

Control drawings for installations in hazardous locations that conform to US and Canadian standards



Last update: 01 February 2019

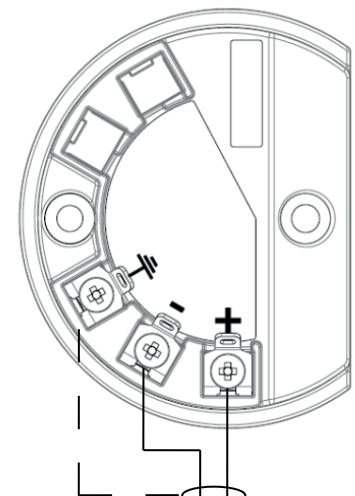
HAZARDOUS (CLASSIFIED) LOCATION

Class I/II/III, Div 1, GPS ABCDEFG
Class I, Zone 0, IIC
Zone 20, IIIC

**NON HAZARDOUS
(UNCLASSIFIED) LOCATION**

Approved Associated Apparatus
with Entity Parameters (see Note 4)

Entity Parameters:
 $U_i (V_{max}) = 30 \text{ V}$
 $I_i (I_{max}) = 130 \text{ mA}$
 $P_i (P_{max}) = 1.0 \text{ W}$
 $C_i = 10 \text{ nF}$
 $L_i = 0 \text{ }\mu\text{H}$



CONNECTIONS FOR ENTITY CONCEPT
OF 2 WIRES / 4...20 mA HART VERSION

- Notes:**
- 1) Installation shall be in accordance with ANSI / ISA-RP 12.06.01, "Installation of Intrinsically Safe Systems for Hazardous (classified) locations" and articles 500 to 510 of the National Electric Code ANSI / NFPA 70 for the U.S. and section 18 of the Canadian electrical code CSA 22.1 part 1 for Canada.
 - 2) No revision to this drawing without prior agency approval.
 - 3) If ambient temperature > 65°C, use heat-resistant cable certified for continuous operation above +80°C
 - 4) To determine proper matching of I.S. equipment and the maximum cable length use the following entity parameter matching formulas:
 $U_o (V_{ex}) \leq U_i (V_{max})$
 $I_o (I_{ex}) \leq I_i (I_{max})$
 $P_o \leq P_i (P_{max})$
 $C_o (C_a) \geq \Sigma C_i + \text{Cable}$
 $L_o (L_a) \geq \Sigma L_i + L_{cable}$
 - 5) Control equipment connected to the associated apparatus must not use or generate more than 250 Vrms or Vdc.
 - 6) Connect the earth terminal (internal or external) with a min. cable cross-section 4mm². The resistance between intrinsically safe ground and earth ground must be less than 1.0 Ω.
 - 7) For class II, III, use a dust tight seal at the conduit entry. For zones 21 and 22, use a cable gland rated 1P 6X at the housing cable entry.
 - 8) Avoid electrostatic charge of the plastic sun cover, the lens antenna, the flange plate protection and the slanted flange (e.g. do not install in a location where the electrostatic charge can increase, do not rub with dry cloth).
 - 9) Temperature Classes as a function of ambient temperature and process temperature (or process connection temperature) - see tables

DR6500/DR7500 without distance piece			
Temperature class	Max. surface temperature	Max. ambient temperature	Max. process temperature
T6	T85°C	+60°C	+60°C
		+48°C	+85°C
T5	T100°C	+75°C	+75°C
		+63°C	+100°C
T4	T130°C	+64°C	+115°C
		+55°C	+135°C
T3	T150°C	+49°C	+150°C

Temperature class	Max. surface temperature	Min. ambient temperature	Min. process temperature
All classes	All surface temperatures	-40°C	-40°C
		-35°C	-50°C ¹⁾

¹⁾ DR3500 is rated -40°C

DR6500/DR7500 with distance piece			
Temperature class	Max. surface temperature	Max. ambient temperature	Max. process temperature
T6	T85°C	60°C	60°C
		53°C	85°C
T5	T100°C	75°C	75°C
		68°C	100°C
T4	T135°C	70°C	115°C
		65°C	135°C
T3	T200°C	61°C	150°C
		53°C	180°C
		48°C	200°C

Temperature class	Max. surface temperature	Min. ambient temperature	Min. process temperature
All classes	All surface temperatures	-40°C	-40°C

The gasket temperatures must be in the approved limits. For more data, refer to the handbook.

Functional Ratings:

$V_{nom} = 12-30 \text{ V}$; $I_{nom} = 4-20 \text{ mA}$ or $3.8-20.5 \text{ mA}$, error 3.5 mA or 21.5 mA
These ratings do not supersede hazardous locations values.

