Certificate of Compliance

Certificate: 80160735 **Master Contract:** 217989

Project: 80188305 **Date Issued:** 11/27/2023

Issued To: **Pyronation LLC**
5211 Industrial Rd
Fort Wayne, Indiana, 46825
United States

Attention: Jim Crowell PE

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.

Issued by: **David Taylor**
David Taylor

PRODUCTS

CLASS 2258 02 – PROCESS CONTROL EQUIPMENT - For Hazardous Locations
CLASS 2258 82 – PROCESS CONTROL EQUIPMENT - For Hazardous Locations – Certified to US Standards

Class I Division 1 Groups A, B, C and D;
Class II Division 1, Groups E, F and G;
Class III

Config Code XP01:
Temperature Sensor Assembly with RTD Fixed Element Sensor - Model: XP01.
Config Code: XP01;
PN: HL09 - Raaaaaa b c d – eee – fff – ggg hhh iii
Ratings as specified in the model nomenclature below. Process temperature: Tp ≤ 180°C. Process Pressure: P(max) ≤ 110 kPa (15.95 psig): Enclosure IP66

Where:

aaaaaa = RTD Element

aaaaaa = RTD Element				
First digit (description)	2nd digit (form)	3rd digit (# of elements)	4th and 5th (temp. coeff code)	6th digit (sheath construction)
1 (Grade B) 3 (Class AA) 5 (1/5 IEC Class B) A (Class A) B (Class B) C (Class C) D (Class D)	T (wire wound) F (thin film)	1 (single) 2 (dual)	10 (10 Ω Copper) 12 (120 Ω Nickel) 25 (200 Ω Platinum) 55 (500 Ω Platinum) 85 (100 Ω Platinum) 92 (100 Ω Platinum) 95 (1000 Ω Platinum)	L (metallic sheath w/ refractory powder) K (metallic sheath w/ refractory powder) M (metallic sheath w/ refractory powder) H (mineral insulated sheath)

b = Sheath Diameter,
c = Sheath material

b,c = Sheath Diameter and material (first digits are diameter, ending digits are material)	
2 8	1/8" Sheath Diameter, Material 8 = stainless steel (see list of other material codes)
3 8	3/16" Sheath Diameter, Material 8 = stainless steel (see list of other material codes)
(236) 8	6 mm Sheath Diameter, Material 8 = stainless steel, (see list of other material codes)
4 8	1/4" Sheath Diameter, Material: 8 = stainless steel, (see list of other material codes)
5 8	5/16" Sheath Diameter, Material 8 = stainless steel, (see list of other material codes)
6 8	3/8" Sheath Diameter, Material 8 = stainless steel, (see list of other material codes)
8 8	1/2" Sheath Diameter, Material 8 = stainless steel, (see list of other material codes)
88R4 8	0.500" reduced to 0.250" Sheath Diameter, Material 8 = stainless steel, (see list of other material codes)
68R3 8	0.375" reduced to 0.188" Sheath Diameter, Material 8 = stainless steel, (see list of other material codes)
48R2 8	0.250" reduced to 0.125" Sheath Diameter, Material 8 = stainless steel, (see list of other material codes)
Other Material Code Options: 3 = Alloy 600, 4 = 310 SS, 5 = 446 SS, 8 = 316 SS, 32 = 316L SS, 29 = Alloy C-276, 41= HR160 Above with "Z" at end – does not affect Safety or Certification (suffix at end of p/n: is Z + 3 or 4 digits) Z521 = Shin-Etsu sensor potting Z187 = flat tip Z371 = 20 Gauge sensor lead-wire	

d = Element Connection

d = Element Connection (number of sensor wires per sensor element) 2	
2	2 Sensor Wires per Sensor Element
3	3 Sensor Wires per Sensor Element
4	4 Sensor Wires per Sensor Element

e = Length of element

eee = Length of element in inches 1 to 999 inches w/fraction shown as (x/x) – 010(1/2)

fff = Sheath External Options

fff = sheath external options – Any two to six alphanumeric digits *(not critical to certification)* 00 = no fitting, no external options Two to six characters, may contain "Z", may contain customer specification at end of p/n				
Code	Type	Material	NPT Size	Sheath Diameter
05A	One time Adjustable Compression Fittings	316 Stainless Steel	1/8	1/8, 3/16, 1/4
05B			1/4	1/8, 3/16, 1/4, 3/8
05C			1/2	1/8, 3/16, 1/4, 3/8
15A		Brass	1/8	1/8, 3/16, 1/4
15B			1/4	1/8, 3/16, 1/4, 3/8
15C			1/2	1/8, 3/16, 1/4, 3/8

14	Flange	Brass / Steel		1/8, 3/16, 1/4, 3/8
12A	Re-adjustable Compression Fittings	316 Stainless Steel	1/8	1/8, 3/16, 1/4
12B			1/4	1/8, 3/16, 1/4, 3/8
12C			1/2	1/8, 3/16, 1/4, 3/8
11A		Brass	1/8	1/8, 3/16, 1/4
11B			1/4	1/8, 3/16, 1/4, 3/8
11C			1/2	1/8, 3/16, 1/4, 3/8
19C	Spring-loaded well fitting	Stainless Steel	1/2	3/16, 1/4
8A___	Fixed Bushing	316 Stainless Steel	1/8	1/8, 3/16, 1/4, 3/8
8B___			1/4	1/8, 3/16, 1/4, 3/8
8C___			1/2	1/8, 3/16, 1/4, 3/8
8D___			3/4	1/8, 3/16, 1/4, 3/8
Note – Fixed Bushing "____" specify distance form hot (sensor) tip to bottom of threaded bushing				
Sheath Bend – 45 degree – "2__" – specify distance from hot (sensor) tip				
Sheath Bend – 90 degree = "3__" – specify distance from hot (sensor) tip				
17	Mounting Pad	1/4 inch thick, perpendicular mount		
18		1/4 inch thick, horizontal mount		
17R		1/8 inch thick, perpendicular mount with radius		
18R		1/4 inch thick, horizontal mount with radius		
17Z		Customer specified, perpendicular mount, drawing or specification at end of p/n		
18Z		Customer specified, horizontal mount, drawing or specification at end of p/n.		

ggg = Head Mounting Fittings

ggg = Head Mounting Fittings	
8HN	½" x ½" NPT stainless steel hex nipple
9HP	½" NPT stainless steel bushing, no process threads
8RNAC	1/8" x ½" NPT stainless steel hex nipple
8RNBC	¼" x ½" NPT stainless steel hex nipple
8RNDC	¾" x ½" NPT stainless steel hex nipple
8PN_	½" NPT stainless steel pipe nipple (specify "E" length)

hhh = Field Wiring Enclosure

hhh = Field Wiring Enclosure		
	Transmitter (when option iii = T31, T71, T72, T82, T142)	Terminal Block (without transmitter)
93* or 93,AD*	When iii = T71 or T72 Rated 36V dc max, 23mA. Ta: -20 to +70/80/85°C T-Code T6/T5/T4 When iii = T82 Rated 42V dc max, 23 mA. Ta: -20 to +70/80/85°C T-code: T6/T5/T4 When iii = T31: Rated 36V dc max, 23mA. Ta: -20 to +35/50/85°C; T-Code T6/T5/T4	Ambient temperature: -20°C ≤ Ta ≤ 75/90/100°C; Temperature Code T6/T5/T4
* NOTE: When equipment is marked for use in "Class I Division 1 Groups B, C and D; Class II Division 1, Groups E, F and G; Class III" the minimum ambient may be reduced to -40°C.		
94	When iii = T71 or T72 Rated 36V dc max, 23mA. Ta: -40 to +70/80/85°C	Ambient temperature: -40°C ≤ Ta ≤ 75/90/100°C; Temperature Code T6/T5/T4

