valentin DRUCKSYSTEME

DYNACODE II IP

Ingress Protection Version
Service Instructions

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

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

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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 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.

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

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

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

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

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

Gives you tips on protecting the environment.

⇒ Handling instruction

* Optional accessories, special fittings

`Date` Information in the display

1.3 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 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 AC … 230 V AC. Connect the direct print module only to electrical outlets with a ground contact.

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

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

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

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

Operate the direct print module only in an environment protected against abrasive dust, swarf and other similar impurity.

Maintenance and servicing work can only be carried out by trained personnel.

Operating personnel must be trained by the operator on the basis of the operating manual.

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

NOTICE!

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

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

Never use highly inflammable consumables.

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

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

Other unauthorized work or modifications to the direct print module can endanger operational safety.

There are warning stickers on the direct print modules that draw your attention to dangers. Therefore, the warning stickers are not to be removed as then you and others cannot be aware of dangers and may be injured.

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.

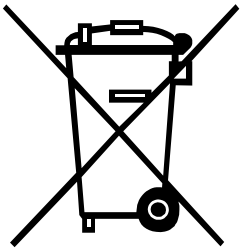
⇒ Avoid endangering yourself.

⇒ Switch the power off.

⇒ Request medical help (emergency physician).

⇒ Call for first aid if necessary.

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.

The electronics board of the printing system is equipped with a battery. This must only be discarded in battery collection containers or by public waste management authorities.

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

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

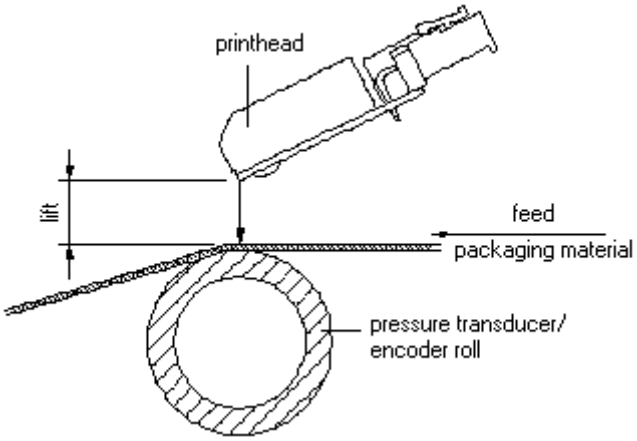


Figure 1

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

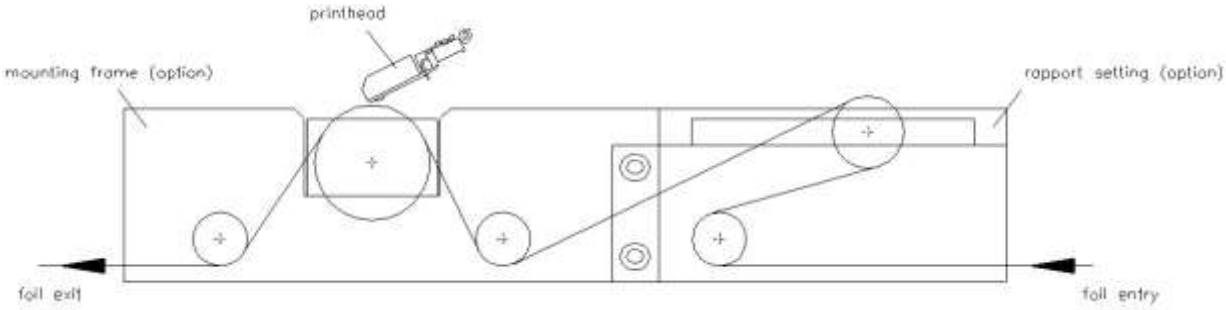


Figure 2

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

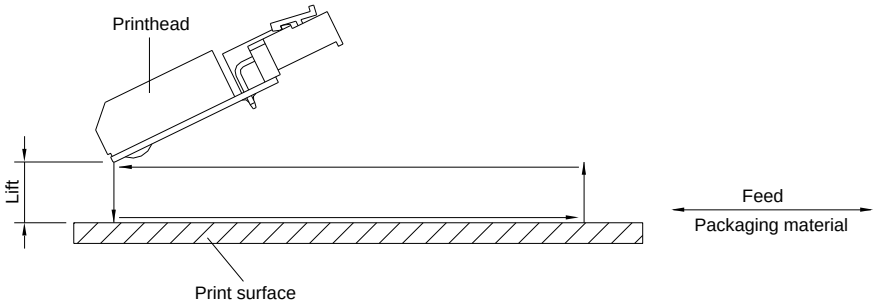


Figure 3

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.

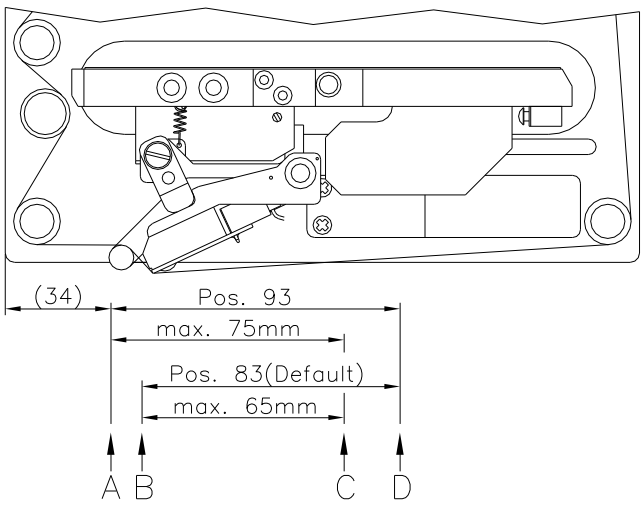


Figure 4

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

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

C: Max. position print end

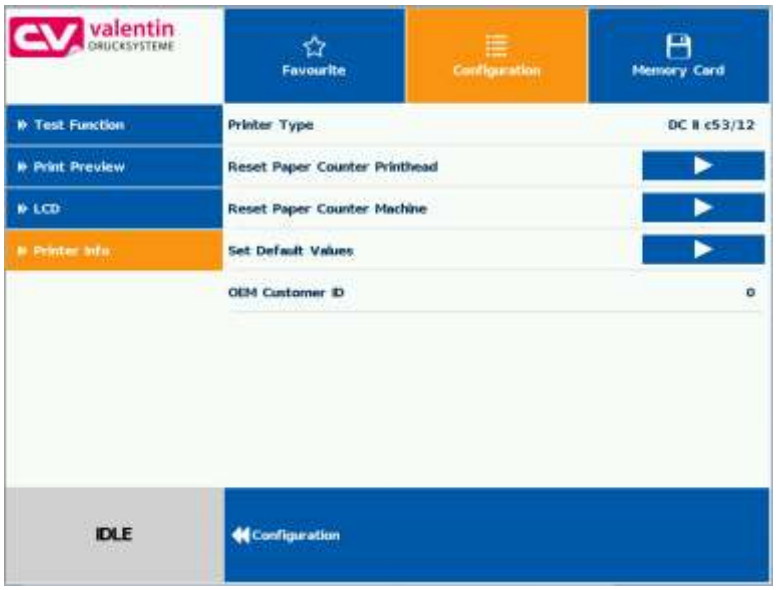
D: Stand-by position

3.3 Change the Module Type

Tap on the *Functions* button.

On the left side of the display, select *Maintenance/ System Settings*.

Maintenance - System settings



Select *Printer Info*, tap on the desired *Printer Type* and confirm your selection.

In order to change the printer type, the service password must be entered.

Password: 2904

After entering the service password, the device is restarted.

4 Electronics (Replace Components)

DANGER!

Risk of death via electric shock!

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

4.1 Primary Fuses

NOTICE!

The primary fuses are not accessible from the outside.

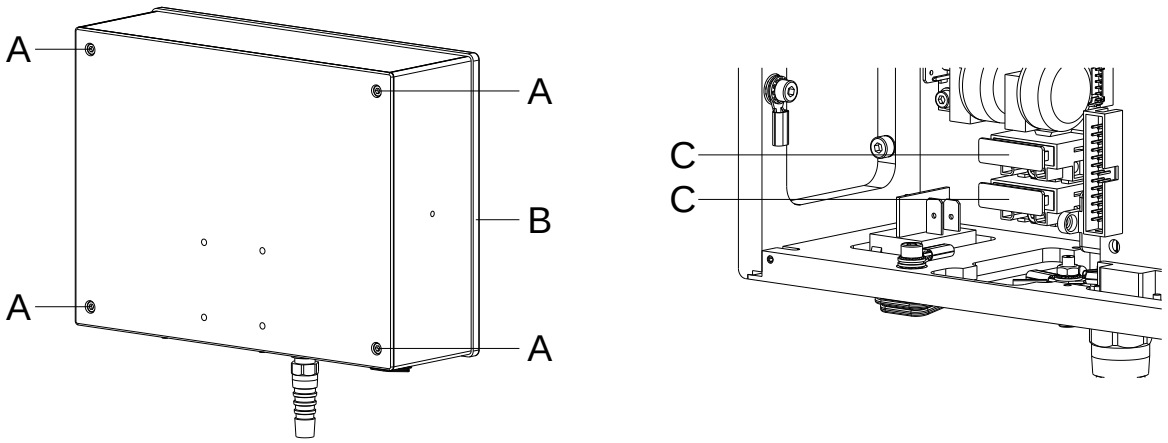


Figure 5

Removing the primary fuses

1. Unplug the control unit from the electrical outlet.
2. Unscrew the four screws (A).
3. Vertically remove the front plate (B). Disconnect disturbing connection cables from the connectors.
4. Pull the fuse-holder (C) from the housing.

Installing the primary fuses

1. Replace the fuses (two T4A 250 V).
2. Push the fuse-holder (C) into the housing until it engages.
3. Reinstall the front plate (B). Plug the connection cables in.

4.2 CPU PCB

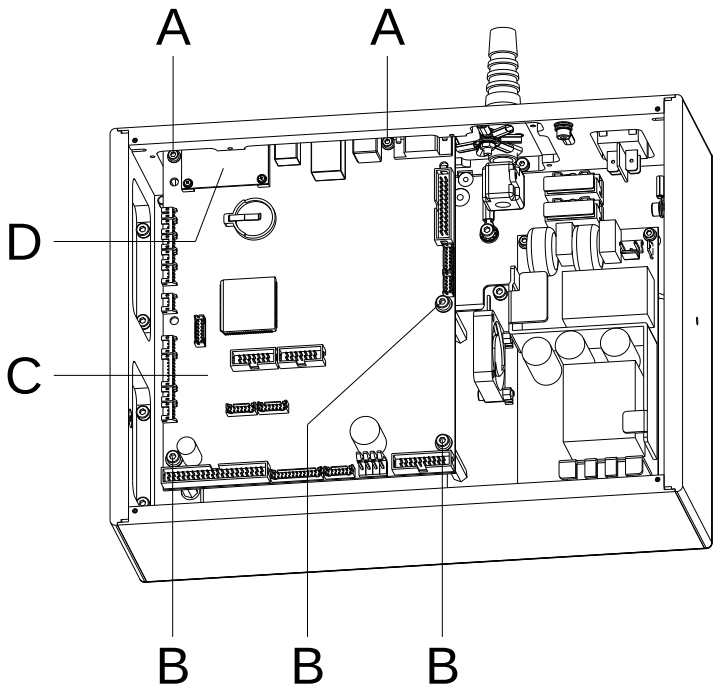


Figure 6

Removing the CPU PCB

NOTICE!

Save the configuration onto a CF card.

1. Unplug the control unit from the electrical outlet.
2. Unscrew the four screws on the rear and remove the front plate (see chapter 4.1, page 15).
3. Disconnect all plug-in connectors from the CPU PCB (C).
4. Unscrew the screws (A + B).
5. Carefully remove the CPU PCB (C).

Installing the CPU PCB

1. If not available, move the cover of the CF card slot (D) from the old CPU to the new CPU.
2. Insert the CPU PCB (C) with the interface sockets into the connection plate and turn the hexagonal bolts of the serial interface if necessary.
3. Fasten again the PCB (C) with the screws (A + B).
4. Connect all plug-in connectors to the PCB.
5. Reinstall the front plate.
6. Restore all interface connections.
7. Connect the power supply cable.
8. Check the firmware version and update it, if necessary.
9. Load the configuration from the CF card. Otherwise set the configuration with the function menu.

4.3 Battery

DANGER!

Danger of explosion due to improper replacement of the battery!

⇒ Use non-conductive tools.

⇒ Pay attention to polarity.

