Enclosures GR*, Glass Fiber Reinforced Polyester (GRP)

Marking

Enclosures, Glass fiber reinforced polyester (GRP) GR*
ATEX certificate: CML 17 ATEX 3084U ATEX marking: Ex II 2 GD Ex eb IIC Gb Ex tb IIIC Db
IECEx certificate: IECEx CML 17.0039U UL approval: cULus E499269 approved for: Class I and II, Division 2 Class I, Zone 2, Class II, Zone 22

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.

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

Ex components are not intended to be used alone. Mounting and usage of Ex components in devices or systems must be certified separately. Ex components have the U marking at the end of the certificate number.

Observe the instruction manuals for the associated components.

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

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

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

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.

Ensure that the device provides and maintains a degree of protection of at least IP66 according to IEC/EN 60079-0.

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

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.

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.

Close all unused enclosure holes with the appropriate stopping plugs.

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

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

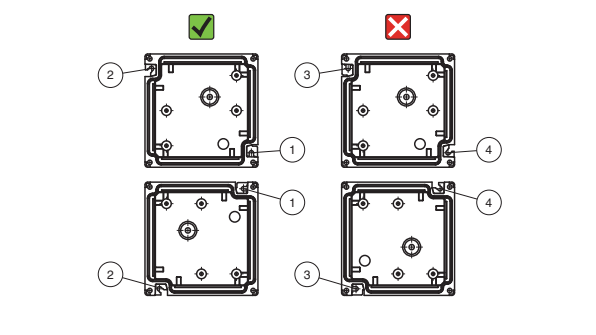
Ensure that the enclosure is mounted on a flat surface. This prevents the deformation of the enclosure and ensures the safe sealing function of the cover seal.

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.

Installation Sequence

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



Use all existing screw holes for mounting the enclosure.

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

Take note of the various designs of the mounting holes.

Mount the enclosure by doing the following:

- Screw numbers are shown beside 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).
- 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.
- Tighten all mounting screws with the appropriate torque.

Note

GR.13.18.*, GR.18.18.* and GR.24.24.* 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.

Note

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

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.

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

Use seals that are suitable for the specified application.

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

Install cables and cable glands in a way that they are not exposed to mechanical hazards.

The cables and connection lines must be free from mechanical stress. Use appropriate strain relief, which must be fitted outside of the enclosure.

Ensure that all cable glands are in good condition and are securely tightened.

Close all unused cable glands with the appropriate sealing plugs.

Observe the specific ambient conditions of sealing plugs.

Tighten all cable glands with the appropriate torque.

Ground metal cable glands.

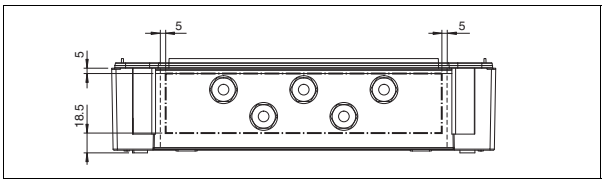
Rules for bringing in additional thru-holes for cable glands

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 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.

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.

Install an earth connection between enclosure body and enclosure cover.

Ensure that the earth connection is suitably rated for the installed components.

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.

Ensure that all fasteners are present.

Ensure that external ground connections exist, are in good condition, and are not damaged or corroded.

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.

Technical Data

General	
Types and variants	GR* - see type code table
Electrical specifications	
Operating voltage	690 V AC / DC max. , depending on size for ATEX / IECEx see certification label
Operating current	350 A max. depending on size and certification See certification label
Mechanical specifications	
Dimensions	see data table
Enclosure cover	fully detachable , optional hinges
Cover fixing	stainless steel combination Phillips and slotted screw, see data table
Degree of protection	IP66, Type 4X
Mass	see data table valid for empty enclosure, will increase according to integrated components
Shock resistance	IK09 (from GR.18.18.10 and larger, IK09, IK10 apply)
Mounting	screws, see data table
Cable entry	see data table
Material	
Enclosure	carbon loaded, antistatic glass-fiber reinforced polyester (GRP)
Finish	inherent color black
Cover seal	foamed silicone
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	-60 ... 85 °C (-76 ... 185 °F)
Data for application in connection with hazardous areas	
Maximum power dissipation	Dependent on enclosure size See certification label
Conformity	
Degree of protection	EN60529 and UL 50 / UL 50E
Shock resistance	EN IEC 62262

Type Code / Model Number

1		2		3		4		5		6	7
GR	**.**	*****	**.**	*****	**.**	*****	**.**	*****	**-**	*****	*****
GR	.	36	.	36	.	17	.	B	-	U	0001

Example: GR.36.36.17.B-U0001
Empty enclosure, material glass fiber reinforced polyester, size 36x36x17 cm, landscape orientation with face B at bottom

1	Enclosure type
GR	glass fiber reinforced polyester (GRP)

2	Height [cm]
n	see dimensions data table

3	Width [cm]
n	see dimensions data table

4	Depth [cm]
n	see dimensions data table

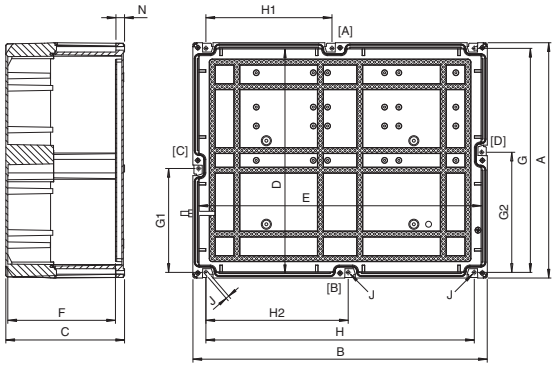
5	Cable entry face orientation
B	face [B] at bottom (landscape with rectangular enclosure)
D	face [D] at bottom (portrait with rectangular enclosure)

