

Warning

D5072 series are isolated Intrinsically Safe Associated Apparatus located in Non Hazardous Locations or Class I, Division 2, Groups A, B, C, D, Temperature Code T4 and Class I, Zone 2, Group IIC, IIB, IIA Temperature Code T4 Hazardous Locations within the specified operating temperature limits Tamb -40 to +70 °C, and connected to equipment with a maximum limit for power supply Um of 250 Vrms or Vdc. The module must be installed in a controlled pollution degree 2 (as defined in IEC 60664-1), and when installed in Class I, Division 2 or Class I, Zone 2 Hazardous Locations, the module must be mounted in supplemental AEx or Ex enclosure providing at least IP54 degree protection in accordance with UL/CSA 60079-15, that must have a door or cover accessible only by the use of a tool. The end user is responsible to ensure that the operating temperature of the module is not exceeded in the end use application. Not to be connected to control equipment that uses or generates more than 250 Vrms or Vdc with respect to earth ground.

D5072 series must be installed, operated and maintained only by qualified personnel, in accordance to the relevant national/international installation standards (e.g. ANSI/ISA RP12.06.01 Installation of Intrinsically Safe System for Hazardous (Classified) Locations, National Electrical Code NEC ANSI/NFPA 70 Section 504 and 505, Canadian Electrical Code CEC) following the established installation rules, particular care shall be given to segregation and clear identification of I.S. conductors from non I.S. ones. Intrinsically safe circuits must be wired and separated in accordance with Article 504.20 of the National Electrical Code (ANSI/NFPA 70) or other local codes, as applicable.

De-energize power source (turn off power supply voltage) before plug or unplug the terminal blocks when installed in Hazardous Locations or unless area is known to be nonhazardous.

Warning: substitution of components may impair intrinsic safety. Avertissement: la substitution des composants peut nuire à la sécurité intrinsèque.

Explosion Hazard: to prevent ignition of flammable or combustible atmospheres, disconnect power before servicing or unless area is known to be nonhazardous.

Danger d'Explosion: pour prévenir une inflammation de l'atmosphère inflammable ou combustible, couper l'alimentation avant de réparer à moins de savoir que l'emplacement n'est pas dangereux.

Units must be protected against dirt, dust, extreme mechanical (e.g. vibration, impact and shock) and thermal stress, and casual contacts.

If enclosure needs to be cleaned use only a cloth lightly moistened by a mixture of detergent in water.

Electrostatic Hazard: to avoid electrostatic hazard, the enclosure of D5072 series must be cleaned only with a damp or antistatic cloth.

Danger électrostatique: pour éviter le danger électrostatique, l'enveloppe de la série D5072 doit être nettoyée au moyen d'un chiffon humide ou antistatique.

Any penetration of cleaning liquid must be avoided to prevent damage to the unit.

Failure to properly installation or use of the equipment may risk to damage the unit or severe personal injury.

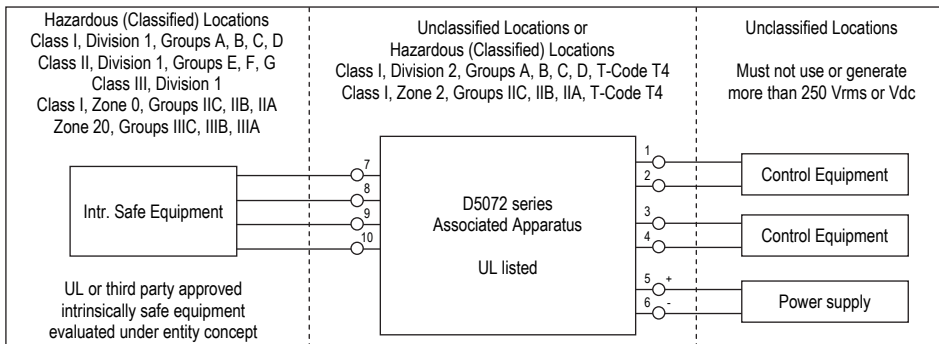
The unit cannot be repaired by the end user and must be returned to the manufacturer or his authorized representative. Any unauthorized modification must be avoided.

