

# Instruction Manual

## 1. Marking

Terminal Boxes, Glass-fiber reinforced polyester (GRP) GR.T*
ATEX certificate: CML 17 ATEX 3255X ATEX marking: Ⓢ II 2 GD Ex eb IIC T* Gb Ex ia IIC T* Gb Ex tb IIIC T** °C Db T6/T80 °C @ Ta +40 °C T5/T95 °C @ Ta +55 °C T4/T130 °C @ Ta +65 °C
IECEX certificate: IECEX CML 17.0144X UKCA certificate: CML 21 UKEX 3896X ECAS certificate: 22-10-53257/E22-09-052274/NB0002 CCoE certificate: PESO A/P/HQ/KA/104/5627 (P432459) CCC certificate: 2020322303002568 IA certificate: MASC S/18-1639X UL approval: cULus UL 508A , UL 698A , UL 121201 approved for: Class I and II, Division 2 Class I, Zone 2, Class II, Zone 22 ambient temperature: -25 ... 40 °C (-13 ... 104 °F) ETL certificate: Intertek 5003368 , Intertek 5022079 approved for: Class I, Division 2, Groups A, B, C, D Class II, Division 2, Groups F, G Class III cETLus according to: UL 1773 , UL 121201 , CSA C22.2, No. 40, 213 ambient temperature: -40 ... 65 °C (-40 ... 149 °F)

The \*-marked letters of the type code are placeholders for versions of the device.

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## 2. Target Group, Personnel

Responsibility for planning, assembly, commissioning, operation, maintenance, and dismantling lies with the plant operator.

The personnel must be appropriately trained and qualified in order to carry out mounting, installation, commissioning, operation, maintenance, and dismantling of the device. The trained and qualified personnel must have read and understood the instruction manual.

## 3. Reference to Further Documentation

Observe directives, standards, and national laws applicable to the intended use and the operating location.

The corresponding datasheets, manuals, declarations of conformity, EU-type examination certificates, certificates, and control drawings if applicable (see datasheet) are an integral part of this document. You can find this information under [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com).

In order to access this documentation, enter the product name, i. e. the type code, or the item number of the product in the search field of the website.

For specific device information such as the year of construction, scan the QR code on the device. As an alternative, enter the serial number in the serial number search at [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com).

## 4. Intended Use

The device is only approved for appropriate and intended use. Ignoring these instructions will void any warranty and absolve the manufacturer from any liability.

The enclosures of the GR\* series are made of Glass-fiber reinforced polyester (GRP).

The device can be used indoor.

The device can be used outdoor.

The device can be used in Zone 1.

The device can be used in Zone 21.

The device can be used in Zone 2.

The device can be used in Zone 22.

The device is designed for wall mounting.

The device is designed for mounting to a steel framework.

Use suitable fixing material for mounting.

Mount the enclosure at the fixing points provided.

The terminal boxes are used to distribute electrical energy and electrical signals in hazardous areas. They must be installed in fixed installations.

## 5. Improper Use

Do not mount the device on the ceiling.

Protection of the personnel and the plant is not ensured if the device is not used according to its intended use.

## 6. Mounting and Installation

Observe the installation instructions according to IEC/EN 60079-14.

Observe directives, standards, and national laws applicable to the intended use and the operating location.

Examples for such regulations are regulations regarding electricity, grounding, installation as well as hygiene and safety.

If you intend to install the device or enclosure in areas that may be exposed to aggressive substances, ensure that the stated surface materials are compatible with these substances. If required, contact Pepperl+Fuchs for further information.

Ensure that the device provides and maintains a degree of protection of at least IP66 according to IEC/EN 60079-0.

Observe the requirements

according to IEC/EN 60079-31 regarding excessive dust deposits.

In order to guarantee the temperature class, ensure that adequate free air exists around the enclosure.

Ensure that there are no external heat sources around the enclosure.

Safety-relevant markings are found on the nameplate supplied.

Ensure that the nameplate is present and legible. Take the ambient conditions into account.

Additional warning markings may be on separate labels besides the nameplate.

The permitted ambient temperatures of the built-in components must not be exceeded.

Ensure that the enclosure is not damaged, distorted, or corroded.

Ensure that all seals are clean, undamaged, and correctly fitted.

Tighten all screws of the enclosure/enclosure cover with the appropriate torque.

Close all unused enclosure holes with the appropriate stopping plugs.

Only use stopping plugs that are suitably certified for the application.

