



# Ex Safety Instruction Manual

## TB and TBE series



**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](http://www.gminternational.com).



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# 1 Installation information

## 1.1 General

TB and 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. Use only cables that are suitable for a temperature of at least 85°C. The wiring cables have to be proportionate in base to the current and the length of the cable.

TB and TBE series must be installed, operated and maintained only by qualified personnel, in accordance to the relevant national/international installation standards (e.g. EN/IEC60079-14 Electrical apparatus for explosive gas atmospheres - Part 14: Electrical installations in hazardous areas (other than mines)), following the established installation rules.

According to EN/IEC61010, TB and TBE power supplies must be connected to SELV or SELV-E supplies.

All circuits connected to TB and TBE must comply with the overvoltage category II (or better) according to EN/IEC60664-1.

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](http://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 and TBE series must be cleaned only with a damp or antistatic cloth.

The enclosure provides, according to EN60529, an IP20 minimum degree of protection (or similar to NEMA Standard 250 type 1).

### 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 IEC 60664-1. When installed in EU zone 2, the unit shall be installed in an enclosure that provides a minimum ingress protection of IP54 in accordance with IEC 60079-0. The enclosure must have a door or cover accessible only by the use of a tool.

#### Only for TBE-D5001-HRT-003 series:

TBE-D5001-HRT-003 series shall only be used to mount one HART® Multiplexer Modem, 5700 series.

For hazardous locations, TBE-D5001-HRT-003 series shall only be installed in an interlocked enclosure. As an alternative the end-enclosure shall carry the following warning marking: "Warning - Do not remove or replace fuse when energized".

#### Only for TBE-D5001-HRT-004 series:

TBE-D5001-HRT-004 series shall only be used to mount one HART® Multiplexer Modem, 5700 series.

For hazardous locations, TBE-D5001-HRT-004 series shall only be installed in an interlocked enclosure. As an alternative the end-enclosure shall carry the following warning marking: "Warning - Do not remove or replace fuse when energized".

**Only for TBE-D5001-HRT-005 series:**

TBE-D5001-HRT-005 series shall only be used to mount one HART® Multiplexer Modem, 5700 series.

For hazardous locations, TBE-D5001-HRT-005 series shall only be installed in an interlocked enclosure. As an alternative the end-enclosure shall carry the following warning marking: "Warning - Do not remove or replace fuse when energized".

**Only for TBE-D5001-HRT-006 series:**

TBE-D5001-HRT-006 series shall only be used to mount one HART® Multiplexer Modem, 5700 series.

For hazardous locations, TBE-D5001-HRT-006 series shall only be installed in an interlocked enclosure. As an alternative the end-enclosure shall carry the following warning marking: "Warning - Do not remove or replace fuse when energized".

**Only for TBE-D5001-HRT-007 series:**

TBE-D5001-HRT-007 series shall only be used to mount one HART® Multiplexer Modem, 5700 series.

For hazardous locations, TBE-D5001-HRT-007 series shall only be installed in an interlocked enclosure. As an alternative the end-enclosure shall carry the following warning marking: "Warning - Do not remove or replace fuse when energized".

