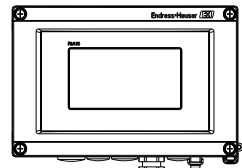


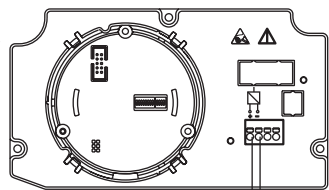
Hazardous (Classified) Location
Class I, Zone 1, IIC
Class I / Division 1, 2 / Groups ABCD

Nonhazardous Locations



RID16 with electronic insert for Profibus PA/Foundation Fieldbus

Concept	FISCO	Entity
Ui (Vmax)	17.5 V	24 V
Ii (Imax)	500mA	250mA
Pi (Pmax)	5.5 W	1.2 W
$C_i \leq 5\text{ nF}$ $L_i \leq 10\ \mu\text{H}$		
Leakage current	$\leq 50\ \mu\text{A}$	



CSA approved
Associated apparatus or
barrier resp.
Associated Nonincendive
Field Wiring
suitable for FISCO concept
See also installation notes
for using power supply

- PROFIBUS®/
+ FOUNDATION Fieldbus™

Temperature range

T4	-40°C ... +80°C
T5	-40°C ... +70°C
T6	-40°C ... +55°C

FISCO-Concept

The FISCO concept allows interconnection of intrinsically safe apparatus to associated apparatus not specifically examined in such combination.

The criteria for interconnection is that the voltage (Ui or Vmax), the current (Ii or Imax) and the power (Pi or Pmax) which intrinsically safe apparatus can receive and remain intrinsically safe, considering faults, must be equal or greater than the voltage (Uo or Voc or Vt), the current (Io or Isc or It) and the power (Po or Pmax) levels which can be delivered by the associated apparatus, considering faults and applicable factors. In addition, the maximum unprotected capacitance (Ci) and inductance (Li) of each apparatus (other than the termination) connected to the fieldbus must be less than or equal to 5 nF and 10 μH respectively. In each segment only one active device, normally the associated apparatus is allowed to provide the necessary energy for the fieldbus system.

The voltage Uo (or Voc or Vt) of the associated apparatus has to be limited to the range of 14V to 24V d.c. All other equipment connected to the bus cable has to be passive, meaning that they are not allowed to provide energy to the system, except to a leakage current of 50 μA for each connected device.

Separately powered equipment needs a galvanic isolation to assure that the intrinsically safe fieldbus circuit remains passive.

The cable used to interconnect the devices has to meet the following values:

Loop resistance R': 15 ... 150 Ω/km, inductance L': 0.4 ... 1 mH/km capacitance C': 80 ... 200 nF/km

$C' = C' \text{ line/line} + 0.5 C' \text{ line/screen}$, if both lines are floating or

$C' = C' \text{ line/line} + C' \text{ line/screen}$, if the screen is connected to one line

Length of spur cable: 30 m length of trunk cable: 1 km length of splice: 1 m

At each end of the trunk cable an approved infallible line termination with the following parameters is suitable:

$R = 90 \dots 100\ \Omega$ $C = 0 \dots 2.2\ \mu\text{F}$.

One of the allowed terminations might already be integrated in the associated apparatus.

The number of passive devices connected to the bus segment is not limited due to I.S. reasons. If the above rules are respected, up to a total length of 1000 m (sum of the length of trunk cable and all spur cables), the inductance and capacitance of the cable will not impair the intrinsic safety of the installation.

Installation Notes RID16

- CSA approved apparatus must be installed in accordance with manufacturer's instructions.
- Use supply wires suitable for 5°C above surroundings.
- Installation should be in accordance with the Canadian Electrical Code (CEC).
- WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.
AVERTISSEMENT : LA SUBSTITUTION DE COMPOSANTS PEUT COMPROMETTRE LA SECURITE INTRINSEQUE



INTRINSICALLY SAFE

Ex ia IIC T6...T4 Gb

Class I, Division 2, Groups A, B, C, D; T6...T4

- CSA Approved Associated Apparatus must meet the following parameters:

$$U_o \leq U_i \quad I_o \leq I_i \quad P_o \leq P_i \quad C_a \geq C_i + C_{\text{cable}} \quad L_a \geq L_i + L_{\text{cable}}$$

- The maximum non-hazardous area voltage must not exceed 250 V.
- Be aware of multiple earthing of screen. The screen must be connected in accordance with Canadian Electrical Code.
- The polarity for connecting + and - is of no importance due to an internal rectifier.
- RID16 is suitable for the connection to a Profibus PA/Foundation Fieldbus system according to Entity- or FISCO Concept

NONINCENDIVE

Ex ic IIC Gc T6...T4 Gc

Class I, Division 2, Groups A, B, C, D; T6...T4 (Non Incendive Field Wiring (NIFW))

- Intrinsic safety barrier is required. $V_{\text{max}} \leq 35\ \text{V DC}$.
- Nonincendive field wiring installation

The Nonincendive Field Wiring Circuit Concept allows interconnection of Nonincendive Field Wiring Apparatus with Associated Nonincendive Field Wiring Apparatus or Associated Intrinsically Safe Apparatus or Associated Apparatus not specifically examined in combination as a system using any of the wiring methods permitted for unclassified locations, when $V_{\text{oc}} \leq V_{\text{max}}$, $C_a \geq C_i + C_{\text{cable}}$, $L_a \geq L_i + L_{\text{cable}}$.

Field display Nonincendive Field Wiring parameters are as follows:

$$U_i \text{ or } V_{\text{max}} \leq 35\ \text{V DC} \quad C_i = \leq 5\ \text{nF} \quad L_i \leq 10\ \mu\text{F}$$

For these current controlled circuits, the parameter Imax is not required and need not to be aligned with parameter Isc and It of the Associated Nonincendive Field Wiring Apparatus or Associated Apparatus.

- The field display is suitable to be installed according the FNICO concept.

Author:	Pfanzelt	Revision:	A	Drawing No.:	12 06 00 112	Material:	71757129	Page	1 of 1
Date:	2009-07-06	Date:	2024-11-18	Title:	Control drawing CSA Intrinsic safety		XA02301R/09/EN/02.26-00		