valentin DRUCKSYSTEME

DYNACODE IP

Ingress Protection Version
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.
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Trademarks

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

CE EG Machinery Directive (2006/42/EG)
EG Low-Voltage Directive (2006/95/EG)
EG Electromagnetic Compatibility Directive (2004/108/EG)

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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 instructions, 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.

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

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

Gives you tips on protecting the environment.

⇒ Handling instruction

* Optional accessories, special fittings

`Datum` Information in the display

1.3 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 an electric drill
- 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 of 110 V - 230 V. 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 (see 'Technical Data').

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.

In case of cleaning and maintenance with an open cover, ensure that clothing, hair, jewellery and similar personal items do not contact the exposed rotating parts.

NOTICE!

With the open printing unit (due to construction) the requirements of EN60950-1 regarding fire protection casing are not fulfilled. These must be ensured by the installation into the end device.

The print unit can get hot during printing. Do not touch the printhead during operation. Cool down the print unit before changing material, removal or adjustment.

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.

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.

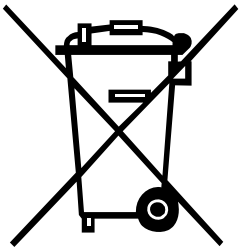
⇒ Avoid endangering yourself.

⇒ Switch the power off.

⇒ Request medical help (emergency physician).

⇒ Call for first aid if necessary.

2.3 Environmentally-Friendly Disposal



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

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

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

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

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

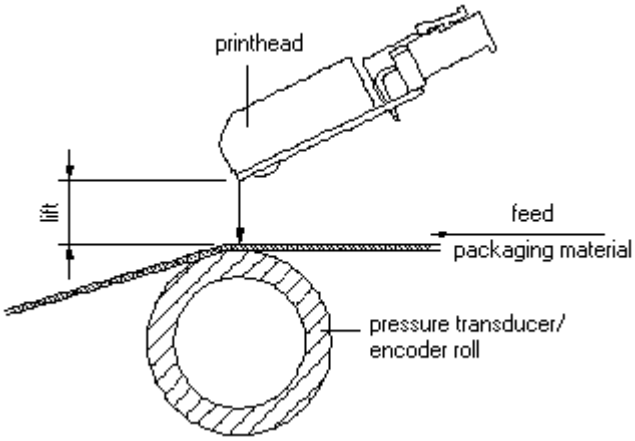


Figure 1

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

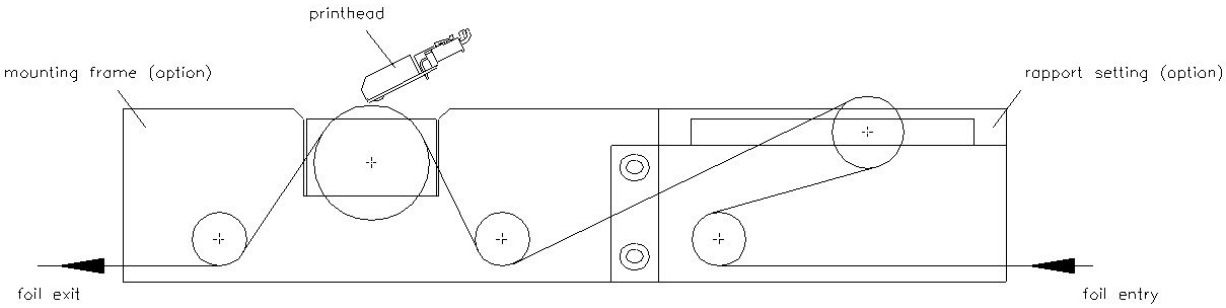


Figure 2

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.

3.2 Intermittent Mode

Print Principle

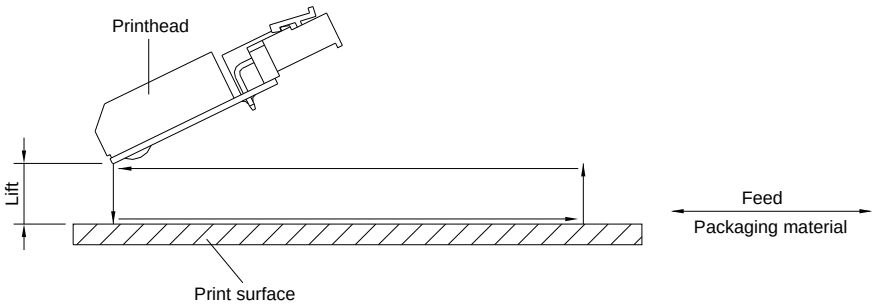


Figure 3

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 of 75 mm, the print position value must be changed to 93.

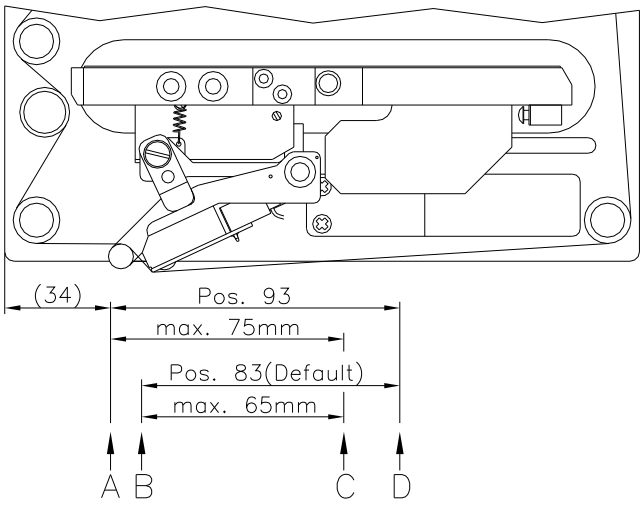


Figure 4

A: Print pos. / Start pos. value = 93

B: Print pos. / Start pos. value = 83

C: Max. position print end

D: Stand-by position

3.3 Changing the Module Type

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

Press key F to access the function menu.

Press key → as long as you arrive the *Service functions* menu.

Press key ● to select the menu.

Press key → as long as you arrive at the menu *Paper counter*.

Press key 💾 to access the menu *Password*.

Enter the service password '2904'.

Press key ● to confirm the entry.

Press key ▲ or ▼ to select the module type.

Press key ● to confirm the selection.

The changed module type is indicated in the display.

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

4 Electronics (Replacing Parts)

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 Primary Fuses

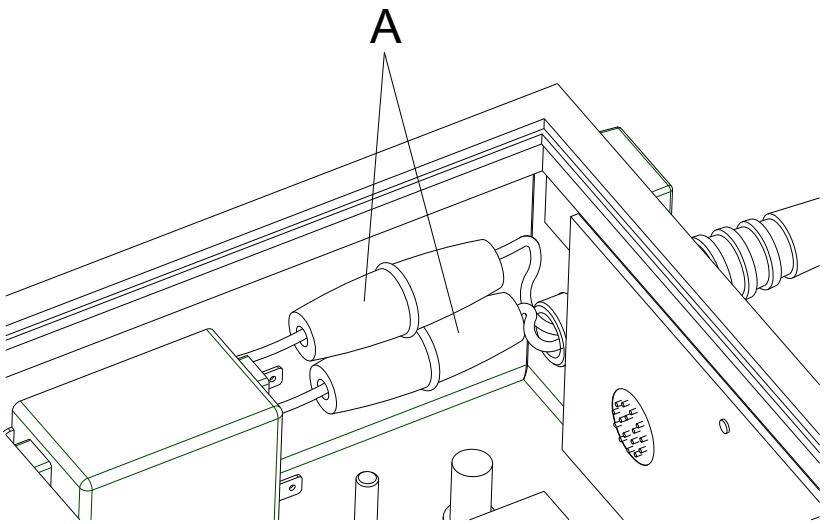


Figure 5

1. Unplug the control unit from the electrical outlet
2. Open the housing with the attached key.
3. Unscrew the fuse-holder (A) counter clockwise.
4. Replace the fuses (microfuse 2.0 AT).
5. If necessary, replace the fuse in the second fuse-holder.
6. Close the housing of the printing sytsem.

4.2 CPU PCB

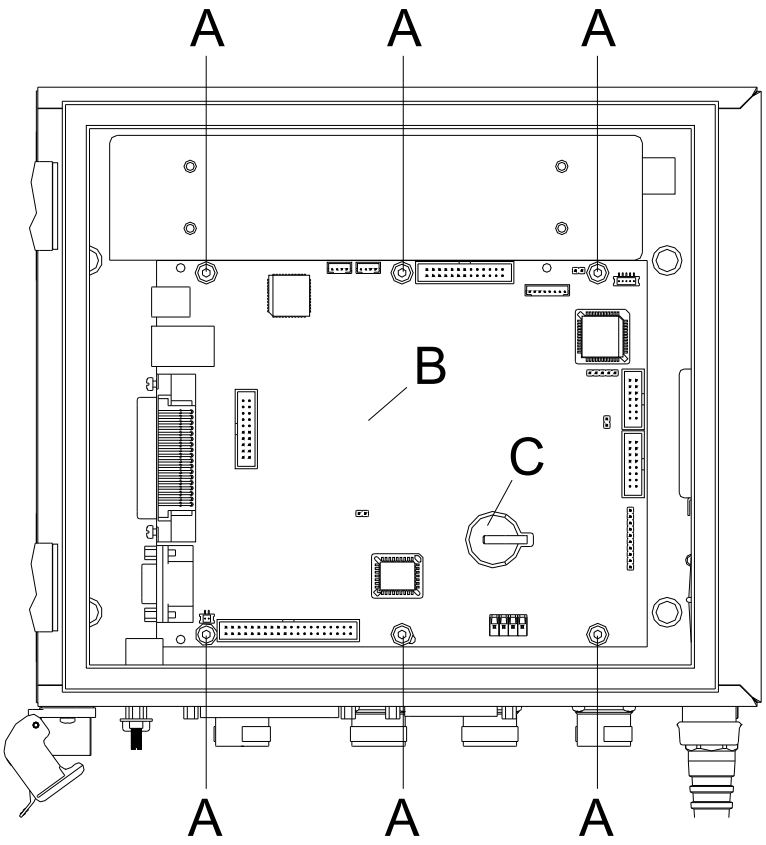


Figure 6

Removing the CPU PCB

NOTICE!

Save the configuration of direct print module onto a CF card.

1. Unplug the control unit from the electrical outlet.
2. Open the housing with the attached key.
3. Unplug all connections from the CPU PCB (B).
4. Remove all screws (A) from the CPU PCB.
5. Remove the CPU BCP (B) carefully.

Installing the CPU PCB

1. Install the CPU PCB to the existing bolts.
2. Fix the CPU PCB with screws (A).
3. Connect again the power cable.
4. Verify firmware version and update it, if necessary.
5. Load the configuration of the direct print module from CF card. Otherwise set the configuration with help from the function menu.

4.3 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 (A).
3. Instert a new battery into the support (C, Figure 6).

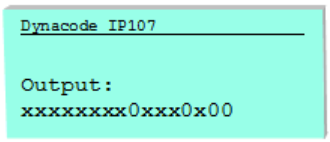
NOTICE!

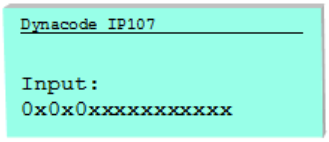
Pay attention to polarity.

4.4 Input/Output Board

NOTICE!

The inputs/outputs can be tested in the *Service Functions*.





If an input is activated then the position corresponding to this input changes to 1.
To activate an output, move the cursor to the corresponding position and press the keys ▲ and ▼ to set value 1.
To deactivate the output, set the corresponding position again to 0.
Inputs and outputs marked with 'x' are not occupied (example at the left side). The example refers to the I/O Profile 'standard_direct' (see function menu *I/O Parameters*).

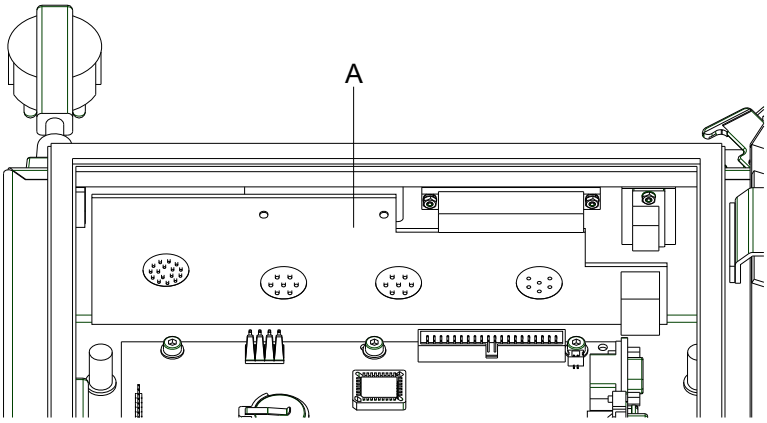


Figure 7

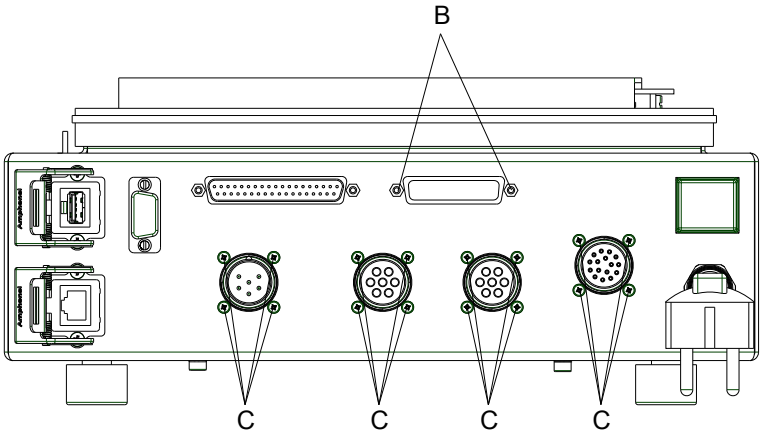


Figure 8

Removing the I/O board

1. Unplug the control unit from the electrical outlet
2. Open the housing with the attached key.
3. Remove CPU PCB (see chapter 4.2, page 16).
4. Remove all connections from I/O interface (A).
5. Remove hexagonal bolts (B).
6. Remove screws (C).
7. Remove the I/O board.

