

CERTIFICATE OF COMPLIANCE

HAZARDOUS LOCATION ELECTRICAL EQUIPMENT

This certificate is issued for the following equipment:

V157 abcdefghijklmnopqrst, 2010TD and 2010TA Pressure Transmitter.

IS//I1/ABCD/T* -A01M503V, Entity; Type 4X

I/O/AEx ia/ IIC /T* -A01M503V, Entity

T* = temperature code and Entity Parameters are dependent on ambient Temperature and listed within the table below:

Vmax = 30 V, Ci = 10.5nF, Li = 10µH			
Ambient Temperature	Temperature Code	I _{max}	P _I
85°C	T4	200mA	0.8W
70°C			1W
40°C	T5	25mA	0.75W
	T6		0.5W

- a = Type 12 (Transmitter 2010TD Differential Transmitter) or 13 (Transmitter 2010TA Absolute Transmitter).
- b = Communication H.
- c = Ranges(dp/pabs) A, B, C, D, E, G, L, M or N.
- d = Ranges pabs-sensor (second value only with 2010TD) 0 or 1.
- e = Measuring Sensor A, B, E, F, J, K, N, P, U or T.
- f = Process Flange (HP and LP sides identical) 1, 2, 3, 7, 8, 9, A, B, C, D, E, F, G or H.
- g = Process connection A, B, C, D or E.
- h = Bolts, flange O-rings 6, 7, 8 or 9.
- j = Amplifier Housing A, B, C, D, E, F, G, H, J, K, L, M or N.
- k = Function 5C9 or 5C1.
- l = Amplifier Housing Accessories 5C2, 5C4 or 5C5.
- m = Explosion protection 5A2 or 5A4.
- n = Oxygen Measurement 179.
- o = Brackets 142 or 144.
- p = Vent/drain plugs 395 or 396.
- q = Flange adapters 377
- r = Tag No. 5C8.
- s = Instruction manual Z2D or Z2E.
- t = Material certification 530, 531, 532, 533, 534, 535, 536, 537 or 150.

V157 abcdefghijklmnop. 2020TG and 2020TA Pressure Transmitters.

IS//I/1/ABCD/T* -A01M503V, Entity; Type 4X

I/O/AEx ia/ IIC /T* -A01M503V, Entity

T* = temperature code and Entity Parameters are dependent on ambient Temperature and listed within the table below:

Vmax = 30 V, Ci = 10.5nF, Li = 10µH			
Ambient Temperature	Temperature Code	I _{max}	P _i
85 °C	T4	200mA	0.8W
70 °C			1W
40 °C	T5	25mA	0.75W
	T6		0.5W

- a = Type 53 (Transmitter 2020TG Gage Pressure) or 54(Transmitter 2010TA Absolute Pressure).
- b = Communication H.
- c = Measuring Ranges B, C, D, F, G, H, K, L, M or O.
- d = Ranges pabs-sensor(second value only with 2010TD) 0 or 1.
- e = Measuring Sensor (ranges 60 mbar up to 600bar) 1, 2, 3, 4, 5, 6, A, B, C, D, E, F or G.
- f = Material Process connection A or B.
- g = Process connection A, B, C, D, E, F or G.
- h = Amplifier Housing A, B, C, D, E, F, G, H, J, K, L, M or N.
- j = Function 5C9 or 5C1.
- k = Amplifier Housing Accessories 5C2, 5C4 or 5C5 .
- l = Explosion Protection: 5A2, 5A4
- m = Mounting Bracket: 142 or 144
- n = Tag No.5C8.
- o = Instruction manual Z2D or Z2E.
- p = Material certification 530, 531, 532, 533, 534, 535, 536, 537 or 150.

