Control Stations Ex e, Glass Fiber Reinforced Polyester GR.CS*

Marking

Control Stations, Glass fiber reinforced polyester (GRP) GR.CS*
ATEX certificate: CML 16 ATEX 3009X ATEX marking: Ⓔx II 2 GD Ex db eb mb IIC T* Gb Ex ib IIC T* Gb Ex db eb ib mb op pr IIC T* Gb Ex tb IIIC T** °C Db T6/T80 °C @ Ta +40 °C T5/T95 °C @ Ta +55 °C T4/T130 °C @ Ta +55 °C
IECEx certificate: IECEx CML 16.0008X CCC certificate: 2020322304002545

The *-marked letters of the type code are placeholders for versions of the device.

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Target Group, Personnel

Responsibility for planning, assembly, commissioning, operation, maintenance, and dismounting lies with the plant operator.

The personnel must be appropriately trained and qualified in order to carry out mounting, installation, commissioning, operation, maintenance, and dismounting of the device. The trained and qualified personnel must have read and understood the instruction manual.

Reference to Further Documentation

Observe directives, standards, and national laws applicable to the intended use and the operating location.

The corresponding datasheets, manuals, declarations of conformity, EU-type examination certificates, certificates, and control drawings if applicable (see datasheet) are an integral part of this document. You can find this information under www.pepperl-fuchs.com.

In order to access this documentation, enter the product name, i. e. the type code, or the item number of the product in the search field of the website.

For specific device information such as the year of construction, scan the QR code on the device. As an alternative, enter the serial number in the serial number search at www.pepperl-fuchs.com/device-information.

Intended Use

The device is only approved for appropriate and intended use. Ignoring these instructions will void any warranty and absolve the manufacturer from any liability.

The enclosures of the GR* series are made of Glass fiber reinforced polyester (GRP).

The device can be used indoors.

The device can be used outdoors.

The device can be used in Zone 1.

The device can be used in Zone 21.

The device can be used in Zone 2.

The device can be used in Zone 22.

The device is designed for wall mounting.

The device is designed for mounting to a steel framework.

Use suitable fixing material for mounting.

Mount the enclosure at the fixing points provided.

Improper Use

Do not mount the device on the ceiling.

Protection of personnel and the plant is not ensured if the device is not used according to its intended use.

Mounting and Installation

Observe the installation instructions according to IEC/EN 60079-14.

If you intend to install the device or enclosure in areas that may be exposed to aggressive substances, ensure that the stated surface materials are compatible with these substances. If required, contact Pepperl+Fuchs for further information.

Observe directives, standards, and national laws applicable to the intended use and the operating location. Observe Directive 1999/92/EC in relation to hazardous areas.

Examples for such regulations are regulations regarding electricity, grounding, installation as well as hygiene and safety.

Observe the requirements according to IEC/EN 60079-31regarding excessive dust deposits.

To ensure compliance with the temperature class, ensure that there is adequate free air space around the enclosure.

Ensure that there are no external heat sources around the enclosure.

Safety-relevant markings are found on the nameplate supplied. Ensure that the nameplate is present and legible. Take the ambient conditions into account.

Additional warning markings may be affixed next to the nameplate.

The permitted ambient temperatures of the built-in components must not be exceeded.

Avoid mechanical impacts to the device (e. g. from heavy or sharp-edged objects).

Ensure that the enclosure is not damaged, distorted, or corroded.

Ensure that all seals are clean, undamaged, and correctly fitted.

Tighten all screws of the enclosure/enclosure cover with the appropriate torque.

Ensure that unused terminal screws are properly tightened down.

For cable glands only use incoming cable diameters of the appropriate size.

Tighten all cable glands with the appropriate torque.

Close all unused cable glands with the appropriate sealing plugs.

Only use stopping plugs that are suitably certified for the application.

