



Member of the FM Global Group

FM Approvals  
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# CERTIFICATE OF COMPLIANCE

## HAZARDOUS LOCATION ELECTRICAL EQUIPMENT PER CANADIAN REQUIREMENTS

This certificate is issued for the following equipment:

### **Model TTH200-ab, Temperature Transmitter**

IS/I,II,III/1/ABCDEFG/ T\*; - TTH200-L1P/F(IS) or TTH200-R1P/F(IS); Entity;  
I/O/Ex ia IIC; T\*- TTH200-L1P/F(IS) or TTH200-R1P/F(IS);  
NI/II/2/ABCD/ T\*; NI/2/II T\* = Ta = \*- TTH200-L1P/F(NI) or TTH200-R1P/F(NI); DIP/II,III/2/EFG T\*

a = Type of protection; L1, L2, R1 or R2.

b = Communication protocol; P or F.

#### Entity Parameters:

FISCO:  $U_i$  ( $V_{max}$ ) = 17.5V,  $I_i$  ( $I_{max}$ ) = 380mA,  $P_i$  ( $P_{max}$ ) = 5.32W,  $C_i$  = 5 nF,  $L_i$  = 10 $\mu$ H

Entity I.S.:  $U_i$  ( $V_{max}$ ) = 24V,  $I_i$  ( $I_{max}$ ) = 250mA,  $P_i$  ( $P_{max}$ ) = 1.2W,  $C_i$  = 5 nF,  $L_i$  = 10 $\mu$ H

#### Output Terminals (1, 2, 3, 4, 5 and 6)

Group AB:  $U_o$  ( $V_{oc}$ ) = 6.5V,  $I_o$  ( $I_{sc}$ ) = 25.0mA,  $P_o$  = 38mW,  $C_o$  ( $C_a$ ) = 1.55 $\mu$ F,  $L_o$  ( $L_a$ ) = 5mH

Group CD:  $U_o$  ( $V_{oc}$ ) = 6.5V,  $I_o$  ( $I_{sc}$ ) = 25.0mA,  $P_o$  = 38mW,  $C_o$  ( $C_a$ ) = 8.75 $\mu$ F,  $L_o$  ( $L_a$ ) = 5mH

#### Output Terminals (JP1)

$U_o$  ( $V_{oc}$ ) = 6.2V,  $I_o$  ( $I_{sc}$ ) = 65.2mA,  $P_o$  = 101mW,  $C_o$  ( $C_a$ ) = 1.4 $\mu$ F,  $L_o$  ( $L_a$ ) = 5mH

#### NonIncendive Field Wiring parameters

FISCO:  $U_i$  ( $V_{max}$ ) = 17.5V,  $I_i$  ( $I_{max}$ ) = 380mA,  $P_i$  ( $P_{max}$ ) = 5.32W

Entity I.S.:  $U_i$  ( $V_{max}$ ) = 24V,  $I_i$  ( $I_{max}$ ) = 250mA,  $P_i$  ( $P_{max}$ ) = 1.2W

#### Special Conditions of Use:

- 1 For Intrinsic Safety and Non Incendive Approvals the Temperature code and Ambient temperatures are as follows:

T\* = Temperature Code T6 for a Maximum Ambient Temperature of 56°C.

T\* = Temperature Code T5 for a Maximum Ambient Temperature of 71°C

T\* = Temperature Code T4 for a Maximum Ambient Temperature of 85°C.

- 2 The product will be required in a enclosure which fulfill the NEMA 4X Standard for Class II and III.

### **Model TTH300-ab, Temperature Transmitter**

IS/I,II,III/1/ABCDEFG/ T\*; - TTH300-L1P/F(IS) or TTH300-R1P/F(IS); Entity;  
I/O/Ex ia IIC; T\*- TTH300-L1P/F(IS) or TTH300-R1P/F(IS);  
NI/II/2/ABCD/ T\*; NI/2/II T\* = Ta = \*- TTH300-L1P/F(NI) or TTH300-R1P/F(NI);  
DIP/II,III/2/EFG T\*

a = Type of protection; L1, L2, R1 or R2.

b = Communication protocol; P or F.