Safety Description

Proc. Cont. Eq. for use in Class I, Division 2, Groups A, B, C, D, Temperature Code T4; Class I, Zone 2, AEx nA [ja Ga] IIC T4 Gc and Class I, Zone 2, Ex nA [ja Ga] IIC T4 Gc X Hazardous Locations. Provides intrinsically safe circuits for use in Class I, Division 1, Groups A, B, C, D; Class II, Division 1, Groups E, F, G; Class III, Division 1 and Class I, Zone 0, Group IIC; Zone 20, Group IIIC Hazardous Locations.

Approvals: UL & C-UL E222308 conforms to UL 913, 8th Edition, Issued 2015-10-16; UL 121201, 9th Edition, Issued 2017-09-15; UL 60079-0, 6th Edition, Issued 2017-10-20; UL 60079-11, 6th Edition, Issued 2014-03-28; UL 60079-15, 4th Edition, Issued 2017-05-05 for UL and CSA C22.2 No. 213-17; CAN/CSA C22.2 No. 60079-0, 3rd Edition, Issued 2015-10-01; CAN/CSA C22.2 No. 60079-11, 2nd Edition, Issued 2014-02-01; CAN/CSA C22.2 No. 60079-15, Issued 2016-06-01 for C-UL.

D5072S, D5072S-099, D5072S-xxx



NOTE:

Connect only one individual conductor per each clamping point, use conductors up to 2.5 mm² and a torque value of 0.5-0.6 Nm. Use only cables that are suitable for a temperature of at least 85°C.

This associated apparatus may also be connected to simple apparatus as defined in Article 504.2 and installed and temperature classified in accordance with article 504.10(B) of the National Electrical Code (ANSI/NFPA 70), or other local codes, as applicable.

Where multiple circuits extend from the same piece of associated apparatus, they must be installed in separate cables or in one cable having suitable insulation. Refer to Article 504.30(B) of the National Electrical Code (ANSI/NFPA 70) and Instrument Society of America Recommended Practice ISA RP12.6 for installing intrinsically safe equipment.

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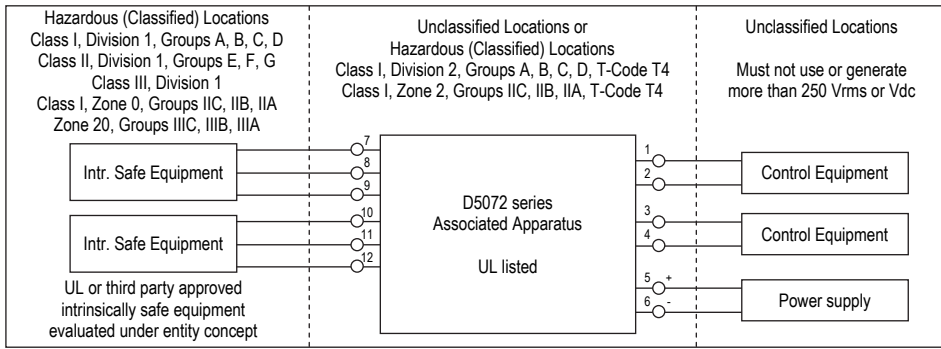
D5072 Terminals	Associated Apparatus Parameters	must be	Hazardous Area/Hazardous Locations Device Parameters
Ch1	U _o / V _{oc} = 7.2 V	≤	U _i / V _{max}
	I _o / I _{sc} = 23 mA	≤	I _i / I _{max}
	P _o / P _o = 40 mW	≤	P _i / P _i

The output current of this associated apparatus is limited by a resistor such that the output voltage-current plot is straight line drawn between open-circuit voltage and short-circuit current.

