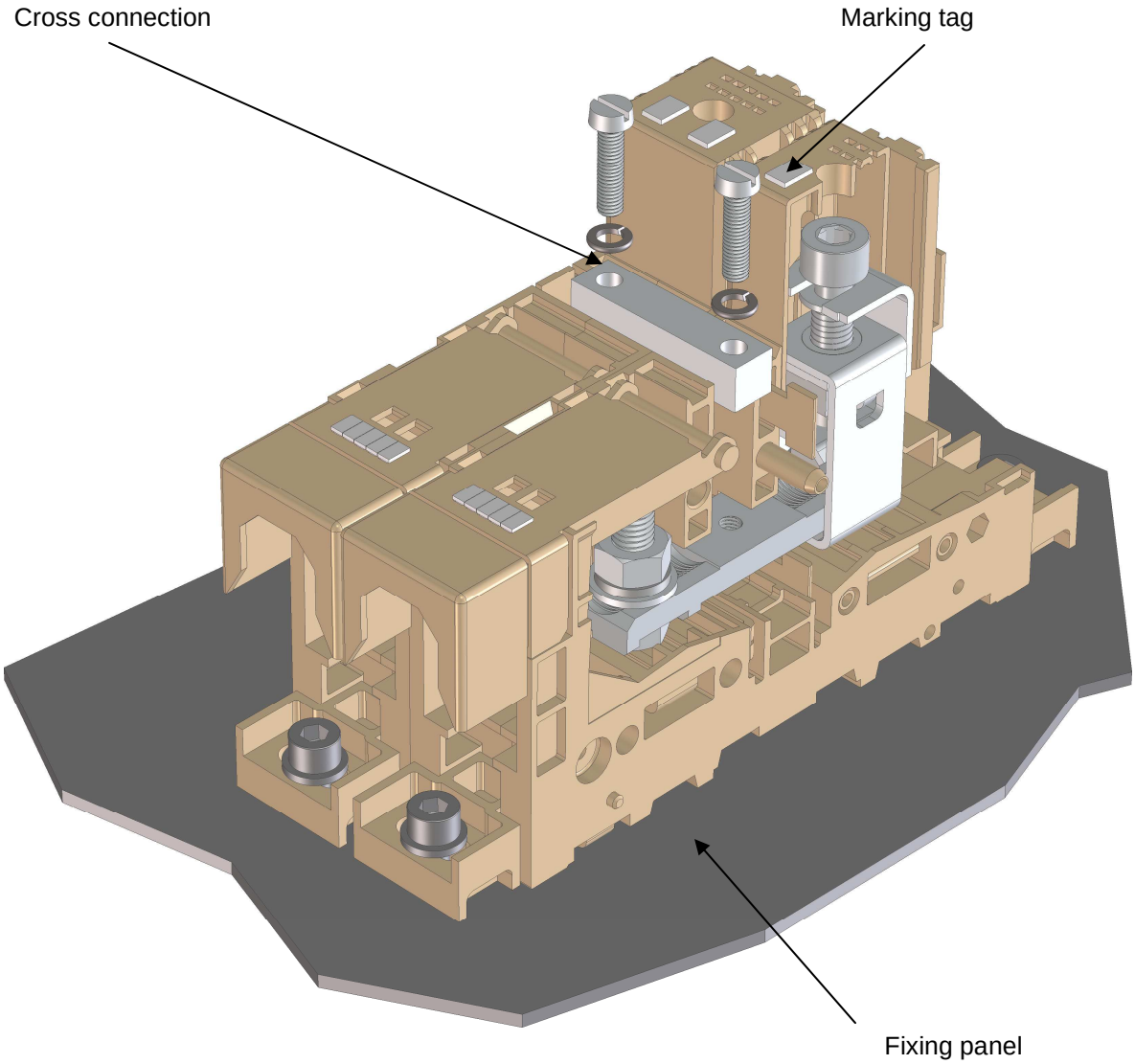
# Ex e Instruction Manual N° 28

GPM/FIX Series “increased safety” terminal blocks, are manufactured according to the prescriptions given by IEC / EN 60079-0, IEC / EN 60079-7 Standards and are in compliance with the ATEX 94/9/CE Directive and the IEC Ex Certification Scheme.
GPM/FIX Series terminal blocks are also designed and manufactured in compliance with IEC / EN 60947-1 and IEC / EN 60947-7-1 reference product standards.
Terminal blocks (components) must be inserted in Ex e enclosures. The terminal blocks + enclosure assembly must be subjected to separate certification.
GPM/FIX Series terminal blocks are suited for a temperature range between - 40 and + 80 °C
Ambient temperature range shall be between - 40 and + 40 °C

