# CERTIFICATE OF CONFORMITY

1. **HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**
2. **Certificate No:** **FM17US0254X**
3. **Equipment: (Type Reference and Name)** **Series 1, 5, 7 Junction Box, Model DIH50-F Junction Box with Electronic Display, Series TC10, TR10, TC12, TR12, TC15, TR15, TC50, TR50, TC59, TR59, 1000, 4000, 5000, 6000, 7000 Thermocouple/RTD Assemblies and YTE and YTP Thermocouple Temperature Assemblies.**
4. **Name of Listing Company:** **Wika Instruments Ltd.**
5. **Address of Listing Company:** **3103 Parsons Rd.**
   **Edmonton, Alberta, T6N1C8**
   **Canada**
6. The examination and test results are recorded in confidential report number:

   3020280 dated 5th October 2005
7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

   FM Class 3600:2018, FM Class 3611:2004, FM Class 3615:2018, FM Class 3810:2018, ANSI/ISA 61010-1:2015, ANSI/NEMA 250:2003
8. If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.
9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.

**Certificate issued by:**

J. E. Marquedant
VP, Manager - Electrical Systems

8 November 2019
Date

To verify the availability of the Approved product, please refer to www.approvalguide.com



FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmapprovals.com www.fmapprovals.com

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10. Equipment Ratings:

Series 1, 5, 7 Junction Box and Model DIH50-F Junction Box with Electronic Display: Explosionproof for Class I, Division 1, Groups B, C and D, DustIgnitionproof Class II,III, Division 1 Groups E, F and G; hazardous (classified) locations, (Type 4 and 4X).

Series TC10, TR10, TC12, TR12, TC59 and TR59 Thermocouple assemblies: Explosionproof for Class I, Division 1, Groups B, C and D; T6, Dust-Ignitionproof Class II,III, Division 1 Groups E, F and G; T6, hazardous (classified) locations, (Type 4 and 4X).

Series TC15, TR15 TC50 and TR50 Thermocouple/RTD assemblies: Nonincendive for Class I, Division 2, Groups A, B, C and D; T6, hazardous (classified) locations, (Type 4 and 4X).

Series 1000, 4000, 5000, 6000, 7000 and 8000 Thermocouple/RTD assemblies: Nonincendive for Class I, Division 2, Groups A, B, C and D; T6; Explosionproof for Class I, Division 1, Groups B, C and D; T6, Dust-Ignitionproof Class II,III, Division 1 Groups E, F and G; T6, hazardous (classified) locations, (Type 4 and 4X).

Series YTE and YTP Thermocouple/RTD Temperature Assemblies: Explosionproof for Class I, Division 1, Groups A, B, C and D, DustIgnitionproof Class II,III, Division 1 Groups E, F and G; hazardous (classified) locations, (Type 4).

11. The marking of the equipment shall include:

Series 1, 5, 7 Junction Box and Model DIH50-F Junction Box with Electronic Display:

Class I Division 1, Groups B, C, D; Type 4 and 4X

Class II, III, Division 1, Groups E, F, G; Type 4 and 4X

Series TC10, TR10, TC12, TR12, TC59 and TR59 Thermocouple assemblies:

Class I Division 1, Groups B, C, D; T6, Type 4 and 4X

Class II, III, Division 1, Groups E, F, G; T6, Type 4 and 4X

Series TC15, TR15 TC50 and TR50 Thermocouple assemblies:

Class I Division 2, Groups B, C, D; T6, Type 4 and 4X

Series 1000, 4000, 5000, 6000, 7000 and 8000 Thermocouple/RTD assemblies:

Class I Division 2, Groups B, C, D; T6, Type 4 and 4X

Class I Division 1, Groups B, C, D; T6, Type 4 and 4X

Class II, III, Division 1, Groups E, F, G; T6, Type 4 and 4X

Series YTE and YTP Thermocouple/RTD Temperature Assemblies:

Class I Division 1, Groups A, B, C, D; T6, Type 4X for YTA610 and YTA 710 Connection heads

Class I Division 1, Groups B, C, D; T6, Type 4X for YTA50, YTA70,*YTA110, YTA310, YTA320* Connection heads

Class II, III, Division 1, Groups E, F, G; T6, Type 4X

12. **Description of Equipment:**

The 1000, 4000, 5000, 6000, 7000 and 8000 RTD/Thermocouple assemblies consist of an explosionproof/ Dust Ignition –proof enclosure , an RTD or Thermocouple sensor assembly, a Thermowell and an optional 4-20MA transmitter.

The Series 1, 5 and 7 Junction Box consist of Threaded cover to base and two ½ “, ¾” NPT or M20X1.5 threaded entries. These junction Boxes can be constructed of A360 Aluminum Alloy or Stainless steel.

