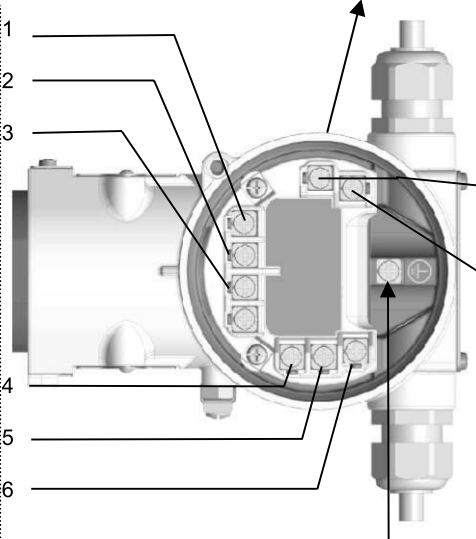
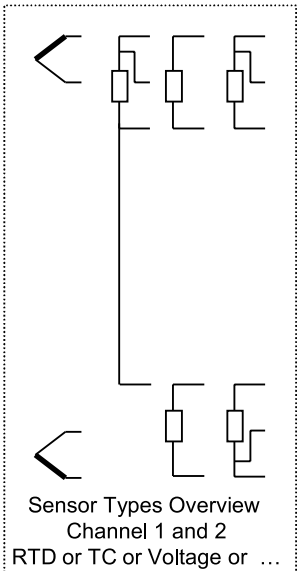


**Hazardous Location    Non – Hazardous Location**

**Sensors**  
must be FM approved or be a simple apparatus. Simple apparatus is a device which will neither generate nor store more than 1.5 V; 0.1 A; 25mW resp. 20 μJ such as switches, RTD's, TC.

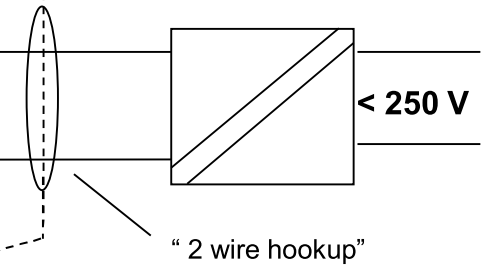


**Apparatus Input Values**  
I.S.  $V_{max} \leq 30.0 \text{ V DC}$  ;  
 $I_{max} \leq 130 \text{ mA}$  ;  $P_i \leq 0.8 \text{ W}$   
 $C_i = 3.5 \text{ nF}$   $L_i = 160 \mu\text{H}$

Heat-resistant connection cables shall be used if the temperature at the cable entries or inside the enclosure of the TTD300/TTD300-N temperature measuring transducer is higher than 60°C.

Ground terminal for shield support for sensors and supply / signal lines

**Barrier Galvanic Isolator**



**I.S. Sensor Field Circuit Entity Parameters**

$U_o = 6.5 \text{ V}$ ;  $I_o = 17.8 \text{ mA}$ ;  $P_o = 29 \text{ mW}$ ;  $C_i = 55 \text{ nF}$ ;  $L_i = \text{negligible}$

For passive sensors

IIC		IIB / IIC	
Lo / mH	Co / μF	Lo / mH	Co / μF
5	1.65	5	8.85

For active sensors with the following maximum values

$U_o = 1.2 \text{ V}$ ;  $I_o = 50 \text{ mA}$ ;  $P_o = 60 \text{ mW}$

IIC		IIB / IIC	
Lo / mH	Co / μF	Lo / mH	Co / μF
5	1.15	5	6.35

All other protection techniques, the electronic connection has the following values:

$U \leq 30 \text{ Vdc}$ ;  $I = 4 \dots 20 \text{ mA}$ ;  $P \leq 0.6 \text{ W}$

**Warning:**

Resistance between barrier ground and earth ground must be less than 1.0 Ohm.

