



Mining And Surface Certification (Pty) Ltd

2015/021934/07



Issue Date: 08 January 2018
Expiry Date: 08 January 2021

IA Certificate Number: **MASC S/18-0003X**
Our ref: 18-0003

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IA – CERTIFICATE

(IN TERMS OF REGULATION 21.17.2 OF THE MINERALS ACT (INCORPORATION THE MINE HEALTH AND SAFETY ACT)
AND REGULATION 9 (1) OF THE ELECTRICAL MACHINERY REGULATIONS OF THE OCCUPATIONAL HEALTH AND
SAFETY ACT)

Control Stations, Local Control Units and Disconnect Switches

This document is based on and must be read in conjunction with IECEx CML 16.0008X certificate.
Further to your request, we have evaluated the supplied documentation.

The following is applicable:

Description	Detail
Requested By :	Pepperl+Fuchs (Pty) Ltd 1st fl Zerwick Forum, 8 Glen Eagle Office Park, Cnr Monument Rd and Braambos St, Glen Erasmia, Kempton Park 1619, South Africa
Equipment :	Control Stations, Local Control Units and Disconnect Switches
Manufacturer :	Pepperl+Fuchs GmbH Lilienthalstrasse 200, 68307 Mannheim , Germany
Additional Manufacturing location:	Pepperl+Fuchs (Shanghai) Automation Engineering Co., Ltd. Nr. 269, Yuanzhong Rd., Huinan Town, Pudong District, Shanghai, 201399 China
	Pepperl+Fuchs GmbH Werk Bühl Bussmatten 10 – 12, 77815 Bühl / Baden, Germany
	Pepperl+Fuchs (Aust) Pty Ltd 131-149 Link Drive, Campbellfield, Victoria, 3061, Australia
	Pepperl+Fuchs (India) Pvt. Ltd. #546/1, 7th Main, 4th Phase Peenya, Industrial Estate, Bangalore-560058, India
	Pepperl + Fuchs srl Via Galileo Galilei, 1/B I-20875 BURAGO (MB), Italy
	Pepperl & Fuchs Inc. 4333 West Sam, Houston Parkway, North Suite 150, Houston, TX 77043, United States of America

/ . Model(s)...

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Model(s) / Type(s) :	Control Stations, Local Control Units and Disconnect Switches	
Rating :	"See Description"	
Certification body :	Certification Management Limited (CML)	
Type Certificate No :	IECEX CML 16.0008X	
Variations/Issue/Amendment :	1	
Assessment Report No :	GB/CML/ExTR16.0042/00	GB/CML/ExTR17.0069/00
Quality Assurance report (QAR) / Notification (QAN) :	DE/CML/QAR06.0015/09 FR/INE/QAR12.0003/05	US/UL/QAR07.0005/12

Standards:	- IEC 60079-0	(2011)	"General requirements"
	- IEC 60079-1	(2014)	"Equipment protection by flameproof enclosures 'd'"
	- IEC 60079-7	(2015)	"Equipment protection by increased safety 'e'"
	- IEC 60079-11	(2011)	"Equipment protection by intrinsic safety 'i'"
	- IEC 60079-18	(2014)	"Equipment protection by encapsulation 'm'"
	- IEC 60079-28	(2015)	"Protection of equipment and transmission systems using optical radiation"
	- IEC 60079-31	(2013)	"Equipment dust ignition protection by enclosures 't'"

The evaluation was conducted according to the requirements of:

- **SANS (IEC) 60079-0 : 2012** **"Explosive atmospheres – Part 0: Equipment — General requirements"**
- **SANS (IEC) 60079-1 : 2014** **"Electrical apparatus for explosive gas atmospheres – Part 1: Equipment protection by flameproof enclosures 'd'"**
- **SANS (IEC) 60079-7 : 2015** **"Electrical apparatus for explosive gas atmospheres – Part 7: Equipment protection by increased safety 'e'"**
- **SANS (IEC) 60079-11 : 2012** **"Explosive atmospheres – Part 11: Equipment protection by intrinsic safety 'i'"**
- **SANS (IEC) 60079-18 : 2014** **"Explosive atmospheres – Part 18: Construction, test and marking of type of protection encapsulation "m" electrical apparatus"**
- **SANS (IEC) 60079-28: 2004** **"Explosive atmospheres – Part 28: Protection of equipment and transmission systems using optical radiation"**
- **SANS (IEC) 60079-31 : 2014** **"Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosures 't'"**

/ . COMPLIANCE...