The Model DIH50-F Junction Box with Electronic Display is comprised of the exsisting FM Approved Series 5 Junction Box with the the existing FM Approved DIH50-B Display.

The Series TC10, TC12, TC15, TC50 and TC59 Thermocouple assemblies are comprised of existing FM Approved equipment which can include the Series 1000F Aluminum Junction Box, Series 1000S Stainless steel Junction Box, Series 8000W Auminum Junction Box or Series 8000W Aluminum Junction Box with the DIH50 display.

The Series TR10, TR12, TR15, TR50 and TR59 RTD assemblies are comprised of existing FM Approved equipment which can include the Series 1000F Aluminum Junction Box, Series 1000S Stainless steel Junction Box, Series 7000W Auminum Junction Box or Series 7000W Aluminum Junction Box with the DIH50 display.

The Models YTE, and YTP Thermocouple and RTD Assemblies consist of several available configurations of thermocouples/RTD sensors along with thermocouples, bushings, unions, nipples, and thermowells that were Approved under Project ID Nos. 3020280 and 3027913. The assemblies are available with Approved Termination heads under project ID Nos. 3020280 and 3027913. The YTA termination heads are FM Approved under Project ID Nos. 3002145 and 3056684. The purpose of this project is to add termination head model nos. YTA610 and YTA710 to the YTE and YTP Series. Electronics for Model Nos. YTP and YTE can be provided by Wika Instruments as Approved in FM Approval Project ID Nos. 3020280 and 3027913 or Yokogawa as Approved in FM Approval Project ID Nos. 3002145 and 3056684.

Operation Temperature Ranges:

**Series 1, 5, 7 Junction Box and Model DIH50-F Junction Box with Electronic Display:**
The maximum ambient operating temperature of these products is -25°C to 40°C .

**Series TC10, TR10, TC12, TR12, TC59 and TR59 Thermocouple assemblies:**
The maximum ambient operating temperature of these products is -25°C to 40°C .
The maximum process temperature is -50°C to +815°C. The Maximum working pressure is 1570 bar (22771

psi).

**Series TC15, TR15 TC50 and TR50 Thermocouple/RTD assemblies:**
The maximum ambient operating temperature of these products is -25°C to 40°C .
The maximum process temperature is -50°C to +815°C. The Maximum working pressure is 1570 bar (22771 psi).

**Series 1000, 4000, 5000, 6000, 7000 and 8000 Thermocouple/RTD assemblies:**
The maximum ambient operating temperature of these products is -25°C to 40°C .
The maximum process temperature is -50°C to +815°C. The Maximum working pressure is 1570 bar (22771 psi)

**Series YTE and YTP Thermocouple/RTD Temperature Assemblies:**
The maximum ambient operating temperature of these products is -25°C to 40°C .
The maximum process temperature is -50°C to +815°C. The Maximum working pressure is 1570 bar (22771 psi).

Electrical data:

**Series 1, 5, 7 Junction Box and Model DIH50-F Junction Box with Electronic Display:**
Max 30VDC, 20 mA or 24Vdc 4-20mA.

**Series TC10, TR10, TC12, TR12, TC59 and TR59 Thermocouple/RTD assemblies:**
Max 30VDC, 20 mA or 24Vdc 4-20mA.

**Series TC15, TR15 TC50 and TR50 Thermocouple/RTD assemblies:**
Max 30VDC, 20 mA or 24Vdc 4-20mA.

**Series 1000, 4000, 5000, 6000, 7000 and 8000 Thermocouple/RTD assemblies:**
Max 30VDC, 20 mA or 24Vdc 4-20mA.

**Series YTE and YTP Thermocouple/RTD Temperature Assemblies:**
Max 30VDC, 20 mA or 24Vdc 4-20mA.

***Series 1 Junction Box***
Head Material; Stainless Steel or Aluminum.
Threaded Entries 1⁄2" NPT, 3⁄4" NPT, or M20 x 1.5.

***Series 7 Junction Box***
Head Material; Stainless Steel or Aluminum
Threaded Entries 1⁄2 ” NPT, 3⁄4 ” NPT, or M20 x 1.5.

***Series 5 Junction Box***
Head Material; Stainless Steel or Aluminum.
Threaded Entries 1⁄2’’ NPT, 3⁄4’’ NPT, M20 × 1.5, or M24 x 1.5

***Model DIH50-F Junction Box With Electronic Display***
Head Material; Stainless Steel or Aluminum With FM Approved Electronic Display.

