FM Approvals

Member of the FM Global Group

CERTIFICATE OF COMPLIANCE

HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT

This certificate is issued for the following equipment:

Model TTF300-abcd, Temperature Transmitter

IS / I,II,III / 1 / ABCDEFG / T* ; — SAP_214832; Entity;
I / 0 / AEx ia IIC; T*-SAP_214832;
NI / I / 2 / ABCD / T*; NI / 2 / II T* = Ta = *-SAP_214828; S / II,III / 2 / EFG T**,
XP / I / ABCD / T*; DIP / II,III / EFG / T**; Type 4X; IP66, IP67.

a = Type of protection; L1, L2 or L3.
b = Housing / Display; A, B, C, D.
c = Cable Entry; 1,2,3.Certificates CS
d = Communication protocol; H.

Entity Parameters:

Vmax = 30 V, Imax = 130 mA, Pmax = 0.8 W, Ci = 0.57 nF, Li = 500 µH

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

Group AB *Voc = 6.5 V, Isc = 25.0 mA, Po = 38 mW, Ca = 1.55 µF, La = 5 mH*
Group CD *Voc = 6.5 V, Isc = 25.0 mA, Po = 38 mW, Ca = 8.75 µF, La = 5 mH*

Output Terminals (JP1)

Voc = 6.2 V, Isc = 65.2 mA, Po = 101 mW, Ca = 1.4 µF, La = 5 mH

Nonincendive Field Wiring parameters

Vmax = 30 V, Imax = 130 mA, Pmax = 0.8 W

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.

Model TTH200-ab, Temperature Transmitter

IS / I,II,III / 1 / ABCDEFG / T* ; — TTH200-L1H; Entity;

To assure that this Approval is still valid, please refer to www.approvalguide.com

I / 0 / AEx ia IIC; T*-TTH200-L1H;
NI / I / 2 / ABCD / T*; NI / 2 / II T* = Ta = *-TTH200-L2H; S / II,III / 2 / EFG T*.

a = Type of protection; L1 or L2.
b = Communication Protocol; H.

Entity Parameters:
Vmax = 30 V, Imax = 130 mA, Pmax = 0.8 W, Ci = 0.57 nF, Li = 160 µH

Sensor Terminals (1, 2, 3, 4, 5 and 6)
Group AB *Voc = 6.5 V, Isc = 17.8 mA, Po = 29 mW, Ca = 1.55 µF, La = 5 mH*
Group CD *Voc = 6.5 V, Isc = 17.8 mA, Po = 29 mW, Ca = 8.75 µF, La = 5 mH*

Output Terminals (JP1)
Voc = 6.2 V, Isc = 65.2 mA, Po = 101 mW, Ca = 1.4 µF, La = 5 mH

Nonincendive Field Wiring parameters
Vmax = 30 V, Imax = 130 mA, Pmax = 0.8 W

Special Conditions of Use:

1. *The Model TTH200 must be used with an IP54 NRTL certified enclosure.*
2. *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.

Model TTH300-ab, Temperature Transmitter

IS / I,II,III / 1 / ABCDEFG / T* ; — SAP_214829; Entity;
I / 0 / AEx ia IIC; T*-SAP_214829;NI / I / 2 / ABCD / T*;
NI / 2 / II T* = Ta = *-SAP_214831; S / II,III / 2 / EFG T*.
a = Type of protection; L1 or L2.
b = Communication Protocol; H.

Entity Parameters:
Vmax = 30 V, Imax = 130 mA, Pmax = 0.8 W, Ci = 0.57 nF, Li = 500 µH

Output Terminals (1, 2, 3, 4, 5 and 6)
Group AB *Voc = 6.5 V, Isc = 25.0 mA, Po = 38 mW, Ca = 1.55 µF, La = 5 mH*
Group CD *Voc = 6.5 V, Isc = 25.0 mA, Po = 38 mW, Ca = 8.75 µF, La = 5 mH*

Output Terminals (JP1)
Voc = 6.2 V, Isc = 65.2 mA, Po = 101 mW, Ca = 1.4 µF, La = 5 mH

Nonincendive Field Wiring parameters
Vmax = 30 V, Imax = 130 mA, Pmax = 0.8 W

Special Conditions of Use:

1. *The Model TTH300 must be used with an IP54 NRTL certified enclosure.*
2. *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.

Model TTR200-ab, Temperature Transmitter

IS / I,II,III / 1 / ABCDEFG / T* ; — TTR200-L6H (IS);
Entity; I / 0 / AEx ia / IIC; T*- TTR200-L6H (IS);
NI / I / 2 / ABCD / T*; NI / 2 / II T* = Ta = *-TTR200-L6H (NI).

a = Type of protection; L6.
b = Communication protocol; H.

Entity Parameters:

Vmax = 30 V, Imax = 130 mA, Pmax = 0.8 W, Ci = 0.57 nF, Li = 160 µH

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

Group AB	*Voc = 6.5 V, Isc = 17.8 mA, Po = 29 mW, Ca = 1.55 µF, La = 5 mH*
Group CD	*Voc = 6.5 V, Isc = 17.8 mA, Po = 29 mW, Ca = 8.75 µF, La = 5 mH*

Display Connector

Voc = 6.2 V, Isc = 65.2 mA, Po = 101 mW, Ca = 1.4 µF, La = 5 mH

Nonincendive Field Wiring parameters

Vmax = 30 V, Imax = 130 mA, Pmax = 0.8 W

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 / ABCDEFG / T* ; — TTR300-L6H (IS); Entity;
I / 0 / AEx ia / IIC; T*- TTR300-L6H (IS);
NI / I / 2 / ABCD / T*; NI / 2 / II T* = Ta = *-TTR300-L6H (NI).

a = Type of protection; L6.
b = Communication protocol; H.

Entity Parameters:

Vmax = 30 V, Imax = 130 mA, Pmax = 0.8 W, Ci = 0.57 nF, Li = 500 µH

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

Group AB	*Voc = 6.5 V, Isc = 25.0 mA, Po = 38 mW, Ca = 1.55 µF, La = 5 mH*
Group CD	*Voc = 6.5 V, Isc = 25.0 mA, Po = 38 mW, Ca = 8.75 µF, La = 5 mH*

Display connector

Voc = 6.2 V, Isc = 65.2 mA, Po = 101 mW, Ca = 1.4 µF, La = 5 mH

Nonincendive Field Wiring parameters

Vmax = 30 V, Imax = 130 mA, Pmax = 0.8 W

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.*

Equipment Ratings:

The TTF300, TTH200, TTH300, TTR200 and TTR300 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, F, and G when connected in conjunction with the applicable Control Drawing.

In addition, the TTF300 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
Minden, Germany

To assure that this Approval is still valid, please refer to www.approvalguide.com

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

Class 3600	2011
Class 3610	2010
Class 3611	2004
Class 3615	2006
Class 3616	1989
ISAS12.00.01	2002
Class 3810	2005
Nema 250	2003
IEC60529	2004

Original Project ID: 3027610 Approval Granted: January 5, 2007

Subsequent Revision Reports / Date Approval Amended

Report Number	Date	Report Number	Date
070801	November 2, 2007		
3028938	December 10, 2007		
3031178	October 9, 2008		
3043465	March 16, 2012		
090328	May 5, 2012		
130607	June 11, 2013		
130619	January 27, 2014		
130603	November 19, 2014		
141210	January 22, 2015		

FM Approvals LLC

J. E. Marquedant
Manager, Electrical Systems

22 January 2015
Date

To assure that this Approval is still valid, please refer to www.approvalguide.com