CONNECTION TECHNOLOGY CENTER, INC.

ATEX ZONE 2 SENSORS

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DOCUMENT & REVISION

Product Manual MNX10133
Rev A

Table of Contents

Introduction

This document contains information on the installation, operation, and maintenance of Zone 2 Vibration Sensors with an **Ex** rating.

Products Affected

Sensor Series	Voltage Rating
AC93* Series	18 to 28 VDC (IEPE), 2-10 mA
AC94* Series	18 to 28 VDC (IEPE), 2-10 mA
AC95* Series	18 to 28 VDC (IEPE), 2-10 mA
LP82* Series	12 to 28 VDC, 4-22 mA
LP92* Series	12 to 28 VDC, 4-22 mA
LPH82* Series	12 to 28 VDC, 4-22 mA
LPH92* Series	12 to 28 VDC, 4-22 mA
TA93* Series	18 to 28 VDC (IEPE), 2-10 mA
VE80* Series	18 to 28 VDC (IEPE), 2-10 mA

Table 1. Nominal Electrical Ratings

Compliance with the Following Standards

EN IEC 60079-0:2018
EN 60079-31:2014
EN IEC 60079-7:2015 + A1:2018

Table 2. Compliance Standards

Product Description

General Product Description

Vibration sensors which are used for acceleration measurement by means of piezo-electric device. The piezoelectric is subjected to compression pressure from a mass which produce a voltage in proportion to the acceleration. The voltage is then amplified by internal electronic circuitry. This can also be integrated within the amplifier board to produce a velocity output, referred to with a VE prefix. For the Loop Power and Premium Loop Power series (LP/LPH prefix), the output is converted to a 4-20 mA. These sensors can be used in conjunction with a temperature board to provide the temperature of the environment the sensor is contained within this configuration is referred to with a TA prefix. The sensors are mounted to the surface of the desired surface via a threaded bolt or by other means to be approved of by the authority having jurisdiction.

Sensor Markings

The following is a complete recapitulation of markings so the customer has complete information for usage:

Figure 1. Markings on the Front of Sensor

CSACa 24 ATEX1004X
Ex ec IIC T*°C Gc
Ex tc IIIC T135°C Dc
T4, T135°C for ambient temperature range of -40°C to +80°C
T3 for ambient temperature range of -40°C to +121°C
*Temperature Class depends on the ambient temperature
Vmax=28VDC Imax=10mA
Install per INS10209
Reference Product Manual MNX10133
CSA221421
(Year of Manufacture)

Figure 2. Markings on the Back of Sensor

Specific Conditions of Use

Cables of the following CTC part numbers CB190, CB191 and CB192 are restricted only for use with sensors of a maximum ambient temperature of +80°C, the manufacturer shall ensure that the product is marked accordingly. Temperature code depends on the ambient range: T4 for ambient range of -40°C to +80°C and T3 for ambient range of -40°C to +121°C. The sensors have to be used with the cables, offered and sold by the manufacturer.

For applications in explosive dust atmospheres the equipment must not be exposed to charge generating mechanisms as flow of particles, charge spraying or strong electrostatic fields.

Warning: EXPLOSION HAZARD. DO NOT DISCONNECT WHILE THE CIRCUIT IS LIVE OR UNLESS THE AREA IS FREE OF IGNITABLE CONCENTRATIONS.

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Installation

Cabling Information

CTC has several cabling options available for hazardous applications*:

Part Number	Conductor Count	Cable Jacketing	Temperature Rating
CB102	Two (2) Conductors	FEP Jacket	150 °C
CB111	Two (2) Conductors	FEP Jacket	150 °C
CB190	Two (2) Conductors	TPE Jacket	105 °C
CB206	Two (2) Conductors	FEP Jacket with SS Armor	150 °C
CB212	Three (3) Conductors	FEP Jacket with SS Armor	150 °C
CB191	Three (3) Conductors	TPE Jacket	105 °C
CB192	Four (4) Conductors	TPE Jacket	105 °C
CB218	Four (4) Conductors	FEP Jacket with SS Armor	200 °C
CB296	Two (2) Conductors	FEP Jacket with SS Armor	200 °C
CB298	Four (4) Conductors	FEP Jacket with SS Armor	200 °C

