

OVERVIEW

The 5580 is a new generation DIN rail mounted Smart Vibration Signal Conditioner from Metrix. It has been designed to accept signals from machine casing mounted velocity sensors, accelerometers or shaft observing proximity probe systems and produce a 4-20 mA output proportional to the measured variable and an amplified raw signal. It provides the user with a programmable signal input type for one or two independent channels plus a configurable feature to scale output either to peak or RMS units. For each channel, a green LED indicates sensor and cable integrity. In the event of sensor failure, the LED changes to red and the output current is driven below 3.6 mA, thereby signaling a malfunction. A BNC connector gives access to the raw input signal for local analysis. A built-in 4-digit LCD display is used to display both dynamic input and 4-20 mA output signal. Isolation is provided between input, outputs and supply.

Designed for ease of use, the USB interface is fitted for quick and easy configuration. Just connect a standard USB cable between the 5580 and your PC. Using our free configuration software, you can configure the device in the field to meet your application requirements. Use as a single or dual channel mode.

FEATURES

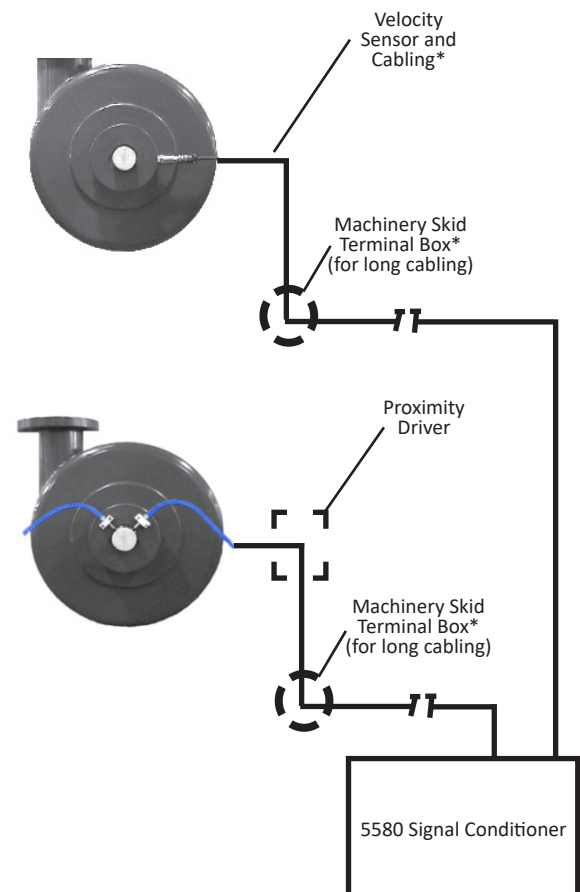
- Two channel module, one or two channels enabled
- Field configurable full-scale range
- Field selectable input type and output scale units
- Field reconfigurable High, Low and Band Pass Frequency Filters for specific machine conditions
- Reduced cost alternative to rack mount monitors
- Drives dynamic signals over long distances (300 m or 1000 ft)
- Interfaces an accelerometer, velocity sensor, or proximity probe system to a PLC, DCS or other 4-20 mA input monitor
- Provides 4-20 mA output proportional to vibration level
- Sensor/cable input status light (green/red LED)
- BNC connector for waveform analyzers

APPLICATIONS

- Industrial Fans
- Motors & Generators
- Process Pumps
- Centrifuges
- Natural Gas/Diesel Engines
- Gas Turbines
- Other Rotating/Reciprocating Machines



TYPICAL INSTALLATION DIAGRAM



SPECIFICATIONS

Input signal	100 to 500 mV/ips, 10 to 100 mV/g, 100-200 mV/mil
Sensor Excitation Provided	Required only for piezo-velocity sensor input types: 24 VDC, 4 mA constant current standard.
Output	4-20 mA dc (source)
Dynamic Signal Output	Buffered input signal at BNC and terminal block (300m or 1000ft)
Vibration Range	See "Ordering Option D"
Maximum Load Resistance	600 Ω
Frequency Response	2 Hz to 2 kHz for velocity 2 Hz to 5 kHz for proximity 2 Hz to 10 kHz for acceleration
Sensor Malfunction	Output current driven below 3.6 mA and sensor status green LED turns to red when sensor/cable not OK
Filters	Optional low-pass and high-pass filters (36 db/octave). Filter section does not affect dynamic signal. See "Ordering Option E & F"
Vibration Indicator	4-digit LCD display of vibration level
Temperature Limits	-10° to +66°C (+14° to +150°F)
Input Power	20 to 30 Vdc. Reverse polarity and electrical transient protection provided
Hazardous Area Certification	Available safety certification for CSA & NRTL/C Class I (A, B, C & D), Div. 2. ATEX/IECEX See "Ordering Option H"
Electromagnetic Compatibility	Yes

WIRING DIAGRAMS

PIN	Signal	
1	4-20mA +	
2	4-20mA -	
3	Raw signal out +	
4	Raw signal out -	
5	NC*	PS
6	A/V +	PC
7	A/V -	PP
8	24VDC +	NC**
9	GND	NC**
10	DO1 +	
11	DO1 -	
12	DO2 +	
13	DO2 -	

