



Instructions

Congratulations for buying your Rotorcard for ERC-M. This document will guide you through the needed steps for assembly and installation of the Rotorcard. You will reach the best result by following these instructions step by step.

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Safety-Instructions



- Don't continue using the product if it is damaged.
- Keep electronic assemblies and components away from children!
- Products that carry electric voltages must be handled by taking care about the valid instructions and regulations.
- If the product must be repaired, only use original spare parts! Using different parts may cause property damage and personal injury! The repair has only to be done by an expert!
- The installation has to be done by a skilled expert.
- Connection-cables have to be chosen according to the needed diameter.
- Before working on the product all supply-voltages have to be securely cut of.
- The product is designed to work in clean and dry areas inside buildings.
- Prevent the product of humidity, water and heat.
- Don't use the product in areas where explosive gases, vapour or dust are or may occur.
- Don't let the product fall or apply mechanical stress as the product may be damaged.

1. Bill of material (BOM)

The BOM is in the order how you should use the parts.

Rotorcard V2.0 Bill Of Material				
QTY	Type	Value	Reference	Comments
1	PCB	RC 2-layer 67.5x43.6mm V2.0		
1	Capacitor ceramic	100n 50V 20%	C1	
3	Diode	1N4004	D1,D2,D3	alt. 1N4007
1	Diode	P6KE33CA	D4	
1	Coil	10u 10% SMCC	L1	
1	Terminal-block	2 pol. 5mm	X6	
5	Terminal-block	3 pol. 5mm	X1,X2,X3,X4,X5	
1	Connector	Mini-DIN 6-pole print	X7	
3	Relay	RT424012	K1,K2,K3	alt. F1CL012R alt. F1CA012V
4	Spring-washer	3.2mm		
4	Screw	M3x6mm		
2	Nut	M3		
2	Mounting-angle	11x10x7mm		
1	Cable	with 6-pole mini-DIN 1m		To ERC-M
1	Cable	black 0.5m 0.75sqmm		for installation
1	Cable	blue 0.5m 0.75sqmm		for installation
3	Cable-tie	150mm		for installation
	Not assembled	n.a.	C2,C3,IC1	

2. Assembly

Assemble and solder the components according to the following drawings.

Please read the following instructions before you start:

1. The vertical assembled Diodes should have a distance (1-2mm) to the PCB while soldering. Otherwise there is the risk of overheating these components while soldering.
2. Put the 2-pole terminal-block X6 and the 3-pole terminal block X2 together before assembly. You will get a 5-pole terminal-block.

