

CEC 1-808
VIBRATION TRANSMITTER

Operation & Maintenance Manual



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Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.

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Section I

Overview

Introduction

This document contains information on the operation, installation and maintenance of the Type CEC 1-808 Vibration Transmitter. The instrument is manufactured by CEC Vibration Products Inc.

The 1-808 Vibration Transmitter accepts input from an accelerometer, velocity transducer or displacement transducer, amplifies and filters the signal, then outputs the data in an analog format (e.g., 4-20 mA, 0-5 VDC or 0-10 VDC).

Description

The transmitter is housed in a plastic enclosure suitable for 35mm-din rail/surface mounting (see Figure 1-1). On the front of the transmitter are four electrical connectors (WAGO 237 series positive force terminal blocks) for the +24 VDC input and +/- analog output, in addition to a buffered transducer output BNC connector, and five electrical connectors (WAGO 237 series positive force terminal blocks) for the +/- signal output and +/- sensor input. There is also a green indicator light* (XDCR OK) which illuminates when the transducer is properly connected to the transmitter and working correctly. A user adjustable ZERO adjustment is located on the front panel for calibration, if required.

The 1-808 contains an input conditioning circuit, a gain circuit to normalize the input to 2 V full scale, a high-pass and low-pass filter, a true RMS-to-DC converter, and a 4-20 mA generator. A buffered output connection allows the user to connect across the vibration sensor for on-line vibration analysis and testing of the sensor.

*** On the AD, AM and VM input types, the green indicator light is only designed to indicate when power is applied. The ability to indicate if the transducer is properly connected to the transmitter and working properly does not exist for the AD, AM and VM input types.**

POWER INPUT:	20-32 VDC
BANDPASS FILTER:	The 1-808 Transmitter contains a band pass filter, which consists of a low-pass and a high-pass, 8-pole, inverse TSC filter. Filter roll off is better than 42 dB/octave. The cutoff frequencies are specified at time of order.
ANALOG OUTPUT:	Full scale output of 4-20 mA, 0-5 VDC or 0-10 VDC
OPERATION:	Accepts either a millivolt or charge input, filters the signal, and normalizes the output to the specified full-scale output. Performs a true RMS conversion and transmits this data in a 4-20 mA, 0-5 VDC or 0-10 VDC format.
ELECTRICAL:	20-32 VDC unregulated.
DIMENSIONS:	See Figure 1-1.
AMBIENT TEMPERATURE:	-40° C to +80° C
HUMIDITY:	0-95% RH non-condensing.

Table 1-1
Specifications

- Specifications on a particular 1-808 may be obtained from the unit's label or by referencing the Part Number Guide in Figure 1-2.