	T-Code T6/T5/T4 When iii = T82 Rated 42V dc max, 23 mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T31: Rated 36V dc max, 23mA. Ta: -40 to +35/50/85°C; T-Code T6/T5/T4	
74	When iii = T71 or T72 Rated 36V dc max, 23mA. Ta: -40 to +70/80/85ºC T-code: T6/T5/T4 When iii = T82 Rated 42V dc max, 23 mA. Ta: -40 to +70/80/85ºC T-code: T6/T5/T4 When iii = T31: Rated 36V dc max, 23mA. Ta: -40 to +35/50/85°C; T-Code T6/T5/T4	Ambient temperature: -40°C ≤ Ta ≤ 75/90/100°C; Temperature Code T6/T5/T4
75	When iii = T142C-T (without display) Rated 36V dc max, 3W. Ta: -40 to +55/70/85°C T-code: T6/T5/T4 When iii T142C-D (with display) Rated 36V dc max, 3W. Ta: -40 to +55/70/70°C	N/A
76	When iii = T71-D10 or T72-D10 Rated 36V dc max, 23 mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T82-D10 Rated 42V dc max 23mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4	N/A

iii = Internal Components and Additional Options

iii = Internal Components and Additional Options (multiple options may be separated by "," (comma))	
(blank)	Terminal block supplied with poles to match number of sensor leads
T71 T71-D10	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 * Enclosure 76 – with "D10" - optical display * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T72 T72-D10	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 * Enclosure 76 – with "D10" - optical display * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T82 T82-D10	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 – no optical display * Enclosure 76 – with "D10" - optical display * May be followed by additional digits specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T142	Transmitter 4/20mA, DIN B: * Enclosure 75 with designation 75T142C-T - no optical display * Enclosure 75 with designation 75T142C-D - with optical display * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T31	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74

	* May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
SB	½"NPT conduit reducer bushing, aluminum
M2	M20x1.5 conduit reducer bushing, nickel plated brass
M5	M25x1.5 conduit reducer bushing, nickel plated brass
I	Stainless Steel Tag
Z	Does not affect safety or this Certification. Specific customer requirements not impacting this certification (i.e. special testing), may be followed by additional text or descriptive information.

Temperature sensor assembly with Thermocouple Fixed Element Sensor - Model: XP02.
Config Code: XP02; PN: HL09 - aa b c d – eee – fff – ggg hhh iii
Ratings as specified in the model nomenclature below. Process temperature: Tp ≤ 180°C. Process Pressure: P(max) ≤ 110 kPa (15.95 psig): Enclosure IP66

Where:
aa = Thermocouple Type

E, EE, EEE	Single (E), Double (EE), Triple (EEE) Thermocouple
J, JJ, JJJ	Single (J), Double (JJ), Triple (JJJ) Thermocouple
K, KK, KKK	Single (K), Double (KK), Triple (KKK) Thermocouple
T, TT, TTT	Single (T), Double (TT), Triple (TTT) Thermocouple
N, NN, NNN	Single (N), Double (NN), Triple (NNN) Thermocouple

b = Sheath Diameter,
c = Sheath material

b,c = Sheath Diameter and material (first digits are diameter, ending digits are material)	
2 8	1/8" Sheath Diameter, Material 8 = stainless steel (see list of other material codes)
3 8	3/16" Sheath Diameter, Material 8 = stainless steel (see list of other material codes)
(236) 8	6 mm Sheath Diameter, Material 8 = stainless steel, (see list of other material codes)
4 8	1/4" Sheath Diameter, Material: 8 = stainless steel, (see list of other material codes)
5 8	5/16" Sheath Diameter, Material 8 = stainless steel, (see list of other material codes)
6 8	3/8" Sheath Diameter, Material 8 = stainless steel, (see list of other material codes)
8 8	1/2" Sheath Diameter, Material 8 = stainless steel, (see list of other material codes)
88R4 8	0.500" reduced to 0.250" Sheath Diameter, Material 8 = stainless steel, (see list of other material codes)
68R3 8	0.375" reduced to 0.188" Sheath Diameter, Material 8 = stainless steel, (see list of other material codes)
48R2 8	0.250" reduced to 0.125" Sheath Diameter, Material 8 = stainless steel, (see list of other material codes)
Other Material Code Options: 3 = Alloy 600, 4 = 310 SS, 5 = 446 SS, 8 = 316 SS, 32 = 316L SS, 29 = Alloy C-276, 41= HR160 Above with "Z" at end – does not affect Safety or Certification (suffix at end of p/n: is Z + 3 or 4 digits) Z521 = Shin-Etsu sensor potting Z187 = flat tip Z371 = 20 Gauge sensor lead-wire	

d = Measuring Junction

U	Ungrounded
UM	Ungrounded, w/Special Limits Thermocouple

eee = Length of element in inches

1 to 999	inches w/fraction shown as (x/x) – 010(1/2)

fff = Sheath external options

fff = sheath external options – Any two to six alphanumeric digits *(not critical to certification)*
00 = no fitting, no external options
Two to six characters, may contain "Z", may contain customer specification at end of p/n

ggg = Head Mounting Fittings

8HN	½" x ½" NPT stainless steel hex nipple
9HP	½" NPT stainless steel bushing, no process threads
8RNAC	1/8" x ½" NPT stainless steel hex nipple
8RNBC	¼" x ½" NPT stainless steel hex nipple
8RNDC	¾" x ½" NPT stainless steel hex nipple
8PN_	½" NPT stainless steel pipe nipple (specify "E" length)

hhh = Field Wiring Enclosure

hhh = Field Wiring Enclosure		
	Transmitter (when option iii = T31, T71, T72, T82, T142)	Terminal Block (without transmitter)
93* or 93,AD*	When iii = T71 or T72 Rated 36V dc max, 23mA. Ta: -20 to +70/80/85°C T-Code T6/T5/T4 When iii = T82 Rated 42V dc max, 23 mA. Ta: -20 to +70/80/85°C T-code: T6/T5/T4 When iii = T31: Rated 36V dc max, 23mA. Ta: -20 to +35/50/85°C; T-Code T6/T5/T4	Ambient temperature: -20°C ≤ Ta ≤ 75/90/100°C; Temperature Code T6/T5/T4
* NOTE: When equipment is marked for use in "Class I Division 1 Groups B, C and D; Class II Division 1, Groups E, F and G; Class III" the minimum ambient may be reduced to -40°C.		
94	When iii = T71 or T72 Rated 36V dc max, 23mA. Ta: -40 to +70/80/85°C T-Code T6/T5/T4 When iii = T82 Rated 42V dc max, 23 mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T31: Rated 36V dc max, 23mA. Ta: -40 to +35/50/85°C; T-Code T6/T5/T4	Ambient temperature: -40°C ≤ Ta ≤ 75/90/100°C; Temperature Code T6/T5/T4
74	When iii = T71 or T72 Rated 36V dc max, 23mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T82 Rated 42V dc max, 23 mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T31: Rated 36V dc max, 23mA. Ta: -40 to +35/50/85°C; T-Code T6/T5/T4	Ambient temperature: -40°C ≤ Ta ≤ 75/90/100°C; Temperature Code T6/T5/T4
75	When iii = T142C-T (without display) Rated 36V dc max, 3W. Ta: -40 to +55/70/85°C T-code: T6/T5/T4	N/A