Installing the I/O board

1. Install the new I/O board.
2. Install the screws (C).
3. Install the hexagonal bolts (B).
4. Insert again all connections.
5. Install again the CPU PCB.
6. Close the housing of control unit.
7. Connect again the power cable.

4.5 Power Supply Unit

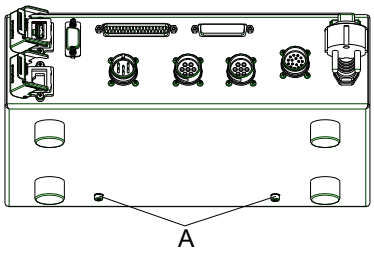


Figure 9

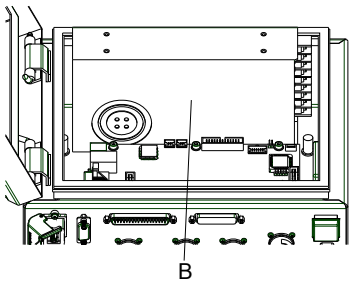


Figure 10

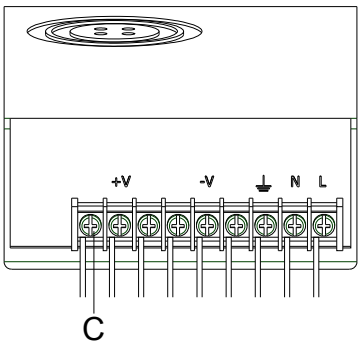


Figure 11

Removing the power supply unit

1. Unplug the control unit from the electrical outlet.
2. Open the housing with the attached key.
3. Loosen screws (A) of power supply unit (B) at the electronics underside.
   At the same time hold power supply unit.
4. Put the power unit next to the control unit.
5. Remove transparent cover above the clamps (C).
6. Loosen clamps (C) and remove all connections.

Installing the power supply unit

1. Fix again all connections at the clampsl (C) of the new power unit.

   NOTICE!

   Pay attention to the correct cable configuration at the screw-type terminal.
2. Apply the transparent cover above the clamps.
3. Place the new power unit in the control unit and fix it with the screws (A).
4. Close the housing of control unit.
5. Connect again the power cable.

4.6 CF Card Slot

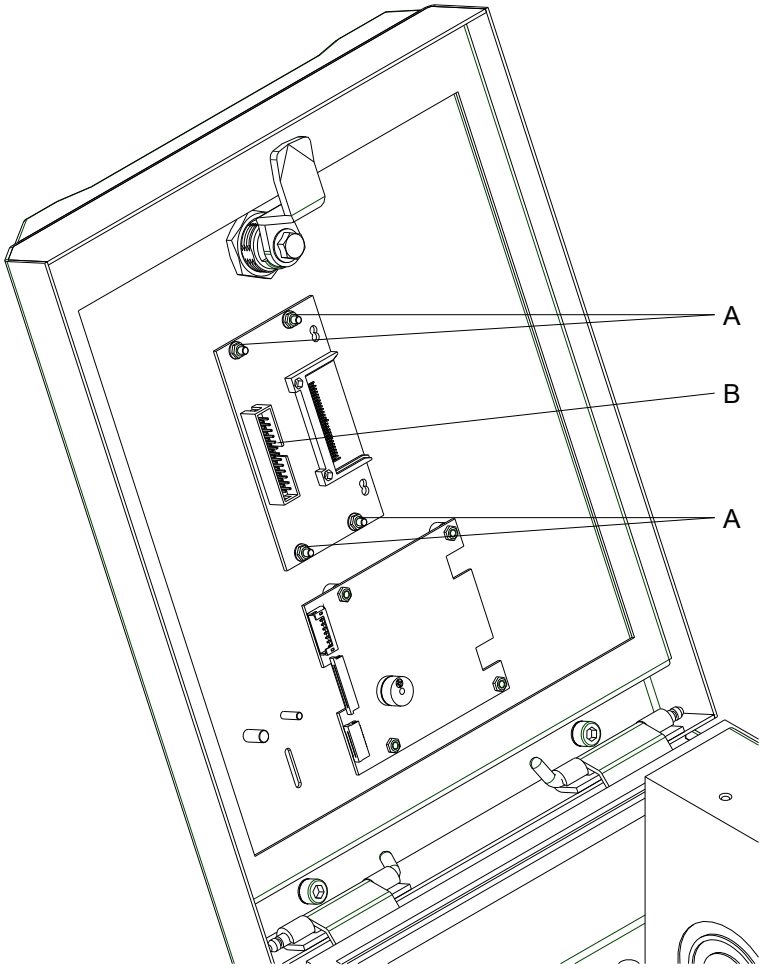


Figure 12

Removing the CF card slot

1. Unplug the control unit from the electrical outlet
2. Open the housing with the attached key.
3. Unplug the connecting cable from CPU PCB to the slot (B).
4. Remove hexagonal nuts (A).
5. Remove the defective slot.

Installing the CF card slot

1. Insert the new CF card slot.
2. Install hexagonal nuts (A).
3. Insert connection cable from CPU PCB to slot (B).
4. Close the housing of control unit.
5. Connect again the power cable.

4.7 Display PCB

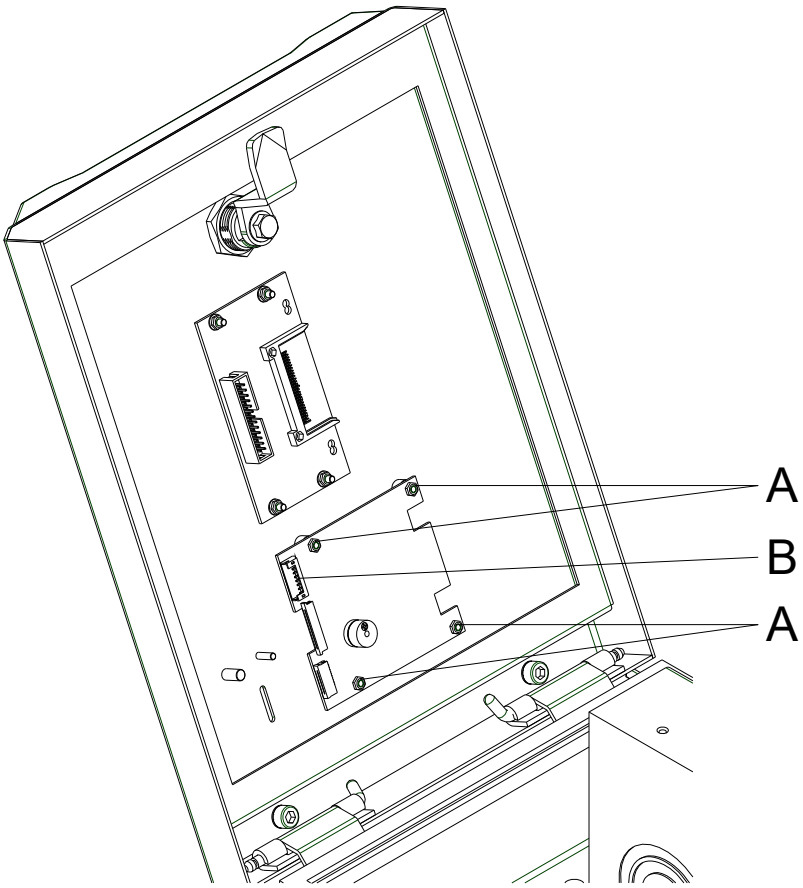


Figure 13

Removing the display PCB

1. Unplug the control unit from the electrical outlet.
2. Open the housing with the attached key.
3. Unplug the connecting cable from CPU PCB to display PCB (B).
4. Remove hexagonal nuts (A).
5. Remove defective display PCB.

Installing the display PCB

1. Insert the new display PCB.
2. Install hexagonal nuts (A).
3. Insert connection cable from CPU PCB to display PCB (B).
4. Close the housing of control unit.
5. Connect again the power cable.

5 Cleaning

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.

NOTICE!

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

5.1 Cleaning Instructions

NOTICE!

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

CAUTION!

Abrasive cleaning agents can damage the direct print module!

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

1. Remove dust and paper fuzz in the printing area with a soft brush or vacuum cleaner.
2. Clean outer surfaces with an all-purpose cleaner.

5.2 Transfer Ribbon Roller

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

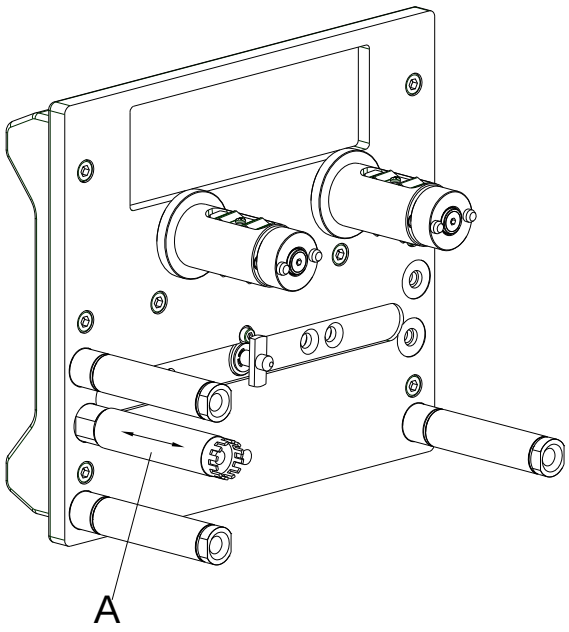


Figure 14

1. Remove transfer ribbon cassette.
2. Remove deposits with roller cleaner and a soft cloth.
3. If the roller (A) appears damaged, replace it.

5.3 Printhead

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

CAUTION!

Printhead can be damaged!

⇒ Do not use sharp or hard objects to clean the printhead.

⇒ Do not touch protective glass layer of the printhead.

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

6 Printhead

6.1 Replacing the Printhead

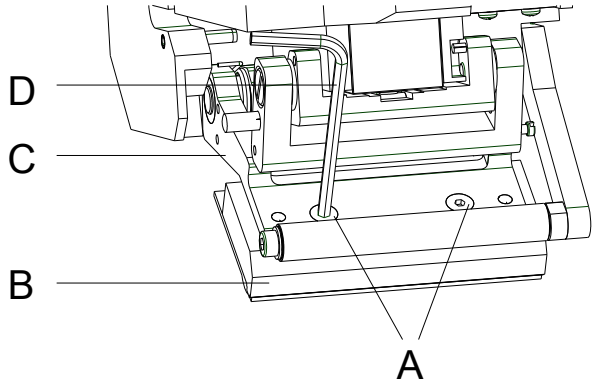


Figure 15

CAUTION!

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

⇒ Set up the device on a grounded, conductive surface.

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

⇒ Do not touch contacts on the plug connections.

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

Removing the printhead

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

Installing the printhead

1. Insert connection assembly to the new printhead.
2. Position printhead in printhead support (C), so the engaging pieces catch in the appropriate holes in the printhead (B).
3. Hold printhead holder (C) with a finger slightly on the pressure roll and check the correct position of printhead (B).
4. Screw in screw (A) and tighten it with an Allen key.
5. Insert again ribbon cassette.
6. Enter the resistance value of the new printhead in the menu *Service Functions/Heater resistance*. The value is indicated on the type plate of printhead.
7. Start a test print to check printhead position.

6.2 Angle Adjustment*

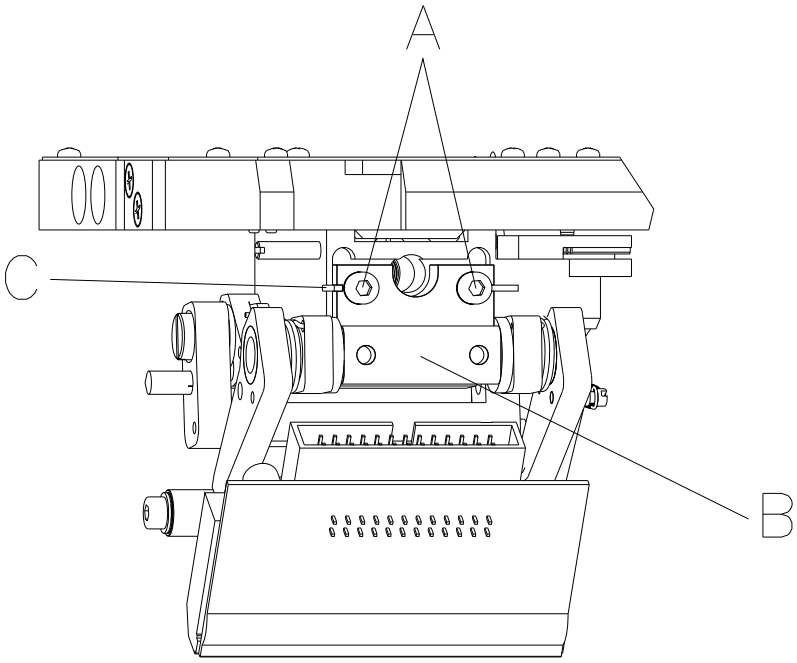


Figure 16

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

CAUTION!