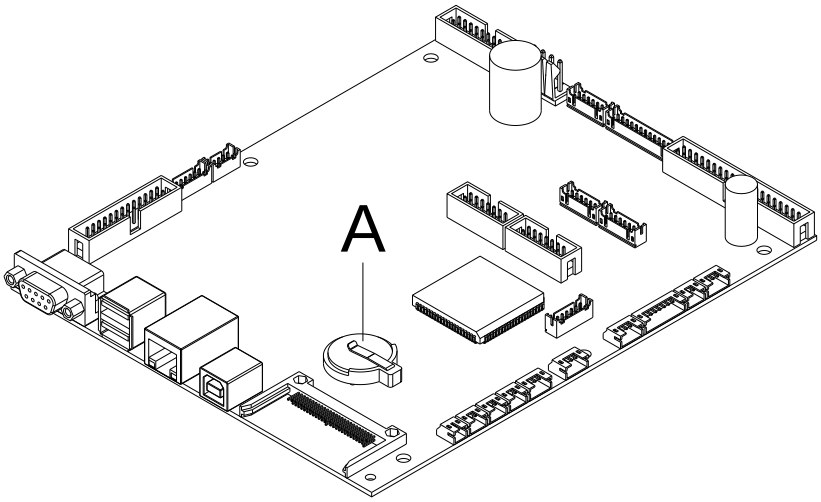


Figure 7

Removing the battery

1. Unplug the control unit from the electrical outlet.
2. Unscrew the four screws on the rear and remove the front plate (see chapter 4.1, page 15).
3. Lift up the fixing bracket by means of a non-metallic device (e.g. plastic ruler).
4. Remove the battery

Installing the battery

1. Install a new battery (CR 2032) in the bracket (A).

   NOTICE!

   Please pay attention to the correct polarity.
2. Reinstall the front plate.
3. Connect the power supply cable.

4.4 Input/Output Board

NOTICE!

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

In case of an active input, the position corresponding to this input changes to 1.

To activate an output, move the cursor to the corresponding position and set value 1. To deactivate the output, set the corresponding position again to 0.

Inputs and outputs marked with 'x' are not occupied.

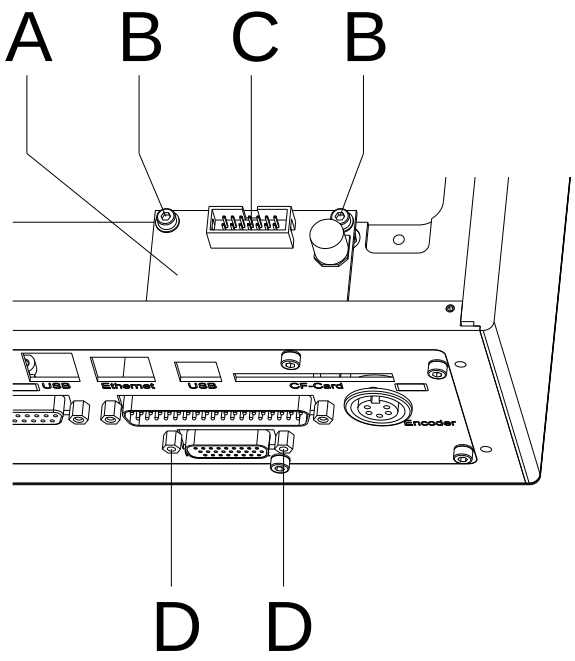


Figure 8

Removing the input/output board

1. Unplug the control unit from electrical outlet.
2. Unscrew the four screws on the rear and remove the front plate (see chapter 4.1, page 15).
3. Remove the CPU PCB (see chapter 4.1, page 15).
4. Unscrew the retaining screws (D) at the SUB-D socket.
5. Remove the screws (B).
6. Remove the I/O plate (A) and disconnect the plug-in connector (C).

Installing the input/output board

1. Connect the new I/O board (A) with the appropriate cable (C) and place it.
2. Fasten the retaining screws (D).
3. Tighten the screws (B).
4. Reinstall the CPU PCB (see chapter 4.1, page 15).
5. Reinstall the front plate.
6. Connect the power supply cable.

4.5 Power Supply Unit

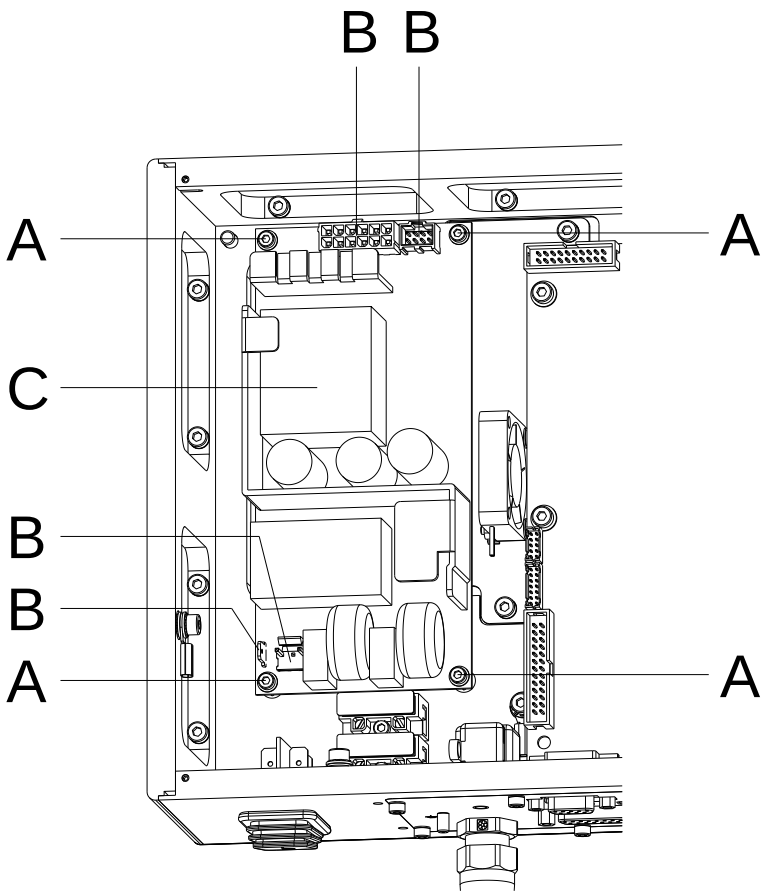


Figure 9

Removing the power supply unit

1. Unplug the control unit from the electrical outlet.
2. Unscrew the four screws on the rear and remove the front panel (see chapter 4.1, page 15).
3. Remove the plug-in connectors (B) from the power supply unit (C).
4. Unscrew the retaining screws (A9) of the power supply unit. Hold the power supply unit while unscrewing the retaining screws.
5. Remove the power supply unit.

Installing the power supply unit

1. Place the new power supply unit in the control unit housing and tighten it with the retaining screws (A).
2. Connect the plug-in connectors (B) with the power supply unit (C).
3. Reinstall the front plate.
4. Connect the power supply cable.

4.6 HMI Components

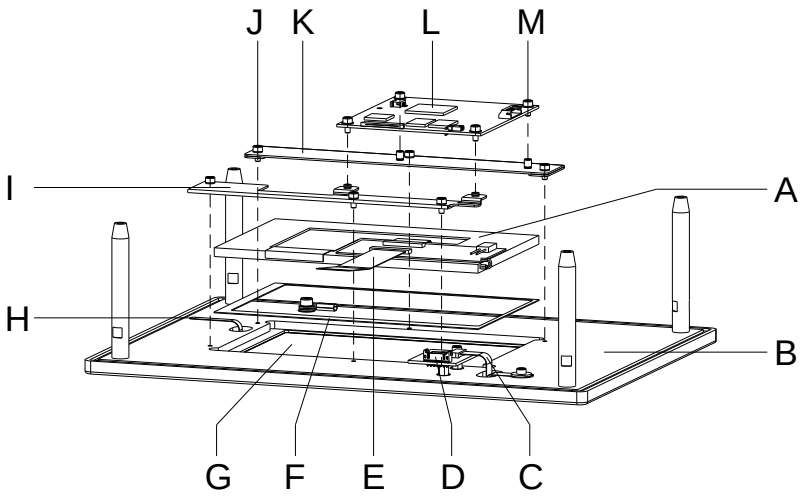


Figure 10

Removing HMI components

1. Unplug the control unit from the electrical outlet.
2. Unscrew the four screws on the rear and remove the front plate (B) (see chapter 4.1, page 15). Disconnect all connecting cables at the plug-in connectors while removing the front plate.

   NOTICE!

   During subsequent work, take care of a dust-free atmosphere in order to bring no unwanted particles in the field of view of the display.
3. Carefully remove the FFC cable (E) from the plug-in connector of the CPU HMI (L).
4. Carefully remove the connection line (H) of touch panel from the plug-in connector of CPU HMI (L).
5. After removing the connection cable to CPU and removing the four screws (M), remove the CPU HMI (L).
6. Remove the six screws (J).
7. Lift the top display bar (K) and the bottom display bar (I).
8. Remove the graphic module (A) and the seal (F) from the depression.
9. The touch panel (G) laminated onto the transparent keyboard is visible now. The touch panel is interchangeable only in combination with the transparent keyboard.
10. After careful loosening of the connecting cable (C) and removing the screws positioned directly next to the cable, remove the connection board (D) for the transparent keyboard.

Installing HMI components

1. Place the connection board (D) for the transparent keyboard, tighten the screws and plug in the connection cable (C).
2. Place the seal (F) into the depression and carefully place the new graphic module (A) onto it.

   NOTICE!

   The seal (F) must be properly arranged and must not project into the field of view of the touch panel.

3. Apply the top display bar (K) and the bottom display bar (I) on the edge of the graphic module (A).
4. Tighten the six screws (J).
5. Insert the new CPU HMI (L), tighten the four screws (M) and plug again the connection cable to the CPU.
6. Plug the FFC cable (E) into the plug-in connector of the CPU HMI (L).
7. Plug all connecting cables into the plug-in connectors. Reinstall the front plate (B) and fasten four screws on the rear.
8. Connect the power supply cable.

5 Cleaning

DANGER!

Risk of death by 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.

NOTICE!

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

5.1 General Information

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 the outer surfaces with an all-purpose cleaner.

5.2 Clean the Transfer Ribbon Roller

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

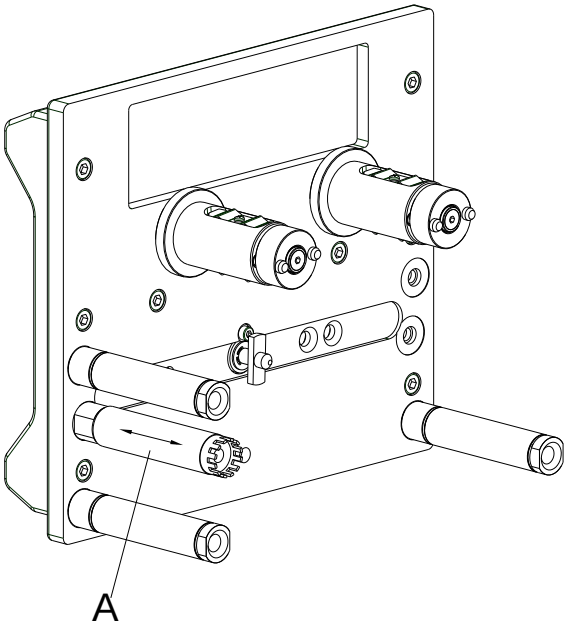


Figure 11

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

5.3 Clean the Printhead

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

CAUTION!

Printhead can be damaged!

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

⇒ Do not touch protective glass layer of the printhead.

1. Remove the transfer ribbon cassette.
2. Clean the printhead surface with a special cleaning pen or a cotton swab dipped in pure alcohol.
3. Before using the printing system, let the printhead dry for about two to three minutes.

6 Printhead

6.1 Replace the Printhead

CAUTION!

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

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

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

⇒ Do not touch the contacts on the plug connections.

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

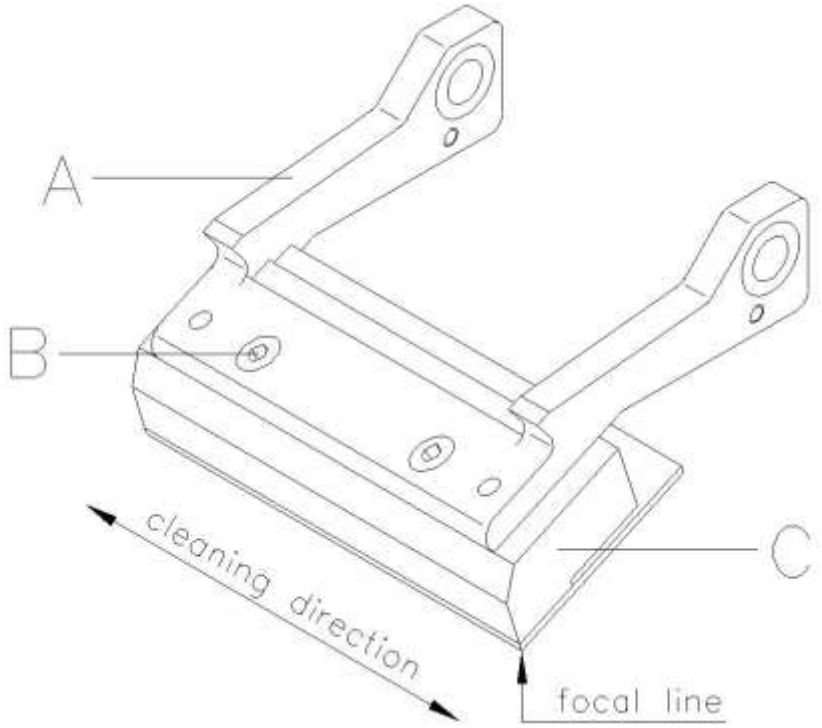


Figure 12

Remove the printhead

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

Install the printhead

1. Insert the connection assembly to the new printhead.
2. Position the printhead in the printhead support (A), so the engaging pieces catch in the appropriate holes in the printhead support (A).
3. Hold the printhead holder (A) with a finger slightly on the pressure roll and check the correct position of printhead (C).
4. Screw in the screw (B) and tighten it with an Allen key.
5. 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 (Intermittent Mode)

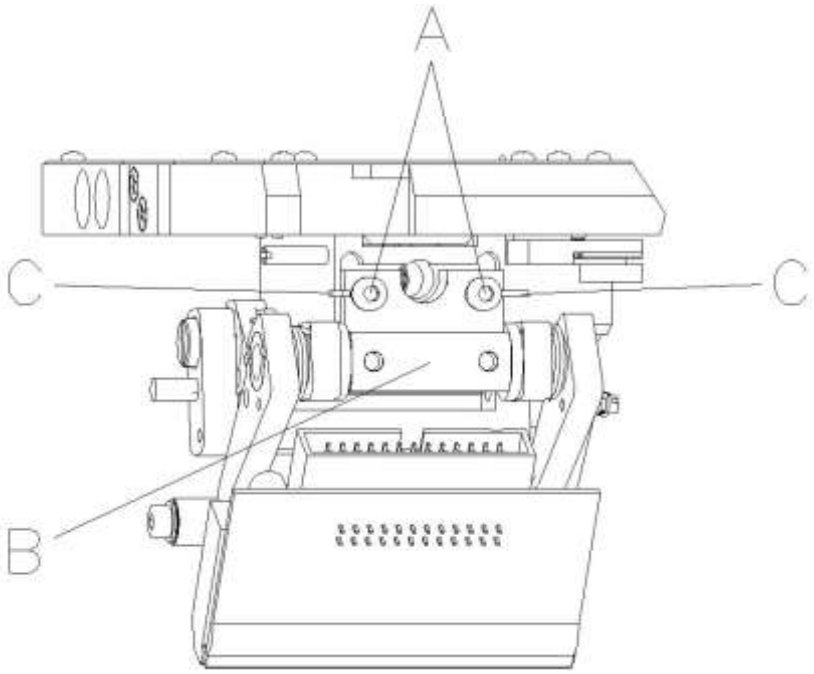


Figure 13

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

CAUTION!

