



Cutter

CU Series

Made in Germany

Edition: 03/2016 - **Part No.** 9008900

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Topicality

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1.1 Instructions

Important information and instructions in this documentation are designated as follows:



Danger!

Draws your attention to an exceptionally grave, impending danger to your health or life.



Warning!

Indicates a hazardous situation that could lead to injuries or material damage.



Attention!

Draws attention to possible dangers, material damage or loss of quality.



Notice!

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



Environment!

Gives you tips on protecting the environment.



Handling instruction



Reference to section, position, illustration number or document.



Option (accessories, peripheral equipment, special fittings).

Time Information in the display.

1.2 Intended Use

- The device is intended exclusively as an option for the printers of the A+, XC and XD series for cutting suitable materials that have been approved by the manufacturer. Any other use or use going beyond this shall be regarded as improper use. The manufacturer/supplier shall not be liable for damage resulting from unauthorized use; the user shall bear the risk alone.
- Usage for the intended purpose also includes complying with the operating manual, including the manufacturer's maintenance recommendations and specifications.
- The device is manufactured in accordance with the current technological status and the recognized safety rules. However, danger to the life and limb of the user or third parties and/or damage to the device and other tangible assets can arise during use.
- The device may only be used for its intended purpose and if it is in perfect working order, and it must be used with regard to safety and dangers as stated in the operating manual.



Notice!

All documentations can also currently be found in the Internet.

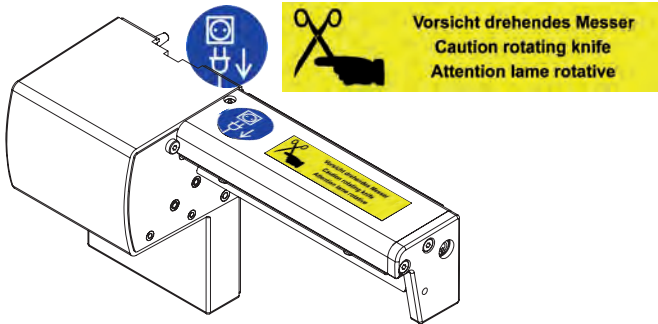


Warning!

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

1.3 Safety Instructions

- Disconnect the printer from the electrical outlet before mounting or removing the cutter.
- The cutter may only be operated when it is mounted on the printer.
- Risk of injury, particularly during maintenance, the cutter blades are sharp.



- Work going beyond this may only be performed by trained personnel or service technicians.
- Unauthorized interference with electronic modules or their software can cause malfunctions. Other unauthorized work on or modifications to the device can also 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.
- Warning stickers must not be removed, as then you and other people cannot be aware of dangers and may be injured.

1.4 Environment



Obsolete devices contain valuable recyclable materials that should be sent for recycling.

- ▶ Send to suitable collection points, separately from residual waste.

The modular construction of the printer enables it to be easily disassembled into its component parts.

- ▶ Send the parts for recycling.
- ▶ Take the electronic circuit boards to public waste disposal centers or to the distributor.

1.5 Technical Data

Standard cutter		CU2	CU4		CU6	CU8
		5948382	5948000		5948001	5948002
Cutter with peripheral interface *		CU2-I	CU4-I		CU6-I	CU8-I
		5948897	5948899		5948890	5948896
for printer type		A2+	A4+	A4+M, A4+T, XD4T, XC4	A6+, XC6	A8+
Material width max.	mm	67	120	110	18	232
Material weight cardboard	g/m ²	60 - 500				
Material thickness	mm	0,05 - 0,8				
Cutting length	mm	> 5				
Gap height	mm	2,5				
Cut frequency	1/min	130	120		110	100
Power supply		peripheral connector of the printer				

* Interface for trigger switch or external control

**Attention!**

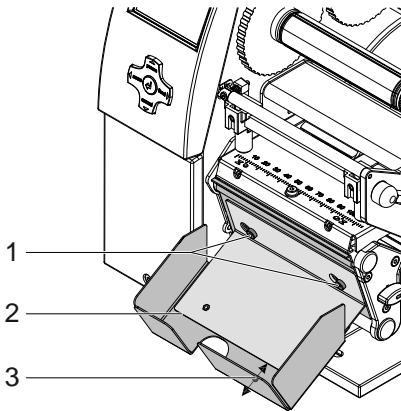
The minimum cut length is depending on the media, in particular its adhesive characteristics. Perform preliminary tests. Test the media too, if the media is very hard, very flexible or very thin.

