



CSA INTERNATIONAL

# Certificate of Compliance

**Certificate:** 1807522

**Master Contract:** 190113

**Project:** 2342198

**Date Issued:** November 11, 2010

**Issued to:** ABB Automation Products GmbH

Borsigstrasse 2

Alzenau, 63755

Germany

Attention: Klaus-Juergen Zeiger

*The products listed below are eligible to bear the CSA Mark shown*



*Ron Wildish*

**Issued by:** Ron Wildish

## **PRODUCTS**

**CLASS 2258 02** - PROCESS CONTROL EQUIPMENT - For Hazardous Locations

**Class I, Div 1, Groups A, B, C and D; Class II, Div. 1, Groups E, F and G; Class III, Div. 1; Type 4X:**

Model TTF300-R3xxHx Series Temperature Transmitters; input rated 11-30 Vdc, 4-20 mA; Tamb: -50 Deg. C to + 85 Deg. C; Temp. Code T4 at Max Ambient 85 Deg C; T-Code T5 at Max Ambient 71 Deg C; Temp. Code T6 at Max Ambient 56 Deg C.

**CLASS 2258 03** - PROCESS CONTROL EQUIPMENT - Intrinsically Safe and Non-Incendive Systems - For Hazardous Locations

**Class I, Div 2, Groups A, B, C and D; Class II, Div. 2, Groups E, F and G; Class III, Div. 2; Type 4X:**

Model TTF300-R2xxHx Series Temperature Transmitters; input rated 11-30 Vdc, 4-20 mA; mounted in Div. 2 location and providing nonincendive circuits for Class I, Div. 2, to thermocouples, RTD's and passive-resistive switch devices, when installed per installation Dwg. 214827; Tamb: -50 Deg. C to + 85 Deg. C; Temp. Code T4 at Max Ambient 85 Deg C; T-Code T5 at Max Ambient 71 Deg C; Temp. Code T6 at Max Ambient 56 Deg C.

**Class I, Div 2, Groups A, B, C and D; Type 4X:**

Model TTF300-R2xxHx Series Temperature Transmitters; input rated 11-30 Vdc, 4-20 mA; non-incendive (terminals "+" and "-") with Entity input parameters of:  $V_{max}/U_i = 30V$ ,  $I_{max}/I_i = 130mA$ ,  $P_{max}/P_i = 0.8 W$ ,  $C_i = 5 nF$ ,  $L_i = 0.5 mH$ ; having output terminals (terminals 1-2-3-4-5-6) with entity output parameters of:  $V_{oc}/U_o = 6.5V$ ,  $I_{sc}/I_o = 25 mA$ ,  $P_o = 38 mW$ ,  $C_a/C_o = 1.55 \mu F$ ,  $L_a/L_o = 5.0 mH$ ; and having output terminals (terminals JP1) with entity output parameters of:  $V_{oc}/U_o = 6.2 V$ ,  $I_{sc}/I_o = 65.2 mA$ ,  $P_o = 101 mW$ ,  $C_a/C_o = 1.4 \mu F$ ,  $L_a/L_o = 5.0 mH$ ; when installed per installation Dwg. 214895; Tamb: -50 Deg. C to + 85 Deg. C; T-Code T4 at Max Ambient 85 Deg C; T-Code T5 at Max Ambient 71 Deg C; T-Code T6 at Max Ambient 56 Deg C.



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**Class I, Div 2, Groups A, B, C and D:**

Model TTH300-R2H Series Temperature Transmitters; input rated 11-30 Vdc, 4-20 mA; mounted in Div. 2 location and providing nonincendive circuits for Class I, Div. 2, to thermocouples, RTD's and passive-resistive switch devices, when installed per installation Dwg. 214824; Tamb: -50 Deg. C to + 85 Deg. C; Temp. Code T4 at Max Ambient 85 Deg C; T-Code T5 at Max Ambient 71 Deg C; Temp. Code T6 at Max Ambient 56 Deg C.