Damage of printhead by unequal use!

Higher wastage of ribbon by faster ripping.

⇒ Only change the factory settings in exceptional cases.

1. Loosen slightly two Allen head screws (A).
2. Move the adjusting part (B) to adjust the angle between the printhead and the printhead support.
   move downwards = decrease angle
   move upwards = increase angle
3. Tighten again the Allen head screws (A).
4. Start a print order with approx. three layouts to check the correct unwrinkled ribbon run.

NOTICE!

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

7 Ribbon Cassette (Replacing Components)

View of transfer ribbon cassette

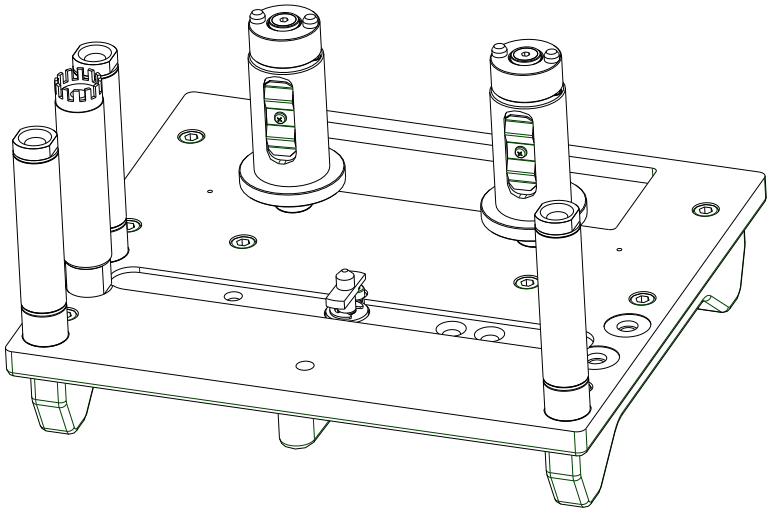


Figure 14

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).

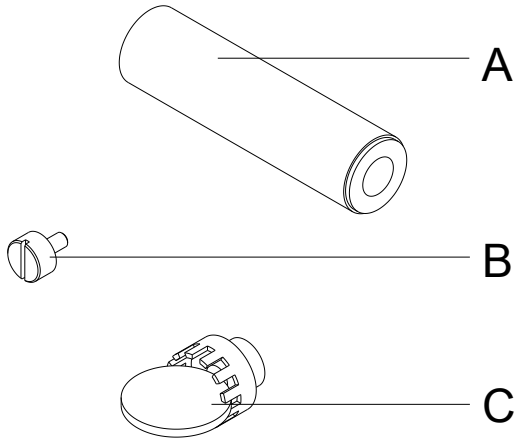


Figure 15

Remove the roller

1. Remove the switch roll (C) from the track roller (A). Use a five Cent coin or similar auxiliaries.
2. Remove the screw (B).
3. Remove the 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 the installation improves the infeed manner.

Install the track roller

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

NOTICE!

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

7.2 Return Pulley

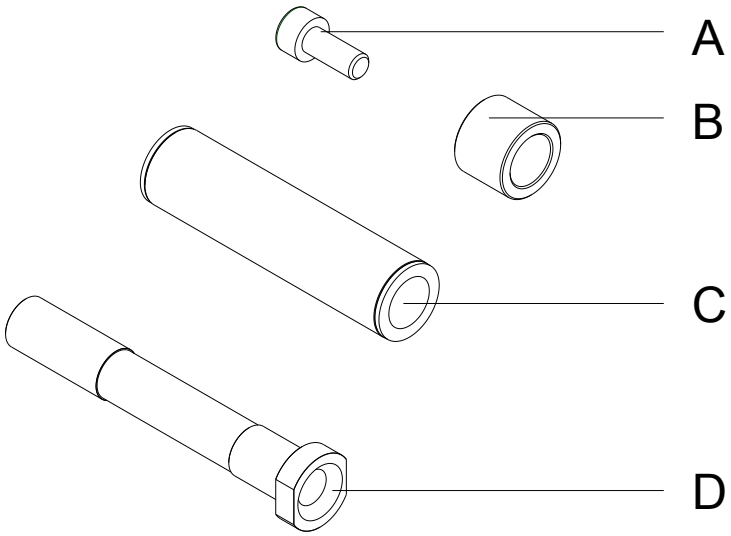


Figure 16

Remove the return pulley

1. Loosen three 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 the bushing for the centring sleeve (B + D) and return pulley (C).

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 the installation improves the infeed manner.

Install the return pulley

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

7.3 Ribbon Rewinder Roll/Unwinder Roll

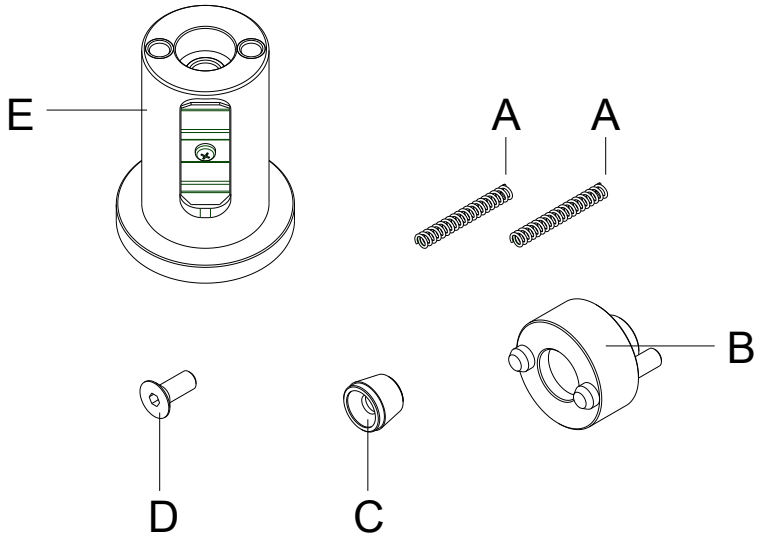


Figure 17

Remove the ribbon rewinder roll/ unwinder roll

1. Remove the screw (D) from the appropriate ribbon roll. Take care to hold the centring sleeve (B).
2. Remove the 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.

Install the 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 Components)

View of printing carriage

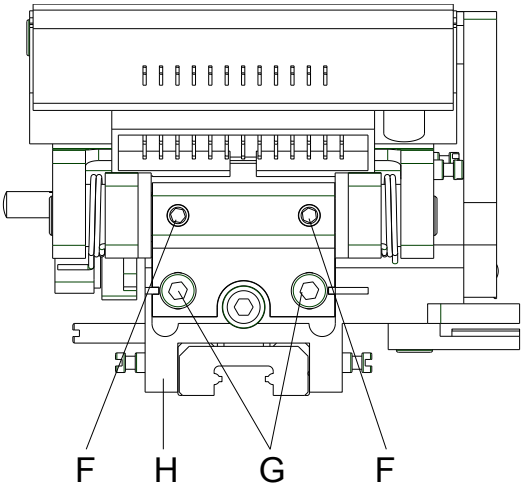


Figure 18

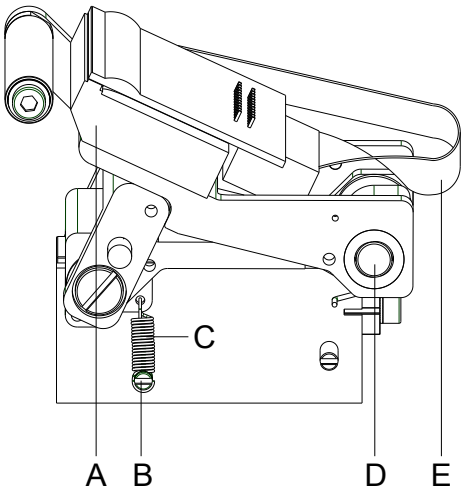


Figure 19

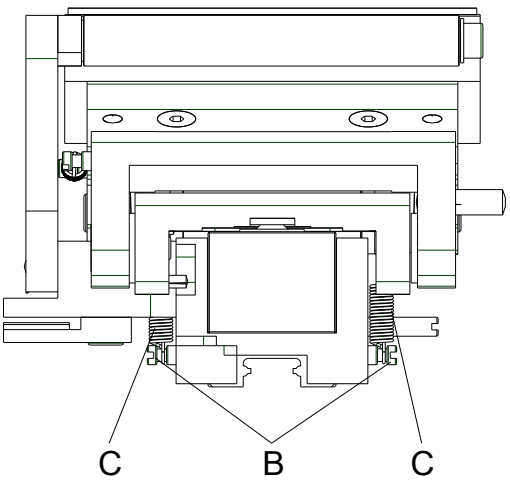


Figure 20

8.1 Printhead Fastener, Pressure Bail, Interlayer

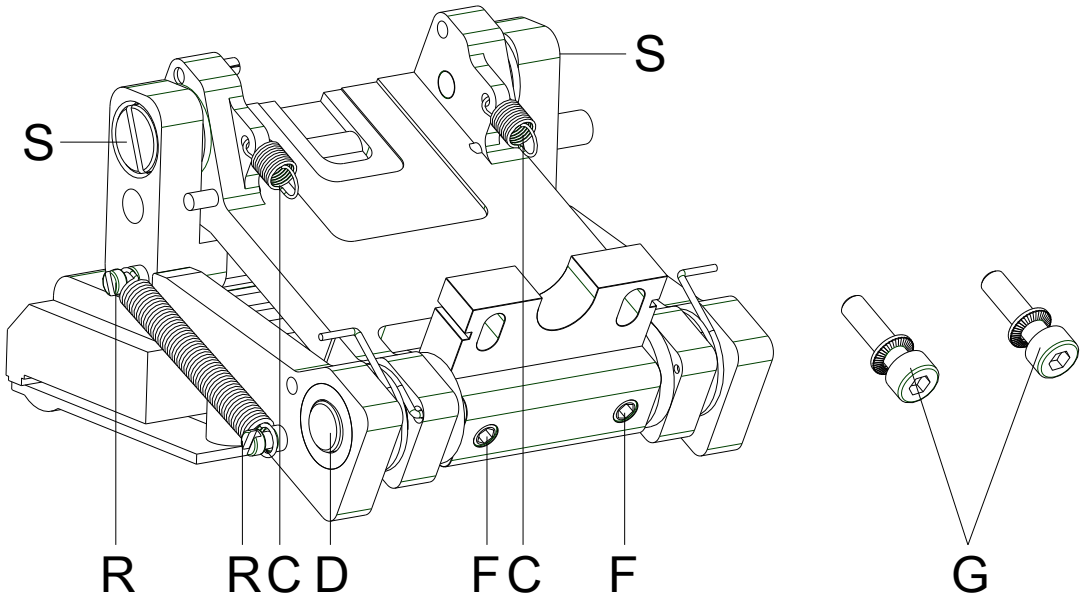


Figure 21

1. Remove the transfer ribbon cassette.
2. Push both tension springs (C, Figure 20) with the tweezers from the pillars (B, Figure 20).
3. Remove the printhead cable (E, Figure 19) from the printhead (A, Figure 19).
4. Remove the Allen head screws (G, Figure 18).
5. Remove the complete printhead unit (printhead fastener, pressure bail, interlayer).
6. Start the necessary service work, e.g. replacing the springs (C) or the 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 the slots next to the screws (G) to the slots in the guiding carriage (H, Figure 18).

NOTICE!

