



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEx QPS 19.0033X** Page 1 of 6 [Certificate history:](#)
Issue 0 (2020-01-20)

Status: **Current** Issue No: 1

Date of Issue: 2020-09-10

Applicant: **Daily Thermetrics Corp.**
5700 Hartsdale Drive
Houston, TX 77036
United States of America

Equipment: **Industrial Sensor Assembly 310HZ and 310FHZ Series**

Optional accessory:

Type of Protection: **Flameproof "db"**

Marking: Ex db IIC T6 ... T4 Gb
 $T_{amb} = -40\text{ }^{\circ}\text{C to }+80\text{ }^{\circ}\text{C}$
 $U_{max} = 42.5\text{ V DC SELV or PELV (applies to all models)}$
See IOM for models rating.
See IOM for process temperature and pressure limits.
T-Class dependence on the process temperature and lagging distance from a defined T_{amb} is given in IOM.

Approved for issue on behalf of the IECEx
Certification Body:

D, Adams P.Eng.

Position:

Manager, Hazardous Locations Department [Ex Equipment]

Signature:
(for printed version)

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
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Certificate issued by:

**QPS
Evaluation Services Inc.
81 Kelfield St
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Toronto, Ontario M9W 5A3
Canada**





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Manufacturer: **Daily Thermetrics Corp.**
5700 Hartsdale Drive
Houston, TX 77036
United States of America

Additional
manufacturing
locations:

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-1:2014-06 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Reports:

[CA/QPS/ExTR19.0029/00](#)

[CA/QPS/ExTR19.0029/01](#)

Quality Assessment Report:

[US/UL/QAR11.0003/05](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

Industrial Sensor Assembly 310HZ and 310FHZ Series consists of parts and components as follow:

- Base TC or RTD Probe, Model 210HZ, Ex db IIC Gb, Umax = 30 V DC, IECEx QPS 19.0023U;

- Connection Enclosure that can be:

either

a) Pushna International Inc. – USA, 1010, 1014, 1016 Series Housings, ATEX: II 2G Ex d IIC Gb / II 2D Ex tD IP68 FM08ATEX0010U, IEC: Ex d IIC Gb / Ex tb IIIC Db; IECEx FMG 11.0029U,

or

b) Limatherm S.A. – Poland, Connection head type XD-A** series, ATEX: II 2G Ex d IIC / II 2D Ex tD IP68, FTZU03ATEX0074U, IEC: Ex d IIC Gb / Ex tb IIIC Db, IECEx FTZU 14.0003U

- Transmitter, if used, can be of make and model as follow:

a) Rosemount Inc., model 248; Baseefa03ATEX0030X, II 1G Ex ia IIC T5/T6 Ga, IECEx BAS 07.0086X, Ex ia IIC T5/T6 Ga;

b) Rosemount Inc., model 644; Baseefa12ATEX0101X, II 1G Ex ia IIC T6...T4 Ga, IECEx BAS 12.0069X, Ex ia IIC T6...T4 Ga;

c) PR Electronics A/S, model 5337; Kema03ATEX1537, II 1G Ex ia IIC T6...T4 Ga, IECEx KEM 10.0083X, Ex ia IIC T6...T4 Ga.

NOTE: Transmitters are here only functional elements, and not protective in terms of explosion protection.

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. Grounded junctions within models 310HZ and 310FHZ are not capable of withstanding the 500 V rms between the measurement circuit and ground. This must be taken into account during installation.

2. Models 310HZ and 310FHZ must be either connected to a SELV or PELV system, or directly connected to an apparatus compliant with IEC 60950 series, IEC 610101-1, or equivalent.

3. The maximum pressure and temperature limits are given in the IOM. These values shall not be exceeded. Specifically, during normal operation, the maximum operating temperatures of any component of the sensor assembly must not exceed the designed temperature indicated in the IOM. The probe must not be exposed to a pressure higher than indicated in the IOM.

4. The cable glands must be properly selected to suit the final application of the assembly and/or to maintain the protection method marked thereon.

5. For an ambient conditions over 70 °C and up to 80 °C, a cable with thermostability of its insulation of minimum 80 °C / 90 °C shall be used. Special attention shall be given to the source of heating the equipment is intended to be attached to, because it can contribute such to elevate the local ambient temperature for the cable. The end user shall read and follow the User Manual where this concern is given them to attention.

6. In the case when a generic enclosure model is used (different from the listed connection enclosure models), the equipment must be assembled with a certified 'Ex db IIC' enclosure, approved to the edition(s) of standard(s) that are, at the time of placing the assembly on the market, currently in use. The enclosure shall be of simple geometry and with a volume < 500 cm³.

7. Product rating is given on the marking plate of each individual assembly as well as in the IOM and shall be respected.



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Equipment (continued):

- Terminal block, if used, is of ordinary location type constructed from ceramic, porcelain, or Bakelite.
- Fitting/Nipple of various models (Hex nipple type w/ lagging and w/ spring loading, Hex nipple type with compression fitting, Hex nipple welded, Compression fitting), which forms a threaded joint with the connection enclosure and a cylindrical joint with the base probe;
- An optional thermowell.

