



VIBRATION ANALYSIS HARDWARE

# Product Manual

MNX10021 / Rev C

*MODELS AC92X, AC93X,  
LP82X, LP83X, LP92X, LP93X*



**Series Class 1 Division 2 / Zone 2**

# Contents

## Section I

### Overview

Introduction..... 2  
Description..... 2

## Section II

### Installation

Installation Procedure..... 5

## Section III

### Operation

Standards..... 5

## Section IV

### Maintenance

General..... 6

## Figures

Figure 1 (Nameplate Markings)..... 3  
Figure 2 (Specific Nameplate Markings for Parameters)..... 3  
Figure 2a (Specific Nameplate Markings for Parameters – Low  
Capacitance).....4

# Section I

## Overview

### *Introduction*

This document contains information on the installation, operation, and maintenance of the Class I Division 2 (Zone 2) Vibration Sensor with an **Ex nA** (North America and Europe) rating.

*Type of Protection Ex nA* is based on the principle that any equipment in a hazardous area prohibits any arcs, sparks or hot surfaces that could cause ignition. It may be integral with the safe-area equipment or separate for greater flexibility.

### *Description*

Accelerometers will produce a voltage output that is proportional to the vibration output (in g's) the sensor is experiencing. 4-20mA Vibration Sensors will create a 4-20mA output proportional to the specified full scale range of sensor (for 4-20mA acceleration model), or integrates accelerometer (g's) to velocity and then creates a 4-20 mA output proportional to the full scale range specified by the part ordered.

### **Compliance with the Essential Health & Safety Requirements:**

Assured by compliance with:

Europe:

EN60079-0 : 2004, EN60079-15 : 2005, EN61241-0 : 2006

EN61241-1 : 2005

## Nameplate Markings

The following is a complete recapitulation of nameplate markings so the customer has complete information for specific conditions of use:



**Figure 1. Nameplate Markings**

## Class I Div 2 (Zone 2) Labeling (AC92\*/LP82\*/LP92\*)

Ex nA IIC T3 / T4  
Ex tD A22 IP6X T150°C (T-Code=T3) / T105°C (T-Code=T4)  
DIP A22 IP6X T150°C (T-Code=T3) / T105°C (T-Code=T4)  
AEx nA IIC T3 / T4, CLI, Zone 2  
AEx tD 22 IP6X T150°C (T-Code=T3) / T105°C (T-Code=T4)  
CLI Div 2, GPS A,B,C,D  
CLII Div 2, GPS F,G, CLIII  
OPERATING TEMP CODE: T3  
AMBIENT TEMP RANGE = -54°C TO +125°C  
OPERATING TEMP CODE: T4  
AMBIENT TEMP RANGE = -40°C TO +80°C  
CONTROL DRAWING INS10035  
Vmax=28VDC Imax=100mA  
CSA 221421  
(yr of mfr)

AC92\* Series – Temperature code: T3  
Ambient temperature range = -54°C to +125°C

LP82\* and LP92\* Series – Temperature code: T4  
Ambient temperature range = -40°C to +80°C

**Figure 2. Specific Nameplate Markings for AC92\*, LP82\*, & LP92\* Series**

**Class I Div 2 (Zone 2) Labeling Low Capacitance  
(AC93\*/LP83\*/LP93\*)**

Ex nA IIC T3 / T4  
Ex tD A22 IP6X T150°C (T-Code=T3) or T105°C (T-Code=T4)  
DIP A22 IP6X T150°C (T-Code=T3) or T105°C (T-Code=T4)  
AEx nA IIC T3 / T4, CLI, Zone 2  
AEx tD 22 IP6X T150°C (T-Code=T3) / T105°C=T4)  
CLI Div 2, GPS A,B,C,D  
CLII Div 2, GPS F,G, CLIII  
OPERATING TEMP CODE: T3  
AMBIENT TEMP RANGE = -40°C TO +125°C  
OPERATING TEMP CODE: T4  
AMBIENT TEMP RANGE = -40°C TO +80°C  
CONTROL DRAWING INS10035  
Vmax=28VDC Imax=100mA  
CSA 221421  
(yr of mfr)

AC93\* Series – Temperature code: T3  
Ambient temperature range = -40°C to +125°C

AC93\*, LP83\* and LP93\* Series – Temperature code: T4  
Ambient temperature range = -40°C to +80°C

***Figure 2a. Specific Nameplate Markings for AC93\*, LP83\*, & LP93\* Series***

## **Section II Installation**

### ***Installation Procedure:***

The Class I Division 2 (Zone 2) Control Drawing INS10035 (attached) shows the installation requirements for CTC Class I Division 2 (Zone 2) Sensors.

Notes:

- a). Approved Class I Div 2 (Zone 2) cable required\
- b). Mechanical locking connector or integral connection
  - CTC's D2Q connector has the cable shield drain attached to the connector backshell

## **Section III Operation**

### ***Standards***

Each sensor that is approved for Class I Division 2 (Zone 2) must meet or exceed the requirements for standards recognized by the countries that would use the sensors.

### **Specific Conditions of Use:**

1. Specific Ambient Conditions of Use include:
  - a. -40°C to 80°C for LP and AC93\* Series Sensors (T4)
  - b. -54°C to 125°C for AC92\* Series (T3)
  - c. -40°C to 125°C for AC93\* Series (T3)
2. Class I Division 2 / Ex nA IIC when installed using an approved Division 2 (Zone 2) rated cable and connectors in accordance with the CEC or the NEC. European installation shall conform to IEC60079-14 or the applicable local installation code. Suitability of final installation is to be determined by the authority having local jurisdiction.

### **Special Conditions for safe use:**

None

## **Section IV Maintenance**

### ***General***

There are no customer replaceable parts. This product should provide trouble-free continuous service under normal operation conditions. Certain applications may require periodic calibration of sensors.

### ***Warranty***

CTC Products – Unconditional Lifetime Warranty. If any CTC product should ever fail, we will repair or replace it at no charge.

PRO Products – Lifetime Warranty on materials and workmanship. PRO will repair or replace any of our products under warranty so long as the product was not subjected to misuse, neglect, natural disasters, improper installation or modification which caused the defect.

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