SAFETY INSTRUCTIONS

Category 3 GD Ex connectors Cod. KAEX041000

Edition: 14-02-2024

1. FOREWORD

These safety instructions refer to the installation, use and maintenance of connectors of the series Cod. KAEX041000 in areas with the presence of potentially explosive atmospheres.

The connectors of the series Cod. KAEX041000 are group II equipment, for use in areas classified with the presence of gas, vapour, mist and combustible dust of category 3 GD with protection type **Ex ec IIC T5 Gc / Ex tc IIIC T95°C Dc**. They are designed and manufactured in accordance with ATEX Directive 2014/34/EU and UK SI 2016 No.1107 Regulation, according to Standards EN IEC 60079-0, EN IEC 60079-7 and EN 60079-31.

The connectors of the series Cod. KAEX041000 are manufactured in accordance with Standard EN175301-803, which also determines the connection characteristics of the counterpart
In addition to the recognised rules of good engineering practice and these operating instructions, it is also necessary to refer to the conditions for safe use (see letter "X" in the marking) for further application conditions that must be met in all cases.
However, these operating instructions cannot take into account all possible conditions and applications and do not replace current regulations.

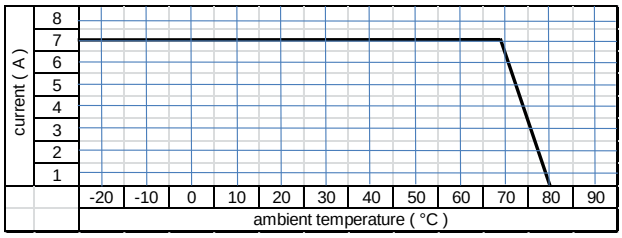
2. INSTALLATION

2.1 Suitability for the place of installation

For use in areas where there is a risk of explosion, it is necessary to check, during the installation and maintenance operations, that the equipment is suitable for the zone classification and for the substances/temperatures found in the area of installation.
The installation requirements for the selection and installation of electrical equipment in areas where there is a risk of explosion are dictated by Standard EN 60079-14.
As a result of these technical and legislative provisions, the following factors are decisive:

- *type of installation*: group II (surface installations)
- *zone classification* : 2 / 22 (to which the characteristics of category 3GD equipment correspond)
- *characteristics of flammable substances present in the form of gas/dust*
  - *Substance group:* IIC (gas),IIIC (dust)
  - *temperature class and maximum surface temperature*: T5, T95°C
  - *EPL*: Gc (gas) / Dc (dust)

It is strictly necessary that the current and the interface temperature of the equipment to be connected are within the limits allowed by the connector according to the following diagram



The maximum surface temperature must be determined considering the maximum ambient temperature and any external heating sources at the point of installation to the connector.

Note: in most cases, the operating temperature of the equipment is higher than the ambient temperature.
The values indicated take into account a contact resistance (max.15mΩ) for connection to the equipment according to Standard EN175301-803

• The operating temperature of the equipment connected to the connector must not be greater than 90°C in order not to stress the connector materials and not to exceed the value of the Ex gas temperature class T5; and for dust, the maximum surface temperature of T95°C

• Consider the previously determined values when choosing suitable cables and lines.

• Take care, during normal handling and/or assembly operations, to prevent dust and/or liquids from entering the connector and make sure that the gaskets are fitted correctly without being damaged

• Make sure that the cable diameter is within the prescribed range

• The permitted cable cross-sections are between 0.5mm² and 1.5mm², bare copper Conductor ferrules, terminals and/or other conductor tinning are not allowed

• Observe the tightening torques indicated when wiring the conductors, clamping the cable and closing the connector on the counterpart

• It is forbidden to disconnect the connector from the counterpart when it is live.

2.2 Special conditions for safe use ("X").

The connector is suitable for environments with a low mechanical risk, so it must be protected against the risk of mechanical damage from shocks greater than 4 Joules in accordance with EN IEC 60079-0 26.4.2 table 15

The connector must be protected against direct exposure to ultraviolet (UV) light according to EN IEC 60079-0 7.3

The user must regularly clean the outer surface with a damp cloth or antistatic products, in order to prevent the formation and build-up of layers of dust thicker than 5mm

The connection interface (counterpart) must be marked ATEX and UK SI 2016 No.1107 Regulation for the UK market, category 3GD or higher, with protection type Ex ec / Ex tc, and with a protection rating of at least IP65.

