



QPS Evaluation Services Inc
Testing, Certification and Field Evaluation Body
Accredited in Canada, the USA, and Internationally

| |
|---------------|
| File |
| LR1427 |

CERTIFICATE OF COMPLIANCE
(ISO TYPE 3 CERTIFICATION SYSTEM)

| | |
|--------------------------------|---|
| Issued to | Daily Thermetrics Corporation |
| Address | 9600 W Gulf Bank Rd, Houston, TX 77040, USA. |
| Project Number | LR1437-5 |
| Product | Industrial Sensor Assembly 360HZ Series |
| Model Number | 360HZ-bcde-fgh-ijkl-m-n-opqrstuv-w (Refer to Annex 1 for the full model nomenclature) |
| Electrical Ratings | Umax = 42.4 V dc SELV or PELV See IOM for process temperature and pressure limits |
| Ex Markings | Class I, Division 2, Groups A, B, C, D T6/T5/T4 Class I, Zone 1, AEx db eb IIC T6/T5/T4 Gb Ex db eb IIC T6/T5/T4 Gb Ta= -40 °C to +60/75/80 °C; Type 4X; IP66 |
| Applicable Standards | CSA C22.2 No. 60079-0:2015 CSA C22.2 No. 60079-1: 2016 CSA C22.2 No. 60079-7: 2016 CSA C22.2 No. 213-17 3rd ed. UL 60079-0 7th ed. UL 60079-1 7th ed. UL 60079-7 5th ed. UL 121201 9th ed. |
| Factory/Manufacturing Location | Same as Applicant |
| Special Conditions of Use | See General Requirement |

Statement of Compliance: The product(s) identified in this Certificate and described in the Report covered under the above referenced project number have been investigated and found to be in compliance with the relevant requirements of the above referenced standard(s). As such, they are eligible to bear the QPS Certification Mark shown below, in accordance with the provisions of QPS's Service Agreement.

IMPORTANT NOTE: Certification will be revoked if compliance to the latest versions of the standard(s) is not maintained and/or if the product/equipment is modified after certification is granted without prior written consent by QPS.



Issued By: Dave Adams P .Eng

Signature:

Date: September. 20, 2024





QPS Evaluation Services Inc
Testing, Certification and Field Evaluation Body
Accredited in Canada, the USA, and Internationally

File
LR1427

General Requirements:

1. Grounded junctions are not capable of withstanding the 500 V rms between the measurement circuit and ground. This must be taken into account during installation.
2. Industrial Sensor Assembly 360HZ 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.
3. The assembly is tagged with design pressure and temperature. 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 on the product. The probe must not be exposed to a pressure higher than indicated on the product.
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 case of application of the Industrial Sensor Assembly 360HZ Series in locations classified by Division system (in particular, Division 2), the following applies:
The Industrial Sensor Assembly 360HZ Series permits cable entry devices to be added in the field and they must provide environmental sealing equivalent to IP66 and/or Type 4X.
7. In case of application of the Industrial Sensor Assembly 360HZ Series in locations classified as Zone 1, the following applies:
The Industrial Sensor Assembly 360HZ Series permits conduits entries to be added in the field and they must be installed within 18 inches (0.46 m) of the enclosure.
8. All threaded joints, including thermowell, union and nipple joints, shall be properly tightened in order to maintain the declared ingress protection IP66 and/or Type 4 associated ingress protection.

Metal sheath containing thermocouple and/or RTD wires and flexible metal conduit containing extension/lead wires must be protected against impact in the final installation position of this assembly





QPS Evaluation Services Inc
Testing, Certification and Field Evaluation Body
Accredited in Canada, the USA, and Internationally

File
LR1427

ANNEX 1, Date: 2024-9-16

Certificate No.: LR1427-5 Issue No.: 0

Applicant: **Daily Thermetrics Corporation**
 9600 W Gulf Bank Rd,
 Houston, TX
 77040. USA

Electrical Apparatus: **Industrial Sensor Assembly 360HZ Series**

Model nomenclature for the Industrial Sensor Assembly 360HZ Series is as follows:

A - **B C D E** - **F G H** - **I J K L** - **M** - **N** - **O P Q R S T U V** - **W**

where

| A | Model |
|----------|--------------|
| 360HZ | 360HZ |

| F | Type of lead wire |
|----------|--------------------------|
| 1 | Solid – 24 AWG |
| 2 | Solid – 20 AWG |
| 3 | Solid – 18 AWG |
| 4 | Stranded – 24 AWG |
| 5 | Stranded – 22 AWG |
| 6 | Stranded – 20 AWG |

| P | Sensor type |
|----------|----------------------|
| 1 | Single thermocouple |
| 2 | Duplex thermocouple |
| 3 | Triplex thermocouple |
| A | 2-wire RTD - single |
| B | 3-wire RTD - single |
| C | 4-wire RTD - single |
| D | 2-wire RTD - duplex |
| E | 3-wire RTD - duplex |
| F | 4-wire RTD - duplex |