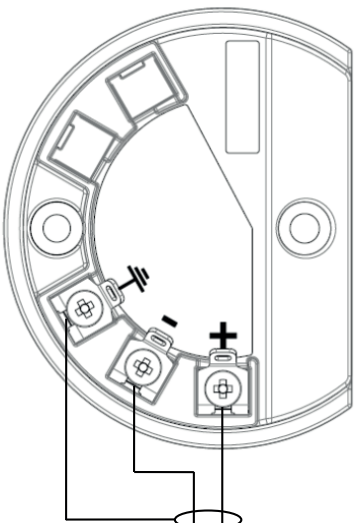
**FOR FURTHER LIMITATIONS
SEE INSTRUCTION MANUAL**

WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY
AVERTISSEMENT: LA SUBSTITUTION DE COMPOSANTS PEUT COMPROMETTRE LA SECURITE INTRINSEQUE

Rev	Mod	Nom	Cont	Norm	Homol.
	EMS-009638				
Engineer				General Tolerances	
Prod	ATH	12/17/2018	Edge of parts		
Cont	VPI	12/17/2018	Surface condition		
Norm			Material		
Homol.	ATH	12/17/2018			
CONTROL DRAWING				Code d'article	
DREXELBROOK				Doc. type	Doc. key
				APPR 4007321201	Rev
				Status	released

HAZARDOUS (CLASSIFIED) LOCATION

Class I/II/III, Div 1, GPS ABCDEFG
Class I, Zone 1, IIC
Zone 21, IIIC
Antenna suitable for zone 0 and zone 20

**NON HAZARDOUS
(UNCLASSIFIED) LOCATION**

Power supply (see Note 4)

CONNECTIONS OF 2 WIRES / 4...20 mA HART VERSION

Notes:

- 1) Installation shall be in accordance with articles 500 to 510 of the National Electric Code ANSI / NFPA 70 for the U.S. and section 18 of the Canadian electrical code CSA 22.1 part 1 for Canada.
- 2) No revision to this drawing without prior agency approval.
- 3) If ambient temperature > 65°C, use heat-resistant cable certified for continuous operation above +80°C
- 4) Power supply must not use or generate more than 250 Vrms or Vdc.
- 5) Cable entry must be sealed within 18" conduit of enclosure (divisions) or at the enclosure (zones).
- 6) Connect the earth terminal (internal or external) with a min. cable cross-section 4mm². The resistance between intrinsically safe ground and earth ground must be less than 1.0 Ω.
- 7) For class II, III, use a dust tight seal at the conduit entry. For zones 21 and 22, use a cable gland rated IP 6X at the housing cable entry.
- 8) Avoid electrostatic charge of the plastic sun cover, the hygienic antenna, the drop antenna, the flange plate protection, the extension protection and the slanted flange (e.g. do not install in a location where the electrostatic charge can increase, do not rub with dry cloth).
- 9) Temperature Classes as a function of ambient temperature and process temperature (or process connection temperature) - see tables

**FOR FURTHER LIMITATIONS
SEE INSTRUCTION MANUAL**

DR6500/DR7500 without distance piece			DR3500
Temperature class	Max. surface temperature	Max. ambient temperature	Max. process temperature

T6	T85°C	+60°C +48°C	+60°C +85°C
T5	T100°C	+75°C +63°C	+75°C +100°C
T4	T130°C	+64°C +55°C	+115°C +135°C
T3	T150°C	+49°C	+150°C

Temperature class	Max. surface temperature	Min. ambient temperature	Min. process temperature
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All classes	All surface temperatures	-40°C -35°C	-40°C -50°C ¹⁾
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¹⁾ DR3500 is rated -40°C

DR6500/DR7500 with distance piece

Temperature class	Max. surface temperature	Max. ambient temperature	Max. process temperature
T6	T85°C	60°C 53°C	60°C 85°C
T5	T100°C	75°C 68°C	75°C 100°C
T4	T135°C	70°C 65°C	115°C 135°C
T3	T200°C	61°C 53°C 48°C	150°C 180°C 200°C

Temperature class	Max. surface temperature	Min. ambient temperature	Min. process temperature
All classes	All surface temperatures	-40°C	-40°C

The gasket and antenna material temperatures must be in the approved limits. For more data, refer to the handbook.

Functional Ratings:

V_{nom} = 16-36 V; I_{nom} = 4-20 mA or 3.8-20.5mA, error 3.5 mA or 21.5 mA
These ratings do not supersede hazardous locations values.