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

8.2 Guiding Carriage

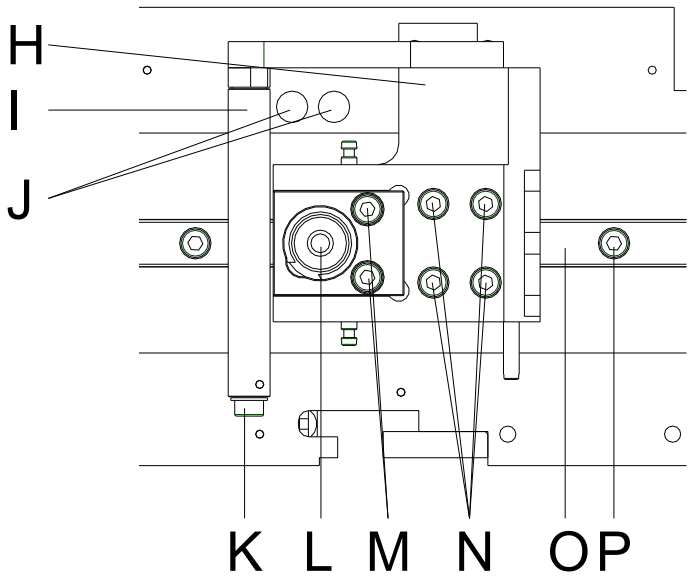


Figure 22

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 the drillings (J).
   Insert the allen key 2,5 from the botton through the drillings (J) in the screws of the clamping sheet (not visible).
   Remove four screws (N) and remove the guiding carriage (H).

NOTICE!

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

8.3 Motor Circuit Board

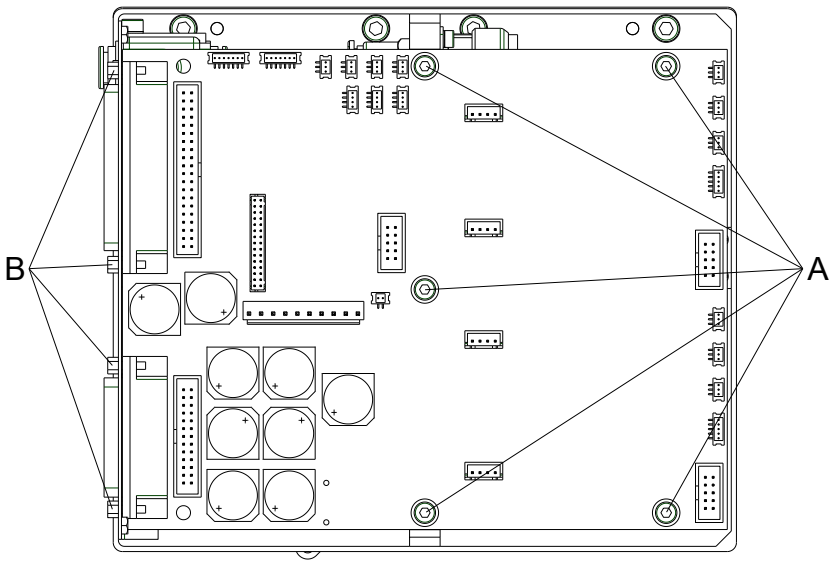


Figure 23

Remove the motor circuit board

1. Remove the connecting cable between the 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 the screws (A).
5. Remove the hexagonal bolt (B) at the plug connectors.
6. Remove the motor circuit board.

Install the 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 the control unit and print mechanics.

NOTICE!

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

9 Print Mechanics (Replacing Components)

9.1 Pneumatic Valve

DANGER!

Danger of injury by causing a short-circuit.

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

⇒ Use isolated tools.

⇒ Do not touch the components connected with mass.

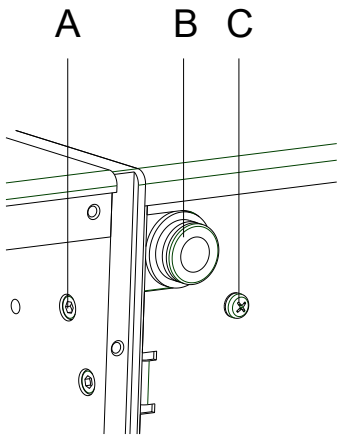


Figure 24

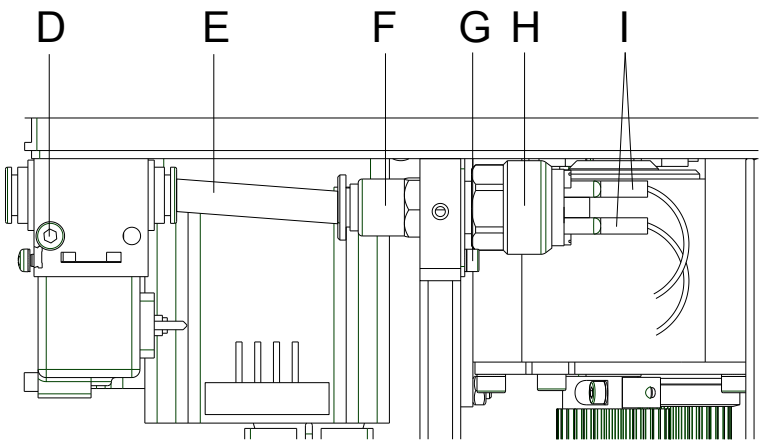


Figure 25

Remove the pneumatic valve

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

Install the pneumatic valve

1. Install the new pneumatic valve with the screw (D) at the aluminium fastener.
2. Insert the tube item at the bottom side of valve.
3. Install the pressure switch unit.
4. Fix the tube item (E) at the plug-in connection of pneumatic valve (B).
5. Tighten the 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 voltage potential of 5V.

⇒ Use isolated tools.

⇒ Do not touch the components connected with mass.

Remove the pressure switch

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

Install 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 the tube item (E) at the plug-in connection of pneumatic valve (B).
5. Tighten the 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 the 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 the manometer a value smaller 2 bar, then value 'P' must be again set to 0. Adjust finely again if necessary.

9.3 Encoder

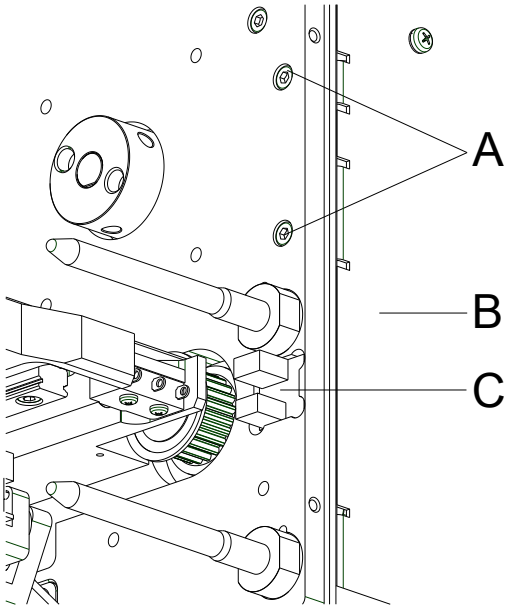


Figure 26

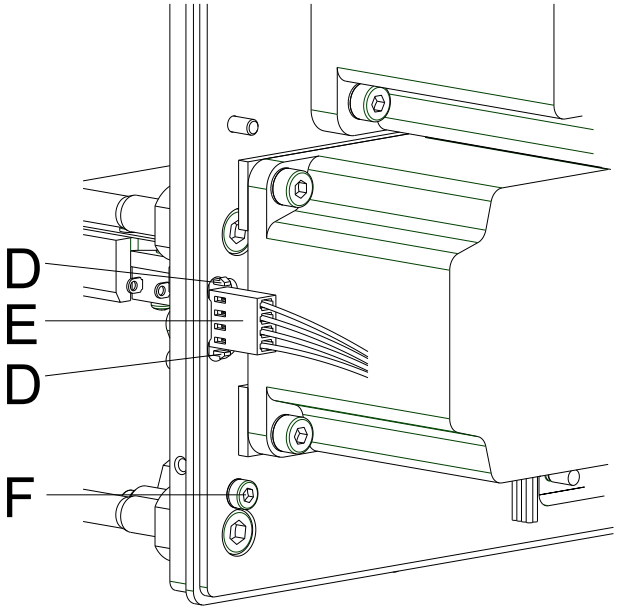


Figure 27

Remove the encoder

1. Remove the connecting cable between the control unit and print mechanics.
2. Loosen the side screws and remove the mechanics housing at the rear.
3. Remove the hexagon bolt at the plugs (see chapter 8.3, page 38).
4. Remove the screws (A + F) and the screw at the valve holder (see chapter 9.1, page 39).
5. Remove the connection plate (B).
6. Unplug the connector assembly (E).
7. Press the engagement hook (D) of the encoder (C) inwards and push the encoder forwards on the aluminium plate.

Install the encoder

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

9.4 Limit Switch

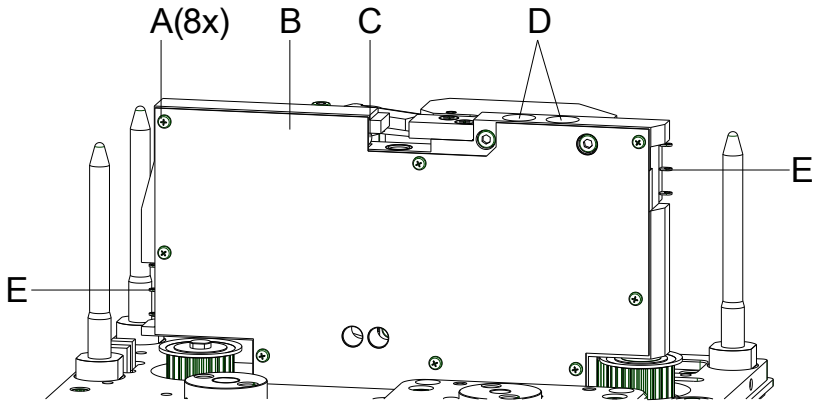


Figure 28

Remove the limit switch

1. Loosen the side screws and remove the mechanics housing at the rear.
2. Remove the screws (A) of the cover plate (B). The limit switches (E) are on the bottom side of the 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.

Install the limit switch

1. Install the new limit switch.
2. Insert the connecting lines at the motor plate.
3. Tighten the screws of the limit switch.
4. Tighten the screws (A) of the 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

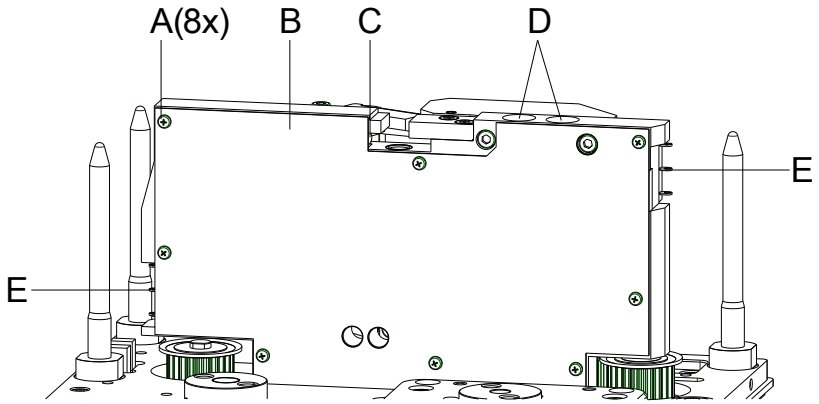


Figure 29

Remove 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.

Install 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

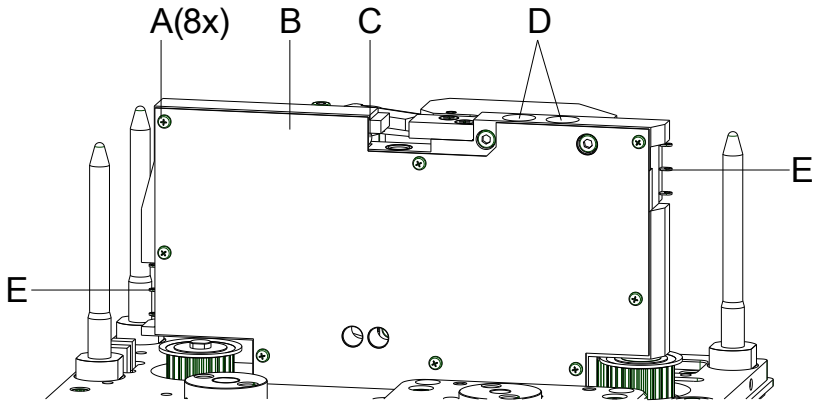


Figure 30

Remove the LEDs

1. Loosen the side screws and remove the mechanics housing at the rear.
2. Remove the screws (A) of the 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 aluminum plate.
5. Press out backwards the LED (D) from the support.