Sensor and surface temperature product lines covered in this certification process:

Model	Description	IEC Marking
310HZ-1	Industrial Sensor Assembly with Flameproof Nipple	Ex db IIC Gb T6...T4, IP66 Ta= -40 °C to +80 °C
310HZ-2	Industrial Sensor Assembly with Flameproof Spring-Loaded Nipple	Ex db IIC Gb T6...T4, IP66 Ta= -40 °C to +80 °C
310HZ-3	Industrial Sensor Assembly with Flameproof Nipple with Temperature Lagging	Ex db IIC Gb T6...T4, IP66 Ta= -40 °C to +80 °C
310HZ-4	Industrial Sensor Assembly with Flameproof Spring-Loading Nipple with Temperature Lagging	Ex db IIC Gb T6...T4, IP66 Ta= -40 °C to +80 °C
310HZ-5	Industrial Sensor Assembly with Flameproof Nipple and Compression Fitting Seal	Ex db IIC Gb T6...T4, IP66 Ta= -40 °C to +80 °C
310HZ-6	Industrial Sensor Assembly with Flameproof Nipple, Compression Seal and Union	Ex db IIC Gb T6...T4, IP66 Ta= -40 °C to +80 °C
310HZ-7	Industrial Sensor Assembly with Flameproof Nipple, Compression Seal, Union and Pipe Union	Ex db IIC Gb T6...T4, IP66 Ta= -40 °C to +80 °C
310HZ-8	Industrial Sensor Assembly with Flameproof Nipple Seal Welded	Ex db IIC Gb T6...T4, IP66 Ta= -40 °C to +80 °C
310HZ-9	Industrial Sensor Assembly with Flameproof Nipple Seal Welded and Union	Ex db IIC Gb T6...T4, IP66 Ta= -40 °C to +80 °C
310HZ-10	Industrial Sensor Assembly with Flameproof Nipple Seal Welded, Union and Pipe Nipple	Ex db IIC Gb T6...T4, IP66 Ta= -40 °C to +80 °C
310FHZ-1	Industrial Sensor Assembly with Flameproof Nipple Compression Fitting	Ex db IIC Gb T6...T4, IP66 Ta= -40 °C to +80 °C
310HZ-11	Industrial Sensor Assembly with Flameproof Nipple and Union	Ex db IIC Gb T6...T4, IP66 Ta= -40 °C to +80 °C
310HZ-12	Industrial Sensor Assembly with Flameproof Nipple Spring Loaded Nipple and Union	Ex db IIC Gb T6...T4, IP66 Ta= -40 °C to +80 °C

Table 1 - Sensor and Surface Temperature Product Lines HAZLOC Matrix

The model nomenclature for the Industrial Sensor Assembly 310HZ Series is defined by drawing no. DTC-310HZ, MODELS 310HZ & 310FHZ SCHEDULE DRAWING, and is given on the following pages: page 3 of 16, page 4 of 16, page 5 of 16 and page 8 of 16.

Industrial Sensor Assembly of 310HZ and 310FHZ Series must be either connected to a SELV or PELV system, or directly connected to an apparatus compliant with IEC 60950 series, IEC 610101-1, or equivalent.

While thermocouples and RTDs are passive sensors that do not generate heat, they may transfer heat from process-wetted areas. Rated components such as the epoxy seal or insulation must remain below maximum allowable temperatures.

Proper lagging extension is determined by using maximum operating conditions, shown in Table 4. The user may verify proper lagging extension via temperature measurement after installation, while no hazardous gas is present.



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Epoxy End Seal Model and Manufacturer	Continuous Operating Temperature (COT)	Service Temperature Range	Minimum Distance from Process Temp (Tp) -40°F<Tp<572°F -40°C<Tp<300°C	Minimum Distance from Process Temp (Tp) -273°F<Tp<-40°F or 572°F<Tp<2100°F, -169°C<Tp<-40°C or 300°C<Tp<-1149°C
2651-40FR with Catalyst 9 by STYCAST	-40 °C to +130 °C	-40 °C to +110 °C	3.0 inch [76.2 mm]	10.0 inch [254.0 mm]
EP1340 by RESINLAB	-40 °C to +150 °C	-40 °C to +130 °C	3.0 inch [76.2 mm]	10.0 inch [254.0 mm]
EP1330 by RESINLAB	-40 °C to +150 °C	-40 °C to +130 °C	3.0 inch [76.2 mm]	10.0 inch [254.0 mm]
Duralco 4703 by CONTRONICS Corp.	-40 °C to +343 °C	-40 °C to +130 °C	3.0 inch [76.2 mm]	10.0 inch [254.0 mm]

Table 4 - Temperature Ratings for Epoxy End Seals

Extension / Lead Wire				
Size	Insulation Thickness	Insulation Material	COT	Service Temperature Range
16 - 24 AWG	0.20 mm	Teflon	-200 °C to +200 °C	-40 °C to +130 °C

Table 5 - Temperature Ratings for Non-Metallic Components



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

This is a revision of the existing certificate IECEx QPS 19.0033X Issue 0 of the Industrial Sensor Assembly 310HZ and 310FHZ Series. The revision implements the following:

- An option to use any already approved connection box that is suitable for the application and which fulfill the condition of use given through this revision certificate;
- Introduction of two new models: Model 310HZ-11 and Model 310HZ-12 (Nipple/Union variations);
- Addition of an option for 6 mm probe diameter;
- Change in max. voltage from 30 VDC to 42.4 VDC (applies to all models).