Damage of printhead by unequal use!

Higher wastage of ribbon by faster ripping.

⇒ Change factory settings only in exceptional cases.

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.

NOTICE!

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

* intermittend mode

7 Ribbon Cassette (Replacing Parts)

View of transfer ribbon cassette

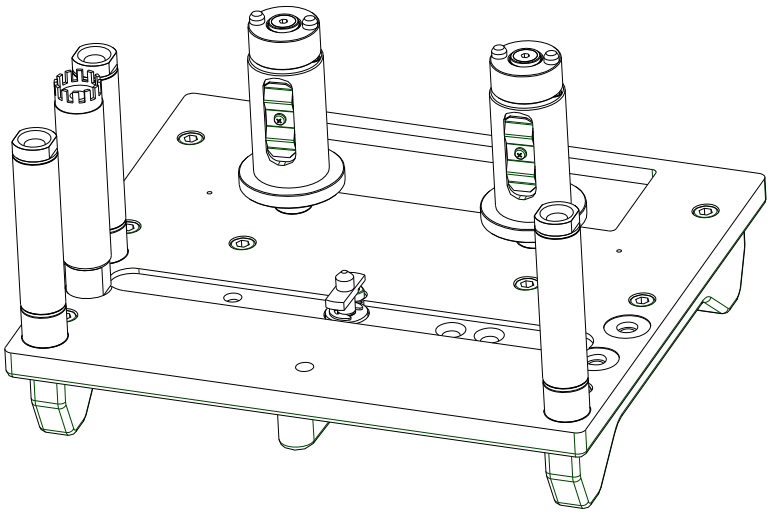


Figure 17

7.1 Track Roller

NOTICE!

The track roller can be removed without previous loosening of the switch roll. Use a screw driver with max. diameter 5 mm and remove the screw (B).

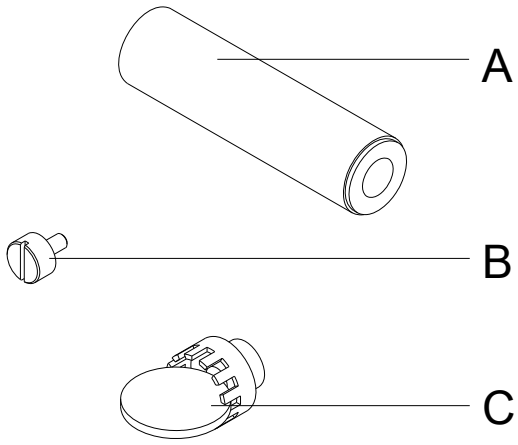


Figure 18

Removing the roller

1. Remove switch roll (C) from track roller (A). Use a 5 Cent coin or a similar auxiliaries.
2. Remove the screw (B).
3. Remove pillar from the track roller (A).

NOTICE!

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.

Installing the track roller

1. Install track roller (A) to the pillar.
2. Tighten the screw (B).
3. Install switch roll (C) to the track roller (A).

NOTICE!

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

7.2 Return Pulley

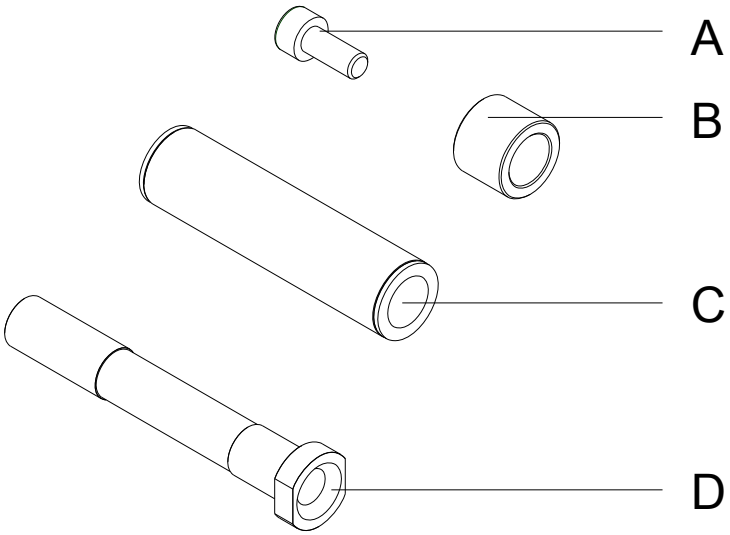


Figure 19

Removing the return pulley

1. Loosen 3 Allen head screws on the inside and remove the rod at the side with the handhold (cassette).
2. Unscrew the Allen head screw (A) of the corresponding roll.
3. Remove bushing for centring sleeve (B + D) and return pulley (C).

NOTICE!

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.

Installing the return pulley

1. Install bushings (B + D) and return pulley (C).
2. Screw the socket head screw (A).
3. Tighten 3 Allen head screws and install again the rod.

7.3 Ribbon Rewinder Roll/Unwinder Roll

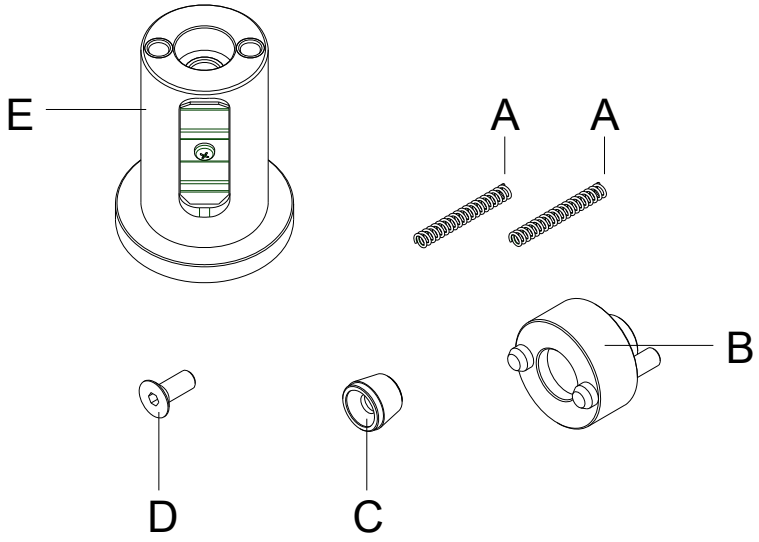


Figure 20

Removing ribbon rewinder roll /unwinder roll

1. Remove screw (D) from the appropriate ribbon roll. Take care to hold the centring sleeve (B).
2. Remove chuck cone (C), centring sleeve (B), springs (A) and ribbon roll (E).

CAUTION!

Using of oil in the environmnet of the chuck cone (C) can affect the brake function.

⇒ Clean the brake cone.

Installing ribbon rewinder roll/ unwinder roll

1. Install again the chuck cone (C), centring sleeve (B), springs (A) and ribbon roll (E).
2. Tighten the screws (D) of the appropriate ribbon roll. Take care to hold the centring sleeve (B).

8 Printing Carriage (Replacing Parts)

View of printing carriage

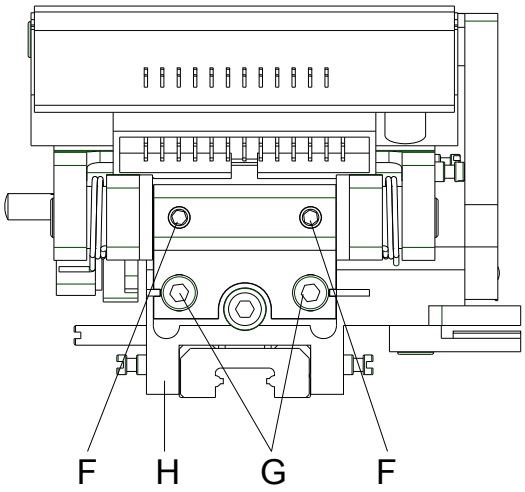


Figure 21

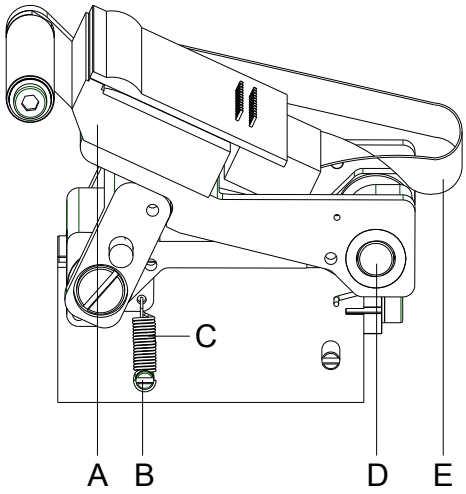


Figure 22

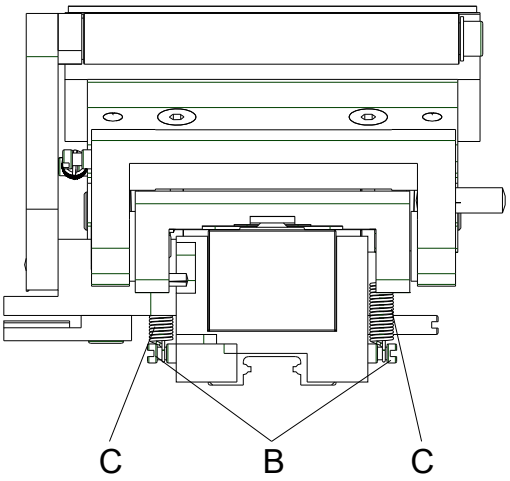


Figure 23

8.1 Printhead Fastener, Pressure Bail, Interlayer

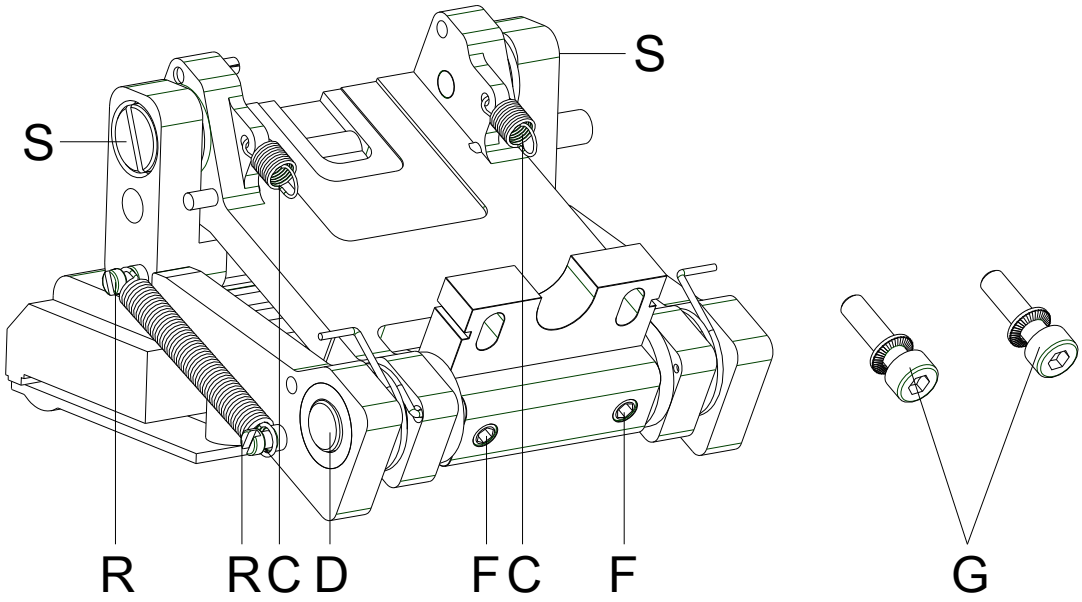


Figure 24

1. Remove transfer ribbon cassette.
2. Push both tension springs (C, Figure 23) with tweezers from the pillars (B, Figure 23).
3. Remove printhead cable (E, Figure 22) from printhead (A, Figure 22).
4. Remove Allen head screws (G, Figure 21).
5. Remove the complete printhead unit (printhead fastener, pressure bail, interlayer).
6. Start the necessary service work, e.g. replacing springs (C) or printhead fastener.
   Please read the following notice.

NOTICE!

The component can be decomposed in more individual parts. Unscrew the pillars (F) and remove the printhead shaft (D). At installation take care of parallelism of slots next to the screws (G) to the slots in the guiding carriage (H, Figure 21).

NOTICE!

Use screw locking adhesive Loctite® 243™ to secure pillars (F) and screws (R + S) against unintentional unscrewing.