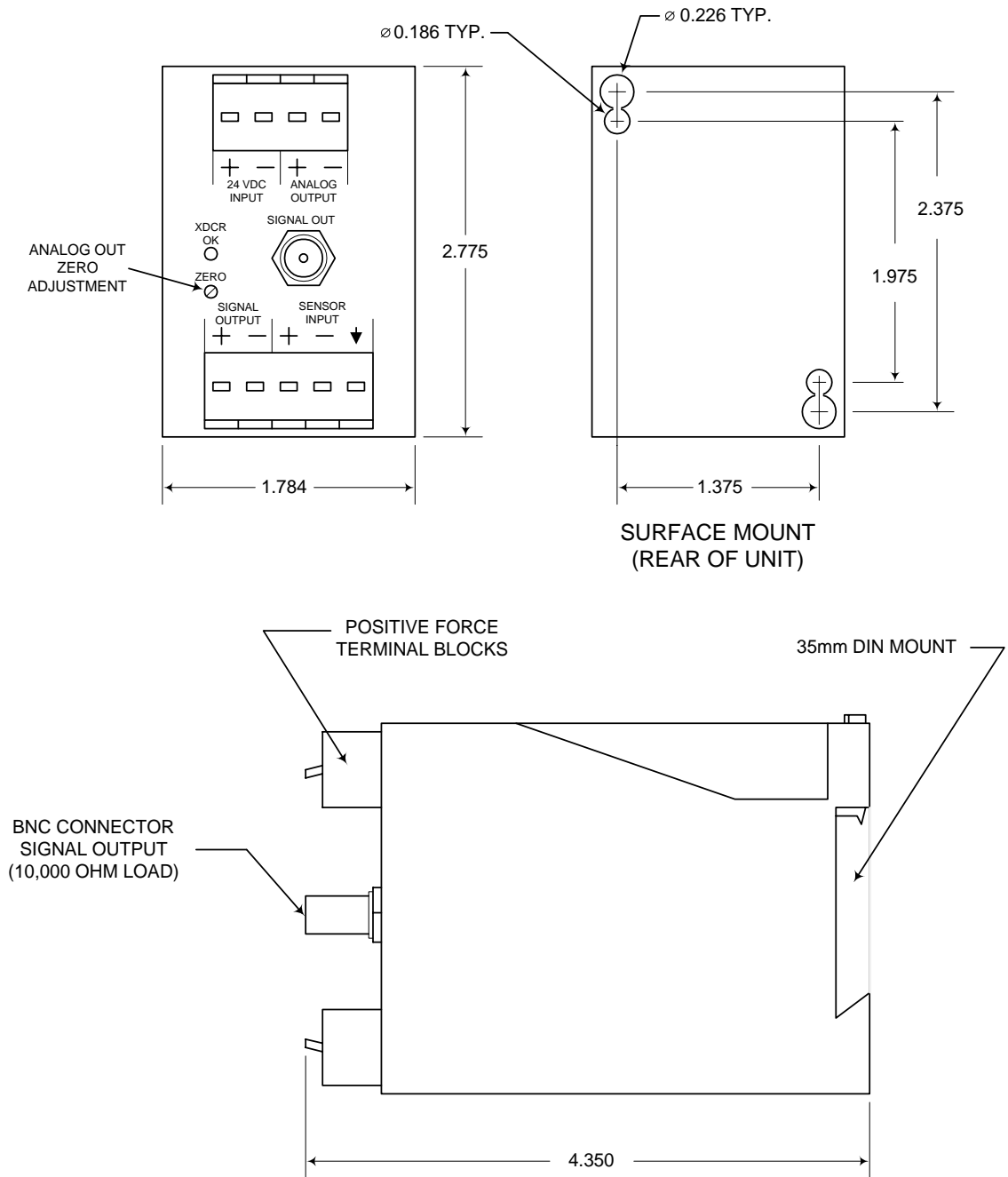


Figure 1-1
Dimensional Outline Drawing

Part Number Guide

To build a part number, select the desired parameters using the part number guide below:

CEC P/N 1-808-			A	A	B	B	B	-	C	D	E	-	H	L
VIBRATION TRANSMITTER														
A	INPUT TYPE		AC = mV/g constant current AD = pC/g differential-charge AM = mV/g millivolt input DM = mV/mil millivolt input VC = mV/ips constant current VM = mV/ips millivolt input VS = mV/ips self-generating											
	B	INPUT SENSITIVITY		0 1 0 - 9 9 9										
C	ANALOG OUTPUT		2 = 0 - 10 Vdc 4 = 4 - 20 mA (Standard) 5 = 0 - 5 Vdc											
D	OUTPUT MODE (Units of Measure)		1 = g's, peak 5 = ips, rms 2 = ips, peak 6 = mm/s, peak 3 = mils, peak-peak 7 = mm/s, rms 4 = g's, rms 8 = μm, peak-peak											
E	OUTPUT RANGE (Full Scale)		1 = 0 - 1 5 = 0 - 20 2 = 0 - 2 6 = 0 - 50 3 = 0 - 5 7 = 0 - 100 4 = 0 - 10 A = 0 - 40											
H	HIGH PASS FILTER		0 = 5 Hz 5 = 100 Hz A = 15 Hz 1 = 5 Hz 6 = 200 Hz 2 = 10 Hz 7 = 500 Hz 3 = 20 Hz 8 = 1,000 Hz 4 = 50 Hz 9 = 2 Hz											
L	LOW PASS FILTER		0 = 20,000 Hz 5 = 500 Hz A = 12,000 Hz 1 = 50 Hz 6 = 1,000 Hz B = 350 Hz 2 = 70 Hz 7 = 2,000 Hz C = 3,000 Hz 3 = 100 Hz 8 = 5,000 Hz D = 9,600 Hz 4 = 200 Hz 9 = 300 Hz											

NOTE: Special configurations can be accommodated. Please consult the factory for assistance.

