

# 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: **5**

(4) Product: **Temperature / mA Converter, Type 9113AA, Type 9113AB, Type 9113BA and Type 9113BB**

(5) Manufacturer: **PR electronics A/S**

(6) Address: **Lerbakken 10, 8410 Rønne, 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/ExTR09.0053/04.

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

**EN IEC 60079-0 : 2018**  
**EN IEC 60079-15 : 2019**

**EN 60079-11 : 2012**  
**EN 60079-7 : 2015 + A1 : 2018**

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:



<b>II (1) G</b>	<b>[Ex ia Ga] IIC/IIB/IIA</b>	(type 9113B...)
<b>II (1) D</b>	<b>[Ex ia Da] IIIC</b>	(type 9113B...)
<b>I (M1)</b>	<b>[Ex ia Ma] I</b>	(type 9113B...)
<b>II 3 G</b>	<b>Ex ec nC IIC T4 Gc</b>	(type 9113A... and type 9113B...)

Date of certification: 21 April 2022

DEKRA Certification B.V.

R. Schuller  
Certification Manager



(13) **SCHEDULE**

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

Issue No. 5

(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):  $U = 19,2 \dots 31,2 \text{ Vdc}$ .

Outputs (terminals 11, 12 and 13, 14):  $I = 0 \dots 20 \text{ mA}$  or  $4 \dots 20 \text{ mA}$

Status output (terminals 33, 34):

Relay contacts,  $U \leq 32 \text{ Vdc}$  or  $32 \text{ Vac}$ ,  $I \leq 1 \text{ Adc}$  or  $I \leq 0,5 \text{ Aac}$  respectively.

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

$U_o = 8,7 \text{ V}$ ;  $I_o = 18,4 \text{ mA}$ ;  $P_o = 40 \text{ mW}$ ;  $C_o = 5 \mu\text{F}$  (IIC) or  $50 \mu\text{F}$  (IIB) or  $1000 \mu\text{F}$  (IIA);

$L_o = 100 \text{ mH}$  (IIC) or  $300 \text{ mH}$  (IIB) or  $700 \text{ mH}$  (IIA);  $L_o/R_o = 892 \mu\text{H}/\Omega$  (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  $1,6 \mu\text{F}$  (IIB) or  $8 \mu\text{F}$  (IIA);

$L_o = 80 \text{ mH}$  (IIC) or  $250 \text{ mH}$  (IIB) or  $600 \text{ mH}$  (IIA);  $L_o/R_o = 445 \mu\text{H}/\Omega$  (all groups);

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

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/ExTR09.0053/04.



(13) **SCHEDULE**

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

Issue No. 5

(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 e, providing a degree of protection of at least IP54 according to EN IEC 60079-0. 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/ExTR09.0053/04.

(20) **Certificate history**

Issue 1 -	210866800	initial certificate
Issue 2 -	213132000	minor changes of printed circuit board
Issue 3 -	215407200	assessment for mines susceptible to firedamp assessed per EN 60079-0: 2012 and EN 60079-11: 2012
Issue 4 -	219204500	assessed per EN 60079-15: 2010 remove EN 60079-26 addition of Ex nA version '9113A*'
Issue 5 -	225761700	assessed per EN IEC 60079-0: 2018, EN 60079-7: 2015 and EN IEC 60079-15: 2019