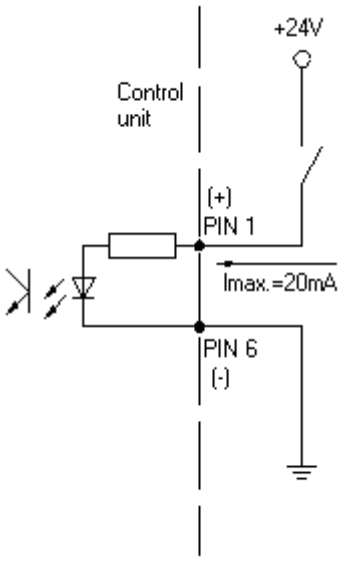


Figure 34

Input II
Figure 29, D

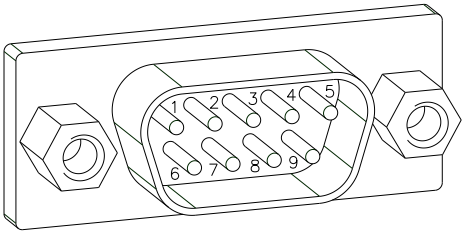
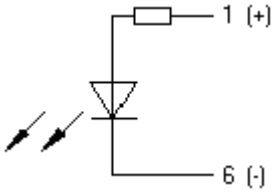
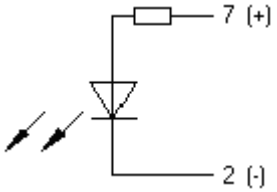
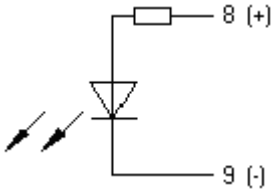
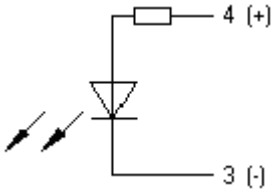


Figure 35

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

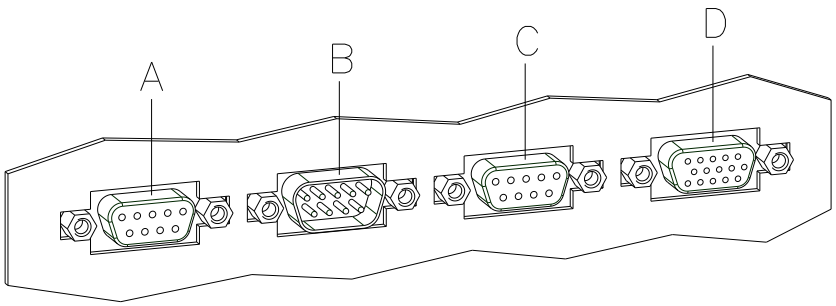


Figure 36

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

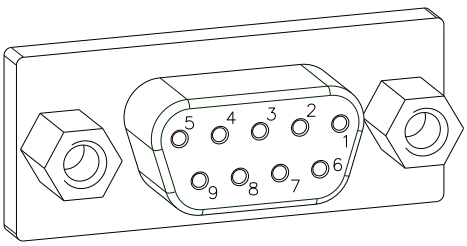
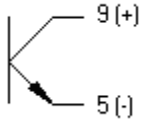
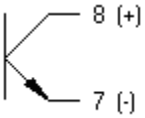
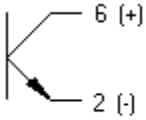
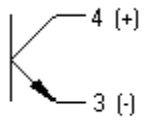


Figure 37

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:

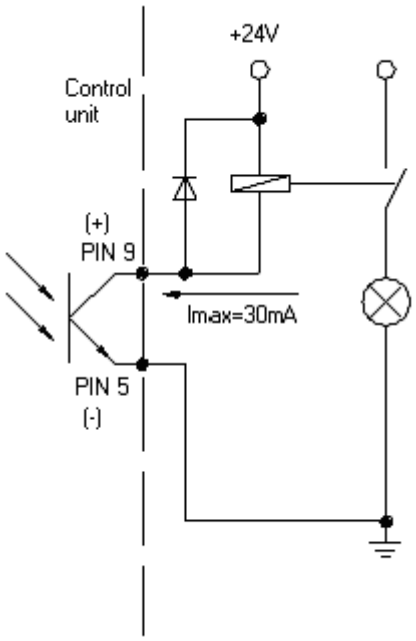


Figure 38

Output II
Figure 36, C

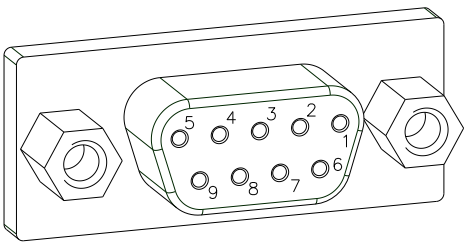
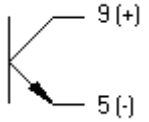
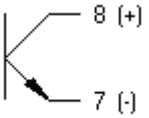
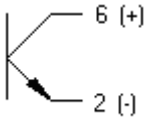
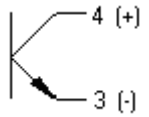


Figure 39

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 the print procedure can be controlled. The control inputs at Input I are galvanic separated and have to be provided with an external voltage source. The signal level is active "HIGH".