**FM intrinsically safe field circuit approval**

Temp. Ident.: T6, T5 at  $T_{amb} = 56 \text{ °C}$ ;  
T4 ... T1 at  $T_{amb} = 85 \text{ °C}$ ;

Intrinsically Safe for Class I, II, III; Division 1, Groups A, B,C, D, E, F, G; T6, T4  
Zone 0, Ex ia IIC T6...T4 Ga  
Zone 20, Ex ia IIIC T85°...T100°C Da

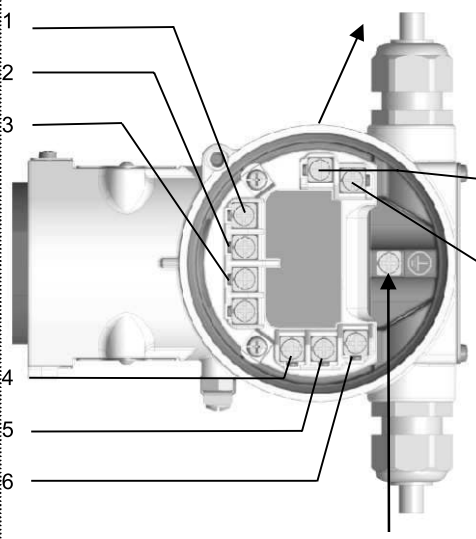
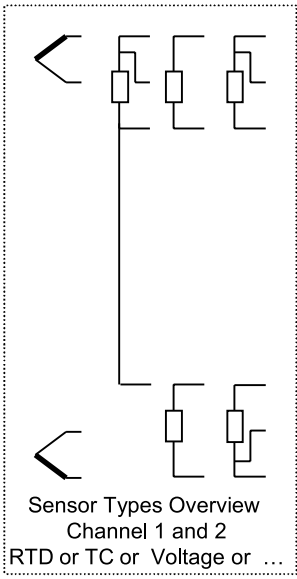
- Barrier or Galvanic Isolator must be FM approved (US) or listed for Canada (cFM/CSA) and must be installed in accordance with manufacturers instructions.
- Barrier or Galvanic Isolator parameters must meet the following Requirements :  
 $V_{oc} \text{ or } V_t \leq V_{max}$ ;  $C_a \leq C_i + C_{cable}$ ;  
 $I_{sc} \text{ or } I_t \leq I_{max}$ ;  $L_a \leq L_i + L_{cable}$   
 $P_o \text{ or } P_t \leq P_{max}$
- Maximum non - hazardous area voltage must not exceed 250V
- Install in accordance with the CE Code CSA C22.1 61010-1, or NEC (ANSI/NFPA 70) and ANSI/ISA RP12.06.01 " Part 1: Intrinsic Safety"

				<b>Do not alter without FM authorization</b>		Title: TTD300/TTD300-N HART		Scale: ----	
				Approv.		I.S. Dual Compartment Temperature Transmitter Control Drawing			
				Date		Name			
						Drawing / Part No.:		Page : of	
						TTD300/TTD300-N		1 / 4	
						3KXT065000G0023			
Rev.				Desc.		Date		Name	
								Replacement of: -----	

**Class I Division 2 Hazardous Location**

**Non – Hazardous Location**

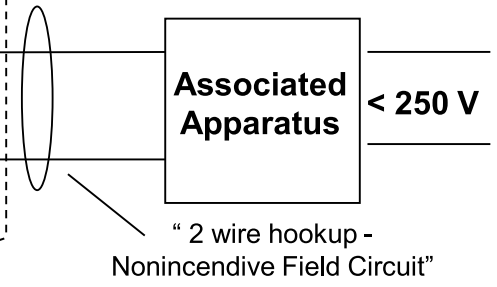
**Sensors**  
must be FM approved or be a simple apparatus. Simple apparatus is a device which will neither generate nor store more than 1.5 V; 0.1 A; 25mW resp. 20 μJ such as switches, RTD's, TC.



