



QPS Evaluation Services Inc



(1) EU-Type Examination Certificate

(2) **Directive 2014/34/EU of the European Parliament and of the Council of 26 February 2014**

(3) EU-Type Examination Certificate Number: **QPS 20ATEX1003X** Issue Number: 1

(4) Product: **Industrial Sensor Assembly** **360HZ Series**

(5) Manufacturer: **Daily Thermetrics Corporation.**

(6) Address: **9600 W Gulf Bank Rd,
Houston, TX
77040 USA**

(7) This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) QPS Evaluation Services Inc. 81 Kelfield St., Units 7-9, Toronto, ON M9W 5A3, Canada, Notified Body Number 2900, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential test report number ATX1427-4
Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

(9) **EN IEC 60079-0 : 2018** **EN 60079-1:2014** **EN 60079- 7:2015+A1:2018**

except in respect of those requirements 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 EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive 2014/34/EU article 13 apply to the manufacturing process and supply of this product. These are separately certified and not covered by this certificate.

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

Date of certification: 14 August 2024

Rob Kohuch
Certification Manager
QPS Evaluation Services Inc.



EU-Type Examination Certificate without signature shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by QPS Evaluation Service Inc. The SCC Accreditation Symbol is an official symbol of the accreditation body and notifying authority, used under license.

(13) **SCHEDULE**(14) **to EU-Type Examination Certificate QPS 20ATEX1003X**

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II 2 G Ex db eb IIC T6/T5/T4 Gb, IP66
 Ta= -40 °C to +60/75/80 °C
 Umax = 42.4 V dc SELV or PELV

(15) **Description and Electrical data**

Industrial Sensor Assembly 360HZ Series is an assembly of all already approved components and parts. It consists of one TC or RTD probe fitted together with one connection box by using preapproved cable gland suitable for such application. The cable glands used are either of potted type or with a rubber compression element. In the case of cable glands providing flameproof protection using a rubber compression element, the Base Probe (Ex e Ex Component) is modified so that the flexible conduit with TC or RTD wires is terminated using a sufficiently long part of a metal tube of exactly the same construction as the Base Probe construction. This, so called, Transition Housing provides a flameproof and an environmental seal at the entrance into the connection box. TC or RTD wires enter and pass through the mineral insulation of this housing and exit at its opposite end which is now securely located inside the Ex d enclosure (connection box). Both ends of the transition housing are protected with an epoxy plug.

Industrial Sensor Assembly 360HZ Series is rated 42.4 V dc SELV or PELV.

Note: The complete model nomenclature and description are given in ANNEX 1

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(17) **Specific conditions of use:**

- i. 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.
- ii. 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.
- iii. 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.
- iv. The cable glands as well as the supply cables must be properly selected to suit the final application of the assembly and/or to maintain the protection method marked thereon.
- v. 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.
- vi. If there is a risk of impact at the installation site, the assembly must be either additionally guarded or located so that it is out of reach of personnel and free-falling objects.
- vii. In the case when a generic enclosure model is used (different from the listed connection enclosure models), the equipment must be assembled with an ATEX 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.
- viii. Product rating is given on the marking plate of each individual assembly as well as in the IOM and shall be respected.

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

Met by compliance with the requirements mentioned in item 9.

(19) **Remarks and additional information: N/A**(20) **Certificate history**

Issue 0 - January 29, 2021; Initial certificate.

- Issue 1 – August 14, 2024:
- Update the IOM with new applicant address.
 - Update the applicant address in the certificate and Marking labels.

(13) **SCHEDULE**(14) **to EU-Type Examination Certificate QPS 20ATEX1003X**

Issue No. 1

ANNEX 1, Date: 2024-08-14

Certificate No.: QPS 20ATEX1003X /01

Applicant:

Daily Thermetrics Corporation9600 W Gulf Bank Rd,
Houston, TX
77040 USAElectrical Apparatus: **Industrial Sensor Assembly 360HZ**

Industrial Sensor Assembly 360HZ Series is an assembly of all already approved components and parts. It consists of one TC or RTD probe fitted together with one connection box by using preapproved cable gland suitable for such application. The cable glands used are either of potted type or with a rubber compression element. In the case of cable glands providing flameproof protection using a rubber compression element, the Base Probe (Ex e Ex Component) is modified so that the flexible conduit with TC or RTD wires is terminated using a sufficiently long part of a metal tube of exactly the same construction as the Base Probe construction. This, so called, Transition Housing provides a flameproof and an environmental seal at the entrance into the connection box. TC or RTD wires enter and pass through the mineral insulation of this housing and exit at its opposite end which is now securely located inside the Ex d enclosure (connection box). Both ends of the Transition Housing are protected with an epoxy plug.