D5072 Terminals	Associated Apparatus Parameters	must be	Hazardous Area/Hazardous Locations Device Parameters
Ch1	U _i / V _{max} = 12.8 V	≥	U _o / V _{oc}
	C _i = 0 nF, L _i = 0 nH		

D5072 Terminals	Associated Apparatus Parameters	must be	Hazardous Area/Hazardous Locations Device + Cable Parameters
Ch1	Co / Ca = 13.5 μF Co / Ca = 240 μF Co / Ca = 1000 μF Co / Ca = 240 μF	≥	C _i / C _i device + C cable
	Lo / La = 71.3 mH Lo / La = 285.3 mH Lo / La = 570.6 mH Lo / La = 285.3 mH	≥	L _i / L _i device + L cable
	Lo / Ro = 893 μH/Ω Lo / Ro = 3573 μH/Ω Lo / Ro = 7147 μH/Ω Lo / Ro = 11726 μH/Ω	≥	L _i / R _i device and L cable / R cable

NOTE: for installations in which both the C_i and L_i of the Intrinsically Safe apparatus exceed 1 % of the Co/Ca and Lo/La parameters of the Associated Apparatus (excluding the cable), then 50 % of Co/Ca and Lo/La parameters are applicable and shall not be exceeded (50 % of the Co/Ca and Lo/La become the limits which must include the cable such that C_i device + C cable ≤ 50 % of Co/Ca and L_i device + L cable ≤ 50 % of Lo/La). The reduced capacitance of the external circuit (including cable) shall not be greater than 1 μF for Groups C, D / IIA, IIB and 600 nF for Group A, B / IIC. Capacitance and inductance of the field wiring from the intrinsically safe equipment to the associated apparatus shall be calculated and must be included in the system calculations as shown in the entity parameters table. If the cable parameters are unknown, the following may be used: capacitance 60 pF per foot (200 pF per meter), inductance 0.20 μH per foot (1 μH per meter).



NOTE:

Connect only one individual conductor per each clamping point, use conductors up to 2.5 mm² and a torque value of 0.5-0.6 Nm. Use only cables that are suitable for a temperature of at least 85°C.

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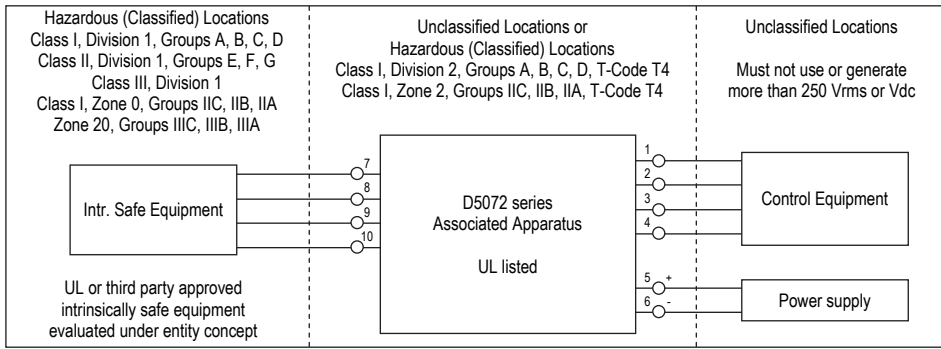
D5072 Terminals		Associated Apparatus Parameters	must be	Hazardous Area/ Hazardous Locations Device Parameters
Ch1	7-8-9	U _o / V _{oc} = 7.2 V	≤	U _i / V _{max}
		I _o / I _{sc} = 16 mA	≤	I _i / I _{max}
Ch2	10-11-12	P _o / P _o = 27 mW	≤	P _i / P _i

The output current of this associated apparatus is limited by a resistor such that the output voltage-current plot is straight line drawn between open-circuit voltage and short-circuit current.