**Apparatus Input Values**  
N.I.  $U_s \leq 30V_{dc}$ ;  $I_s = 32mA$ ;  
 $P_i \leq 0.8W$ ;  $C_i = 3.5 nF$ ;  
 $L_i = 160\mu H$

Heat-resistant connection cables shall be used if the temperature at the cable entries or inside the enclosure of the TTD300/TTD300-N temperature measuring transducer is higher than 60°C.

Ground terminal for shield support for sensors and supply / signal lines



**Associated Apparatus**  
Nonincendive Parameters must meet the following Requirements :  
 $V_{oc} \text{ or } V_t \leq V_{max}$ ;  $C_a \leq C_i + C_{cable}$ ;  
 $I_{sc} \text{ or } I_t \leq I_{max}$ ;  $L_a \leq L_i + L_{cable}$   
The temperature transmitter is FM approved for nonincendive field circuits when installed per Canadian Electrical Code C22.1 Annex J18 or national electrical code (NEC) article 501-10(B)(3), 502-10(B)(4) or 503-10(B)(4) with FM approved nonincendive field circuit output apparatus which meet the parameters indicated above.

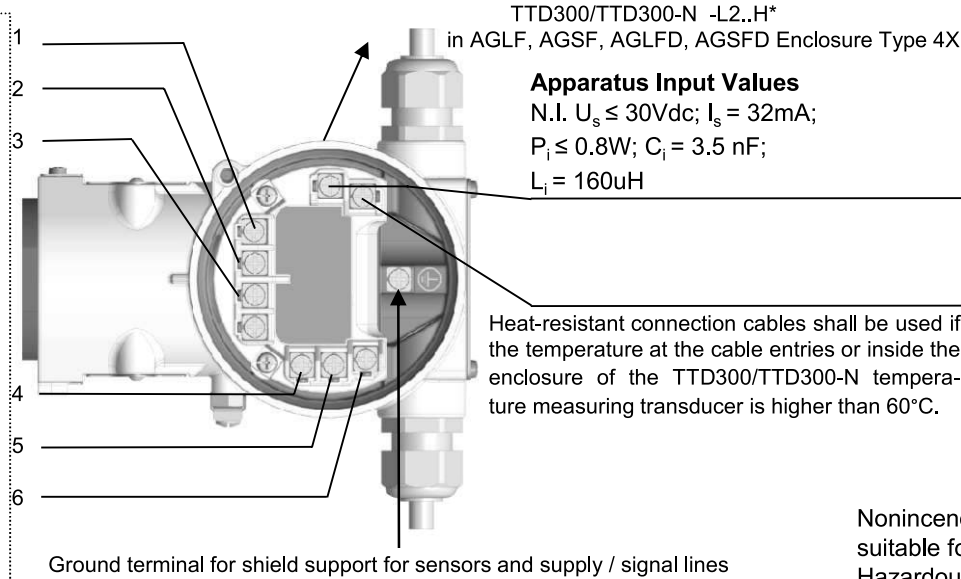
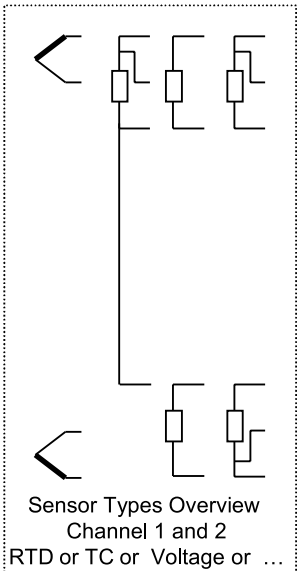
**Measuring circuit**  
 $U_o = 6.5V$ ;  $I_o = 17.8mA$ ;  $P_o = 29mW$

**FM Nonincendive field circuit approval**  
Temp. Ident.: T6, T5 at  $T_{amb} = 56^\circ C$ ;  
T4 ... T1 at  $T_{amb} = 85^\circ C$ ;  
Zone 2, Ex ec IIC T6...T4 Gc  
Class I Division 2, Groups A, B, C, D T6, T5, T4  
Class II, III, Division 2, Groups E, F, G, T6, T5, T4