Install the LEDs

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

Error message	Cause	Remedy
14 Field number	Received line number is invalid.	Check sent data. Check connection PC - printer.
15 Length mask	Invalid length of received mask statement.	Check sent data. Check connection PC - printer.
16 Unknown mask	Transferred mask statement is invalid.	Check sent data. Check connection PC - printer.
17 Missing ETB	No end of data found.	Check sent data. Check connection PC - printer.
18 Invalid character	One res. several characters of the bar code is res. are not valid.	Change bar code data. Change font.
19 Invalid statement	Unknown transferred data record.	Check sent data. Check connection PC - printer.
20 Invalid check digit	For check digit control the entered res. received check digit is wrong.	Calculate check digit anew. Check code data.
21 Invalid SC code	Selected SC factor is invalid for EAN res. UPC.	Check SC factor.
22 Invalid number of digits	Entered digits for EAN res. UPC are invalid < 12; > 13.	Check number of digits.
23 Type check digit	Selected check digit calculation is not available in the bar code.	Check calculation of check digit. Check bar code type.
24 Invalid extension	Selected zoom factor is not available.	Check zoom factor.
25 Offset sign	Entered sign is not available.	Check offset value.
26 Offset value	Entered offset value is invalid.	Check offset value.
27 Printhead temperature	Printhead temperature is too high. Defective printhead sensing device.	Reduce contrast. Change printhead.

Error message	Cause	Remedy
28 Cutter error	With cut an error occurred. Paper jam.	Check label run. Check cutter run.
29 Invalid parameter	Entered data do not correspond to the characters allowed from the application identifier.	Check code data.
30 Application Identifier	Selected application identifier is not available in GS1-128.	Check code data.
31 HIBC definition	Missing HIBC system sign. Missing primary code.	Check definition of HIBC code.
32 System clock	Real Time Clock function is selected but the battery is empty. Defective RTC.	Change battery. Change RTC component.
33 No CF interface	Interrupted connection CPU - CF card. Defective CF card interface.	Check connection CPU - CF card interface. Check CF card interface.
34 No print memory	Not enough print memory available.	Check CF assembly on CPU.
35 Printhead open	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.

Error message	Cause	Remedy
42 Drive error	Impossible to read CF card (faulty).	Check CF card, if necessary change it.
43 Unformatted	CF Card not formatted.	Format CF card.
44 Delete directory	Attempt to delete the actual directory.	Change directory.
45 Invalid path	Too long indication of path.	Indicate a shorter path.
46 Drive write-protected	Memory card is write-protected.	Deactivate write protection.
47 Directory not file	Attempt to indicate a directory as file name.	Correct your entry.
48 File already open	Attempt to change a file during an access is active.	Select another file.
49 No file/directory	File does not exist on CF card.	Check file name.
50 Invalid file name	File name contains invalid characters.	Correct entry of name, remove special characters.
51 Internal file error	Internal file system error.	Please contact your distributor.
52 Root full	The max. number (64) of main directory entries is reached.	Delete at least one main directory entry and create subdirectories.
53 Drive full	Maximum CF capacity is reached.	Use new CF Card, delete no longer required files.
54 File/directory exists	The selected file/directory already exists.	Check name, select a different name.
55 File too large	During copying procedure not enough memory space onto target drive available.	Use a larger target card.
56 No update file	Errors in update file of firmware.	Start update file anew.
57 Invalid graphic file	The selected file does not contain graphic data.	Check file name.

Error message	Cause	Remedy
58 Directory not empty	Attempt to delete a not empty directory.	Delete all files and sub-directories in the desired directory.
59 No CF interface	No CF card drive found.	Check connection of CF card drive. Contact your distributor
60 No media	No CF card is inserted.	Insert CF card in the slot.
61 Webserver error	Error at start of web server.	Please contact your distributor.
62 Wrong PH FPGA	The direct print module is equipped with the wrong FPGA.	Please contact your distributor.
63 End position	The label length is too long. The number of labels per cycle is too much.	Check label length res. the number of labels per cycle.
64 Zero point	Defective photocell.	Change photocell.
65 Compressed air	Pressure air is not connected.	Check pressure air.
66 External release	External print release signal is missing.	Check input signal.
67 Column too wide	Wrong definition of column width res. number of columns.	Reduce the column width res. correct the number of columns.
68 Scanner	The connected bar code scanner signals a device error.	Check the connection scanner/printer. Check scanner (dirty).
69 Scanner NoRead	Bad print quality. Printhead completely soiled or defective. Print speed too high.	Increase contrast. Clean printhead or replace (if necessary). Reduce print speed.
70 Scanner data	Scanned data does not correspond to the data which is to print.	Replace printhead.
71 Invalid page	As page number either 0 or a number > 9 is selected.	Select a number between 1 and 9.

Error message	Cause	Remedy
72 Page selection	A page which is not available is selected.	Check the defined pages.
73 Undefined page	The page is not defined.	Check the print definition.
74 Format user guiding	Wrong format for customized entry.	Check the format string.
75 Format date/time	Wrong format for date/time.	Check the format string.
76 Hotstart CF	No CF card found.	If option hotstart was activated, a CF card must be inserted. Switch off the printer before inserting the memory card.
77 Flip/Rotate	Selection of print of several columns and also mirror/rotate.	It is only possible to select one of both functions.
78 System file	Loading of temporary hotstart files.	Not possible.
79 Shift variable	Faulty definition of shift times (overlapping times).	Check definition of shift times.
80 GS1 Databar	General GS1 Databar error.	Check definition and parameter of GS1 Databar code.
81 IGP error	Protocol error IGP.	Check sent data.
82 Time generation	Printing creation was still active at print start.	Reduce print speed. Use printers' output signal for synchronization. Use bitmap fonts to reduce generating time.
83 Transport protection	Both DPM position sensors (start/end) are active.	Displace zero point sensor Check sensors in service functions menu
84 No font data	Font and web data is missing.	Run a software update.
85 No layout ID	Layout ID definition is missing.	Define layout ID onto the label.
86 Layout ID	Scanned data does not correspond to defined ID.	Wrong label loaded from CF card.
87 RFID no label	RFID unit cannot recognize a label.	Displace RFID unit or use an offset.
88 RFID verify	Error while checking programmed data.	Faulty RFID label. Check RFID definitions

Error message	Cause	Remedy
89 RFID timeout	Error at programming the RFID label.	Label positioning. Faulty label.
90 RFID data	Faulty or incomplete definition of RFID data.	Check RFID data definitions.
91 RFID tag type	Definition of label data does not correspond with the used label.	Check storage partitioning of used label type
92 RFID lock	Error at programming the RFID label (locked fields).	Check RFID data definitions. Label was already programmed.
93 RFID programming	Error at programming the RFID label.	Check RFID definitions.
94 Scanner timeout	The scanner could not read the bar code within the set timeout time. Defective printhead. Wrinkles in transfer ribbon. Scanner wrong positioned. Timeout time too short.	 Check printhead. Check transfer ribbon. Position scanner correctly, corresponding to the set feeding. Select longer timeout time.
95 Scanner layout difference	Scanner data does not correspond to bar code data.	Check adjustment of scanner. Check scanner settings / connection.
96 COM break	Serial interface error.	Check settings for serial data transmission as well as cable (printer-PC).
97 COM general	Serial interface error.	Check settings for serial data transmission as well as cable (printer-PC).
98 No software printhead FPGA	No printhead-FPGA data available.	Please contact your responsible distributor.
99 Load software printhead FPGA	Error when programming printhead-FPGA.	Please contact your responsible distributor.
100 Upper position	Option applicator Sensor signal up is missing.	Check input signals / compressed-air supply.
101 Lower position	Option applicator Sensor signal down is missing.	Check input signals / compressed-air supply.

Error message	Cause	Remedy
102 Vacuum plate empty	Option applicator Sensor does not recognize a label at vacuum plate.	Check input signals / compressed-air supply.
103 Start signal	Print order is active but device not ready to process it.	Check start signal.
104 No print data	Print data outside the defined label. Selection of wrong module type (design software).	Check selected module type. Check selection of left/right version.
105 Printhead	No original printhead is used.	Check the used printhead. Contact your distributor.
106 Invalid Tag type	Wrong Tag type. Tad data do not match the Tag type in the printer.	Adapt data or use the correct Tag type.
107 RFID inactive	RFID module is not activated. No RFID data can be processed.	Activate RFID module or remove RFID data from label data.
108 GS1-128 invalid	Transferred GS1-128 bar code is invalid.	Verify bar code data (see GS1-128 bar code specification).
109 EPC parameter	Error at EPC calculation.	Verify data (see EPC specification).
110 Housing open	When starting the print order the housing cover is not closed.	Close the housing cover and start the print order anew.
111 EAN.UCC code	Transferred EAN.UCC code is invalid.	Verify bar code data (see corresponding specification).
112 Print carriage	Printing carriage does not move.	Check gear belt (possibly broken).
113 Applicator error	Option applicator Error while using applicator.	Check applicator.
114 Left position	Option applicator Left final position switch is not in correct position.	Check LEFT final position switch for correct function and position. Check function of pneumatics for cross traverse.
115 Right position	Option applicator Right final position switch is not in correct position.	Check RIGHT final position switch for correct function and position. Check function of pneumatics for cross traverse.

Error message	Cause	Remedy
116 Print position	Option applicator: The applicator is not in the print position when trying to print a label.	Check TOP and RIGHT final position switch for correct function and position. Check pneumatics for function
117 XML parameter	The parameters in the XML file are not correct.	Please contact your responsible distributor.
118 Invalid variable	Transferred variable is invalid with customized entry.	Select correct variable without customized entry and transfer it.
119 No ribbon	During the print order the ribbon roll becomes empty. Defect at the transfer ribbon photocell.	Change transfer ribbon. Check transfer ribbon photocell (service functions).
120 Wrong directory	Invalid target directory when copying.	Target directory must not be within the source directory. Check target directory.
121 No label PH2	No label found at the rear printhead (DuoPrint). Soiled label photocell. Labels not inserted correctly.	Insert new label roll. Clean the label photocell. Check if labels are inserted correctly.
122 IP occupied	The IP address was already assigned.	Assign a new IP address.
123 Print asynchronous	The label photocell do not work in the order as it is expected according to print data. The settings of the photocell are not correct. Settings of label size and gap size are not correct. No label found at the rear printhead. Soiled label photocell. Labels not inserted correctly.	Check label size and gap size. Check label photocell settings. Check correct loading of label material. Insert new label roll. Clean the label photocell. Check if labels are inserted correctly.
124 Speed too low	Print speed is too slow.	Increase the speed of customers' machine.
125 DMA buffer	Communication problem HMI.	Restart the printer.
126 UID conflict	Configuration RFID programming faulty.	Run RFID initialising.

Error message	Cause	Remedy
127 Module not found	RFID module not available.	Check the RFID module connection. Please contact your responsible distributor.
128 No release signal	No print release by higher-level control (customer machine).	Activate release signal at the higher-level control.
129 Wrong firmware	Firmware does not match the used printer type.	Use firmware that fits to the printer type. Please contact your responsible distributor.
130 Language missing	Language file for the set printer language is not available.	Please contact your responsible distributor.
131 Wrong material	Label material does not fit to printing data.	User label material with suitable label and/or gap length.
132 Invalid mark-up tag	Invalid mark-up formatting characters in text.	Correct the formatting characters in the text.
133 Script not found	LUA script file not found.	Check the file name.
134 Script failure	LUA script is incorrect.	Check the script.
135 Script user error	Error in LUA script user input.	Correct the input value.
136 No reprint available	No label data for reprinting available.	Send new label data to the printer.
137 Printhead short circuit	Electrical short at the printhead.	Check the used printhead. Please contact your distributor.
138 Too less ribbon	Transfer ribbon ends.	Change transfer ribbon.
139 Hardware error	A hardware component could not be found.	Please contact your responsible distributor.

11 Control Inputs and Outputs

By means of a maximum of 16 control inputs and outputs which, in the following, are also referred to as ports, different functions of the printer system can be triggered and operating states can be displayed.

The ports are provided by means of a D-Sub bushing (26pin HD) at the rear panel of the printer system and are galvanically isolated from protective earth (PE) by means of an optocoupler semi-conductor route.

Each port can be configured as input and as output. This function however, is predefined in the printer software and cannot be changed by the user.
The following parameters can be changed and set by using the menu: debounce times and high or low active.