If mounting the enclosure on concrete use expansion anchors.

When mounting the enclosure to a steel framework use vibration resistant mounting material.

Ensure that the enclosure is mounted on a flat surface. This avoids deformation of the enclosure and ensure proper sealing function of the cover seal.

If external connections exist, ensure that the connections are in good condition, and are not damaged or corroded.

In order to prevent condensation in the enclosure, use suitably certified breather drains.

### 6.1. Requirements for Cable Glands

Only use cable glands that are suitably certified for the application.

Only use cable glands with a temperature range appropriate to the application.

For cable glands only use incoming cable diameters of the appropriate size.

Use seals that are suitable for the specified application.

Ensure that the degree of protection is not violated by the cable glands.

Install cables and cable glands in a way that they are not exposed to mechanical hazards.

The cables and connection lines must be free from mechanical stress.

Use appropriate strain relief, which must be fitted outside of the enclosure.

Ensure that all cable glands are in good condition and are securely tightened.

Close all unused cable glands with the appropriate sealing plugs.

Observe the specific ambient conditions of sealing plugs.

Tighten all cable glands with the appropriate torque.

Ground metal cable glands.

### 6.2. Requirements for Internal Components

In order to guarantee the temperature classes, ensure that power dissipation is lower than the figure stated in the certificate. Most of the power dissipation arises from current flowing in the cables.

If you install the devices in ambient temperatures above +40 °C, the temperature at the cable glands may exceed the ambient temperature by 40 K when the maximum allowed power is dissipated.

Only use cables and connection lines with a temperature range appropriate to the application.

Keep the separation distances between all non-intrinsically safe circuits and intrinsically safe circuits according to IEC/EN 60079-14.

Only use suitably certified terminals.

Ensure that the terminals are in good condition and are not damaged or corroded.

The terminals may have several connections.

Only use one connection per terminal in this application.

Observe the tightening torque of the terminal screws.

Use the shortest possible cable lengths and avoid small core cross sections.

Use only one conductor per terminal.

Observe the minimum bending radius of the conductors.

When installing the conductors the insulation must reach up to the terminal.

When using stranded conductors, crimp wire end ferrules on the conductor ends.

Unused cables and connection lines must be either connected to terminals or securely tied down and isolated.

Insulation by tape alone is not permitted.

The use of jumpers may reduce the maximum permissible voltage of the device. Only use jumpers listed in the certificate of the terminal manufacturer.

Observe the instruction manual and the certificate of the installed apparatus.

Refer to the corresponding technical data of the installed components for the actual type of protection or any possible restrictions.

Do not bunch more than 6 conductors to avoid hot spots.

Arrange the earth connections for incoming and outgoing cables in a way that the ground fault current is not carried between separate grounding plates.

Contact Pepperl+Fuchs before installing additional components.

Pepperl+Fuchs checks whether these components are listed in the certificate. The maximum power dissipation of this installation solution must be within the permitted limits.

Do not install fuse terminals, relays, miniature circuit breakers, contactors etc. in the enclosure.

## **7. Operation, Maintenance, Repair**

Observe the requirements according to IEC/EN 60079-14 during operation.

Observe IEC/EN 60079-17 for maintenance and inspection.

Observe the requirements according to IEC/EN 60079-19 for repair and overhaul.

Before opening the enclosure make sure that the built-in components are de-energized.

When energized, the enclosure may only be opened for maintenance, if only intrinsically safe circuits are used inside the enclosure.

Check the wear on the device and the device components at specific intervals. The interval between checks depends on the operating conditions and loads that occur.

Avoid electrostatic charges which could result in electrostatic discharges while installing, operating, or maintaining the device.

If cleaning is necessary while the device is located in a hazardous area, in order to avoid electrostatic charging only use a clean damp cloth.

Ensure that all fasteners are present.

Ensure that external ground connections exist, are in good condition, and are not damaged or corroded.

Before assembly, check that the seal and sealing surface are clean and in good condition to ensure the degree of protection.

If there is a defect, the device must be repaired by Pepperl+Fuchs.

Alternatively the device can be repaired by a qualified electrician in compliance with IEC/EN 60079-19.

## **8. Delivery, Transport, Disposal**

Check the packaging and contents for damage.

Check if you have received every item and if the items received are the ones you ordered.

The device, built-in components, packaging, and any batteries contained within must be disposed in compliance with the applicable laws and guidelines of the respective country.