				<b>Do not alter without FM authorization</b>	Title:		Scale:
					TTD300/TTD300-N HART N.I. Dual Compartment Temperature Transmitter Control Drawing		----
				Approv.			
				Date	Name		
				<b>ABB</b> Automation Products	Drawing / Part No.:		Page : of
					TTD300/TTD300-N 3KXT065000G0023		2 / 4
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Rev.	Desc.	Date	Name				

**Class I and II Division 2 Hazardous Location    Non – Hazardous Location**

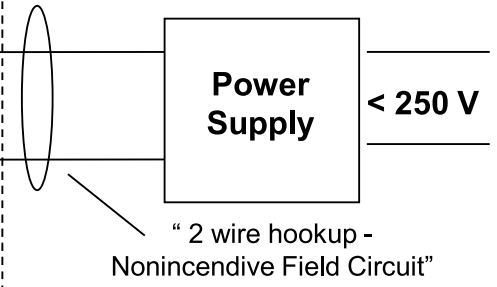
**Sensors**  
must be FM approved or be a simple apparatus. Simple apparatus is a device which will neither generate nor store more than 1.5 V; 0.1 A; 25mW resp. 20 μJ such as switches, RTD's, TC.



TTD300/TTD300-N -L2..H\*  
in AGLF, AGSF, AGLFD, AGSFD Enclosure Type 4X

**Apparatus Input Values**  
N.I.  $U_s \leq 30Vdc$ ;  $I_s = 32mA$ ;  
 $P_i \leq 0.8W$ ;  $C_i = 3.5 nF$ ;  
 $L_i = 160uH$

Heat-resistant connection cables shall be used if the temperature at the cable entries or inside the enclosure of the TTD300/TTD300-N temperature measuring transducer is higher than 60°C.



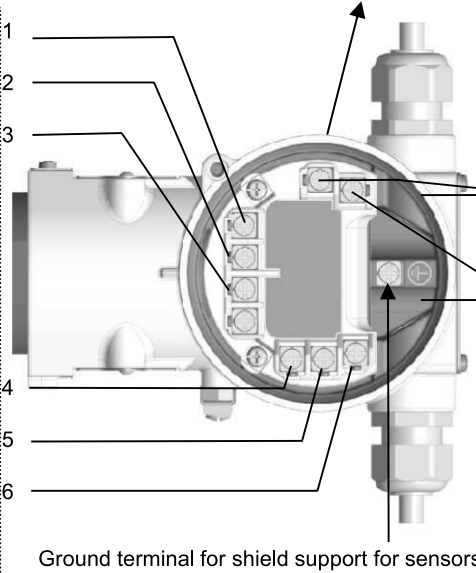
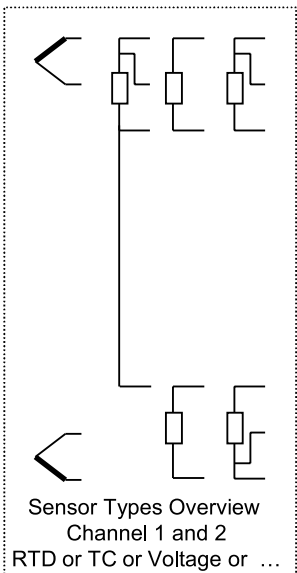
**Measuring circuit**  
 $U_o = 6.5V$ ;  $I_o = 17.8mA$ ;  $P_o = 29mW$

**FM Nonincendive field circuit approval**  
Temp. Ident.: T6, T5 at  $T_{amb} = 56 \text{ }^\circ C$ ;  
T4 ... T1 at  $T_{amb} = 85 \text{ }^\circ C$ ;  
Zone 2, Ex ec IIC T6...T4 Gc  
Class I Division 2, Groups A, B, C, D T6, T5, T4  
Class II, III, Division 2, Groups E, F, G, T6, T5, T4