8.2 Guiding Carriage

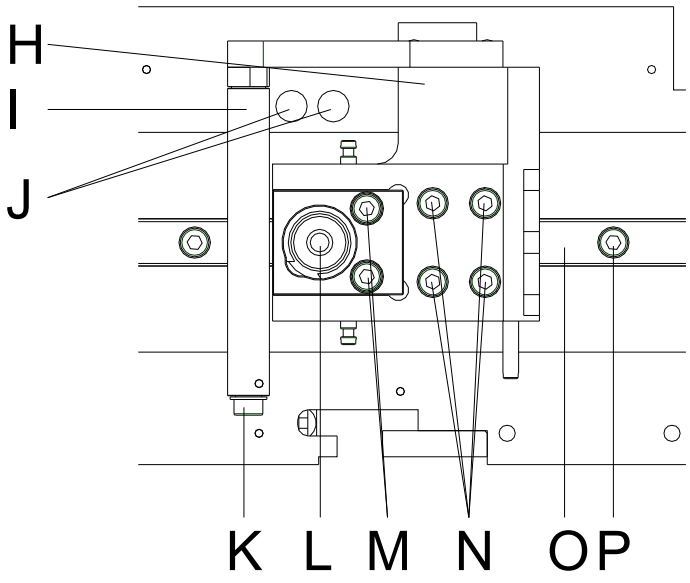


Figure 25

1. **Replacing pneumatic cylinder**
   For replacing the pneumatic cylinder (L), remove the Allan head screws (M) and then remove the pneumatic tube.

2. **Replacing linear guiding**
   For replacing the linear guiding (O), remove the Allan head screws (N).
   Push the guiding carriage (H) aside until the track carriage underneath appears. For replacing the linear guiding (O), remove the Allen head screws (P).
   The guiding has only little play in the nut to guarantee a linear guiding.
   Lever the linear guiding by means of a screw driver carefully.

   NOTICE!

   If the new guiding should have too much play in the nut, press it to the edge and tighten it.

3. **Replacing guiding roll**
   For replacing the guiding roll (I), remove the Allan head screw (K).

4. **Replacing guiding carriage**
   For replacing the guiding carriage (H), push the carriage over drillings (J).
   Insert allen key 2,5 from the botton through the drillings (J) in the screws of the clamping sheet (not visible).
   Remove 4 screws (N) and remove guiding carriage (H).

NOTICE!

Use screw locking adhesive Loctite® 243™ to secure screws (I) of the washer lock (J) against unintentional unscrewing.

8.3 Motor Circuit Board

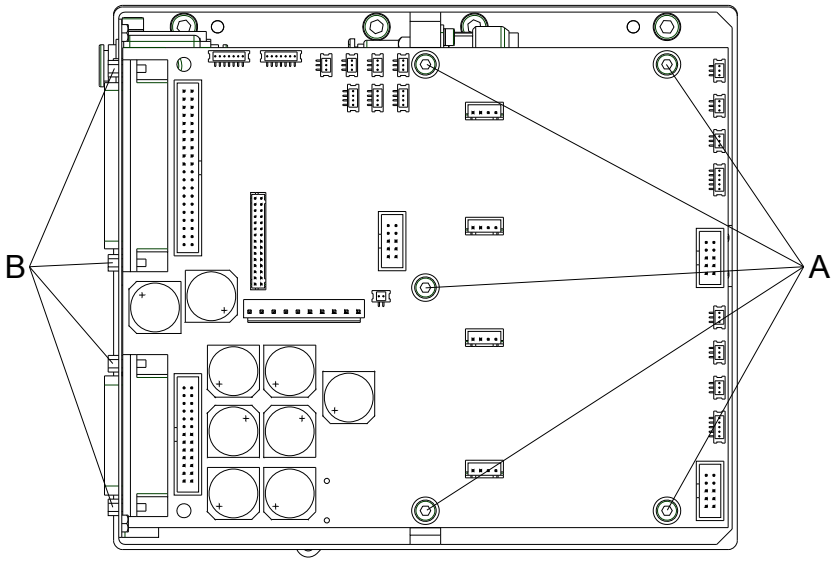


Figure 26

Removing motor circuit board

1. Remove connecting cable between control unit and print mechanics.
2. Loosen the side screws and remove the mechanics housing at the rear.
3. Remove all connections at the motor circuit board.
4. Remove screws (A).
5. Remove hexagonal bolt (B) at the plug connectors.
6. Remove motor circuit board.

Installing motor circuit board

1. Insert a new motor circuit board.
2. Insert the hexagonal bolt (B) at the plug connectors.
3. Tighten the screws (A).
4. Insert all connections to the motor circuit board.
5. Tighten the side screws and fix the mechanics housing at the rear.
6. Insert the connecting cable between control unit and print mechanics.

NOTICE!

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

9 Print Mechanics (Replacing Parts)

9.1 Pneumatic Valve

DANGER!

Danger of injury by causing 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.

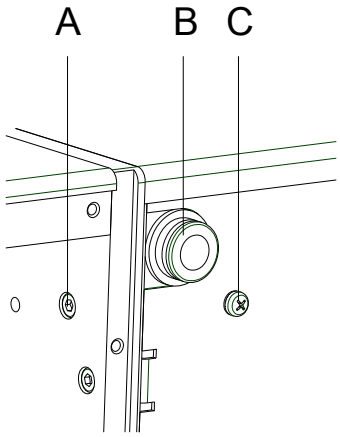


Figure 27

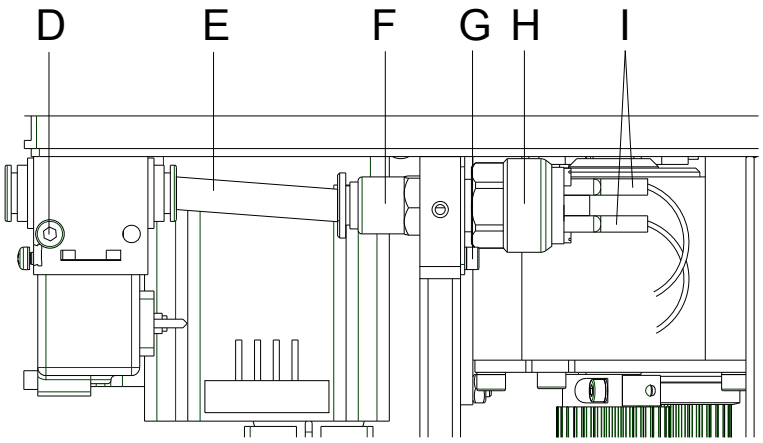


Figure 28

Removing the pneumatic valve

1. Loosen the side screws and remove the mechanics housing at the rear.
2. Loosen screws (A, C, and G).
3. Loosen tube (E) from plug-in connection of pneumatic valve (B)
4. Remove pressure switch unit outwards.
5. Loosen tube item (Ø 4 mm) at the bottom side of valve (not visible) and remove the pneumatic valve.
6. Loosen screw (D) and remove pneumatic valve from aluminium fastener.

Installing the pneumatic valve

1. Install the new pneumatic valve with screw (D) at the aluminium fastener.
2. Insert tube item at the bottom side of valve.
3. Install pressure switch unit.
4. Fix tube item (E) at the plug-in connection of pneumatic valve (B).
5. Tighten screws (A, C, and G).
6. Tighten the side screws and fix the mechanics housing at the rear.

9.2 Pressure Switch

DANGER!

Danger of injury by causing 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.

Removing the pressure switch

1. Loosen the side screws and remove the mechanics housing at the rear.
2. Remove screws (A, C, and G).
3. Loosen tube (E) from plug-in connection of pneumatic valve (B).
4. Remove pressure switch unit outwards.
5. Remove screw in union (F) with all gaskets and then unplug the flat plug (I).
6. Remove the pressure switch (H).

Installing the pressure switch

1. Install the new pressure switch.
2. Insert the flat plug (I) and fix the screw in union (F) with all gaskets.
3. Install the pressure switch unit.
4. Fix tube item (E) at the plug-in connection of pneumatic valve (B).
5. Tighten screws (A, C, and G).
6. Tighten the side screws and fix the mechanics housing at the rear.

NOTICE!

At the new pressure switch 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 switch (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.

9.3 Encoder

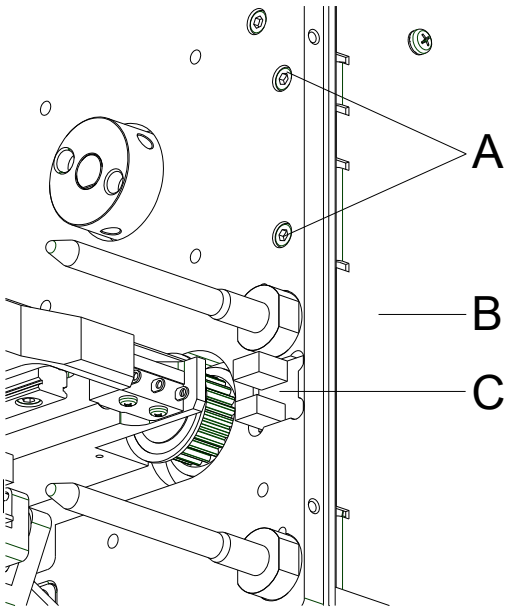


Figure 29

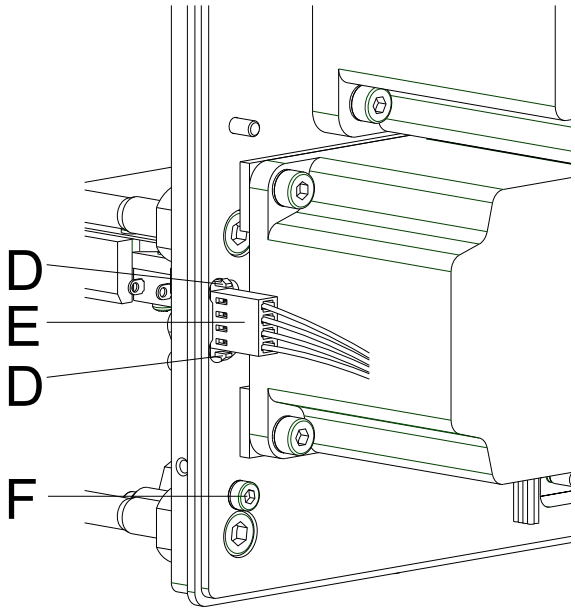


Figure 30

Removing the encoder

1. Remove connecting cable between control unit and print mechanics.
2. Loosen the side screws and remove the mechanics housing at the rear.
3. Remove hexagon bolt at the plugs (see chapter 8.3, page 34).
4. Remove screws (A + F) and the screw at the valve holder (see chapter 9.1, page 35).
5. Remove connection plate (B).
6. Unplug connector assembly (E).
7. Press the engagement hook (D) of the encoder (C) inwards and push the encoder forwards on the aluminium plate.

Installing the encoder

1. Push the encoder into the aluminium plate and take care that the engagement hooks (D) engage.
2. Insert connector assembly (E).
3. Install the connection plate.
4. Tighten screws (A + F) and screw at the valve holder.
5. Insert hexagonal bolt at the plugs.
6. Tighten the side screws and fix the mechanics housing at the rear.
7. Insert the connecting cable between control unit and print mechanics.

9.4 Limit Switch

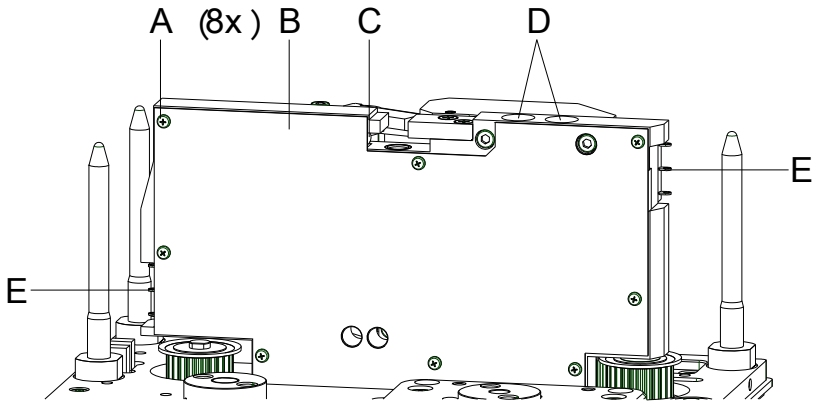


Figure 31

Removing the limit switch

1. Loosen the side screws and remove the mechanics housing at the rear.
2. Remove the screws (A) of cover plate (B). The limit switches (E) are on the bottom side of aluminium plate.
3. Loosen the screws of the limit switch.
4. Trace the connecting lines and remove them from the motor plate.
5. Remove the limit switch.

Installing the limit switch

1. Install the new limit switch.
2. Insert the connecting lines at the motor plate.
3. Tighten the screws of limit switch.
4. Tighten the screws (A) of cover plate (B).
5. Tighten the side screws and fix the mechanics housing at the rear.

NOTICE!

Finally the switching of limit switch is to be examined. Push the printing carriage by hand towards the switch. The limit switch is to be operated before the printing carriage pushes towards the stop.