QPS Evaluation Services Inc
 Testing, Certification and Field Evaluation Body
 Accredited in Canada, the USA, and Internationally

| |
|---------------|
| File |
| LR1427 |

| B | Connection Enclosure |
|----------|--|
| 1 | Pushna International Inc., Housing, model 1010P, cast aluminium |
| 2 | Pushna International Inc., Housing, model 1014P, 304 stainless steel |
| 3 | Pushna International Inc., Housing, model 1016P, 316 stainless steel |
| 4 | Limatherm S.A., Connection head, model XD-AD, cast aluminium |
| 5 | International Metal Engineering 1080 low copper aluminium |

| C | Terminal block |
|----------|---------------------------------|
| 1 | Phoenix Contact – gray 3248030 |
| 2 | Phoenix Contact – blue 3248031 |
| 3 | Weidmuller – gray 1753280000 |
| 4 | Weidmuller – blue 1754170000 |
| 5 | Industrial terminal block |
| 6 | Rosemount 248 transmitter |
| 7 | Rosemount 644 transmitter |
| 8 | PR Electronics 5337 transmitter |

| G | Flexible conduit length |
|----------|--------------------------------|
| FC36 | 36" |
| FCXX | Custom length (inches) |

| H | Transition housing type |
|----------|--------------------------------|
| 1 | Housing with adapter |
| 2 | Housing without adapter |
| 3 | Flush housing |

| I | Instrument connection type |
|----------|-----------------------------------|
| 1 | Compression fitting |
| 2 | Spring loaded fitting – SS |
| 3 | Spring loaded fitting – INC |
| 4 | Spring loaded self fitting - SS |
| 5 | Spring loaded self fitting - INC |
| 6 | Spring loaded comp fitting - SS |
| W | Welded to process connection |

| J | Instrument connection material |
|----------|---------------------------------------|
| 1 | 304SS |
| 2 | 316SS |
| 3 | BRASS |
| N | None / welded |

| K | Instrument connection size |
|----------|-----------------------------------|
| 1 | 3/8" NPT |
| 2 | 1/2" NPT |
| 3 | 3/4" NPT |
| N | None / welded |

| Q | Upgrade to premium line |
|----------|--------------------------------|
| Y | Yes |
| N | No |

| T | Sensor sheath diameter |
|----------|-------------------------------|
| 1 | Ø 1/4" (6.3 mm) |
| 2 | Ø 5/16" (7.9 mm) |
| 3 | 8.0 mm |
| 4 | Ø 3/8" (9.5 mm) |

| R | Measuring junction |
|----------|---------------------------|
| 1 | Grounded |
| 2 | Ungrounded |
| N | N/A – RTD |

| S | Accuracy |
|----------|--------------------------------|
| 1 | Standard limits - Thermocouple |
| 2 | Special limits - Thermocouple |
| A | Class A RTD |
| B | Class B RTD |





QPS Evaluation Services Inc

Testing, Certification and Field Evaluation Body

Accredited in Canada, the USA, and Internationally

File
LR1427

| D | Conduit entry |
|---|---|
| 1 | 3/4" FNPT |
| 2 | 1/2" FNPT |
| 3 | M20x1.5 |
| 4 | 2 x 3/4" FNPT - Limatherm S.A. Connection head only |
| 5 | 2 x 1/2" FNPT - Limatherm S.A. Connection head only |
| 6 | 2 x M20x1.5 - Limatherm only |

| L | Vent hole for instrument connection |
|---|-------------------------------------|
| Y | Yes |
| N | No |

| U | Sensor sheath material |
|-------|------------------------|
| 304 | 304SS |
| 304L | 304L SS |
| 316 | 316SS |
| 316L | 316L SS |
| 310 | 310SS |
| 321 | 321SS |
| 347 | 347SS |
| 446 | 446SS |
| I600 | Inconel 600 |
| I800 | Incoloy 800 |
| HASTX | Hastelloy X |

| N | C Dimension |
|-----|------------------------|
| C6 | 6" |
| C9 | 9" |
| CXX | Custom length (inches) |
| M | M Dimension |
| M6 | 6" |
| M9 | 9" |
| MXX | Custom length (inches) |

| E | Cable gland |
|---|------------------|
| 1 | OSCG / EXBF |
| 2 | CMP / TMCX |
| 3 | CMP / TMC2X |
| 4 | OSCG / OS-A2F-U |
| 5 | OSCG / OS-A2F-UD |
| 6 | CMP / A2F |

| O | Calibration type |
|---|------------------------|
| K | Type K - thermocouple |
| J | Type J - thermocouple |
| E | Type E - thermocouple |
| T | Type T - thermocouple |
| S | Type S - thermocouple |
| R | Type R - thermocouple |
| B | Type B - thermocouple |
| N | Type N - thermocouple |
| H | 100 Ω Alpha .00385 RTD |

| V | Calibration options |
|---|---------------------------------|
| 1 | Report not required |
| 2 | 212°F (100°C) with certificate |
| 3 | 212°F (100°C) with report |
| 4 | 3-point calibration with report |
| 5 | 5-point calibration with report |

- Variant 1
- Variant 2

Industrial Sensor Assembly of 360HZ 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 of DTC-IOM-360HZ-HAZLOC. The user may verify proper lagging extension via temperature measurement after installation, while no hazardous gas is present.





QPS Evaluation Services Inc
Testing, Certification and Field Evaluation Body
Accredited in Canada, the USA, and Internationally

| |
|---------------|
| File |
| LR1427 |

| 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 | Services 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

| Tcode | Tambient | Trise + Tambient | °C Transferred from Process |
|-------|----------------|------------------|-----------------------------|
| T6 | -40°C to +60°C | 65°C | <20°C |
| T5 | -40°C to +75°C | 80°C | <20°C |
| T4 | -40°C to +80°C | 85°C | <50°C |

Table 6 – Relationship between T-Code and Ambient Temperature & Temperature transferred from the process by the conduction