Model TTH200-R2H Series Temperature Transmitters; input rated 11-30 Vdc, 4-20 mA; mounted in Div. 2 location and providing nonincendive circuits for Class I, Div. 2, to thermocouples, RTD's and passive-resistive switch devices, when installed per installation Dwg. TTH200-R2H(1); Tamb: -50 Deg. C to + 85 Deg. C; Temp. Code T4 at Max Ambient 85 Deg C; T-Code T5 at Max Ambient 71 Deg C; Temp. Code T6 at Max Ambient 56 Deg C.

Model TTH300-R2H Series Temperature Transmitters; input rated 11-30 Vdc, 4-20 mA; non-incendive (terminals "+" and "-") with Entity input parameters of:  $V_{max}/U_i = 30V$ ,  $I_{max}/I_i = 130mA$ ,  $P_{max}/P_i = 0.8 W$ ,  $C_i = 5 nF$ ,  $L_i = 0.5 mH$ ; having output terminals (terminals 1-2-3-4-5-6) with entity output parameters of:  $V_{oc}/U_o = 6.5V$ ,  $I_{sc}/I_o = 25 mA$ ,  $P_o = 38 mW$ ,  $C_a/C_o = 1.55 \mu F$ ,  $L_a/L_o = 5.0 mH$ ; and having output terminals (terminals JP1) with entity output parameters of:  $V_{oc}/U_o = 6.2 V$ ,  $I_{sc}/I_o = 65.2 mA$ ,  $P_o = 101 mW$ ,  $C_a/C_o = 1.4 \mu F$ ,  $L_a/L_o = 5.0 mH$ ; when installed per installation Dwg. 214896; Tamb: -50 Deg. C to + 85 Deg. C; T-Code T4 at Max Ambient 85 Deg C; T-Code T5 at Max Ambient 71 Deg C; T-Code T6 at Max Ambient 56 Deg C.

Model TTH200-R2H Series Temperature Transmitters; input rated 11-30 Vdc, 4-20 mA; non-incendive (terminals "+" and "-") with Entity input parameters of:  $V_{max}/U_i = 30V$ ,  $I_{max}/I_i = 130mA$ ,  $P_{max}/P_i = 0.8 W$ ,  $C_i = 5 nF$ ,  $L_i = 0.5 mH$ ; having output terminals (terminals 1-2-3-4-5-6) with entity output parameters of:  $V_{oc}/U_o = 6.5V$ ,  $I_{sc}/I_o = 25 mA$ ,  $P_o = 38 mW$ ,  $C_a/C_o = 1.55 \mu F$ ,  $L_a/L_o = 5.0 mH$ ; and having output terminals (terminals JP1) with entity output parameters of:  $V_{oc}/U_o = 6.2 V$ ,  $I_{sc}/I_o = 65.2 mA$ ,  $P_o = 101 mW$ ,  $C_a/C_o = 1.4 \mu F$ ,  $L_a/L_o = 5.0 mH$ ; when installed per installation Dwg. TTH200-R2H(2); Tamb: -50 Deg. C to + 85 Deg. C; T-Code T4 at Max Ambient 85 Deg C; T-Code T5 at Max Ambient 71 Deg C; T-Code T6 at Max Ambient 56 Deg C.