Printer internal circuit

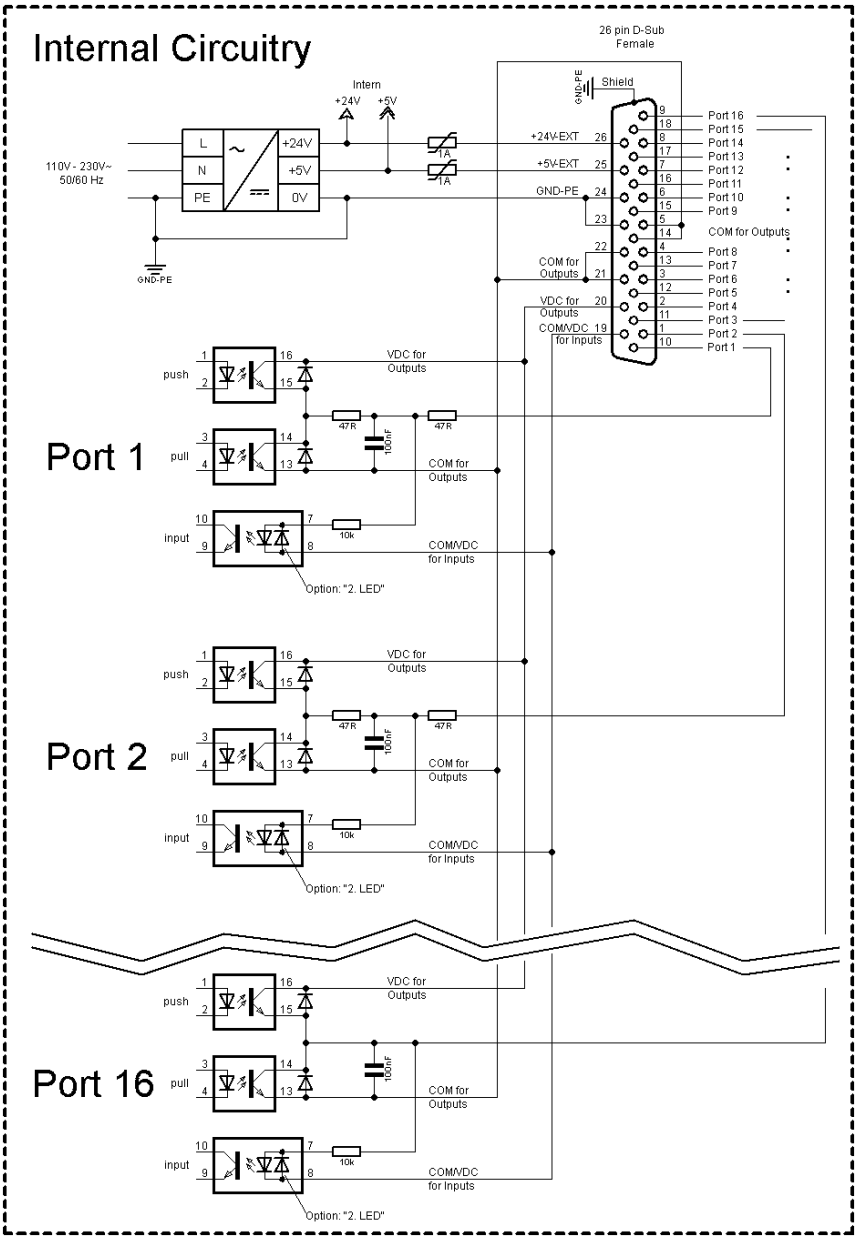


Figure 31

Configuration of D-Sub socket

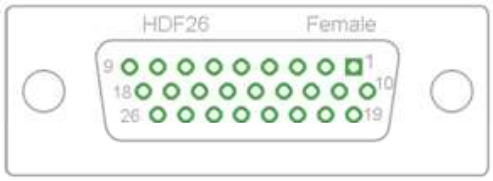


Figure 32

Cable identification

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

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

Port	Pin	Description / Function
1 (Input)	10	Print start
2 (Input)	1	No function
3 (Input)	11	Counter reset
4 (Input)	2	No function
5 (Input)	12	Error reset
6 (Input)	3	No function
7 (Input)	13	No function
8 (Input)	4	No function
9 (Output)	15	Error
10 (Output)	6	No function
11 (Output)	16	No function
12 (Output)	7	Printing
13 (Output)	17	Ready
14 (Output)	8	No function
15 (Output)	18	Return printing carriage
16 (Output)	9	Transfer ribbon prior warning
COM/VDC for Inputs	19	Common reference potential of all control inputs. 'COM/VDC for Inputs' is usually connected with the (-) terminal of the control voltage and the control inputs are switched to active (+). By means of the option '2nd LED', 'COM/VDC for Inputs' can optionally be connected with the (+) terminal of the control voltage. Then, the control inputs are switched to active (-).
VDC for Outputs	20	Common supply connection of all control outputs. 'VDC for Outputs' must be connected with the (+) terminal of the control voltage. Never leave 'VDC for Outputs' open even if no output is used.
COM for Outputs	5,14 21,22	Common reference potential of all control outputs. 'COM for Outputs' must be connected with the (-) terminal of the control voltage. Never leave 'COM for Outputs' open even if no output is used.
GND-PE	23,24	'GND-PE' is the reference potential of the '+5 VDC EXT' and '+24 VDC EXT' voltages provided by the printer system. 'GND-PE' is printer internally connected with protective earth (PE).

Port	Pin	Description / Function
+ 5 VDC EXT	25	5 Volt DC output for external use. Max. 1 A. This voltage is provided from direct print module and can be used e.g. as control voltage. Never apply any external voltage to this output.
+ 24 VDC EXT	26	24 Volt DC output for external use. Max. 1 A. This voltage is provided from direct print module and can be used e.g. as control voltage. Never apply any external voltage to this output.

Technical data

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

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

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

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

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

The files must start with 1 or 2 digits (1_Etikett.prn, 02_Etikett.prn).

The files can be saved with a file extension.

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

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

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

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

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

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

Technical data

Plug Connector	
Type	D-Sub connector High Density 26-pin. / connector
Manufacturer	W+P-Products
Reference number	110-26-2-1-20
Output Voltages (connected with GND-PE)	
+ 24 V / 1 A	Fuse: Polyswitch / 30 V / 1 A
+ 5 V / 1 A	Fuse: Polyswitch / 30 V / 1 A
Port 1 - 15	
Input	
Voltage	5 VDC … 24 VDC
Impedance	47Ω + (100nF || 10 kΩ)
Output	
Voltage	5 VDC … 24 VDC
Impedance	47Ω + (100nF || 10 kΩ || 47Ω)
Current max.	High +15 mA Low -15 mA
Port 16	
Input	
Voltage	5 VDC … 24 VDC
Impedance	100nF || 10 kΩ
Output	
Voltage	5 VDC … 24 VDC
Impedance	100nF || 10 kΩ
Current max.	High +500 mA (Darlington BCP56-16) Low - 500 mA (Darlington BCP56-16)
Optocoupler	
Output	TCMT4106, CTR 100 % - 300 %, Vishay or TLP281-4(GB), CTR 100 % - 600 %, Toshiba
Input	TCMT4106, CTR 100 % - 300 %, Vishay or TLP281-4(GB), CTR 100 % - 600 %, Toshiba
Input Option 2nd LED	TCMT4600, CTR 80 % - 300 %, Vishay or TLP280-4, CTR 33 % - 300 %, Toshiba

Example 1

Device connection to a machine with S7-300 SPS.

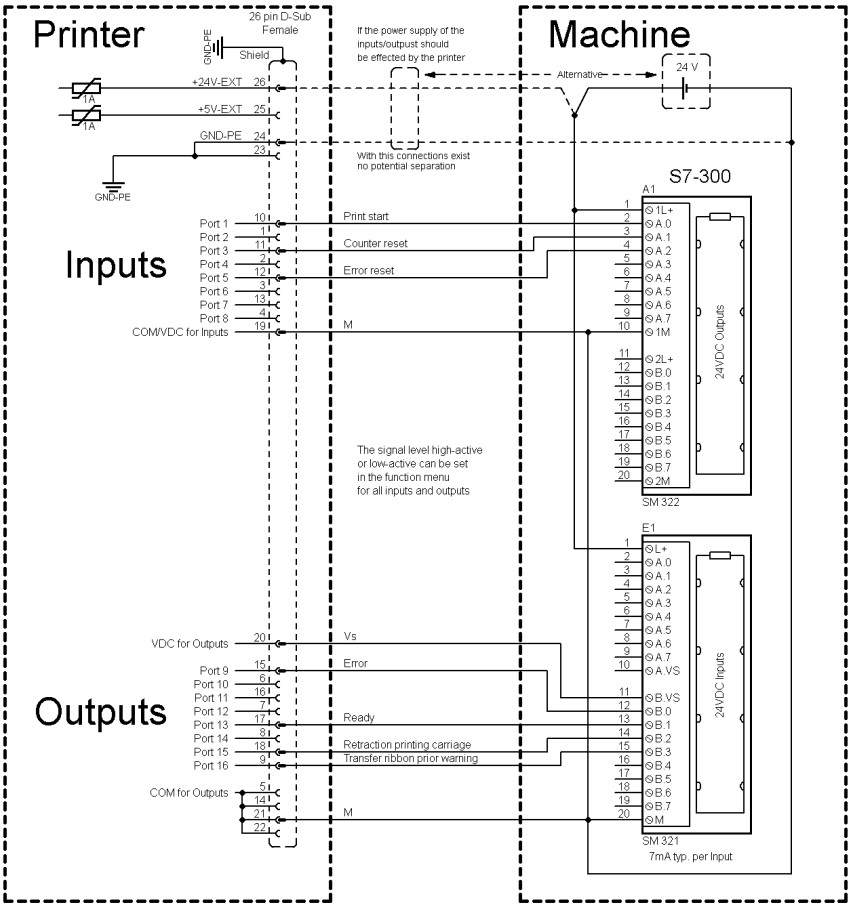


Figure 33

Example 2

Device connection to a operating panel.

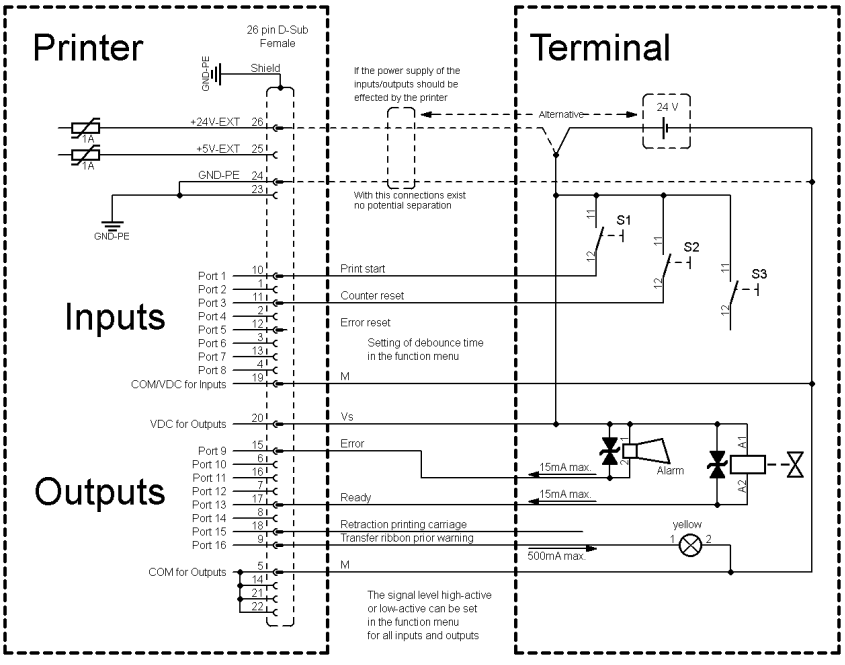


Figure 34

Example 3

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

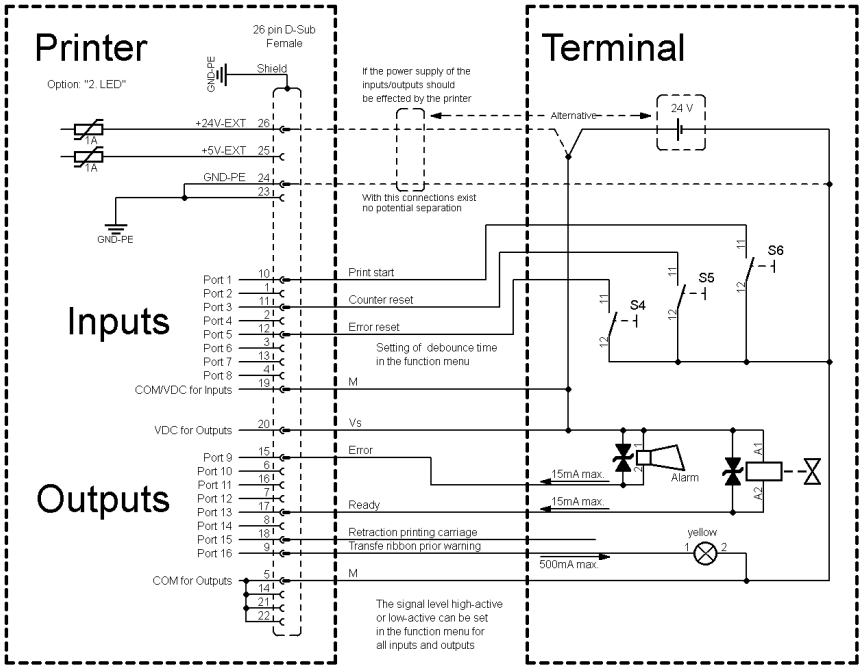


Figure 35

Precautions

When connecting a reed contact with a control input, the contact must have a switching capacity of min. 1 A in order to prevent the contact from sticking due to the inrush current. As an alternative, a suitable resistor can be connected in series.

If one of the printer's internal voltages '+5 VDC EXT' or '+24 VDC EXT' is used, an external fuse e.g. 0.5 AF, should be additionally installed to protect the printer electronics.

In the event of an inductive load, an antiparallel connected diode, for instance, must be used to discharge the induction energy.

In order to minimize the influence of leakage currents at control outputs, a resistor must, depending on what is connected, be installed in parallel with the load.

In order to avoid any damages to the printing system, the max. output currents must not be exceeded or outputs shorted.