9.5 Cassette Switch

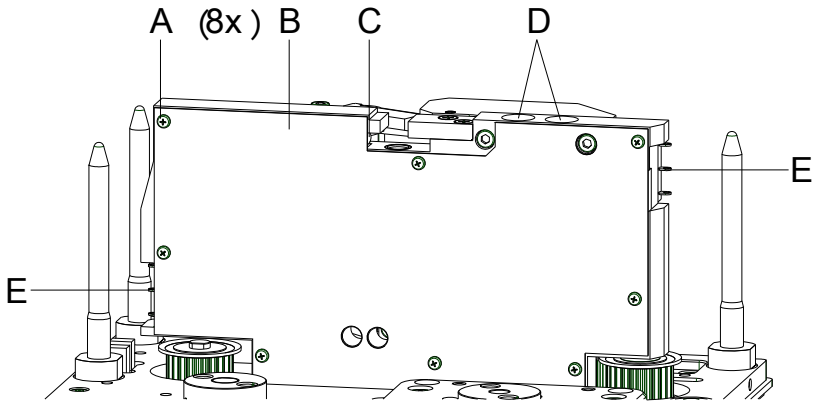


Figure 32

Removing the cassette switch

1. Loosen the side screws and remove the mechanics housing at the rear.
2. Remove the screws (A) of cover plate (B). The cassette switch (C) is visible after removing the cover plate (B).
3. Loosen the screws of the cassette switch.
4. Trace the connecting lines and remove them from the motor plate.
5. Remove the cassette switch.

Installing the cassette switch

1. Install the new cassette switch.
2. Insert the connecting lines at the motor plate.
3. Tighten the screws of cassette switch.
4. Tighten the screws (A) of cover plate (B).
5. Tighten the side screws and fix the mechanics housing at the rear.

NOTICE!
Finally the switching of cassette switch is to be examined. This is a Reed switch, i.e. the magnet at the front cover plate releases the switch.

9.6 LEDs

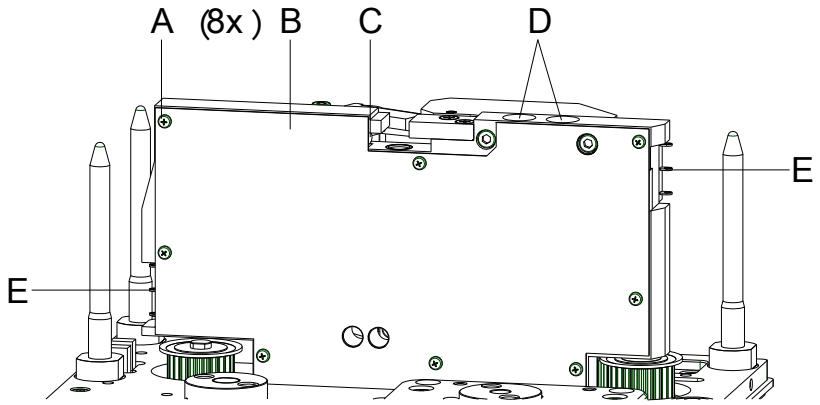


Figure 33

Removing the LEDs

1. Loosen the side screws and remove the mechanics housing at the rear.
2. Remove the screws (A) of cover plate (B). The LEDs (D) are visible after removing the cover plate (B).
3. Trace the connecting lines and remove them from the motor plate.
4. Press the LED support (D) to the front from the drilling hole in the aluminium plate.
5. Press out backwards the LED (D) from the support.

Installing the LEDs

1. Press new LEDs in the support.
2. Push the LED support backwards to the drilling holes in the aluminium plate.
3. Insert the connecting lines at the motor plate.
4. Tighten the screws (A) of cover plate (B).
5. Tighten the side screws and fix the mechanics housing at the rear.

10 Error correction

Error message	Cause	Remedy
1 Line too high	Line rises up completely or partly over the upper edge of label.	Move line down (increase Y value). Check rotation and font.
2 Line too low	Line rises up completely or partly over the bottom edge of label.	Move line up (reduce 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).

Error message	Cause	Remedy
13 COM OVERRUN	Loss of data at serial interface (RS-232).	Check baud rate. Check cable (printer and PC).
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.

Error message	Cause	Remedy
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.
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.

Error message	Cause	Remedy
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.
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.

Error message	Cause	Remedy
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.
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).

Error message	Cause	Remedy
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.
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.

Error message	Cause	Remedy
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.

Error message	Cause	Remedy
108 GS1-128 invalid	Transferred GS1-128 bar code is invalid.	Verify bar code data (see GS1-128 bar code specification).
109 EPC parameter	Error at EPC calculation.	Verify data (see EPC specification).
110 Housing open	When starting the print order the housing cover is not closed.	Close the housing cover and start the print order anew.
111 EAN.UCC code	Transferred EAN.UCC code is invalid.	Verify bar code data (see corresponding specification).
112 Print carriage	Printing carriage does not move.	Check gear belt (possibly broken).
113 Applicator error	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.

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

11 Inputs and Outputs

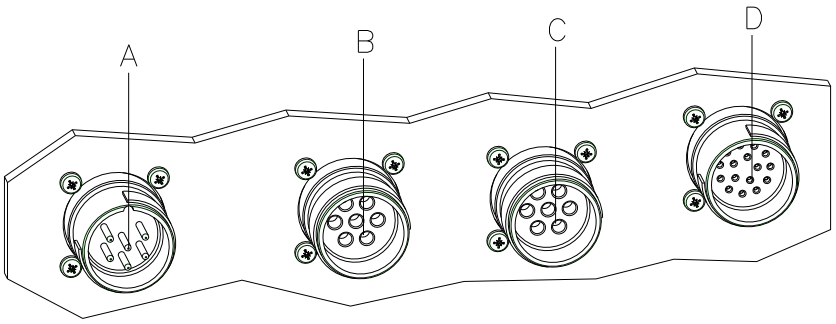


Figure 34

A = Alarm output (rely)

B = Connection encoder and product sensor

C = Connection encoder and product sensor

D = External I/O

11.1 Alarm Output

With the alarm output the device makes available the changeover contact of a relay, The relay can be used either as *Normally Closed Contact* or as *Normally Open Contact*.

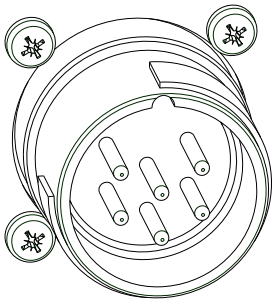


Figure 35

Pin	Description
1	NO (normally open contact)
2	C (centre contact)
3	NC (normally closed contact)
4	PE
5	Not occupied
6	Not occupied

Load current: 1 A
Contact voltage: 230 V

11.2 Product Sensor / Encoder

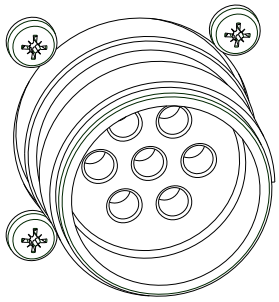


Figure 36

Pin	Description
1	GND internal
2	GND external
3	Encoder lane A
4	+ UB external (max. 30 VDC)
5	+ UB internal (approx. 24 VDC)
6	Input product sensor
7	Encoder lane B
Casing	Shielding

Max. load current: 100 mA

NOTICE!

Pin 1 and Pin 2 must be bypassed if the encoder and/or product sensor should be operated with the voltage supply of the control unit.

11.3 I/O Assignment

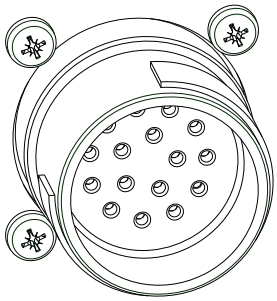


Figure 37

Pin	Description	
1	GND external	(outputs)
2	EX16_IN1	(print start product sensor)
3	GND external	(inputs)
4	OUT1	(error message)
5	IN2	(X)
6	OUT2	(print order)
7	IN3	(X)
8	OUT3	(generation)
9	not occupied	
10	OUT4	(print)
11	VCC	
12	IN4	(X)
13	OUT5	(module ready signal)
14	OUT6	(printhead up)
15	not occupied	
16	not occupied	
Casing	Shielding	

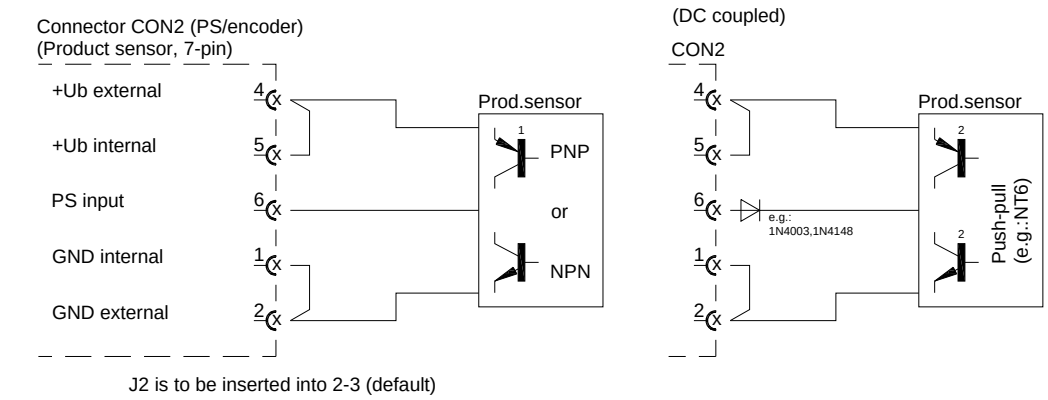
Max. Load current: 100 mA

NOTICE!

OUT5 controls internally still a relay --> alarm output (6 pin plug).

11.4 Internal Power Supply

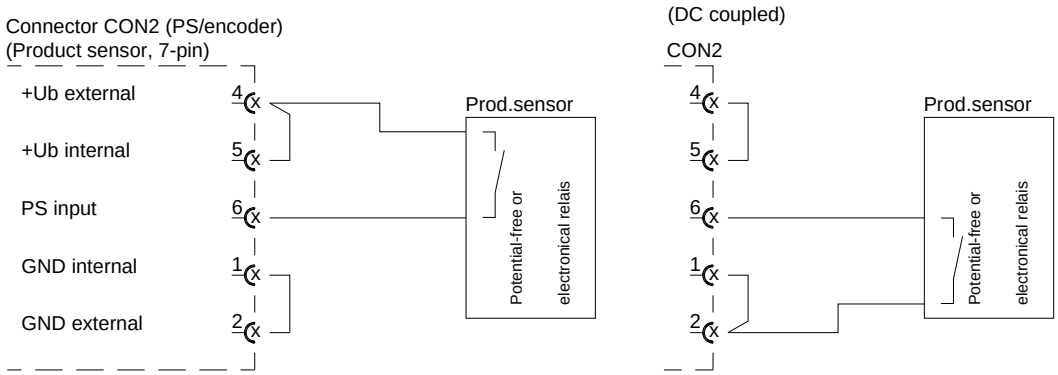
PS connection (NPN/PNP/push-pull) with internal power supply:



J2 is to be inserted into 2-3 (default)

Figure 38

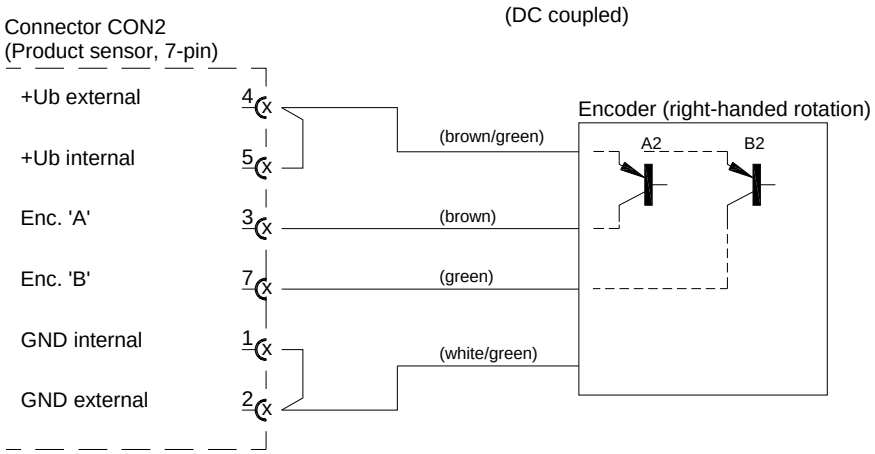
PS connection (electronical or mechanical relais) with internal power supply:



J2 is to be inserted into 2-3 (default)

Figure 39

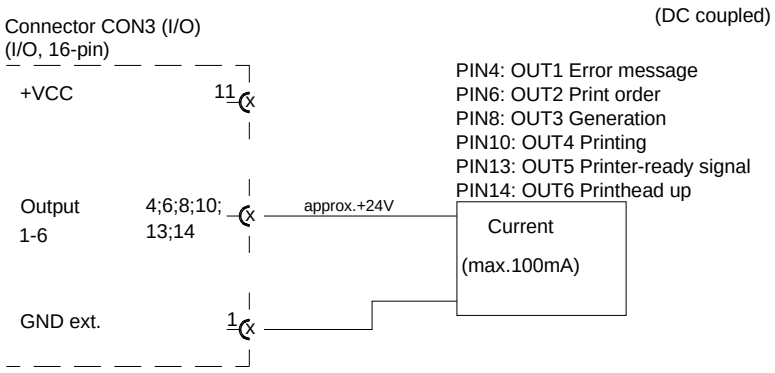
Encoder connection with internal power supply:



With left-handed rotation of the encoder Pin3 must be exchanged with Pin7!

