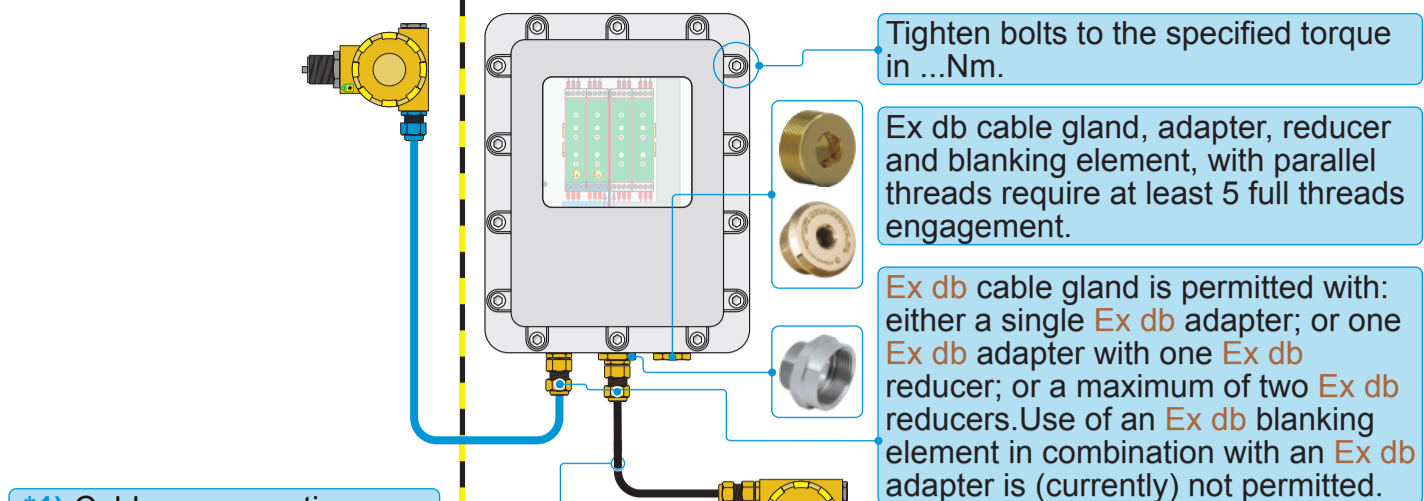


INSTALLATION CHART FOR GAS (G) AND DUST (D) EN-IEC 60079-14:2024

- II 1 G Ex ia IIC T6 Ga
- II 1 D Ex ia IIIC T80°C Da

- II 2(1) G Ex db [ia Ga] IIB+H2 T5 Gb
- II 2(1) D Ex tb [ia Da] IIIC T95°C Db



*1) Cable cross-section must comply with standard EN-IEC 60079-14, Annex C.

*1) Cable installation in an Ex db compression gland with elastomer sealing ring on the cable sheath requires a cable that is round and compact. Furthermore: for IIA and IIB ≥ 0.5 meters, for IIB+H₂ and IIC ≥ 3 meters. And if for IIA and IIB the Ex db enclosure > 2 liters, or for IIB+H₂ and IIC always, then the cable must comply with Annex C. Otherwise, a barrier gland must be used. See the flowchart in 7.5.7.

Fuseterminal Ex db eb or Ex eb mb in an Ex e enclosure or a standard fuse in an Ex d enclosure.

Installation of Ex ma and for Ex mb in zone 1 or 21 must comply with the required EPL level of the application, according to the manufacturer's manual.

