CERTIFICATE

(1) EU-Type Examination

- (2) Equipment or protective systems intended for use in potentially explosive atmospheres Directive 2014/34/EU
- (3) EU-Type Examination Certificate Number: **KEMA 07ATEX0148 X** Issue Number: **4**
- (4) Product: Temperature / mA Converter, Type 9113AA, Type 9113AB,

Type 9113BA and Type 9113BB

- (5) Manufacturer: PRelectronics A/S
- (6) Address: Lerbakken 10, 8410 Rønde, Denmark
- (7) This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- (8) DEKRA Certification B.V., Notified Body number 0344 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential test report number NL/KEM/ExTR09.0053/03.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0: 2012 +/A11: 2013///EN/60079-11: 2012///////////EN/60079-15: 2010

except in respect of those requirements listed at item 18 of the Schedule

- (10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.
- (11) This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.
- (12) The marking of the product/shall/include the following:



II (1) G [Ex ia Ga] IIC/IIB/IIA (type/91/13B...)
II (1) D [Ex ia Da] IIIC (type/91/13B...)
I (M1) [Ex ia Ma] I (type/91/13B...)
II 3 G Ex nA nC IIC/T4/Gc (type/91/13A.../and type/91/13B...)

Date of certification: 13 July 2016

DEKRA Certification B.V.

R. Schuller Certification Manager

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(13) SCHEDULE

(14) to EU-Type Examination Certificate KEMA 07ATEX0148 X

Issue No. 4

(15) **Description**

Temperature / mA Converters, Type 9113AA, Type 9113AB, Type 9113BA and Type 9113BB, for rail mounting are 24 V powered 1 channel (Type 9113.A) or 2 channel (Type 9113.B) isolating barriers, interfacing temperature sensors or current sources located in an explosive atmosphere.

The Temperature / mA Converter is supplied via terminals at the front of the module, or via Power Rail Type 9400. Removable display module 4501 can be used for programming of the Converter.

Ambient temperature range -20 °C to +60 °C.

Electrical data

Supply (terminals 31, 32 and rear contacts): U = 19,2 ... 31,2 Vdc.

Outputs (terminals 11, 12 and 13, 14): I = 0 ... 20 mA or 4 ... 20 mA

Status output (terminals 33, 34):

Relay contacts, $U \le 32 \text{ Vdc}$ or 32 Vac, $I \le 1 \text{ Adc}$ or $I \le 0.5 \text{ Aac}$ respectively.

If the Temperature / mA Converter is installed outside the hazardous area, the following data for the relay contacts apply: $U \le 110 \text{ Vdc}$ or 125 Vac, $I \le 0,3 \text{ Adc}$ or $I \le 0,5 \text{ Aac}$ respectively

For all circuits above: $U_m = 253 \text{ Vac}$ (max. frequency 400 Hz).

Sensor circuits (terminals 41 ... 44 respectively 51 ... 54):

in type of protection intrinsic safety Ex ia IIC/IIB/IIA/IIIC/I, with following maximum values:

 $U_0 = 8.7 \text{ V}$; $I_0 = 18.4 \text{ mA}$; $P_0 = 40 \text{ mW}$; $C_0 = 5 \mu\text{F}$ (IIC) or 50 μF (IIB) or 1000 μF (IIA);

 L_o = 100 mH (IIC) or 300 mH (IIB) or 700 mH (IIA); L_o/R_o = 892 μ H/ Ω (all groups);

 $U_i = 10 \text{ V}$; $I_i = 30 \text{ mA}$; $C_i = 30 \text{ nF}$; $L_i = 820 \text{ nH}$;

for group IIIC, the parameters of group IIB apply;

for group I, the parameters of group IIA apply.

The intrinsically safe sensor circuits are infallibly galvanically isolated from each other and from the non-intrinsically safe circuits.

Sensor circuits, when combined to one circuit (terminals 41 ... 44 and 51 ... 54):

in type of protection intrinsic safety Ex ia IIC/IIB/IIA/IIIC/I, with following maximum values:

 $U_o = 17.4 \text{ V}$; $I_o = 18.4 \text{ mA}$; $P_o = 80 \text{ mW}$; $C_o = 0.3 \mu\text{F}$ (IIC) or 1.6 μF (IIB) or 8 μF (IIA);

 L_o = 80 mH (IIC) or 250 mH (IIB) or 600 mH (IIA); L_o/R_o = 445 μ H/ Ω (all groups);

 $U_i = 10 \text{ V}$; $I_i = 30 \text{ mA}$; $C_i = 15 \text{ nF}$; $L_i = 1.7 \text{ }\mu\text{H}$;

for group IIIC, the parameters of group IIB apply;

for group I, the parameters of group IIA apply.

Installation instructions

The instructions provided with the product shall be followed in detail to assure safe operation.

(16) Report Number

No. NL/KEM/ExTR09.0053/03.



(13) SCHEDULE

(14) to EU-Type Examination Certificate KEMA 07ATEX0148 X

Issue No. 4

(17) Specific conditions of use

The Temperature / mA Converter shall be installed in a controlled environment with suitably reduced pollution, limited to pollution degree 2 or better.

The non-intrinsically safe circuits may only be connected to an overvoltage category I or II power source, as defined in EN 60664-1.

If the Temperature / mA Converter is installed in an explosive atmosphere where the use of apparatus of equipment category 3 G is required, the following Specific conditions of use additionally apply:

The Temperature / mA Converter shall be installed in an enclosure in type of protection Ex n or Ex e, providing a degree of protection of at least IP54. Cable entry devices and blanking elements shall fulfill the same requirements.

Removable Display Module 4501, when connected to the Temperature / mA Converter, may not be damaged and shall be free of dust and moisture.

(18) Essential Health and Safety Requirements

Covered by the standards listed at item (9).

(19) Test documentation

As listed in Report No. NL/KEM/ExTR09.0053/03.

(20) Certificate history

Issue 1 - 210866800: initial certificate.

Issue 2 - 213132000: Minor changes of printed circuit board.

Issue 3 - 215407200: application of annex F of the IEC60079-11: 2011. As a result, the fuse

does not need to be encapsulated in a plastic box anymore, and

therefore the PCB-layout changed;

assessment for mines susceptible to firedamp;

upgrade to the IEC60079-0: 2011 and IEC60079-11: 2011.

Issue 4 - 219204500: update to IEC60079-15: 2010;

remove IEC60079-26;

Addition of Ex nA version '9113A*'.