*Cable conductors range from 20 AWG - 26 AWG

Table 3. Hazardous Cabling Options

In addition, CTC has connectors specifically designed for Zone 2 applications. Each of the JQ and Q connectors feature a grounded backshell to aid in arc prevention, as well as locking rings with eyelets to secure the connector to the sensor, or provide additional ground to the machine.

All cabling utilizes the layout illustrated in the following drawing. All cabling has a temperature rating of 105 °C or higher.

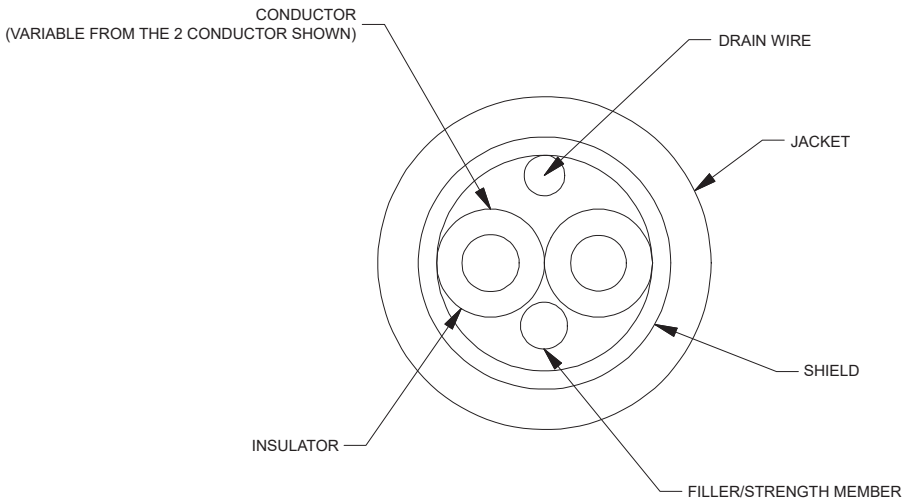


Figure 3. Cabling Cross-Section

Installation Procedure

The following drawings shows the installation requirements for CTC Zone 2 Sensors.

Notes:

a. Authorized Zone 2 CTC cabling required. Refer to Table 3 on page six of this document. Cabling from other manufacturers may not be used.

b. Mechanical locking connector or integral connection

- CTC's Q Series and JQ Series connectors has the cable shield drain connected to the connector backshell.
- The sensors have to be used with the cables offered and sold by the manufacturer.