- II 1 G Ex ma IIC T6 Ga
- II 1 D Ex ma IIIC T80°C Da
- II 1 G Ex ia IIC T6 Ga
- II 1 D Ex ia IIIC T80°C Da

- II 2 G Ex db IIC Gb
- II 2 D Ex tb IIIC Db

- II 1 G Ex ia IIC T6 Ga
- II 1 D Ex ia IIIC T80°C Da

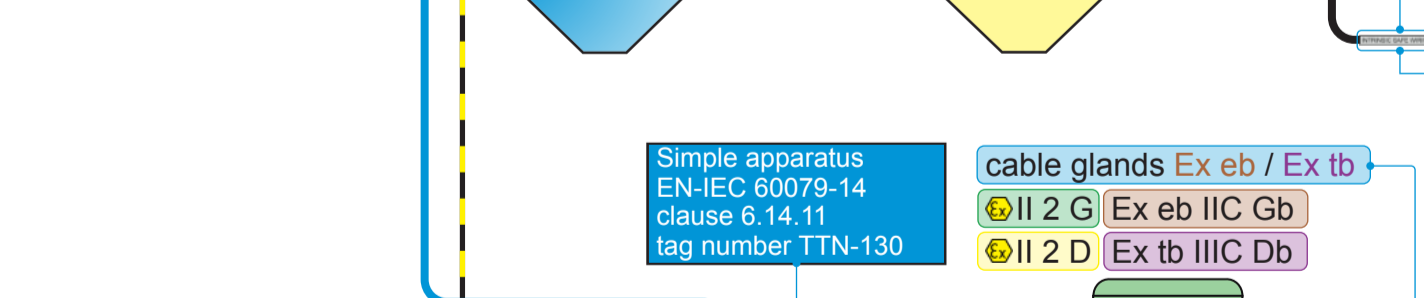
- II 2 G Ex db IIC T6 Gb
- II 2 D Ex tb IIIC T80°C Db

- II 2 G Ex db IIC T6 Gb
- II 2 D Ex tb IIIC T80°C Db

Simple apparatus shall comply with EN-IEC 60079-14 clause 6.14.11 and marked with a unique tag number

Simple apparatus EN-IEC 60079-14 clause 6.14.11 tag number TTN-120

Loop must comply with EPL Ga and/or EPL Da



- II 2 G Ex db IIC T6 Gb
- II 2 D Ex tb IIIC T80°C Db

- II 2 G Ex db IIC T6 Gb
- II 2 D Ex tb IIIC T80°C Db

- II 2 G Ex db IIC T6 Gb
- II 2 D Ex tb IIIC T80°C Db

- II 2 G Ex db IIC T6 Gb
- II 2 D Ex tb IIIC T80°C Db

Disclaimer: This poster only provides a summary of important parts of the standard EN-IEC 60079-14:2024. Always consult the full standard for correct and complete information. No rights can be derived from the content of this poster.

- II 2 G Ex h IIB T4 Gb
- II 2 D Ex h IIB T120°C Db

- II 2 G Ex h IIC T4 Gb
- II 2 D Ex h IIIC T120°C Db



Explanations on this installation chart are indicated in blue. The chart provides a structured overview of commonly applied solutions. The differentiation between applications suitable for gas (G) and dust (D) is emphasized through color coding. For the sake of clarity, specific solutions for Ex p, Ex q, Ex o, and Ex op have been omitted. The markings are grouped and correspond to one another. All applications are implemented with galvanic isolators; when using Zener barriers, the DIN rail must be mounted in an insulated manner and connected to earth at a single point.

- ATEX marking G guideline 2014/34/EU
- Marking to standard with EPL G*
- ATEX marking D guideline 2014/34/EU
- Marking to standard with EPL D*

Verification of intrinsic safety:
 $U_i \geq U_o$
 $I_i \geq I_o$
 $P_i \geq P_o$
 $L_i + L_c \geq L_o$
 $C_i + C_c \leq C_o$

For linear circuits, verify whether the 1% rule is applicable using the table below, excluding Lc and Cc values of the cable.

1% rule	$\Sigma C_i \approx 0$	$\Sigma C_i \leq 0,01 \times C_o$	$\Sigma C_i > 0,01 \times C_o$
$\Sigma L_i \approx 0$	Lo, Co	Lo, Co	Lo, Co
$\Sigma L_i \leq 0,01 \times L_o$	Lo, Co	Lo, Co	Lo, Co
$\Sigma L_i > 0,01 \times L_o$	Lo, Co	Lo, Co	0,5 Lo en 0,5 Co

If $(0.5 C_o > 1 \mu F)$ for gasgroups IIA and IIB and dustgroup III, then: $C_o = 1 \mu F$ applies.