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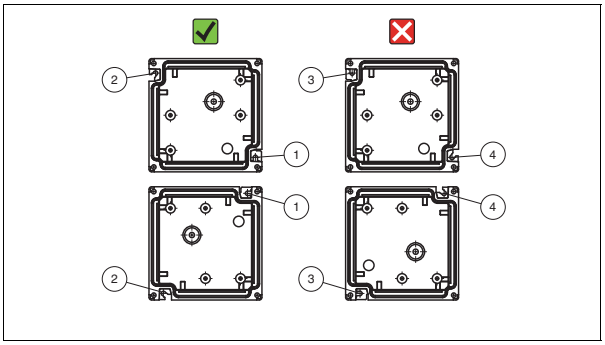

Enclosures are installed directly by using the screw holes in the enclosure rear.

Use all existing screw holes for mounting the enclosure.

The thru-holes must be accessible when the cover is removed.

Take note of the various designs of the mounting holes.

It is recommended to use screws according to ISO 4762 or equivalent.

Follow below instructions when mounting the enclosure.

(1) Screw numbers are shown beside the mounting holes

(2) Mount the enclosure with the appropriate mounting holes in position (1) and (2)

(3) Do NOT mount the enclosure with shown mounting holes in position (3) and (4)

(4) For easier installation, screws (1) and (2) can be drilled into the wall and the enclosure attached loosely to them prior to fixing all other screws

(5) Note: GR.*.13.18.*, GR.*.18.18.* and GR.*.18.24.* show hole (2) being circular instead of a slot. In this case, fix the enclosure with one hand and screw (1) before marking the other hole positions

(6) Hang the enclosure using all available screw holes

(7) Tighten all mounting screws with the appropriate torque

Note

Torque moments depend on the used screws and the material that they are screwed into.

Close all unused enclosure holes with the appropriate stopping plugs.

If mounting the enclosure on concrete use expansion anchors. When mounting the enclosure to a steel framework use vibration resistant mounting material.

Ensure that the enclosure is mounted on a flat surface.

Do not install fuse terminals, relays, miniature circuit breakers, contactors etc. in the enclosure.

If external connections are present, ensure that the connections are in good condition, and are not damaged or corroded.

In order to prevent condensation in the enclosure, use suitably certified breather drains.

Requirements for Cable Glands

Only use cable glands that are suitably certified for the application.

Only use cable glands with a temperature range appropriate to the application.

Ensure that the degree of protection is not violated by the cable glands.

Ground metal cable glands.

Requirements for Internal Components

Select suitable conductors in order to ensure that the maximum permitted temperature of the conductors fit to the maximum permitted ambient temperature of the control station.

Only use cables and connection lines with a temperature range appropriate to the application.

Keep the separation distances between all non-intrinsically safe circuits and intrinsically safe circuits according to IEC/EN 60079-14.

Ensure that the terminals are in good condition and are not damaged or corroded.

Use only one conductor per terminal.

Observe the tightening torque of the terminal screws.

Use the shortest possible cable lengths and avoid small core cross sections.

Observe the minimum bending radius of the conductors.

When installing the conductors the insulation must reach up to the terminal.

When using stranded conductors, crimp wire end ferrules on the conductor ends.

Unused cables and connection lines must be either connected to terminals or securely tied down and isolated.

Insulation by tape alone is not permitted.

Refer to document **Supplement of the Instruction Manual** for information to the specific conditions of use.

Do not bunch more than 6 conductors to avoid hot spots.

Arrange the earth connections for incoming and outgoing cables in a way that the ground fault current is not routed between separate grounding plates.

Contact Pepperl+Fuchs before installing additional components. Pepperl+Fuchs will check whether these components are listed in the certificate. The maximum power dissipation of this installation solution must be within the permitted limits.