Figure 4. A Fully Assembled Non-Integral Sensor and Cable Assembly

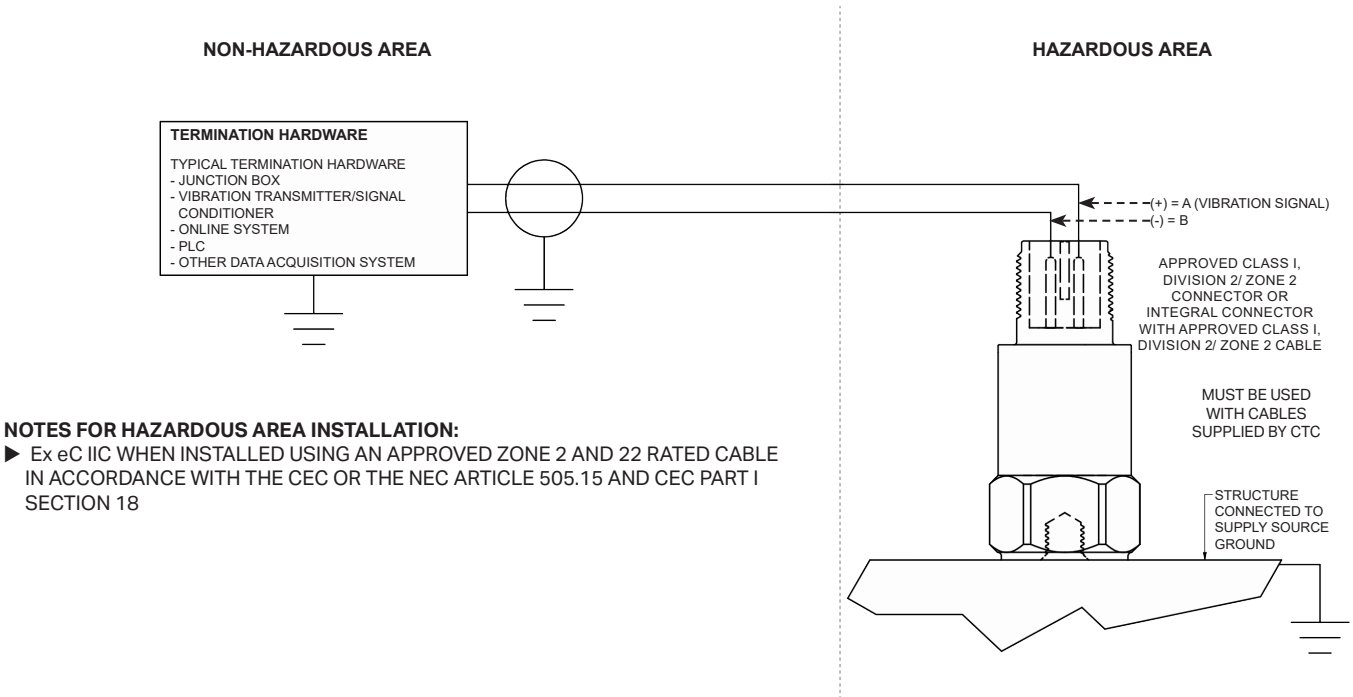
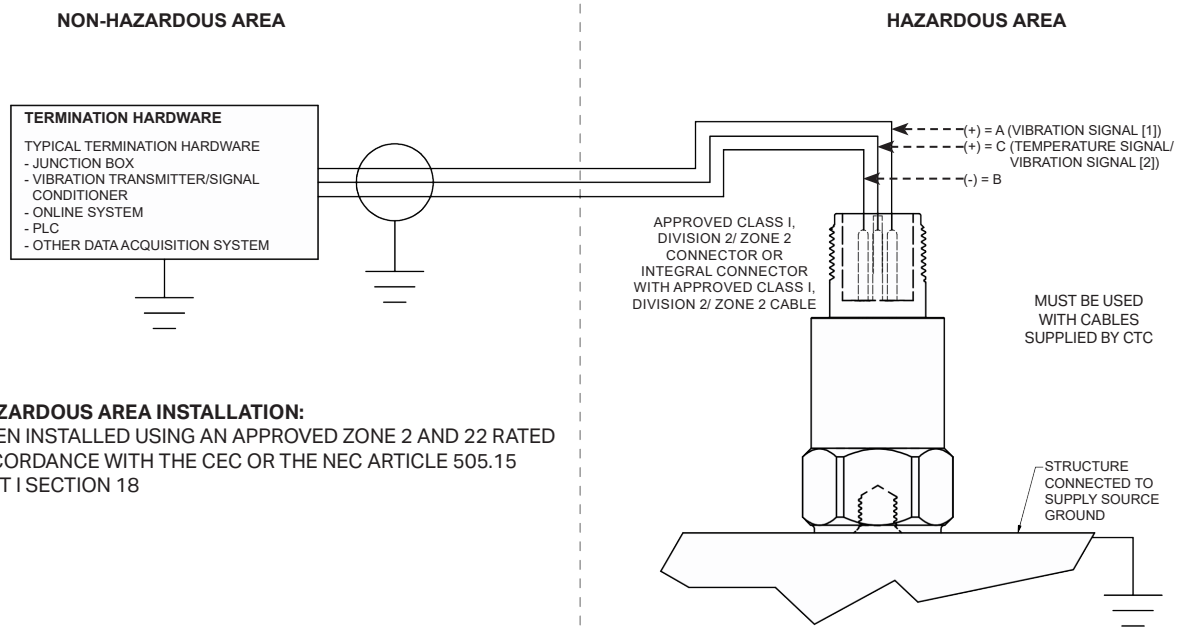