	When iii = T142C-D (with display) Rated 36V dc max, 3W. Ta: -40 to +55/70/70°C	
76	When iii = T71-D10 or T72-D10 Rated 36V dc max, 23 mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T82-D10 Rated 42V dc max 23mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4	N/A

iii = Internal Components and Additional Options

iii = Internal Components and Additional Options (multiple options may be separated by "," (comma))	
(blank)	Terminal block supplied with poles to match number of sensor leads
T71 T71-D10	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 * Enclosure 76 – with "D10" - optical display * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T72 T72-D10	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 * Enclosure 76 – with "D10" - optical display * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T82 T82-D10	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 – no optical display * Enclosure 76 – with "D10" - optical display * May be followed by additional digits specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T142	Transmitter 4/20mA, DIN B: * Enclosure 75 with designation 75T142C-T - no optical display * Enclosure 75 with designation 75T142C-D - with optical display * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T31	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
SB	½"NPT conduit reducer bushing, aluminum
M2	M20x1.5 conduit reducer bushing, nickel plated brass
M5	M25x1.5 conduit reducer bushing, nickel plated brass
I	Stainless Steel Tag
Z	Does not affect safety or this Certification. Specific customer requirements not impacting this certification (i.e. special testing), may be followed by additional text or descriptive information.

Temperature sensor assembly with RTD Sensor Element with Thermowell - Model: XP03.
Config Code: XP03; PN: HL09 - Raaaaaa b c d – eee – fff – ggg hhh iii
Ratings as specified in the model nomenclature below. Enclosure IP66

Where:

aaaaaa = RTD Element

aaaaaa = RTD Element				
First digit (description)	2nd digit (form)	3rd digit (# of elements)	4th and 5th (temp. coeff code)	6th digit (sheath construction)
1 (Grade B) 3 (Class AA) 5 (1/5 IEC Class B) A (Class A) B (Class B) C (Class C) D (Class D)	T (wire wound) F (thin film)	1 (single) 2 (dual)	10 (10 Ω Copper) 12 (120 Ω Nickel) 25 (200 Ω Platinum) 55 (500 Ω Platinum) 85 (100 Ω Platinum) 92 (100 Ω Platinum) 95 (1000 Ω Platinum)	L (metallic sheath w/ refractory powder) K (metallic sheath w/ refractory powder) M (metallic sheath w/ refractory powder) H (mineral insulated sheath)

b = Sheath Diameter,

c = Sheath material

b,c = Sheath Diameter and material (first digits are diameter, ending digits are material)	
2 8	1/8" Sheath Diameter, Material 8 = stainless steel (see list of other material codes)
3 8	3/16" Sheath Diameter, Material 8 = stainless steel (see list of other material codes)
(236) 8	6 mm Sheath Diameter, Material 8 = stainless steel, (see list of other material codes)
4 8	1/4" Sheath Diameter, Material: 8 = stainless steel, (see list of other material codes)
5 8	5/16" Sheath Diameter, Material 8 = stainless steel, (see list of other material codes)
6 8	3/8" Sheath Diameter, Material 8 = stainless steel, (see list of other material codes)
Other Material Code Options: 3 = Alloy 600, 4 = 310 SS, 5 = 446 SS, 8 = 316 SS, 32 = 316L SS, 29 = Alloy C-276, 41= HR160 Above with "Z" at end – does not affect Safety or Certification (suffix at end of p/n: is Z + 3 or 4 digits) Z521 = Shin-Etsu sensor potting Z187 = flat tip Z371 = 20 Gauge sensor lead-wire	

d = Element Connection

d = Element Connection (number of sensor wires per sensor element)	
2	2 Sensor Wires per Sensor Element
3	3 Sensor Wires per Sensor Element
4	4 Sensor Wires per Sensor Element

eee = Fitting type

eee = Fitting type	
FE	Fixed Element
SL	Spring Loaded
SC or SN	(SC) Self Contained or (SN) Self-contained w/internal o-ring
FP	Flame-proof element/fitting

fff = Thermowell Identification

Any seven to thirty alphanumeric digits *(not critical to certification)*

ggg = Head Mounting Fittings

NXU_	½" NPT plated steel union with stainless steel nipple, with "_" length in inches
8HN	½" x ½" NPT stainless steel hex nipple

8PN_	½" NPT stainless steel pipe nipple, with "_" length in inches
8XU_	½" NPT stainless steel union and nipple, with "_" length in inches
8RXU__	½" NPT stainless steel union and round nipple, with "_" length in inches

hhh = Field Wiring Enclosure

hhh = Field Wiring Enclosure		
	Transmitter (when option iii = T31, T71, T72, T82, T142)	Terminal Block (without transmitter)
93* or 93,AD*	When iii = T71 or T72 Rated 36V dc max, 23mA. Ta: -20 to +70/80/85°C T-Code T6/T5/T4 When iii = T82 Rated 42V dc max, 23 mA. Ta: -20 to +70/80/85°C T-code: T6/T5/T4 When iii = T31: Rated 36V dc max, 23mA. Ta: -20 to +35/50/85°C; T-Code T6/T5/T4	Ambient temperature: -20°C ≤ Ta ≤ 75/90/100°C; Temperature Code T6/T5/T4
* NOTE: When equipment is marked for use in "Class I Division 1 Groups B, C and D; Class II Division 1, Groups E, F and G; Class III" the minimum ambient may be reduced to -40°C.		
94	When iii = T71 or T72 Rated 36V dc max, 23mA. Ta: -40 to +70/80/85°C T-Code T6/T5/T4 When iii = T82 Rated 42V dc max, 23 mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T31: Rated 36V dc max, 23mA. Ta: -40 to +35/50/85°C; T-Code T6/T5/T4	Ambient temperature: -40°C ≤ Ta ≤ 75/90/100°C; Temperature Code T6/T5/T4
74	When iii = T71 or T72 Rated 36V dc max, 23mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T82 Rated 42V dc max, 23 mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T31: Rated 36V dc max, 23mA. Ta: -40 to +35/50/85°C; T-Code T6/T5/T4	Ambient temperature: -40°C ≤ Ta ≤ 75/90/100°C; Temperature Code T6/T5/T4
75	When iii = T142C-T (without display) Rated 36V dc max, 3W. Ta: -40 to +55/70/85°C T-code: T6/T5/T4 When iii = T142C-D Rated 36V dc max, 3W. Ta: -40 to +55/70/70°C	N/A
76	When iii = T71-D10 or T72-D10 Rated 36V dc max, 23 mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T82-D10 (with display) Rated 42V dc max 23mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4	N/A

iii = Internal Components and Additional Options

iii = Internal Components and Additional Options (multiple options may be separated by "," (comma))

