



# Installation of Relays with Intrinsically Safe Inputs



Installation of Relay Module with Intrinsically Safe Inputs  
 Installation of these relays should only be performed by personnel experienced with intrinsically safe devices. Proper wiring practices must be strictly adhered to in order to prevent injury to personnel and property damage due to explosion or fire.  
**IMPORTANT: BEFORE PROCEEDING TO INSTALL THE DEVICE, READ AND THOROUGHLY UNDERSTAND THESE INSTRUCTIONS.**  
 When installed according to the following instructions the Relay Module provide circuits for use in Class I, Division 1, Groups A, B, C, and D. The device must be mounted in a suitable enclosure which is too accessible and is situated in a non hazardous area where an explosive atmosphere will not exist at any time.

**WIRING:**

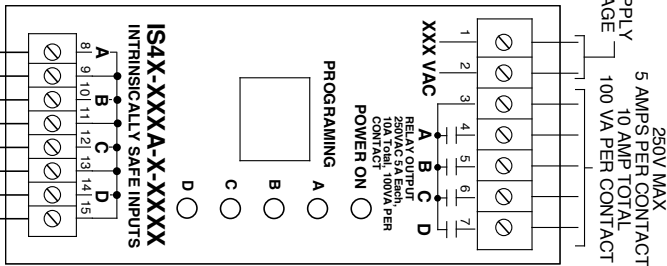
1. Associated apparatus must be installed in an enclosure suitable for the application in accordance with the National Electrical Code (ANSI/NFPA 70) for installation in the United States, the Canadian Electrical Code for installations in Canada, or other local codes, as applicable.
2. Where multiple 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 R1P-2.6 for installing intrinsically safe equipment.
3. 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.
4. Electrical equipment connected to the non intrinsically safe side should not use or be capable of generating more than 250 volts with respect to earth.
5. Intrinsically safe wiring connecting to the relay must be kept separate from non-intrinsically safe wiring by means of physical barriers and wiring the down devices to insure no contact.
6. Cable capacitance plus intrinsically safe equipment capacitance must be less than the marked capacitance (Ca) shown on any barrier used. The same applies for inductance. We recommend the use of type THHN wire without splices. In no case should the capacitance or inductance exceed the specified limits. If the characteristics of your wire are unknown the following values may be used:  
 CAPACITANCE: 60 pF / ft INDUCTANCE: 0.20 µH / ft
7. Selected intrinsically safe equipment must be third party listed as intrinsically safe for the application, and have intrinsically safe entry parameters conforming with Table 1 below. The entry parameters have been assigned based on the worse case combination of all intrinsically safe circuits.

**Table 1:**

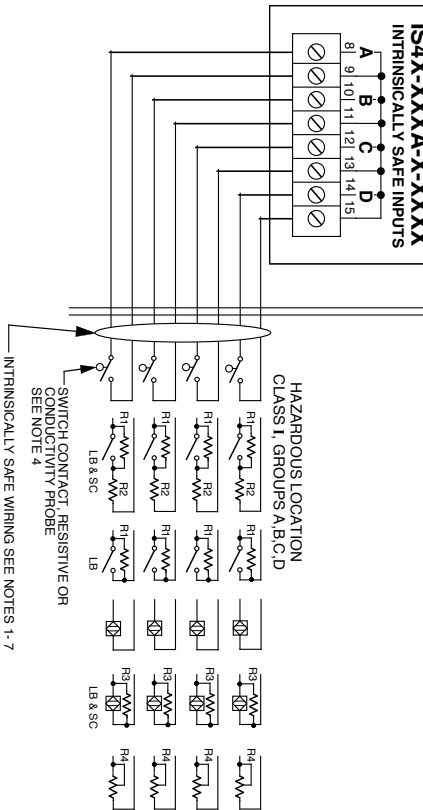
I.S. Equipment	Associated Apparatus
V max (or Uj)	≥ Voc or Vt (or Uo)
I max (or Ii)	≥ Isc or It (or Io)
P max, P1	≥ Po
Cl + Ccable	≤ Ca (or Co)
Li + Lcable	≤ La (or Lo)

Entry parameters:  
 Voc = 16.8 Volts  
 Isc = 3.3 mA  
 Ca = 0.312 µF  
 La = 100 mH  
 Voc ≤ Vmax  
 Isc ≤ Imax  
 Ca ≥ Cl + Ccable  
 La ≥ Li + Lcable

**NON-HAZARDOUS LOCATION**



**NOTE:**  
 LB = LEAD BREAKAGE MONITORING  
 SC = SHORT CIRCUIT MONITORING  
 R1 = 10K  
 R2 = 400 OHM TO 2K OHM  
 R3 = 3 MEG. OHM  
 R4 = 1 MEG. MAX



## CONTROL DRAWING

SCALE: NONE  
 SIMILAR TO:  
 QUOTE #:  
 DRAWING DATE: 01/23/06

UPDATED BY  
 DRAWN BY O.S.

REDESIGNED BY  
 DESIGNED BY D.P.

**A-6888-4**