- Nonincendive Class I Div. 2 Groups A, B, C, D and suitable for Class II and III Div.2 Groups E,F,G Hazardous Location Installations.
1. Install per National Electrical Code (NEC) or Canadian Electrical Code C22.1 annex J18 using Threaded Metal Conduit.
  2. Warning:  
Explosion Hazard – Do not disconnect equipment unless power has been switched off, or the area is known to be non-hazardous.  
Warning: Substitution of components may impair suitability for Class 1 Div. 2.
  3. A dust tight seal must be used at the conduit entry, when the transmitter is used in a Class II and III location.

				<b>Do not alter without FM authorization</b>	Title:		Scale:
					TTD300/TTD300-N HART N.I. Dual Compartment Temperature Transmitter Control Drawing		----
				Approv.			
				Date	Name		
						Drawing / Part No.:	
						TTD300/TTD300-N 3KXT065000G0023	
00		20240126	Stephanie-Yu	Replacement of: -----			
Rev.	Desc.	Date	Name				

**Sensors**  
must be FM approved or be a simple apparatus. Simple apparatus is a device which will neither generate nor store more than 1.5 V; 0.1 A; 25mW resp. 20 μJ such as switches, RTD's, TC.

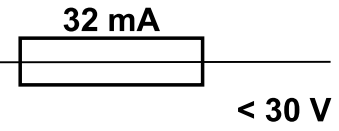


**Apparatus Input Values**  
 $V_{max} \leq 30.0 \text{ V DC}$  ;  
 $I_{max} \leq 32 \text{ mA (fused)}$

Heat-resistant connection cables shall be used if the temperature at the cable entries or inside the enclosure of the TTD300/TTD300-N temperature measuring transducer is higher than 60°C.

Ground terminal for shield support for sensors and supply / signal lines

**Hazardous Location    Non – Hazardous Location**



“ 2 wire hookup”

1. Maximum non - hazardous area voltage must not exceed 250V
2. Dust-tight conduit seal must be used when installed in Class II and Class III environments.
3. When connecting conduit to the enclosure use conduit hubs that have the same environmental rating as the enclosure.
4. Sensor Installation in accordance with the CE Code CSA C22.1 61010-1, or NEC (ANSI/NFPA 70) and ANSI/ISA RP12.06.01 “ Part 1: Intrinsic Safety’

**I.S. Sensor Field Circuit Entity Parameters**

$V_{oc} = 6.5 \text{ V}$ ;  $I_{sc} < 17.8 \text{ mA}$ ;  $P_o = 29 \text{ mW}$   
Terminals: 1,2,3,4: GP: A,B,C,D  $C_i = 55 \text{ nF}$ ;  $L_i = \text{negligible}$

**FM intrinsically safe field circuit approval**

Temp. Ident.: T6, T5 at  $T_{amb} = 56 \text{ }^\circ\text{C}$ ;  
T4 ... T1 at  $T_{amb} = 85 \text{ }^\circ\text{C}$ ;  
Intrinsically Safe for Class I, II, III; Division 1,  
Groups A, B, C, D, E, F, G; T6, T4  
Zone 0, Ex ia IIC T6...T4 Ga  
Zone 20, Ex ia IIIC T85°...T100°C Da

**Warning:**

Resistance between barrier ground and earth ground must be less then 1.0 Ohm.

				<b>Do not alter without FM authorization</b>		Title: TTD300/TTD300-N HART X.P. / I.S.-Output Dual Compartment Temperature Transmitter Control Drawing		Scale: -----	
				Approv.					
				Date		Name			
				<b>ABB</b> Automation Products		Drawing / Part No.:		Page : of	
						TTD300/TTD300-N 3KXT065000G0023		4 / 4	
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Rev.	Desc.	Date	Name						