D5072 Terminals		Associated Apparatus Parameters	must be	Hazardous Area/ Hazardous Locations Device Parameters
Ch1	7-8-9	U _i / V _{max} = 12.8 V	≥	U _o / V _{oc}
Ch2	10-11-12	C _i = 0 nF, L _i = 0 nH		

D5072 Terminals		Associated Apparatus Parameters		must be	Hazardous Area/ Hazardous Locations Device + Cable Parameters
Ch1 Ch2	7-8-9 10-11-12	Co / Ca = 13.5 μF	IIC (A, B)	≥	C _i / C _i device + C cable
		Co / Ca = 240 μF	IIB (C)		
		Co / Ca = 1000 μF	IIA (D)		
		Co / Ca = 240 μF	IIIC (E, F, G)		
		Lo / La = 155.4 mH	IIC (A, B)	≥	L _i / L _i device + L cable
		Lo / La = 621.7 mH	IIB (C)		
		Lo / La = 1243.5 mH	IIA (D)		
		Lo / La = 621.7 mH	IIIC (E, F, G)		
		Lo / R _o = 1318 μH/Ω	IIC (A, B)	≥	L _i / R _i device and L cable / R cable
		Lo / R _o = 5275 μH/Ω	IIB (C)		
		Lo / R _o = 10551 μH/Ω	IIA (D)		
		Lo / R _o = 5275 μH/Ω	IIIC (E, F, G)		

NOTE: for installations in which both the C_i and L_i of the Intrinsically Safe apparatus exceed 1 % of the C_o/C_a and L_o/L_a parameters of the Associated Apparatus (excluding the cable), then 50 % of C_o/C_a and L_o/L_a parameters are applicable and shall not be exceeded (50 % of the C_o/C_a and L_o/L_a become the limits which must include the cable such that C_i device + C cable ≤ 50 % of C_o/C_a and L_i device + L cable ≤ 50 % of L_o/L_a). The reduced capacitance of the external circuit (including cable) shall not be greater than 1 μF for Groups C, D / IIA, IIB and 600 nF for Group A, B / IIC. Capacitance and inductance of the field wiring from the intrinsically safe equipment to the associated apparatus shall be calculated and must be included in the system calculations as shown in the entity parameters table. If the cable parameters are unknown, the following may be used: capacitance 60 pF per foot (200 pF per meter), inductance 0.20 μH per foot (1 μH per meter).



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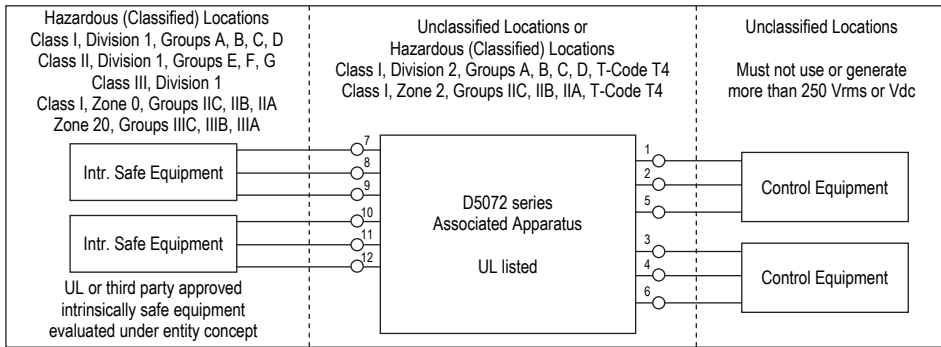
D5072 Terminals		Associated Apparatus Parameters	must be	Hazardous Area/ Hazardous Locations Device Parameters
Ch1	7-8-9-10	U _o / V _{oc} = 7.2 V	≤	U _i / V _{max}
		I _o / I _{sc} = 23 mA	≤	I _i / I _{max}
		P _o / P _o = 40 mW	≤	P _i / P _i