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Threaded Entries 1⁄2'' NPT, 3⁄4'' NPT, M20 × 1.5, or M24 x 1.5

***Series TC10-a-b-cdefgh-i-jklmn-o Thermocouple Assemblies, single or dual element***

a = Assembly Description (0=Industrial Assembly)
b = Unit of Measure (I=Imperial, M=Metric)
c = Insert Design (S=Self Gripping Spring, N=Fixed to the Fitting, D=Spring Loaded Plate)
d = Electrical Approval (F=FM Ex-proof)
e = Flame Path Fitting (1=Yes, Z=No)
f = Connection Head (5=1000F Aluminum, 6=1000S Stainless Steel, 4=8000W Aluminum, T=5/6000 Aluminum, with cover, U=5/6000 Aluminum with window in cover, V=5/6000 Stainless Steel with cover, W=5/6000 Stainless Steel with window in cover, Y=8000W aluminum with DIH50)
g = Cable Entry (S=1/2 NPT, F=3/4 NPT, T=M20x1.5)
h = Head Instrument Connection (S=1/2 NPT, F=3/4 NPT, T=M20x1.5)
i = Terminal Block / Transmitter (1=Crastin Terminal Block, 2=Ceramic Terminal Block, 3=T12 Transmitter, 6=T32 Transmitter, 7=T16 Transmitter, 9=T53 Transmitter, J= 248 Transmitter, K= 644 Transmitter, X=Without / Prepared for Transmitter)
j = Neck Extension (F=Nipple-Union-Nipple, E=Nipple, D=Fixed double threaded bushing, G=Fixed single threaded hex bushing, 5=Bushing with oil seal, L=Adjustable lock nut, C=Fixed single threaded hex bushing with additional fitting)
k = Neck material (G=Galvanized Steel, S=Stainless Steel 316)
l = Fitting Style (A=Fixed fitting threaded hex bushing, B=Compression fitting with SS ferrule)
m = Fitting Material (A=Stainless steel)
n = Thread Size (K=1/2 NPT, J=3/4 NPT, N=1/4 NPT)
o = Additional suffixes not affecting safety.

***Series TR10-a-b-cdefgh-i-jklmn-o RTD Assemblies, single or dual element***

a = Assembly Description (0=Industrial Assembly)
b = Unit of Measure (I=Imperial, M=Metric)
c = Insert Design (S=Self Gripping Spring, N=Fixed to the Fitting, D=Spring Loaded Plate)
d = Electrical Approval (F=FM Ex-proof)
e = Flame Path Fitting (1=Yes, Z=No)
f = Connection Head (1=4000F Aluminum, 2=4000S Stainless Steel, 3=7000W Aluminum, T=5/6000 Aluminum, with cover, U=5/6000 Aluminum with window in cover, V=5/6000 Stainless Steel with cover, W=5/6000 Stainless Steel with window in cover, Y=7000W aluminum with DIH50)
g = Cable Entry (S=1/2 NPT, F=3/4 NPT, T=M20x1.5)
h = Head Instrument Connection (S=1/2 NPT, F=3/4 NPT, T=M20x1.5)
i = Terminal Block / Transmitter (1=Crastin Terminal Block, 2=Ceramic Terminal Block, 3=T12 Transmitter, 4=T24 Transmitter, 5=T15 Transmitter, 6=T32 Transmitter, 9=T53 Transmitter, J= 248 Transmitter, K= 644 Transmitter, X=Without / Prepared for Transmitter)
j = Neck Extension (F=Nipple-Union-Nipple, E=Nipple, D=Fixed double threaded bushing, G=Fixed single threaded hex bushing, 5=Bushing with oil seal, L=Adjustable lock nut, C=Fixed single threaded hex bushing with additional fitting)
k = Neck material (G=Galvanized Steel, S=Stainless Steel 316)
l = Fitting Style (A=Fixed fitting threaded hex bushing, B=Compression fitting with SS ferrule)
m = Fitting Material (A=Stainless steel)
n = Thread Size (K=1/2 NPT, J=3/4 NPT, N=1/4 NPT)
o = Additional suffixes not affecting safety.

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***Series TC15-a-b-cdefgh-i Thermocouple Assemblies, single or dual element***
a = Assembly Description (0=Industrial Assembly)
b = Unit of Measure (I=Imperial, M=Metric)
c = Electrical Approval (F=FM Ex-proof)
d = Connection Head (5=1000F Aluminum, 6=1000S Stainless Steel, 4=8000W Aluminum, T=5/6000 Aluminum, with cover, U=5/6000 Aluminum with window in cover, V=5/6000 Stainless Steel with cover, W=5/6000 Stainless Steel with window in cover, Y=8000W aluminum with DIH50)
e = Cable Entry (S=1/2 NPT, F=3/4 NPT, T=M20x1.5)
f = Head Instrument Connection (S=1/2 NPT, F=3/4 NPT, T=M20x1.5)
g = Terminal Block / Transmitter (1=Crastin Terminal Block, 2=Ceramic Terminal Block, 3=T12 Transmitter, 6=T32 Transmitter, 7=T16 Transmitter, 9=T53 Transmitter, J= 248 Transmitter, K= 644 Transmitter, X=Without / Prepared for Transmitter)
h = Neck extension (1=Remote mount, 2=Remote mount with electrical cord grip)
i = Additional suffixes not affecting safety.