The cutters have a durability of more than 500,000 cuts. Depending on the type of the cut material the blades could wear earlier and have to be replaced. Used blades are not designed to be grinded again.

An optional Cutter Tray is available for the Cutters CU4 and CU4-I.

Cutter Tray 4		5946995
for printer type		A4+
for cutter		CU4, CU4-I
Material width max.	mm	120
Cutting length max.	mm	100
Stack height	mm	36

2.1 Mounting the Cutter Tray



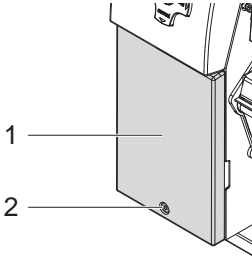
1. Loosen the screws (1).
2. Place the cutter tray (2) on the screws (1) in front of the tear-off plate or the dispense plate and slide it to the left until it stops.
3. Tighten the screws (1).
4. Adjust the length of the cutter tray (2) may by moving the slide (3).

2.2 Mounting the Cutter



Attention!

- ▶ Disconnect the printer from the electrical outlet before mounting or removing the cutter.

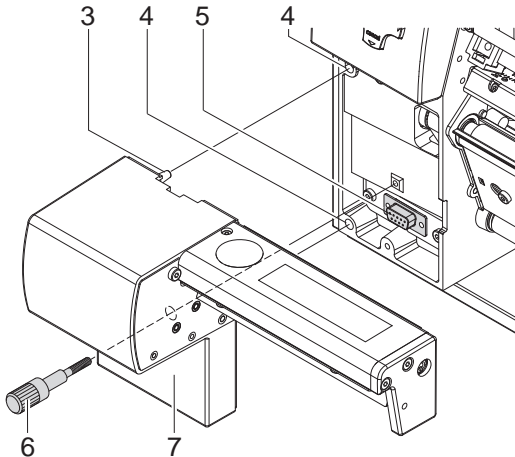


1. Loosen the screw (2).
2. Remove the front cover (1).



Attention!

For cutter operation with A+ printer there has to be mounted a tear-off plate or a dispense plate on the printer, to lead the material through the blades of the cutter.



3. Insert the pins (3) of the cutter (7) into the holes (4) of the printer.
4. Press the cutter against the printer. That way the plug of the cutter will be connected to the peripheral port (5) of the printer.
5. Secure the cutter (7) with the screw (6).

Once the cutter is connected to the printer, the printer will automatically recognize it on turn on.


The printer can be configured to suit the individual requirements of cut mode in the „Setup“ menu. When the cutter is installed, the „Cutter“ menu will appear.





Notice!

For detailed instructions for configuration ▶ **Configuration Manual of the printer.**

For setting the cutter parameters select

Setup  -> Machine param.  -> Cutter .

Parameter	Meaning	Default
 Cutter	Configuration of the cutter	
 > Cut position	Offset of the cut position relative to the printed image Cut position with the initial offset value of "0" causes to cut in the middle of the gap between two labels. If the cut position value is positive, the media will be advanced before it is cut, that means the distance between the cut edge and the rear edge of the label increases.	0







Notice!

The values of the setup are basic settings for the actual combination printer/cutter. After changing the cutter or printer a re-adjustment may be necessary.

Changes required for processing different print jobs should be implemented additional offsets available in the software.

The offset values from setup and software are added together for execution.

Under Setup  -> Print parameters  the method for recognizing the material and the method of backfeed when using cut mode can be selected.