(blank)	Terminal block supplied with poles to match number of sensor leads
T71 T71-D10	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 * Enclosure 76 – with "D10" - optical display * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T72 T72-D10	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 * Enclosure 76 – with "D10" - optical display * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T82 T82-D10	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 – no optical display * Enclosure 76 – with "D10" - optical display * May be followed by additional digits specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T142	Transmitter 4/20mA, DIN B: * Enclosure 75 with designation 75T142C-T - no optical display * Enclosure 75 with designation 75T142C-D - with optical display * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T31	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
SB	½"NPT conduit reducer bushing, aluminum
M2	M20x1.5 conduit reducer bushing, nickel plated brass
M5	M25x1.5 conduit reducer bushing, nickel plated brass
I	Stainless Steel Tag
Z	Does not affect safety or this Certification. Specific customer requirements not impacting this certification (i.e. special testing), may be followed by additional text or descriptive information.

Temperature sensor assembly with Thermocouple Element Sensor and Thermowell - Model: XP04.
Config Code: XP04; PN: HL09 - aa b c d – eee – fff – ggg hhh iii
Ratings as specified in the model nomenclature below. Enclosure IP66

Where:
aa = Thermocouple Type

E, EE, EEE	Single (E), Double (EE), Triple (EEE) Thermocouple
J, JJ, JJJ	Single (J), Double (JJ), Triple (JJJ) Thermocouple
K, KK, KKK	Single (K), Double (KK), Triple (KKK) Thermocouple
T, TT, TTT	Single (T), Double (TT), Triple (TTT) Thermocouple
N, NN, NNN	Single (N), Double (NN), Triple (NNN) Thermocouple

b = Sheath Diameter,
c = Sheath material

b,c = Sheath Diameter and material (first digits are diameter, ending digits are material)	
2 8	1/8" Sheath Diameter, Material 8 = stainless steel (see list of other material codes)

3 8	3/16" Sheath Diameter, Material 8 = stainless steel (see list of other material codes)
(236) 8	6 mm Sheath Diameter, Material 8 = stainless steel, (see list of other material codes)
4 8	1/4" Sheath Diameter, Material: 8 = stainless steel, (see list of other material codes)
5 8	5/16" Sheath Diameter, Material 8 = stainless steel, (see list of other material codes)
6 8	3/8" Sheath Diameter, Material 8 = stainless steel, (see list of other material codes)
Other Material Code Options: 3 = Alloy 600, 4 = 310 SS, 5 = 446 SS, 8 = 316 SS, 32 = 316L SS, 29 = Alloy C-276, 41= HR160 Above with "Z" at end – does not affect Safety or Certification (suffix at end of p/n: is Z + 3 or 4 digits) Z521 = Shin-Etsu sensor potting Z187 = flat tip Z371 = 20 Gauge sensor lead-wire	

d = Measuring Junction

U	Ungrounded
UM	Ungrounded, w/Special Limits Thermocouple

eee = Fitting type

eee = Fitting type	
FE	Fixed Element
SL	Spring Loaded
SC or SN	(SC) Self Contained or (SN) Self-contained w/internal o-ring
FP	Flame-proof element/fitting

fff = Thermowell Identification

Any seven to thirty alphanumeric digits *(not critical to certification)*

ggg = Head Mounting Fittings

NXU_	½" NPT plated steel union with stainless steel nipple, with "_" length in inches
8HN	½" x ½" NPT stainless steel hex nipple
8PN_	½" NPT stainless steel pipe nipple, with "_" length in inches
8XU_	½" NPT stainless steel union and nipple, with " " length in inches
8RXU__	½" NPT stainless steel union and round nipple, with "_" length in inches

hhh = Field Wiring Enclosure

hhh = Field Wiring Enclosure		
	Transmitter (when option iii = T31, T71, T72, T82, T142)	Terminal Block (without transmitter)
93* or 93,AD*	When iii = T71 or T72 Rated 36V dc max, 23mA. Ta: -20 to +70/80/85°C T-Code T6/T5/T4 When iii = T82 Rated 42V dc max, 23 mA. Ta: -20 to +70/80/85°C T-code: T6/T5/T4 When iii = T31: Rated 36V dc max, 23mA. Ta: -20 to +35/50/85°C; T-Code T6/T5/T4	Ambient temperature: -20°C ≤ Ta ≤ 75/90/100°C; Temperature Code T6/T5/T4
* NOTE: When equipment is marked for use in "Class I Division 1 Groups B, C and D; Class II Division 1, Groups E, F and G; Class III" the minimum ambient may be reduced to -40°C.		

94	When iii = T71 or T72 Rated 36V dc max, 23mA. Ta: -40 to +70/80/85°C T-Code T6/T5/T4 When iii = T82 Rated 42V dc max, 23 mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T31: Rated 36V dc max, 23mA. Ta: -40 to +35/50/85°C; T-Code T6/T5/T4	Ambient temperature: -40°C ≤ Ta ≤ 75/90/100°C; Temperature Code T6/T5/T4
74	When iii = T71 or T72 Rated 36V dc max, 23mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T82 Rated 42V dc max, 23 mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T31: Rated 36V dc max, 23mA. Ta: -40 to +35/50/85°C; T-Code T6/T5/T4	Ambient temperature: -40°C ≤ Ta ≤ 75/90/100°C; Temperature Code T6/T5/T4
75	When iii = T142C-T (without display) Rated 36V dc max, 3W. Ta: -40 to +55/70/85°C T-code: T6/T5/T4 When iii = T142C-D (with display) Rated 36V dc max, 3W. Ta: -40 to +55/70/70°C	N/A
76	When iii = T71-D10 or T72-D10 Rated 36V dc max, 23 mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T82-D10 Rated 42V dc max 23mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4	N/A

iii = Internal Components and Additional Options

iii = Internal Components and Additional Options (multiple options may be separated by "," (comma))	
(blank)	Terminal block supplied with poles to match number of sensor leads
T71 T71-D10	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 * Enclosure 76 – with "D10" - optical display * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T72 T72-D10	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 * Enclosure 76 – with "D10" - optical display * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T82 T82-D10	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 – no optical display * Enclosure 76 – with "D10" - optical display * May be followed by additional digits specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T142	Transmitter 4/20mA, DIN B: * Enclosure 75 with designation 75T142C-T - no optical display * Enclosure 75 with designation 75T142C-D - with optical display

	* May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T31	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
SB	½"NPT conduit reducer bushing, aluminum
M2	M20x1.5 conduit reducer bushing, nickel plated brass
M5	M25x1.5 conduit reducer bushing, nickel plated brass
I	Stainless Steel Tag
Z	Does not affect safety or this Certification. Specific customer requirements not impacting this certification (i.e. special testing), may be followed by additional text or descriptive information.

