![CTC Vibration Analysis Hardware logo]

Product Manual
MNX10022 / Rev C

MODELS AC95X, AC96X, LP85X, LP86X, LP95X, LP96X

**CTC IECEx
VIBRATION SENSORS**

Contents

Section I
Overview

Introduction

This document contains information on the installation, operation, and maintenance of the IECEx Intrinsically Safe Vibrations Sensor.

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. 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.

IEC 60079-0: 2000 Edition: 3.1	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
IEC 60079-11:2006 Edition: 5.0	Electrical apparatus for explosive gas atmospheres – Part 11: Intrinsic safety 'i'
IEC 61241-1-1:1999 Edition: 2.0	Electrical apparatus for use in the presence of combustible dust.

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

IECEx

Figure 1. IECEx Nameplate Markings

Ex ia IIC T3/T4
DIP A20 IP6X 150°C (T-Code = T3) or T105°C (T-Code = T4)
CONTROL DRAWINGS: INS10050
Vmax/Ui=28V   Imax/Ii=100mA
Ci=70 nF   Li=51uH   Pi=1W
IECEx CSA 07.0001
(yr of mfr)

AC95* Series – Temperature Code: T3
Ambient Temperature range = -54°C to +125°C

LP85* and LP95* Series – Temperature Code: T4
Ambient Temperature range = -40°C to +80°C

Figure 2a. Specific Nameplate Markings
for IECEx Parameters

Low Capacitance

Ex ia IIC T3/T4
DIP A20 IP6X 150°C (T-Code = T3) or T105°C (T-Code = T4)
CONTROL DRAWING: INS10050
Vmax/Ui=28V   Imax/Ii=100mA
Ci=0nF   Li=0uH   Pi=1W (for sensors without integral cable)
Ci= 80.4 nF   Li= 137.6 uH   Pi=1W (for sensors with max 500 meters of integral cable)
IECEx CSA 07.0001
(yr of mfr)

AC96* Series – Temperature Code: T3
Ambient Temperature range = -40°C to +125°C

AC96*, LP86* and LP96* Series – Temperature Code: T4
Ambient Temperature range = -40°C to +80°C

Figure 2b. *Specific Nameplate Markings for Low Capacitance IECEx Parameters*

Section II
Installation

Installation Procedure:

The IECEx Control Drawing INS10050 (attached) shows the installation requirements for CTC IECEx Sensors. As shown, properly installed barriers are required to limit the energy the sensor can receive. Cabling brings the signal from the sensor to the Zener diode barrier or galvanic isolator, which is the energy-limiting interface. The signal is transferred through the barrier (which is located in a non-hazardous area to measurement equipment, such as a data collector or junction box) for further processing.

Section III
Operation

Standards

Each sensor that is approved for IS 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. AC95X Series uses Temperature Code: T3
    b. AC96X Series uses Temperature Code: T3 or T4
    c. LP85X & LP95X Series uses Temperature Code, T4

Special Conditions for safe use:
   None

Section IV
Maintenance

General

No maintenance is required on sensors. 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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