Input I
Figure 36, B

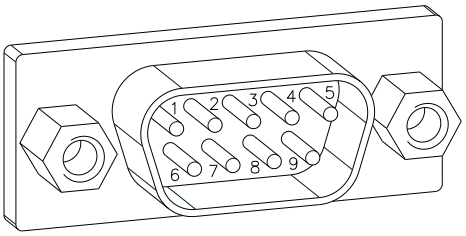
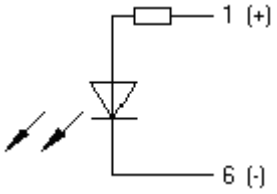
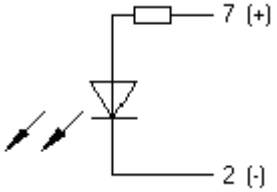
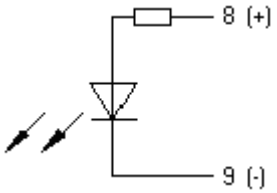
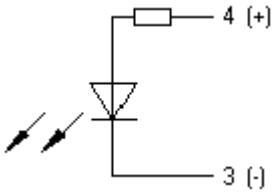


Figure 40

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:

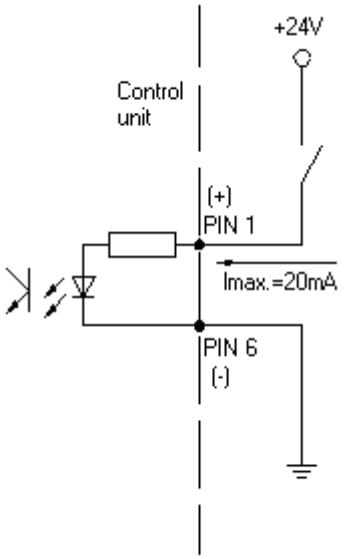


Figure 41

External bushing I/O-24
Figure 36, D

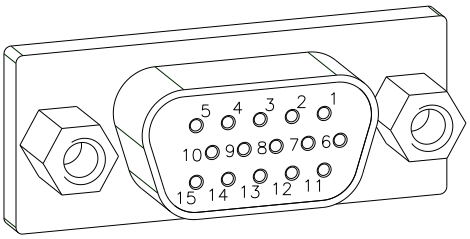
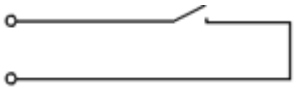
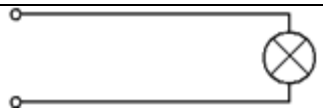


Figure 42

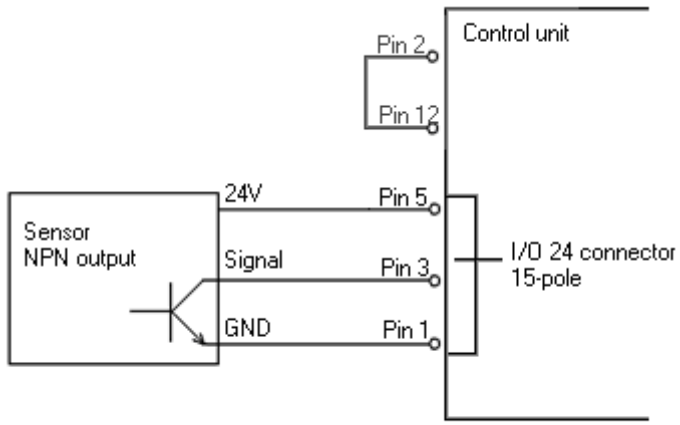
This input is executed as 15-pole and provides user-sided 24V/100mA.
In case of using this bushing, exists **no galvanic separation**.

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)

Pin assignment

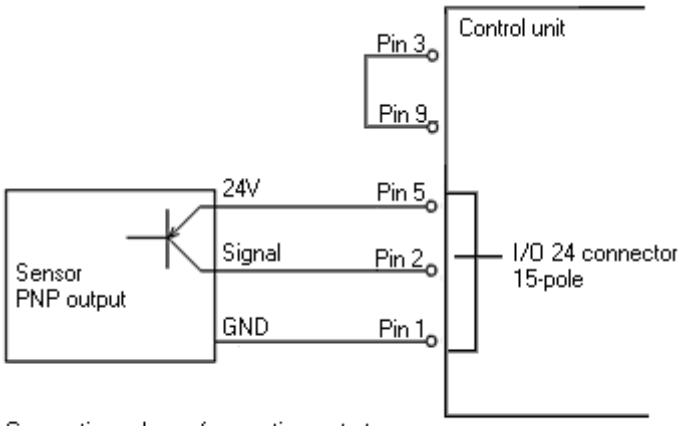
PIN 1	white
PIN 2	brown
PIN 3	green
PIN 4	yellow
PIN 5	grey
PIN 6	pink
PIN 7	blue
PIN 8	red
PIN 9	black
PIN 10	purple
PIN 11	grey-pink
PIN 12	red-blue
PIN 13	white-green
PIN 14	brown-green
PIN 15	free