Industrial Sensor Assembly 360HZ Series consists of parts and components as follow:

- Base TC or RTD Probe, manufactured by Daily Thermetrics Corp., Model 220HZ or CT221HZ, ATEX: II 2G Ex eb IIC Gb, Umax = 42.4 V dc, QPS 20ATEX0001U; IECEx: Ex eb IIC Gb, Umax = 30 V dc, IECEx QPS 19.0023U, IEC 60079-0:2017 / IEC 60079-7:2015;

- 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, EN 60079-0:2009 / EN 60079-1:2007 / EN 60079-31:2009;
IECEX: Ex d IIC Gb / Ex tb IIIC Db; IECEX FMG 11.0029U, IEC 60079-0:2007 / IEC 60079-1:2007 / IEC 60079-31:2008,

or

b) Limatherm S.A. – Poland, Connection head type XD-A** series;
ATEX: II 2G Ex d IIC / II 2D Ex tD IP68; FTZU03ATEX0074U, EN 60079-0:2012 / EN 60079-1:2014 / EN 60079-31:2014;
IECEX: Ex d IIC Gb / Ex tb IIIC Db; IECEX FTZU 14.0003U, IEC 60079-0:2011 / IEC 60079-1:2014 / IEC 60079-31:2013,

or

c) International Metal Engineering Pte Limited – Singapore, Series 1080 Instrument Housings;

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ATEX: II 2G Ex db IIC Gb / II 2D Ex tb IIIC Db IP68, Ta = -40 °C to +85 °C;
 Sira09ATEX1023U; EN 60079-0:2012+A1:2013 / EN 60079-1:2014 / EN 60079-31:2014;
 IECEx: Ex db IIC Gb / Ex tb IIIC Db IP68, Ta = -40 °C to +85 °C; IECEx SIR 09.0006U; IEC
 60079-0:2011 / IEC 60079-1:2014 / IEC 60079-31:2013.

- 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/T5/T4 Ga, IECEx BAS 12.0069X, Ex ia IIC T6/T5/T4 Ga;
- c) PR Electronics A/S, model 5337; Kema03ATEX1537, II 1G Ex ia IIC T6/T5/T4 Ga, IECEx KEM 10.0083X, Ex ia IIC T6/T5/T4 Ga.

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

- Terminal block are of ordinary location type constructed from ceramic, porcelain, or Bakelite.

- Cable Glands of manufacturer and model as follow:

VARIANT 1:

- a) OSGC Co. Ltd. – Republic of Korea, Compound Cable Glands, model OS-EXBF;
 ATEX: Presafe 18ATEX13521X; II 2G Ex db IIC Gb / II 2D Ex tb IIIC Db, Service temp.= -60°C to +110°C; EN 60079-0:2012/A11:2013 / EN 60079-1:2015 / EN 60079-31:2014;
 IECEx: IECEx PRE 18.0074X, Ex db IIC Gb / Ex tb IIIC Db, Service temp.= -60°C to +110°C;
 IEC 60079-0:2017 / IEC 60079-1:2014 / IEC 60079-31:2014
- b) CMP Products Ltd. – United Kingdom, TMCX Range of Cable Glands;
 ATEX: CML 18ATEX1337X; II 2G Ex db IIC Gb / II 1D Ex ta IIIC Da, Service temp.= -60°C to +85°C; EN 60079-0:2018 / EN 60079-1:2014 / EN 60079-31:2014;
 IECEx: IECEx CML 18.0184X, Ex db IIC Gb / Ex ta IIIC Da, Service temp.= -60°C to +85°C;
 IEC 60079-0:2017 / IEC 60079-1:2014 / IEC 60079-31:2013;
- c) CMP Products Ltd. – United Kingdom, TMC2X Range of Cable Glands,
 ATEX: CML 18ATEX1336X; II 2G Ex db IIC Gb / II 1D Ex ta IIIC Da, Service temp.= -60°C to +85°C; EN 60079-0:2018 / EN 60079-1:2014 / EN 60079-31:2014;
 IECEx: IECEx CML 18.0193X, Ex db IIC Gb / Ex ta IIIC Da, Service temp.= -60°C to +85°C;
 IEC 60079-0:2017 / IEC 60079-1:2014 / IEC 60079-31:2013

