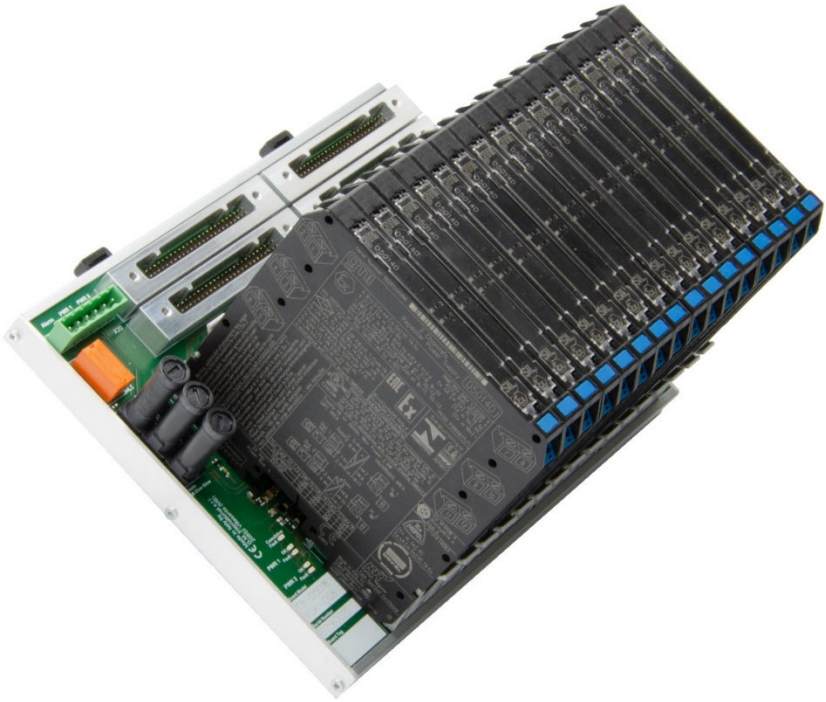

# CCC
# Safety Instruction Manual

## TB and TBE series

technology for safety

**Note:** This manual contains only safety instructions.
For the complete installation and user manuals, data sheets and certificates, supplier code of conduct, code of ethics, terms and conditions of sale and warranty please refer to www.gminternational.com.

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# 1 Installation information

## 1.1 General

TB/TBE series are apparatus installed into standard EN/IEC60715 TH 35 DIN-Rail located in Safe Area or Zone 2 within the specified operating temperature limits (for complete details please refer to table 1). They can be mounted with any orientation over the entire ambient temperature range.
The end user is responsible to ensure that the operating temperature of the module is not exceeded in the end use application.
Units must be protected against dirt, dust, extreme mechanical (e.g. vibration, impact and shock) and thermal stress, and casual contacts.

Electrical connections are accommodated by polarized removable screw terminal blocks or fixed terminal blocks and customer dedicated connectors which can be plugged in/out into a powered unit without suffering or causing any damage. Connect only one individual conductor per each clamping point, use conductors suitable for size of each terminal block. The wiring cables have to be proportionate in base to the current and the length of the cable.

TB/TBE series must be installed, operated and maintained only by qualified personnel, in accordance to the relevant national/international installation standards (e.g. EN/IEC 60079-14 Explosive atmospheres - Part 14: Electrical installations design, selection and erection), following the established installation rules.
According to EN/IEC61010, TB/TBE power supplies must be connected to SELV or SELV-E supplies.
All circuits connected to TB/TBE must comply with the overvoltage category II (or better) according to EN/IEC 60664-1.
Failure to properly installation or use of the equipment may risk to damage the unit or severe personal injury.

For those models having a relay output: connect relay contacts checking the load rating to be within the contact maximum rating. To prevent relay contacts from damaging, connect an external protection (fuse or similar), chosen according to the relay breaking capacity diagram from installation instructions (for complete details please refer to table 2, if present).
For those models having a transistor output: connect transistor contacts checking the load rating to be within the contact maximum rating (for complete details please refer to table 2, if present).

For those models having contacts rated more than 50 Vac or 75 Vdc: de-energize main power source (turn off power supply voltage) and disconnect plug-in terminal blocks before opening the enclosure to avoid electrical shock when connected to live hazardous potential.

Storage: if the unit is not installed directly on a system (parts for spare or expansion with long storage periods), it must be conveniently stocked. Stocking area characteristics must comply with the following parameters: temperature -45 to +80°C; humidity 0 to 95%.
Vibration: no prolonged vibration should be perceivable in the stocking area to avoid loosening of parts or fatigue ruptures of components terminals.
Pollution: presence of pollutant or corrosive gases or vapours must be avoided to prevent corrosion of conductors and degradation of insulating surfaces.

For complete instruction manual, datasheet and certifications please refer to our website www.gminternational.com.

## 1.2 Installation for zone 2 application

De-energize power source (turn off power supply voltage) before plug or unplug the terminal blocks or before servicing, unless area is known to be nonhazardous.
Warning: substitution of components may impair suitability for zone 2.
Electrostatic Hazard: to avoid electrostatic hazard, the enclosure of TB/TBE series must be cleaned only with a damp or antistatic cloth.