Example 1



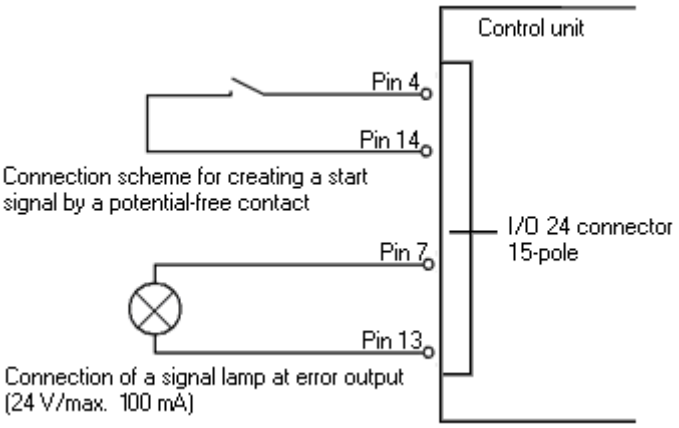
Connection scheme for creating a start signal by a sensor with NPN output

Example 2



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

Example 3



Connection scheme for creating a start signal by a potential-free contact

Connection of a signal lamp at error output (24 V/max. 100 mA)

8 Wiring Plans

8.1 Electronics

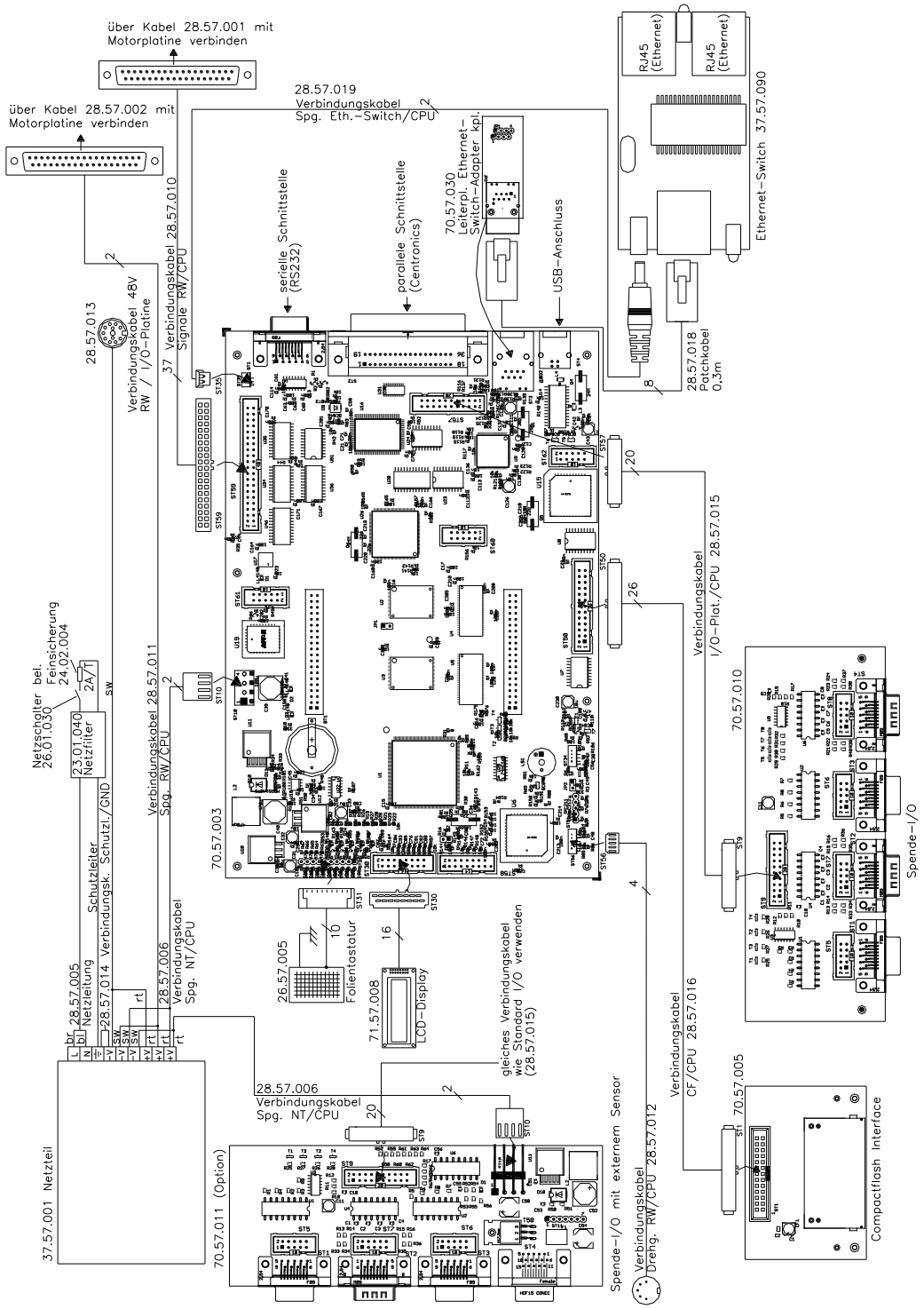