Parameter	Meaning	Default
 Label sensor	<p>Method for detecting the starting end of the label.</p> <p>Gap Sensor: Detection using changes in the transparency between the label and label gap.</p> <p>Bottom-Reflect: Detection using reflex marks on the bottom of the medium.</p> <p>Continuos media: Synchronization of the paper feed when using endless media in cutting mode.</p> <p>► After loading media press the feed key. That way a short feed and a synchronization cut are realized.</p>	Gap sensor
 Backfeed	<p>Method for backfeeding the material.</p> <p>Backfeeding is necessary in the cutting mode since the front edge of a second section already passes the print line when the first label is moved to the cut position.</p> <p>always: Backfeeding occurs independently of print contents.</p> <p>smart: Backfeeding only occurs when the print contents of the next section is not yet fully prepared when cutting the current section. Otherwise, the second section is pushed on and completed after removal of the first section without backfeeding.</p>	smart

- ▶ Load transfer ribbon and endless material as described in the Operator's Manual of the printer
Use the tear-off mode information for loading endless material for cut mode.
- ▶ Place the media strip between the printhead and the drive roller, so that the front edge of the strip reaches through the cutter.

5 Operation

5.1 Standard Operation

The printer is ready for operation when all connections have been made and all materials are loaded correctly.



Notice!

To operate the cutter with continuous material in the printer menu „Setup“ -> „Print parameters“ -> „Label sensor“ the setting „Endless media“ has to be selected. Otherwise no synchronization cut is carried out.

- ▶ Switch on the printer.
The cutter performs a cut.
- ▶ Press the feed key. For synchronization the media will be moved forward and cut off.
Printers synchronization is not necessary when the printhead was not opened between print jobs, even if the printer was powered off between print jobs.
- ▶ Activate the cut mode in the software.
For direct programming use the C-command (▷ Programming Manual).
- ▶ Send a print job.
All labels in the job will be printed without stopping and be cut as chosen in the software : after each label, after a specific quantity of labels, or at the end of a print job.

5.2 Operation Without Cover Plates

Due to the most varied materials it can come in rare cases to transportation problems of the material depend of the cover plates.

It's possible to clear this problem with dismantling the cover plates.



Warning!

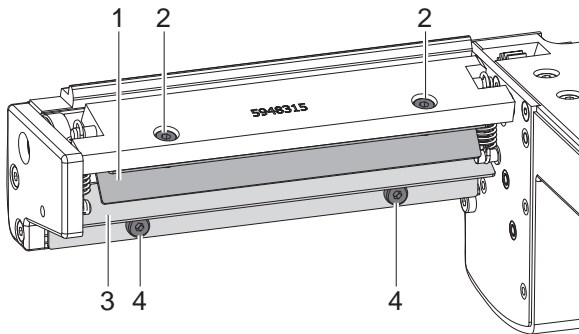
Risk of injury!

- ▶ If the cover plates for a better performance should be removed, appropriate compensating measures are to be arranged for the guarantee of security!



Notice!

In case the material do adhere in follow of electrostatic charge it's possible to use a discharge brush for the printer by [cab](#).



Warning!

Risk of injury! The cutter blades are sharp!

- ▶ Disconnect printer from electrical outlet .

1. Switch off the printer and demount the cutter.
2. Loosen screws (4) and detach cover plate (3).
3. Loosen screws (2) and detach cover plate (1).

Mounting in converse order.

5.3 Operation with External Control

The CU-I cutters with peripheral interface additionally allow the mode "Cut on Demand".

In this operating mode it is necessary to connect a trigger switch or an external control to the peripheral interface on the cutter.



Notice!

This operating mode requires that there is a connection between Pin 13 (STA) and Pin 12 (GND) at the peripheral interface (▷ chapter "Peripheral Interface").

The printout of one label or a number of labels with the following cut will be executed if

- a print job is available
- the previous cut has finished
- the trigger switch or the external control sends the START signal.