If $(0.5 C_o > 600 nF)$ for gasgroup IIC, then: $C_o = 600 nF$ applies.

Where the certificate of the associated apparatus [Ex i*] specifies permissible pairs, and the 1% rule is applicable, the permissible pairs take precedence over the 0,5 Lo and 0,5 Co.

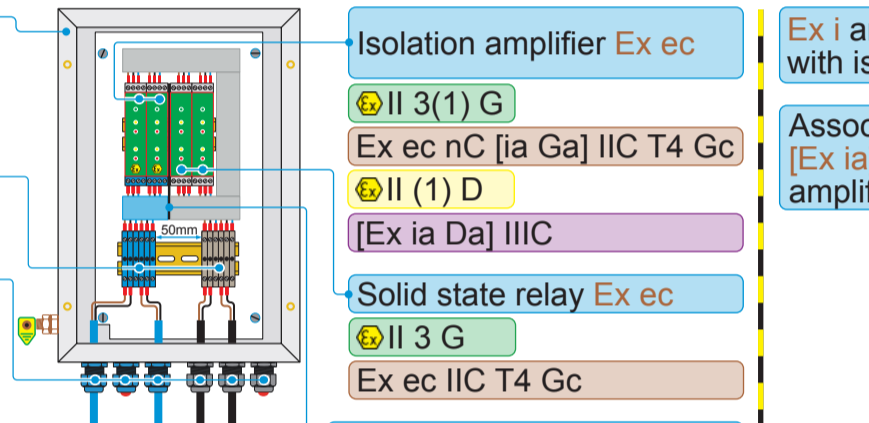
Distance X for an Ex d housing with a flanged joint to a solid obstacle, e.g. wall or metal frame in gasgroup: IIA ≥ 10 mm; IIB ≥ 30 mm and IIC ≥ 40 mm.

Table IP-code for dust D, enclosure Ex t* shall comply, in accordance with standard EN-IEC 60079-31 clause 4.2 to:

	dust group IIC	IIB	IIIA	EPL
Ex ta	IP6x	IP6x	IP6x	Da
Ex tb	IP6x	IP6x	IP5x	Db
Ex tc	IP6x	IP5x	IP5x	Dc

Enclosure Ex e / Ex tc certified, minimum IP65, according to standard EN-IEC 60079-14 table P.1.

- II 3(1) G Ex ec nC [ia Ga] IIC T4 Gc
- II 3(1) D Ex tc [ia Da] IIIB T80°C Dc



Ex i and non-Ex i separation with isolation plate ≥50mm.

- II 3 G Ex ec IIC T6 Gc
- II 3 D Ex tc IIIC T80°C Dc

- II 2 G Ex eb IIC Gb
- II 2 D Ex tb IIIC Db

- II 2 G Ex db IIC T6 Gb
- II 2 D Ex tb IIIC T80°C Db

Simple apparatus and housing must comply with EN-IEC 60079-14 annex Q

- II 2 G Ex eb IIC T6 Gb
- II 2 D Ex tb IIIC T80°C Db

- II 2 G Ex eb IIC Gb
- II 2 D Ex tb IIIC Db

- II 2 G Ex eb IIC Gb
- II 2 D Ex tb IIIC Db

Examples of Ex i cable identification

INTRINSIC SAFE WIRING

If a color is used for the Ex i cables it must be LIGHTBLUE. If all Ex i cables and/or all non-Ex i cables are armoured then the blue marking is not necessary