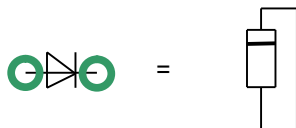


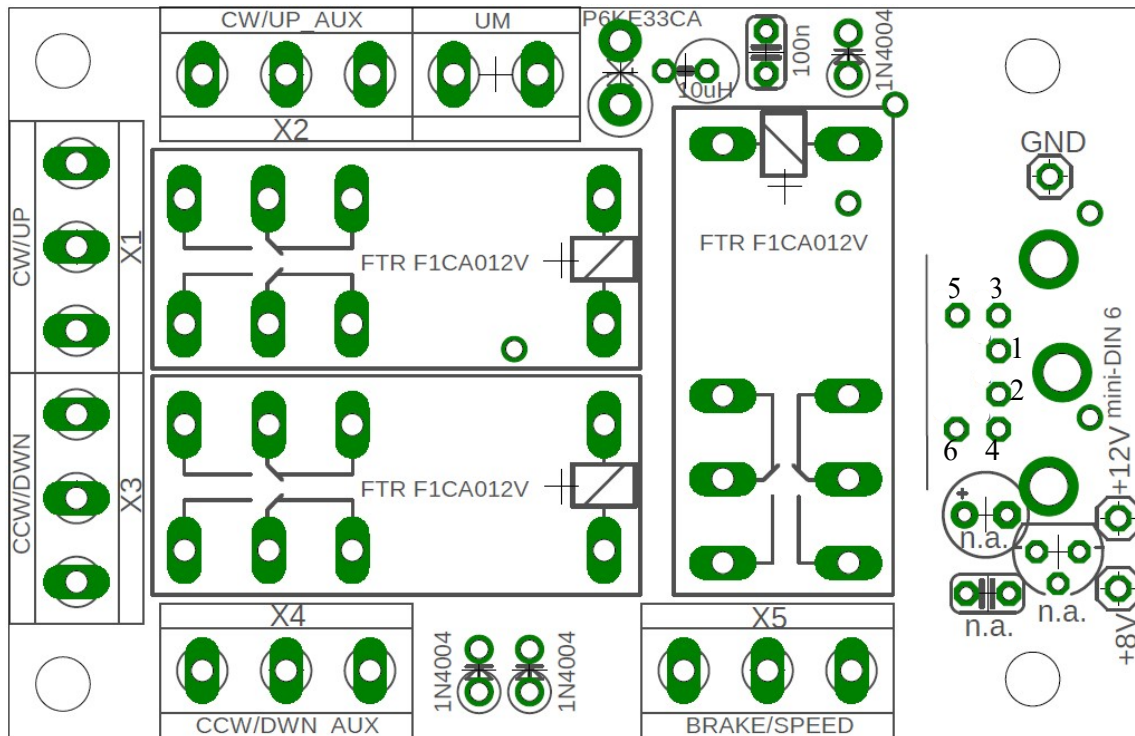
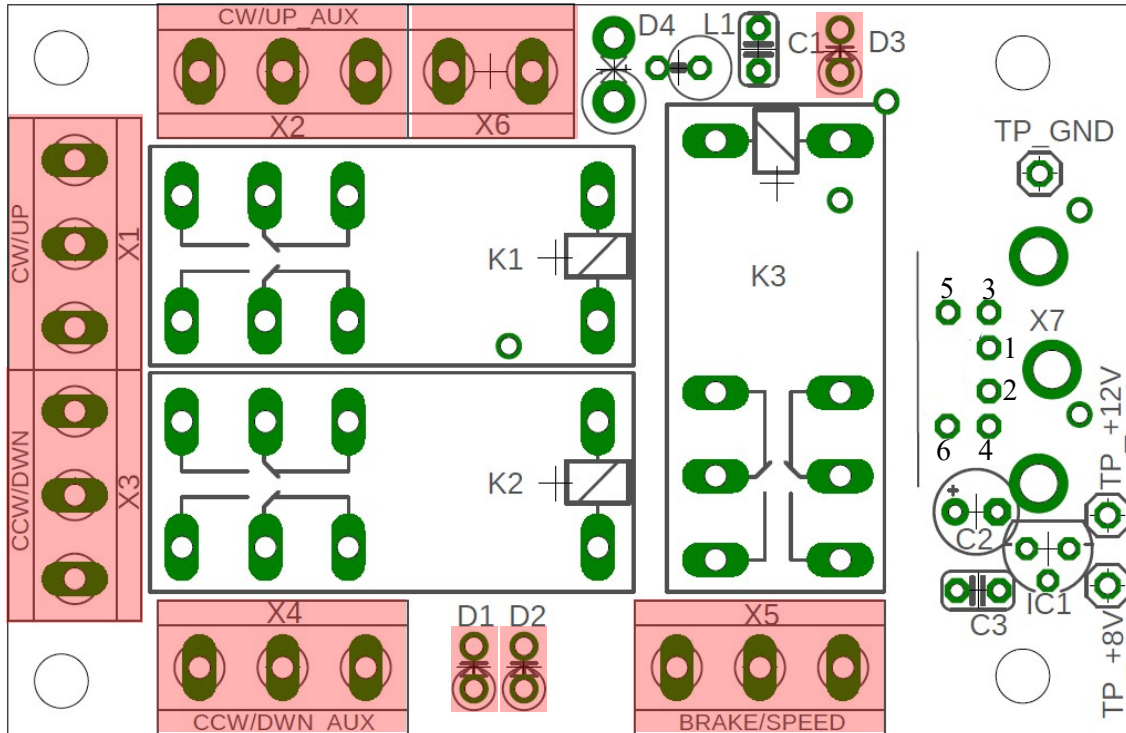
Do the same with 2 of the 3-pole terminal-blocks for X1 and X3 to build a 6-pole terminal-block.

3. Take care of polarization of the following components :
 - Diodes D1,D2,D3 (D4 is bidirectional, no polarization)
 - Terminal-blocks X1,X2,X3,X4,X5,X6 (cable entry to the outside)

Those components are marked red in the following drawing.