### 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: ATEX certificates and operating temperature**

| Model family      | ATEX certificate    | Standards                | Markings              | Operating temperature |
|-------------------|---------------------|--------------------------|-----------------------|-----------------------|
| TB-D5008-INV-005  | BVS 18 ATEX E 079 X | EN 60079-0<br>EN 60079-7 | II 3G Ex ec IIC T4 Gc | -40 to 70 °C          |
| TB-D5016-TRI-010  | BVS 18 ATEX E 079 X | EN 60079-0<br>EN 60079-7 | II 3G Ex ec IIC T4 Gc | -40 to 70 °C          |
| TBE-D5001-HRT-003 | UL 20 ATEX 2492X    | EN 60079-0<br>EN 60079-7 | II 3G Ex ec IIC T4 Gc | -40 to 70 °C          |
| TBE-D5001-HRT-004 | UL 20 ATEX 2492X    | EN 60079-0<br>EN 60079-7 | II 3G Ex ec IIC T4 Gc | -40 to 70 °C          |
| TBE-D5001-HRT-005 | UL 20 ATEX 2492X    | EN 60079-0<br>EN 60079-7 | II 3G Ex ec IIC T4 Gc | -40 to 70 °C          |
| TBE-D5001-HRT-006 | UL 20 ATEX 2492X    | EN 60079-0<br>EN 60079-7 | II 3G Ex ec IIC T4 Gc | -40 to 70 °C          |
| TBE-D5001-HRT-007 | UL 20 ATEX 2492X    | EN 60079-0<br>EN 60079-7 | II 3G Ex ec IIC T4 Gc | -40 to 70 °C          |
| TBE-D5008-TRI-001 | IMQ 19 ATEX 073 X   | EN 60079-0<br>EN 60079-7 | II 3G Ex ec IIC T4 Gc | -40 to 70 °C          |
| TBE-D5016-TRI-001 | IMQ 19 ATEX 073 X   | EN 60079-0<br>EN 60079-7 | II 3G Ex ec IIC T4 Gc | -40 to 70 °C          |
| TBE-D5016-TRI-002 | IMQ 19 ATEX 073 X   | EN 60079-0<br>EN 60079-7 | II 3G Ex ec IIC T4 Gc | -40 to 70 °C          |
| TBE-D5016-TRI-003 | IMQ 19 ATEX 073 X   | EN 60079-0<br>EN 60079-7 | II 3G Ex ec IIC T4 Gc | -40 to 70 °C          |
| TBE-D5016-TRI-004 | IMQ 19 ATEX 073 X   | EN 60079-0<br>EN 60079-7 | II 3G Ex ec IIC T4 Gc | -40 to 70 °C          |
| TBE-D5016-TRI-005 | IMQ 19 ATEX 073 X   | EN 60079-0<br>EN 60079-7 | II 3G Ex ec IIC T4 Gc | -40 to 70 °C          |
| TBE-D5016-TRI-006 | IMQ 19 ATEX 073 X   | EN 60079-0<br>EN 60079-7 | II 3G Ex ec IIC T4 Gc | -40 to 70 °C          |

| Model family      | ATEX certificate  | Standards                | Markings              | Operating temperature |
|-------------------|-------------------|--------------------------|-----------------------|-----------------------|
| TBE-D5016-TRI-007 | IMQ 19 ATEX 073 X | EN 60079-0<br>EN 60079-7 | II 3G Ex ec IIC T4 Gc | -40 to 70 °C          |
| TBE-D5016-TRI-008 | IMQ 19 ATEX 073 X | EN 60079-0<br>EN 60079-7 | II 3G Ex ec IIC T4 Gc | -40 to 70 °C          |
| TBE-D5016-TRI-009 | IMQ 19 ATEX 073 X | EN 60079-0<br>EN 60079-7 | II 3G Ex ec IIC T4 Gc | -40 to 70 °C          |
| TBE-D5016-TRI-011 | IMQ 19 ATEX 073 X | EN 60079-0<br>EN 60079-7 | II 3G Ex ec IIC T4 Gc | -40 to 70 °C          |
| TBE-D5016-TRI-012 | IMQ 19 ATEX 073 X | EN 60079-0<br>EN 60079-7 | II 3G Ex ec IIC T4 Gc | -40 to 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 ( $\leq$ 1 V voltage drop) |
| TBE-D5016-TRI-001 | Transistor    | Fault             | 100 mA at 35 Vdc ( $\leq$ 1 V voltage drop) |
| TBE-D5016-TRI-002 | Transistor    | Fault             | 100 mA at 35 Vdc ( $\leq$ 1 V voltage drop) |
| TBE-D5016-TRI-003 | Transistor    | Fault             | 100 mA at 35 Vdc ( $\leq$ 1 V voltage drop) |
| TBE-D5016-TRI-004 | Transistor    | Fault             | 100 mA at 35 Vdc ( $\leq$ 1 V voltage drop) |
| TBE-D5016-TRI-005 | Transistor    | Fault             | 100 mA at 35 Vdc ( $\leq$ 1 V voltage drop) |
| TBE-D5016-TRI-006 | Transistor    | Fault             | 100 mA at 35 Vdc ( $\leq$ 1 V voltage drop) |
| TBE-D5016-TRI-007 | Transistor    | Fault             | 100 mA at 35 Vdc ( $\leq$ 1 V voltage drop) |
| TBE-D5016-TRI-008 | Transistor    | Fault             | 100 mA at 35 Vdc ( $\leq$ 1 V voltage drop) |
| TBE-D5016-TRI-009 | Transistor    | Fault             | 100 mA at 35 Vdc ( $\leq$ 1 V voltage drop) |
| TBE-D5016-TRI-011 | Transistor    | Fault             | 100 mA at 35 Vdc ( $\leq$ 1 V voltage drop) |
| TBE-D5016-TRI-012 | Transistor    | Fault             | 100 mA at 35 Vdc ( $\leq$ 1 V voltage drop) |