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D5072 Terminals		Associated Apparatus Parameters		must be	Hazardous Area/ Hazardous Locations Device + Cable Parameters
Ch1	7-8-9-10	Co / Ca = 13.5 μF	IIC (A, B) IIB (C) IIA (D) IIIC (E, F, G)	≥	C _i / C _i device + C cable
		Co / Ca = 240 μF			
		Co / Ca = 1000 μF			
		Lo / La = 71.3 mH	IIC (A, B) IIB (C) IIA (D) IIIC (E, F, G)	≥	L _i / L _i device + L cable
		Lo / La = 285.3 mH			
		Lo / La = 570.6 mH			
		Lo / Ro = 893 μH/Ω	IIC (A, B) IIB (C) IIA (D) IIIC (E, F, G)	≥	L _i / R _i device and L cable / R cable
		Lo / Ro = 3573 μH/Ω			
		Lo / Ro = 7147 μH/Ω			
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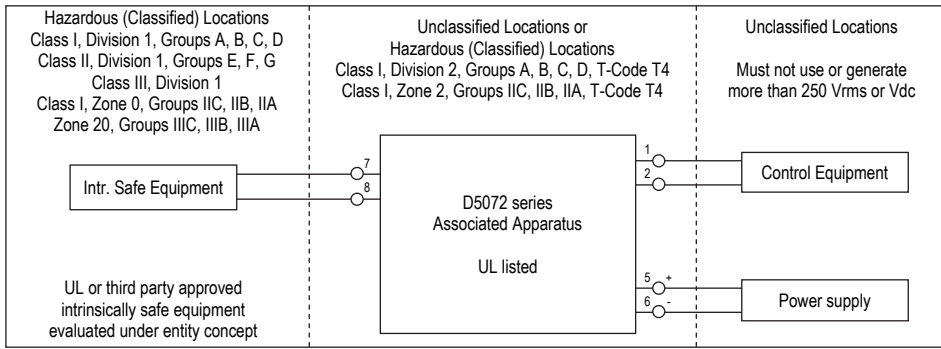
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Ch1	7-8-9	U _o / V _{oc} = 7.2 V	≤	U _i / V _{max}
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D5072 Terminals		Associated Apparatus Parameters		must be	Hazardous Area/ Hazardous Locations Device + Cable Parameters
Ch1 Ch2	7-8-9 10-11-12	Co / Ca = 13.5 μF	IIC (A, B)	≥	C _i / C _i device + C cable
		Co / Ca = 240 μF	IIB (C)		
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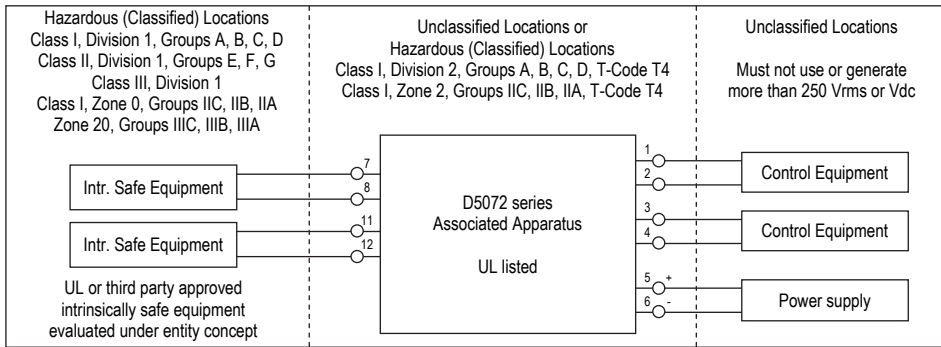
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Ch1	7-8	$U_o / V_{oc} = 7.2 V$	\leq	U_i / V_{max}
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		$P_o / P_o = 40 mW$	\leq	P_i / P_i

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Ch1	7-8	$C_o / C_a = 13.5 \mu F$	IIC (A, B) IIB (C) IIA (D) IIIC (E, F, G)	\geq	$C_i / C_i \text{ device} + C \text{ cable}$
		$C_o / C_a = 240 \mu F$			
		$C_o / C_a = 1000 \mu F$			
		$L_o / L_a = 71.3 mH$	IIC (A, B) IIB (C) IIA (D) IIIC (E, F, G)	\geq	$L_i / L_i \text{ device} + L \text{ cable}$
		$L_o / L_a = 285.3 mH$			
		$L_o / L_a = 570.6 mH$			
		$L_o / R_o = 893 \mu H/\Omega$	IIC (A, B) IIB (C) IIA (D) IIIC (E, F, G)	\geq	$L_i / R_i \text{ device and } L \text{ cable} / R \text{ cable}$
		$L_o / R_o = 3573 \mu H/\Omega$			
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