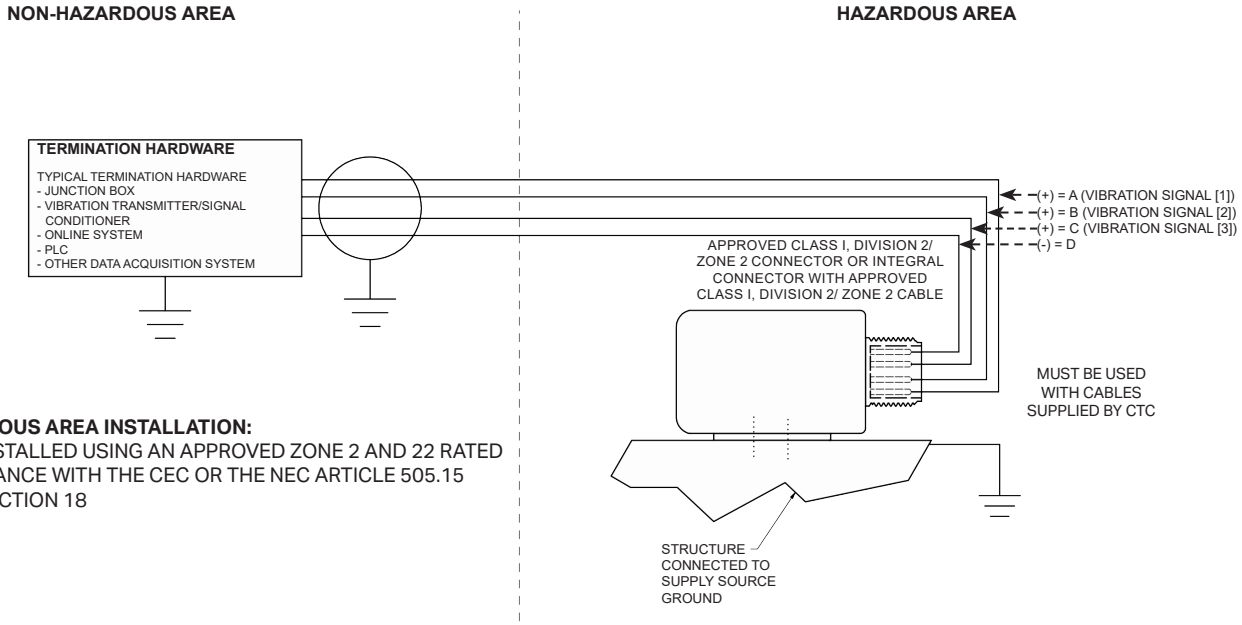
Figure 5. Two Pin Sensor Installation



NOTES FOR HAZARDOUS AREA INSTALLATION:

▶ Ex eC IIC WHEN INSTALLED USING AN APPROVED ZONE 2 AND 22 RATED CABLE IN ACCORDANCE WITH THE CEC OR THE NEC ARTICLE 505.15 AND CEC PART I SECTION 18

Figure 6. Three Pin Sensor Installation



NOTES FOR HAZARDOUS AREA INSTALLATION:

▶ Ex eC IIC WHEN INSTALLED USING AN APPROVED ZONE 2 AND 22 RATED CABLE IN ACCORDANCE WITH THE CEC OR THE NEC ARTICLE 505.15 AND CEC PART I SECTION 18

Figure 7. Four Pin Sensor Installation

Warranty & Refund

Please visit www.ctconline.com to view a complete recapitulation of our warranty and refund policies.