***Series TR15-a-b-cdefgh-i RTD Assemblies, single or dual element***
a = Assembly Description (0=Industrial Assembly)
b = Unit of Measure (I=Imperial, M=Metric)
c = Electrical Approval (F=FM Ex-proof)
d = Connection Head (1=4000F Aluminum, 2=4000S Stainless Steel, 3=7000W Aluminum, T=5/6000 Aluminum, with cover, U=5/6000 Aluminum with window in cover, V=5/6000 Stainless Steel with cover, W=5/6000 Stainless Steel with window in cover, Y=7000W aluminum with DIH50)
e = Cable Entry (S=1/2 NPT, F=3/4 NPT, T=M20x1.5)
f = Head Instrument Connection (S=1/2 NPT, F=3/4 NPT, T=M20x1.5)
g = Terminal Block / Transmitter (1=Crastin Terminal Block, 2=Ceramic Terminal Block, 3=T12 Transmitter, 4=T24 Transmitter, 5=T15 Transmitter, 6=T32 Transmitter, 9=T53 Transmitter, J= 248 Transmitter, K= 644 Transmitter, X=Without / Prepared for Transmitter)
h = Neck extension (1=Remote mount, 2=Remote mount with electrical cord grip)
i = Additional suffixes not affecting safety.

***Series TC50-a-b-cdefgh-i-jklmn-o Thermocouple Assemblies, single or dual element***
a = Process connection design (T=Washer, U=Magnet fixing, Q=Worm drive hose clamp, O=Metal contact block, P=Weld on sheet)
b = Sensor design (0=Straight, 4=45 degree bend, 9=90 degree bend)
c = Unit of measure (I=Imperial, M=Metric)
d = Electrical approval (FM Ex-proof Class 1, Division II)
e = Process connection (T0*, T1*, T2*, T3*, T4*, T5*, T6*, T7*, T8*, T9*, U1*, Q1*, Q2*, Q3*, Q4*, Q5*, Q6*, O1*, 2*, O3*, 04*, 05*, 06*, 07*, P1*, P2*) *=All selections defined by designated size (ie:LxWxH)
f = Process fixing material (P=316SS, J=Inc600, X=Iron, magnetic, Q=316SS Ti)
g = Sheath material (P=316SS, O=310SS, J=Inc600, T=446SS, I=HastelloyX, H=HastelloyC276, Q=316SS Ti)
h = Sensor diameter (1=1/4”, 4=3/16”, 2=1/8”, D=6.0mm, B=3.0mm)
i = Lead wire insulation (D=PVC armour over Teflon, G=Teflon armour over Teflon, B=Armoured Teflon, E=Teflon armour over fibreglass, A=Armoured fiberglass)
j = Termination (R=Connection head)
k = Termination accessories (F=Cord grip)

l = Connection Head (5=1000F Aluminum, 6=1000S Stainless Steel, 4=8000W Aluminum, T=5/6000 Aluminum, with cover, U=5/6000 Aluminum with window in cover, V=5/6000 Stainless Steel with cover, W=5/6000 Stainless Steel with window in cover, Y=8000W aluminum with DIH50)
m = Cable Entry (S=1/2 NPT, F=3/4 NPT, T=M20x1.5)
n = Terminal Block / Transmitter (1=Crastin Terminal Block, 2=Ceramic Terminal Block, 3=T12 Transmitter, 6=T32 Transmitter, 7=T16 Transmitter, 9=T53 Transmitter, J= 248 Transmitter, K= 644 Transmitter, X=Without / Prepared for Transmitter)
o = Additional suffixes not affecting safety.

