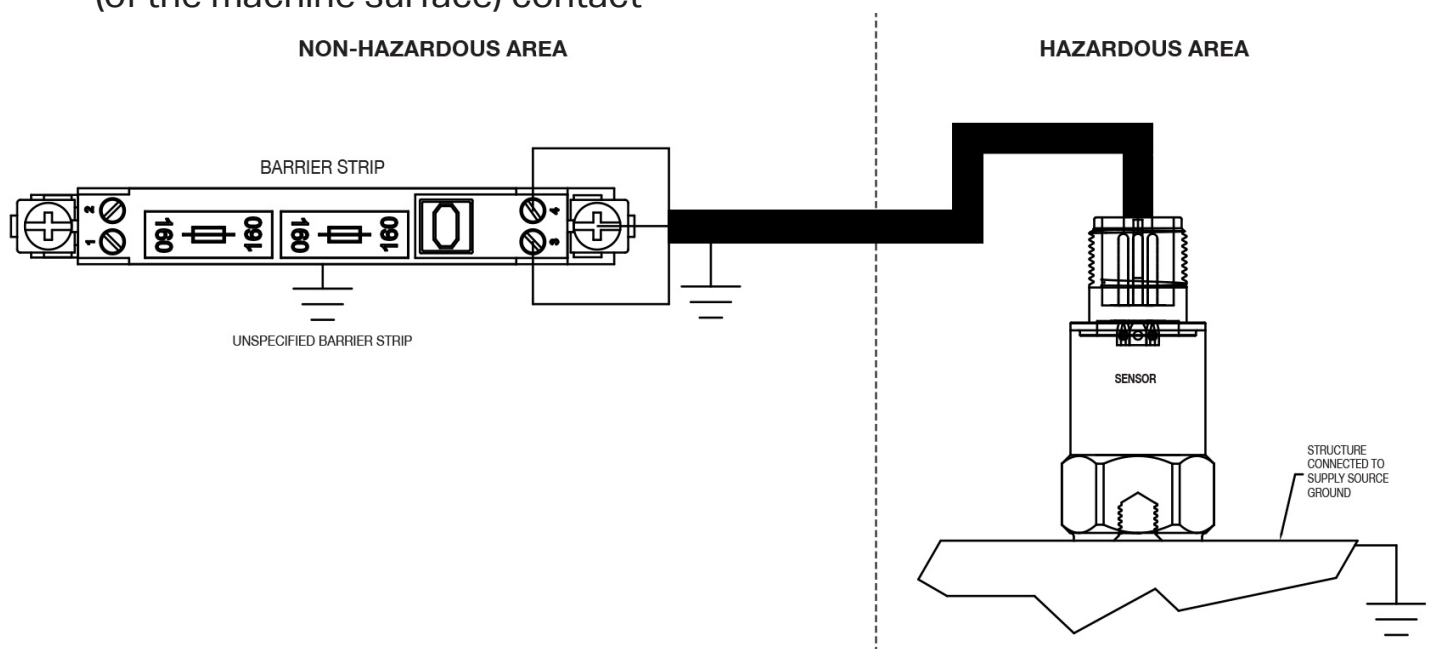


In the many industrial processes where flammable materials are handled, any leak or spillage may give rise to an explosive atmosphere. To protect both personnel and the plant, precautions must be taken to ensure that this atmosphere cannot be ignited. The areas at risk are known as “hazardous areas” and the materials that are commonly involved include crude oil and its derivatives, natural and man-made process gases, alcohols, metal dusts, carbon dust, flour, starch, grain and fibers. Intrinsic Safety (IS) is based on the principle that the electrical energy in hazardous-area circuits is deliberately restricted such that any electrical sparks or hot spots that may occur are too weak to cause ignition. This is achieved by inserting an energy-limiting interface in the wiring between safe and hazardous areas. The interface passes signals in either direction as required but limits the voltage and current that can reach the hazardous area under fault conditions.

**Guidelines for Use & Installation**

- A barrier is required for the installation of IS sensors. The barrier passes signals in either direction as required but limits the voltage and current that can reach the hazardous area under fault conditions. The barrier is put in series and is installed in a safe area
- Proper IS Barrier must be used with this sensor to ensure compliance with entity parameters
- Approved cabling must be used to bring the signal from the sensor to the Zener diode barrier or galvanic isolator, which is the energy-limiting interface.
- Sensors must be grounded to a grounded structure by stud mounting the sensor directly to the machine surface, ensuring metal (of the sensor) to metal (of the machine surface) contact



### Entity Parameters

This information is used to specify the barrier required for the installation of CTC intrinsically safe sensors

Model	Description	Vmax	Ci	I <sub>max</sub>	Li	Pi
AC91X Series	Accelerometer	28 V	0 nF	100 mA	0 μH	1 W
TA91X Series	Accelerometer	28 V	1.5 nF	112 mA	0 μH	1 W
LP812 Series	Loop Powered 4-20 mA output sensor, velocity	28 V	0 nF	100 mA	0 μH	1 W
LP912 Series	Loop Powered 4-20 mA output sensor, velocity	28V	0nF	100 mA	0 μH	1 W

**V<sub>max</sub>** = Maximum Voltage  
**C<sub>i</sub>** = Total Capacitance of Circuit Allowable  
**I<sub>max</sub>** = Maximum Allowable Current  
**L<sub>i</sub>** = Total Inductance of Circuit Allowable  
**P<sub>i</sub>** = Total Power of Circuit Allowable

Note:

- IS131 and IS231 barriers are compatible with TA91X series sensors
- IS111 and IS211 barriers are compatible with AC91X series sensors

### Accessories

#### Suggested cables for TA91X Series sensors



**CB191**



**CB212**

#### Suggested cables for AC91X Series sensors



**CB102**



**CB206**

Other recommended cables: CB103, CB111, CB193

Regulatory Approvals	US & Canada		
			Class I, Division 1, Groups A, B, C, D; Class II, Division 1, Groups E, F, G; Class III; CL1, Zone 0; Temperature Code T3; ambient temperature range -40 °C - +121 °C Canada: Ex ia IIC T3 Ga USA: AEx nA IIC T3 Ga
	<b>ATEX</b>		Ex ia IIC T3 Ga Temperature Code T3; ambient temperature range -40 °C - +121 °C
	<b>IECEX</b>	<b>IECEX</b>	Ex ia IIC T3 Ga Temperature Code T3; ambient temperature range -40 °C - +121 °C