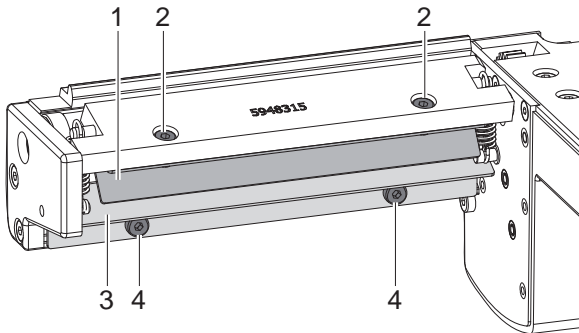
6.1 Cleaning

**Warning!**

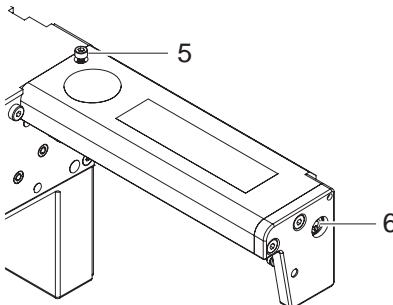
- ▶ Disconnect the printer from the electrical outlet.

**Attention!**

Risk of injury. The cutter blades are sharp.



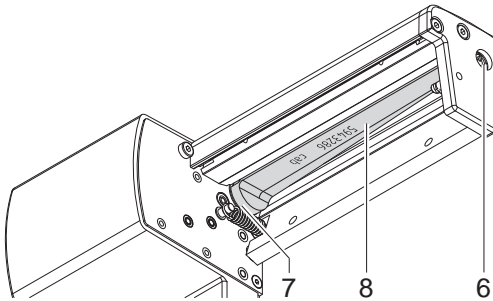
1. Remove the cutter from the printer.
2. Loosen the screws (2,4) and remove the cover sheets (1,3).
3. Remove dust and paper particles with a soft brush or a vacuum.
4. For cleaning the circular blade it is possible to turn the axle (6) with a screwdriver for slotted head screws (slot width 7 mm). The rotation angle of the circular blade is limited to 120°.
5. If it is necessary to turn the circular blade further, loosen the screw (5) about 5 mm. Now the circular blade can be turned completely.
6. Remove all deposits at the cutter blades with isopropyl alcohol and a soft cloth.



**Notice!**

When cutting through the label material instead of the label gap remains of adhesive may accumulate on the blades. If operating in backfeed mode, such remains of adhesive may be deposited on the drive roller as well.

- ▶ Clean often the drive roller (▷ Printer Operator's Manual) and the cutter blades.



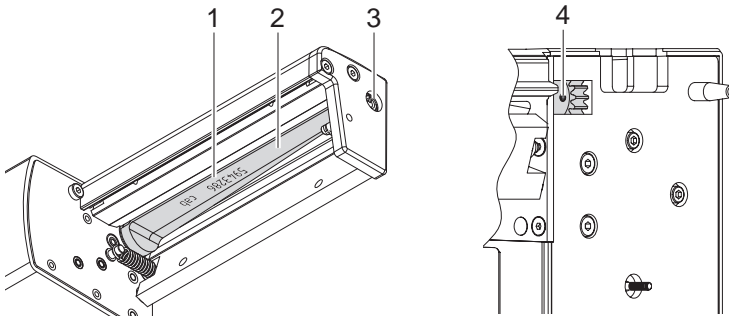
7. Grease the cylindrical area (7) of the circular blade (8) with an All round-High quality Grease. For that hold a greased brush on the cylindrical area and turn the axle (6) with a screwdriver for slotted head screws (slot width 7 mm).
During the turning the area is all-around greased.
8. If the screw (5) was loosened during cleaning, adjust the initial state of the cutter ▷ chapter 6.3 .
9. Re-mount the cover sheet (1) using the screws M4x6 (2) and cover sheet (3) using the screws M4x10 (4).

6.2 Changing the Blades

**Warning!**

- ▶ Disconnect the printer from the electrical outlet.

1. Remove the cutter from the printer.
2. Remove the cover sheets ▷ chapter 6.1.
3. Turn the axle (3) of the circular blade (2) with a screwdriver for slotted head screws (slot width 7 mm) so that the inscription (1) of the blade points downward. In this position the set screw (4) on the gear wheel can be achieved from the rear of the cutter.
4. Loosen the set screw (4) a few turns.

**Notice!**

- ▶ Save the washers (A, B, C) for the circular blade (2) and the lineal blade (12) when dismantling the cutter.