Entity Parameters:

FISCO:  $U_i$  (Vmax) = 17.5V,  $I_i$  (Imax) = 380mA,  $P_i$  (Pmax) = 5.32W,  $C_i$  = 5 nF,  $L_i$  = 10 $\mu$ H  
 Entity I.S.:  $U_i$  (Vmax) = 24V,  $I_i$  (Imax) = 250mA,  $P_i$  (Pmax) = 1.2W,  $C_i$  = 5 nF,  $L_i$  = 10 $\mu$ H

Output Terminals (1, 2, 3, 4, 5 and 6)

Group AB:  $U_o$  (Voc) = 6.5V,  $I_o$  (Isc) = 25.0mA,  $P_o$  = 38mW,  $C_o$  (Ca) = 1.55 $\mu$ F,  $L_o$  (La) = 5mH  
 Group CD:  $U_o$  (Voc) = 6.5V,  $I_o$  (Isc) = 25.0mA,  $P_o$  = 38mW,  $C_o$  (Ca) = 8.75 $\mu$ F,  $L_o$  (La) = 5mH

Output Terminals (JP1)

$U_o$  (Voc) = 6.2V,  $I_o$  (Isc) = 65.2mA,  $P_o$  = 101mW,  $C_o$  (Ca) = 1.4 $\mu$ F,  $L_o$  (La) = 5mH

NonIncendive Field Wiring parameters

FISCO:  $U_i$  (Vmax) = 17.5V,  $I_i$  (Imax) = 380mA,  $P_i$  (Pmax) = 5.32W  
 Entity I.S.:  $U_i$  (Vmax) = 24V,  $I_i$  (Imax) = 250mA,  $P_i$  (Pmax) = 1.2W

Special Conditions of Use:

- 1 For Intrinsic Safety and Non Incendive Approvals the Temperature code and Ambient temperatures are as follows:

T\* = Temperature Code T6 for a Maximum Ambient Temperature of 56°C.  
 T\* = Temperature Code T5 for a Maximum Ambient Temperature of 71°C  
 T\* = Temperature Code T4 for a Maximum Ambient Temperature of 85°C.

- 2 The product will be required in a enclosure which fullfil the NEMA 4X Standard for Class II and III.

**Model TTR200-ab, Temperature Transmitter**

IS/I,II,III/1/ABCDEFGH/T\*; - TTR200\_TTR200-L6H(IS); Entity;  
 I/0/Ex ia/IIC; T\*- TTR200\_TTR200-L6H(IS);  
 NI/II/2/ABCD/T\*; NI/2/II T\* = Ta = \*- TTR200\_TTR200-L6H(NI).

a = Type of protection; L6, R6.

b = Communication protocol; P or F.

Entity Parameters:

FISCO:  $U_i$  (Vmax) = 17.5V,  $I_i$  (Imax) = 380mA,  $P_i$  (Pmax) = 5.32W,  $C_i$  = 5 nF,  $L_i$  = 10 $\mu$ H  
 Entity I.S.:  $U_i$  (Vmax) = 24V,  $I_i$  (Imax) = 250mA,  $P_i$  (Pmax) = 1.2W,  $C_i$  = 5 nF,  $L_i$  = 10 $\mu$ H

Sensor Terminals (1, 2, 3, 4, 5 and 6)

Group AB:  $U_o$  (Voc) = 6.5V,  $I_o$  (Isc) = 25.0mA,  $P_o$  = 38mW,  $C_o$  (Ca) = 1.55 $\mu$ F,  $L_o$  (La) = 5mH  
 Group CD:  $U_o$  (Voc) = 6.5V,  $I_o$  (Isc) = 25.0mA,  $P_o$  = 38mW,  $C_o$  (Ca) = 8.75 $\mu$ F,  $L_o$  (La) = 5mH

Display Connector

$U_o$  (Voc) = 6.2V,  $I_o$  (Isc) = 65.2mA,  $P_o$  = 101mW,  $C_o$  (Ca) = 1.4 $\mu$ F,  $L_o$  (La) = 5mH