Model V157 abcdefghijklmnopqrs. 2010TC Differential Pressure and Temperature Transmitter

IS//I/1/ABCD/T* -A01M503V, Entity; Type 4X

I/O/AEx ia/ IIC /T* -A01M503V, Entity

T* = temperature code and Entity Parameters are dependent on ambient Temperature and listed within the table below:

Vmax = 30 V, Ci = 10.5nF, Li = 10µH			
Ambient Temperature	Temperature Code	I _{max}	P _i
85 °C	T4	200mA	0.8W
70 °C			1W
40 °C	T5	25mA	0.75W

- a = Type 14.
- b = Communication H.
- c = Measuring ranges dp A, B, C, D, E, or G.
- d = Measuring ranges pabs-sensor(rated pressure) 2, 3, 4 or 5.
- e = Measuring sensor A, B, E, F, J, K, N, P, U or T.
- f = Process Flange, HP and LP sides identical J, L or M.
- g = Process Connection A, B, C or D.
- h = Bolts/Flange o-rings 6, 7, 8 or 9.
- j = Amplifier Housing A, B, C, D, E, F, G, H, J, K, L, M or N.
- k = Function 5C1 or 5C9.
- l = Explosion protection 5A2, 5A4.
- m = Mounting bracket 142 or 144.
- n = Vent / Drain plugs 395 396
- o = Flange adapter 377.

- p = Tag no. 5C8.
- q= Operating Manual Z2D or Z2E.
- r = Amplifier Housing Accessories 5C2, 5C4 or 5C5 .
- s = Material certification 530, 531, 532, 533, 534, 535, 536, 537 or 150.

26 abcdefghijlmnopqrst [u], 2600T Pressure Transmitter.

IS/I,II,III/1/ABCDEFGH/T*; - A01M503V Entity; Type 4X

I/O/AEx ia/ IIC //T*; Entity

T* = temperature code and Entity Parameters are dependent on ambient Temperature and listed within the table below:

Vmax = 30 V, Ci = 10.5nF, Li = 10µH			
Ambient Temperature	Temperature Code	I _{max}	P _i
85 °C	T4	200mA	0.8W
70 °C			1W
40 °C	T5	25mA	0.75W
	T6		0.5W

- a = Performance: 3, 5, 7, or 9
- b = Measuring type: A, B, C, D, J, G, or V
- c = Application: C, H, R, or S
- d = Upper Range Limit: A, C, D, F, L, N, R, U, V or Y.
- e = Static Pressure: 1, 2, 3, 4, M, Y, C, Z, T, or S
- f = TR Diaphragm & Fluid: N, A, S, J, E, G, U, B, H, P, F, K, Y, V, C, M, R, D or T
- g = Flange Material & Connection: A, B, C, D, E, F, G, H, L, P, Q, or R
- h = Connection Material & Type: B, T, N, A, P, V, Q, U, S, E, K, W, C, F, D, Z, Y, or R
- i = Connection Gasket: 5, 6, 8, or N
- j = High Side: Flange, Rating Size: A, B, D, E, G, H, J, K, M, N, P, Q, R, or S
- l = High Side: Flange Mat & Form: E, L, M, or N
- m = High Side EXT Size and Material: 1, 2, 3, 4, 5, 6, 9, or F
- n = High Side: Isolating Diaphragm: G; H; K; S; T; or Y
- o = High Side: Fill Fluid: H,N, P, S, V, or W
- p = Low Side Diaphragm & Fluid: N, A, S, P, F, K, Y, V, C, M, R, D, or T
- q = Low Side: Flanges & Connection: A, B, C, D, E, F, G, H, L, P, Q or R
- r = Bolts & Gasket: 1, 2, 3, 4, 5, 6, N, or R
- s = Electronic Housing: A, B, C, D, E, G, H, J, K, L, M, N, P, R, S, T, U, V, W, Y, or Z
- t = Communication: 1 or H
- u = Options (One or more): A1, A2, A3, B2, B4, C1, C2, C3, C4, C5, C6, C7, E4, E6, EA, EC, F1, H1, H2, H3, L1, M1, M2, M3, M4, P1, P2, P3, P4, Q1, Q2, S1, T1, T2, T3, T4, T5, T6, T7, T8, T9, U1, U2, U3, U4, V1, V2, V3, V4, V5, V6, V7, V8, V9,

Equipment Ratings:

Intrinsically safe for Class I,II,III Division1 Groups ABCDEFG,
 Nonincendive for Class I Division 2 Groups ABCD
 Suitable for Class II Division 2 Groups FG
 Indoor/Outdoor (TYPE 4X) Hazardous (Classified) Locations

FM Approved for:

ABB Automation Products
 Minden, Germany

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

Class 3600	1998
Class 3610	1999
Class 3810	2005
ISA-S12.0.01	1998
ANSI/NEMA 250	1991

