

CERTIFICATE

(1) UK Type Examination

(2) **Product or Protective System Intended for use in Potentially Explosive Atmospheres - UKSI 2016:1107 (as amended) – Schedule 3A, Part 1**

(3) UK Type Examination Certificate Number: **DEKRA 23UKEX0109X** Issue Number: **0**

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

(5) Manufacturer: **PR electronics 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 UK Ltd., Approved Body number 8505 in accordance with Regulation 42 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), 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 Schedule 1 of the Regulations.

The examination and test results are recorded in confidential report **EX22090003-007** Issue **0**.

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

EN IEC 60079-0 : 2018

EN 60079-11 : 2012

except in respect of those requirements listed at item 18 of the Schedule to this certificate.

(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 UK Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Regulations 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:

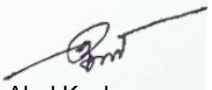


**II (1) G [Ex ia Ga] IIC/IIB/IIA
II (1) D [Ex ia Da] IIIC
I (M1) [Ex ia Ma] I**

Date of certification: 13 October 2023



DEKRA Certification UK Ltd.


Abul Kashem
Certification Manager

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(13) **SCHEDULE**

(14) **to UK Type Examination Certificate DEKRA 23UKEX0109X**

Issue No. 0

(15) **Description**

Temperature / mA Converters, Type 9113BA and Type 9113BB, for rail mounting are 24 V powered 1 channel (Type 9113BA) or 2 channel (Type 9113BB) 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 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 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 mH (IIB) or 700 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 mH (IIB) or 600 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**

EX22090003-007 Issue 0.

(13) **SCHEDULE**

(14) **to UK Type Examination Certificate DEKRA 23UKEX0109X**

Issue No. **0**

(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.

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**

In addition to the Essential Health and Safety Requirements covered by the standards listed at item 9, all other requirements are demonstrated in the relevant reports.

(19) **Test documentation**

As listed in Report number EX22090003-007 Issue 0.