NonIncendive Field Wiring parameters

FISCO:  $U_i$  (Vmax) = 17.5V,  $I_i$  (Imax) = 380mA,  $P_i$  (Pmax) = 5.32W  
 Entity I.S.:  $U_i$  (Vmax) = 24V,  $I_i$  (Imax) = 250mA,  $P_i$  (Pmax) = 1.2W

Special Conditions of Use:

1. For Intrinsic Safety and Non Incendive Approvals the Temperature code and Ambient temperatures are as follows:

T\* = Temperature Code T6 for a Maximum Ambient Temperature of 56°C.  
 T\* = Temperature Code T5 for a Maximum Ambient Temperature of 71°C  
 T\* = Temperature Code T4 for a Maximum Ambient Temperature of 85°C.

2. For a Class II,III rating the instrument is required to be mounted into an Class II, Class III rated enclosure that is compliant to ANSI/ISA 61010 standard.

**Model TTR300-ab, Temperature Transmitter**

IS/I,II,III/1/ABCDEF/ T\*; - TTR200\_TTR300-L6H(IS); Entity;  
 I/O/Ex ia/IIC; T\*- TTR200\_TTR300-L6H(IS);  
 NI/II/2/ABCD/ T\*; NI/2/II T\* = Ta = \*- TTR200\_TTR300-L6H(NI).

a = Type of protection; L6, R6.  
 b = Communication protocol; P or F.

Entity Parameters:

FISCO:  $U_i$  (Vmax) = 17.5V,  $I_i$  (Imax) = 380mA,  $P_i$  (Pmax) = 5.32W,  $C_i$  = 5 nF,  $L_i$  = 10 $\mu$ H  
 Entity I.S.:  $U_i$  (Vmax) = 24V,  $I_i$  (Imax) = 250mA,  $P_i$  (Pmax) = 1.2W,  $C_i$  = 5 nF,  $L_i$  = 10 $\mu$ H

Sensor Terminals (1, 2, 3, 4, 5 and 6)

Group AB:  $U_o$  (Voc) = 6.5V,  $I_o$  (Isc) = 25.0mA,  $P_o$  = 38mW,  $C_o$  (Ca) = 1.55 $\mu$ F,  $L_o$  (La) = 5mH  
 Group CD:  $U_o$  (Voc) = 6.5V,  $I_o$  (Isc) = 25.0mA,  $P_o$  = 38mW,  $C_o$  (Ca) = 8.75 $\mu$ F,  $L_o$  (La) = 5mH

Display Connector

$U_o$  (Voc) = 6.2V,  $I_o$  (Isc) = 65.2mA,  $P_o$  = 101mW,  $C_o$  (Ca) = 1.4 $\mu$ F,  $L_o$  (La) = 5mH

NonIncendive Field Wiring parameters

FISCO:  $U_i$  (Vmax) = 17.5V,  $I_i$  (Imax) = 380mA,  $P_i$  (Pmax) = 5.32W  
 Entity I.S.:  $U_i$  (Vmax) = 24V,  $I_i$  (Imax) = 250mA,  $P_i$  (Pmax) = 1.2W

Special Conditions of Use:

1. For Intrinsic Safety and Non Incendive Approvals the Temperature code and Ambient temperatures are as follows:

T\* = Temperature Code T6 for a Maximum Ambient Temperature of 56°C.

T\* = Temperature Code T5 for a Maximum Ambient Temperature of 71°C

T\* = Temperature Code T4 for a Maximum Ambient Temperature of 85°C.

2. For a Class II,III rating the instrument is required to be mounted into an Class II, Class III rated enclosure that is compliant to ANSI/ISA 61010 standard.

**Model TTF300-abcd, Temperature Transmitter**

IS/I,II,III/1/ABCDEF/ T\*; - TTF300-L1..P/F(IS) or TTF300-R1..P/F(IS); Entity;  
 I/O/AEx ia IIC; T\*- TTF300-L1..P/F(IS) or TTF300-R1..P/F(IS);  
 NI/II/2/ABCD/ T\*; NI/2/II T\* = Ta = \*- TTF300-L2..P/F(NI) or TTF300-R2..P/F(NI);  
 S/II,III/2/EFG T\*\*;  
 XP/II/ABCD/ T\*;  
 DIP/II,III/EFG/ T\*\*

a = Type of protection; L1, L2, L3,R1, R2 or R3.  
 b = Housing/Display; A or B or C or D.  
 c = Cable Entry; 1 or 2 or 3 or 4  
 d = Communication protocol; P or F.