**Attention!**

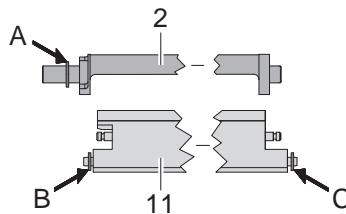
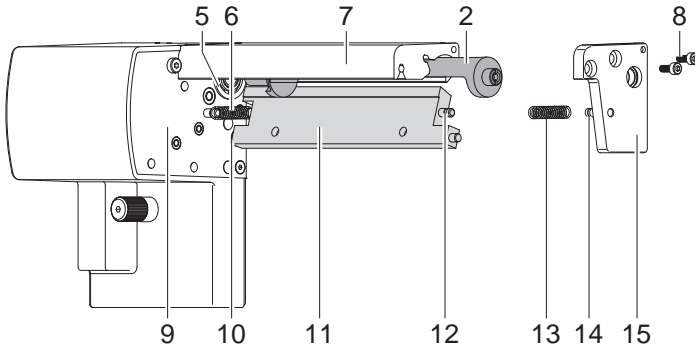
The springs (6, 15) are tense.

- ▶ Always hold tight lineal blade (12) in its position and push its axle slightly to the mounting plate (9) of the cutter.

4. Loosen the screws (8) and remove the bearing plate (15). The spring (13) becomes slack.
5. Remove spring (13) from the lineal blade.
6. Pull the circular blade (2) out of the bearing (5). The spring (6) at the lineal blade becomes slack.

If the lineal blade should not be changed skip to step 11.

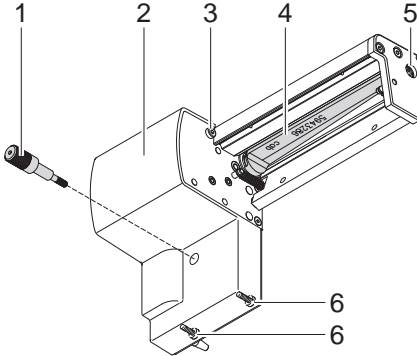
7. Remove spring (6) and lineal blade (12).
8. Insert the axle of the (new) lineal blade with the washer (B) in the bearing (10) of the mounting plate.
9. Hang in the slack spring (6) to the pins of the mounting plate (9) and the lineal blade (11).



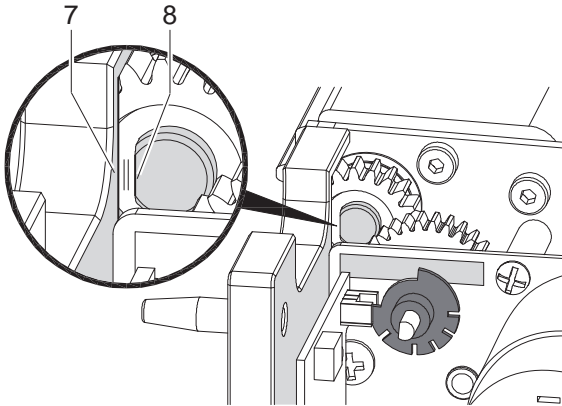
10. Turn the lineal blade (11) backwards. The spring (6) gets tense.
11. Insert the Axle of the (new) circular blade (2) with the washer (A) in the bearing (5) of the mounting plate.
12. Place the washer (C) on the axle of the lineal blade.
13. Hang in the slack spring (13) to the pins (12,14) of the lineal blade and the bearing plate.
14. Push the bearing plate (15) onto the blade axes (2, 11). The spring (13) gets tense.
15. Append the bearing plate (15) to the profile (7) using the screws (8).
16. Attend on an accurate position of the bearing plate (15) to the profile (7) of the cutter and tighten the screws (8).
17. Tighten the set screw (4) at the gear wheel.
18. Lubricate the circular blade ▷ chapter 6.1 and adjust its initial state ▷ chapter 6.3.
19. Re-mount the cover sheets ▷ chapter 6.1.

