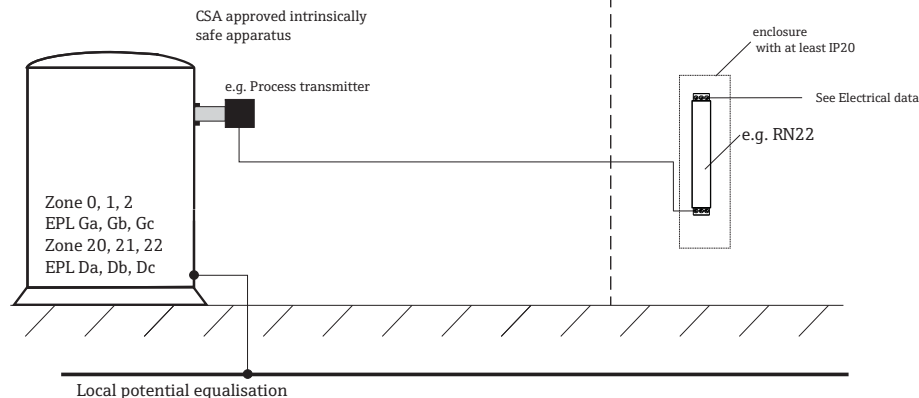


## Hazardous (Classified) Locations

I,II,II/1+2/ABCDEFG

Class I, Zone 0, IIC

## Non-hazardous area



## Installation Notes RN22, RN42

- CSA Approved Apparatus must be installed in accordance with manufacturer's instructions.
- Install per Canadian Electrical Code or National Electrical Code (NFPA 70).
- Use supply wires suitable for 5°C above surroundings.
- For Non-hazardous area install the device of Protection Ratings of least IP 20 or equivalent.

## INTRINSICALLY SAFE

[Ex ia Ga] IIC / [AEx ia Ga] IIC

[Ex ia Da] IIIC / [AEx ia Da] IIIC

Associated Apparatus for Class I, Division 1, Groups A, B, C, D

Associated Apparatus for Class I, Groups A, B, C &amp; D; Class II, Groups E, F &amp; G; Class III

- The device is an Associated Intrinsically Safe equipment and must be installed in non-hazardous locations only.
- For entity installations use certified equipment that satisfy the following condition  
 $U_o/V_o c \leq V_{max}/U_i$   $I_o/I_{sc} \leq I_{max}/I_i$   $P_o \leq P_i$   $C_o/C_a \geq C_i + C_{cable}$   $L_o/L_a \geq L_i + L_{cable}$
- The Terminal of the intrinsically safe circuit must be placed at least a distance of 50mm from terminals of the non-intrinsically safe circuits, or adequate separators (e.g. ground metal partitions) must be used.
- Screw tight the unused terminals for keeping the required distances between intrinsically safe circuits/terminals.

- **WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY"**  
**AVERTISSEMENT: LA SUBSTITUTION DE COMPOSANTS PEUT COMPROMETTRE LA SECURITE INTRINSEQUE"**
- **WARNING - POTENTIAL ELECTROSTATIC CHARGING HAZARD - SEE INSTRUCTIONS**  
**AVERTISSEMENT - DANGER POTENTIEL DE CHARGES ÉLECTROSTATIQUES - VOIR INSTRUCTIONS**
- **WARNING - EXPLOSION HAZARD - DO NOT OPEN WHILE CIRCUIT IS LIVE UNLESS AREA IS KNOWN TO BE NON-HAZARDOUS**  
**AVERTISSEMENT - RISQUE D'EXPLOSION - NE PAS OUVRIR PENDANT QUE LE CIRCUIT EST SOUS TENSION, À MOINS QUE LA ZONE SOIT SUSCEPTIBLE D'ÊTRE NON DANGEREUSE**

## NONINCENDIVE Field WIRING INSTALLATION

- The device is an Associated Nonincendive safe equipment and must be installed in non-hazardous locations only.
- 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  $V_o c \leq V_{max}$ ,  $C_a \geq C_i + C_{cable}$ ,  $L_a \geq L_i + L_{cable}$ .
- For entity installations use certified equipment that satisfy the following condition  
 $U_o/V_o c \leq V_{max}/U_i$   $I_o/I_{sc} \leq I_{max}/I_i$   $P_o \leq P_i$   $C_o/C_a \geq C_i + C_{cable}$   $L_o/L_a \geq L_i + L_{cable}$

## CONDITIONS OF ACCEPTABILITY

- If several devices are installed side by side, it is important to ensure that the maximum side wall temperature of the individual device of 80°C (176°F) is not exceeded. If this cannot be guaranteed, mount the devices at a distance from one another or ensure sufficient cooling.
- For model RN22-CB: the equipment shall only be powered by a power supply unit with a limited energy electric circuit in accordance with CSA/UL/EN/IEC 61010-1:2010 chapter 6.3.1/6.3.2 and 9.4 or class 2 according to CSA 223/UL 1310.
- The control circuit connection shall be sourced a limited energy electric circuit in accordance with CSA/UL/EN/IEC 61010-12010 chapter 6.3.1/6.3.2 and 9.4 or class 2 according to CSA 223/UL 1310.
- For model RN42-CB: a disconnecting device shall be part of the end-use installation. This shall be accessible for the operator and marked as required in IEC 61010-1: 2010 clause 6.1.1.4. (Circuit breaker in end-use installation is considered as disconnecting device).
- The external circuit breaker shall be separately certified and rated 10 A for model RN42-CB1, Type B and min. 1.5 kA breaking capacity.
- The device is intended for installation in a cabinet or similar housing acceptable to the Authority having jurisdiction (AHJ). The device may only be operated as an installed device.
- Equipment is only to be installed by trained personal in accordance to the installation, set-up.