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COMPLIANCE:

The equipment as described below is hereby certified "Explosion Protected" "See Description" and is suitable for use in hazardous locations as stated below and as tested, assessed and inspected in accordance with the relevant requirements of SANS / IEC Standards:

Location	Zone 1 & 2	Gas/Dust Surface
Hazard Frequency	---	Intermittent as could occur under normal operating conditions in hazardous area
Environment	Group IIC Group IIIC	Propane to Hydrogen/Acetylene Conductive dust
Surface Temperature	T6 ... T4	(As Applicable)
Service/Ambient Temperature	"See Description"	(As Applicable)

DESCRIPTION OF EQUIPMENT (According to CML Certificate):

Control Stations

The Control Stations are a range of increased safety enclosures fitted with a selection of separately certified components. The Control Stations are offered utilising the following separately certified enclosures:

- The Control Stations are offered utilising the following separately certified enclosures: XL***CS fabricated mild steel or stainless steel enclosures, certified under IECEx SIR 06.0073U;
- FXL***CS fabricated mild steel or stainless steel enclosures, certified under IECEx SIR 06.0073U;
- GL***CS moulded glass reinforced polyester enclosures, certified under IECEx SIR 06.0105U.

Local Control Units

The Local Control Units are offered in two ranges; the LCP* and the LCS*.

The LCP utilises a glass reinforced polyester enclosure (covered under this approval) and the LCS utilises the separately certified SL range of stainless steel or mild steel metallic enclosures, covered under IECEx SIR 06.0073U.

Disconnect Switches

The DIS Switch Disconnectors and SAF Safety Switches utilise separately certified switch modules within GL type GRP enclosures or FXL/XL/SL type steel enclosures to guarantee safe disconnection of machines from the mains power supply during cleaning, maintenance and repair.

All Control Stations and Local Control Units are offered in a range of sizes and may be fitted with an arrangement of separately certified control components. This includes push buttons, illuminated push buttons, LED modules, pilot lights, switch actuators, switch modules, potentiometer modules, disconnect switch modules, meter modules, panel meters' enclosure windows, terminals, isolation terminals and fibre optic splice trays.

Only items from the Pepperl+Fuchs approved range shall be fitted.

Before installation, the maximum power dissipation must be calculated in accordance with IEC(SANS) 60079-7.

/ . The total...

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The total Maximum Dissipation Power values have been assessed based on internal temperature rises of 5K, 10K and 15K to account for the limiting temperatures of the different devices that may be installed; the Maximum Dissipation Power values assigned for each enclosure size shall not be exceeded and are as follows:

XL and FXL Control Stations

XL and FXL Types									
Enclosure Type (H/W/D mm)	5 kΔT			10 kΔT			15 kΔT		
	P (W)	T Class/Dust		P (W)	T Class/Dust		P (W)	T Class/Dust	
		Ta +40°C	Ta +55°C		Ta +40°C	Ta +55°C		Ta +40°C	Ta +55°C
1 (229/152/145)	2.3	T6/T80°C	T5/T95°C	4.6	T6/T80°C	T4/T130°C	6.9	T5/T95°C	T4/T130°C
2 (260/260/165)	3.8	T6/T80°C	T5/T95°C	7.6	T6/T80°C	T4/T130°C	11.3	T5/T95°C	T4/T130°C
2D (260/260/215)	4.6	T6/T80°C	T5/T95°C	9.2	T6/T80°C	T4/T130°C	13.8	T5/T95°C	T4/T130°C
3 (306/306/165)	4.7	T6/T80°C	T5/T95°C	9.3	T6/T80°C	T4/T130°C	14.0	T5/T95°C	T4/T130°C
3D (306/306/215)	5.6	T6/T80°C	T5/T95°C	11.3	T6/T80°C	T4/T130°C	16.9	T5/T95°C	T4/T130°C
4 (380/260/165)	4.9	T6/T80°C	T5/T95°C	9.8	T6/T80°C	T4/T130°C	14.7	T5/T95°C	T4/T130°C
4D (380/260/215)	5.9	T6/T80°C	T5/T95°C	11.8	T6/T80°C	T4/T130°C	17.7	T5/T95°C	T4/T130°C
5 (458/382/165)	7.1	T6/T80°C	T5/T95°C	14.3	T6/T80°C	T4/T130°C	21.4	T5/T95°C	T4/T130°C
5D (458/382/215)	8.5	T6/T80°C	T5/T95°C	16.9	T6/T80°C	T4/T130°C	25.4	T5/T95°C	T4/T130°C
6 (480/480/165)	8.6	T6/T80°C	T5/T95°C	17.3	T6/T80°C	T4/T130°C	25.9	T5/T95°C	T4/T130°C
6D (480/480/215)	10.1	T6/T80°C	T5/T95°C	20.3	T6/T80°C	T4/T130°C	30.5	T5/T95°C	T4/T130°C
7 (500/350/165)	7.2	T6/T80°C	T5/T95°C	14.4	T6/T80°C	T4/T130°C	21.6	T5/T95°C	T4/T130°C
7D (500/350/215)	8.5	T6/T80°C	T5/T95°C	17.1	T6/T80°C	T4/T130°C	25.6	T5/T95°C	T4/T130°C
8 (620/450/165)	10.0	T6/T80°C	T5/T95°C	20.0	T6/T80°C	T4/T130°C	29.9	T5/T95°C	T4/T130°C
8D (620/450/215)	11.7	T6/T80°C	T5/T95°C	23.3	T6/T80°C	T4/T130°C	35.0	T5/T95°C	T4/T130°C
9 (762/508/165)	12.7	T6/T80°C	T5/T95°C	25.5	T6/T80°C	T4/T130°C	38.3	T5/T95°C	T4/T130°C
9D (762/508/215)	14.7	T6/T80°C	T5/T95°C	29.5	T6/T80°C	T4/T130°C	44.2	T5/T95°C	T4/T130°C
10 (914/610/215)	19.1	T6/T80°C	T5/T95°C	38.3	T6/T80°C	T4/T130°C	57.4	T5/T95°C	T4/T130°C
10D (914/610/315)	24.0	T6/T80°C	T5/T95°C	47.9	T6/T80°C	T4/T130°C	71.9	T5/T95°C	T4/T130°C
11 (1177/777/225)	28.3	T6/T80°C	T5/T95°C	56.6	T6/T80°C	T4/T130°C	85.0	T5/T95°C	T4/T130°C
11D (1177/777/315)	33.9	T6/T80°C	T5/T95°C	67.7	T6/T80°C	T4/T130°C	101.6	T5/T95°C	T4/T130°C

/ . GL Control...