Model TTR300-R6H Series Temperature Transmitters; input rated 11-30 Vdc, 4-20 mA; non-incendive (terminals "+" and "-") with Entity input parameters of:  $V_{max}/U_i = 30V$ ,  $I_{max}/I_i = 130mA$ ,  $P_{max}/P_i = 0.8 W$ ,  $C_i = 5 nF$ ,  $L_i = 0.5 mH$ ; having output terminals (terminals 1-2-3-4-5-6) with entity output parameters of:  $V_{oc}/U_o = 6.5V$ ,  $I_{sc}/I_o = 25 mA$ ,  $P_o = 38 mW$ ,  $C_a/C_o = 1.55 \mu F$ ,  $L_a/L_o = 5.0 mH$ ; and having output terminals (terminals JP1) with entity output parameters of:  $V_{oc}/U_o = 6.2 V$ ,  $I_{sc}/I_o = 65.2 mA$ ,  $P_o = 101 mW$ ,  $C_a/C_o = 1.3 \mu F$ ,  $L_a/L_o = 5.0 mH$ ; when installed per installation Dwg. TTR300-R6H(N.I.); Tamb: -50 Deg. C to + 85 Deg. C; T-Code T4 at Max Ambient 85 Deg C; T-Code T5 at Max Ambient 71 Deg C; T-Code T6 at Max Ambient 56 Deg C.

Model TTR200-R6H Series Temperature Transmitters; input rated 11-30 Vdc, 4-20 mA; non-incendive (terminals "+" and "-") with Entity input parameters of:  $V_{max}/U_i = 30V$ ,  $I_{max}/I_i = 130mA$ ,  $P_{max}/P_i = 0.8 W$ ,  $C_i = 5 nF$ ,  $L_i = 0.5 mH$ ; having output terminals (terminals 1-2-3-4-5-6) with entity output parameters of:  $V_{oc}/U_o = 6.5V$ ,  $I_{sc}/I_o = 25 mA$ ,  $P_o = 38 mW$ ,  $C_a/C_o = 1.55 \mu F$ ,  $L_a/L_o = 5.0 mH$ ; and having output terminals (terminals JP1) with entity output parameters of:  $V_{oc}/U_o = 6.2 V$ ,  $I_{sc}/I_o = 65.2 mA$ ,  $P_o = 101 mW$ ,  $C_a/C_o = 1.3 \mu F$ ,  $L_a/L_o = 5.0 mH$ ; when installed per installation Dwg. TTR200-R6H(N.I.); Tamb: -50 Deg. C to + 85 Deg. C; T-Code T4 at Max Ambient 85 Deg C; T-Code T5 at Max Ambient 71 Deg C; T-Code T6 at Max Ambient 56 Deg C.



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Note: Models TTH300, TTH200, TTR300 and TTR200 are open type units, Certified as a component for use only in other equipment where the suitability of the combination is to be determined by the authority having jurisdiction.

**CLASS 2258 04 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe Entity - For Hazardous Locations**

**Class I, Div. 1 & 2, Groups A, B, C and D; Class II, Div. 1 & 2, Groups E, F and G; Class III, Div. 1 & 2; Type 4X:**

**Ex ia IIC T4:**

Model TTF300-R1xxH Series Temperature Transmitters; input rated 11-30 Vdc, 4-20 mA; intrinsically safe (terminals “+” and “-”) with Entity input parameters of:  $V_{max}/U_i = 30V$ ,  $I_{max}/I_i = 130mA$ ,  $P_{max}/P_i = 0.8 W$ ,  $C_i = 5 nF$ ,  $L_i = 0.5 mH$ ; having output terminals (terminals 1-2-3-4-5-6) with entity output parameters of:  $V_{oc}/U_o = 6.5V$ ,  $I_{sc}/I_o = 25 mA$ ,  $P_o = 38 mW$ ,  $C_a/C_o = 1.55 \mu F$ ,  $L_a/L_o = 5.0 mH$ ; and having output terminals (terminals JP1) with entity output parameters of:  $V_{oc}/U_o = 6.2 V$ ,  $I_{sc}/I_o = 65.2 mA$ ,  $P_o = 101 mW$ ,  $C_a/C_o = 1.4 \mu F$ ,  $L_a/L_o = 5.0 mH$ ; when installed per installation Dwg. 214825;  $T_{amb}$ : -50 Deg. C to + 85 Deg. C; T-Code T4 at Max Ambient 85 Deg C; T-Code T5 at Max Ambient 71 Deg C; T-Code T6 at Max Ambient 56 Deg C.