Temperature sensor assembly with Fixed element RTD Sensor Heat Tracer Sensor - Model: XP07.
Config Code: XP07; PN: HL09 - aaaaaa b c d – eee – fff – ggg – hhh iii
Ratings as specified in the model nomenclature below. Process temperature: Tp ≤ 180°C. Process Pressure: P(max) ≤ 110 kPa (15.95 psig): Enclosure IP66

Where:
aaaaaa = RTD Element

aaaaaa = RTD Element				
First digit (description)	2nd digit (form)	3rd digit (# of elements)	4th and 5th (temp. coeff code)	6th digit (sheath construction)
1 (Grade B) 3 (Class AA) 5 (1/5 IEC Class B) A (Class A) B (Class B) C (Class C) D (Class D)	T (wire wound) F (thin film)	1 (single) 2 (dual)	10 (10 Ω Copper) 12 (120 Ω Nickel) 25 (200 Ω Platinum) 55 (500 Ω Platinum) 85 (100 Ω Platinum) 92 (100 Ω Platinum) 95 (1000 Ω Platinum)	L (metallic sheath w/ refractory powder) K (metallic sheath w/ refractory powder) M (metallic sheath w/ refractory powder) H (mineral insulated sheath)

b = Sheath Diameter,
c = Sheath material

b,c = Sheath Diameter and material (first digits are diameter, ending digits are material)	
4 8	1/4" Sheath Diameter, Material: 8 = stainless steel, (see list of other material codes)
6 8	3/8" Sheath Diameter, Material 8 = stainless steel, (see list of other material codes)
Other Material Code Options: 3 = Alloy 600, 4 = 310 SS, 5 = 446 SS, 8 = 316 SS, 32 = 316L SS, 29 = Alloy C-276, 41= HR160 Above with "Z" at end – does not affect Safety or Certification (suffix at end of p/n: is Z + 3 or 4 digits) Z521 = Shin-Etsu sensor potting Z187 = flat tip Z371 = 20 Gauge sensor lead-wire	

d = Element Connection

d = Element Connection (number of sensor wires per sensor element)	
2	2 Sensor Wires per Sensor Element
3	3 Sensor Wires per Sensor Element
4	4 Sensor Wires per Sensor Element

eee = Sheath External Options

eee = "HT" – mounting pad attached to sheath

fff = Sheath Length

Any numeric characters *(not critical to certification)* fff = xxyy, where xx is hot leg length in inches and yy is cold leg length in inches

ggg = Sheath fitting and mounting

ggg = Head Mounting Fittings	
18RD	Mounting Pad

hhh = Field Wiring Enclosure

hhh = Field Wiring Enclosure		
	Transmitter (when option iii = T31, T71, T72, T82, T142)	Terminal Block (without transmitter)
93* or 93,AD*	When iii = T71 or T72 Rated 36V dc max, 23mA. Ta: -20 to +70/80/85°C T-Code T6/T5/T4 When iii = T82 Rated 42V dc max, 23 mA. Ta: -20 to +70/80/85°C T-code: T6/T5/T4 When iii = T31: Rated 36V dc max, 23mA. Ta: -20 to +35/50/85°C; T-Code T6/T5/T4	Ambient temperature: -20°C ≤ Ta ≤ 75/90/100°C; Temperature Code T6/T5/T4
* NOTE: When equipment is marked for use in "Class I Division 1 Groups B, C and D; Class II Division 1, Groups E, F and G; Class III" the minimum ambient may be reduced to -40°C.		
94	When iii = T71 or T72 Rated 36V dc max, 23mA. Ta: -40 to +70/80/85°C T-Code T6/T5/T4 When iii = T82 Rated 42V dc max, 23 mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T31: Rated 36V dc max, 23mA. Ta: -40 to +35/50/85°C; T-Code T6/T5/T4	Ambient temperature: -40°C ≤ Ta ≤ 75/90/100°C; Temperature Code T6/T5/T4
74	When iii = T71 or T72 Rated 36V dc max, 23mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T82 Rated 42V dc max, 23 mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T31: Rated 36V dc max, 23mA. Ta: -40 to +35/50/85°C; T-Code T6/T5/T4	Ambient temperature: -40°C ≤ Ta ≤ 75/90/100°C; Temperature Code T6/T5/T4
75	When iii = T142C-T (without display) Rated 36V dc max, 3W. Ta: -40 to +55/70/85°C T-code: T6/T5/T4 When iii T142C-D (with display)	N/A

	Rated 36V dc max, 3W. Ta: -40 to +55/70/70°C	
76	When iii = T71-D10 or T72-D10 Rated 36V dc max, 23 mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T82-D10 Rated 42V dc max 23mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4	N/A

iii = Internal Components and Additional Options

iii = Internal Components and Additional Options (multiple options may be separated by "," (comma))	
(blank)	Terminal block supplied with poles to match number of sensor leads
T71 T71-D10	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 * Enclosure 76 – with "D10" - optical display * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T72 T72-D10	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 * Enclosure 76 – with "D10" - optical display * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T82-D10	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 – no optical display * Enclosure 76 – with "D10" - optical display * May be followed by additional digits specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T142	Transmitter 4/20mA, DIN B: * Enclosure 75 with designation 75T142C-T - no optical display * Enclosure 75 with designation 75T142C-D - with optical display * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T31	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
SB	½"NPT conduit reducer bushing, aluminum
M2	M20x1.5 conduit reducer bushing, nickel plated brass
M5	M25x1.5 conduit reducer bushing, nickel plated brass
I	Stainless Steel Tag
Z	Does not affect safety or this Certification. Specific customer requirements not impacting this certification (i.e. special testing), may be followed by additional text or descriptive information.

Temperature sensor assembly with Fixed element Thermocouple Heat Tracer Sensor - Model XP07.
Config Code: XP07; PN: HL09 - aa b c d – eee – fff – ggg – hhh iii
Ratings as specified in the model nomenclature below. Process temperature: Tp ≤ 180°C. Process Pressure: P(max) ≤ 110 kPa (15.95 psig): Enclosure IP66