6.3 Setting the Initial State of the Cutter

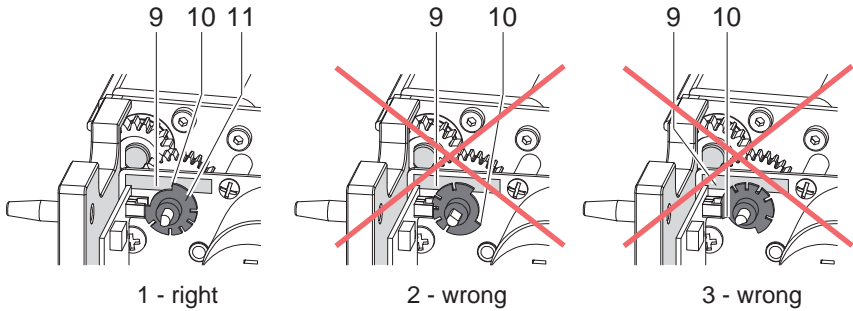
To operate the cutter correctly after cleaning or after changing the blades the circular blade (4) and the clock wheel (11) must be adjusted to each other.



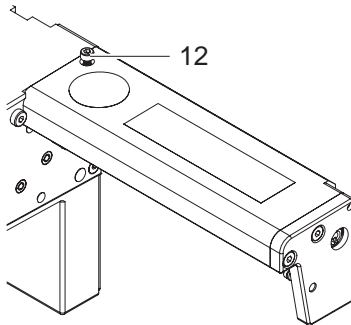
1. Unscrew the screws (1), (3) and (6, at the rear).
2. Remove the cover (2).



3. Turn the axle (5) of the circular blade with a screwdriver for slotted head screws (slot width 7 mm) so that the planar area (8) of the blade axle becomes parallel to the base plate (7).



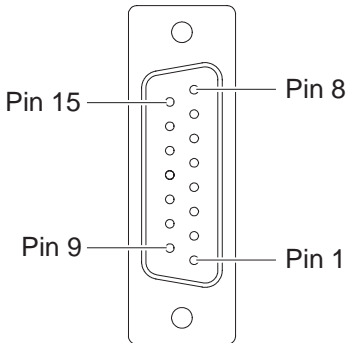
4. Check the position of the clock wheel (11).
 - If the clock wheel is in the right position 1, the edge (10) of the clock wheel (11) is located in the area of the marking (9).
 - If the clock wheel is in position 2 or 3 turn the circular blade to reach the position 1 :



- Loosen screw (12) about 5 mm.
 - Turn the circular blade by one or two full turns, until the planar area (8) of the blade axle becomes parallel to the base plate (7) again and the clock wheel reaches the position 1
 - Tighten screw (12).
5. Mount the cover.

7.1 Pin Assignment

For use in a network environment or with a switch, the CU-I cutters are equipped with a peripheral interface to allow control of the cutting process. The interface has a 15 pin SUB-D connector (1).











Pin	Signal	Direction	System Function	User function
1	XSTART	Input	Start signal	
2	XFEH	Input	External error	
3	-		-	
4	-	Output	-	Control bit 3
5	XEDG	Output	No existing print job	Control bit 1
6	XDNB	Output	Printer is not ready	Control bit 2
7	XEGES	Output	Print of a label has started	Control bit 0
8	GND	(Output)	Ground (0V)	
9	RX- START	(Input)	Start signal (reverse line)	
10	RXFEH	(Input)	External error (reverse line)	
11	-		-	
12	GND	(Output)	Ground (0V)	
13	STA	Input	Start signal is active	
14	RUEL	Output	Reverse line (for all output signals)	
15	24P	(Output)	Operating voltage +24V, 100mA	







Notice!

The description of the system functions is included in this manual. For more information about the user functions ▷ **Programming Manual, Commands x and X.**