2.3 ATEX marking

The connectors feature the following marking:

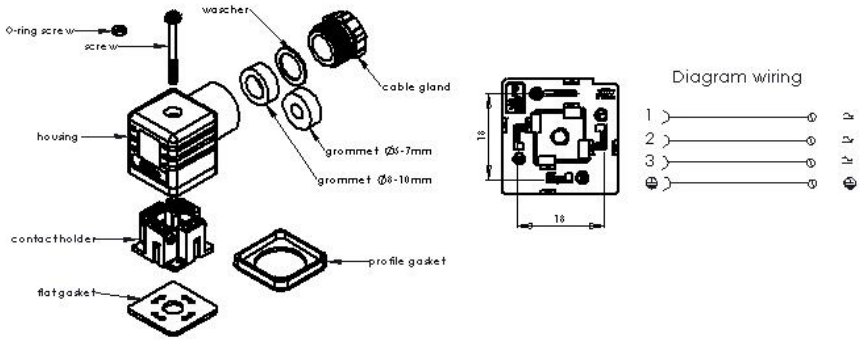
CE	CE marking in accordance with Directive 2014/34/EU and all applicable European Directives
UKCA	UKCA marking in accordance with UK SI 2016 No.1107 Regulation and all applicable UK Directives
Ex	marking in accordance with Directive 2014/34/EU and the relative technical standards
II 3 GD	group II connector for category 3 surface installations with the presence of combustible gas and dust, suitable for zone 2 (gas) and zone 22 (dust)
Ex ec	protection type ec (non-sparking devices with increased safety) for gas
IIC	gas group IIC (equipment suitable for all types of gas)
T5	temperature class for gas
Gc	equipment for gas, vapour or mist, with normal protection level (EPL Gc)
Ex tc	protection type tc (dust-tight devices) for combustible dust
IIIC	dust group IIIC (equipment suitable for all types of dust)
T95°C	maximum surface temperature for combustible dust
Dc	equipment for combustible dust with normal protection level (EPL Dc)
X	Special conditions for safe use

2.4 Technical characteristics

The electrical connection of the equipment is made using screw clamping terminals attached to the connector itself.

Standard	EN175301-803 A
Max. voltage	250 V AC-DC
Max. current	7 A
Contact resistance	< 15mΩ
Insulation voltage	2 kV
Service temperature	-20°C ÷ +95°C
Ambient temperature	-20°C ÷ +70°C
Permitted conductor cross-section	0.5 ÷ 1.5mm² bare copper
Conductor screw tightening torque	0.4 ÷ 0.5 N/m
Permitted cable sheath diameters	5 ÷ 10 mm with appropriate sealing rings (cable glands)
Cable clamp tightening torque	1.8 ÷ 2 N/m
Fixing screw tightening torque	0.4 ÷ 0.5 N/m
Protection rating	IP 65 (if assembled correctly)

2.5 Assembly diagram



The connector is supplied with a set of two NBR sealing rings (cable gland) for cables with a sheath diameter between 5 and 7mm or between 8 and 10mm, and two NBR sealing rings with the counterpart (one optional to the other).
During installation, the correct assembly and integrity of all the parts must be verified.

3. CHECKS AND MAINTENANCE

All checks and maintenance on the connectors of the series Cod. KAEX041000 must be carried out in accordance with Standard EN 60079-17.
Pay particular attention to the following:

- The surfaces must not be further machined or damaged.
- The gaskets must be correctly fitted and intact.
- Parts subject to wear (such as gaskets) must be checked periodically and replaced with original spare parts only.

4. REPAIRS

Repairs are not allowed. In the event of a fault, each Ex connector of the series Cod. KAEX041000 must be replaced with a new one of the same type.

5. STORAGE

Store the product for a short time in rooms at a temperature between -20°C and +70°C, dry Rh < 80%, not exposed to UV radiation and corrosive agents.