1 EU - Type Examination Certificate

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

3 Certificate Number: ExVeritas 16ATEX0154X Issue: 2

4 Equipment: CT221, 210-TC, 210-RTD, 220-TC, 220-RTD, Model 210HZ, & Model 220HZ

5 Manufacturer: Daily Thermetrics Corporation

6 Address: 5700 Hartsdale Drive
Houston, Texas 77036
USA

7 This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

8 ExVeritas, Notified Body number 2804 in accordance with Article 17 of the Council Directive 2014/34/EU of 26 February 2014, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to design and construction of equipment and protective systems for use in potentially explosive atmospheres given in Annex II to the Directive

9 Compliance with the applicable Essential Health and Safety Requirements has been assured by compliance with the following Standards and section 16 of this certificate:

EN IEC 60079-0: 2018 **EN 60079-11:2012**

10 If the sign “X” is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EU-Type Examination Certificate relates only to the design, construction, examination and tests of the specified equipment or protective system in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment shall include the following:

Ex II 1 G Ex ia IIC T6…T1 Ga T_{amb} -40°C to +55°C

DANAK
PROD Reg.No. 7044
Member of EA MLA

On behalf of ExVeritas

Peter Lauritzen
Managing Director

Schedule

13 Description of Equipment or Protective System

The Daily Thermetrics temperature probes are multipoint temperature measuring probes and come in both a Thermocouple and RTD version. These probes are supplied in the following different models; CT221, 210-TC, 210-RTD, 220-TC, 220-RTD, Model 210HZ and Model 220HZ.

Each of the above variants provide a different maximum number of measuring points and come in both a Thermocouple and RTD type. The different models can be supplied in different thermocouple types based on the temperature application. All variants provide the same design characteristics which are relied upon for safety.

The Thermocouple / RTD wires are insulated inside a solid MgO insulation with the positive and negative leads either being welded together at the end to not touch the sheath, for the TC Type, or terminated into the platinum element for the RTD type. The insulated thermocouple wires are housed within a stainless-steel sheath which is welded closed at the end. The extension lead wires are insulated with an armoured cable sheath. Models 210HZ and 220HZ are not insulated from the sheath.

Each probe is to be supplied by a single linear intrinsically safe barrier with the entity parameters detailed in Table 1. Temperature classification is assigned based on the process temperatures in accordance with the Table 2.

Parameter	RTD Value	TC Value
Ui (V)	30	30
Ii (mA)	101	101
Pi (mW)	750	750
Ci (pF/m)	127.5	85.8
Li (µH/m)	1.75	4.05
NOTE: "Ci" and "Li" correspond to the capacitance and inductance per meter for each individual circuit.		

Table 1 – Entity parameters

Temperature class	Process temperature (°C)
T6	≤ 80
T5	≤ 95
T4	≤ 130
T3	≤ 195
T2	≤ 290
T1	≤ 440

Table 2 – Temperature classification

13.1 Details of change

The following changes are introduced in issue 1 of the certificate:

- Addition of ground referenced thermocouples
- Additional enclosure
- Removal of multiple associations of Li and Ci

The following changes are introduced in issue 2 of the certificate:

- Re-assessment against EN IEC 60079-0:2018.

Schedule

14 Descriptive Documents

14.1 Associated Report and Certificate History:

Report Number	Cert Issue Date	Issue	Comment
R0818/A/1	15/06/2016	0	Initial issue of the Prime Certificate
R2345/A/1	12/11/2019	1	Issue of the first variation, section 13.1 details.
R3123/A/1	16/03/2022	2	Issue of the second variation, section 13.1 details.

14.2 Compliance Drawings:

Title:	Drawing No.:	Rev. Level:	Date:
SENSORS SCHEDULE DRAWINGS	DTC-ATEX/IEC-SENSOR	2	11/30/2021
INSTALLATION, OPERATION AND MAINTENANCE MANUAL	SENSOR IOM-R4	4	March 9, 2022

15 Conditions of Certification

15.1 Special Conditions for Safe Use

- Models 210-TC and 220-TC with ground referenced (grounded) devices are not capable of withstanding the 500 Vrms between the measurement circuit and ground. This must be considered during installation, according to IEC 60079-14.
- The installer must confirm (by calculation or measuring) that the process service temperatures do not cause a temperature rise on the equipment in the hazardous area exceeding the values revealed in the adjacent table.

Temperature class	Process temperature (°C)
T6	≤ 80
T5	≤ 95
T4	≤ 130
T3	≤ 195
T2	≤ 290
T1	≤ 440

15.2 Conditions for Use (Routine tests)

- Each completed temperature probe must be subjected to the dielectric strength tests in accordance with IEC 60079-11: 2011 clause 6.3.13 with the test voltage of 500 Vac applied between intrinsically safe circuits and the frame of the equipment and also between individual intrinsically safe circuits for a minimum of 60 s.

16 Essential Health and Safety Requirements

Essential Health and Safety Requirements are addressed by the standards listed in section 9 and where required the report listed in section 14.1

The manufacturer shall inform the Notified Body of any modifications to the design of the product described by this schedule.