Where:
Where:
aa = Thermocouple Type

E, EE, EEE	Single (E), Double (EE), Triple (EEE) Thermocouple
J, JJ, JJJ	Single (J), Double (JJ), Triple (JJJ) Thermocouple
K, KK, KKK	Single (K), Double (KK), Triple (KKK) Thermocouple
T, TT, TTT	Single (T), Double (TT), Triple (TTT) Thermocouple
N, NN, NNN	Single (N), Double (NN), Triple (NNN) Thermocouple

b = Sheath Diameter,
c = Sheath material

b,c = Sheath Diameter and material (first digits are diameter, ending digits are material)	
4 8	1/4” Sheath Diameter – Mineral Insulated Sheath, Material: 8 = stainless steel, (see list of other material codes)
P4 8	1/4" Sheath Diameter – Metallic Sheath w/Refractory Powder, Material 8 = stainless steel (see list of other material codes)
6 8	3/8” Sheath Diameter – Mineral Insulated Sheath, Material 8 = stainless steel, (see list of other material codes)
P6 8	3/8” Sheath Diameter – Metallic Sheath w/Refractory Powder, Material 8 = stainless steel, (see list of other material codes)
Other Material Code Options: 3 = Alloy 600, 4 = 310 SS, 5 = 446 SS, 8 = 316 SS, 32 = 316L SS, 29 = Alloy C-276, 41= HR160 Above with “Z” at end – does not affect Safety or Certification (suffix at end of p/n: is Z + 3 or 4 digits) Z521 = Shin-Etsu sensor potting Z187 = flat tip Z371 = 20 Gauge sensor lead-wire	

d = Measuring Junction

U	Ungrounded
UM	Ungrounded, w/Special Limits Thermocouple

eee = Sheath External Options

eee = “HT” – mounting pad attached to sheath

fff = Sheath Lengths

Any numeric characters *(not critical to certification)* fff = xxyy, where xx is hot leg length in inches and yy is cold leg length in inches

ggg = Sheath fitting and mounting

ggg = Head Mounting Fittings	
18RD	Mounting Pad

hhh = Field Wiring Enclosure

hhh = Field Wiring Enclosure		
	Transmitter (when option iii = T31, T71, T72, T82, T142)	Terminal Block (without transmitter)
93* or 93,AD*	When iii = T71 or T72 Rated 36V dc max, 23mA. Ta: -20 to +70/80/85°C T-Code T6/T5/T4	Ambient temperature: -20°C ≤ Ta ≤ 75/90/100°C; Temperature Code T6/T5/T4

	When iii = T82 Rated 42V dc max, 23 mA. Ta: -20 to +70/80/8°˚C T-code: T6/T5/T4 When iii = T31: Rated 36V dc max, 23mA. Ta: -20 to +35/50/85°C; T-Code T6/T5/T4	
* NOTE: When equipment is marked for use in "Class I Division 1 Groups B, C and D; Class II Division 1, Groups E, F and G; Class III" the minimum ambient may be reduced to -40°C.		
94	When iii = T71 or T72 Rated 36V dc max, 23mA. Ta: -40 to +70/80/85°C T-Code T6/T5/T4 When iii = T82 Rated 42V dc max, 23 mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T31: Rated 36V dc max, 23mA. Ta: -40 to +35/50/85°C; T-Code T6/T5/T4	Ambient temperature: -40°C ≤ Ta ≤ 75/90/100°C; Temperature Code T6/T5/T4
74	When iii = T71 or T72 Rated 36V dc max, 23mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T82 Rated 42V dc max, 23 mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T31: Rated 36V dc max, 23mA. Ta: -40 to +35/50/85°C; T-Code T6/T5/T4	Ambient temperature: -40°C ≤ Ta ≤ 75/90/100°C; Temperature Code T6/T5/T4
75	When iii = T142C-T (without display) Rated 36V dc max, 3W. Ta: -40 to +55/70/85°C T-code: T6/T5/T4 When iii T142C-D (with display) Rated 36V dc max, 3W. Ta: -40 to +55/70/70°C	N/A
76	When iii = T71-D10 or T72-D10 Rated 36V dc max, 23 mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T82-D10 Rated 42V dc max 23mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4	N/A

iii = Internal Components and Additional Options

iii = Internal Components and Additional Options (multiple options may be separated by "," (comma))	
(blank)	Terminal block supplied with poles to match number of sensor leads
T71 T71-D10	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 * Enclosure 76 – with "D10" - optical display * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T72 T72-D10	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 * Enclosure 76 – with "D10" - optical display * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T82 T82-D10	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 – no optical display

	* Enclosure 76 – with "D10" - optical display * May be followed by additional digits specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T142	Transmitter 4/20mA, DIN B: * Enclosure 75 with designation 75T142C-T - no optical display * Enclosure 75 with designation 75T142C-D - with optical display * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T31	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
SB	½"NPT conduit reducer bushing, aluminum
M2	M20x1.5 conduit reducer bushing, nickel plated brass
M5	M25x1.5 conduit reducer bushing, nickel plated brass
I	Stainless Steel Tag
Z	Does not affect safety or this Certification. Specific customer requirements not impacting this certification (i.e. special testing), may be followed by additional text or descriptive information.

Conditions of Use:

1. The above models are permanently connected, Equipment Class III, Pollution Degree 2
2. This equipment may only be powered by a power supply unit with a limited energy electric circuit, in accordance with CAN/CSA C22.2 No. 61010-1-12 and ANSI/UL 61010-1, or Class 2 source as defined in the Canadian Electrical Code C22.1, Section 16-200 and/or National Electrical Code (NFPA 70), article 725.121.
3. Temperature sensor element must be protected from impact, environmental, and physical damage by installation.

Class I Division 1 Groups B, C and D;
Class II Division 1, Groups E, F and G;
Class III

Temperature sensor assembly with RTD Fixed Element Sensor - Model: XP05.
Config Code: XP05; PN HL09 – Raaaaaa b c d – eee – fff – ggg hhh iii
Ratings as specified in the model nomenclature below. Process temperature: Tp ≤ 180°C. Process Pressure: P(max) ≤ 110 kPa (15.95 psig) Note: When used with a thermowell the process pressure rating may be disregarded. Enclosure IP66

Where:
aaaaaa = RTD Element

aaaaaa = RTD Element				
First digit (description)	2nd digit (form)	3rd digit (# of elements)	4th and 5th (temp. coeff code)	6th digit (sheath construction)
1 (Grade B) 3 (Class AA) 5 (1/5 IEC Class B)	T (wire wound) F (thin film)	1 (single) 2 (dual)	10 (10 Ω Copper) 12 (120 Ω Nickel) 25 (200 Ω Platinum)	L (metallic sheath w/ refractory powder) K (metallic sheath w/ refractory powder) M (metallic sheath w/ refractory powder)

A (Class A) B (Class B) C (Class C) D (Class D)			55 (500 Ω Platinum) 85 (100 Ω Platinum) 92 (100 Ω Platinum) 95 (1000 Ω Platinum)	H (mineral insulated sheath)

b = Sheath Diameter,
c = Sheath material

b,c = Sheath Diameter and material (first digits are diameter, ending digits are material)	
2 8	1/8" Sheath Diameter, Material 8 = stainless steel (see list of other material codes)
3 8	3/16" Sheath Diameter, Material 8 = stainless steel (see list of other material codes)
(236) 8	6 mm Sheath Diameter, Material 8 = stainless steel, (see list of other material codes)
4 8	1/4" Sheath Diameter, Material: 8 = stainless steel, (see list of other material codes)
5 8	5/16" Sheath Diameter, Material 8 = stainless steel, (see list of other material codes)
6 8	3/8" Sheath Diameter, Material 8 = stainless steel, (see list of other material codes)
Other Material Code Options: 3 = Alloy 600, 4 = 310 SS, 5 = 446 SS, 8 = 316 SS, 32 = 316L SS, 29 = Alloy C-276, 41= HR160 Above with "Z" at end – does not affect Safety or Certification (suffix at end of p/n: is Z + 3 or 4 digits) Z521 = Shin-Etsu sensor potting Z187 = flat tip Z371 = 20 Gauge sensor lead-wire	

