

OPERATING INSTRUCTIONS

RTECK terminal boxes RTKB series

IEC Ex

EX010 TECHNICAL FILES

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RTKB – 2



RTKB – 1

2) GENERAL INFORMATION

2.1) MANUFACTURER:

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2.2) INFORMATION ABOUT THE OPERATING INSTRUCTIONS:

Rteck Documentation detail is available for download on website Rteck technical files Ex product. We reserve the right to make technical changes without notice.

2.3) PURPOSE OF THESE INSTRUCTIONS:

Working in hazardous areas the safety of personal and plant depends on complying with the relevant safety regulations.

Assembly and maintenance staff working on installations have a particular responsibility for acquiring precise knowledge of the applicable standards and regulations.

This introduction gives a brief summary of the most important safety measures to supplement the corresponding regulations which staff responsible must study for personal duty of care on installation.

3.0) SAFETY INSTRUCTIONS:

Use the product / device only for its intended purpose. Incorrect or impermissible use or non compliance with these instructions invalidates our warranty provision. Alterations to the device impairing its explosion protection are not permitted.

Users must fit and operate the terminal box only if it is clean and undamaged.

OBSERVE the following during installation and operation:

- National safety regulations
- National accident prevention regulations
- National installation regulations
- Generally recognized technical regulations
- Safety guidelines in these operating instructions
- Characteristic values and rated operating conditions on the rating and data plates
- Additional instructions plates fixed clearly to the device

Any change can invalidate the Ex protection

WARNING: POTENTIAL ELECTROSTATIC CHARGING HAZARD.

SPECIAL NOTE: To minimize the risk of electrostatic discharge, **(Only wipe with a damp cloth and ensure no hazardous atmosphere is present before touching)**, enclosures should not be fitted where they can be subjected to high flow of powder /dust flow that may lead to a prolific charge buildup being generated (e.g.) pneumatic transfer of powders or discharge spraying.

4.0) CONFORMITY TO STANDARDS:

Each device complies with the following standards and regulations

- Directive 94/9/EC
- EMC Directive No : 89/336/EEC
- EN/ IEC60079-0, EN/ IEC 60079-7, IEC 60079-31

Device type RTKB series terminal box is suitable for use in hazardous areas, Zones 1,2 and Zones 21, 22

5.0) FUNCTION:

The PDE Resin terminal boxes are used for the transfer of electrical energy.

6.0) TECHNICAL DATA:

| | | |
|-------|---------------|-------------------------------------|
| Types | RTKB-1 | Terminal box without equipment fuse |
| | RTKB-2 | Terminal box without equipment fuse |

EXPLOSION PROTECTION

Gas explosion protection

IEC Ex Ex e IIC T6 Gb IP66

Dust explosion protection Ex tb IIIC T80c IP66

Rated Voltage

| | | |
|-------|----------------|----------------------------------|
| Types | RTKBF-1 | Terminal box with equipment fuse |
| | RTKBF-2 | Terminal box with equipment fuse |

Max 500V : AC/DC with special cable glands

EXPLOSION PROTECTION

| | |
|---------------------------|--------------------------------------------|
| Gas explosion protection | Ex em T6 Gb Fuse < 4.0A |
| Dust explosion protection | Ex tb IIIC T80c IP66 |
| Rated Voltage | Max 500V : AC/DC with special cable glands |

CERTIFICATES

IEC Ex

Housing PDE Thermoplastic Resin – Black / impact strength 7nm, material self extinguishing and flame resistant VO-UL 94 IEC 60695-11-10.

Gaskets 4mm Silicone sponge

Cover fixing 4 x 4mm Pan pozi slot Head Stainless steel

Degree of protection IP66

Ambient temperature -20°C to +40°C

FITTING IN TERMINAL BOXES

Maximum number of cables needed to conductor cross section and number of terminals under load for temperature class T6 when $T_a < 40^\circ\text{C}$

Types: RTKB-1 /2 and RTKBF-1/2

General product information:

The Rteck junction box consists of Thermoplastic PDE body and cover. The cover is attached via four M4 stainless steel screws with a silicon O-ring gasket. The junction box enclosure is of dimensions 117 x 117 x 65 and fitted with separately certified connection terminals. Electrical access is via separately certified cable glands fitted to holes drilled into the side and end walls of the enclosure. Refer Table 1 for power rating and temperature classification.