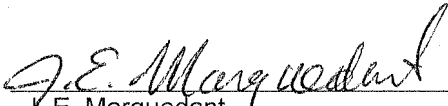
Original Project ID: 3010100

Approval Granted: November 26, 2001

Subsequent Revision Reports / Date Approval Amended

Report Number	Date	Report Number	Date
3014375	June 14, 2002		
061004	November 30, 2006		
090507	June 18, 2009		

FM Approvals LLC



J. E. Marquedant
Group Manager, Electrical

18 June 2009

Date

Intrinsically safe
 Class 1; Div 1; Groups A,B,C,D
 or
 Class 1; Zone 0; Group II C; AEx ia II C

Typ: 20.0TC Multivariable

Sensors must be FMRC approved or be a simple apparatus. Simple apparatus is a device which will neither generate or store more than 1.2V, 0.1A, 25mW, or 20pJ such as switches, RTD's, thermocouples, or LED's.

Supply and signal circuit (terminals signal +,-):

for temperature class T4
 $U_i = 30V$
 $I_i = 200mA$
 $P_i = 0.8W$ for T4 with $T_u = (-40...85)^\circ C$
 $P_i = 1.0W$ for T4 with $T_u = (-40...70)^\circ C$

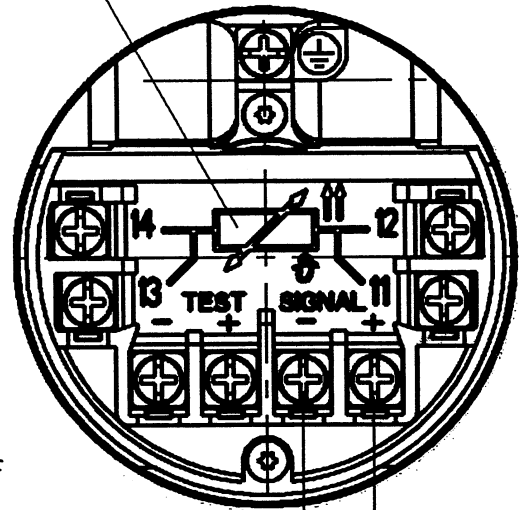
for temperature classes T5,T6
 $U_i = 30V$
 $I_i = 25mA$
 $P_i = 0.5W$ for T6 with $T_u = (-40...40)^\circ C$
 $P_i = 0.75W$ for T5 with $T_u = (-40...40)^\circ C$

Maximum internal capacitance $C_i = 10nF$
 Maximum internal inductance negligible

Connection terminals for temperature sensor
 Supply (terminals 12, 14) and signal circuit
 (terminals 11, 13):

for connection to passive, intrinsically safe sensor
 $U_o = 10.5V$
 $I_o = 1.5mA$
 $P_o = 4mW$

Maximum external capacitance: $C_o = 2.4\mu F$
 Maximum external inductance: $L_o = 1H$



Hazardous locations

Non-hazardous locations

Associated apparatus

- Barriers must be FM approved and must be installed in accordance with manufactures instructions.
- Barrier parameters must meet the following requirements:
 $U_o \leq U_i$
 $I_o \leq I_i$
 $P_o \leq P_i$
 $C_a \geq C_i + C_{cable}$
 $L_a \geq L_i + L_{cable}$
- Maximum non-hazardous area voltage must not exceed 250V.
- Install in accordance with the NEC (ANSI/NFPA 70) and ANSI/ISA RP12.6.
 "Installation of intrinsically safe systems" do not alter without FMRC authorization.

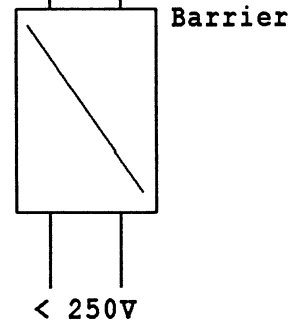


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 06. April 01

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TITLE:
Control Drawing
2000T HART

ABB Automation Products GmbH		DRAWN: Bartmann
		CHKD:
		APRV:
PART NO:	A 01 M 503 V	DATE: April 04 2001
		SMT 1 of 1 REV 01