**Rail assembly composition in potentially explosive (Ex e) environments**




Each rail assembly is formed by two or more adjoining terminal blocks, that can be fixed directly to a panel by means of appropriate screws, in a way to obtain a compact and single arrangement.
Each terminal block can be connected to adjoining elements by means of CROSS CONNECTION of the fixed type, which are anti-loosening thanks to an elastic washer located under the head of each screw forming the cross connection itself.
The insulating bodies of GPM/FIX Series terminal blocks are equipped with a separating diaphragm (> 1 mm thick) that needs to be broken off in the position where the cross connection will be housed. Adjoining cross connections can be electrically separated and insulated by keeping the diaphragms in place at their extremities

ATEX Marking:


**I M 2 Ex e I Mb  II 2G Ex e IIC Gb**

**CESI 13 ATEX xxxU**

**0722** = number of the ATEX surveillance Notifying Body (CESI)

**I M 2** = group I (mines), category M 2

**II 2** = group II (surface), category 2

**G** = explosive atmosphere with presence of GAS

**Ex e** = "increased safety" protection mode

**IIC** = gas group

**Gb** = EPL

**I** = group I (mines)

**Mb** = EPL

**GPM** = terminal block series or type

**/FIX** = panel-mount version

**(e.g.) 95** = rated cross-section of terminal block

IEC Ex Marking

**Ex e IIC Gb  Ex e I Mb**

**IECEx CES 13.xxxxU**

**Ex e** = "increased safety" protection mode

**IIC** = gas group

**Gb** = EPL

**I** = group I (mines)

**Mb** = EPL

## GPM/FIX Series feed-through terminal blocks - Ex e rated values

| Terminal block | Rated cross section [ mm² ] | Minimum / maximum flexible and rigid conductor [ mm² ] | Rated current [ A ] (*) | Resistance of the terminal block [ Ω ] (**) | Rated Ex e voltage [ Vac ] (***) | Jumper | Tightening torque of the jumper screw [ Nm ] (****) | Current of the jumper [ A ] (*) |
|---|---|---|---|---|---|---|---|---|
| GPM.95/BB/FIX | 95 | 35 / 95 | 232 | $0,78 \times 10^{-4}$ | 630 (**) | POF.95/… | 2 | 232 |
| GPM.95/BC/FIX | 95 | 35 / 95 | 232 | $1,37 \times 10^{-4}$ (*****) | | | | |
| GPM.95/CC/FIX | 95 | 35 / 95 | 232 | $1,37 \times 10^{-4}$ | | | | |
| GPM.150/BB/FIX | 150 | 50 / 150 | 309 | $0,64 \times 10^{-4}$ | 1000 | POF.15/… | 2 | 309 |
| GPM.150/BC/FIX | 150 | 50 / 150 | 309 | $0,93 \times 10^{-4}$ (*****) | | | | |
| GPM.150/CC/FIX | 150 | 50 / 150 | 309 | $0,93 \times 10^{-4}$ | | | | |
| GPM.240/BB/FIX | 240 | 95 / 240 | 415 | $0,38 \times 10^{-4}$ | 1000 | POF.240/… | 2 | 376 |
| GPM.240/BC/FIX | 240 | 95 / 240 | 415 | $0,64 \times 10^{-4}$ (*****) | | | | |
| GPM.240/CC/FIX | 240 | 95 / 240 | 415 | $0,64 \times 10^{-4}$ | | | | |

