



Mining And Surface Certification (Pty) Ltd

2015/021934/07



Certificate Number: MASC MS/17-0880
Issue: 6 August 2021
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IA – CERTIFICATE

(Supplement 2: Reviewed by MASC 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/17-0880

Temperature Converter KF**-GUT-Ex1*
(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 SE
Lilienthalstrasse 200
68307 Mannheim
Germany

DESCRIPTION:

The temperature converter KF**-GUT-Ex1.* is an associated apparatus for the transmission of electrical signals from the explosion hazardous area to the non-hazardous area. The output circuits are designed as two relay outputs and one current output. The temperature converter is manufactured with one intrinsic safe input channel.

Technical data:

Main circuit U = 20 V... 90 V d.c. or 48 V ..253 V a.c. (KFU8-)

(terminals 23, 24)

Um = 125 V d.c resp. 253 V a.c.

Or

Power Rail U = 20 V... 30 V d.c. (KFD2-)

Um = 40 V

Relay outputs

alternative voltage:

direct voltage:

(terminals 10, 11, 12

U = 253 V

U = 40 V

and 16, 17, 18)

I = 2 A

I = 2 A

Um = 253 V

Um = 253 V

Cosφ ≥ 0.7

/ Analogue...

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Mining And Surface Certification (Pty) Ltd Reg No: 2015/021934/07

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IA CERTIFICATE NUMBER: MASC MS/17-0880
Temperature Converter KF-GUT-Ex1***

Analogue output..... $U_m = 40\text{ V}$
 (terminals 7, 8)

Interface RS232..... $U_m = 40\text{ V}$
 (jack bushing)
 optional

Start-up bridging/trigger..... $U_m = 40\text{ V}$
 (terminals 13, 14)

Input circuits in type of protection Intrinsic Safety Ex ia IIC/IIB/IIA resp.
 (terminals 1, 2, 3, 4, 6) Ex ia I, only for the connection of passive sensors

maximum values:

$U_o = 13.1\text{ V}$

$I_o = 21\text{ mA}$

$P_o = 67\text{ mW}$

Characteristic line: linear

$L_i =$ negligibly small

$C_i =$ negligibly small

	Ex ia IIC	Ex ia IIB	Ex ia IIA	Ex ia I
L_o	82 mH	300 mH	700 mH	1000 mH
C_o	0.97 μF	6.0 μF	21.7 μF	25 μF

The values of L_o and C_o listed in the table above are allowed if one of the following conditions is met:

- The total L_i of the external circuit (excluding the cable) is < 1% of the L_o value or
- The total C_i of the external circuit (excluding the cable) is < 1% of the C_o value.

The values of L_o and C_o listed in the table above shall be reduced to 50% when both of the following conditions are met:

- The total L_i of the external circuit (excluding the cable) is > 1% of the L_o value and
- The total C_i of the external circuit (excluding the cable) is > 1% of the C_o value.

Note: The reduced capacitance of the external circuit (including cable) shall not be greater than 1 μF for IIB and 600nF for IIC.

or

(terminals 2, 6) for the connection of active intrinsically safe circuits with the following maximum values:

$U_i = 29\text{ V}$

$I_i = 11\text{ mA}$

$P_i = 200\text{ mW}$

maximum values of the circuit:

$U_o = 13.1\text{ V}$

$I_o = 8\text{ mA}$

$P_o = 67\text{ mW}$

Characteristic line: linear

$L_i =$ negligibly small

$C_i =$ negligibly small

The input circuit is safely galvanically insulated from all other circuits up to a peak value of the nominal voltage of 375 V.

/ . MARKING...

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MARKING:

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

IA No: MASC MS/17-0880

COMPLIANCE:

The equipment as described above and in MASC letter 17-0880 is hereby certified "Explosion Protected" [Ex ia Ga] IIC, [Ex iaD], [Ex ia] 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'"**

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	Methane and Coal dust Propane to Hydrogen / Acetylene
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.

SPECIAL CONDITIONS OF USE (X):

- None

CONDITIONS OF MANUFACTURE:

- None

/ . CONDITIONS...

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CONDITIONS OF CERTIFICATION:

1. This Certificate remains valid based on a three yearly review covered by an official MASC letter.
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.



D.P Visser
TECHNICAL SPECIALIST



N Viljoen
TECHNICAL SPECIALIST

Mining And Surface Certification

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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 practices.

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