### 3 EU Declarations of Conformity



## EU Declaration of Conformity

G.M. International S.r.l.

declares that here below listed Models:

**TB-D5016-TRI-010; TB-D5008-INV-005  
D6001, D6001-xxx; D6002, D6002-xxx;  
(1)**

**D6003, D6003-xxx; D5099, D5099-xxx  
(2)**

are in accordance with the following European Directives:

|  |            |
|--|------------|
| Equipment intended for use in potentially explosive atmospheres (ATEX) | 2014/34/EU |
| Electromagnetic Compatibility (EMC)                                    | 2014/30/EU |
| Low Voltage Directive (LVD)  | 2014/35/EU |
| Restriction of the use of certain hazardous substances (RoHS)          | 2011/65/EU |

have been designed and manufactured according to the following standards:

|                           |   |
|---------------------------|---|
| EN IEC 60079-0:2018       | Explosive atmospheres - Part 0: Equipment - General requirements  |
| EN 60079-7:2015+A1:2018   | Explosive atmospheres - Part 7: Equipment protection by increased safety "e"  |
| EN 60079-15:2010          | Explosive atmospheres - Part 15: Equipment protection by type of protection "n" (only for models listed in (2))   |
| EN 61000-6-2:2005+AC:2005 | Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments  |
| EN 61000-6-4:2007+A1:2011 | Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments   |
| EN 61326-1:2013           | Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements  |
| EN 61326-3-1:2008         | Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 3-1: Immunity requirements for safety-related systems and for equipment intended to perform safety-related functions (functional safety) - General industrial applications |
| EN 61010-1:2010           | Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements  |

are covered by:

|                         |                               |
|-------------------------|-------------------------------|
| BVS 18 ATEX E 079 X     | Type Examination Certificate  |
| Presafe 15 ATEX 192544Q | Production Quality Assessment |

are suitable for installation in atmospheres with Gas and are marked:

**II 3G Ex ec IIC T4 Gc**  
for models listed in (1)

**II 3G Ex ec nC IIC T4 Gc**  
for models listed in (2)

This Declaration does not amend, supersede or, in any way, exclude the compliance to any applicable International and/or National Regulatory Requirement

Francesco Landrini  
CEO



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# EU Declaration of Conformity

G.M. International S.r.l.  
declares that here below listed Models:

