



5510C PROXIMITY SIGNAL CONDITIONER

Installation Manual



OVERVIEW

Converts a proximity transducer system to a transmitter for connection to a PLC or DCS. Replaces older monitor racks incrementally at lower cost. Provides 4-20 mA output proportional to shaft radial vibration. Dynamic signal is available at the signal conditioner or remotely.

INSTALLATION

Each signal conditioner is supplied with either a flanged base or a DIN rail adapter. When mounting the signal conditioner in either the 7595 explosion proof housing or the 7876 weatherproof housing, the DIN rail adapter must be used. For best results, the signal conditioner should be installed within 1000 feet (300 m) of the transducer to which it is connected.

WIRING

DRIVER (Signal Input): Connect the three conductor proximity probe driver cable leads to these terminals. The V terminal is factory set to 18VDC or 24VDC as specified at the time of order. Internal V selection jumper JP1 and JP2 may be changed in the field. The cable shield (recommended) should be wired only on the signal conditioner end to the terminal marked COM.

420 mA (Current Source Output): Wire the receiving device to these terminals, observing correct polarity. The total resistance of the receiver input and wiring must not exceed 600 ohms.

SIG OUT (Signal Output): This signal is identical to the input signal (AC with DC bias) and is buffered for driving remote vibration analysis instruments and for verifying the probe gap. The terminal block terminals and the BNC connector are wired in parallel.

24 VDC (Power Input): For best results, the sum of the DC power voltage, plus or minus AC ripple and noise, should be within 18 to 30 volts.

SENSOR MALFUNCTION

The signal conditioner is provided with a sensor malfunction detector, which causes the output current to drop below 3.5 mA if either the probe or extension cable are open or disconnected.

CALIBRATION

Each signal conditioner's 20 mA output (SPAN) is factory set to the full scale value indicated on the nameplate. However, if the calibration is in doubt, it can be checked as follows:

- **ZERO:** Stop the machine in which the proximity probe is mounted and observe the output current, which should be 4 mA \pm 0.25 mA. The Z (ZERO) adjustment is under the plastic plug on the cover plate.
- **SPAN:** The most reliable way to check the calibration of the probe driver and signal conditioner as a system is to compare the signal conditioner current output with an independent, accurate pk-pk vibration measurement obtained via the signal conditioner BNC connector.

During normal operation with vibration input, the signal conditioner current output is linearly proportional to the full scale vibration range between 4-20 mA.

FORMULA:
$$\frac{\text{Measured mA} - 4\text{mA}}{20\text{mA} - 4\text{mA}} \times \text{FS vibration} = \text{actual vibration (pk-pk)}$$

EXAMPLE:

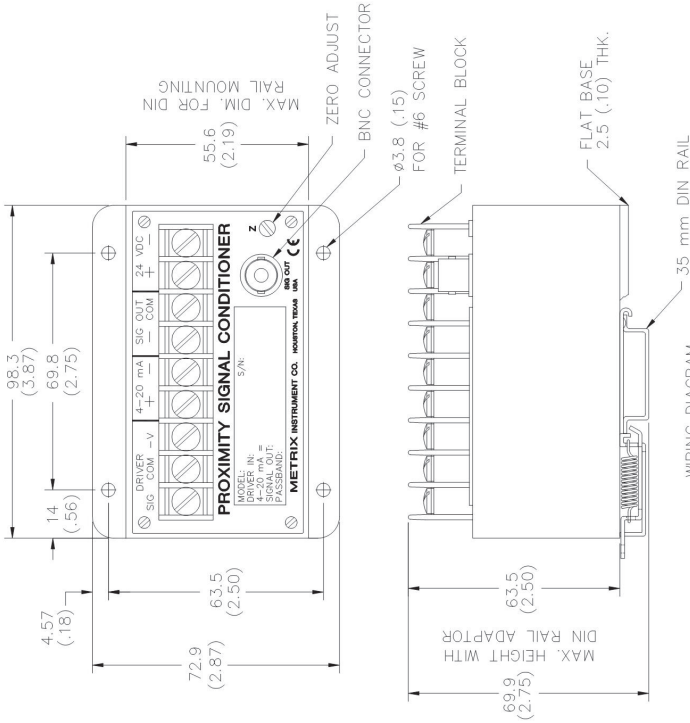
Measured mA	Full Scale Vib	Actual Vib
<3.5	10 mils pk-pk	Sensor fault
4.0	10 mils pk-pk	0.0 mils pk-pk
12.0	10 mils pk-pk	5.0 mils pk-pk
20.0	10 mils pk-pk	10.0 mils

