



Mining And Surface Certification (Pty) Ltd

2015/021934/07



Certificate Number: MASC MS/17-0864
Issue: 16 March 2020
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IA – CERTIFICATE

(Supplement 1 – Supplemented for revision as per ARP 0108)

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

Ex – Type Examination

Certificate number:

Equipment:

Serial No:

MASC MS/17-0864

Impulse Evaluating Device Type KF** -D** -Ex*.*
(See "Conditions of Certification")

Requested by:

Address:

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

Manufacturer:

Address:

Pepperl+Fuchs AG
Lilienthalstrasse 200
68307 Mannheim
Germany

DESCRIPTION:

Electrical data:

The permissible temperature range is -20°C to +60°C.

Supply circuit (terminals 23, 24)	U = 20 .. 30 V d.c. ,	U _m = 40 V	(KFD2)
	U = 20 .. 90 V d.c. ,	U _m = 253 V	(KFU8)
	or 48 .. 253 V a.c.		
	U = 115 V a.c. ,	U _m = 253 V	(KFA5)
	U = 230 V a.c. ,	U _m = 253 V	(KFA6)
or via Power Rail (terminals PR: 1, 2)	U = 20 .. 30 V d.c. ,	U _m = 40 V	(only KFD2)
Contact circuits (terminals 10, 11, 12 and 16, 17, 18)	alternating voltage U = 253 V a.c. I = 2 A U _m = 253 V	direct voltage U = 40 V I = 2 V U _m = 253 V	

/ . Transistor...

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Transistor outputs (terminals 19, 20) U_m = 40 V

Control inputs (terminals 13, 14) U_m = 40 V

Interface RS485 (terminals PR: 3, 5) U_m = 40 V

Sum error (terminal PR: 4) U_m = 40 V

Input circuits (terminals 1, 3 resp. 4, 6) in type of protection "Intrinsic Safety" Ex ia IIC

Maximum values:

U_o = 10.1 V

I_o = 13.5 mA

P_o = 34 mW

Characteristic line: linear

Effective inner inductance: L_i = negligibly small

Effective inner capacitance: C_i = negligibly small

	Ex ia IIC	Ex ia IIB	Ex ia IIA
L _o	195 mH	730 mH	1000 mH
C _o	2.87 µF	19.4 µF	93 µF

The above mentioned values of the outer reactance apply only on condition that simultaneous appearance of the outer inductance and capacitance does not to be considered (e.g. in case of lines).

In case of simultaneous appearance of capacitance and inductance in concentrated form the permissible maximum values have to be taken from the following table:

	Ex ia IIC	Ex ia IIB	Ex ia IIA
L _o	5 mH	10 mH	20 mH
C _o	0.4 µF	1.5 µF	3.0 µF

MARKING:

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

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/ . COMPLIANCE...

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COMPLIANCE:

The equipment as described above and in MASC letter 17-0864 – R1 is hereby certified “Explosion Protected” [Ex ia Ga] IIC, [Ex ia Da] IIIC , [Ex ia Ma] I 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:

The evaluation was conducted according to the requirements of:

- i) SANS (IEC) 60079-0 :2012 “Explosive atmospheres – Part 0: Equipment — General requirements”
- ii) SANS (IEC) 60079-11 :2012 “Explosive atmospheres – Part 11: Equipment protection by intrinsic safety ‘i’”
- iii) SANS (IEC) 60079-26 :2007 “Explosive atmospheres – Part 26: Equipment with equipment protection level (EPL) Ga”

Location	Zone *0, 1 & 2 Zone *20, 21 & 22	Gas Surface / Mining Dust
Hazard Frequency	---	Continuous as could occur under normal operating conditions in hazardous area (*Outputs only)
Environment	Group I Group IIC Group IIIC	Methane and Coal dust (As Applicable) Propane to Hydrogen / Acetylene (As Applicable) Dust (Metallic & non-metallic) (As Applicable)
Service/Ambient Temperature	-20°C to +60°C	

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.

CONDITIONS OF MANUFACTURE:

- None

SPECIAL CONDITIONS OF USE (X):

- None

/ . CONDITIONS...

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CONDITIONS OF CERTIFICATION:

1. This Certificate remains valid based of the QAR/QAN and no more than 3 years..
2. The apparatus must be additionally marked with the MASC marking details above.
3. 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.
4. The equipment does not need to be re-tested when used on the conditions and with such restrictions as prescribed by TÜV and in this approval.
5. The TÜV certification must remain valid.
6. The extent of the requirements in the ARP 0108 (or regulations) and SANS 10108 on the certification of the equipment must remain unchanged.
7. The Ex quality assurance notification/report for the equipment must remain valid.



M. I. Gumede
TECHNICAL OFFICER



D. P. Visser
TECHNICAL SPECIALIST

Mining And Surface Certification

This document is issued based on Mining And Surface Certification's Standard Contract terms and conditions available on request.

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).

This document is only for use and application in South Africa. It is issued based on National interpretations and accepted practises.

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