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GL Control Stations

GL Types									
	5 kΔT			10 kΔT			15 kΔT		
Enclosure Type (H/W/D mm)	P (W)	T Class/Dust		P (W)	T Class/Dust		P (W)	T Class/Dust	
		Ta +40°C	Ta +55°C		Ta +40°C	Ta +55°C		Ta +40°C	Ta +55°C
5 (120/120/90)	1.7	T6/T80°C	T5/T95°C	3.5	T6/T80°C	T4/T130°C	5.2	T5/T95°C	T4/T130°C
6 (120/220/90)	2.6	T6/T80°C	T5/T95°C	5.3	T6/T80°C	T4/T130°C	7.9	T5/T95°C	T4/T130°C
7 (160/160/91)	2.5	T6/T80°C	T5/T95°C	5.1	T6/T80°C	T4/T130°C	7.6	T5/T95°C	T4/T130°C
8 (160/260/91)	3.6	T6/T80°C	T5/T95°C	7.1	T6/T80°C	T4/T130°C	10.7	T5/T95°C	T4/T130°C
9 (160/360/91)	4.6	T6/T80°C	T5/T95°C	9.2	T6/T80°C	T4/T130°C	13.8	T5/T95°C	T4/T130°C
10 (160/560/91)	6.6	T6/T80°C	T5/T95°C	13.3	T6/T80°C	T4/T130°C	19.9	T5/T95°C	T4/T130°C
11 (250/255/120)	5.6	T6/T80°C	T5/T95°C	11.1	T6/T80°C	T4/T130°C	16.7	T5/T95°C	T4/T130°C
11D (250/255/165)	6.9	T6/T80°C	T5/T95°C	13.9	T6/T80°C	T4/T130°C	20.8	T5/T95°C	T4/T130°C
12 (250/400/120)	7.7	T6/T80°C	T5/T95°C	15.4	T6/T80°C	T4/T130°C	23.1	T5/T95°C	T4/T130°C
13 (405/400/120)	10.7	T6/T80°C	T5/T95°C	21.4	T6/T80°C	T4/T130°C	32.1	T5/T95°C	T4/T130°C
14 (405/400/165)	12.9	T6/T80°C	T5/T95°C	25.8	T6/T80°C	T4/T130°C	38.7	T5/T95°C	T4/T130°C
14D (405/400/200)	14.6	T6/T80°C	T5/T95°C	29.2	T6/T80°C	T4/T130°C	43.8	T5/T95°C	T4/T130°C

LCS Local Control Unit

LCS Types									
	5 kΔT			10 kΔT			15 kΔT		
Enclosure Type (H/W/D mm)	P (W)	T Class/Dust		P (W)	T Class/Dust		P (W)	T Class/Dust	
		Ta +40°C	Ta +55°C		Ta +40°C	Ta +55°C		Ta +40°C	Ta +55°C
LCS1 (96/110/84)	0.7	T6/T80°C	T5/T95°C	1.4	T6/T80°C	T4/T130°C	2.1	T5/T95°C	T4/T130°C
LCS2 / 7 (136/110/84)	0.9	T6/T80°C	T5/T95°C	1.8	T6/T80°C	T4/T130°C	2.7	T5/T95°C	T4/T130°C
LCS3 / 8 (216/110/84)	1.2	T6/T80°C	T5/T95°C	2.5	T6/T80°C	T4/T130°C	3.7	T5/T95°C	T4/T130°C
LCS4 / 9 (216/110/84)	1.2	T6/T80°C	T5/T95°C	2.5	T6/T80°C	T4/T130°C	3.7	T5/T95°C	T4/T130°C

/ LCP Local ...

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LCP Local Control Unit

LCP Types									
	5 kΔT			10 kΔT			15 kΔT		
	P (W)	T Class/Dust		P (W)	T Class/Dust		P (W)	T Class/Dust	
Enclosure Type (H/W/D mm)		Ta +40°C	Ta +55°C		Ta +40°C	Ta +55°C		Ta +40°C	Ta +55°C
LCP1 (92/98/100)	1.4	T6/T80°C	T5/T95°C	2.8	T6/T80°C	T4/T130°C	4.3	T5/T95°C	T4/T130°C
LCP2 / 7 (202/98/100)	2.4	T6/T80°C	T5/T95°C	4.8	T6/T80°C	T4/T130°C	7.2	T5/T95°C	T4/T130°C
LCP3 / 8 (202/98/100)	2.4	T6/T80°C	T5/T95°C	4.8	T6/T80°C	T4/T130°C	7.2	T5/T95°C	T4/T130°C
LCP4 / 9 (202/98/100)	2.4	T6/T80°C	T5/T95°C	4.8	T6/T80°C	T4/T130°C	7.2	T5/T95°C	T4/T130°C

MARKING:

CML marking remains applicable and the marking for the relevant models will be as above.

- Ex db eb IIC T* Gb
- Ex ib IIC T* Gb
- Ex db eb ib op pr IIC T* Gb
- Ex eb op pr IIC T* Gb
- Ex tb III C T*°C Db
- 50°C, -40°C, -25°C, -20°C or 0°C to +40°C or +55°C

(*General marking options shown above. In some cases, coding may include symbol 'mb'. Refer to description for further detail).

The following MASC Certificate number (IA number) must be additionally applied to the equipment.