7.2 Explanation of the Signals

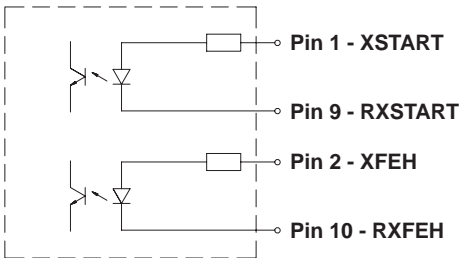
Pin	Signal	Description	Activation / Active State
1	XSTART 	Start signal triggers the start of the print when using the "Cut on demand" operating mode, This signal is checked if there is a connection between signal STA and ground GND.	Switch on +24 V between Pin 1 and Pin 9
2	XFEH 	External error An error has occurred in an externally controlled device. The label print is stopped and the display of the printer shows the message "External error". After the error is corrected, it is possible to press the pause key and the print job will continue. The last label printed before the error occurred will be repeated. Pressing the cancel key will stop the print job and the printer will be reset.	Switch on +24 V between Pin 2 and Pin 10
3	-		-
4	-		-
5	XEDG 	No existing print job There is no print job currently available.	Contact between Pin 5 and Pin 14 is open
6	XDNB 	Printer is not ready An error has occurred on the printer. The label print is stopped and the details and type of error can be read from the printer display ('Ribbon out'; 'Paper out'; 'No label')	Contact between Pin 6 and Pin 14 is open
7	XEDST 	Print of label has started The printing of a label is indicated with a 20 ms pulse.	Contact between Pin 7 and Pin 14 is open
8	GND 	Ground (0 V)	
9	RX-START 	Start signal (reverse line)	
10	RXFEH 	External error (reverse line)	
11	-		-

Pin	Signal	Description	Activation / Active State
12	GND 	Ground (0 V)	
13	STA 	Start signal is active The signal enables the "Cut on demand" operating mode. In this case the XSTART signal is checked. With signal STA disabled the cutter is operated in the standard mode.	Connect Pin 13 with Pin 12 (GND)
14	RUEL 	Reverse line foe all output signals	
15	24P 	Operating voltage +24 V, 100 mA CAUTION ! Output !!! ▶ DO NOT connect any external voltage at Pin 15 !	

7.3 Circuit Diagram of Inputs

The XSTART and XFEH inputs are optocouplers with a current limiting resistor of 2.2kΩ giving a voltage of 24V in the input circuit.

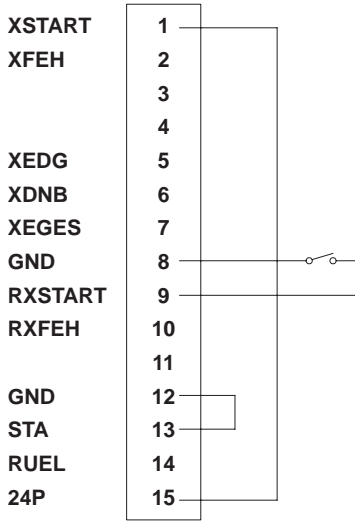
For each signal X[IN] there is a separate reverse line X[IN]R via the plug connector. From that, the following matching pairs of signals result :



The input signal STA (PIN 13) is connected to GND (PIN 12) for the "Cut on Demand" operating mode.

For external control of cut mode, the connecting device (trigger switch, external control) must be equipped with a 15 pin SUB-D connector.

Example circuit diagram for a trigger switch :

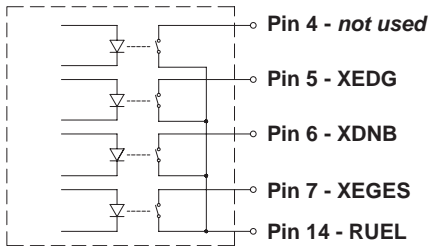


7.4 Circuit Diagram of Outputs

All outputs are established through solid-state relays. The outputs are connected to one another on one-side. The common line leads to the plug connector as a RUEL signal.

The switch function of the outputs is to open or close the contact between the joint line RUEL and the respective output.

Electrical requirements : $U_{max} = 42 V$, $I_{max} = 100 mA$



8.1 Reference to the EU Declaration of Conformity

The cutters of the CU series comply with the relevant fundamental regulations of the EU Rules for Safety and Health:

- Directive 2014/30/EU relating to electromagnetic compatibility
- Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment

EU Declaration of Conformity

▷ <https://www.cab.de/media/pushfile.cfm?file=2714> 



8.2 FCC

NOTE : This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. The equipment generates, uses, and can radiate radio frequency and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user may be required to correct the interference at his own expense.

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