A/V – Accelerometer/velocity sensor

PS – Proximity Signal

PC – Proximity Common

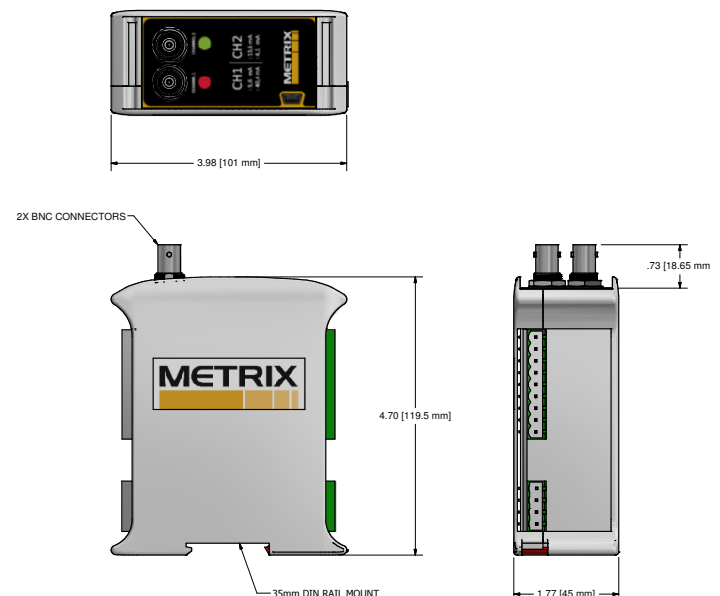
PP – Proximity Power

NC* – No connection for accelerometer/velocity

NC** – No connection for channel 2

DO – Digital out

WEIGHT & DIMENSIONS



ORDERING INFORMATION

5580 SIGNAL CONDITIONER ¹ MODEL 5580-A-B-CCC-D-E-FFF-GG-H 5580-□-□-□□□-□-□-□□□-□□-□			
A	Channel Configuration		
1	Channel 1 ^{1, 2, 3}		
2	Channel 2 ³		
B	Input Signal Type		
1	Velocity sensor		
2	Accelerometer		
3	Proximity probe system		
CCC	Full Scale Range		
CCC (If B=1)		Sensor Input Type/ Mounting Style/ Range Code	
Input Velocity Sensor Type		Vibration Range (4-20 mA Output)	Output Measure
E/M Types: Metrix Model 5485C	Piezo Velocity: Metrix Model SV6300		
102	502	0 - 1.0 ips, pk	Velocity/ English System
132	532	0 - 1.0 ips, rms	
103	503	0 - 2.0 ips, pk	
133	533	0 - 2.0 ips, rms	
105	505	0 - 10 mils, pk-pk	Displacement/ English System
106	506	0 - 20 mils, pk-pk	
302	702	0 - 20 mm/s, pk	Velocity/ Metric System
332	732	0 - 20 mm/s, rms	
303	703	0 - 50 mm/s, pk	
333	733	0 - 50 mm/s, rms	
305	705	0 - 200 μm, pk-pk	Displacement/ Metric System
306	706	0 - 500 μm, pk-pk	
DIN rail	DIN rail	1 mm/s = 0.03937 ips 1 ips = 25.4 mm/s 1 mil = 25.4 μm 1 μm = 0.03937 mil	
Mounting Style			

NOTES:

1. If only channel configuration "1" is entered in the order, channel 2 will be disabled by manufacturer, but can be enabled from the configuration software with additional fee.

2. If channel "2" is desired another order should be entered with channel configuration "2" selected. There is a fee for the additional channel.

3. Channel configuration "2" cannot be ordered without first ordering channel configuration "1".

CCC (If B=2)			Sensor Input Type/ Mounting Style/ Range Code	
Accel sensor (Input)			Vibration Range (4-20 mA Output)	Output Measure/ Unit System
DIN rail				
102			0 - 10 g, pk	Acceleration/ English System
132			0 - 10 g, rms	
107			0 - 50 g, pk	
137			0 - 50 g, rms	
105			0 - 1.0 ips, pk	Velocity/ English System
135			0 - 1.0 ips, rms	
106			0 - 2.0 ips, pk	
136			0 - 2.0 ips, rms	
302			0 - 100 m/s ² , pk	Acceleration/ Metric System
332			0 - 100 m/s ² , rms	
307			0 - 500 m/s ² , pk	
337			0 - 500 m/s ² , rms	
305			0 - 20 mm/s, pk	Velocity/ Metric System
335			0 - 20 mm/s, rms	
306			0 - 50 mm/s, pk	
336			0 - 50 mm/s, rms	
CCC (IF B=3)			Proximity Probe System Type	
0	0	2	4 mils, pk-pk (Vibration)	
0	0	3	5 mils, pk-pk (Vibration)	
0	0	4	6 mils, pk-pk (Vibration)	
0	0	5	10 mils, pk-pk (Vibration)	
0	0	6	15 mils, pk-pk (Vibration)	
0	0	7	20 mils, pk-pk (Vibration)	
0	0	8	30 mils, pk-pk (Vibration)	
0	0	9	40 mils, pk-pk (Vibration)	
0	2	1	100 μm, pk-pk (Vibration)	
0	2	2	150 μm, pk-pk (Vibration)	
0	2	3	200 μm, pk-pk (Vibration)	
0	2	4	250 μm, pk-pk (Vibration)	
0	2	5	300 μm, pk-pk (Vibration)	
0	2	6	400 μm, pk-pk (Vibration)	
0	2	7	500 μm, pk-pk (Vibration)	
0	2	8	750 μm, pk-pk (Vibration)	
0	2	9	1000 μm, pk-pk (Vibration)	
0	5	0	30-70 mils, avg gap (Position)	
0	5	1	20-80 mils, avg gap (Position)	
0	5	2	10-90 mils, avg gap (Position)	