Figure 43

8.2 Mechanics

Dynacode 53

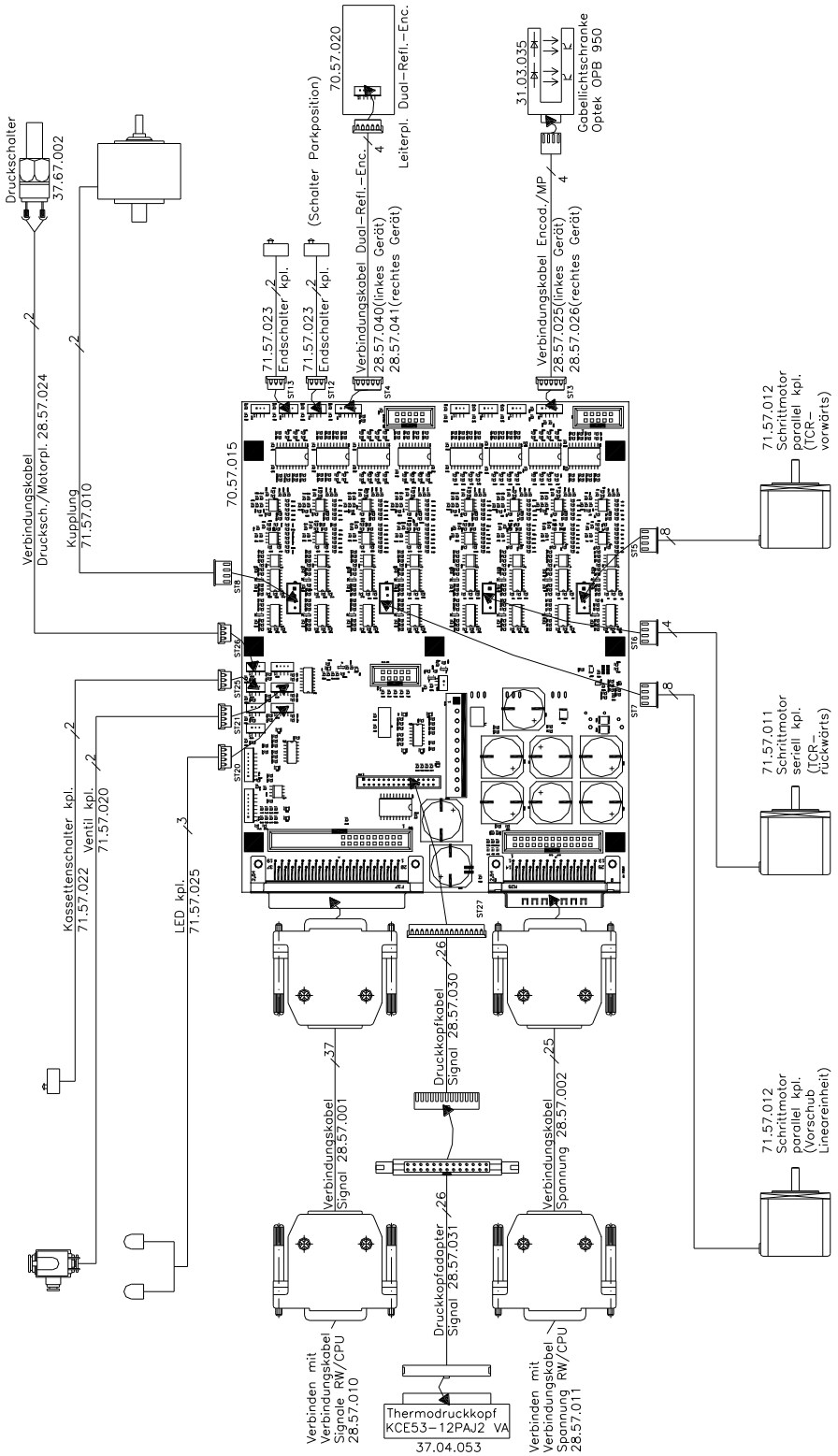


Figure 44

Dynacode 107

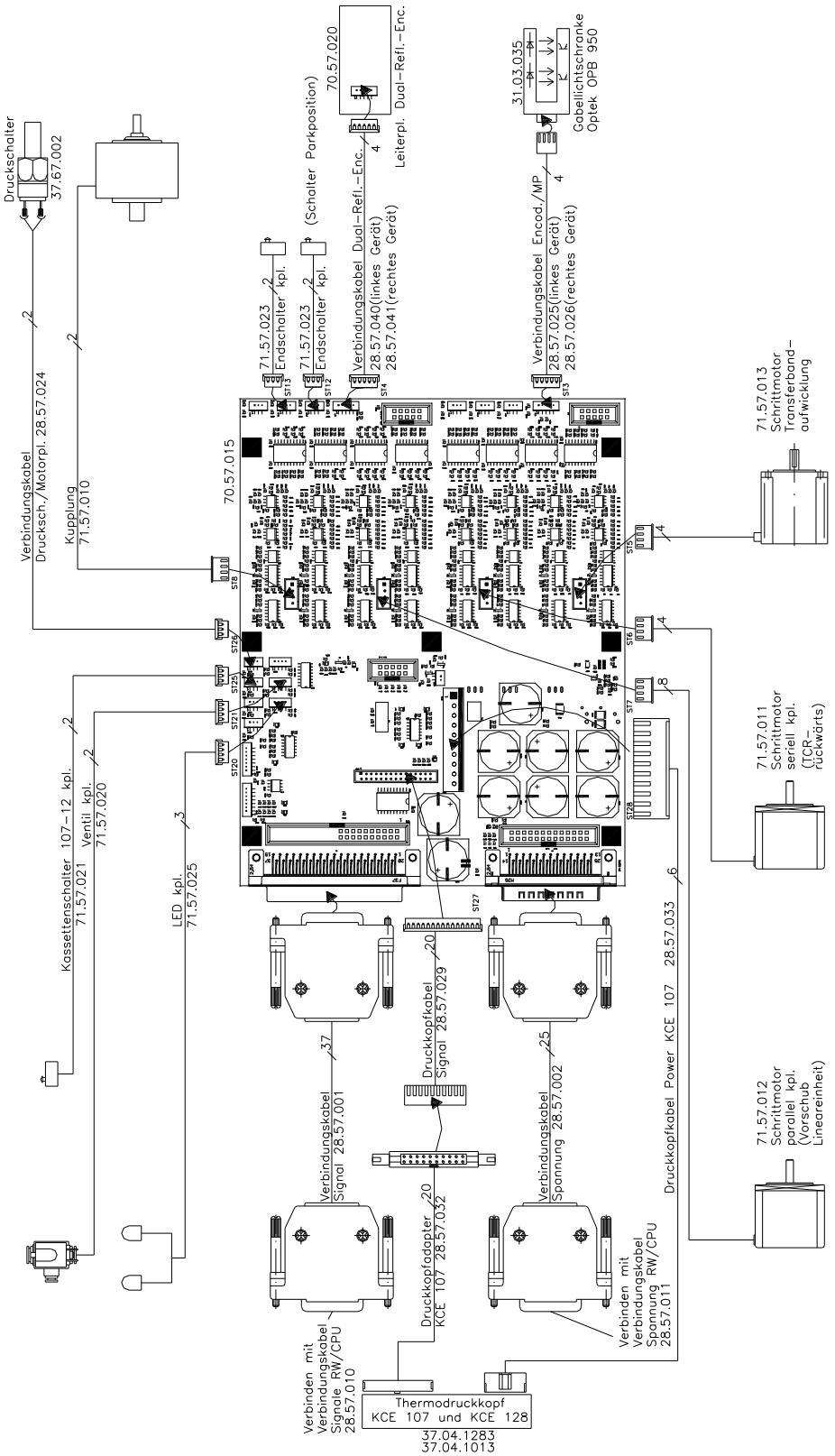


Figure 45

Dynacode 128

