

Control Units LCP*. * / LCS*. *

Pepperl+Fuchs GmbH
Lilienthalstrasse 200
68307 Mannheim, Germany
Tel. +49 621 776-0
Fax +49 621 776-1000

Document No.: DOCT-5491a
Edition: 11/2017

Copyright Pepperl+Fuchs
www.pepperl-fuchs.com



Validity

Specific processes and instructions in this document require special precautions to guarantee the safety of the operating personnel.

Target Group/Personnel

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

Mounting, installation, commissioning, operation, maintenance and disassembly of any devices may only be carried out by trained, 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 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.

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.

Use only one conductor per terminal.

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

- 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 IP rating.

If you use stranded wires, crimp on wire end ferrules.

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

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

Observe the tightening torque of the terminal screws.

Unused conductors must be either connected to terminals or securely tied down and isolated.

If mounting the enclosure on concrete use expanding bolts. If mounting the enclosure to a steel framework use vibration resistant mounting equipment.

To ensure the IP degree of protection:

- all seals must be undamaged and correctly fitted
- all screws of the surrounding enclosure and its cover must be tightened with the appropriate torque
- only cable of the appropriate size must be used in the cable glands
- all cable glands must be tightened with the appropriate torque
- all empty cable glands must be sealed with the corresponding plugs

When installing additional components, make sure that these components are listed in the relevant certificates.

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

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

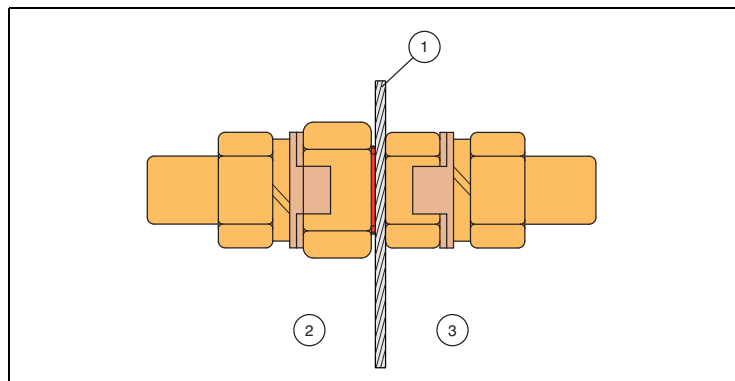
The minimum bending radius has to be adhered to.

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

The insulation stripping length must be considered.

Connect all bare non-energized metal parts to the protective earth conductor.

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

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.

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.

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

The replacement of components is permitted if you replace the components with original components from Pepperl+Fuchs. A combination with components from other manufacturers is not permitted.

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	LCS*. * / LCP*. * - see type code table
CE number	0102
Data for application in hazardous areas	
EC-Type Examination Certificate	CML 16ATEX3009X
Zones of installation	1, 21 (Gas); 2, 22 (Dust)
Marking	II 2 GD Ex db eb mb IIC T* Gb Ex ib IIC T* Gb Ex db eb ib mb T* Gb Ex tb IIC T** °C Db T6/T80 °C @ Ta +40 °C T4/T130 °C @ Ta +55 °C
Refer to the enclosure certification label for confirmation	
International approvals	
IECEx approval	IECEx CML 16.0008X
Ambient conditions	
Ambient temperature	-40 ... 55 °C -50 °C with specific equipment options
Degree of protection according to IEC/EN 60529	IP 66
Mechanical specifications	
Material	
Stainless steel variants (LCS*)	AISI 316L
GRP variants (LCP*)	Glass fiber reinforced polyester
Finish	
Stainless steel variants	Electropolished
GRP variants	Moulded, self-color black
Torques / Cable entries	
Cover screw torque	2 Nm
Electrical specifications	
Maximum voltage	Dependent on terminals & equipment fitted – see certification label
Maximum current	Dependent on terminals, cable & equipment fitted – see certification label
Standards	
Conformity	EN 60079-0:2012+A11:2013 EN 60079-1:2014 EN 60079-7:2015 EN 60079-11:2012 EN 60079-31:2014 IEC 60079-0:2011 IEC 60079-1:2014 IEC 60079-7:2015 IEC 60079-11:2011 IEC 60079-31:2013

Dissipation of copper cables in W/m

Cable CSA	Current (A)					
	1	2	4	6	10	16
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
4 mm ²	0.0042	0.0168	0.067	0.151	0.42	1.08
6 mm ²	0.0028	0.0112	0.045	0.101	0.28	0.717

Type Code

Series	
LC	control unit
Material	
P	glass fiber reinforced polyester GRP
S	stainless steel
Enclosure type / quantity of operators	
1...4	1 ... 4 operating elements, dimensions see datasheets
7	1 window for ammeter/voltmeter
8	1 window for ammeter/voltmeter and 1 small operating element
9	1 window for ammeter/voltmeter and 2 small operating elements
Function 1	
xxxx	see operating elements type codes
Function 2	
xxxx	see operating elements type codes
Function 3	
xxxx	see operating elements type codes
Function 4	
xxxx	see operating elements type codes
Configuration of cable entries	
A...M	standard configuration, see datasheets
X	no entries
Z	customized entries
Type of explosion protection	
	no character indicates Ex e (early versions)
1	Ex db eb mb, Ex tb
3	Ex ib, Ex tb
5	Ex db eb ib mb, Ex tb
LC	P n .xxxx .xxxx .xxxx .xxxx .x .x

Type code of operating elements see series datasheets LCS*. * and LCP*. *.