Notes (*):According to paragraph 8.4.5 of IEC 60947-7-1 Std. / Ambient temperature according to paragraph 8.3.3.3.1 of IEC 60947-1 Std.
(**):Values calculated from the results of the voltage drop test according to paragraph 8.4.4 of IEC 60947-7-1 Std.
(***):Rated voltage values can be subjected to a ± 10 % tolerance as listed in Table 1 of IEC 60079-7 Std.
(****) : Values taken from Table 4 of IEC 60947-1 Std.
(*****) : Value could not be determined from official test reports and therefore conservatively referred to /CC version

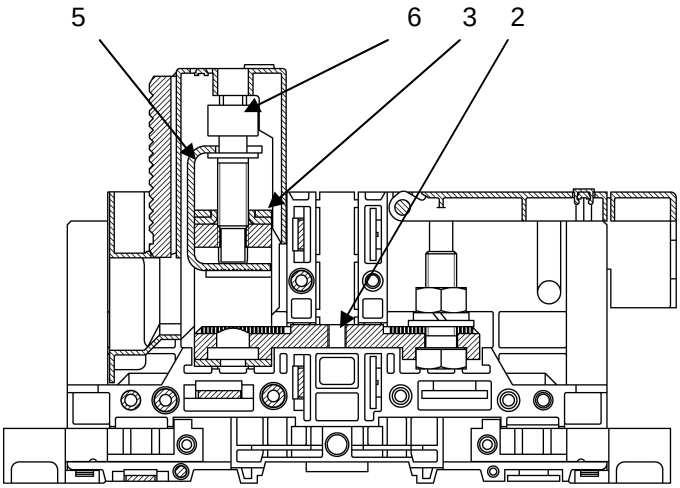



Fig.A

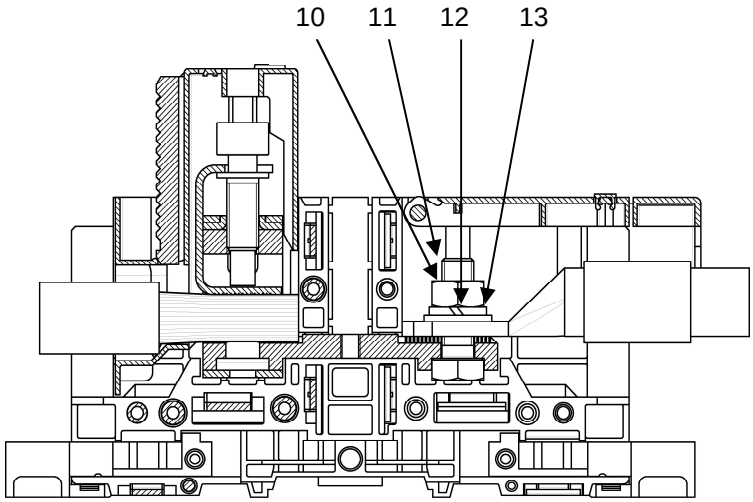



Fig. B

| TERMINAL BLOCK | INSULATION STRIPPING LENGTH [ mm ] | DIMENSIONS OF TIGHTENING WRENCH (bar side) | DIMENSIONS OF TIGHTENING WRENCH (cable side) | TIGHTENING TORQUE VALUES [ Nm ] (*) |
|---|---|---|---|---|
| GPM.95/BB/FIX | 35 | 13 mm wrench | - | 6 |
| GPM.95/BC/FIX | 35 | 13 mm wrench | 6 mm Allen screw | 6 / 6 (**) |
| GPM.95/CC/FIX | 35 | - | 6 mm Allen screw | 6 |
| GPM.150/BB/FIX | 35 | 17 mm wrench | - | 10 |
| GPM.150/BC/FIX | 35 | 17 mm wrench | 8 mm Allen screw | 10 / 10 (**) |
| GPM.150/CC/FIX | 35 | - | 8 mm Allen screw | 10 |
| GPM.240/BB/FIX | 43 | 19 mm wrench | - | 14 |
| GPM.240/BC/FIX | 43 | 19 mm wrench | 8 mm Allen screw | 14 / 14 (**) |
| GPM.240/CC/FIX | 43 | - | 8 mm Allen screw | 14 |