***Series TR50-a-b-cdefgh-i-jklmn-o RTD Assemblies, single or dual element***
a = Process connection design (T=Washer, U=Magnet fixing, Q=Worm drive hose clamp, O=Metal contact block, P=Weld on sheet)
b = Sensor design (0=Straight, 4=45 degree bend, 9=90 degree bend)
c = Unit of measure (I=Imperial, M=Metric)
d = Electrical approval (FM Ex-proof Class 1, Division II)
e = Process connection (T0*, T1*, T2*, T3*, T4*, T5*, T6*, T7*, T8*, T9*, U1*, Q1*, Q2*, Q3*, Q4*, Q5*, Q6*, O1*, 2*, O3*, 04*, 05*, 06*, 07*, P1*, P2*) *=All selections defined by designated size (ie:LxWxH)
f = Process fixing material (P=316SS, J=Inc600, X=Iron, magnetic, Q=316SS Ti)
g = Sheath material (P=316SS, O=310SS, J=Inc600, T=446SS, I=HastelloyX, H=HastelloyC276, Q=316SS Ti)
h = Sensor diameter (1=1/4", 4=3/16", 2=1/8", D=6.0mm, B=3.0mm)
i = Lead wire insulation (D=PVC armour over Teflon, G=Teflon armour over Teflon, B=Armoured Teflon, E=Teflon armour over fibreglass, A=Armoured fiberglass)
j = Termination (R=Connection head)
k = Termination accessories (F=Cord grip)
l = Connection Head (1=4000F Aluminum, 2=4000S Stainless Steel, 3=7000W Aluminum, T=5/6000 Aluminum, with cover, U=5/6000 Aluminum with window in cover, V=5/6000 Stainless Steel with cover, W=5/6000 Stainless Steel with window in cover, Y=7000W aluminum with DIH50)
m = Cable Entry (S=1/2 NPT, F=3/4 NPT, T=M20x1.5)
n = Terminal Block / Transmitter (1=Crastin Terminal Block, 2=Ceramic Terminal Block, 3=T12 Transmitter, 4=T24 Transmitter, 5=T15 Transmitter, 6=T32 Transmitter, 9=T53 Transmitter, J= 248 Transmitter, K= 644 Transmitter, X=Without / Prepared for Transmitter)
o = Additional suffixes not affecting safety

***Series TC59-a-b-cdefgh-i-jklmn-opq-rst-u Thermocouple Assemblies, single or dual element***
a = Tubeskin type (V=V-Pad sensor, 1,2,3,4=V-Pad sensor with shield, W=Weld pad sensor, 5,6,7,8=Weld pad sensor with shield, S=Shroud sensor)
b = Mounting method (L=Longitudinal, R=right angle (weld pad only))
c = Unit of measure (I=Imperial, M=Metric)
d = Electrical approval (M=FM Ex-proof Class 1 Division I)
e = Flame path fitting (1=Yes)
f = Connection Head (5=1000F Aluminum, 6=1000S Stainless Steel, 4=8000W Aluminum, T=5/6000 Aluminum, with cover, U=5/6000 Aluminum with window in cover, V=5/6000 Stainless Steel with cover, W=5/6000 Stainless Steel with window in cover, Y=8000W aluminum with DIH50)
g = Cable Entry (S=1/2 NPT, F=3/4 NPT, T=M20x1.5)
h = Head Instrument Connection (S=1/2 NPT, F=3/4 NPT, T=M20x1.5)
i = Terminal Block / Transmitter (1=Crastin Terminal Block, 2=Ceramic Terminal Block, 3=T12

Transmitter, 6=T32 Transmitter, 7=T16 Transmitter, 9=T53 Transmitter, J= 248 Transmitter, K= 644 Transmitter, X=Without / Prepared for Transmitter)
j = Neck Extension (N=Nipple-Union-Gas seal, F=Nipple-Union-Nipple, 2=Remote mount with electrical cord grip, 3=Instrument compression fitting with SS ferrule, 4=Instrument compression fitting with Teflon ferrule)
k = Neck material (G=Galvanized steel, S=Stainless Steel 316)
l = Fitting Style (A=Fixed fitting threaded hex bushing, B=Compression fitting with SS ferrule)
m = Fitting Material (A=Stainless steel)
n = N-Dimension (010 = 1" thru 140=14", 025=25mm thru 350=350mm)
o = Furnace fitting size (1=1/2 NPT, 3=3/4 NPT, 4=1 NPT, 5=1 1/4 NPT, 6=1 1/2 NPT, 8=2 NPT)
p = Element (1=Type K, 5=Type N, 7=Type E, 3=Type J)
q = Number of sensors (1=Single, 2=Dual)
r = Classification tolerances (8=ISA standard, 9=ISA special)
s = Measuring point (2=Grounded, 1=Ungrounded)
t = Sensor diameter (1=1/4, 8=3/8, D=6.0mm, E=8.0mm)
u = Additional suffixes not affecting safety.