**5700, 5700-xxx;  
TBE-D5001-HRT-xxx**

are in accordance with the following European Directives:

|  |            |
|--|------------|
| Equipment intended for use in potentially explosive atmospheres (ATEX) | 2014/34/EU |
| Electromagnetic Compatibility (EMC)                                    | 2014/30/EU |
| Low Voltage Directive (LVD)  | 2014/35/EU |
| Restriction of the use of certain hazardous substances (RoHS)          | 2011/65/EU |

have been designed and manufactured according to the following standards:

|                             |  |
|-----------------------------|--|
| EN IEC 60079-0:2018         | Explosive atmospheres - Part 0: Equipment - General requirements   |
| EN IEC 60079-7:2015+A1:2018 | Explosive atmospheres - Part 7: Equipment protection by increased safety "e"   |
| EN 61000-6-2:2005+AC:2005   | Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments                 |
| EN 61000-6-4:2007+A1:2011   | Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments        |
| EN 61326-1:2013             | Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements       |
| EN 61010-1:2010             | Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements |

are covered by:

|                         |   |
|-------------------------|---|
| UL 20 ATEX 2492X        | Type Examination Certificate              |
| Presafe 15 ATEX 192544Q | Production Quality Assurance Notification |

are suitable for installation in atmospheres with Gas and are marked:

**II 3G Ex ec IIC T4 Gc**

This Declaration does not amend, supersede or, in any way, exclude the compliance to any applicable International and/or National Regulatory Requirement

Francesco Landrini  
CEO

# EU Declaration of Conformity

G.M. International S.r.l.  
declares that here below listed Models:

**TBE-D5008-TRI-001**  
**TBE-D5016-TRI-001, TBE-D5016-TRI-002, TBE-D5016-TRI-003, TBE-D5016-TRI-004**  
**TBE-D5016-TRI-005, TBE-D5016-TRI-006, TBE-D5016-TRI-007, TBE-D5016-TRI-008**  
**TBE-D5016-TRI-009, TBE-D5016-TRI-011, TBE-D5016-TRI-012**

are in accordance with the following European Directives:

|  |            |
|--|------------|
| Equipment intended for use in potentially explosive atmospheres (ATEX) | 2014/34/EU |
| Electromagnetic Compatibility (EMC)                                    | 2014/30/EU |
| Low Voltage Directive (LVD)  | 2014/35/EU |
| Restriction of the use of certain hazardous substances (RoHS)          | 2011/65/EU |

have been designed and manufactured according to the following standards:

|                           |   |
|---------------------------|---|
| EN IEC 60079-0:2018       | Explosive atmospheres - Part 0: Equipment - General requirements  |
| EN 60079-7:2015+A1:2018   | Explosive atmospheres - Part 7: Equipment protection by increased safety "e"  |
| EN 61000-6-2:2005+AC:2005 | Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments  |
| EN 61000-6-4:2007+A1:2011 | Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments   |
| EN 61326-1:2013           | Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements  |
| EN 61326-3-1:2008         | Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 3-1: Immunity requirements for safety-related systems and for equipment intended to perform safety-related functions (functional safety) - General Industrial applications |
| EN 61010-1:2010           | Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements  |

are covered by:

|                         |                               |
|-------------------------|-------------------------------|
| IMQ 19 ATEX 073 X       | Type Examination Certificate  |
| Presafe 15 ATEX 192544Q | Production Quality Assessment |

are suitable for installation in atmospheres with Gas and are marked:

**II 3G Ex ec IIC T4 Gc**

This Declaration does not amend, supersede or, in any way, exclude the compliance to any applicable International and/or National Regulatory Requirement

  
 Francesco Landrini  
 CEO



## Warranty certificate

Subject to the conditions set out below, G.M. Int. warrants that the Goods supplied are new and will be free from material defects and correspond to the G.M. Int. published specifications at the time of the shipment.