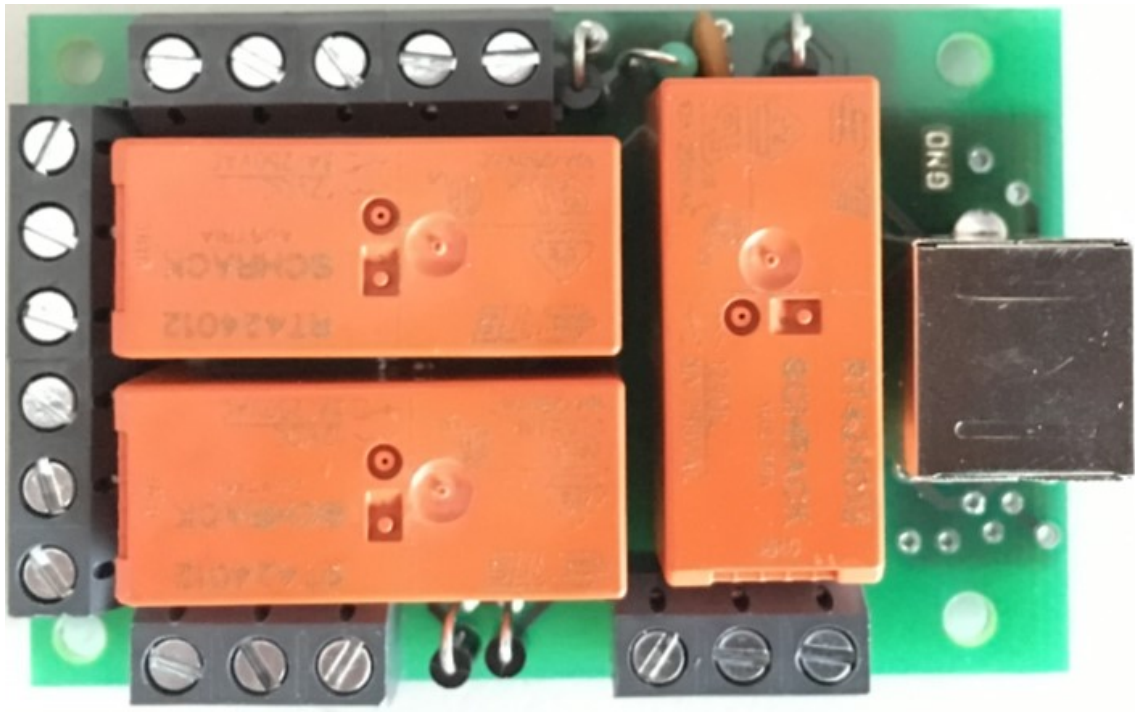
Diodes :





After assembly, attach the 2 mounting-angles with 2 screws and 2 nuts. Use spring-washers below the nuts.

Check carefully the assembly. This is how it should look like.



3. Connection of the Rotor-Card

The connection between Rotor-Card and ERC-M has to be done with the 6-pole Mini-DIN-cable supplied with the Rotor-Card-kit. The connections are shown in the table below.

Before you can connect the cable, it is needed to measure with an Ohmmeter which colour of the cable corresponds to each pin of the Mini-DIN connector.

1 or 2 rotators can be connected to ERC-M.

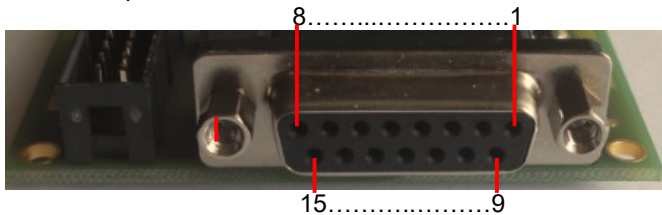
- In an AZ/EL-configuration connect AZ to axis 1 and EL to axis 2.
- If you only use 1 rotator, use axis 1.

Mini-DIN Rotor-Card	Signal	D-SUB ERC-M axis 1	D-SUB ERC-M axis 2
1	CW/UP	9	15
2	CCW/DOWN	2	7
3	AUX	11	13
4	Feedback-voltage	1	8
5	GND	10	14
6	DC-supply	12	12