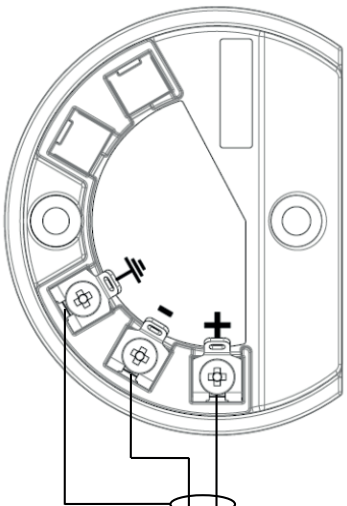
Rev	Mod	Nom	Cont	Norm	Homol.
	EMS-009638				
Engineer				General Tolerances	
Prod	ATH	12/17/2018	Edge of parts		
Cont	VPI	12/17/2018	Surface condition		
Norm			Material	Sensible Ex	
Homol.	ATH	12/17/2018			Ech Folio 1/1
CONTROL DRAWING				Code d'article	Rev
DREXELBROOK				Doc. type Doc. key	
				APPR 4007321701	-
				Status released	

HAZARDOUS (CLASSIFIED) LOCATION

Class I/II/III, Div 2, GPS ABCDFG

**NON HAZARDOUS
(UNCLASSIFIED) LOCATION**

Power supply (see Note 4)

CONNECTIONS FOR NON INCENDIVE CONCEPT
OF 2 WIRES / 4...20 mA HART VERSION**Notes:**

- 1) Installation shall be in accordance with articles 500 to 510 of the National Electric Code ANSI / NFPA 70 for the U.S. and section 18 of the Canadian electrical code CSA 22.1 part 1 for Canada.
- 2) No revision to this drawing without prior agency approval.
- 3) If ambient temperature > 65°C, use heat-resistant cable certified for continuous operation above +80°C
- 4) Intrinsic safety barrier not required. See functional ratings.
- 5) Connect the earth terminal (internal or external) with a min. cable cross-section 4mm². The resistance between intrinsically safe ground and earth ground must be less than 1.0 Ω.
- 6) For class II, III, use a dust tight seal at the conduit entry.
- 7) Avoid electrostatic charge of the plastic sun cover, the lens antenna, the flange plate protection and the slanted flange (e.g. do not install in a location where the electrostatic charge can increase, do not rub with dry cloth).
- 8) Temperature Classes as a function of ambient temperature and process temperature (or process connection temperature) - see tables

Functional Ratings: $V_{nom} = 12-30\text{ V}$; $I_{nom} = 4-20\text{ mA}$ or $3.8-20.5\text{ mA}$, error 3.5 mA or 21.5 mA**FOR FURTHER LIMITATIONS
SEE INSTRUCTION MANUAL**

DR3500			
DR6500/DR7500 without distance piece			
Temperature class	Max. surface temperature	Max. ambient temperature	Max. process temperature
T6	T85°C	+60°C	+60°C
T5	T100°C	+48°C	+85°C
T4	T130°C	+75°C	+75°C
T3	T150°C	+63°C	+100°C
		+64°C	+115°C
		+55°C	+135°C
		+49°C	+150°C
Temperature class	Max. surface temperature	Min. ambient temperature	Min. process temperature
All classes	All surface temperatures	-40°C	-40°C
		-35°C	-50°C ¹⁾
DR6500/DR7500 with distance piece			
Temperature class	Max. surface temperature	Max. ambient temperature	Max. process temperature
T6	T85°C	60°C	60°C
T5	T100°C	53°C	85°C
T4	T135°C	75°C	75°C
		68°C	100°C
T3	T200°C	70°C	115°C
		65°C	135°C
		61°C	150°C
		53°C	180°C
		48°C	200°C
Temperature class	Max. surface temperature	Min. ambient temperature	Min. process temperature
All classes	All surface temperatures	-40°C	-40°C

The gasket and antenna material temperatures must be in the approved limits.
For more data, refer to the handbook.

WARNING: EXPLOSIVE HAZARD. DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR AREA IS KNOWN TO BE NON-HAZARDOUS. SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR USE IN DIV. 2

AVERTISSEMENT: RISQUE D'EXPLOSION. AVANT DE DEBRANCHER L'EQUIPEMENT COUPEZ LE COURANT OU ASSUREZ-VOUS QUE L'EMPLACEMENT EST NON DANGEREUX. LA SUBSTITUTION DE COMPOSANTS PEUT RENDRE CE MATERIEL INACCEPTABLE POUR LA DIV 2

Rev	Mod	Nom	Cont	Norm	Homol.
	EMS-009638				
Engineer					
Prod	ATH	12/17/2018	General Tolerances		
Cont	VPI	12/17/2018	Edge of parts		
Norm			Surface condition		
Homol.	ATH	12/17/2018	Material		
CONTROL DRAWING			Sensible Ex		
DR3500/DR6500/DR7500			Ech		
NON INCENDIVE			Folio 1/1		
			Code d'article		
DREXELBROOK			Doc. type Doc. key		
			APPR 4007321901		
			Rev		
			Status released		



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