## Temperature range

Ta = -40°C ... +60°C

## Electrical data:

Supply RN22:

terminals 1.1 (+), 1.2 (-)

U = 24V DC (-20%/+25%)

Supply RN42:

terminals 1.1 (L/+), 1.2 (N/-)

U = 24 to 230 V AC/DC (-20%/+10%) 50/60Hz  
Um = 250V

Output circuit (connection to control unit):

terminal 3.1 (+), 3.2 (-)

U = 30V DC

terminal 2.1 (+), 2.2 (-)

I = 0/4-20mA

Um = 30V DC

Input circuit (connection to I.S. unit):

Connection 2-wire (active)

RN22:

Uo ≤ 27.3V DC

terminal 4.1 (+), 4.2 (-)

Io ≤ 87.6mA

terminal 6.1 (+), 6.2 (-)

Po ≤ 597mW

RN42:

Ci = negligibly small

terminal 4.1 (+), 4.2 (-)

Li = negligibly small

Max connection values\* (single appearance):

Ex ia IIC La = 4.6mH

Co = 88nF

Ex ia IIB La = 18.5mH

Co = 683nF

Ex ia IIA La = 37mH

Co = 2280nF

Connection 4-wire (passive)

RN22:

Uo ≤ 27.3V DC

terminal 4.2 (+), 5.1 (-)

Io ≤ 10mA

terminal 6.2 (+), 5.2 (-)

Po ≤ 68mW

RN42:

Ci = negligibly small

terminal 4.2 (+), 4.3 (-)

Li = negligibly small

Max connection values\* (single appearance):

Ex ia IIC La = 100mH

Co = 88nF

Ex ia IIB La = 100mH

Co = 683nF

Ex ia IIA La = 100mH

Co = 2280nF

Connection 4-wire (passive)

RN22:

Ui ≤ 30V DC

terminal 4.2 (+), 5.1 (-)

Ii not applicable when keeping Ui

terminal 6.2 (+), 5.2 (-)

Pi not applicable when keeping Ui

RN42:

Ci = negligibly small

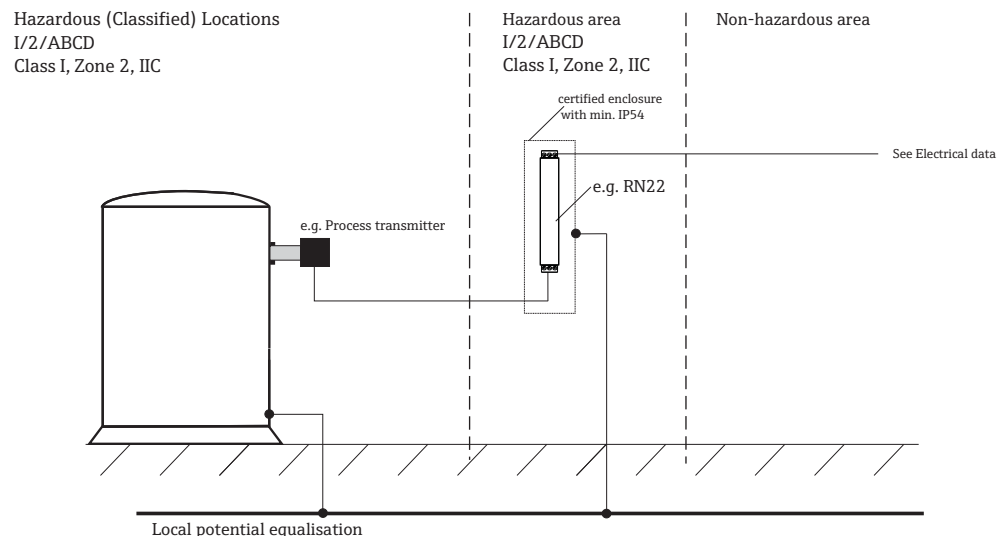
terminal 4.2 (+), 4.3 (-)

Li = negligibly small

\* Permissible maximum values for the external inductances and capacitances to CSA/UL 60079-11

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Hazardous (Classified) Locations  
I/2/ABCD  
Class I, Zone 2, IIC

**Installation Notes RN22, RN42**

- CSA Approved Apparatus must be installed in accordance with manufacturer's instructions.
- Install per Canadian Electrical Code or National Electrical Code (NFPA 70).
- Use supply wires suitable for 5°C above surroundings.
- Terminal specification:

	Torque	Cable version	Cable cross-section
Screw terminals cable version, stripping length = min. 7 mm (0.28 in)	0.5Nm to 0.6Nm	Solid or flexible	0.25 to 2.5 mm <sup>2</sup> (24 to 14 AWG)
Push-in terminals cable version, stripping length = min. 10 mm (0.39 in)	-	Solid or flexible	0.25 to 2.5 mm <sup>2</sup> (24 to 14 AWG)
	-	Flexible with wire end ferrules with/without plastic ferrule	0.25 to 2.5 mm <sup>2</sup> (24 to 14 AWG)

**INCREASED SAFETY**

Ex ec IIC Gc

Class I, Zone 2, AEx ec IIC Gc

Class I, Division 2, Groups A, B, C, D

- **WARNING** - EXPLOSION HAZARD - SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISIONS 2
- **AVERTISSEMENT** - RISQUE D'EXPLOSION - LE SUBSTITUTION DE COMPOSANTS PEUT NUIRE L'ADÉQUATION POUR LA CLASSE I, DIVISIONS 2
- **WARNING** - EXPLOSION HAZARD - DO NOT DISCONNECT, OR OPEN WHILE CIRCUIT IS LIVE UNLESS AREA IS KNOWN TO BE NON-HAZARDOUS
- **AVERTISSEMENT** - RISQUE D'EXPLOSION - NE PAS DÉBRANCHER OU OUVRIR PENDANT QUE LE CIRCUIT EST SOUS TENSION, À MOINS QUE LA ZONE SOIT SUSCEPTIBLE D'ÊTRE NON DANGEREUSE

**Electrical data:**

Supply RN22:

terminals 1.1 (+), 1.2 (-)

U = 24V DC (-20%/+25%)

Supply RN42:

terminals 1.1 (L/+), 1.2 (N/-)

U = 24 to 230 V AC/DC (-20%/+10%) 50/60Hz  
Um = 250V**Output circuit (connection to control unit):**terminal 3.1 (+), 3.2 (-)  
terminal 2.1 (+), 2.2 (-)

I = 0 to 22mA Output signal range (underrange / overrange)  
0/4 to 20mA Function range, output signal  
U = 17.5V (± 5%) Open-circuit voltage, active mode  
12 to 30V External voltage, passive mode  
Um = 30V

**Input circuit (connection to process unit):**

Connection 2-wire (active)

RN22:

terminal 4.1 (+), 4.2 (-)  
terminal 6.1 (+), 6.2 (-)

RN42:

terminal 4.1 (+), 4.2 (-)

I = 0 to 22mA Input signal range (underrange / overrange)  
0/4 to 20mA Function range, input signal  
U = 17.5V ± 1V Transmitter supply voltage (at 20mA)  
24.5V (± 5%) Open-circuit voltage

Connection 4-wire (passive)

RN22:

terminal 4.2 (+), 5.1 (-)  
terminal 6.2 (+), 5.2 (-)

RN42:

terminal 4.2 (+), 4.3 (-)

U < 7V Input voltage drop signal (at 20mA)  
for 4-wire connection

**Temperature range**

Ta = -40°C ... +60°C

**CONDITIONS OF ACCEPTABILITY**

- For full certification as an electrical equipment the tests according to CSA/UL 60079-0 section 5.2 and 5.3 have to be carried out. Based on the test results a temperature class shall be assigned.
- These components do not have any surface that achieves a temperature greater than 135°C with a 5K safety factor when operated under full load conditions at an ambient of range of 60°C respectively.
- If several devices are installed side by side, it is important to ensure that the maximum side wall temperature of the individual devices of 80°C (176°F) is not exceeded. If this cannot be guaranteed, mount the devices at a distance from one another or ensure sufficient cooling.
- For use in the type of protection increased safety Ex ec, and for Zone 2 (EPL Gc), and Class I, Division 2 applications, the active barrier RN22/RN42 shall be installed completely inside an additional enclosure, providing a degree of protection of not less than IP54 according to CSA/UL 60079-0 and CSA/UL 60079-7. The ambient temperature within the end use enclosure shall not exceed the limits of the permissible ambient temperature range. Clearances, creepage distances, and separations as defined in CSA/UL 60079-7 shall be considered for the installation.
- For model RN22-CB: the unit shall only be powered by a power supply unit with a limited energy electric circuit in accordance with CSA/UL/EN/IEC 61010-1:2010 chapter 6.3.1/6.3.2 and 9.4 or class 2 according to CSA 223/UL 1310.
- The control circuit connection shall be sourced a limited energy electric circuit in accordance with CSA/UL/EN/IEC 61010-1:2010 chapter 6.3.1/6.3.2 and 9.4 or class 2 according to CSA 223/UL 1310.
- For model RN42-CB: a disconnecting device shall be part of the end-use installation. This shall be accessible for the operator and marked as required in IEC 61010-1: 2010 clause 6.11.4. (Circuit breaker in end-use installation is considered as disconnecting device).
- The external circuit breaker shall be separately certified and rated 10 A for model RN42-CB1, Type B and min. 1.5 kA breaking capacity.



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