CCC (If B=3)			Proximity Probe System Type Continued
0	5	3	10-50 mils, avg gap (Position)
0	5	4	20-70 mils, avg gap (Position)
0	5	5	10-60 mils, avg gap (Position)
0	5	7	20-160 mils, avg gap (Position)
0	5	8	20-180 mils, avg gap (Position)
0	7	0	750-1750 μm , avg gap (Position)
0	7	1	500-2000 μm , avg gap (Position)
0	7	2	250-2250 μm , avg gap (Position)
0	7	3	250-1250 μm , avg gap (Position)
0	7	4	500-1750 μm , avg gap (Position)
0	7	5	250-1500 μm , avg gap (Position)
0	7	7	500-4000 μm , avg gap (Position)
0	7	8	500-4500 μm , avg gap (Position)
5	0	1	500 RPM (Speed)
2	0	2	2000 RPM (Speed)
3	6	2	3600 RPM (Speed)
4	0	2	4000 RPM (Speed)
5	0	2	5000 RPM (Speed)
6	0	2	6000 RPM (Speed)
7	5	2	7500 RPM (Speed)
1	0	3	10000 RPM (Speed)
1	5	3	15000 RPM (Speed)
5	0	3	50000 RPM (Speed)
6	0	3	60000 RPM (Speed)
7	5	3	75000 RPM (Speed)
1	0	4	100000 RPM (Speed)
D			High-Pass Filter ⁴
0			No filter
1			N/A (Accel) or 5 Hz (Velocity or Proximity)
2			N/A (Accel) or 10 Hz (Velocity or Proximity)
3			N/A (Accel) or 20 Hz (Velocity or Proximity)
4			50 Hz
5			100 Hz
6			200 Hz
7			500 Hz
8			1 kHz
9			2 kHz

E		Low-Pass Filter ⁴	
0		No filter	
1		20 Hz	
2		50 Hz	
3		100 Hz	
4		200 Hz	
5		500 Hz	
6		1 kHz	
7		2 kHz	
8		N/A (Vel) or 5 kHz (Acceleration or Proximity)	
9		N/A (Velocity or Proximity) or 10 kHz (Accel)	
FFF (If B=1)			Sensor Input in mV/ips (mV/mm/s)
1	0	0	100 mV/ips (3.9 mV/mm/s)
1	0	5	105 mV/ips (4.1 mV/mm/s)
1	4	5	145 mV/ips (5.7 mV/mm/s)
1	5	0	150 mV/ips (5.9 mV/mm/s)
2	0	0	200 mV/ips (7.9 mV/mm/s)
5	0	0	500 mV/ips (19.7 mV/mm/s)
FFF (If B=2)			Sensor Input in mV/g (mV/mm/s ²)
0	1	0	10 mV/g (1 mV/m/s ²)
0	2	5	25 mV/g (2.55 mV/m/s ²)
0	5	0	50 mV/g (5.10 mV/m/s ²)
1	0	0	100 mV/g (10.20 mV/m/s ²)
FFF (If B=3)			Driver Output in mV/mil (mV/ μm)
100			100mV/mil (3.937 mV/ μm)
200			200mV/mil (7.87 mV/ μm)
GG		Pulses per Revolution	
0	0	N/A (for vibration or position), Accelerometer or Velocity Input	
X	X	XX=Number of pulses per revolution (keyways), valid entries are two digit numbers from 01-99, with a maximum value of RPM x # keyways \leq 190,000. These two digits are relevant to proximity speed mode only.	
H		Hazardous Area Certification ⁵	
0		No Hazardous Approval Area	
1		CSA US/C, Class I, Div 2, Grps A-D (non-incendive)	
2		ATEX, Ex nA IIC T4 Gc (non-incendive)	
3		IECEx, Ex nA IIC T4 Gc (non-incendive)	

NOTES:

4. Standard is E = 0 ; Filters affect 4-20 mA output but have no effect on dynamic output.

5. When connected & wired w/approved Metrix sensor. Request Application Wiring Drawing 1874437 for details.

Ordering Example: 5580-1-2-102-00-025-0

Channel 1, Accelerometer input, DIN-rail with 0-10 g, pk range, no filter, 25 mV/g sensor input, no hazard area certification.