d = Element Connection

d = Element Connection (number of sensor wires per sensor element) 2	
2	2 Sensor Wires per Sensor Element
3	3 Sensor Wires per Sensor Element
4	4 Sensor Wires per Sensor Element

eee = Length of element

eee = Length of element in inches 1 to 999 inches w/fraction shown as (x/x) – 010(1/2)

fff = Fitting type

eee = Fitting type	
FP	Flame-path (spring-load) fitting

ggg = Head Mounting Fittings

8HN	½" x ½" NPT stainless steel hex nipple
8PU_	½" NPT stainless steel pipe nipple, union, nipple with "_" length in inches

hhh = Field Wiring Enclosure

hhh = Field Wiring Enclosure		
	Transmitter (when option iii = T31, T71, T72, T82, T142)	Terminal Block (without transmitter)
93* or 93,AD*	When iii = T71 or T72 Rated 36V dc max, 23mA. Ta: -40 to +70/80/85°C T-Code T6/T5/T4 When iii = T82 Rated 42V dc max, 23 mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T31: Rated 36V dc max, 23mA. Ta: -40 to +35/50/85°C;	Ambient temperature: -40°C ≤ Ta ≤ 75/90/100°C; Temperature Code T6/T5/T4

	T-Code T6/T5/T4	
* NOTE: When equipment is marked for use in "Class I Division 1 Groups B, C and D; Class II Division 1, Groups E, F and G; Class III" the minimum ambient may be reduced to -40°C.		
94	When iii = T71 or T72 Rated 36V dc max, 23mA. Ta: -40 to +70/80/85°C T-Code T6/T5/T4 When iii = T82 Rated 42V dc max, 23 mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T31: Rated 36V dc max, 23mA. Ta: -40 to +35/50/85°C; T-Code T6/T5/T4	Ambient temperature: -40°C ≤ Ta ≤ 75/90/100°C; Temperature Code T6/T5/T4
74	When iii = T71 or T72 Rated 36V dc max, 23mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T82 Rated 42V dc max, 23 mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T31: Rated 36V dc max, 23mA. Ta: -40 to +35/50/85°C; T-Code T6/T5/T4	Ambient temperature: -40°C ≤ Ta ≤ 75/90/100°C; Temperature Code T6/T5/T4
75	When iii = T142C-T (without display) Rated 36V dc max, 3W. Ta: -40 to +55/70/85°C T-code: T6/T5/T4 When iii = T142C-D (with display) Rated 36V dc max, 3W. Ta: -40 to +55/70/70°C	N/A
76	When iii = T71-D10 or T72-D10 Rated 36V dc max, 23 mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T82-D10 Rated 42V dc max 23mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4	N/A

iii = Internal Components and Additional Options

iii = Internal Components and Additional Options (multiple options may be separated by "," (comma))	
(blank)	Terminal block supplied with poles to match number of sensor leads
T71 T71-D10	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 * Enclosure 76 – with "D10" - optical display * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T72 T72-D10	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 * Enclosure 76 – with "D10" - optical display * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T82 T82-D10	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 – no optical display * Enclosure 76 – with "D10" - optical display

	* May be followed by additional digits specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T142	Transmitter 4/20mA, DIN B: * Enclosure 75 with designation 75T142C-T - no optical display * Enclosure 75 with designation 75T142C-D - with optical display * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T31	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
SB	½"NPT conduit reducer bushing, aluminum
M2	M20x1.5 conduit reducer bushing, nickel plated brass
M5	M25x1.5 conduit reducer bushing, nickel plated brass
I	Stainless Steel Tag
Z	Does not affect safety or this Certification. Specific customer requirements not impacting this certification (i.e. special testing), may be followed by additional text or descriptive information.

Temperature sensor assembly with spring loaded thermocouple Element Sensor, with or without optional thermowell - Model XP06. Config Code: XP06; PN HL09 – aa – b c d – eee – fff – ggg hhh – iii
Ratings as specified in the model nomenclature below. Process temperature: Tp ≤ 180°C. Process Pressure: P(max) ≤ 110 kPa (15.95 psig) Note: When used with a thermowell the process pressure rating may be disregarded. Enclosure IP66

Where:
aa = Thermocouple Type

E, EE, EEE	Single (E), Double (EE), Triple (EEE) Thermocouple
J, JJ, JJJ	Single (J), Double (JJ), Triple (JJJ) Thermocouple
K, KK, KKK	Single (K), Double (KK), Triple (KKK) Thermocouple
T, TT, TTT	Single (T), Double (TT), Triple (TTT) Thermocouple
N, NN, NNN	Single (N), Double (NN), Triple (NNN) Thermocouple

b = Sheath Diameter,
c = Sheath material

b,c = Sheath Diameter and material (first digits are diameter, ending digits are material)	
2 8	1/8" Sheath Diameter, Material 8 = stainless steel (see list of other material codes)
3 8	3/16" Sheath Diameter, Material 8 = stainless steel (see list of other material codes)
(236) 8	6 mm Sheath Diameter, Material 8 = stainless steel, (see list of other material codes)
4 8	1/4" Sheath Diameter, Material: 8 = stainless steel, (see list of other material codes)
5 8	5/16" Sheath Diameter, Material 8 = stainless steel, (see list of other material codes)
6 8	3/8" Sheath Diameter, Material 8 = stainless steel, (see list of other material codes)
Other Material Code Options: 3 = Alloy 600, 4 = 310 SS, 5 = 446 SS, 8 = 316 SS, 32 = 316L SS, 29 = Alloy C-276, 41= HR160 Above with "Z" at end – does not affect Safety or Certification (suffix at end of p/n: is Z + 3 or 4 digits) Z521 = Shin-Etsu sensor potting Z187 = flat tip Z371 = 20 Gauge sensor lead-wire	

d = Measuring Junction

U	Ungrounded
UM	Ungrounded, w/Special Limits Thermocouple

eee = Length of element

eee = Length of element in inches 1 to 999 inches w/fraction shown as (x/x) – 010(1/2)

fff = Fitting type

eee = Fitting type	
FP	Flame-path (spring-load) fitting

ggg = Head Mounting Fittings

8HN	½" x ½" NPT stainless steel hex nipple
8PU_	½" NPT stainless steel pipe nipple, union, nipple with " _ " length in inches

hhh = Field Wiring Enclosure

hhh = Field Wiring Enclosure		
	Transmitter (when option iii = T31, T71, T72, T82, T142)	Terminal Block (without transmitter)
93* or 93,AD*	When iii = T71 or T72 Rated 36V dc max, 23mA. Ta: -40 to +70/80/85°C T-Code T6/T5/T4 When iii = T82 Rated 42V dc max, 23 mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T31: Rated 36V dc max, 23mA. Ta: -40 to +35/50/85°C; T-Code T6/T5/T4	Ambient temperature: -40°C ≤ Ta ≤ 75/90/100°C; Temperature Code T6/T5/T4
* NOTE: When equipment is marked for use in "Class I Division 1 Groups B, C and D; Class II Division 1, Groups E, F and G; Class III" the minimum ambient may be reduced to -40°C.		
94	When iii = T71 or T72 Rated 36V dc max, 23mA. Ta: -40 to +70/80/85°C T-Code T6/T5/T4 When iii = T82 Rated 42V dc max, 23 mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T31: Rated 36V dc max, 23mA. Ta: -40 to +35/50/85°C; T-Code T6/T5/T4	Ambient temperature: -40°C ≤ Ta ≤ 75/90/100°C; Temperature Code T6/T5/T4
74	When iii = T71 or T72 Rated 36V dc max, 23mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T82 Rated 42V dc max, 23 mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T31: Rated 36V dc max, 23mA. Ta: -40 to +35/50/85°C;	Ambient temperature: -40°C ≤ Ta ≤ 75/90/100°C; Temperature Code T6/T5/T4

