

# Control Panels

## GUB\* / GUBX\*

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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](http://www.pepperl-fuchs.com).

### Mounting/Installation

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

If other solid obstacles are present outside the enclosure, the minimum distance between the flamepath of the enclosure and these obstacles must not be less than the distance according to IEC/EN 60079-14.

- gas group IIA: ≥ 10 mm
- gas group IIB: ≥ 30 mm
- gas group IIB+H2 or IIC: ≥ 40 mm

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

Protect the device against long-term or excessive mechanical vibrations.

Observe the following points when installing 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.

If you use cable glands with cylindrical thread, secure the cable glands against loosening by suitable glue or similar means.

For control panels with IECEx certification, only use cable glands with metric thread or NPT thread.

Mount the device so that it complies with the specified degree of protection according to IEC/EN 60529.

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

Close all unused enclosure holes with the appropriate stopping plugs.

The enclosure cover is heavy. In order to avoid personal injuries or property damage, make appropriate provisions for the mounting procedure.

Do not damage the flamepath surfaces between enclosure and enclosure cover during the opening of the control panel.

If one of the flamepath surfaces is damaged, exchange enclosure and enclosure cover.

Do not add additional components into the control panel, which are not listed in the original bill of materials.

Before fixing the enclosure cover to the enclosure, protect the flamepath surfaces with a thin layer of suitable protective grease.

Observe the tightening torque of the terminal screws.

The delivered control panel is completely wired. Do not modify or manipulate this control panel. Observe the wiring diagram when connecting the control panel.

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

In order to minimize power dissipation, observe the maximum possible conductor lengths.

If radio frequency sources are present in the device, the usage of the device is bound to local restrictions. Ensure that the local restrictions allow usage of this device before commissioning.

### Associated Apparatus / Intrinsically Safe Circuits

- When the control panel is equipped with an associated apparatus with intrinsically safe circuits and the panel is in addition equipped with a thermal probe for protecting the I.S. apparatus against ambient temperatures where it is not designed for, this thermal probe has to be connected to either an internal or external switch which switches OFF the power for the I.S. apparatus in case the temperature inside of the panel reaches the upper or lower thresholds of the I.S. apparatus. If an external temperature switch is used, the user has to configure the settings of that switch according to the following rules:
  - Maximum temperature response threshold of [(TIEx-2) ±2°C]  
TIEx = Maximum value of the certified ambient temperature of the internal I.S. apparatus.
  - Minimum temperature response threshold of [(TminEx+2)±2°C].  
TminEx = minimum value of the certified ambient temperature of the internal I.S. apparatus.

### Operation, Maintenance, Repair

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

The device must be disconnected from the power supply prior to installation and maintenance. The power supply may be activated only after all the circuits required for operation have been fully assembled and connected.

If the control panel was affected by a short circuit, check the following.

Check the functionality of the control panel.

Check that the integrity of the flameproof enclosure is present.

If the enclosure is damaged, replace enclosure and enclosure cover.

Check all surfaces of the flamepath for damage. If an actuator is present, check the flamepaths of the actuator for damage.

If the surfaces of the flamepath are damaged, replace the enclosure and the enclosure cover. If the surfaces of the flamepath of an actuator are damaged replace the complete actuator.

Do not paint or varnish the surfaces of the flamepath.

If the protective grease on the surfaces of the flamepath has become old, remove the protective grease and fat with new suitable protective grease.

Enclosures with degree of protection IP66/67 have seals in the flamepath.

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

If there is a defect, always replace the device with an original device.

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

If the internal equipment contains a battery and a potentially explosive atmosphere is present, do not open the enclosure.

If the device is installed in potentially explosive dust atmosphere, remove dust layers which exceed 5 mm in regular intervals.

Do not modify or manipulate the device.


Modifications are permitted only if approved in this instruction manual.