12 Wiring Plans

12.1 Control Unit

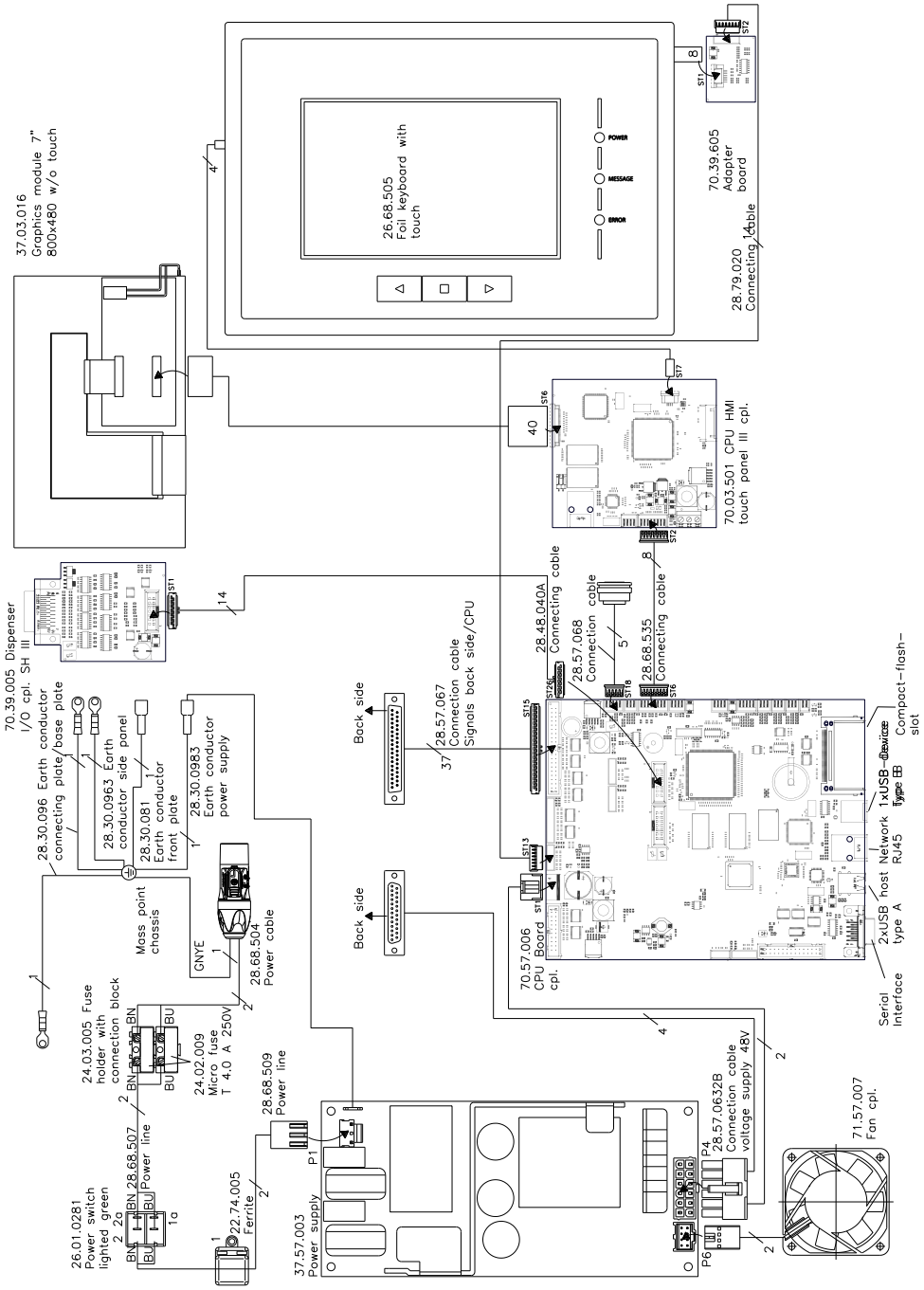


Figure 36

12.2 Print Mechanics Dynacode II IP53

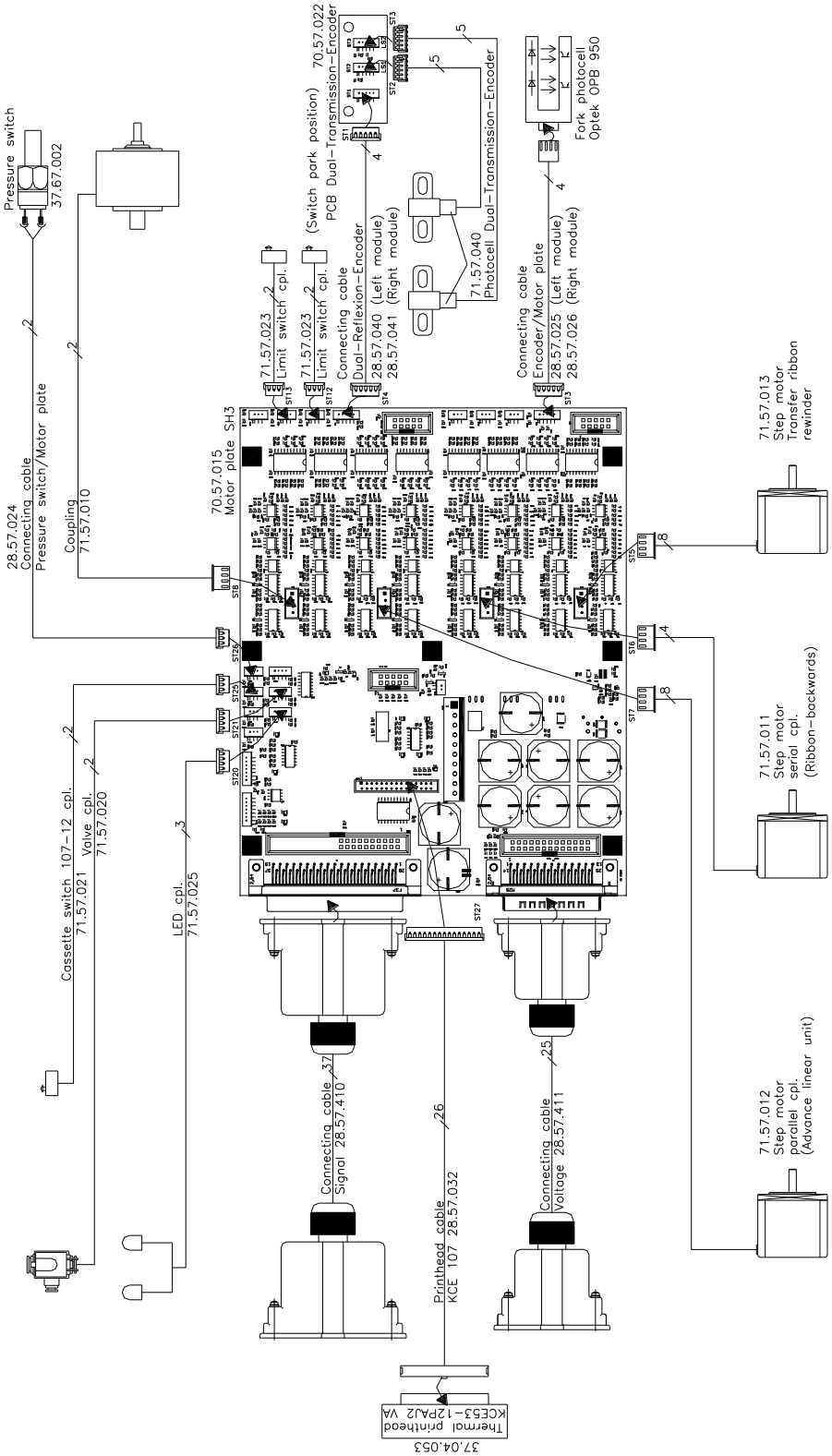


Figure 37

12.3 Print Mechanics Dynacode II IP107

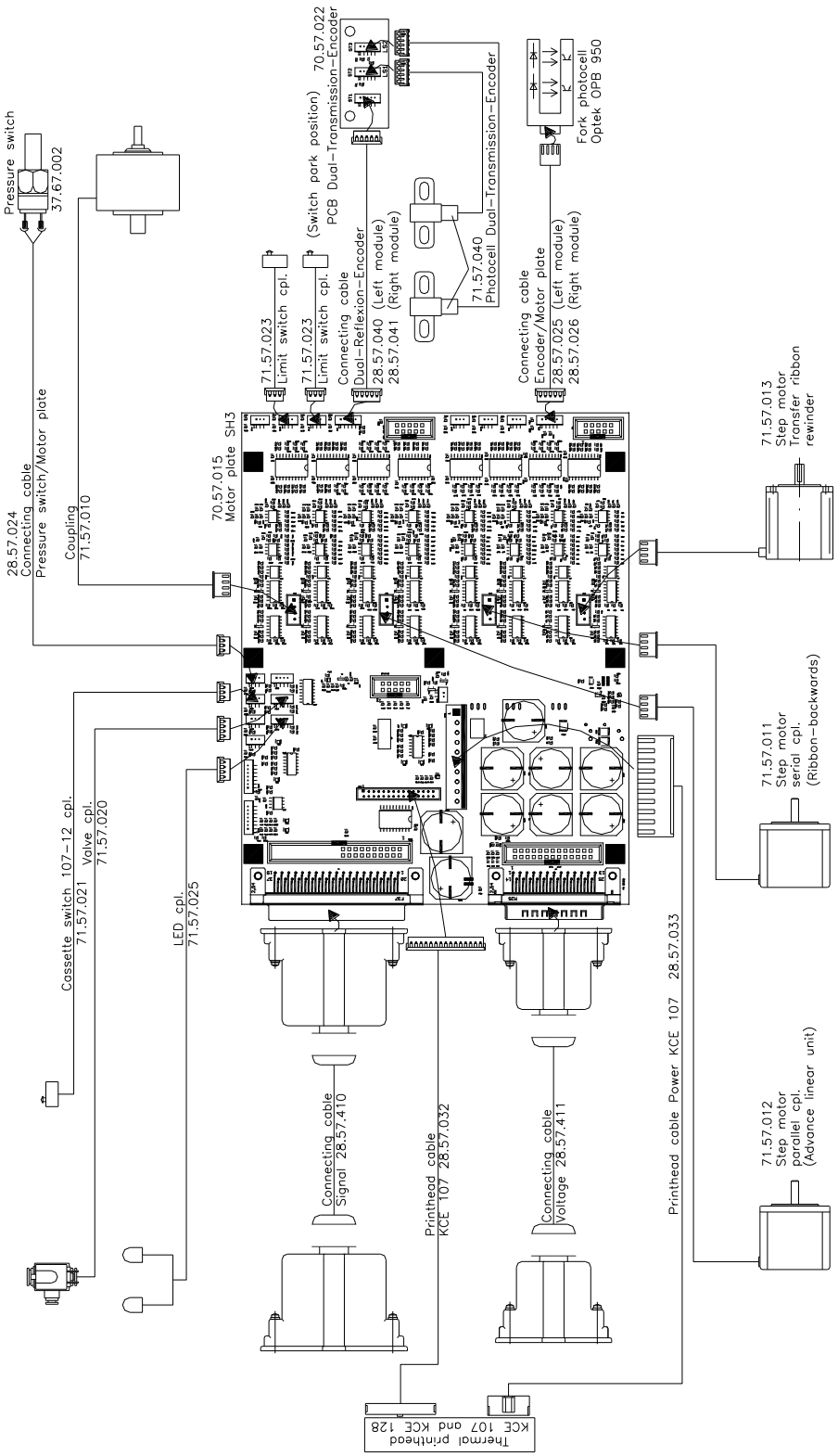


Figure 38

12.4 Print Mechanics Dynacode II IP128

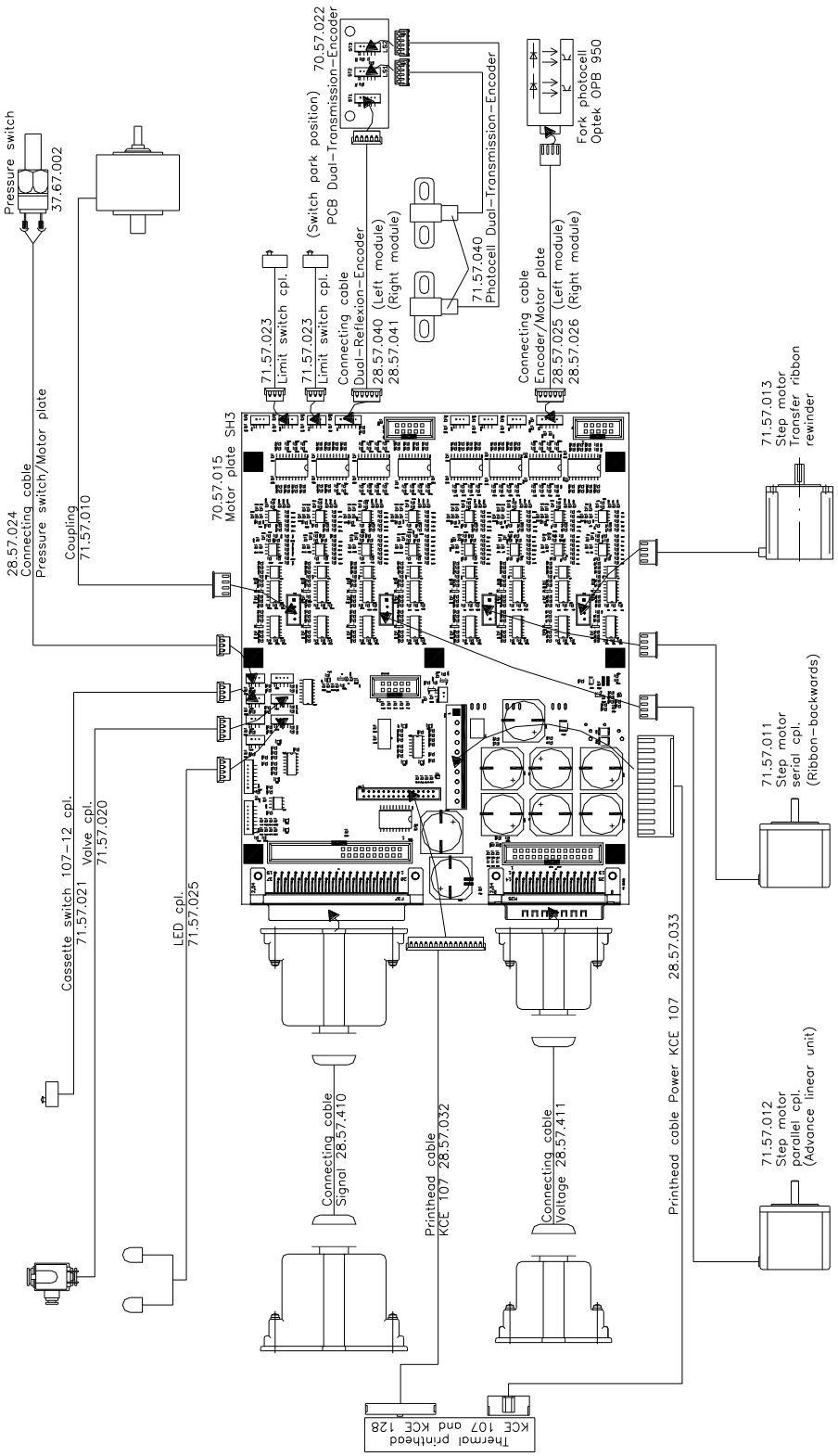


Figure 39

13 Layout Diagrams

13.1 CPU

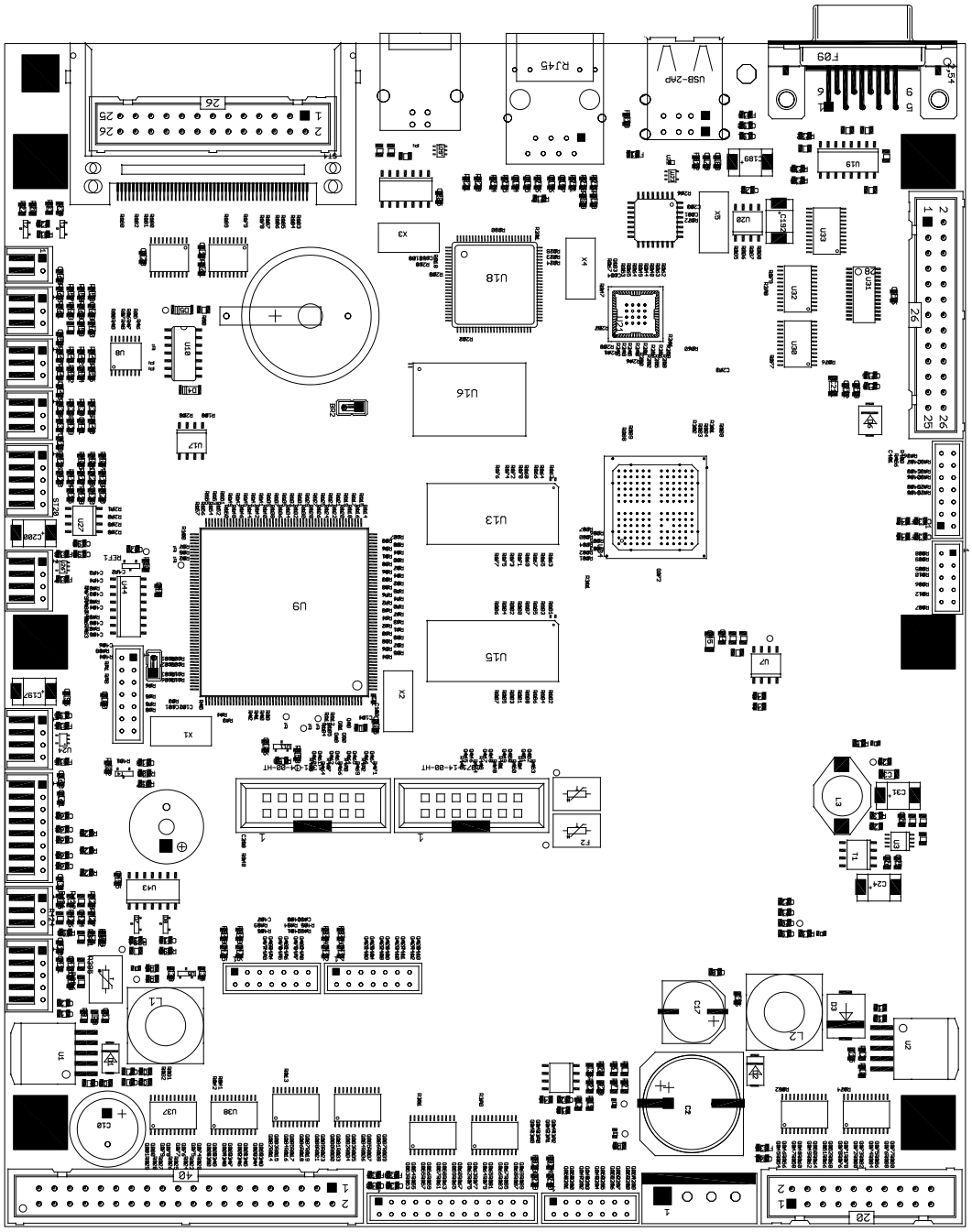


Figure 40

Jumper plan

JP1	gesteckt
JP2	offen

13.2 Power Supply Unit