***Series TC59-a-b-cdefgh-i-jklmn-opq-rst-uvw-x Thermocouple Assemblies, single or dual element***
a = Tubeskin type (V=V-Pad sensor, 1,2,3,4=V-Pad sensor with shield, W=Weld pad sensor, 5,6,7,8=Weld pad sensor with shield, S=Shroud sensor)
b = Mounting method (L=Longitudinal, R=right angle (weld pad only))
c = Unit of measure (I=Imperial, M=Metric)
d = Electrical approval (M=FM Ex-proof Class 1 Division II)
e = Flame path fitting (Z=Without)
f = Connection Head (5=1000F Aluminum, 6=1000S Stainless Steel, 4=8000W Aluminum, T=5/6000 Aluminum, with cover, U=5/6000 Aluminum with window in cover, V=5/6000 Stainless Steel with cover, W=5/6000 Stainless Steel with window in cover, Y=8000W aluminum with DIH50)
g = Cable Entry (S=1/2 NPT, F=3/4 NPT, T=M20x1.5)
h = Head Instrument Connection (S=1/2 NPT, F=3/4 NPT, T=M20x1.5)
i = Terminal Block / Transmitter (1=Crastin Terminal Block, 2=Ceramic Terminal Block, 3=T12 Transmitter, 6=T32 Transmitter, 7=T16 Transmitter, 9=T53 Transmitter, J= 248 Transmitter, K= 644 Transmitter, X=Without / Prepared for Transmitter)
j = Neck Extension (2=Remote mount with electrical cord grip)
k = Neck material (G=Galvanized steel, S=Stainless Steel 316)
l = Fitting Style (A=Fixed fitting threaded hex bushing, B=Compression fitting with SS ferrule)
m = Fitting Material (A=Stainless steel)
n = N-Dimension (010 = 1", 025=25mm)
o = Furnace fitting size (1=1/2 NPT, 3=3/4 NPT, 4=1 NPT, 5=1 1/4 NPT, 6=1 1/2 NPT, 8=2 NPT)
p = Element (1=Type K, 5=Type N, 7=Type E, 3=Type J)
q = Number of sensors (1=Single, 2=Dual)
r = Classification tolerances (8=ISA standard, 9=ISA special)
s = Measuring point (2=Grounded, 1=Ungrounded)
t = Sensor diameter (1=1/4, 8=3/8, 4=3/16, D=6.0mm, E=8.0mm, R=10.0mm)
u = Sheath material (P=316SS, O=310SS, J=Inc600, T=446SS, I=HastelloyX, H=HastelloyC276, U=Pyrosil D)
v = Pad material (P=316SS, O=310SS, J=Inc600, T=446SS, I=HastelloyX, H=HastelloyC276, U=Pyrosil D)
w = Lead wire insulation (B=Armoured Teflon, A=Armoured fibreglass, G=Teflon armour over

Teflon, D=PVC armour over Teflon, E=Teflon Armour over fibreglass)
x = Additional suffixes not affecting safety.

***YTP-a-b-c-d-e-f-g. RTD/Thermocouple Temperature Assembly.***
a = Piping Standard: A or D.
b = Connection Head: NA, NB, M1, M2, S1, or S2.
c = Sensor Type: A, B, C (single only), D (single only), E, J, K, R, or T.
d = Sensor Style: 1, 2 (3 wire only), 3, 4, 5, or 6.
e = Extension Type (Nipple-Dimension): N (none), 3C, 6C, 3U, or 6U.
f = Sensor Length (Insertion Length): 040, 060, 090, 120, 150, 180, or XXX (where X is any integer between 0 and 9 representing inches)
g = Options: XXX (none), FF1, CF1, KF1, IEC, SCT, CM1, TT1, TT2, and/or UHT.

***YTE-a-b-c-d-e-f-g-h-i. RTD/Thermocouple Temperature Assembly.***
a = Piping Standard: A or D.
b = Connection Head: NA, NB, M1, M2, S1, or S2.
c = Sensor Type: A, B, C (single only), D (single only), E, J, K, R, or T.
d = Sensor Style: 1, 2 (3 wire only), 3, 4, 5, or 6.
e = Extension Type (Nipple-Dimension): N (none), 3C (3in. or 80mm), 4C, 6C (6in. or 150mm), 3U (3in. or 80mm), 4U, or 6U (6in. or 150mm).
f = Sensor Length (Insertion Length): 020, 040, 060, 080, 100, 120, 065, 075, 125, 150, 225, 300, or XXX (where X is any integer between 0 and 9 representing inches)
g = Process Connection: T, F, or W.
h = Thermowell Style: S, T, or R.
i = Options: XXX (none), FF1, CF1, KF1, IEC, SCT, M01, O2, CM1, TT1, TT2, TL3, TL6, FW, SSP, FFF, UHT, and/or 125.

**TC12-B-ABC-dde-f-gh2**
A = Electrical Approval: F (FM)
B = Ignition Protection type: D (Ex proof)
C = Zone / Division: 1 (Class 1, Division 1, Groups B, C, D )
dd = Head / Housing: 7F (7/8000, Aluminum, screw cover), 7S (7/8000, Stainless steel, screw cover), 5F (5/6000, Aluminum, screw cover), 5S (5/6000, Stainless steel, screw cover), 1F (1/4000, Aluminum, screw cover), 1S (1/4000, Stainless steel, screw cover), 7X (7/8000, Aluminum, screw cover with digital temp. Indicator DIH50-B), 7Y (7/8000, Stainless steel, screw cover with digital temp. Indicator DIH50-B), 5X (5/6000, Aluminum, screw cover with digital temp. Indicator DIH50-B), 5Y = 5/6000 (Stainless steel, screw cover with digital temp. Indicator DIH50-B), Y4 (YTA 610), Y5 (YTA 710)
e = Thread Size Cable Entry: B (1/2 NPT), A (M20 x 1.5), C (3/4 NPT), 2 (2x M20 x 1.5), 3 (2x 1/2 NPT), 4 (2x 3/4 NPT)
f = Transmitter: Z = without (terminal block), 3 (T12),6 (T32), 7 (T16), 9 (T53), X (without, prepared for transmitter-mounting, flying leads), 3 (T12)
g = Neck Design: T (Nipple-Union-Nipple), N (Fabricated neck tube)
h = Connection to Housing / Head: 1 (Male thread 1/2 NPT), A (Male thread M20 x 1, 5, with adjustable lock nut), 2 (Male thread 3/4 NPT)