### 1.2.1 Special conditions for safe use

The equipment shall only be used in an area of at least pollution degree 2, as defined in EN/IEC 60664-1. When installed in zone 2, the unit shall be installed in an enclosure that provides a minimum ingress protection of IP54 in accordance with EN/IEC 60079-0. The enclosure must have a door or cover accessible only by the use of a tool.

## 1.3 Inspection, maintenance and repair

The unit cannot be repaired by the end user and must be returned to the manufacturer or his authorized representative.
If enclosure needs to be cleaned use only a cloth lightly moistened by a mixture of detergent in water.

# 2 Certification data

## 2.1 Table 1: Certificates and operating temperature

| Model family | Certificate n. | Standards | Markings | Operating temperature |
|---|---|---|---|---|
| TB-D5008-INV-005 | 2023322308005685 | GB/T 3836.1<br>GB/T 3836.3 | Ex ec IIC T4 Gc | -40 ÷ 70 °C |
| TB-D5016-TRI-010 | 2023322308005685 | GB/T 3836.1<br>GB/T 3836.3 | Ex ec IIC T4 Gc | -40 ÷ 70 °C |
| TBE-D5008-TRI-001 | 2023322308005685 | GB/T 3836.1<br>GB/T 3836.3 | Ex ec IIC T4 Gc | -40 ÷ 70 °C |
| TBE-D5016-TRI-001 | 2023322308005685 | GB/T 3836.1<br>GB/T 3836.3 | Ex ec IIC T4 Gc | -40 ÷ 70 °C |
| TBE-D5016-TRI-002 | 2023322308005685 | GB/T 3836.1<br>GB/T 3836.3 | Ex ec IIC T4 Gc | -40 ÷ 70 °C |
| TBE-D5016-TRI-003 | 2023322308005685 | GB/T 3836.1<br>GB/T 3836.3 | Ex ec IIC T4 Gc | -40 ÷ 70 °C |
| TBE-D5016-TRI-004 | 2023322308005685 | GB/T 3836.1<br>GB/T 3836.3 | Ex ec IIC T4 Gc | -40 ÷ 70 °C |
| TBE-D5016-TRI-005 | 2023322308005685 | GB/T 3836.1<br>GB/T 3836.3 | Ex ec IIC T4 Gc | -40 ÷ 70 °C |
| TBE-D5016-TRI-006 | 2023322308005685 | GB/T 3836.1<br>GB/T 3836.3 | Ex ec IIC T4 Gc | -40 ÷ 70 °C |
| TBE-D5016-TRI-007 | 2023322308005685 | GB/T 3836.1<br>GB/T 3836.3 | Ex ec IIC T4 Gc | -40 ÷ 70 °C |
| TBE-D5016-TRI-008 | 2023322308005685 | GB/T 3836.1<br>GB/T 3836.3 | Ex ec IIC T4 Gc | -40 ÷ 70 °C |
| TBE-D5016-TRI-009 | 2023322308005685 | GB/T 3836.1<br>GB/T 3836.3 | Ex ec IIC T4 Gc | -40 ÷ 70 °C |
| TBE-D5016-TRI-010 | 2023322308005685 | GB/T 3836.1<br>GB/T 3836.3 | Ex ec IIC T4 Gc | -40 ÷ 70 °C |
| TBE-D5016-TRI-011 | 2023322308005685 | GB/T 3836.1<br>GB/T 3836.3 | Ex ec IIC T4 Gc | -40 ÷ 70 °C |
| TBE-D5016-TRI-012 | 2023322308005685 | GB/T 3836.1<br>GB/T 3836.3 | Ex ec IIC T4 Gc | -40 ÷ 70 °C |

## 2.2 Table 2: Contacts ratings

| Model family | Contacts type | Contacts function | Contacts ratings |
|---|---|---|---|
| TBE-D5008-TRI-001 | Transistor | Fault | 100 mA at 35 Vdc (≤ 1 V voltage drop) |
| TBE-D5016-TRI-001 | Transistor | Fault | 100 mA at 35 Vdc (≤ 1 V voltage drop) |
| TBE-D5016-TRI-002 | Transistor | Fault | 100 mA at 35 Vdc (≤ 1 V voltage drop) |
| TBE-D5016-TRI-003 | Transistor | Fault | 100 mA at 35 Vdc (≤ 1 V voltage drop) |
| TBE-D5016-TRI-004 | Transistor | Fault | 100 mA at 35 Vdc (≤ 1 V voltage drop) |
| TBE-D5016-TRI-005 | Transistor | Fault | 100 mA at 35 Vdc (≤ 1 V voltage drop) |
| TBE-D5016-TRI-006 | Transistor | Fault | 100 mA at 35 Vdc (≤ 1 V voltage drop) |
| TBE-D5016-TRI-007 | Transistor | Fault | 100 mA at 35 Vdc (≤ 1 V voltage drop) |
| TBE-D5016-TRI-008 | Transistor | Fault | 100 mA at 35 Vdc (≤ 1 V voltage drop) |
| TBE-D5016-TRI-009 | Transistor | Fault | 100 mA at 35 Vdc (≤ 1 V voltage drop) |
| TBE-D5016-TRI-011 | Transistor | Fault | 100 mA at 35 Vdc (≤ 1 V voltage drop) |
| TBE-D5016-TRI-012 | Transistor | Fault | 100 mA at 35 Vdc (≤ 1 V voltage drop) |

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