Example: P/N 1-808-

V	S	1	4	5
---	---	---	---	---

 -

4	5	3
---	---	---

 -

2	6
---	---

The example unit's input is from a self-generating velocity transducer @ 145 mV / ips. The output is 4-20 mA scaled from 0 to 5 ips, rms. The filtering includes a 10 Hz high pass and 1,000 Hz low pass.

Figure 1-2
Part Number Guide

Section II Installation



EXPLOSION HAZARD - Substitution of components may impair suitability for Class I, Division 2 operation.



EXPLOSION HAZARD - Do not connect or disconnect equipment unless power has been removed or the area is known to be non-hazardous.

This equipment is suitable for use in Class I, Division 2, Groups A,B,C,D hazardous locations or non-hazardous locations only.

Electrical Connections

1. Connect the cables from the transducer to the SENSOR INPUT +/- connectors at the bottom front of the vibration transmitter. If power and transducer are connected correctly, upon applying power, the green XDCR OK LED will turn on.
2. Connect the vibration monitoring test equipment to the desired output connection.
 - **ANALOG OUTPUT ±:** this is an ACTIVE or powered 4-20 mA filtered output, signal proportional to full scale. (0-5 VDC or 0-10 VDC optional)
 - **SIGNAL OUTPUT ±:** an unfiltered connection showing the raw signal from the transducer.
 - **BNC SIGNAL OUT:** serves the same function as the SIGNAL OUTPUT ± connection.
3. Connect the 24 VDC input power to the two connectors (+ & - 24 VDC INPUT) on the top front of the vibration transmitter.

Mounting the Transmitter Case

The transmitter case is designed for quick mounting to a 35mm din rail. The case can be surface mounted via screw holes located at opposite corners (see Figure 2-2).

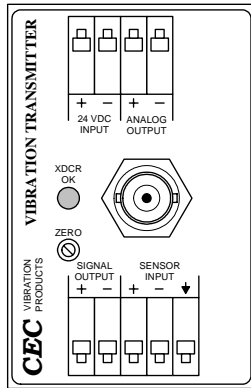


Figure 2-1
Front Panel

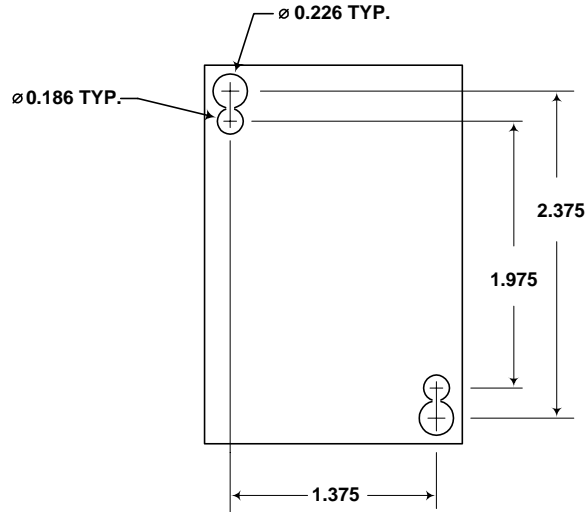


Figure 2-2
Surface Mount Holes

Section III Operation

Operating Procedure

To operate the 1-808 Vibration Transmitter, after making sure that all connections are properly seated and in the right order, apply power. If the sensor connection is good, the green XDCR OK light should be illuminated. With no vibration signal the 4-20 mA output should be at 4 mA.

CAUTION

Make sure that power input does not exceed specified limits or damage to the system may result. See Table 1-1.

Analog Output Zero Adjustment

This section contains test setup and procedures for adjusting the zero. The zero adjustment has been factory set and normally requires no adjustments. If an adjustment becomes necessary, it can be accomplished as described below:

1. Adjustment should be made with the machine being monitored not running. (No signal input)
2. For mA current output; monitor the output with a DC current meter connected to the output. A minimum series load resistor of 50Ω should be used (maximum load resistor is 1 K). For voltage output, monitor the output with a DC voltmeter.
3. Adjust the ZERO ADJUST for a 4.00 mA reading. The unit is now ready to monitor.

Section IV Maintenance

General

There are no customer replaceable parts within the 1-808 Vibration Transmitter. The amplifier has been designed for trouble-free service under normal operating conditions. CEC warrants the equipment for one year from the date of purchase. Should your instrument require repair within the warranty period, you may contact our customer service representative at:

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