**TC12-M-ABC-de**
A = Electrical Approval: F (FM)
B = Ignition Protection type: D (Ex proof)
C = Zone / Division: 1 (Class 1, Division 1, Groups B, C, D )

d = Neck Design: T (Nipple-Union-Nipple), N (Fabricated neck tube)
e = Connection to housing / Head: 1 (Male thread 1/2 NPT), A (Male thread M20 x 1, 5, with adjustable lock nut), 2 (Male thread 3/4 NPT)

**TR12-B-ABC-dde-f-gh**
A = Electrical Approval: F (FM)
B = Ignition Protection type: D (Ex proof)
C = Zone / Division: 1 (Class 1, Division 1, Groups B, C, D )
dd = Head / Housing: 7F (7/8000, Aluminum, screw cover), 7S (7/8000, Stainless steel, screw cover), 5F (5/6000, Aluminum, screw cover), 5S (5/6000, Stainless steel, screw cover), 1F (1/4000, Aluminum, screw cover), 1S (1/4000, Stainless steel, screw cover), 7X (7/8000, Aluminum, screw cover with digital temp. Indicator DIH50-B), 7Y (7/8000, Stainless steel, screw cover with digital temp. Indicator DIH50-B), 5X (5/6000, Aluminum, screw cover with digital temp. Indicator DIH50-B), 5Y = 5/6000 (Stainless steel, screw cover with digital temp. Indicator DIH50-B), Y4 (YTA 610), Y5 (YTA 710)
e = thread size cable entry: B (1/2 NPT), A (M20 x 1.5), C (3/4 NPT), 2 (2x M20 x 1.5), 3 (2x 1/2 NPT), 4 (2x 3/4 NPT)
f = Transmitter: Z (without terminal block), 3 (T12), 4 (T24), 6 (T32), 5 (T15), 9 (T53), X (without, prepared for transmitter-mounting, flying leads), 3 (T12), 4 (T24)
g = Neck design : T (Nipple-Union-Nipple), N (Fabricated neck tube)
h = Connection to housing / head: 1 (Male thread 1/2 NPT), A (Male thread M20 x 1, 5, with adjustable lock nut), 2 (Male thread 3/4 NPT)

**TR12-M-ABC-de**
A = Electrical Approval: F (FM)
B = Ignition Protection type: D (Ex proof)
C = Zone / Division: 1 (Class 1, Division 1, Groups B, C, D )
d = Neck Design : T (Nipple-Union-Nipple), N (Fabricated neck tube)
e = Connection to housing / Head: 1 (Male thread 1/2 NPT), A (Male thread M20 x 1, 5, with adjustable lock nut), 2 (Male thread 3/4 NPT)

***1a-1bcdWe Series 1000 Thermocouple Assemblies, single or dual element***
a = Model; AA, AB, AE, AF, AG, AH, AJ, AK, AL, AP, AR, TXE, TXF, TXG, TXH, TXK, TXR
b = Head Material; 1-Stainless Steel, 3-Aluminum
c = Instrument Connection; (1 = ½" NPT, 2 = M20 x 1.5, 3 = ¾" NPT)
d = Conduit Connection;( 1 = ½" NPT, 2 = M20 x 1.5, 3 = ¾" NPT)
e = Additional suffixes not affecting safety.

***4a-4bcdWe Series 4000 RTD Assemblies, single or dual element***
a = Model; AE, AF, AG, AH, AK, AP, AR, RXE, RXF, RXG, RXH, RXK, RXR
b = Head Material; 1-Stainless Steel, 3-Aluminum
c = Instrument Connection; (1 = ½" NPT, 2 = M20 x 1.5, 3 = ¾" NPT)
d = Conduit Connection; (1 = ½" NPT, 2 = M20 x 1.5, 3 = ¾" NPT)
e = Additional suffixes not affecting safety.