- II 3 G Ex ic IIC T6 Gc
- II 3 D Ex ic IIIC T80°C Dc

- II 3 G Ex ec IIC T6 Gc
- II 3 D Ex tc IIIC T80°C Dc

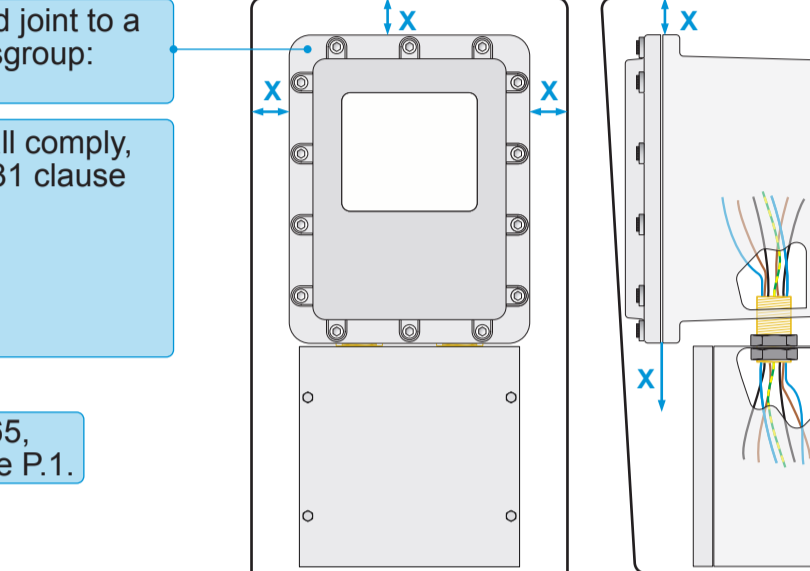
- II 2 G Ex eb IIC Gb
- II 2 D Ex tb IIIC Db

- II 2 G Ex eb IIC Gb
- II 2 D Ex tb IIIC Db

When using Zener barriers, mount the instrument earth in an insulated manner on the mounting plate and connect it at one point to PE with maximum resistance 1Ω. Cross section earth wire 1 x 4 mm² or 2 x 1,5 mm².

- II 2 G Ex eb IIC Gb
- II 2 D Ex tb IIIC Db

- II 2 G Ex eb IIC Gb
- II 2 D Ex tb IIIC Db



Ex i and non-Ex i separation with isolation plate ≥50mm.

Associated apparatus [Ex ia] / [Ex ia] (Isolation amplifier).

- II (1) G [Ex ia Ga] IIC
- II (1) D [Ex ia Da] IIIC

Terminate unused non Ex i wires on terminals or to the earth connection.

Separate cable ducts for Ex i and non-Ex i cabling

If all Ex i and/or all non-Ex i cables are provided with a braided shield or armoured 1 cable duct meets the requirements

Ex i and non-Ex i cables in 1 cable duct with a physical separation

Multicore type A, B or C in accordance with EN-IEC 60079-14 clause 6.14.8

- II 2 G Ex eb IIC Gb
- II 2 D Ex tb IIIC Db

- II 2 G Ex eb IIC Gb
- II 2 D Ex tb IIIC Db

Terminate unused Ex i conductors with terminals or heat-shrink insulation.

Connect a metal cable gland Ex d, Ex e and Ex t in a plastic housing to earth.

- II 2 G Ex eb IIC Gb
- II 2 D Ex tb IIIC Db

- II 2 G Ex eb IIC Gb
- II 2 D Ex tb IIIC Db

- II 2 G Ex eb IIC Gb
- II 2 D Ex tb IIIC Db

- II 2 G Ex eb IIC Gb
- II 2 D Ex tb IIIC Db

- II 2 G Ex eb IIC Gb
- II 2 D Ex tb IIIC Db

- II 2 G Ex eb IIC Gb
- II 2 D Ex tb IIIC Db

- II 2 G Ex eb IIC Gb
- II 2 D Ex tb IIIC Db

- II 2 G Ex eb IIC Gb
- II 2 D Ex tb IIIC Db

- II 2 G Ex eb IIC Gb
- II 2 D Ex tb IIIC Db