Table 1: Model and Temperature Classification

| Model Number: | Description: | Number of entries: |
|---------------|-------------------------------|----------------------|
| RTKB-1 | Terminal box without fuse | 3 x M20 |
| RTKB-2 | Terminal box without fuse | 3 x M20 plus 2 x m25 |
| RTKBF-1 | Terminal box with E x em fuse | 3 x M20 |
| RTKBF-2 | Terminal box with E x em fuse | 3 x M20 plus 2 x m25 |

Table 2: Maximum Enclosure Configuration

| Maximum enclosure configuration & respective current values for a calculated maximum power dissipation not exceeding 5 W | | | | |
|--------------------------------------------------------------------------------------------------------------------------|-------|--------------------------------------------------------------------------------|-------|---------------------|
| Applied max Current to respective terminal (A) | | Maximum number of Terminals Fitted in combination at specified applied current | | Fuse Type 8560 (4A) |
| AKZ 1.5 | AKZ 4 | AKZ 1.5 | AKZ 4 | |
| 10 | 22 | 6 | 7 | 1 |
| 10 | 22 | 12 | 3 | 1 |
| 10 | 20 | 9 | 6 | 1 |
| 10 | 20 | 12 | 4 | 1 |
| 9 | 20 | 12 | 6 | 1 |
| 8 | 22 | 12 | 6 | 1 |
| 10 | 16 | 12 | 7 | 1 |
| 7 | 22 | 12 | 7 | 1 |

RTKB enclosure may be fitted with any combination of terminals and fuse up to the maximum number specified with respect to the specified applied current.

Table 3: Terminal & cable parameter when fitted within the RTKB enclosure

| Terminal type | AKZ 1.5 | AKZ 4 |
|-----------------------------------------------------|---------|-------|
| Minimum size of wiring conductor (mm ²) | 1.5 | 4 |
| Maximum Current (A) | 10 | 22 |
| Maximum voltage (V) | 176 | 275 |
| Maximum Number of terminals | 12 | 7 |

NOTE : Each cable brought in and each internal connecting cable counts as a conductor. Jumpers and earthing conductors are not.

When using these values account must be taken of the simultaneously factor or load to IEC 439. The use of a mixture of fittings with circuits of different cross sections is possible by pro use of the different tables.

Example : from Matrix using 1.5mm / 4mm cables to add

7.0) FITTING

Dimensional drawings / in mm Subject to change.

Drawings are available in Rteck Industries Technical data sheets file EX09.

When explosion protected equipment is exposed to the weather it is advisable to provide cover or wall protection.

8.0) INSTALLATION

MAINS CONNECTION

- The conductors must be carefully connected
- The conductor insulation must reach the terminal. The conductor itself must not be damaged (nicked) when removing the insulation

Note : Weidmuller AKZ4 terminal recommends 8mm stripping distance of conductor insulation.

- Ensure that the maximum permissible conductor temperatures are not exceeded by suitable selection of cables and means of running them
- PLEASE refer to the terminal details in the technical data (Max / size conductor allowable Matrix)

SPECIAL NOTE : SAFETY 3.0 INSTALLATION REQUIREMENT

To minimize the risk of electrostatic discharge.

Enclosures should not be fitted where they can be subjected to high flow of Powder / dust flow that may lead to a prolific charge buildup being generated (eg) pneumatic transfer of powder or charge spraying, Clause 7.4.2 of IEC 6079.0.2011.

The lid shall have the following warning label applied.

WARNING
Do not open when energized
Potential electrostatic charging hazard

EARTH connection:

The earth connection must be made in all circumstances.

9.0) COMMISSIONING:

Before commissioning the device ensure that:

- It has been correctly installed
- It is not damaged
- It contains no foreign bodies
- the connection area is clean
- the cables have been correctly brought in
- all screws and nuts are fully tightened
- the cable glands are securely tightened
- unused cable glands are sealed with plugs certified to IEC Ex: Ex e: Ex Td

Note : Manufacturers specifications on tension

10) REPAIRS AND MAINTENANCE:

Repairs and maintenance work on the devices may only be carried out by appropriately authorized and trained personal.

Before work is carried out the devices must be disconnected from the mains.

Observe the relevant national regulations for your country.

The following points must be tested during maintenance.

- Clamping screw holding must be tested on maintenance
- Operating temperature (by EN/ EC 60070 0)
- Cracks in plastic enclosures
- Damage to gaskets

The device can only be cleaned with damp cloth

11) ACCESSORIES AND SPARE PARTS:

Use only the original spare parts from the manufacturer.

Note: The fuses fitted may only be replaced by fuses with matching characteristics.

Any infringements can change the temperature class of the whole terminal box

Fuse link changes may change the temperature class. Change like for like.

12) DISPOSAL:

Observe the national standard for refuse disposal

13) INTERNATIONAL CERTIFICATE OF CONFORMITY IS AVAILABLE FOR UPLOAD FROM OUR WEBSITE: www.rteckpacific.com