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Rules for bringing in additional thru-holes for cable glands

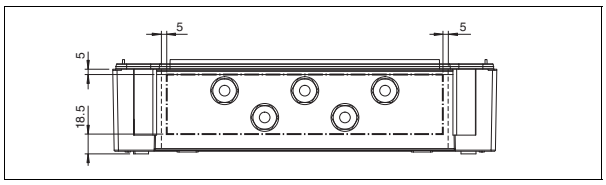
The following rules apply only to ATEX / IECEx solutions.

Determine if the space needed for the additional holes does not affect the stability of the enclosure wall and therefore the effectiveness of the gasket system.

In case of doubts contact Pepperl+Fuchs.

Maintain the minimum distances to enclosure rims and bottom as shown in the drawings.

Thru-holes for plain entries must have a diameter of not more than 0.7 mm greater than the nominal diameter of the entry thread of cable gland or fitting.



Calculate the minimum distance from the center of the additional thru-hole to the center of an already existing adjacent thru-hole by means of one of the following formulas:

1. Calculation via diameters

HSN = diameter of adjacent thru-hole

HSA = diameter of additional thru-hole

Minimum distance between centers = 1.5 x (HSN+HSA)/2

2. Calculation via widths across corners

WCN = width across corners of adjacent cable gland

WCA = width across corners of additional cable gland

Minimum distance between centers = 1.2 x (WCN+WCA)/2

Fabricate the additional thru-holes with an appropriate tooling method.

Ensure the thru-hole diameters are fitting to the gaskets and cable glands to be installed.

Ensure the enclosure surfaces around the thru-holes are undamaged in order to maintain the IP-protection.

Operation, Maintenance, Repair

Observe the requirements according to IEC/EN 60079-14 during operation.

Observe IEC/EN 60079-17 for maintenance and inspection.

Observe the requirements according to IEC/EN 60079-19 for repair and overhaul.

Before opening the enclosure make sure that the built-in components are de-energized.

When energized, the enclosure may only be opened for maintenance, if only intrinsically safe circuits are used inside the enclosure.

Check the wear on the device and the device components at specific intervals. The interval between checks depends on the operating conditions and loads that occur.

Avoid electrostatic charges which could result in electrostatic discharges while installing, operating, or maintaining the device.

If cleaning is necessary while the device is located in a hazardous area, in order to avoid electrostatic charging only use a clean damp cloth.

Before assembly, check that the seal and sealing surface are clean and in good condition to ensure the degree of protection.

If there is a defect, the device must be repaired by Pepperl+Fuchs.

Alternatively the device can be repaired by a qualified electrician in compliance with IEC/EN 60079-19.

Delivery, Transport, Disposal

Store the device in a clean and dry environment. The permitted ambient conditions must be considered, see datasheet.

Check the packaging and contents for damage.

Check if you have received every item and if the items received are the ones you ordered.

The device, built-in components, packaging, and any batteries contained within must be disposed in compliance with the applicable laws and guidelines of the respective country.

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Technical Data

General	
Types and variants	GR.CS* - see type code table
Electrical specifications	
Operating voltage	400 V AC / DC max. Dependent on terminals and equipment fitted, but must not exceed maximum. See certification label
Operating current	16 A max. Dependent on terminals and equipment fitted, but must not exceed maximum. See certification label
Indicators/operating means	
Control elements	small footprint max. 68, configuration see datasheet all NC contacts have a direct opening action for emergency stop functions
Mechanical specifications	
Dimensions	see data table
Enclosure cover	fully detachable
Degree of protection	IP66
Mass	see data table valid for empty enclosure, will increase according to integrated components
Mounting	see data table
Cable entry	cable glands as per specification
Material	
Enclosure	carbon loaded, antistatic glass-fiber reinforced polyester (GRP)
Finish	inherent color black
Cover seal	foamed silicone
Cover fixing	stainless steel combination Phillips and slotted screw
Grounding plate	2 mm brass optional
Grounding	none as standard optional M6 or M8 internal/external brass nickel-plated grounding bolt optional M6 or M8 internal/external stainless steel grounding bolt
Ambient conditions	
Ambient temperature	-40 ... 55 °C (-40 ... 131 °F) optional -50 ... 55 °C (-58 ... 131 °F) depending on integrated components
Data for application in connection with hazardous areas	
Maximum power dissipation	Dependent on enclosure size See certification label
Conformity	
Degree of protection	EN 60529
CE marking	2829