Entity Parameters:

FISCO:  $U_i$  (Vmax) = 17.5V,  $I_i$  (Imax) = 380mA,  $P_i$  (Pmax) = 5.32W,  $C_i$  = 5 nF,  $L_i$  = 10 $\mu$ H  
 Entity I.S.:  $U_i$  (Vmax) = 24V,  $I_i$  (Imax) = 250mA,  $P_i$  (Pmax) = 1.2W,  $C_i$  = 5 nF,  $L_i$  = 10 $\mu$ H

Output Terminals (1, 2, 3, 4, 5 and 6)

Group AB:  $U_o$  (Voc) = 6.5V,  $I_o$  (Isc) = 25.0mA,  $P_o$  = 38mW,  $C_o$  (Ca) = 1.55 $\mu$ F,  $L_o$  (La) = 5mH  
 Group CD:  $U_o$  (Voc) = 6.5V,  $I_o$  (Isc) = 25.0mA,  $P_o$  = 38mW,  $C_o$  (Ca) = 8.75 $\mu$ F,  $L_o$  (La) = 5mH

Output Terminals (JP1)

$U_o$  (Voc) = 6.2V,  $I_o$  (Isc) = 65.2mA,  $P_o$  = 101mW,  $C_o$  (Ca) = 1.4 $\mu$ F,  $L_o$  (La) = 5mH

NonIncendive Field Wiring parameters

FISCO:  $U_i$  (Vmax) = 17.5V,  $I_i$  (Imax) = 380mA,  $P_i$  (Pmax) = 5.32W  
 Entity I.S.:  $U_i$  (Vmax) = 24V,  $I_i$  (Imax) = 250mA,  $P_i$  (Pmax) = 1.2W

Special Conditions of Use:



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- 1 For Intrinsic Safety and Non Incendive Approvals the Temperature code and Ambient temperatures are as follows:

T\* = Temperature Code T6 for a Maximum Ambient Temperature of 44°C.  
T\* = Temperature Code T5 for a Maximum Ambient Temperature of 56°C  
T\* = Temperature Code T4 for a Maximum Ambient Temperature of 84°C.

- 2 For Explosionproof and Dust-Ignitionproof Approvals the Temperature code and Ambient temperatures are as follows:

T\*\* = Temperature Code T6 for a Maximum Ambient Temperature of 56°C.  
T\*\* = Temperature Code T5 for a Maximum Ambient Temperature of 71°C  
T\*\* = Temperature Code T4 for a Maximum Ambient Temperature of 85°C.

### **Model TTF350-abcd, Temperature Transmitter**

IS/I,II,III/1/ABCDEFGH/T\*; - TTF350-L4..P/F(IS); Entity;  
I/O/Ex ia IIC; T\*-TTF350-L4..P/F;  
NI/II/2/ABCD/T\*; NI/2/II T\* = Ta = \*-TTF350-L5..P/F(NI) or TTF350-L5..P/F(NI); DIP/II,III/2/EFG T\*\*,  
XP/II/ABCD/T\*;  
DIP/II,III/EFG/T\*\*; Type 4X; IP66 IP67 TTF350-L3..(FM).

a = Type of protection; L3, L4, L5, R3, R4 or R5.

b = Housing/Display; N, or R.

c = Cable Entry; 5,6 or 8.

d = Communication protocol; P or F.