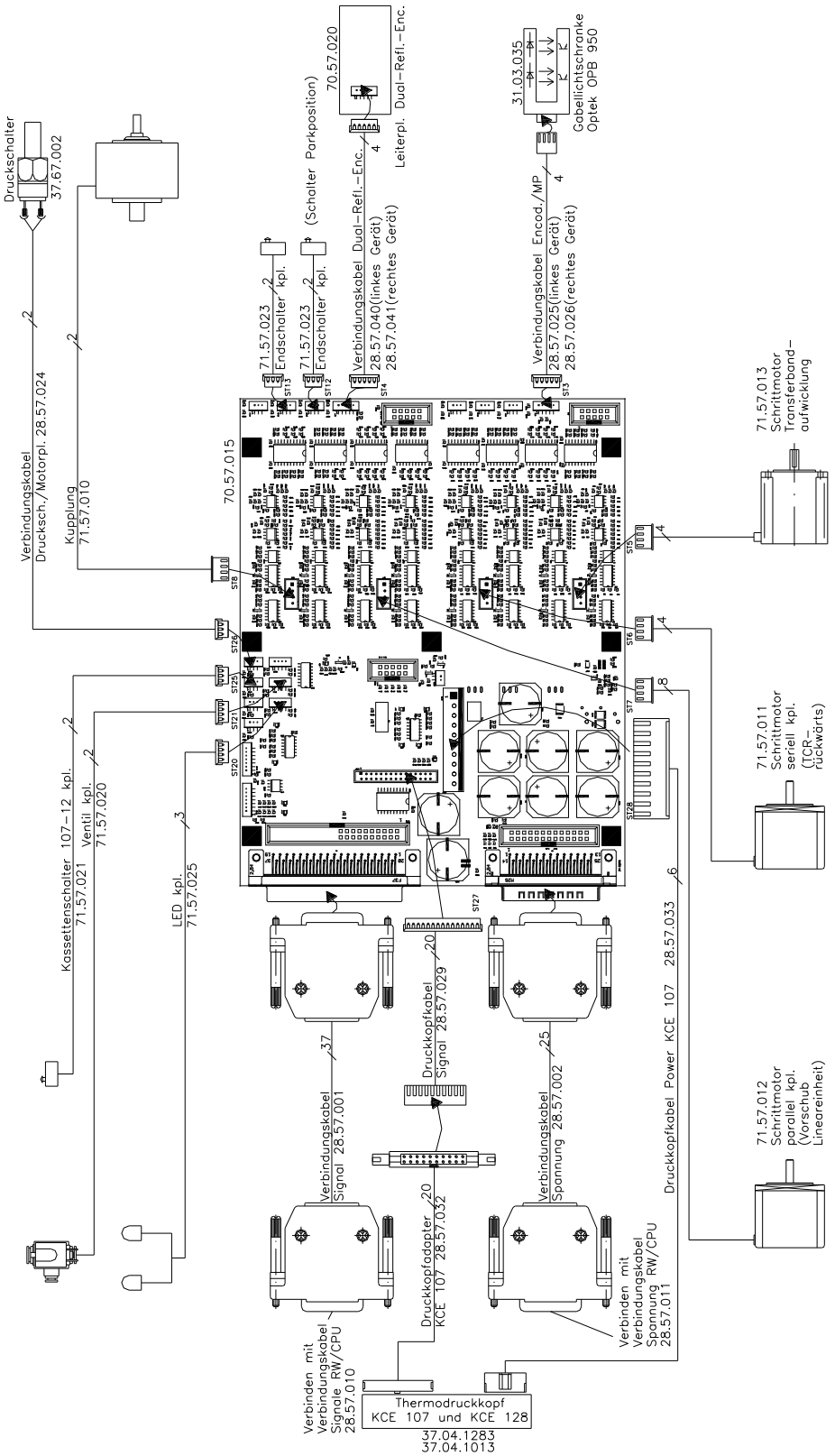


Figure 46

9 Layout Diagrams

9.1 CPU

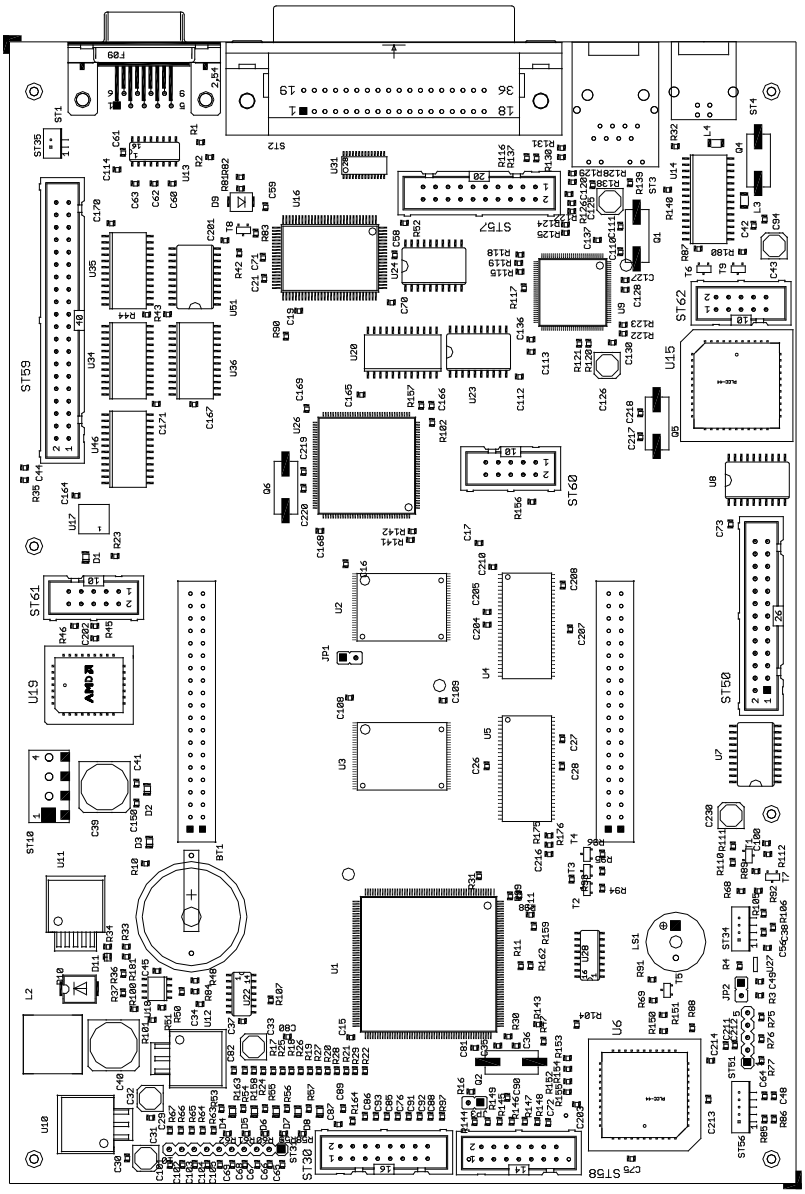


Figure 47

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