VARIANT 2:

- a) OSGC Co. Ltd. – Republic of Korea, Cable Glands for Non-Armoured & Braided Cables, model: OS-A2F-U;
 ATEX: Presafe 17ATEX11454X; II 2G Ex db IIC Gb / II 2D Ex tb IIIC Db, Service temp.= -60°C to +110°C; EN 60079-0:2012/A11:2013 / EN 60079-1:2014 / EN 60079-31:2014;
 IECEx: IECEx PRE 17.0062X, Ex db IIC Gb / Ex tb IIIC Db, Service temp.= -60°C to +110°C;
 IEC 60079-0:2011 / IEC 60079-1:2014 / IEC 60079-31:2013;
- b) OSGC Co. Ltd. – Republic of Korea, Cable Glands for Non-Armoured & Braided Cables, model: OS-A2F-UD;
 ATEX: Presafe 17ATEX11454X; II 2G Ex db IIC Gb / II 2D Ex tb IIIC Db, Service temp.= -60°C to +110°C; EN 60079-0:2012/A11:2013 / EN 60079-1:2014 / EN 60079-31:2014;
 IECEx: IECEx PRE 17.0062X, Ex db IIC Gb / Ex eb IIC Gb / Ex tb IIIC Db, Service temp.= -60°C to +110°C; IEC 60079-0:2011 / IEC 60079-1:2014 / IEC 60079-31:2013;
- c) CMP Products Ltd. – United Kingdom, Cable Glands Types A**

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ATEX: CML 18ATEX1321X; II 2G Ex db IIC Gb / II 1D Ex ta IIIC Da, Service temp.= -60°C to +130°C (outer sheath seal material: EPDM 70(black colour)); EN 60079-0:2018 / EN 60079-1:2014 / EN 60079-31:2014;

IECEX: IECEX SIR 13.0023X, Ex d IIC Gb / Ex ta IIIC Da, Service temp.= -60°C to +130°C (outer sheath seal material: EPDM 70(black colour)); IEC 60079-0:2011 / IEC 60079-1:2007 / IEC 60079-31:2008,

- An optional thermowell.

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

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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

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

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

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

L	Vent hole for instrument connection
Y	Yes
N	No

M	M Dimension
M6	6"
M9	9"
MX	Custom length (inches)

N	C Dimension
C6	6"
C9	9"
CXX	Custom length (inches)

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

Q	Upgrade to premium line
Y	Yes
N	No

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

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)

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

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

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

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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 61010-1, 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.

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 -273°F < 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 [76.2mm]	10.0 inch [254.0mm]
EP1340 by RESINLAB	-40°C to +150°C	-40°C to +130°C	3.0 inch [76.2mm]	10.0 inch [254.0mm]
EP1330 by RESINLAB	-40°C to +150°C	-40°C to +130°C	3.0 inch [76.2mm]	10.0 inch [254.0mm]
Duralco 4703 by CONTRONICS Corp.	-40°C to +343°C	-40°C to +130°C	3.0 inch [76.2mm]	10.0 inch [254.0mm]

Table 4 - Temperature ratings for Epoxy End Seals

Extension/Lead Wire				
Size	Insulation Thickness	Insulation Material	COT	Service Temperature Range
16-24 AWG	.20 mm	Teflon	-200°C to +200°C	-40°C to 130°C

Table 5 - Temperature ratings for Non-Metallic Components

Tcode	T _{ambient}	T _{rise} + T _{ambient}	°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