***a-5bcde Series 5000 Thermocouple Assemblies, single or dual element***
a = Model; AE, AF, AG, AK, AM, AP1, AP2, AP3, AP4, AP5, TXA, TXB, TXC, 7TXE, 7TXF, 7TXG, 7TXK
b = Head Material; 1-Stainless Steel, 3-Aluminum.
c = Instrument Connection; (1 = ½'' NPT, 2 = M20 × 1.5, 3 = ¾'' NPT, 4 = M24 x 1.5)
d = Conduit Connection; (1 = ½'' NPT, 2 = M20 × 1.5, 3 = ¾'' NPT, 4 = M24 x 1.5)

e = Additional suffixes not affecting safety.

***a-6bcde Series 6000 RTD Assemblies, single or dual element***
a = Model; AE, AF, AG, AK, AM, AP1, AP2, AP3, AP4, AP5, TXA, TXB, TXC, 7TXE, 7TXF, 7TXG, 7TXK.
b = Head Material; 1-Stainless Steel, 3-Aluminum.
c = Instrument Connection; (1 = ½'' NPT, 2 = M20 × 1.5, 3 = ¾'' NPT, 4 = M24 x 1.5).
d = Conduit Connection; (1 = ½'' NPT, 2 = M20 × 1.5, 3 = ¾'' NPT, 4 = M24 x 1.5)
e = Additional suffixes not affecting safety.

***a-7bcde Series 7000 RTD Assemblies, single or dual element***
a = Model; AE, AF, AG, AK, AM, AP1, AP2, AP3, AP4, AP5, TXA, TXB, TXC, 7TXE, 7TXF, 7TXG, 7TXK
b* = Head Material; 1-Stainless Steel, 3-Aluminum.
c = Instrument Connection; (1 = ½" NPT, 2 = M20 x 1.5, 3 = ¾" NPT)
d = Conduit Connection; (1 = ½" NPT, 2 = M20 x 1.5, 3 = ¾" NPT)
e = Additional suffixes not affecting safety.

***a-8bcde Series 8000 Thermocouple Assemblies, single or dual element***
a = Model; AE, AF, AG, AK, AM, AP1, AP2, AP3, AP4, AP5, TXA, TXB, TXC, 7TXE, 7TXF, 7TXG, 7TXK.
b* = Head Material; 1-Stainless Steel, 3-Aluminum.
c = Instrument Connection; (1 = ½" NPT, 2 = M20 x 1.5, 3 = ¾" NPT).
d = Conduit Connection; (1 = ½" NPT, 2 = M20 x 1.5, 3 = ¾" NPT)
e = Additional suffixes not affecting safety.

13. **Specific Conditions of Use:**

**For YTP**

*1. Option TT1 includes Transmitter Head Model Options: YTA110, YTA310, YTA320, YTA610 or YTA710.*
*2. Option TT2 includes Transmitter Head Model Options: YTA50, or YTA70.*
*3. The series YTP is rated as Explosionproof Class I, Division 1 Group ABCD T6 and Dustignitionproof Class II, Division 1, Groups EFG T6 Type 4 when used with Connection heads YTA610 or YTA710*

**For YTE**

*1. Option TT1 includes Transmitter Head Model Options: YTA110, YTA310, YTA320, YTA610 or YTA710.*
*2. Option TT2 includes Transmitter Head Model Options: YTA50, or YTA70.*
*3. The series YTE is rated as Explosionproof Class I, Division 1 Group ABCD T6 and Dustignitionproof Class II, Division 1, Groups EFG T6 Type 4 when used with Connection heads YTA610 or YTA710.*

14. **Test and Assessment Procedure and Conditions:**

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

15. **Schedule Drawings**

A copy of the technical documentation has been kept by FM Approvals.

# SCHEDULE

US Certificate Of Conformity No: FM17US0254X

16. **Certificate History**

Details of the supplements to this certificate are described below:

| Date | Description |
|---|---|
| 5th October 2005 | Original Issue. |
| 19th October 2017 | Supplement 10:<br>Report Reference: – Project ID 3062455 - Dated 19th October 2017.<br>Description of the Change: Update of listings to include Certificate number in listings, removal of P1 and P2 notation for plastic enclosures and increase of YTE and YTP to include Group A with added YTA610 and YTA710 Termination head for option TT1. Approval for WTE and WTP withdrawn. Update of certificate to new format. |
| 6th March 2019 | Supplement 11: .<br>Report Reference: – Project ID PR449053 - Dated 6th March 2019.<br>Description of the Change: Addition of Model TR/TC12 Series Temperature Probes. Conducted GAP analysis review of FM 3600, FM 3615 and FM 3810, no testing required, updated Certificate to the latest standards. |
| 8th November 2019 | Supplement 12: .<br>Report Reference: – Project ID RR220856 – Dated 8th November 2019.<br>Description of the Change: Addition of FM IS approved Model T15 & T16 Series transmitters and FM XP YTA 610 and the YTA 710 temperature transmitters for use with the TC12-B and TR12-12 assemblies. |