

Warning

D5212 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.

D5212 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 D5212 series must be cleaned only with a damp or antistatic cloth.

Danger électrostatique: pour éviter le danger électrostatique, l'enveloppe de la série D5212 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.

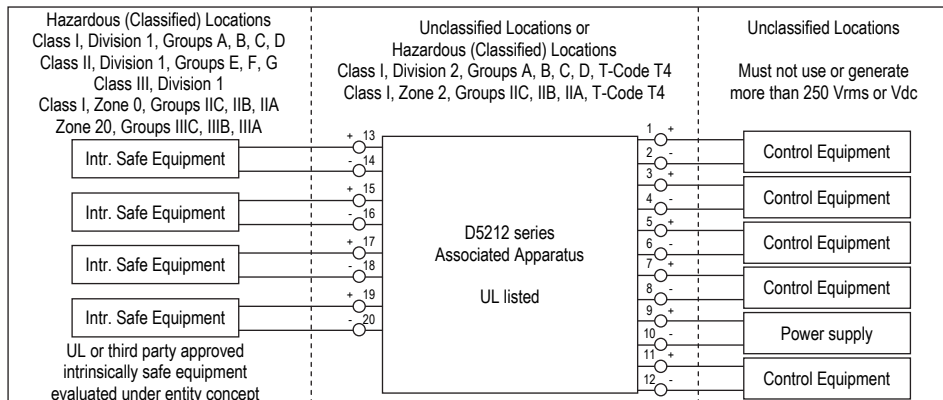
The unit cannot be repaired by the end user and must be returned to the manufacturer or his authorized representative. Any unauthorized modification must be avoided.

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.

Connections for Loop Powered Transmitters



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.

This associated apparatus has not been evaluated for use in combination with another associated apparatus.

Isolation in accordance with UL/CSA 60079-11 clause 6.3.13 is not provided between separate intrinsically safe circuits. Isolation in accordance with UL/CSA 60079-11 clause 6.3.13 is provided between non-intrinsically safe circuits and intrinsically safe circuits.

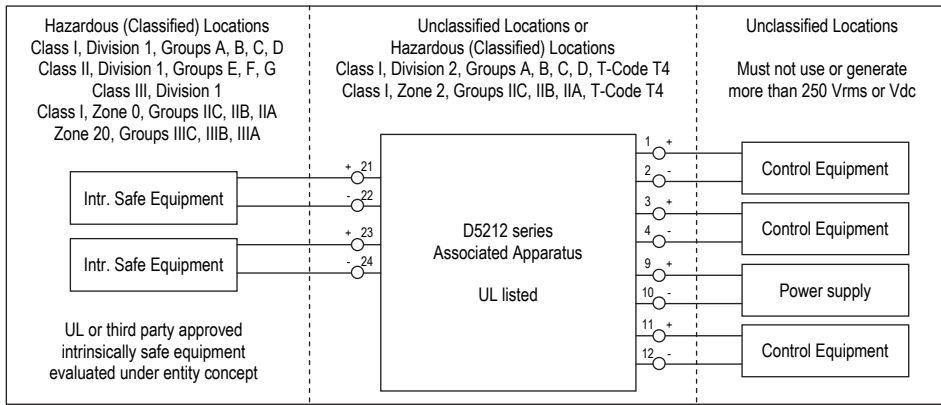
D5212 Terminals	Associated Apparatus Parameters	must be	Hazardous Area/Hazardous Locations Device Parameters
Ch1 Ch2 Ch3 Ch4	Uo / Voc = 24.1 V	≤	Ui / Vmax
	Io / Isc = 86 mA	≤	Ii / Imax
	Po / Po = 516 mW	≤	Pi / Pi

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.

D5212 Terminals	Associated Apparatus Parameters	must be	Hazardous Area/Hazardous Locations Device + Cable Parameters
Ch1 Ch2 Ch3 Ch4	Co / Ca = 121 nF Co / Ca = 917 nF Co / Ca = 3.307 μF Co / Ca = 917 nF	≥	IIC (A, B) IIB (C) IIA (D) (E, F, G)
	Lo / La = 4.85 mH Lo / La = 19.43 mH Lo / La = 38.86 mH Lo / La = 19.43 mH		IIC (A, B) IIB (C) IIA (D) (E, F, G)
	Lo / Ro = 68.9 μH/Ω Lo / Ro = 275.9 μH/Ω Lo / Ro = 551.9 μH/Ω Lo / Ro = 275.9 μH/Ω		IIC (A, B) IIB (C) IIA (D) (E, F, G)

NOTE: for installations in which both the Ci and Li 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 Ci device + C cable ≤ 50 % of Co/Ca and Li 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).

Connections for Externally Powered Transmitters



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.

This associated apparatus has not been evaluated for use in combination with another associated apparatus.

Isolation in accordance with UL/CSA 60079-11 clause 6.3.13 is not provided between separate intrinsically safe circuits. Isolation in accordance with UL/CSA 60079-11 clause 6.3.13 is provided between non-intrinsically safe circuits and intrinsically safe circuits.

D5212 Terminals		Associated Apparatus Parameters	must be	Hazardous Area/ Hazardous Locations Device Parameters
Ch1	21 - 22	Uo / Voc = 1.1 V	≤	Ui / Vmax
Ch2	23 - 24	Io / Isc = 56 mA	≤	Ii / Imax
		Po / Po = 16 mW	≤	Pi / Pi

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.

D5212 Terminals		Associated Apparatus Parameters	must be	Hazardous Area/ Hazardous Locations Device Parameters
Ch1	21 - 22	Ui / Vmax = 30V	≥	Uo / Voc
Ch2	23 - 24	Ii / Imax = 128 mA	≥	Io / Isc
		Ci = 2.1 nF Li = 0 nH		

NOTE:

when used with separate powered intrinsically safe devices, check that maximum allowable voltage, current (Ui/Vmax, Ii/Imax) of the D5212 series Associated Apparatus are not exceeded by the safety parameters (Uo/Voc, Io/Isc) of the Intrinsically Safe device.

D5212 Terminals		Associated Apparatus Parameters	must be	Hazardous Area/ Hazardous Locations Device + Cable Parameters
Ch1 Ch2	21 - 22 23 - 24	Co / Ca = 99 µF Co / Ca = 999 µF Co / Ca = 999 µF Co / Ca = 999 µF	≥	Ci / Ci device + C cable
		Lo / La = 11.63 mH Lo / La = 46.54 mH Lo / La = 93.09 mH Lo / La = 46.54 mH	≥	Li / Li device + L cable
		Lo / Ro = 2339 µH/Ω Lo / Ro = 9356.1 µH/Ω Lo / Ro = 18712.2 µH/Ω Lo / Ro = 9356.1 µH/Ω	≥	Li / Ri device and L cable / R cable

NOTE: for installations in which both the Ci and Li 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 Ci device + C cable ≤ 50 % of Co/Ca and Li 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).