**Class I, Div. 1 & 2, Groups A, B, C and D:**

**Ex ia IIC T4:**

Model TTH300-R1H Series Temperature Transmitters; input rated 11-30 Vdc, 4-20 mA; intrinsically safe (terminals “+” and “-”) with Entity input parameters of:  $V_{max}/U_i = 30V$ ,  $I_{max}/I_i = 130mA$ ,  $P_{max}/P_i = 0.8 W$ ,  $C_i = 5 nF$ ,  $L_i = 0.5 mH$ ; having output terminals (terminals 1-2-3-4-5-6) with entity output parameters of:  $V_{oc}/U_o = 6.5V$ ,  $I_{sc}/I_o = 25 mA$ ,  $P_o = 38 mW$ ,  $C_a/C_o = 1.55 \mu F$ ,  $L_a/L_o = 5.0 mH$ ; and having output terminals (terminals JP1) with entity output parameters of:  $V_{oc}/U_o = 6.2 V$ ,  $I_{sc}/I_o = 65.2 mA$ ,  $P_o = 101 mW$ ,  $C_a/C_o = 1.4 \mu F$ ,  $L_a/L_o = 5.0 mH$ ; when installed per installation Dwg. 214826;  $T_{amb}$ : -50 Deg. C to + 85 Deg. C; T-Code T4 at Max Ambient 85 Deg C; T-Code T5 at Max Ambient 71 Deg C; T-Code T6 at Max Ambient 56 Deg C.

Model TTH200-R1H Series Temperature Transmitters; input rated 11-30 Vdc, 4-20 mA; intrinsically safe (terminals “+” and “-”) with Entity input parameters of:  $V_{max}/U_i = 30V$ ,  $I_{max}/I_i = 130mA$ ,  $P_{max}/P_i = 0.8 W$ ,  $C_i = 5 nF$ ,  $L_i = 0.5 mH$ ; having output terminals (terminals 1-2-3-4-5-6) with entity output parameters of:  $V_{oc}/U_o = 6.5V$ ,  $I_{sc}/I_o = 25 mA$ ,  $P_o = 38 mW$ ,  $C_a/C_o = 1.55 \mu F$ ,  $L_a/L_o = 5.0 mH$ ; and having output terminals (terminals JP1) with entity output parameters of:  $V_{oc}/U_o = 6.2 V$ ,  $I_{sc}/I_o = 65.2 mA$ ,  $P_o = 101 mW$ ,  $C_a/C_o = 1.4 \mu F$ ,  $L_a/L_o = 5.0 mH$ ; when installed per installation Dwg. TTH200-R1H;  $T_{amb}$ : -50 Deg. C to + 85 Deg. C; T-Code T4 at Max Ambient 85 Deg C; T-Code T5 at Max Ambient 71 Deg C; T-Code T6 at Max Ambient 56 Deg C.

Model TTR300-R6H Series Temperature Transmitters; input rated 11-30 Vdc, 4-20 mA; intrinsically safe (terminals “+” and “-”) with Entity input parameters of:  $V_{max}/U_i = 30V$ ,  $I_{max}/I_i = 130mA$ ,  $P_{max}/P_i = 0.8 W$ ,  $C_i = 5 nF$ ,  $L_i = 0.5 mH$ ; having output terminals (terminals 1-2-3-4-5-6) with entity output parameters of:  $V_{oc}/U_o = 6.5V$ ,  $I_{sc}/I_o = 25 mA$ ,  $P_o = 38 mW$ ,  $C_a/C_o = 1.55 \mu F$ ,  $L_a/L_o = 5.0 mH$ ; and having output terminals (terminals JP1) with entity output parameters of:  $V_{oc}/U_o = 6.2 V$ ,  $I_{sc}/I_o = 65.2 mA$ ,  $P_o = 101 mW$ ,  $C_a/C_o = 1.3 \mu F$ ,  $L_a/L_o = 5.0 mH$ ; when installed per installation Dwg. TTR300-R6H(I.S.);  $T_{amb}$ : -50 Deg. C to + 85 Deg. C; T-Code T4 at Max Ambient 85 Deg C; T-Code T5 at Max Ambient 71 Deg C; T-Code T6 at Max Ambient 56 Deg C.