Figure 40

Connection of message-outputs with internal power supply:

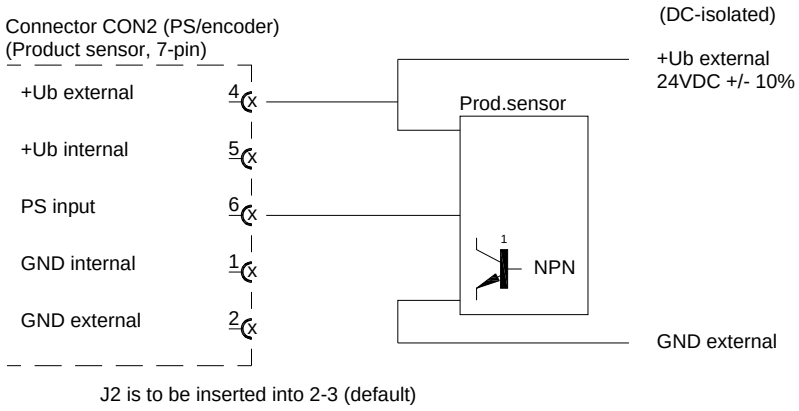


With external power supply Jumper 1 (3-4; 5-6) must be inserted.

Figure 41

11.5 External Power Supply

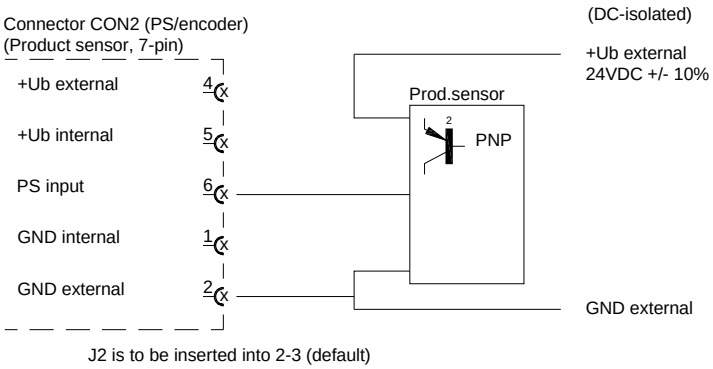
PS connection (NPN/push-pull) with external power supply:



J2 is to be inserted into 2-3 (default)

Figure 42

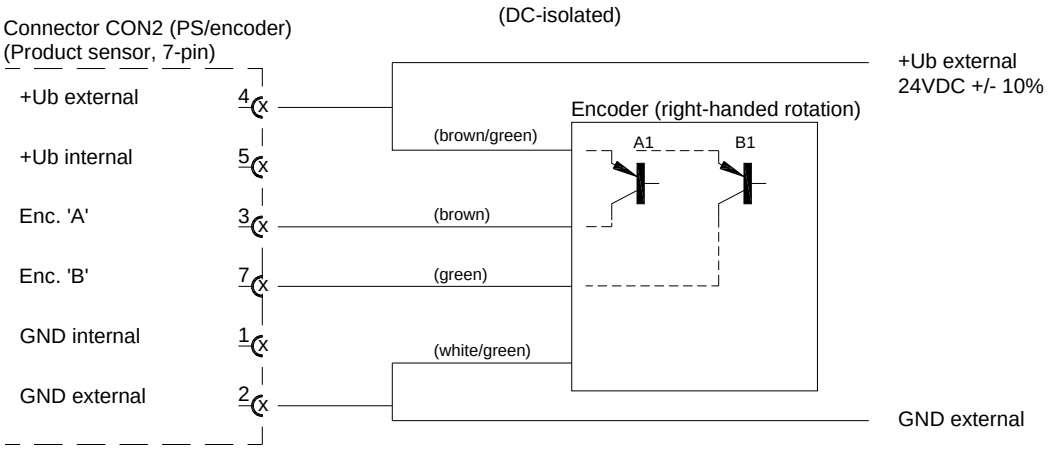
PS connection (PNP/push-pull) with external power supply:



J2 is to be inserted into 2-3 (default)

Figure 43

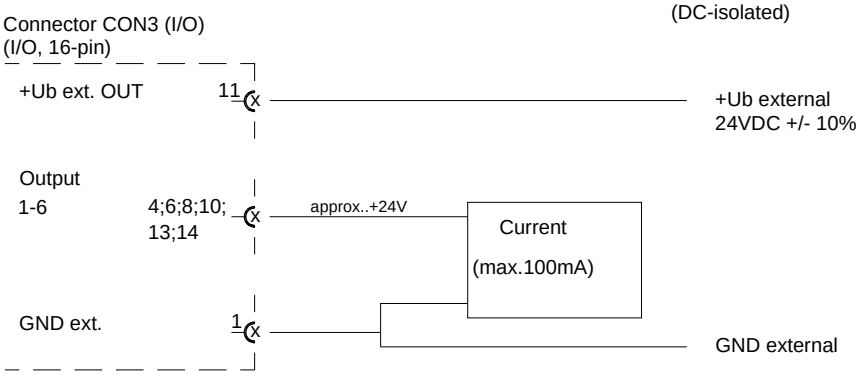
Encoder connection with external power supply:



With left-handed rotation of the encoder Pin3 must be exchanged with Pin7!

Figure 44

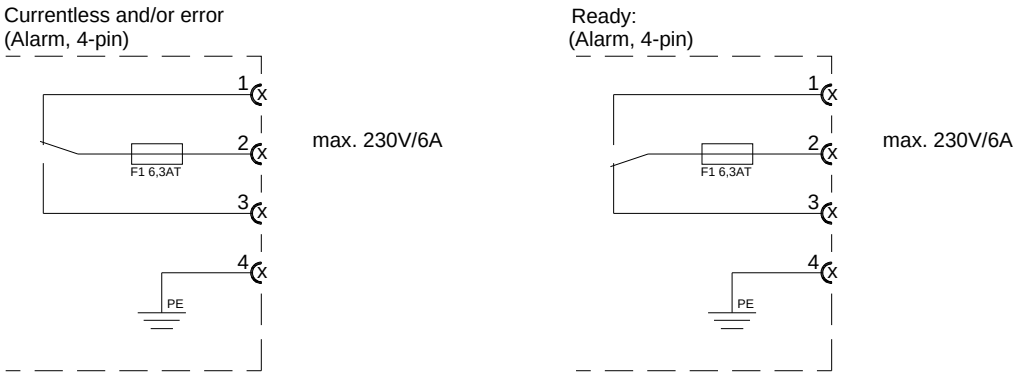
Connection of message-outputs with external power supply :



With external power supply, jumper 1 (1-2; 3-4; 5-6) (default) may not be inserted!

Figure 45

Connection alarm relay: Connection alarm relay:



If I/O connector is not used -> Jumper 1 (1-2 & 5-6) must be inserted

Figure 46

12 Wiring Plans

12.1 Control Unit

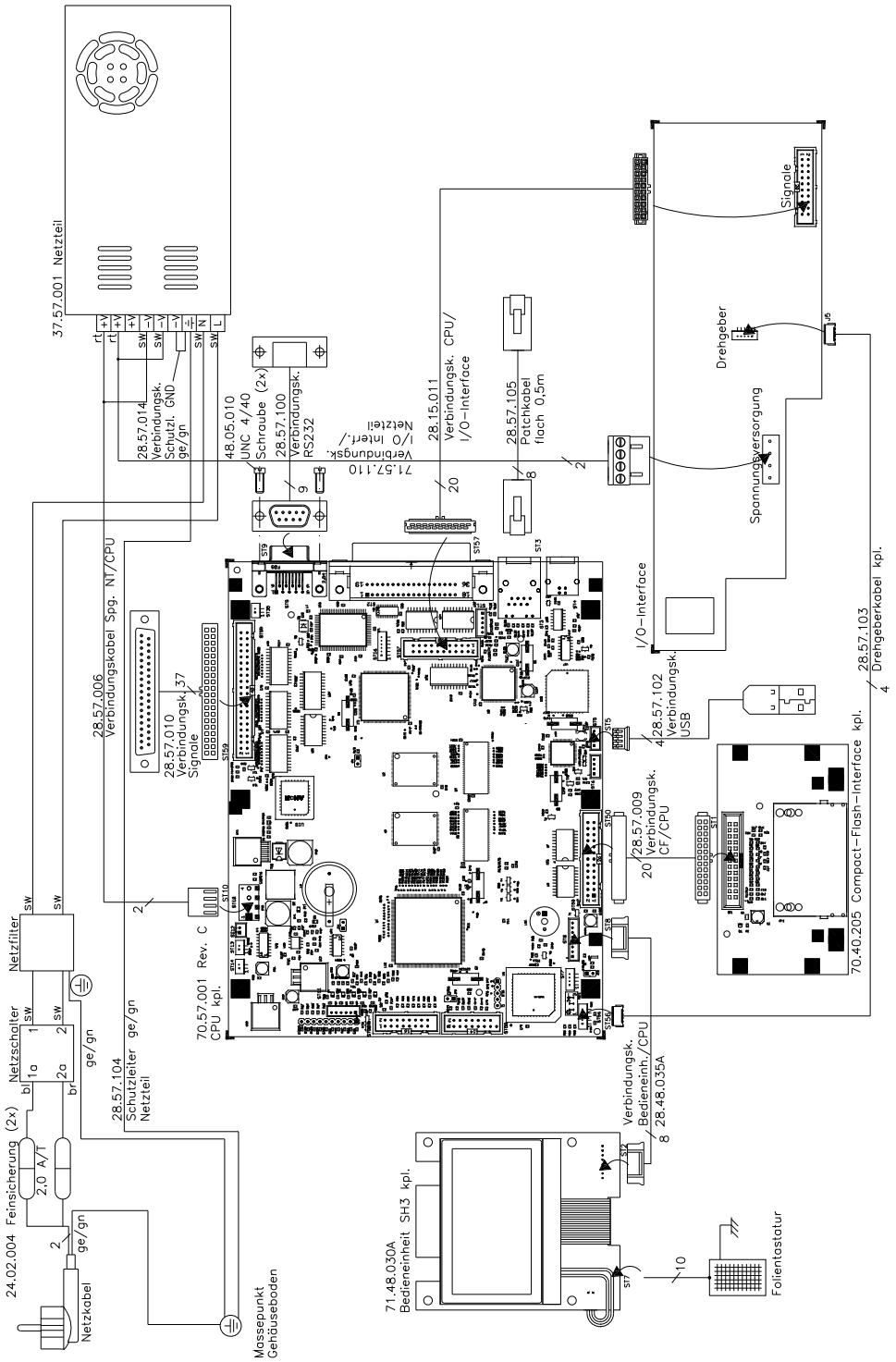


Figure 47

12.2 Print Mechanics Dynacode IP53

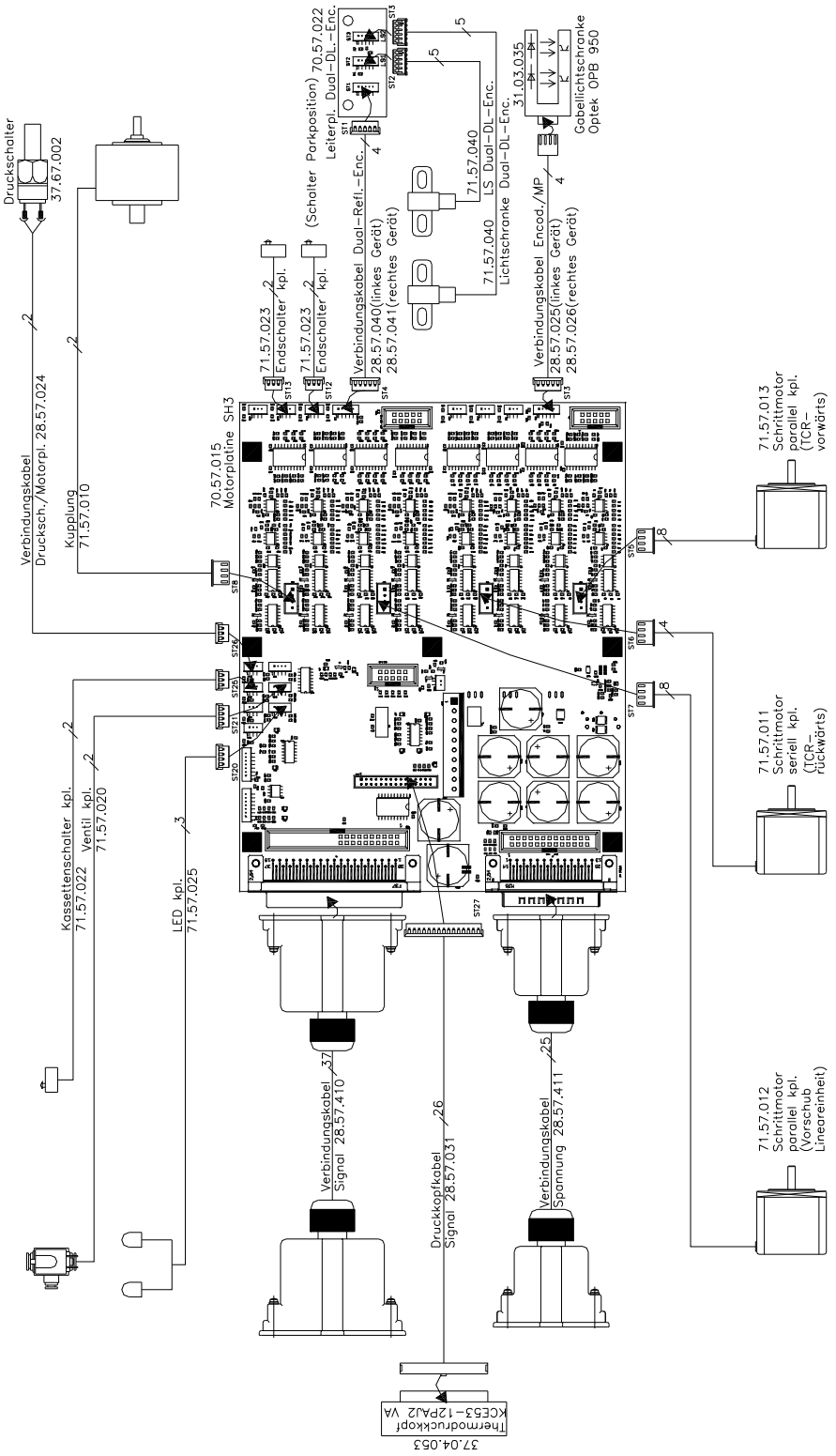


Figure 48

12.3 Print Mechanics Dynacode IP107

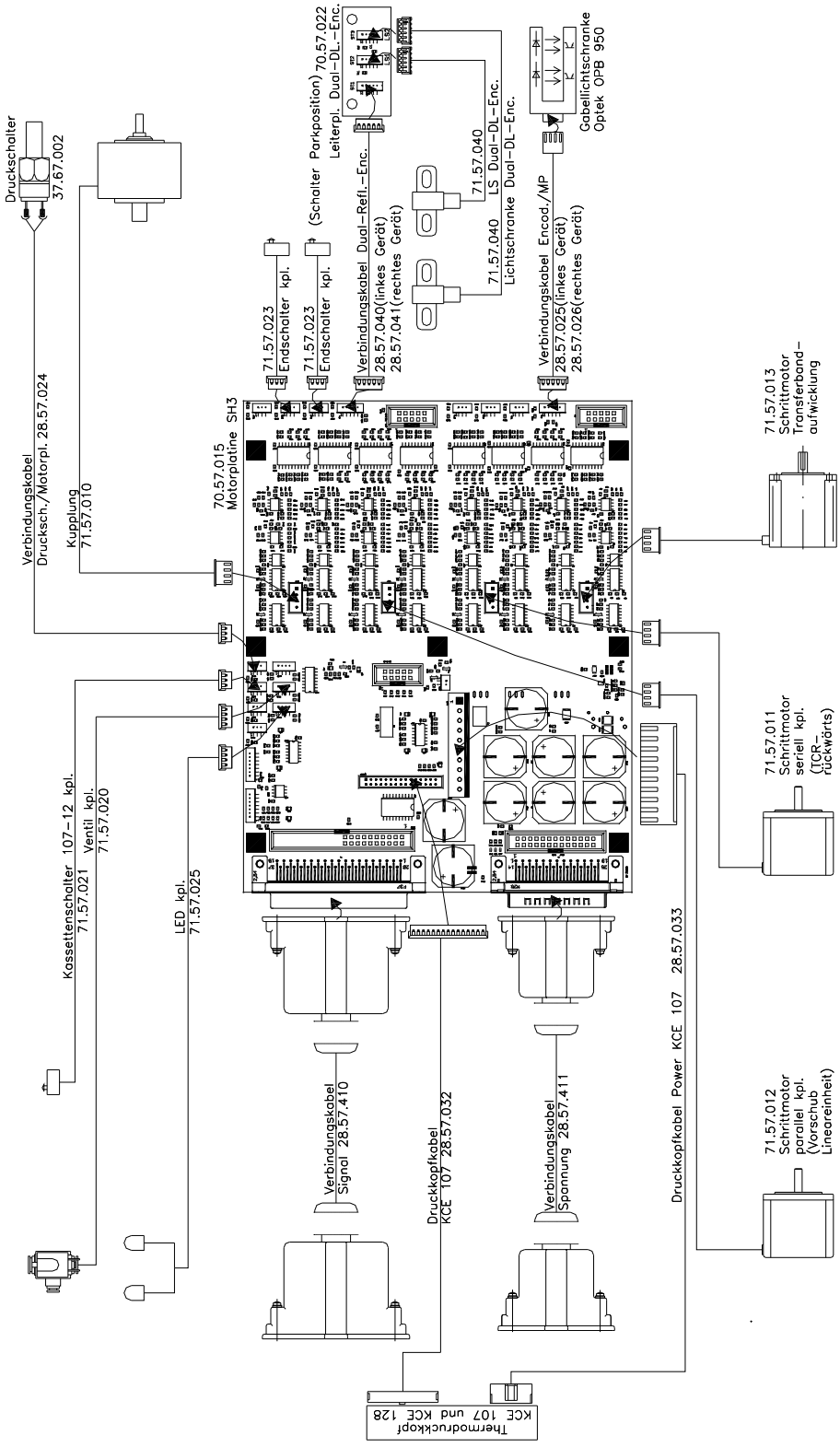


Figure 49

12.4 Print Mechanics Dynacode IP128

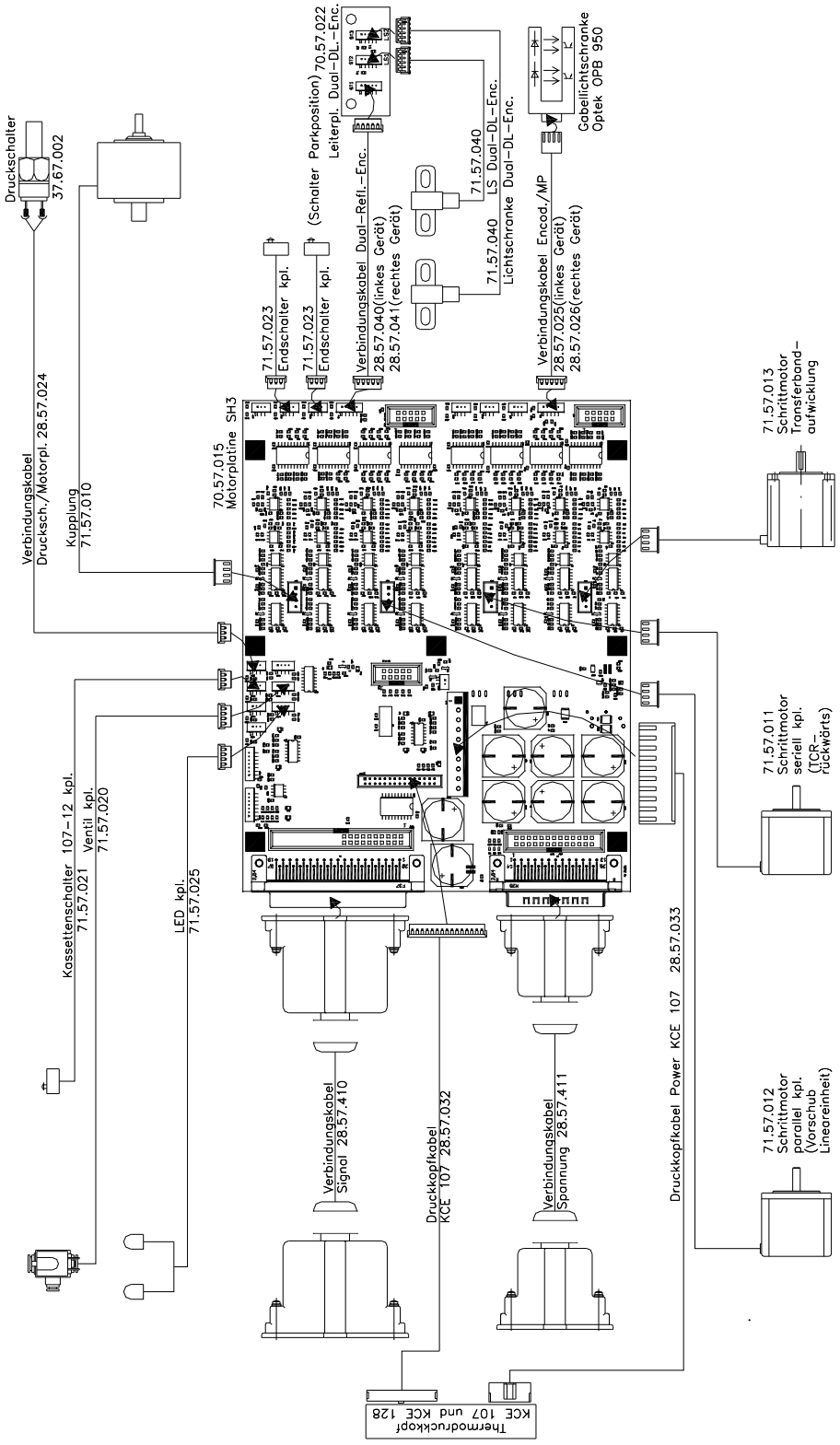


Figure 50

13 Layout Diagrams

13.1 CPU

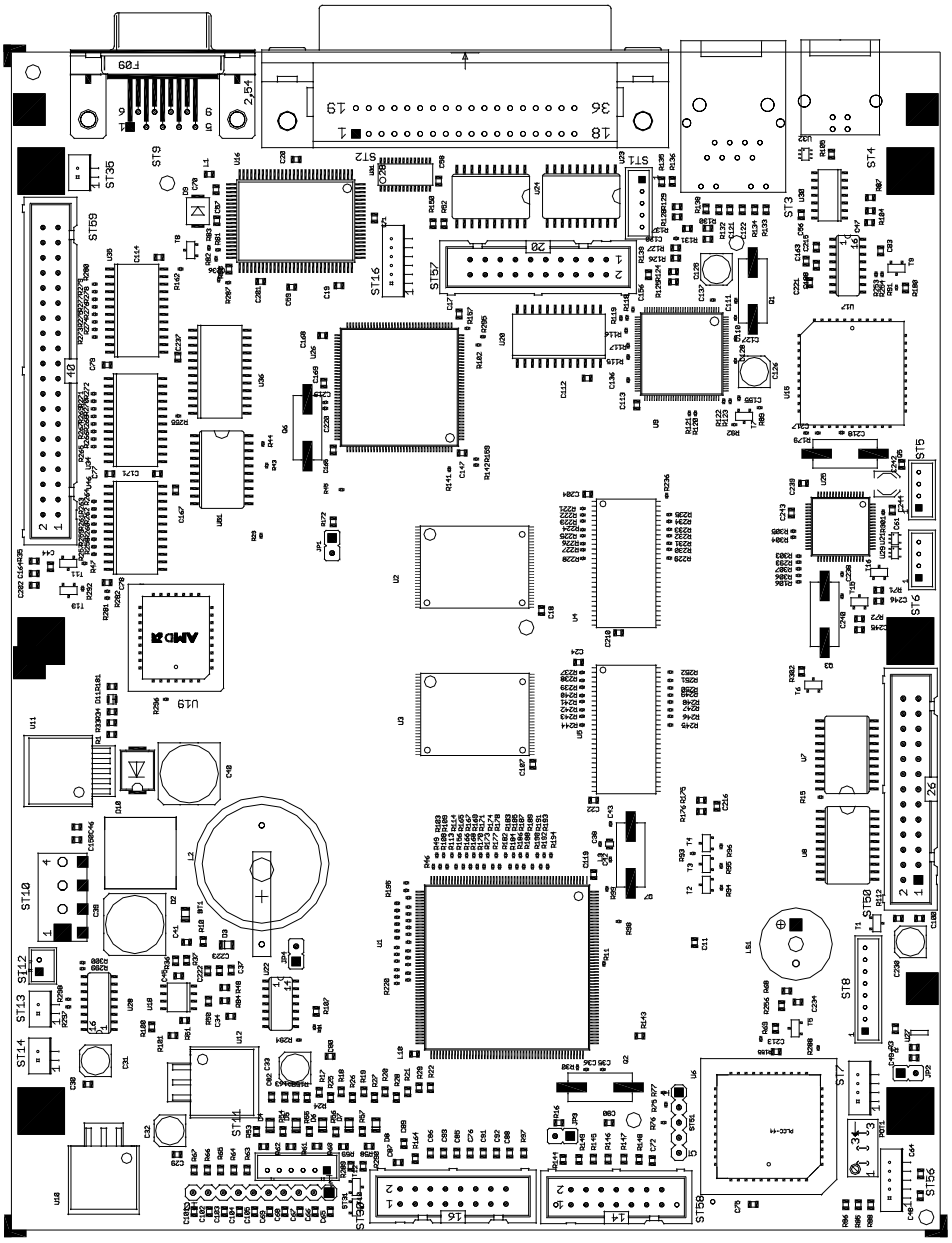


Figure 51

Jumper plan

JP1	gesteckt
JP2	offen
JP3	gesteckt

13.2 Power Electronics

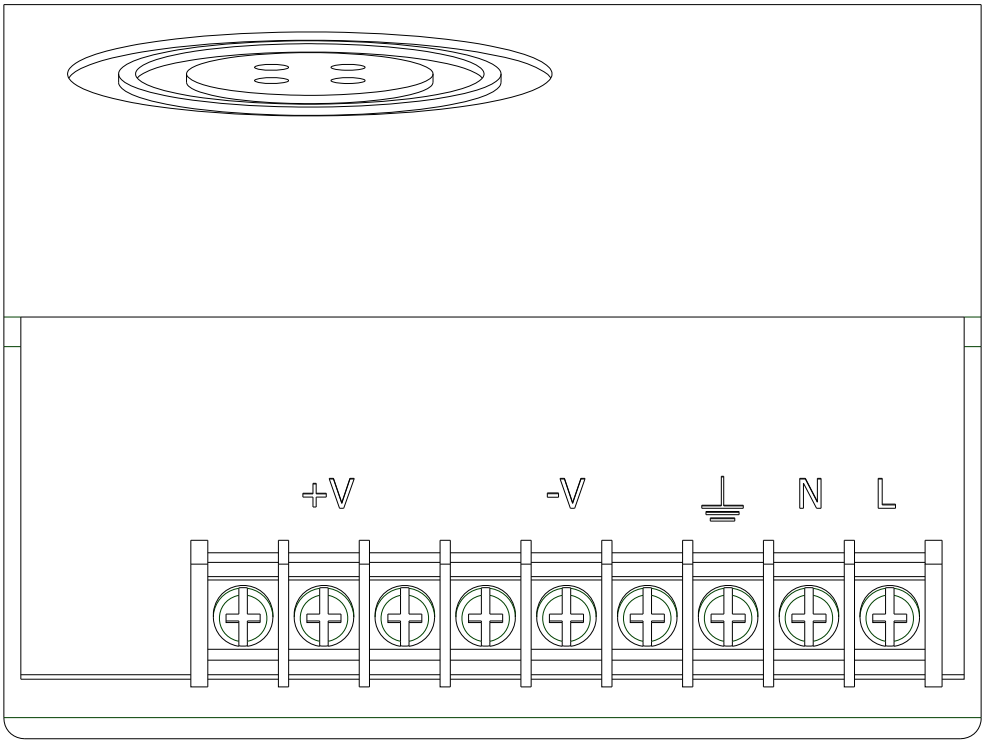


Figure 52

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

13.3 CF Card Slot

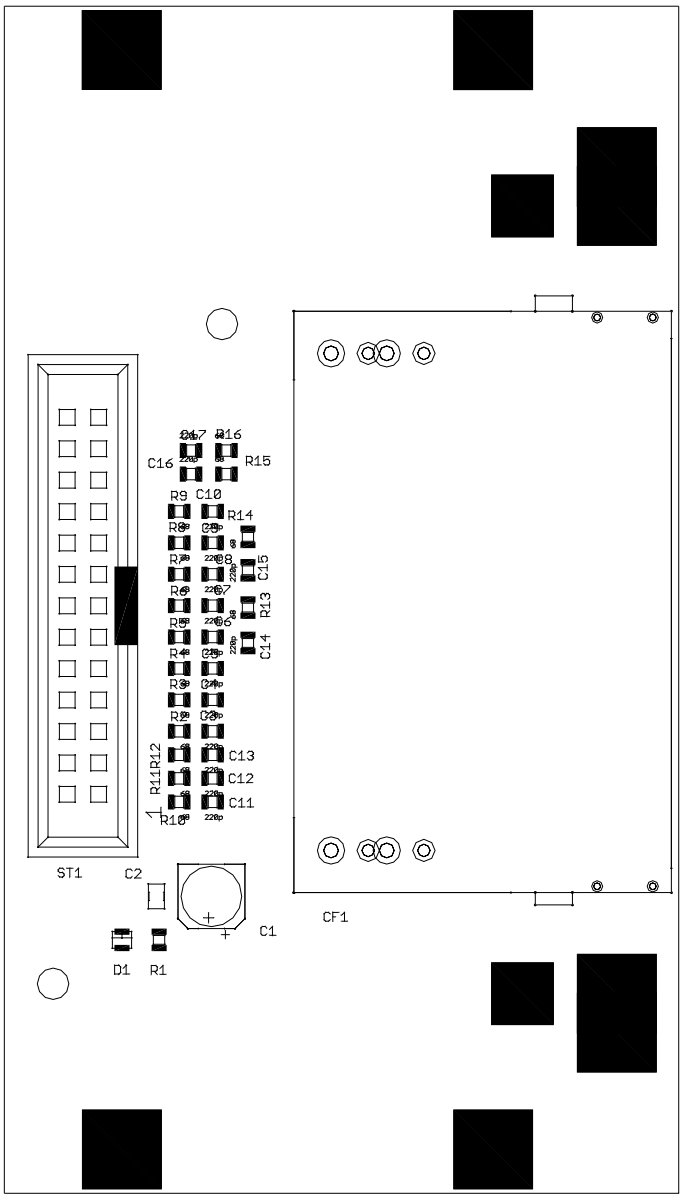


Figure 53

Following cards can be used:

- 64 MB
- 128 MB
- 256 MB
- 512 MB
- 1 GB

13.4 Dispenser I/O