#### Entity Parameters:

FISCO:  $U_i$  (Vmax) = 17.5V,  $I_i$  (Imax) = 380mA,  $P_i$  (Pmax) = 5.32W,  $C_i$  = 5 nF,  $L_i$  = 10μH

Entity I.S.:  $U_i$  (Vmax) = 24V,  $I_i$  (Imax) = 250mA,  $P_i$  (Pmax) = 1.2W,  $C_i$  = 5 nF,  $L_i$  = 10μH

#### Output Terminals (1, 2, 3, 4, 5 and 6)

Group AB:  $U_o$  (Voc) = 6.5V,  $I_o$  (Isc) = 25.0mA,  $P_o$  = 38mW,  $C_o$  (Ca) = 1.55μF,  $L_o$  (La) = 5mH

Group CD:  $U_o$  (Voc) = 6.5V,  $I_o$  (Isc) = 25.0mA,  $P_o$  = 38mW,  $C_o$  (Ca) = 8.75μF,  $L_o$  (La) = 5mH

#### Output Terminals (JP1)

$U_o$  (Voc) = 6.2V,  $I_o$  (Isc) = 65.2mA,  $P_o$  = 101mW,  $C_o$  (Ca) = 1.4μF,  $L_o$  (La) = 51mH

#### NonIncendive Field Wiring parameters

FISCO:  $U_i$  (Vmax) = 17.5V,  $I_i$  (Imax) = 380mA,  $P_i$  (Pmax) = 5.32W,  $C_i$  = 5 nF,  $L_i$  = 10μH

Entity I.S.:  $U_i$  (Vmax) = 24V,  $I_i$  (Imax) = 250mA,  $P_i$  (Pmax) = 1.2W,  $C_i$  = 5 nF,  $L_i$  = 10μH

#### Special Conditions of Use:

- 1 For Intrinsic Safety and Non Incendive Approvals the Temperature code and Ambient temperatures are as follows:

T\* = Temperature Code T6 for a Maximum Ambient Temperature of 44°C.  
T\* = Temperature Code T5 for a Maximum Ambient Temperature of 56°C  
T\* = Temperature Code T4 for a Maximum Ambient Temperature of 84°C.

- 2 For Explosionproof and Dust-Ignitionproof Approvals the Temperature code and Ambient temperatures are as follows:

T\*\* = Temperature Code T6 for a Maximum Ambient Temperature of 56°C.  
T\*\* = Temperature Code T5 for a Maximum Ambient Temperature of 71°C  
T\*\* = Temperature Code T4 for a Maximum Ambient Temperature of 85°C.  
T\*\* = Temperature Code T3 for a Maximum Ambient Temperature of 120°C.

**Equipment Ratings:**

The TTH200-.P/F, TTH300-.P/F, TTF300-.P/F, TTF350-.P/F, TTR200-.P/F and TTR300-.P/F Profibus/Fieldbus Series Temperature Transmitters are FM Approved for Intrinsic Safety for Class I, II, III, Division 1, Groups A, B, C, D, E, F and G; Non Incendive for Class I, Division 2, Groups A, B, C, D and Suitable for Class II, III, Division 2, Groups E, and G when connected in conjunction with Control Drawings

In addition, the TTF300-.P/F, TTF350-.P/F Temperature Transmitter is FM Approved for Explosionproof For Class I, Division 1, Groups A, B, C and D and Dust-Ignition Proof for Class II, III, Division 1, Groups E, F and G Hazardous(classified ) Locations Indoors and Outdoors Type 4X, IP66, IP67.

**FM Approved for:**

ABB Automation Products GmbH  
Alzenau, Germany

This certifies that the equipment described has been found to comply with the following Approval Standards and other documents:

CSA C22.2 No.142	1992
CSA C22.2 No.157	1992
CSA C22.2 No.213	1987
CSA C22.2 No. 60529	2005
CSA C22.2 No 94	1976
CAN/ CSA E60079-0;00	2006
CAN/CSA E60079-11	2007

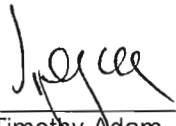
Original Project ID: 3037064

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**Subsequent Revision Reports / Date Approval Amended**

Report Number	Date	Report Number	Date
3037064	December 18, 2009		
3043465	March 16, 2012		
090328	May 5, 2012		

FM Approvals LLC

  
\_\_\_\_\_  
Timothy Adam  
Technical Team Manager

June 13, 2012  
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Date