

Terminal Boxes GL***.T

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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 dismantling lies with the plant operator.

Mounting, installation, commissioning, operation, maintenance and dismantling of the device may only be carried out by appropriate trained and qualified personnel. The instruction manual must be read and understood.

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, 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.

Mounting/Installation/Maintenance

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

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.

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.

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

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

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

To ensure the degree of protection:

- The enclosure must not be damaged, distorted or corroded.
- All seals must be undamaged and correctly fitted.
- All screws of the enclosure/enclosure cover must be tightened with the appropriate torque.
- All cable glands must be suitably sized for the incoming cable diameters.
- All cable glands must be tightened with the appropriate torque.
- All unused cable glands must be sealed or plugged with corresponding sealing plugs, all unused cable entries have to be closed with appropriate stopping plugs.

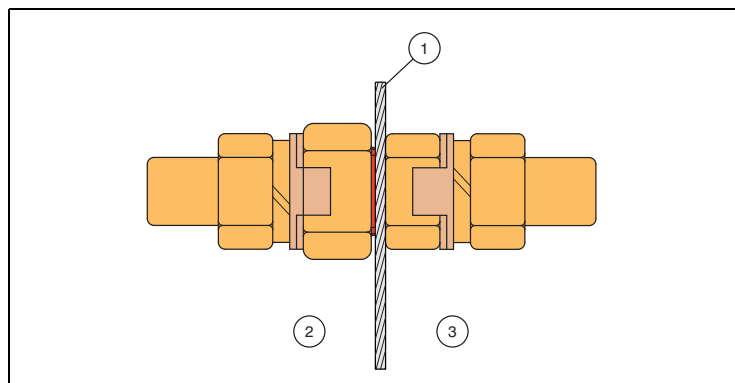
The enclosure should be mounted via the through-holes that are exposed when the lid is removed.

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

If an external ground connection is fitted, ensure that it is in good condition, and is not damaged or corroded.

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

When the internal/external ground bolt is supplied loose, the components should be fitted as shown in the figure below.



1	Enclosure wall
2	Enclosure exterior
3	Enclosure interior

If cable glands are needed for installation, the following points must be considered:

- The cable glands used must be suitably certified for the application.
- The temperature range of the cable glands must be chosen according to the application.
- The cable glands fitted must not reduce the degree of protection.
- Metal cable glands shall be earthed.

In order to guarantee the temperature classes, ensure that power dissipation is lower than the figure stated in the certificate and in below tables of max. connection capacity. Most of the power dissipation arises from current flowing in the cables.

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

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.

Insulation must extend to within 1mm of the metalwork of 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.

If cross connects are fitted, separation walls or protective barriers may be required to preserve clearance distances.

Modifications are permitted only if approved in this instruction manual.

When installing additional components, make sure that these components are listed in the EC-type-examination certificate of the terminal box.

Only use suitably certified terminals.

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

The installer is allowed to add terminals in accordance with the maximum permitted power dissipation shown in the connection capacity tables below.

Example:

Enclosure GL8*.T with 20 terminals WDU 2.5 (current load: 6 A) and 5 terminals WDU 10 (current load: 16 A).

Assumption:

Average conductor length: 0.5 m

Maximum permissible power loss:

$$29 \text{ W } P_v = (0.242 \text{ W/m} \times 20 \times 2 \times 0.5 \text{ m}) + (0.43 \text{ W/m} \times 5 \times 2 \times 0.5 \text{ m}) = 4.84 \text{ W} + 2.15 \text{ W} = 6.99 \text{ W } P_v = 6.99 \text{ W}$$

Special Conditions for Safe Use

The enclosures that are fitted with the Marechal Type DXN1, DXN3 and DXN6 sockets (as stated in document 16-1241CML-04) must be protected from impact greater than 4 Joules.

Potential electrostatic charge hazard. Clean only with a damp cloth.

Dissipation of copper cables in W/m

Cable CSA	Current (A)									
	1	2	4	6	10	16	20	25	32	40
1 mm ²	0.0168	0.0672	0.269	0.605	1.68	4.3	-	-	-	-
2.5 mm ²	0.00672	0.0269	0.108	0.242	0.672	1.72	2.69	4.2	-	-
4 mm ²	0.0042	0.0168	0.067	0.151	0.42	1.08	1.68	2.63	4.3	-
6 mm ²	0.0028	0.0112	0.045	0.101	0.28	0.717	1.12	1.75	2.87	4.48
10 mm ²	0.00168	0.00672	0.027	0.061	0.168	0.43	0.67	1.05	1.72	2.69