6	Variant
U	empty enclosure

7	Variant number
*	consecutive item number

Variant-Specific Data

Dimensions and Enclosure Details



Type	External dimensions [mm]			Internal dimensions [mm]			Mounting [mm]									Mass [kg]	Cover screws		
	A	B	C	D	E	F	G	G1	G2	H	H1	H2	J	N	S qty.		Mx	qty.	T [Nm]
GR*.10.10.07	99	99	65	76	76	48	66	–	–	84	–	–	5	13	2	0.35	M4	4	1.5
GR*.13.13.09	129	129	85	106	106	68	96	–	–	114	–	–	5	13	2	0.61	M4	4	1.5
GR*.13.18.09	129	179	91.5	106	156	69	106	–	–	126	–	–	7	18	2	1	M6	4	3.5
GR*.18.18.10	179	179	104	156	156	81.5	126	–	–	156	–	–	7	18	2	1.35	M6	4	3.5
GR*.18.24.10	179	239	104	156	216	81.5	156	–	–	186	–	–	7	18	2	1.65	M6	4	3.5
GR*.18.36.10	179	359	104	156	336	81.5	156	–	–	306	–	–	7	18	4	2.3	M6	4	3.5
GR*.18.36.17	179	359	166.5	156	336	144	156	–	–	306	–	–	7	18	4	3.1	M6	4	3.5
GR*.36.36.10	359	359	104	336	336	81.5	306	–	–	336	–	–	7	18	4	3.7	M6	4	3.5
GR*.36.36.17	359	359	166.5	336	336	144	306	–	–	336	–	–	7	18	4	4.6	M6	4	3.5
GR*.36.36.24	359	359	241.5	336	336	219	306	–	–	336	–	–	7	18	4	6.6	M6	4	3.5
GR*.36.72.17	359	719	166.5	336	696	144	336	–	–	666	316.5	349.5	7	18	6	8.3	M6	6	3.5
GR*.36.72.24	359	719	241.5	336	696	219	33	–	–	666	316.5	349.5	7	18	6	11.3	M6	6	3.5
GR*.48.60.24	479	599	241.5	456	576	219	456	211.5	244.5	546	256.5	289.5	7	18	8	12.2	M6	8	3.5

S = mounting screws quantity, T = cover screws torque [Nm]
Mass is valid for empty enclosure
Values might differ slightly due to manufacturing tolerances

Terminal Configurations with Standard Terminals

Type	DIN-Rails vertical				DIN-Rails horizontal				Termi-nal type	Terminal capacity [mm²]
	Number of rails	Usable length per rail [mm]	Termi-nals per rail	Termi-nals total	Number of rails	Usable length per rail [mm]	Termi-nals per rail	Termi-nals total		
GR*.10.10.07	–	–	–	–	1	47.5	9	9	AKZ	2
GR*.13.13.09	–	–	–	–	1	67.5	13	13	AKZ	2
GR*.13.18.09	1	66.5	13	13	1	101.5	19	19	WDU	2
GR*.18.18.10	1	101.5	19	19	1	101.5	19	19	WDU	2
GR*.18.24.10	1	101.5	19	19	1	161.5	31	31	WDU	2
GR*.18.36.10	3	101.5	19	57	1	281.5	55	55	WDU	2
GR*.18.36.17	3	101.5	19	57	1	281.5	55	55	WDU	2
GR*.36.36.10	3	281.5	55	165	3	281.5	55	165	WDU	2
GR*.36.36.17	3	281.5	55	165	3	281.5	55	165	WDU	2
GR*.36.36.24	3	281.5	55	165	3	281.5	55	165	WDU	2
GR*.36.72.17	6	271.5	53	318	3	641.5	125	375	WDU	2
GR*.36.72.24	6	271.5	53	318	3	641.5	125	375	WDU	2
GR*.48.60.24	5	381.5	74	370	4	501.5	98	392	WDU	2

For other terminal types and terminal capacities please contact Pepperl+Fuchs

Cable Entries max. Quantity per Size

Type	Faces A and B					Faces C and D				
	M16	M20	M25	M32	M40	M16	M20	M25	M32	M40
GR*.10.10.07	4	2	1	1	–	2	1	1	–	–
GR*.13.13.09	9	5	3	2	1	6	4	2	2	1
GR*.13.18.09	11	6	4	2	2	8	4	2	1	1
GR*.18.18.10	15	8	6	3	2	12	6	5	2	2
GR*.18.24.10	20	11	8	4	3	15	8	6	3	2
GR*.18.36.10	30	18	11	6	4	14	8	5	3	2
GR*.18.36.17	60	33	22	15	8	27	15	10	6	4
GR*.36.36.10	35	18	13	7	5	30	18	11	6	4
GR*.36.36.17	69	38	26	18	10	60	33	22	15	8
GR*.36.36.24	69	38	26	18	10	60	33	22	15	8
GR*.36.72.17	129	73	48	35	19	69	38	26	18	10
GR*.36.72.24	129	73	48	35	19	69	38	26	18	10
GR*.48.60.24	102	58	38	26	14	84	45	30	20	12

Cable gland standard type: polyamide Ex e cable glands

For other types of cable glands and combinations of different gland sizes please contact Pepperl+Fuchs