Warranty is given by G.M. Int. subject to the following conditions:

1. G.M. Int. shall be under no liability in respect of any defect in the Goods arising from any drawing, design or specification supplied by the Client;
2. G.M. Int. shall be under no liability in respect of any defect in the Goods arising from fair wear and tear, willful damage, negligence, abnormal working conditions, failure to follow G.M. Int.'s instructions (whether oral or in writing), misuse or alteration or repair of the Goods;
3. G.M. Int. shall be under no liability under this Warranty (or any other warranty, condition or guarantee) if the price for the Goods has not been paid by the due date in accordance with the agreed payment terms;
4. Warranty is not extended to parts, materials or equipment not manufactured by G.M. Int., in respect of which the Client shall only be entitled to the benefit of any such warranty or guarantee as is given by the manufacturer to G.M. Int.
5. G.M. Int. shall be under no liability in respect of any repair made by unauthorized personnel because it may completely invalidate the safety characteristics of the Goods; Goods supplied under this Warranty cannot be repaired by third parties.
6. All terms, conditions and warranties (whether implied or made expressly) by G.M. Int. (other than those express warranties set out in the current edition of the G.M. Int.'s specification) relating to the quality and/or fitness for purpose of the Goods or any of the Instruments supplied are excluded. In fact, the client shall satisfy itself that the Goods are suitable for any product or application for which they have to be used before they are so used.
7. Any claim by the Client based on any apparent defect in quality or condition of the Goods or their failure to correspond with specification shall (whether or not delivery is refused by the Client) be notified to G.M. Int. within 30 days from the date of delivery or (where the defect or failure was not apparent on reasonable inspection) within five days after the discovery of the defect of failure but no later than 6 months after the delivery of the Goods. If delivery is not refused, and the Client does not notify G.M. Int. accordingly, the Client shall not be entitled to reject the Goods and G.M. Int. shall have no liability for such defect or failure and the Client shall be bound to pay the price as if the Instruments had been delivered in accordance with the order.
8. When a claim based on any defect in the quality or condition of the Goods is notified to Seller within 5 years from date of delivery and in accordance with these Warranties, Buyer shall be entitled to a free of charge replacement of the Goods (or part thereof) or, in Seller's sole discretion, a refund of the price paid by Buyer for the Goods (or a proportionate part of such price); the Seller shall have no further liability to the Buyer. The Goods claimed to be in default must be returned to G.M. Int.'s factory at Client cost; cost for return transport prepaid.
9. The quantity of the Goods stated on G.M. Int.'s advice note or other notification of dispatch shall be final unless the Client has given notice of any discrepancy in quantity within 10 days after receipt of the Goods and has thereafter given to G.M. Int. a reasonable opportunity to re-count the Goods prior to their having been used, sold or processed.
10. Seller warrants the availability of spare parts for a period of 10 years from the date of delivery.

THESE WARRANTIES ARE EXCLUSIVE, AND SELLER MAKES NO OTHER WARRANTIES; EXPRESSED OR IMPLIED; INCLUDING ANY IMPLIED WARRANTIES OF FITNESS FOR ANY PARTICULAR PURPOSE OF THE GOODS SUPPLIED OR FOR ANY CONSEQUENTIAL, FINANCIAL, PUNITIVE OR ENVIRONMENTAL LOSSES. Moreover, the Buyer has the right to demand the delivery of the spare parts within 10 years from the sale.

**Indemnity:** G.M. Int. shall not be liable to the Client, its clients and to any other person by reason of any representation or any implied warranty, condition or other terms, or under the express terms of the Warranty for incidental, special, punitive, environmental and consequential loss or damages (whether for loss of profit or otherwise), costs expenses or other claims for consequential compensation whatsoever (and whether caused by the negligence of G.M. Int., its employees or agents or otherwise) which arise out of or in connection with the supply of the Goods, their use or resale by G.M. Int.

**Limit of Liability:** Notwithstanding anything else in this Warranty, and to the extent permissible by law, G.M. Int.'s aggregate responsibility and liability shall not exceed 100% of the net invoice value of the Goods paid by the original Buyer for the Goods under complaint and supplied hereunder.





[www.gminternational.com](http://www.gminternational.com)



**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](http://www.gminternational.com).

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