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Type Code / Model Number

1		2		3		4		5		6		7	8
GR	**.**	***	**.**	**	**.**	**	**.**	**	**.**	*	**-**	*	****
GR	.	CSE	.	18	.	24	.	10	.	B	-	S	0001

Example: GR.CSE.18.24.10.B-S0001
Control Station increased safety, material GRP, size 18x24x10 cm, landscape orientation with face B at bottom, standard product

1	Enclosure type
GR	glass faser reinforced polyester (GRP)

2	Type of solution
CSE	control station (Ex e)
CSI	control station (Ex i)
CSM	control station, various types of explosion protection, e.g. (Ex e, Ex i) or (Ex e, Ex op pr)

3	Height [cm]
n	see dimensions data table

4	Width [cm]
n	see dimensions data table

5	Depth [cm]
n	see dimensions data table

6	Cable entry face orientation
B	face [B] at bottom
D	face [D] at bottom

7	Variant
S	standard product
C	configured product
CA	configured and adapted product
Y	engineered product

8	Variant number
xxxx	consecutive item number

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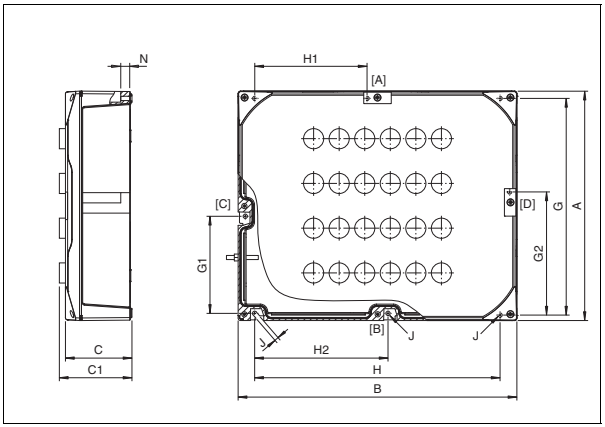
Variant-Specific Data



Dimensions and Enclosure Details

Enclosure type	Dimensions [mm]				Mounting [mm]					
	A	B	C	C1	G	H	H1	H2	J	N
GR.CS*.18.18.10	179	179	104	169	126	156	-	-	7	18
GR.CS*.18.24.10	179	239	104	169	156	186	-	-	7	18
GR.CS*.18.36.10	179	359	104	169	156	306	-	--	7	18
GR.CS*.18.36.17	179	359	166.5	231.5	156	336	-	-	7	18
GR.CS*.36.36.10	359	359	104	169	306	336	-	-	7	18
GR.CS*.36.36.17	359	359	166.5	231.5	306	336	-	-	7	18
GR.CS*.36.72.17	359	719	166.5	231.5	306	666	316.5	349.5	7	18

Dimension C1 is maximum, it will differ according to operating elements configuration

Enclosure type	Mounting screws qty.	Mass approx. [kg]	Cover screws		
			Mx	qty.	Torque [Nm]
GR.CS*.18.18.10	2	1.4	M6	4	3.5
GR.CS*.18.24.10	2	1.7	M6	4	3.5
GR.CS*.18.36.10	4	2.4	M6	4	3.5
GR.CS*.18.36.17	4	3.1	M6	4	3.5
GR.CS*.36.36.10	4	3.7	M6	4	3.5
GR.CS*.36.36.17	4	4.6	M6	4	3.5
GR.CS*.36.72.17	6	8.3	M6	6	3.5

Mass is valid for empty enclosure, it will increase according to enclosure accessories, integrated components and cable glands
Values might differ slightly due to manufacturing tolerances

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