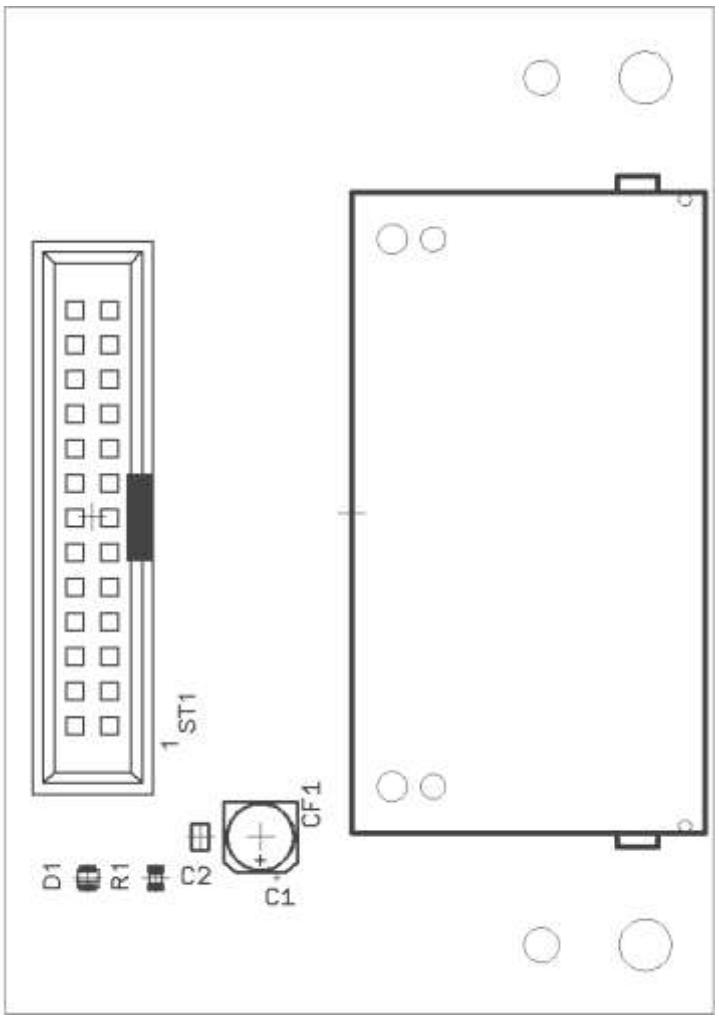


Figure 49

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

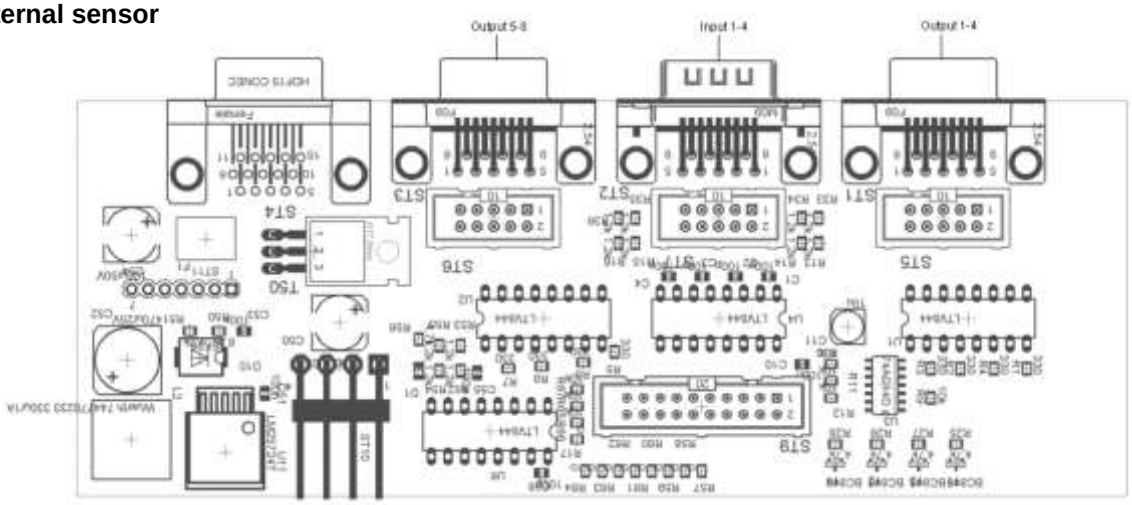


Figure 50

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 %.