REV	DATE	DESCRIPTION
A	03-31-92	REVISED
B	11-13-92	REVISED
C	04-23-93	REVISED
D	08-28-00	REVISED
E	08-28-00	REVISED
F	12-29-09	REVISED

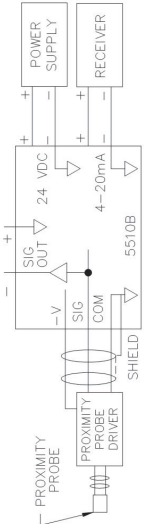
SIGNAL CONDITIONER SPECIFICATIONS:

INPUT: NON-CONTACT PROXIMITY PROBE, CABLE AND DRIVER
 INPUT (DRIVER) SENSITIVITY: 200 mV/MIL
 PROBE DRIVER (-V) POWER: -24VDC
 CURRENT SOURCE OUTPUT (4-20 mA): 4-20 mA DC PROPORTIONAL TO PK, TO PK, VIBRATION
 MAXIMUM LOAD RESISTANCE: 600 OHMS
 VIBRATION RANGES: SEE TABLE
 CALIBRATION: BASED ON TRUE PK, TO PK, DISPLACEMENT RESPONSE
 FREQUENCY RESPONSE: 5 Hz TO 10 KHz, -3db
 BUFFERED INPUT SIGNAL (SIG OUT): 200 mV/MIL, INCLUDES DC BIAS FOR PROBE GAPPING.
 PROBE FAILURE: CAUSES OUTPUT TO FALL BELOW 3.5 mA
 ISOLATION: 500 V, CIRCUIT TO CASE
 TEMPERATURE LIMITS: -40°C TO +66°C
 POWER (24VDC): +18 TO +30 VDC, 60 mA

MODEL	FULL SCALE VIBRATION	MOUNTING
5510C-001	5 MILS (125 um), PK-PK	FLAT BASE
5510C-002	10 MILS (250 um), PK-PK	FLAT BASE
5510C-003	20 MILS (500 um), PK-PK	FLAT BASE
5510C-101	5 MILS (125 um), PK-PK	DIN RAIL ADAPTOR
5510C-102	10 MILS (250 um), PK-PK	DIN RAIL ADAPTOR
5510C-103	20 MILS (500 um), PK-PK	DIN RAIL ADAPTOR



WIRING DIAGRAM



DIMENSIONS IN mm (inches)

MATERIAL		FINISH		MATERIALS OF CONSTRUCTION		MATERIALS OF CONSTRUCTION		MATERIALS OF CONSTRUCTION	
BASE	303 STAINLESS STEEL	PLATING	303 STAINLESS STEEL	FINISH	303 STAINLESS STEEL	FINISH	303 STAINLESS STEEL	FINISH	303 STAINLESS STEEL
TERMINALS	303 STAINLESS STEEL	PLATING	303 STAINLESS STEEL	FINISH	303 STAINLESS STEEL	FINISH	303 STAINLESS STEEL	FINISH	303 STAINLESS STEEL
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SPECIFICATIONS: 5510C		PROXIMITY SIGNAL CONDITIONER		PROBE DRIVER INPUT		PART NO. M8321-001		REV. 1.0	
U.S.A.		METRIX INSTRUMENT CO.		U.S.A.		PART NO. M8321-001		REV. 1.0	
PART NO. M8321-001		REV. 1.0		PART NO. M8321-001		REV. 1.0		PART NO. M8321-001	
PART NO. M8321-001		REV. 1.0		PART NO. M8321-001		REV. 1.0		PART NO. M8321-001	

ENVIRONMENTAL INFORMATION



This electronic equipment was manufactured according to high quality standards to ensure safe and reliable operation when used as intended. Due to its nature, this equipment may contain small quantities of substances known to be hazardous to the environment or to human health if released into the environment. For this reason, Waste Electrical and Electronic Equipment (commonly known as WEEE) should never be disposed of in the public waste stream. The “Crossed-Out Waste Bin” label affixed to this product is a reminder to dispose of this product in accordance with local WEEE regulations. If you have questions about the disposal process, please contact Metrix Customer Services.

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