Connectors

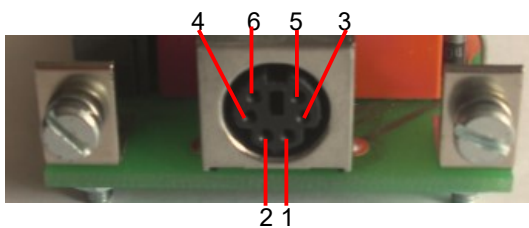
ERC-M

D-SUB 15 pole female

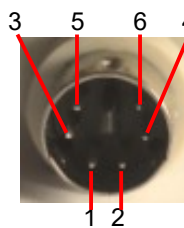


Rotorcard

6-pole Mini-DIN female



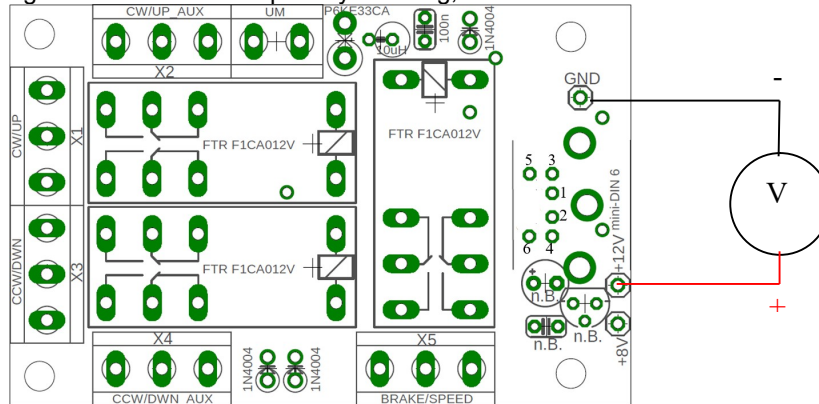
cable with 6-pole Mini-DIN
male



4. Test of Rotor-Card

The Rotor-Card should be electrically tested before you connect it to the rotator-control-box. Perform the test as follows:

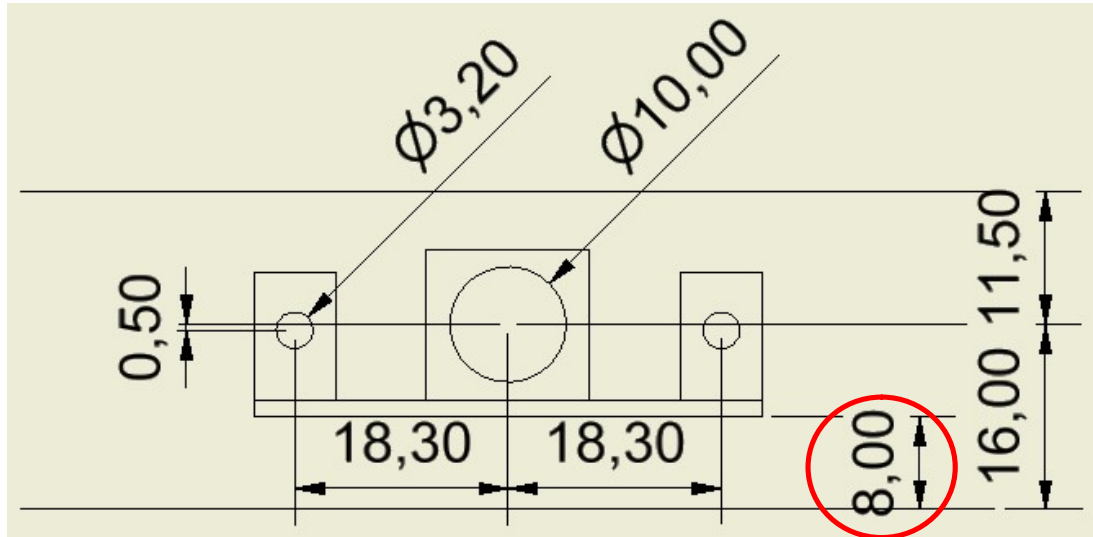
- Connect the Rotor-Card to the ERC-M by use of the cable prepared in chapter 3.
- Connect 12V DC to the DC-connector of the ERC-M. The Rotor-Cards cannot work without the external DC-supply.
- Measure the voltage between the test-points **TP_GND** und **TP_+12V**. You should measure now the 12V. Also the polarity is very important. You should measure +12V at **TP_+12V** against **TP_GND**. If the polarity is wrong, the Mini-DIN-cable is wired wrong.



- Now connect the ERC-M to the PC and start the Service-Tool.
- Press the Test-button of the Service-Tool.
- The relays of the Rotor-Card(s) will now engage in the following sequence in steps of 1 second: CW 1 / CCW 1 / CW 2 / CCW 2 / AUX 1 / AUX 2

5. Installation of the Rotor-Card into a control-box

Rotor-cards are to be mounted inside the control-boxes (if there is enough space). Therefore you need to drill 3 holes in the housing of the control-box according to this drawing:



All values in mm (milli-meter)

First drill the centre-hole (10mm) and then the smaller holes.

Take care, that the bottom-side of the rotor-card has at least a distance of 8mm to the housing. This is very important to keep the safety-distances, especially when the rotor-card is carrying main-voltage (e.g. the brake-circuit of a HAM-IV).



Mount the rotor-card to the control-box using the 2 screws and spring-washers below the screws.

The wiring of the rotor-card to the different control-boxes is shown in the Installation-Guide provided in the data-package of ERC-M.

Appendix

Appendix 1: Schematics