IA No: MASC S/18-0003X

CONDITIONS OF MANUFACTURE:

- As per original certificate IECEx CML 16.0008X

SPECIAL CONDITIONS OF USE (X):

The following conditions relate to safe installation and/or use of the equipment.

- i) The user/installer shall install the range of Control Stations and Local Control Units and shall comply with any restrictions or special conditions for safe use that are applicable to the certified equipment or components that are installed in the enclosures.

/ . ii) Equipment...

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- ii) Equipment fitted with warning 'POTENTIAL ELECTROSTATIC CHARGING HAZARD' shall only be cleaned with a damp cloth to prevent the risk of electrostatic discharge.
- iii) Repair of any flameproof joints must be made in compliance with the structural specification provided by the manufacturer. Repairs must not be made on the basis of values specified in tables 1 and 2 of IEC 60079-1.
- iv) Any connected optical bundles must be supported within the equipment using supplied mounting clips to prevent strain on the individual fibres as they enter the component.
- v) When the equipment is fitted with a flange adaptor, it must be installed in line with manufacturer's instructions DOCT-5152.
- vi) When Ex ia panel meters (certificates IECEx ITS 14.0048X and IECEx ITS 15.0056X) are fitted, they must be supplied by an appropriately rated Zener barrier or galvanic isolator located in a safe area.
- vii) When non-light transmitting CFP.* series operators (CML 16ATEX3339U / IECEx CML 16.0114U) are fitted, the enclosures shall only be fitted in low impact risk areas.

CONDITIONS OF CERTIFICATION:

- 1. This IA Certificate covers all units sold from the date of this document to 08 January 2021.
- 2. As per ARP 0108 a three yearly review is required on this IA Certificate.
- 3. The apparatus must be additionally marked with the MASC marking details above.
- 4. This approval only covers the equipment as certified above and does not include any scheduled additions or variations / amendments / new issues to the certificate(s), made after the above date.
- 5. The equipment does not need to be re-tested when used on the conditions and with such restrictions as prescribed by CML and in this approval.
- 6. The CML certification must remain valid.
- 7. The extent of the requirements in the ARP 0108 (or regulations) and SANS 10108 on the certification of the equipment must remain unchanged.
- 8. The Ex quality assurance notification/report for the equipment must remain valid.

The use of apparatus in hazardous locations is subject to the following provisions as applicable, which shall be adhered to:

- i. SANS 10086 requirements;
- ii. Any conditions mentioned in the above document;
- iii. Codes of Practice enforced in terms of Regulations 21.17.2 of Minerals Act, by Chief Inspector of Mines;
- iv. Any restrictions and conditions enforced by Chief Inspectors of Mines, Principal Inspector (Group I equipment) of Chief Inspector of Factories (Group II equipment);
- v. Any relevant requirements of the MHS Act or the OHS Act.

/I. CONCLUSION...

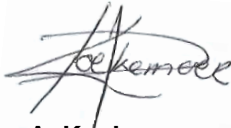
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CONCLUSION:

From the above and the selective examination of the documentation, nothing contrary to the requirements of the applicable standards was found, provided that the equipment / component is used as described in the above document / certificate and according to the MASC conditions below. A MASC IA certificate is issued based on the work done by CML.

The routine tests for production units according to the CML Certificate must be complied with (if applicable).

Yours faithfully



A. Koekemoer
TECHNICAL SPECIALIST



F du Toit
TECHNICAL SPECIALIST

Mining And Surface Certification

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While every endeavour is made to ensure that a test / assessment is representative and accurately performed, and that a report is accurate in the quoted results and conclusions drawn from the test / assessment, MASC or its members/employees shall in no way be liable for any error made in carrying out the test / assessment or for any erroneous statement, whether in fact or in opinion, contained in a report issued pursuant to a test / assessment.

MASC takes no responsibility for any non-conformances, exclusions or any results / assessments not in compliance with the standards. By marking the equipment in accordance with the documentation / standard, the manufacturer attests on his own responsibility that the equipment has been constructed in accordance with the applicable requirements of the relevant standards and that the routine verifications and routine tests have been successfully completed and the product complies with the documentation and standard(s).

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