### Disposal and Recycling

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

### Technical Specifications

#### Technical Data

Explosion Protection	 II 2 GD Ex d IIC Gb Ex tb IIIC Db
Hazardous Area: Zones of Installation	1, 21 (Gas), 2, 22 (Dust), according to type label
EC-Type Examination Certificate	INERIS 14ATEX0035X
IECEx Certificate	IECEx INE 14.0042X
CE Number	0080 (only for ATEX, see also type label)
Temperature Classes	T6/T85°C, T5/T100°C, T4/T135°C, T3/T200°C; depending on configuration, ambient temperature and built-in power loss.
Maximum dissipated power	See type label.
Lamp nominal power (to maintain temperature class)	≤ 5W (T4, T3 with power lamps of 5W)
Minimum distance lamp to glass	5 mm
Operating voltage	660 V DC / 1000 V AC maximum
Operating current	1600 A max.
Max. Cross Section	300 mm <sup>2</sup>
Max. Ambient Temperature	for empty enclosures in stainless steel and in aluminum: -20°C to +60°C -50°C to +60°C, depending on variant and certificate. Ambient temperatures for control panels depend on the permissible ambient temperature of the inner components. Refer to drawing or enclosure type label
Degree of Protection according to IEC/EN 60529	IP66 standard or as option IP66/67 with seal in the flamepath. Refer to enclosure type label.
Enclosure material	Copper-free aluminum alloy or AISI 316L (1.4404) stainless steel
Enclosure finish	aluminum: epoxy coated grey RAL7005 (standard) stainless steel: surface shot-peened (standard)
Flamepath grease	Greasil MS4 or NEVER SEEZ Marine Grade
Conformity standards	EN60079-0:2012/A11:2013; EN 60079-1:2007; EN 60079-7:2007; EN 60079-11:2012; EN 60079-28:2008; EN 60079-31:2009 and/or IEC 60079-0:2011; IEC 60079-1:2007-04; IEC 60079-7:2006-07; IEC 60079-11:2011; IEC 60079-28:2006-8; IEC 60079-31:2013

### Class of Temperature / Ambient Temperature for Cable Entries and Cables

Only use cable entries and cables suitable for the class of temperature / ambient temperature as reported in the following table:

Max. Ambient Temperature	Class of temperature, <b>type of protection Ex d IIA, IIB, IIC</b>			
	T6	T5	T4	T3
40 °C	N.A.	80 °C	95°C	110 °C
50 °C	N.A.	90 °C	105 °C	120 °C
55 °C	N.A.	95 °C	110 °C	125 °C
60 °C	90 °C	100 °C	115 °C	130 °C
Connection with cables suitable for the above mentioned temperatures				

### Comparative Table Marking / Thread of the Cable Entry

Threaded entries in the enclosures are identified by the following coding:

00 C = 1/4" ISO228	00 N = 1/4" NPT	00 M = M12x1.5	9PG = PG9
1 C = 1/2" ISO228	0 N = 3/8" NPT	0 M = M16x1.5	11PG = PG11
3 C = 1" ISO228	1 N = 1/2" NPT	1 M = M20x1.5	13PG = PG13
00 G = 1/4" ISO 7/1	2 N = 3/4" NPT	2 M = M25x1.5	16GP = PG16
0 G = 3/8" ISO 7/1	3 N = 1" NPT	3 M = M32x1.5	21PG = PG21
1 G = 1/2" ISO 7/1	4 N = 1 1/4" NPT	4 M = M40x1.5	29PG = PG29
2 G = 3/4" ISO 7/1	5 N = 1 1/2" NPT	42 M = M42x1.5	36PG = PG36
3 G = 1" ISO 7/1	6 N = 2" NPT	5 M = M50x1.5	42PG = PG42
4 G = 1 1/4" ISO 7/1	7 N = 2 1/2" NPT	6 M = M63x1.5	48PG = PG48
5 G = 1 1/2" ISO 7/1	8 N = 3 " NPT	7 M = M75x1.5	
6 G = 2" ISO 7/1		8 M = M85x1.5	
7 G = 2 1/2 " ISO 7/1			
8 G = 3" ISO 7/1			

\*G" means also equivalent type according UNI6125 or EN10266-2

Example: diameter of the hole Ref. 2M = hole M25x1.5

### Typecode

Type					
GUB	Enclosure Ex d IIC				
	Material				
		Copper-free aluminum			
	X	Stainless steel			
	Window				
		No Window			
	W	Window			
		Enclosure variant			
			Standard variant		
		E	Variant with extension		
		Enclosure size			
		00 ... 5	See dimensions data table in data sheet		
			Electrical circuits		
		D	Without intrinsically safe circuits		
		I	Intrinsically safe circuits integrated		
		Type of application			
		U	Empty enclosure		
		T	Terminal box		
		CP	Control panel		
		CS	Control station		
		MS	Motor starter		
		DB	Distribution board		
		PS	Power switching		
		RIO	Remote I/O field unit		
		IFS	Interface solution		
		FJB	Fieldbus junction box		
		OS	Optical solution		
		Q40	Q40 solution		
		Variant number			
			Yxxxxxx		