In the Service Functions menu all output signals (0 = low, 1 = high) can be set/reset 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

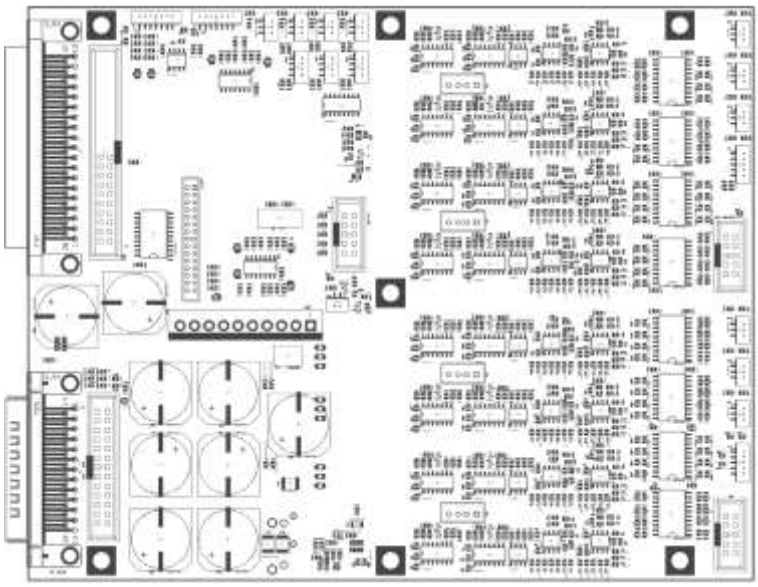


Figure 51

Bottom side

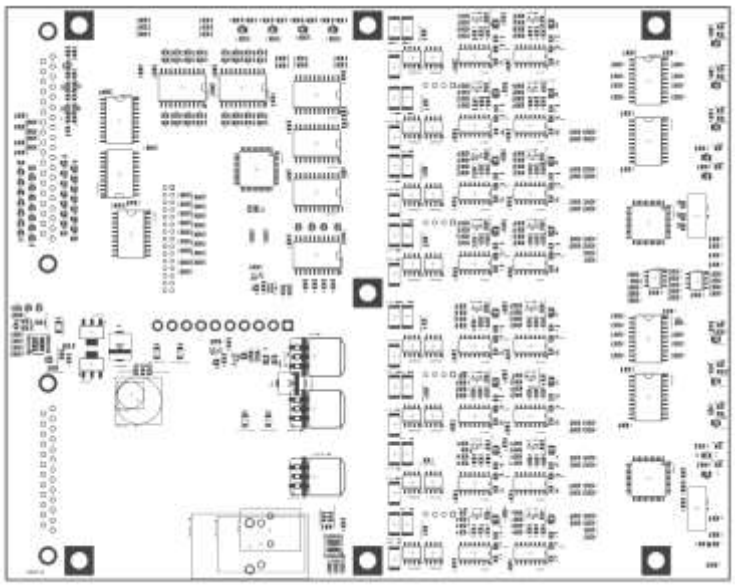


Figure 52

LEDs for voltage control

LED	Voltage	Voltage
D46	5V	power supply for CPU
D48	24V	printhead voltage
D38	48V	motor voltage

10 Connection Plan of Back Panel Plugs

10.1 Voltage

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

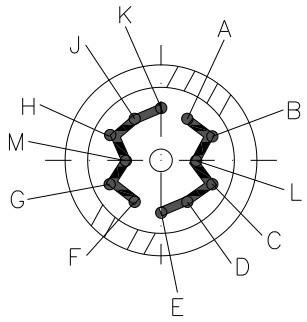


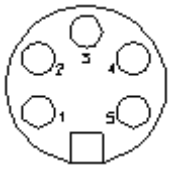
Figure 55

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

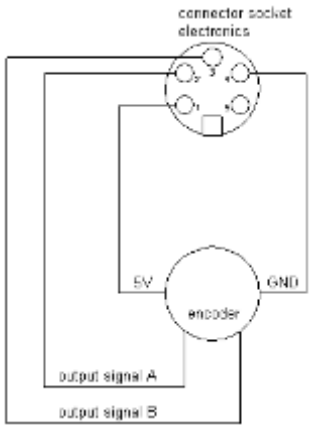


Figure 57

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

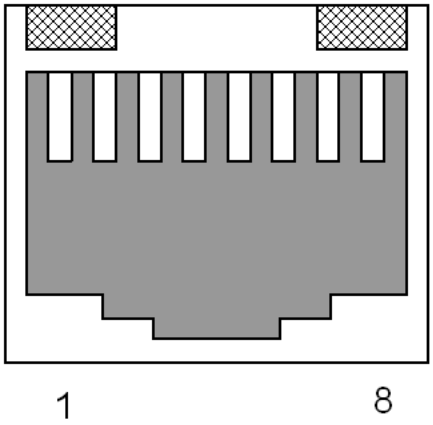


Figure 60

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

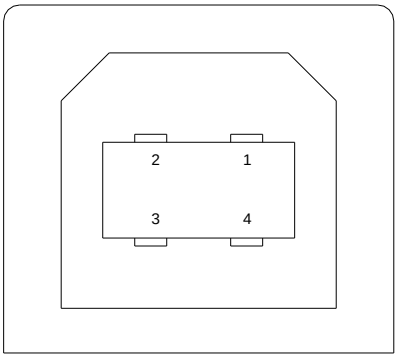


Figure 61

PIN	Signal
1	n/c
2	D−
3	D+
4	GND

12 Index

I

J

L

M

N

P

R

S

T

U

V

W

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