	T-Code T6/T5/T4	
75	When iii = T142C-T (without display) Rated 36V dc max, 3W. Ta: -40 to +55/70/85°C T-code: T6/T5/T4 When iii = T142C-D (with display) Rated 36V dc max, 3W. Ta: -40 to +55/70/70°C	N/A
76	When iii = T71-D10 or T72-D10 Rated 36V dc max, 23 mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4 When iii = T82-D10 Rated 42V dc max 23mA. Ta: -40 to +70/80/85°C T-code: T6/T5/T4	N/A

iii = Internal Components and Additional Options

iii = Internal Components and Additional Options (multiple options may be separated by "," (comma))	
(blank)	Terminal block supplied with poles to match number of sensor leads
T71 T71-D10	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 * Enclosure 76 – with "D10" - optical display * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T72 T72-D10	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 * Enclosure 76 – with "D10" - optical display * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T82 T82-D10	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 – no optical display * Enclosure 76 – with "D10" - optical display * May be followed by additional digits specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T142	Transmitter 4/20mA, DIN B: * Enclosure 75 with designation 75T142C-T - no optical display * Enclosure 75 with designation 75T142C-D - with optical display * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
T31	Transmitter 4/20mA, DIN B: * Enclosures 93, 93,AD, 94, 74 * May be followed by additional characters specifying transmitter calibration per customer specifications – does not affect Safety or Certification.
SB	½"NPT conduit reducer bushing, aluminum
M2	M20x1.5 conduit reducer bushing, nickel plated brass
M5	M25x1.5 conduit reducer bushing, nickel plated brass
I	Stainless Steel Tag
Z	Does not affect safety or this Certification. Specific customer requirements not impacting this certification (i.e. special testing), may be followed by additional text or descriptive information.

Conditions of Acceptability:

1. The above models are permanently connected, Equipment Class III, Pollution Degree 2
2. This equipment may only be powered by a power supply unit with a limited energy electric circuit: In accordance with CAN/CSA C22.2 No. 61010-1-12 and ANSI/UL 61010-1, or Class 2 source as defined in the Canadian Electrical Code C22.1, Section 16-200 and/or National Electrical Code (NFPA 70), article 725.121.
3. Temperature sensor element must be protected from impact, environmental and/or physical damage by installation.

APPLICABLE REQUIREMENTS

CAN/CSA C22.2 No. 61010-1-12 + UPD1:2015, UPD2:2016, AMD1:2018	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use — Part 1: General Requirements
CSA C22.2 No. 25-17	Enclosures for use in Class II, Division 1, Groups E, F, and G hazardous locations
C22.2 No. 30:M1986 (R2016)	Explosion-Proof Enclosures for Use in Class I Hazardous Locations
ANSI/UL 61010-1-2018 Third Edition	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use — Part 1: General Requirements
FM 3600 (January 2018)	Electrical Equipment for Use in Hazardous (Classified) Locations, General Requirements
FM 3615 (January 2018)	Explosionproof Electrical Equipment General Requirements
FM 3616 – 2011 (R2015)	Dust-Ignitionproof Electrical Equipment General Requirements

MARKINGS

The manufacturer is required to apply the following markings:

- Products shall be marked with the markings specified by the particular product standard.
- Products certified for Canada shall have all Caution and Warning markings in both English and French.

Additional bilingual markings not covered by the product standard(s) may be required by the Authorities Having Jurisdiction. It is the responsibility of the manufacturer to provide and apply these additional markings, where applicable, in accordance with the requirements of those authorities.

The products listed are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US (indicating that products have been manufactured to the requirements of both Canadian and U.S. Standards) or with adjacent indicator 'US' for US only or without either indicator for Canada only.

The following markings are laser etched on a stainless steel or aluminum nameplate. The marking is secured to equipment using screws, drive pins, or rivets in blind holes, or attached using a permanently rivet secured chain:

- Manufacturer's name: "Pyromation LLC" or "Pyromation" or CSA Master Contract Number "217989", adjacent to the CSA Mark in lieu of manufacturer's name.
- Model designation: As specified in the PRODUCTS section, above.
- Assembly configuration code or "Config Code": As specified in the PRODUCTS section, above.
- Electrical ratings: As specified in the PRODUCTS section, above.
- Ambient temperature rating: As specified in the PRODUCTS section, above.
- Manufacturing date, or serial number, traceable to year and month of manufacture.
- Enclosure ratings: As specified in the PRODUCTS section, above.
- The CSA Mark, with or without the "C" and "US" indicators, as shown on the Certificate of Conformity.
- Hazardous Location designation: As specified in the PRODUCTS section, above. The word "Class" may be abbreviated "CL", the word "Division" may be abbreviated "DIV", and the word "Groups" may be abbreviated "GRP" or "GP".
- Temperature code: As specified in the PRODUCTS section, above.
- Rated maximum process temperature, as specified in the PRODUCTS section, above.
- The manufacturing location shall be identified if the equipment can be produced in more than one facility.
- ISO 3864 Symbol B.3.1 ⚠ or ISO 7000 symbol 0434 ⚠ (triangle with exclamation point).
- The words "Use wire rated ≥ 5°C higher than the maximum ambient temperature", or equivalent.
- The following words, or equivalent, in both English and French language:
  - "CAUTION – DO NOT OPEN WHEN EXPLOSIVE ATMOSPHERE IS PRESENT" and "ATTENTION – NE PAS OUVRIR EN PRÉSENCE D'UNE ATMOSPHÈRE EXPLOSIVE"
  - "CAUTION – "SEAL ENTRIES WITHIN 18 INCHES' OF ENCLOSURE" and "ATTENTION – SCELLER LES ENTRÉES À MOINS DE 18 INCHES' DE L'ENCEINTE"

Thread size and type shall be permanently marked adjacent to the wiring entry(ies).

Notes:

Products certified under Class C225802, C225882 have been certified under CSA's ISO/IEC 17065 accreditation with the Standards Council of Canada (SCC). www.scc.ca

Supplement to Certificate of Compliance

Certificate: 80160735 **Master Contract:** 217989

The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
80188305	11/27/2023	Update of report 80160735 for minor description and drawing corrections
80160735	2023-04-12	Original Certification report for Temperature Measurement Assemblies part number “HL09” (Configuration Codes XP01-XP07) for protection methods, Class I Division 1 Groups A, B, C and D; Class II Division 1, Groups E, F and G; Class III.