

Ex e Instruction Manual N° 22

RN.2 and RP.4 type “increased safety” terminal blocks, are manufactured according to IEC/EN 60079-0 and IEC/EN 60079-7 Standards, IECEx Certification Scheme and ATEX 2014/34/EU Directive prescriptions.

RN.2 and RP.4 series type are covered by IECEx CES 11.0009U and 03 ATEX 073U Certificates.

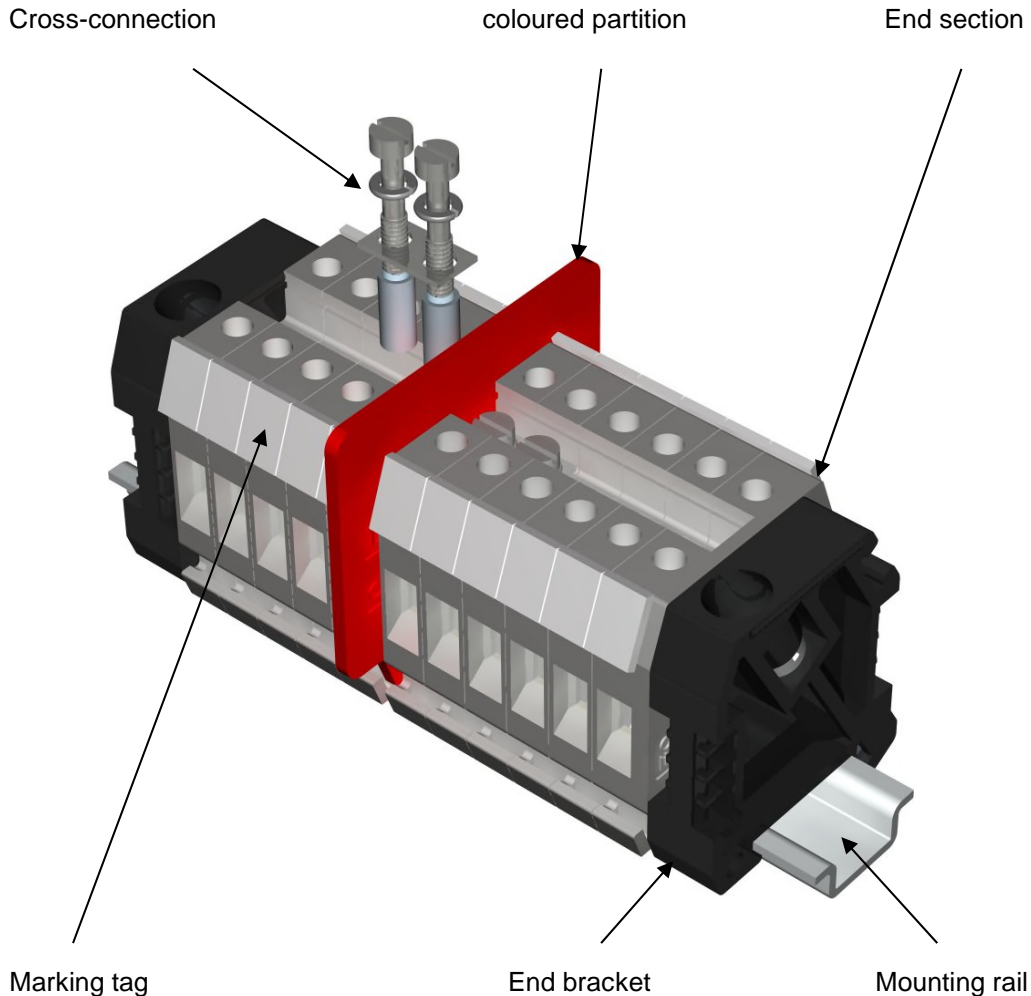
RN.2 and RP.4 Series terminal blocks are also designed and manufactured in compliance with IEC / EN 60947-1 and IEC / EN 60947-7-1 reference product standards.

Terminal blocks (components) must be inserted in Ex eb enclosures. The terminal blocks + enclosure assembly must be subjected to separate certification.

RN.2 and RP.4 Series terminal blocks are suited for a service temperature range between - 40 and + 110 °C.

Ambient temperature range shall be between - 40 and + 40 °C for T6 applications.

Rail assembly composition in potentially explosive (Ex e) environments






Each rail assembly is formed by two or more adjoining terminal blocks and by END BRACKETS, that are located at the ends of the assembly, in a way to obtain a compact and single arrangement.

As the back of each terminal block performs the function of insulating wall of the adjoining terminal block, an END SECTION is necessary in order to close and provide appropriate insulation to the first terminal block, forming the assembly.

Rail assemblies can be subdivided into groups by interposing COLOURED PARTITIONS, in order to ease the location of different circuits.

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.

Multiple cross connections can be performed between terminal blocks, by means of a multiple commoning bar.