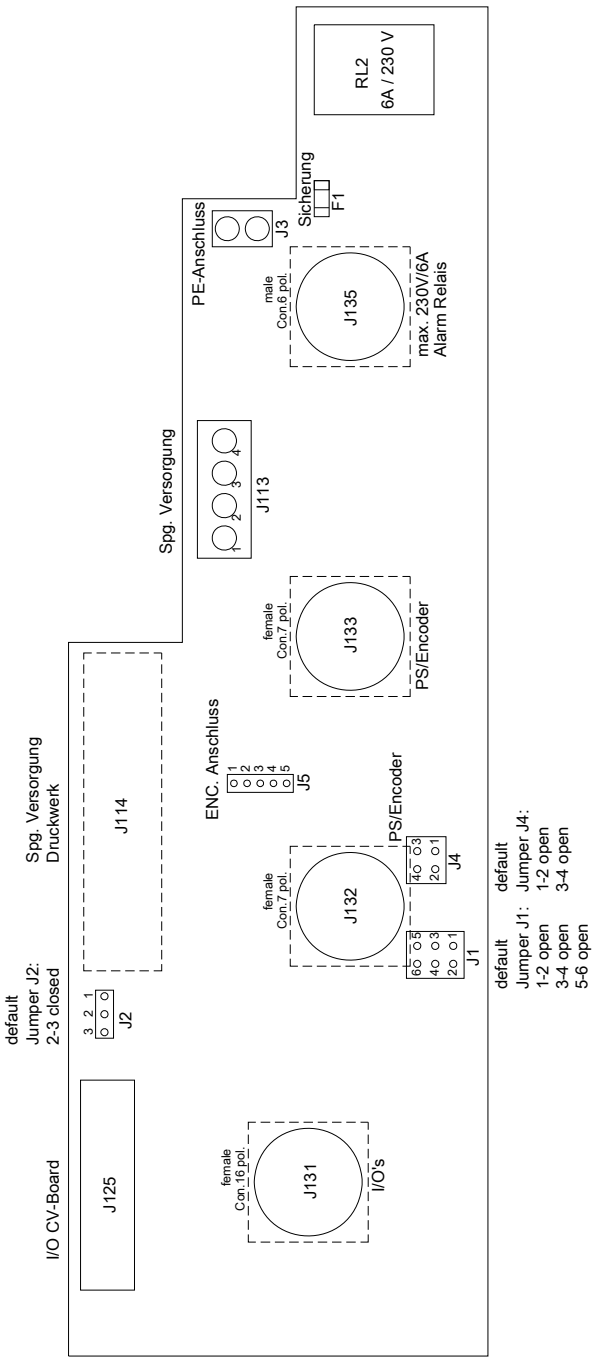


Figure 54

For pin assignment, see chapter 11.3, page 52.

13.5 Motor Plate

Top face

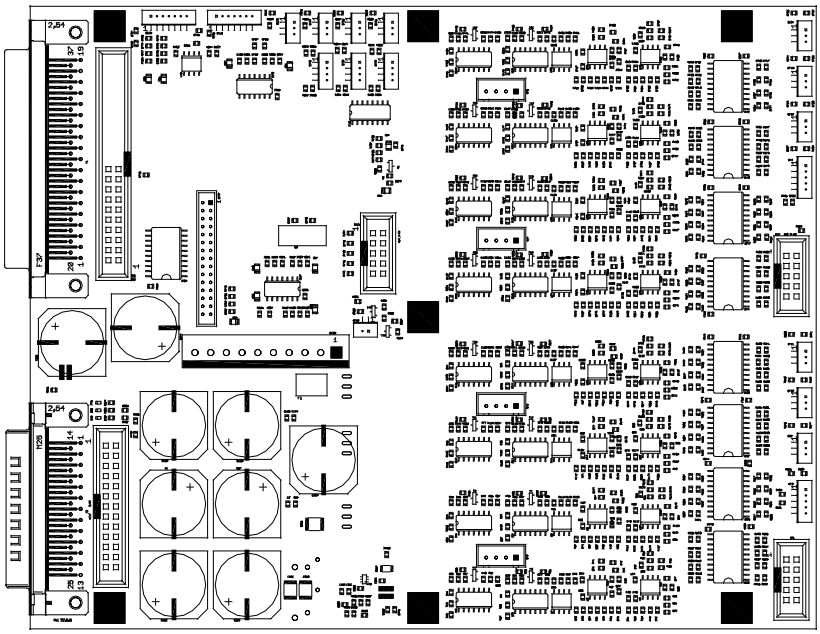


Figure 55

Bottom side

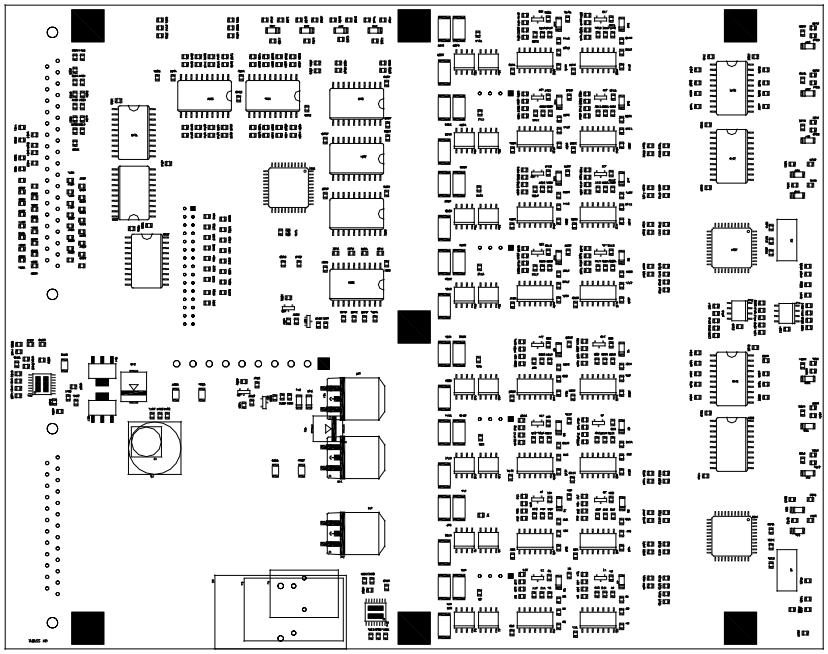


Figure 56

LEDs for voltage control

LED	Voltage	Description
D46	5V	Supply voltage for CPU
D48	24V	Printhead voltage
D38	48V	Motor voltage

14 Connector Assignment of Control Unit

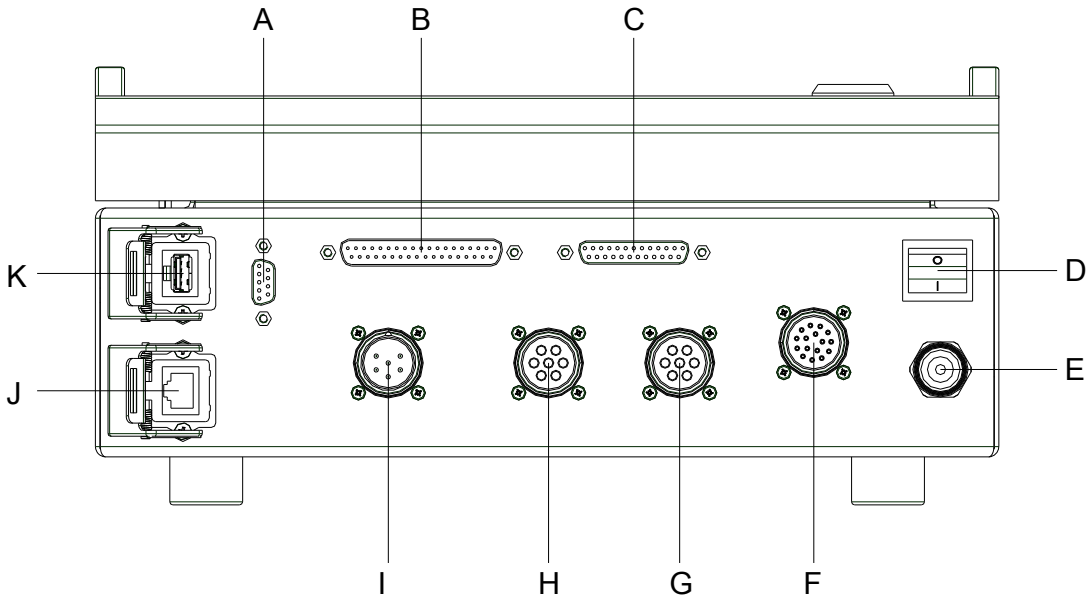


Figure 57

A = Serial interface RS-232
B = Connecting cable SPI (printhead + sensor)
C = Connecting cable Power
D = Switch
E = Power cable with safety plug and strain relief
F = External inputs/outputs
G = Connection encoder and product sensor
H = Connection encoder and product sensor
I = Alarm output (relais)
J = Ethernet interface 10/100
K = USB host for USB keyboard and USB memory stick

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