Brief Instructions ENG

Control Stations GR.CS*
Glass Fiber Reinforced Polyester

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Validity

Specific processes and instructions in this instruction manual require special provisions to guarantee the safety of the operating personnel.

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

The corresponding datasheets, manuals, declarations of conformity, EC-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.

Intended Use

The control stations are used to control electrical energy and electrical signals in hazardous areas. They must be installed in fixed installations. Intended use includes observing these operating instructions and the other applicable documents, e.g. the data sheet. Any other use of the control stations is not allowed.

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.

The requirements of the IEC/EN 60079-31 regarding excessive dust deposits must be considered by the user.

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

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

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.

Cover screws are designed to be self-captive and they should remain in the cover at all times. If they ever need to be replaced, they have to be screwed (not pushed) through the captive section of the cover, otherwise the captive function would be damaged or destroyed

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.

Close all unused enclosure holes with the appropriate stopping plugs.

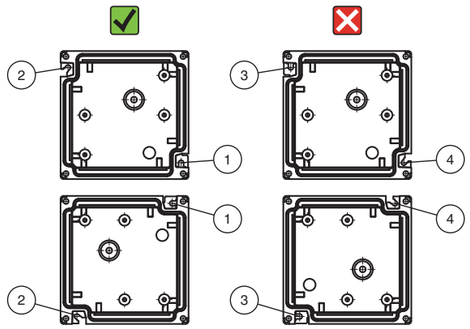
Only use stopping plugs that are suitably certified for the application.

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

Use the thru-holes for the enclosure mounting. These thru-holes must be accessible when the cover is removed.

All available mounting holes must be used for mounting the enclosure.

Take note of the various designs of the mounting holes.



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

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

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

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. Screw numbers are shown beside the mounting holes.

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.

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

Make sure that the enclosure is mounted on a flat surface to avoid distortion of the enclosure and ensure proper sealing function of the cover gasket.

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

If external ground connections exist, ensure they 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.

The maximum permitted temperature of the conductors has to fit to the maximum permitted ambient temperature of the control station. Cable with a suitable temperature rating must be selected.

In case of mixed Ex e / Ex i arrangements, ensure the required minimum distances according to IEC/EN 60079-11.

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.

Observe the special conditions for safe use listed in the manufacturer's documentation.

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

Arrange ground connections for incoming and outgoing cables so that the earth fault current is not carried between separate grounding plates.

When installing additional components, consult Pepperl+Fuchs in order to ensure these components are listed in the EU-type examination certificate and the maximum power dissipation of this solution is within the allowed limits.

All normally closed contacts of the 2 pole and 4 pole contact blocks are designed as positive opening contacts according to IEC 60947.

For easier wiring the internal contact modules might be removed from the DIN-Rail. Take care the small notches of the modules fit into the cutouts of the rail when mounting them back on.

With ammeters for current transformer connection the interchangeable scales can be changed via an opening at the upper side.

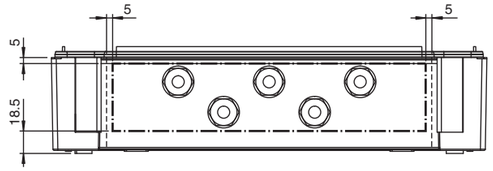
Rules for bringing in additional thru-holes for cable glands:

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 consult Pepperl+Fuchs.

Maintain a minimum distance to the enclosure rims of 5 mm.

Maintain a minimum distance to the enclosure bottom of 18.5 mm.



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 IEC/EN 60079-14 during operation.

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

Observe 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.

The required maintenance intervals depend on the respective application, ambient conditions and national regulations and therefore have to be determined by the user.

Labels, windows and other surfaces which are not protected against electrostatic discharge may be a potential electrostatic charge hazard and shall therefore be cleaned only with a damp cloth.

Before reassembly, make sure both gasket and sealing upstand are in good and clean condition to assure 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

Disposing of device and packaging must be in compliance with the applicable laws and guidelines of the respective country.

Technical Specifications

General	
Types and variants	GR.CS* - see type code table
Electrical specifications	
Operating voltage	400 V AC 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	max: 68 per enclosure
Mechanical specifications	
Dimensions	see datasheet
Enclosure cover	fully detachable
Cover fixing, torque	see data tables
Degree of protection	IP66
Mass	see data tables
Mounting	see data tables
Cable entry	cable glands as per specification
Defined entry area	see datasheet
Material	
Enclosure	carbon loaded, antistatic glass fiber reinforced polyester (GRP)
Finish	inherent color black
Cover seal	foamed silicone
Screws	stainless steel combination Phillips and slotted screw
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
Grounding plate	2 mm brass optional
Ambient conditions	
Ambient temperature	-40 ... 55 °C (-40 ... 131 °F) optional -50 ... 55 °C (-58 ... 131 °F)
Data for application in connection with hazardous areas	
EU-Type Examination Certificate	CML 16 ATEX 3009X
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 eb 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
Maximum power dissipation	Dependent on enclosure size. See certification label.
International approvals	
IECEx approval	IECEx CML 16.0008X
Conformity	
Degree of protection	EN 60529
CE marking	0102
Standards	EN 60079-0:2012+A11:2013 EN 60079-1:2014 EN 60079-7:2015 EN 60079-11:2012 EN 60079-18:2015 EN 60079-31:2014 IEC 60079-0:2011 Ed. 6 IEC 60079-1:2014 Ed. 7 IEC 60079-7:2015 Ed. 5 IEC 60079-11:2011 Ed. 6 IEC 60079-18:2014 Ed. 4 IEC 60079-31:2015 Ed. 2

Type Code / Model Number

Enclosure type

GR glass fiber reinforced polyester (GRP)

	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)							
		Height [cm]						
		n see dimensions data table						
			Width [cm]					
			n see dimensions data table					
				Depth [cm]				
				n see dimensions data table				
					Cable entry face orientation			
					B face [B] at bottom			
					D face [D] at bottom			
						Variant type		
						S standard product		
						C configured product		
						CA configured and adapted product		
						Y engineered product		
							Variant number	
							xxxxxx	

GR	.CSE	.xx	.xx	.xx	.B	-S	xxxxxx

Variant-Specific Data

Type	Mounting screws qty.	Mass [kg]	Cover screws			Max. power dissi-pation [W]
			Mx	qty.	Torque [Nm]	
GR.CS*.18.18.10	2	1.4	M6	4	3.5	14
GR.CS*.18.24.10	2	1.7	M6	4	3.5	17
GR.CS*.18.36.10	4	2.4	M6	4	3.5	22
GR.CS*.18.36.17	4	3.1	M6	4	3.5	27
GR.CS*.36.36.10	4	3.7	M6	4	3.5	33
GR.CS*.36.36.17	4	4.6	M6	4	3.5	39
GR.CS*.36.72.17	6	8.3	M6	6	3.5	104

Mass is valid for empty enclosure, it will increase according to integrated components and cable glands

For details of operating elements please refer to the respective datasheet