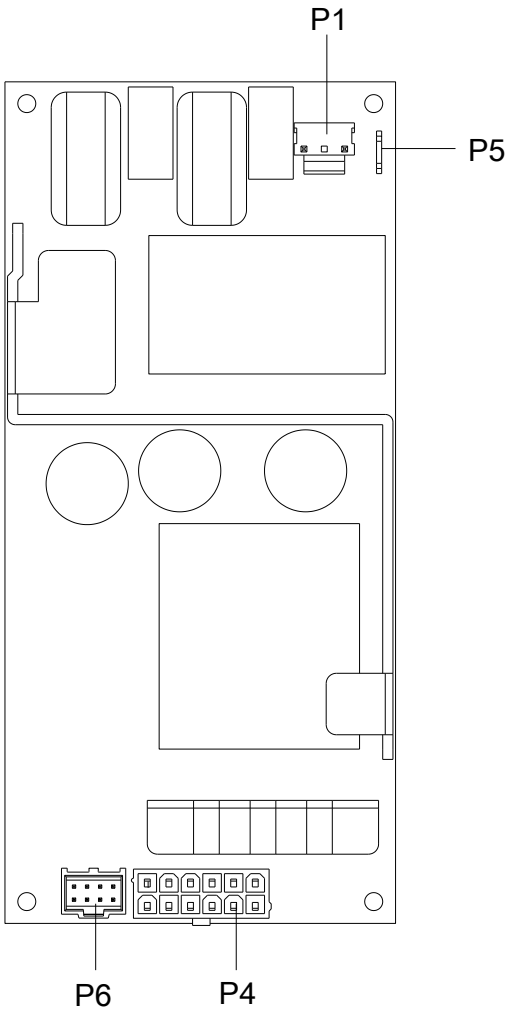


Figure 41

P1	100-240 VAC input
P4	48V output
P5	Protective conductor connection
P6	Fan

13.3 Motor Plate

Top face

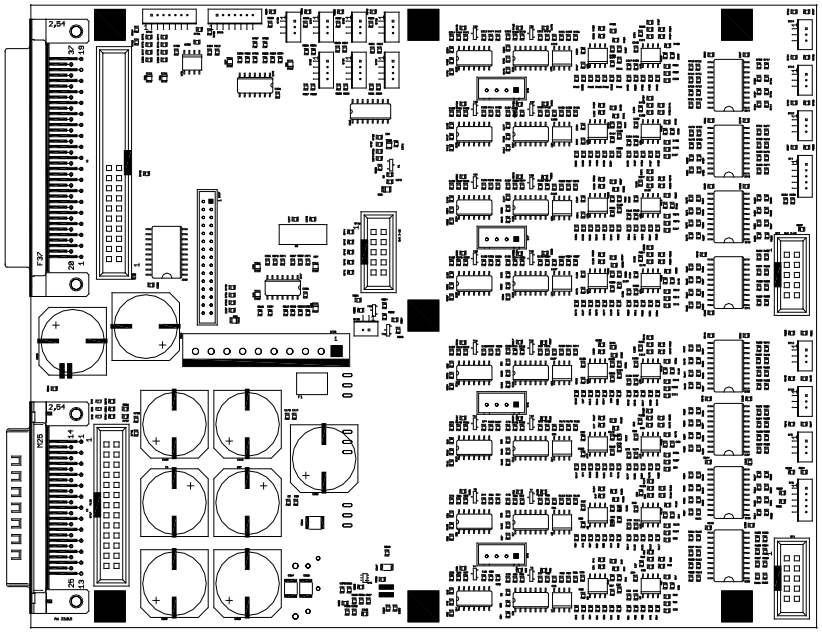


Figure 42

Bottom side

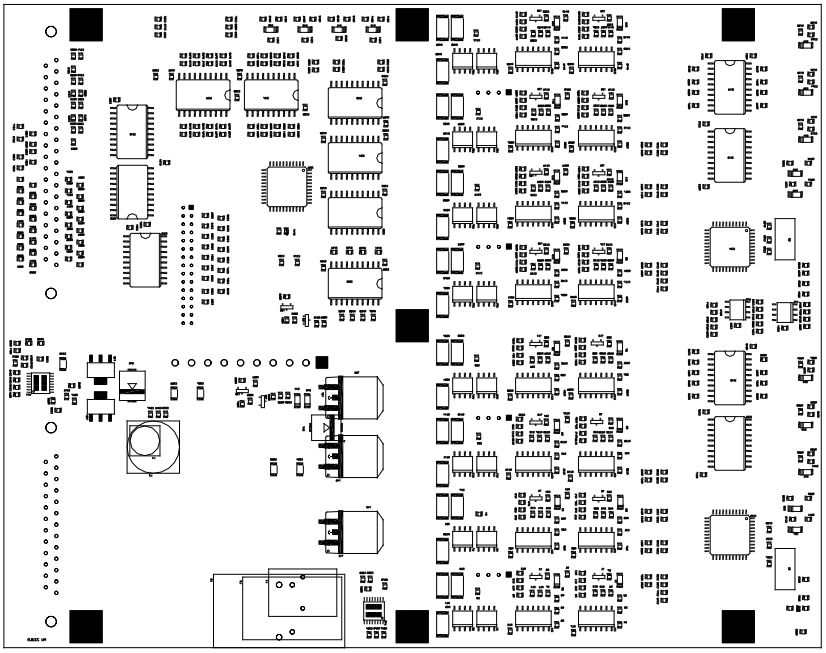


Figure 43

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

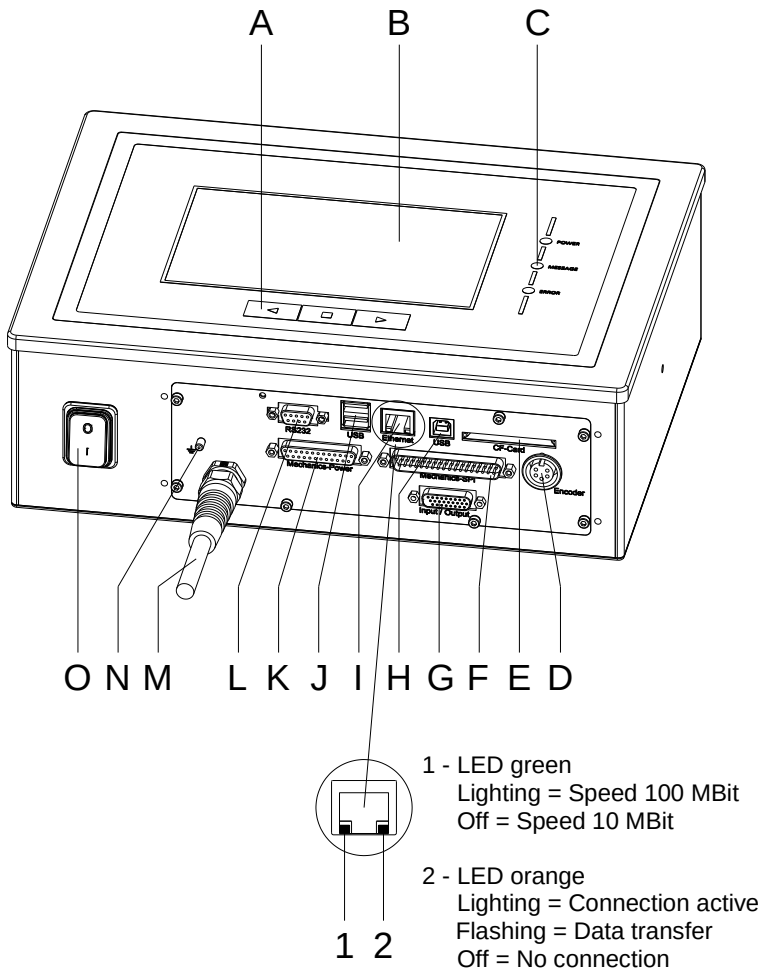


Figure 44

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

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