Technical Specifications

General	
Types and variants	GL***.T - see type code table
CE number	0102
Data for application in hazardous areas	
EC-Type Examination Certificate	CML 15ATEX3005X
Zones of installation	1, 21 (Gas); 2, 22 (Dust)
Marking	
GL**1.T Increased safety terminal enclosure	II 2 GD Ex eb IIC T* Gb Ex tb IIIC T** Db
GL**3.T Intrinsic safety terminal enclosure	II 2 GD Ex ia IIC T* Gb Ex tb IIIC T** Db
GL**5.T Increased safety and intrinsic safety terminal enclosure	II 2 GD Ex eb IIC T* Gb Ex ia IIC T* Gb Ex tb IIIC T** Db
Gas/dust temperature class (T*/T**)	T6/T80 °C @ Ta+40 °C T5/T95 °C @ Ta+55 °C T4/T130 °C @ Ta+60 °C
Refer to the enclosure certification label for confirmation	
International approvals	
IECEx approval	IECEx CML 16.0004X
Ambient conditions	
Ambient temperature	-40 ... 40 °C optional -50 ... 60 °C: - below -40 °C with appropriate cable glands - above 40 °C with ceramic terminals
Degree of protection according to IEC/EN 60529	IP66/67
Maximum internal power dissipation (MDP)	Dependent on enclosure size - see certification label
Mechanical specifications	
Material	Glass fiber reinforced polyester
Finish	Moulded, self-color black
Cover screw torque	2 Nm
Entry threadform	see datasheets of cable glands
Electrical specifications	
Maximum voltage	Dependent on terminals and equipment fitted, but maximum must not exceed 690 V AC (GL1** ... GL4**): 440 V AC max.). See certification label.
Maximum current	Dependent on terminals, cables and equipment fitted, but maximum must not exceed 350 A (GL1** ... GL4**): 35 A max.). See certification label.
Standards	
Conformity	EN 60079-0:2012 EN 60079-7:2015 EN 60079-11:2012 EN 60079-31:2014 IEC 60079-0:2011 Ed. 6 IEC 60079-7:2015 Ed. 5 IEC 60079-11:2011 Ed. 6 IEC 60079-31:2013 Ed. 2

Enclosure GL13*.T (P_{max} 31.4 W)

GL13*.T maximum permitted power dissipation to be built in: 31.4 W																
CSA [mm ²]																
Current [A]	0.5	0.75	1	1.5	2.5	4	6	10	16	25	35	50	70	95	150	240
3	335	414	414	414	414	342	264	210	58	44	44	0	0	0	N/A	N/A
6	83	125	167	251	414	342	264	210	58	44	44	0	0	0	N/A	N/A
10	N/A	N/A	60	90	151	241	264	210	58	44	44	0	0	0	N/A	N/A
16	N/A	N/A	N/A	35	59	94	141	210	58	44	44	0	0	0	N/A	N/A
20	N/A	N/A	N/A	N/A	37	60	90	151	58	44	44	0	0	0	N/A	N/A
25	N/A	N/A	N/A	N/A	N/A	38	58	96	58	44	44	0	0	0	N/A	N/A
35	N/A	N/A	N/A	N/A	N/A	N/A	29	49	59	44	44	0	0	0	N/A	N/A
50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	24	38	44	44	0	0	0	N/A	N/A
63	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	24	38	44	0	0	0	N/A	N/A
80	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	23	33	0	0	0	N/A	N/A
100	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21	0	0	0	N/A	N/A
125	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	N/A	N/A
160	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	N/A	N/A
200	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	N/A	N/A
250	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Enclosure GL14*.T (P_{max} 31.4 W)

GL14*.T maximum permitted power dissipation to be built in: 31.4 W																
CSA [mm ²]																
Current [A]	0.5	0.75	1	1.5	2.5	4	6	10	16	25	35	50	70	95	150	240
3	323	414	414	414	414	342	264	210	58	44	0	0	0	0	N/A	N/A
6	80	121	161	242	404	342	264	210	58	44	0	0	0	0	N/A	N/A
10	N/A	N/A	58	87	145	233	264	210	58	44	0	0	0	0	N/A	N/A
16	N/A	N/A	N/A	34	56	91	136	210	58	44	0	0	0	0	N/A	N/A
20	N/A	N/A	N/A	N/A	36	58	87	145	58	44	0	0	0	0	N/A	N/A
25	N/A	N/A	N/A	N/A	N/A	37	55	93	58	44	0	0	0	0	N/A	N/A
35	N/A	N/A	N/A	N/A	N/A	N/A	28	47	58	44	0	0	0	0	N/A	N/A
50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	23	37	44	0	0	0	0	N/A	N/A
63	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	23	36	0	0	0	0	N/A	N/A
80	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	22	0	0	0	0	N/A	N/A
100	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0	N/A	N/A
125	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	N/A	N/A
160	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	N/A	N/A
200	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	N/A	N/A
250	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Type Code

Enclosure Type	
GL	Glass fiber reinforced polyester GRP
Enclosure Size	
nn	Enclosure size from standard range
Grounding Plate	
0	none
1	galvanized steel
2	brass
3	stainless steel
Type of Explosion Protection	
0	non-Ex application
1	Ex e, Ex tb
3	Ex ia, Ex tb
5	Ex ia / Ex e, Ex tb
Enclosure Depth	
nn	enclosure depth from standard range
Type of Solution	
T	Terminal box
Variant Number	
Cxxxxxx	Configured variants
Yxxxxxx	Engineered variants
Example:	
GL	11 2 1 D .T -C123456
Terminal box GRP, size 11, grounding plate brass, certified Ex e and Ex tb, enclosure depth D, configured variant	