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Model TTR200-R6H Series Temperature Transmitters; input rated 11-30 Vdc, 4-20 mA; intrinsically safe (terminals “+” and “-”) with Entity input parameters of:  $V_{max}/U_i = 30V$ ,  $I_{max}/I_i = 130mA$ ,  $P_{max}/P_i = 0.8 W$ ,  $C_i = 5 nF$ ,  $L_i = 0.5 mH$ ; having output terminals (terminals 1-2-3-4-5-6) with entity output parameters of:  $V_{oc}/U_o = 6.5V$ ,  $I_{sc}/I_o = 25 mA$ ,  $P_o = 38 mW$ ,  $C_a/C_o = 1.55 \mu F$ ,  $L_a/L_o = 5.0 mH$ ; and having output terminals (terminals JP1) with entity output parameters of:  $V_{oc}/U_o = 6.2 V$ ,  $I_{sc}/I_o = 65.2 mA$ ,  $P_o = 101 mW$ ,  $C_a/C_o = 1.3 \mu F$ ,  $L_a/L_o = 5.0 mH$ ; when installed per installation Dwg. TTR200-R6H(I.S.);  $T_{amb}$ : -50 Deg. C to + 85 Deg. C; T-Code T4 at Max Ambient 85 Deg C; T-Code T5 at Max Ambient 71 Deg C; T-Code T6 at Max Ambient 56 Deg C.

Note: Model TTH300, TTH200, TTR300 and TTR200 are open type units, Certified as a component for use only in other equipment where the suitability of the combination is to be determined by the authority having jurisdiction.

#### NOMENCLATURE

##### Model TTH200-RaHb

a = Protection; 1 (Intrinsically Safe), 2 (Non-Incendive)

b = Configuration; BF, EM, SE, Z9

##### Model TTH300-RaHb

a = Protection; 1 (Intrinsically Safe), 2 (Non-Incendive)

b = Configuration; BF, BG, CS, EM, SE, Z9

##### Model TTF300-RabcHd

a = Protection; 1 (Intrinsically Safe), 2 (Non-Incendive), 3 (Explosion-Proof)

b = Housing/Display A, B, C, D

c = Cable Entry 1\*, 2, 3, 4\*

d = Configuration; BF, BG, CS, EM, K2, SE, T1, Z9

##### Model TTR200-R6Ha

a = Configuration; BF,EM,SE,Z9

##### Model TTR300-R6Ha

a = Configuration; BF,BG,CS,EM,SE,Z9

Note: \* Not allowed for the Div. 1 or Div. 2 installations under CLASS 2258 02

#### APPLICABLE REQUIREMENTS

CAN/CSA-C22.2 No. 0-M91 - General Requirements – Canadian Electrical Code, Part II



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C22.2 No. 25-1966 - Enclosures for Use in Class II, Groups E, F and G Hazardous Locations

C22.2 No. 30-M1986 - Explosion-Proof Enclosures for Use in Class I Hazardous Locations

CAN/CSA-C22.2 No. 94-M91 - Special Purpose Enclosures

C22.2 No. 142-M1987 - Process Control Equipment

CAN/CSA-C22.2 No. 157-92 - Intrinsically Safe and Non-Incendive Equipment for Use in Hazardous Locations

C22.2 No. 213-M1987 - Non-Incendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations

CAN/CSA-C22.2 No. 60079-0:07 - Electrical apparatus for explosive gas atmospheres - Part 0: General Requirements

CAN/CSA-E60079-11:02 - Electrical apparatus for explosive gas atmospheres - Part 11: Intrinsic Safety "i"