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IECEx Marking:



I M2 Ex eb I Mb
II 2G Ex eb IIC Gb

Ex eb I Mb
Ex eb II C Gb

ATEX Marking description

0722	= number of the ATEX surveillance Notifying Body (CESI)
I M 2	= group I (mines), category M 2
II 2 G	= group II (surface), category 2 G (explosive atmosphere with presence of GAS)
Ex eb	= “increased safety” protection mode
I	= gas group I (mines)
II C	= gas group II C (Acetylene)
Gb	= E.P.L. (surface)
Mb	= E.P.L. (mines)
RN	= terminal block series or type
RP	= terminal block series or type (two-pole reduced pitch version)
2/4	= rated cross-section of terminal block (2mm ² or 4mm ²)

IEC Ex Marking description

Ex eb	= “increased safety” protection mode
I	= gas group I (mines)
IIc	= gas group IIc (Acetylene)
Gb	= E.P.L. (surface)
Mb	= E.P.L. (mines)

Terminal block types RN.2 and RP.4 - Ex e rated values

Terminal block	Rated cross-section [mm²]	Gauge according to IEC 60947-1	Minimum / maximum cross-section of flexible conductor [mm²]	Rated current [A] (*) (****)	Resistance of terminal block [Ω] (**) (***)	Rated Ex e voltage [Vac] (***) (on rail type):	Test voltage [Vac]	Material group
						IEC 60715 / TH/15		
RN.2	2,5	A3	0,5 / 4	24	1,96 x 10-4	320	2500 / 3000	I according to IEC 60079-7
RP.4	4	A4	0,5 / 6	32	7,16 x 10-4	320		

Notes (*) : According to paragraph 8.4.5 of IEC 60947-7-1 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 $\pm 10\%$ tolerance as listed in Table 1 of IEC 60079-7 Std.
 (****) : Ambient temperature according to paragraph 8.3.3.1 of IEC 60947-1 Std.

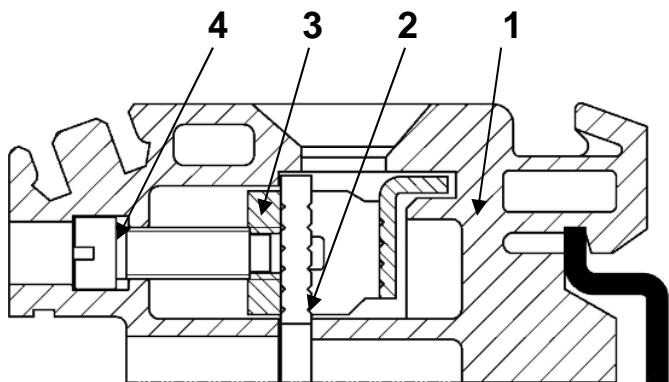


Fig. A

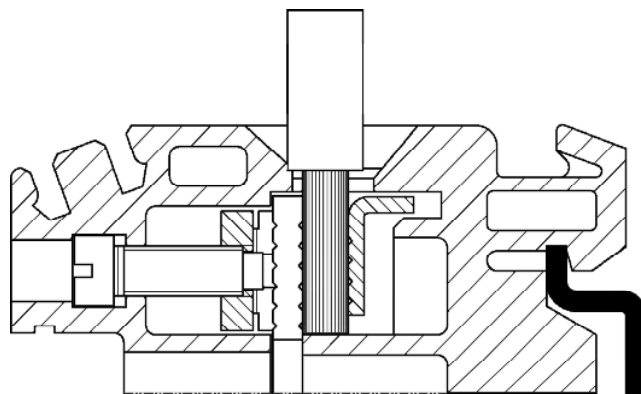


Fig. B

POSITION	COMPONENT
1	Insulating body
2	Conducting body
3	Wire clamping collar
4	Tightening screw

TERMINAL BLOCK	STRIPPING LENGTH [mm]	TIGHTENING TORQUE [Nm] (*)
RN.2	8	0,4
RP.4	9	0,5

Note(*): values taken from Table 4 of IEC 60947-1 Std.

RN.2 and RP.4 Cabur terminal blocks are designed in order to enable the operator to perform a quick and safe connection of electrical conductors.

Terminal block types RN.2 and RP.4 allows the direct and anti-loosening connection of solid, stranded and flexible conductors, by means of wire clamping collars, captive screws and conducting body.

Each clamping unit can house only one conductor

The insertion of the cable is eased by:

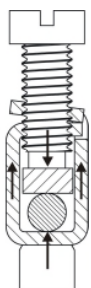
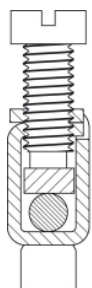
- Sloping entrance planes provided on the insulating body
- A tab provided in the collar that avoids faulty introduction of the conductors
- Adequate dimensioning of the conductors insertion hole, with respect to the diameter of the maximum connectable conductor (according to the different Gauges prescribed by IEC 60947-1Std.)

Appropriate grooving, provided in the wire clamping collar and on the conducting body guarantee a perfect electrical contact and an efficient blocking of the conductor.

Both the wire clamping collar and the tightening screw are manufactured in tempered steel with galvanic RoHS conforming zinc plating; thanks to their coupling it is possible to apply the correct contact pressure.


By acting on the tightening screw, the collar tightens the conductor against the conducting body, which is manufactured in tin-plated copper. With the clamping yoke tightening system a gasproof, particularly safe connection is guaranteed

For the connection of the conductor it is necessary to:



- 1) Loosen the tightening screw (Pos.4 - Fig. A) until it frictions, making the collar (Pos.3 - Fig. A) reach its lower position; once this operation is performed, the conductor's insertion hole results to be completely open and is ready to house the conductor.
- 2) Prepare the conductor by stripping one end from its insulation (Fig. B) and according to the correct insulation stripping length given in the table. introduce it in the terminal block until the limiting wall is reached. By holding firmly the conductor in one hand, tightening operation must be performed (applying the prescribed torque values given in the table). Once this operation is performed the conductor is firmly secured.

Thanks to the force applied during the tightening process, the overlapped threaded parts system act, by means of elastic deformation on the head of the screw, blocking it and avoiding subsequent loosening.

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