Note (*) = values taken from Table 4 of IEC 60947-1 Std
(**) = values referred, respectively, to bar and cable side

GPM/FIX Series Cabur terminal blocks are designed to enable the operator to perform a quick and safe connection of electrical conductors.
Each clamping unit can house only one conductor
Cabur GPM/FIX Series terminal blocks allow the connection:

- With the bar-bar (-/BB) version, of two semi-rigid or flexible conductors prepared with cable lug or of two bars
- With the bar-cable (-/BC) version, of two semi-rigid or flexible conductors one of which prepared with cable lug or with a semi rigid or flexible conductor and one bar
- With the cable-cable version (-/CC), of two semi-rigid or flexible conductors

The clamping by means of collar (Pos. 3 - Fig. A) (-/BC and -/CC versions) is guaranteed by the appropriate pressure plate (Pos. 5 - Fig. A), that utilises the reaction to the compression force exerted on the conductor, to block the screw (Pos. 6 - Fig. A) making it stable even in presence of vibrations.
Both conducting body (Pos. 2 - Fig. A) and pressure plate (Pos. 5 - Fig. A), by means of appropriate grooving, are able to ensure a perfect electrical contact and an efficient blocking of the conductor
For the connection of conductors, cable side (-/BC and -/CC versions), it is necessary to:

1) Loosen the tightening screw (Pos. 6 - Fig. A) until the arrest point is reached and with the aid of the tool indicated in the table. Once the operation is performed, the conductor's insertion hole is completely open and is ready to house the cable.
2) Prepare the conductor, by stripping its end from the insulating protection (Fig. B) and according to the stripping length given in the table. Then introduce the conductor in the terminal block until the insulating wall is reached; at this stage, whilst keeping the conductor in place with one hand, the screw must be tightened, by applying the torque values given in the table and the connection secured. In this position, the pressure plate acts as a spring, avoiding the screw to unloosen itself.

The blocking of cable lug and bar on the conducting body is ensured by the screw (Pos. 11 - Fig. B) and nut (Pos. 10 - Fig. B), with the interposition of an elastic washer (Pos. 12 - Fig. B) and a flat washer (Pos. 13 - Fig. B)
For the connection of conductors, bar side (-/BC and -/BB versions), it is necessary to:

1) Loosen and extract the nut (Pos.10 - Fig. B) with the aid of the tool indicated in the table. Then, extract also the elastic and the flat washer, in this sequence. Once this operation is performed it is possible to lock the conductor provided with lug or the bar, to the terminal block
2) Introduce the conductor provided with lug or the bar in the terminal block, resting on the conducting body. Then introduce flat washer, elastic washer and nut in sequence. Tighten, whilst keeping the conductor in place with one hand the nut (applying the torque values specified in the table) and block. In this position the elastic washer acts as a spring, avoiding the unloosening of the nut.

**Attestation of Conformity to ATEX 94/9/EC Directive**

**Inserted in the following document: M19/e general instructions (leaflet inserted in every package)**

Terminal blocks approved in conformity to ATEX 94/9/CE Directive
Terminal blocks "at increased safety" (Ex e) are manufactured according to IEC/EN 60079-0, IEC/EN 60079-7 Stds. and bear, on the insulating body, the name of the product and the electrical characteristics.

ATEX Marking:

**0722** **I M 2 Ex e I Mb** **II 2G Ex e IIC Gb**

| | |
|---|---|
| **0722** | = number of Notifying Body (CESI) for the ATEX surveillance |
| **I M2** | = group **I** (mines), category **M2** |
| **II 2 G** | = group **II** (surface) category **2 G** (gas) |
| **Ex e** | = "increased safety" protection mode |
| **IIC** | = gas group |
| **Gb** | = EPL |
| **I** | = group **I** (mines) |
| **Mb** | = EPL |
| **V** | = rated voltage |

The CE Marking indicates the Conformity to EU Low-voltage Directive 2006/95/EC
Terminal blocks must be installed in enclosures "at increased safety"; the enclosure / terminal blocks assembly must be subjected to separate certification

cabur
The Legal Representative