CERTIFICATE

(1) Type Examination

(2) **Product intended for use in potentially explosive atmospheres - Directive 2014/34/EU**

(3) Type Examination Certificate Number: **DEKRA 18ATEX0135X** Issue Number: **4**

(4) Product: **2-wire TC Temperature Transmitter, type 5434A... , 2-wire universal Temperature Transmitter, type 5431A... and 6431A... , 2-wire HART Temperature Transmitter, type 5435A..., 5437A... and type 6437A....**

(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., 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 Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014.

The examination and test results are recorded in confidential test report no. NL/DEK/ExTR16.0035/07.

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

EN IEC 60079-0 : 2018
EN 60079-11: 2012
EN 60079-7 : 2015 + A1 : 2018
EN 60079-15 : 2010

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 Type Examination Certificate relates only to the design and construction of the specified product and not to the manufacturing process and its monitoring.

(12) The marking of the product shall include the following:

II 3 G Ex nA IIC T6…T4 Gc
II 3 G Ex ec IIC T6…T4 Gc
II 3 G Ex ic IIC T6…T4 Gc
II 3 D Ex ic IIIC Dc

Date of certification: 12 March 2024

DEKRA Certification B.V.

R. Schuller
Certification Manager

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(13) # SCHEDULE

(14) **to Type Examination Certificate DEKRA 18ATEX0135 X** Issue No. **4**

(15) **Description**

Temperature Transmitters, type 543A..... and type 643A…., are used to convert temperature measurement signals from one or two temperature sensors or mV signals, into a 4 ... 20 mA current signal with digital communication (HART).

The dedicated extension port 'EXT' (8-pin-header hidden under a small plastic lid on the 543A.... and the front connector and contact pads on the 643A....) may only be connected to equipment that is predefined by PRelectronics A/S.

The transmitters, type 543A....., are suitable for mounting in an enclosure form B according to DIN 43729 or equivalent.
The transmitters, type 643A....., are suitable for rail mounting.

Nomenclature

5434abd - 2-wire TC temperature transmitter
5431abd - 2-wire universal temperature transmitter
5435abcd - 2-wire HART® temperature transmitter
5437abcd - 2-wire HART® temperature transmitter
6431abcd - 2-wire universal temperature transmitter
6437abcd - 2-wire HART® temperature transmitter

a: A = Zone 2 / Zone 22 approved
D = Zone 0 / Zone 20 approved

b: 1 = single input (4 wire)
2 = dual input (7 wire)
3 = two channel (4 wire, each channel)

c: S = SIL approved
“ “ = Not SIL approval

d: M = Marine approved
“ “ = Not marine approved

(13) # SCHEDULE

(14) **to Type Examination Certificate DEKRA 18ATEX0135 X** Issue No. **4**

Thermal and electrical data

Supply / output circuit (for type 543.... terminals 1, 2; and for type 643... terminals 11, 12 and 21, 22): in type of protection Ex nA, Ex ec or Ex ic. See below table for the maximum values.

The relation between Ui, Pi, temperature class, model type and maximum ambient temperature is as follows:

Supply / output circuit			Temperature class	Maximum ambient temperature	
Ex nA & Ex ec	Ex ic Li = 0 uH Ci = 1 nF	Ex ic Ui= 48 VDC Li = 0 uH Ci = 1 nF		Single and dual input	Two channel
Vmax= 37 VDC	Ui= 37 VDC	Pi= 851 mW per channel	T4	+85 °C	+85 °C
			T5	+70 °C	+65 °C
			T6	+55 °C	+50 °C
Vmax= 30 VDC	Vi= 30 VDC	Pi= 700 mW per channel	T4	+85 °C	+85 °C
			T5	+75 °C	+70 °C
			T6	+60 °C	+55 °C

The minimum ambient temperature is -50 °C.

For EPL Dc:
The surface temperature of the outer enclosure is +20 K above the ambient temperature, determined without a dust layer.

Sensor circuit, dual input (for type 543.....: terminals 3…9):
in type of protection intrinsic safety Ex ic IIC and Ex ic IIIC, with the following maximum values:
U_o = 7,2 V; I_o = 12,9 mA; P_o = 23,3 mW; C_o = 13,5 µF; L_o = 200 mH.
or
Sensor circuit, single input (terminals 3,4,5,6 or terminals 3,7,8,9) for 543… in type of protection intrinsic safety Ex ic IIC and Ex ic IIIC, with the following maximum values:
U_o = 7,2 V; I_o = 7,3 mA; P_o = 13,2 mW; C_o = 13,5 µF; L_o = 667 mH.

Sensor circuit, dual input (type 643.....: terminals 41...44,51...54):
in type of protection intrinsic safety Ex ic IIC and Ex ic IIIC, with the following maximum values:
U_o = 7,2 V; I_o = 12,9 mA; P_o = 23,3 mW; C_o = 13,5 µF; L_o = 200 mH.
or
Sensor circuit, single input (terminals 41…44 or terminals 51…54) for 643… and two channel (terminals 41…44 and/or 51…54) for 643D3… in type of protection intrinsic safety Ex ic IIC and Ex ic IIIC, with the following maximum values:
U_o = 7,2 V; I_o = 7,3 mA; P_o = 13,2 mW; C_o = 13,5 µF; L_o = 667 mH.

The sensor circuit is infallibly isolated from the supply / output circuit.
The two channels of model type 643.A3.. are infallibly isolated from each other.

(13) # SCHEDULE

(14) **to Type Examination Certificate DEKRA 18ATEX0135 X** Issue No. **4**

Installation instructions

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

(16) **Report Number**

No. NL/DEK/ExTR16.0035/07

(17) **Specific conditions of use**

For ambient temperature range see (15).

If the enclosure is made of non-metallic plastic materials, electrostatic charges on the transmitter enclosure shall be avoided.

If the transmitter is installed in an explosive atmosphere requiring the use of equipment protection level Gc and applied in type of protection Ex ic, the transmitter shall be mounted in enclosure that provides a degree of protection of at least IP20 according to IEC 60529, and that is suitable for the application and correctly installed.

If the transmitter is installed in an explosive atmosphere requiring the use of equipment protection level Dc, the transmitter shall be mounted in enclosure that provides a degree of protection of at least IP5X according to IEC 60079-0, and that is suitable for the application and correctly installed.

If the transmitter is installed in an explosive atmosphere requiring the use of equipment protection level Gc and applied in type of protection Ex nA or Ex ec, the transmitter shall be mounted in enclosure that provides a degree of protection of at least IP54 according to IEC 60079-0, and that is suitable for the application and correctly installed.

If the transmitter is installed in an explosive atmosphere requiring the use of equipment protection level Gc and applied in type of protection Ex nA or Ex ec, the equipment shall only be used in an area of not more than pollution degree 2, as defined in IEC 60664-1.

(18) **Essential Health and Safety Requirements**

Covered by the standards listed at item (9).

(19) **Test documentation**

As listed in Report No. NL/DEK/ExTR16.0035/07.