

MX2020/SSI Signal Simulator Interface

Overview

The Signal Simulator Interface (SSI) allows easy connection of a signal generator to a vibration monitoring module for simulating up to two channels of dynamic vibration. The SSI also provides DC offset¹ adjustment from -2V to -22V, used for simulating static measurements that rely on changes in gap or bias voltage, such as axial thrust position and sensor OK limits.

A standard 3.5mm stereo headphone jack connects the SSI to a single- or dual-channel signal generator.² A composite signal consisting of the DC bias voltage and the AC waveform will be output from the SSI, simulating the signal from a proximity probe, accelerometer, or velocity transducer. Each composite signal is supplied to the vibration monitor using the included cable. The standard cable supplied with the SSI terminates in a connector used for a SETPOINT™ Universal Monitoring Module (UMM)³. The UMM connector may be easily removed, allowing the cable to interface to vibration monitor types from other manufacturers.

Combined, the SSI and a signal generator allow testing and verification of numerous monitoring system functions such as vibration amplitude measurement, position measurement, alarm limits, OK limits, alarm delays, alarm voting logic, Timed OK channel defeat, latching and non-latching alarm types, channel filter response, signal integration, gap voltage measurement, and many others.

The SSI obtains all necessary power directly from the its connected vibration monitor and does not require a battery or other external power source.



For an affordable and highly compact signal generator solution, Metrix recommends the use of an iPod® Touch, iPhone®, or iPad® device running Audio Artillery's *Sig Gen* app. Connect the *Headphone Out* jack on the iDevice to the *SIG* jack on the SSI using the included SIG cable.⁴

Features and Benefits

- **Works Great with iPod, iPhone, or iPad**
Although the SSI will work with any signal generator or AC signal source, it is especially convenient when used with an Apple iPod Touch or iPhone due to the diminutive size and portability of a 2-CH signal generator that fits in your pocket.

- **Mistake-Proof**

All inputs/outputs on the SSI are clearly labeled, connectors are keyed, and cables are pre-assembled to ensure no wiring or connection mistakes occur.

- **Affordable**

Most signal generators, regardless of price, provide only ± 5 V of DC offset adjustment. And, even the least expensive 2-CH function generators cost in excess of \$500. In contrast, the SSI solution is inexpensive while delivering the necessary range of DC offset adjustment. When coupled with a very affordable 8GB iPod Touch (\$199 US) and the *Sig Gen* app (just \$2.99 from the Apple App Store), the result is a complete 2-CH vibration signal simulator solution with adjustable waveform type, amplitude, frequency, phase, and full gap voltage offset range for around \$200 US. And, if you already own an iPhone, iPod Touch, or iPad, your only expense is the minimal cost of the *Sig Gen* app.

- **Capable**

The SSI can be used to simulate outputs from thrust probes, radial vibration probes, seismic sensors, and phase reference probes. This makes it extremely handy for conducting loop checks and other system verification tasks.⁵

NOTES:

1. Most commercially available signal generators are capable of supplying a DC offset of only ± 5 V. This is not sufficient to simulate the full range of typical thrust position measurements or transducer OK limits. The SSI permits simulation of such measurements by providing -2Vdc to -22Vdc of offset adjustment.
2. When a single-channel signal generator is used, a composite AC/DC signal will only be available from channel 1 of the SSI. DC gap voltage adjustment will still be available for channel 2, but no AC signal will be present.
3. This cable has a 4-pin DIN connector on one end and a standard UMM 16-terminal connector on the other end.

4. The SIG cable has a 3.5mm stereo male plug on each end.
5. While surprisingly accurate, the *Sig Gen* app and corresponding iPad/iPhone/iPod hardware is not suitable for system calibration tasks that require traceability to a reference standard.

Specifications

All specifications subject to change without notice.

Power	-24Vdc (supplied by UMM)
Channels	Two
Channel Adjustment Range	Gap: -2 Vdc to -22 Vdc AC signal: Adjusted via external signal source, such as iPod running Sig Gen app. Components in SSI limit total signal amplitude (AC + gap) to ± 24 V.
Dimensions (L x W x D)	3.97" x 2.02" x 1.65" (100.9 x 51.4 x 41.9 mm)
Cable Type	<ul style="list-style-type: none"> • UMM: Alpha wire 1774C or equal (22 AWG, 4 conductors, PVC jacket). Standard 4-pin DIN connector (male) to 16-terminal UMM connector. • SIG: 24AWG, 3 conductors, shielded; 3.5mm male stereo plug both ends
Cable Length	<ul style="list-style-type: none"> • UMM: 36" (914 mm) • SIG: 72" (1829 mm)
Weight (including cables)	0.5 lbs (227 g)
Temperature	-10 to + 210° F (-23 to +99° C)
Certifications	None. Designed for temporary, indoor use only as part of demonstrations. Not for use as part of a permanent machinery protection installation.
Manufacturer	Metrix

Ordering Information

SETPOINT MPS Signal Simulator Interface (SSI)

NOTE: Signal generator, iPod, iPhone, or iPad device and Sig Gen software supplied separately and must be ordered directly from their respective manufacturers.



MX2020/SSI-AA-BB

SETPOINT Signal Simulator Interface (SSI)

AA UMM cable length (in feet)

0	0	No UMM cable
0	3	3' UMM cable

BB SIG cable length (in feet)

0	0	No SIG cable
0	6	6' SIG cable

Spare Cables

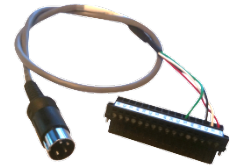
These cables are supplied with the SSI and do not need to be ordered separately except as spares for lost or damaged cables.

100529-AA

SSI UMM Cable (4-pin DIN male to UMM input terminal block)

AA Cable length (in feet)

0	3	3' cable
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100531-AA

SSI SIG Cable (3.5mm stereo audio male, both ends)

AA Cable length (in feet)

0	6	6' cable
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Ordering Information



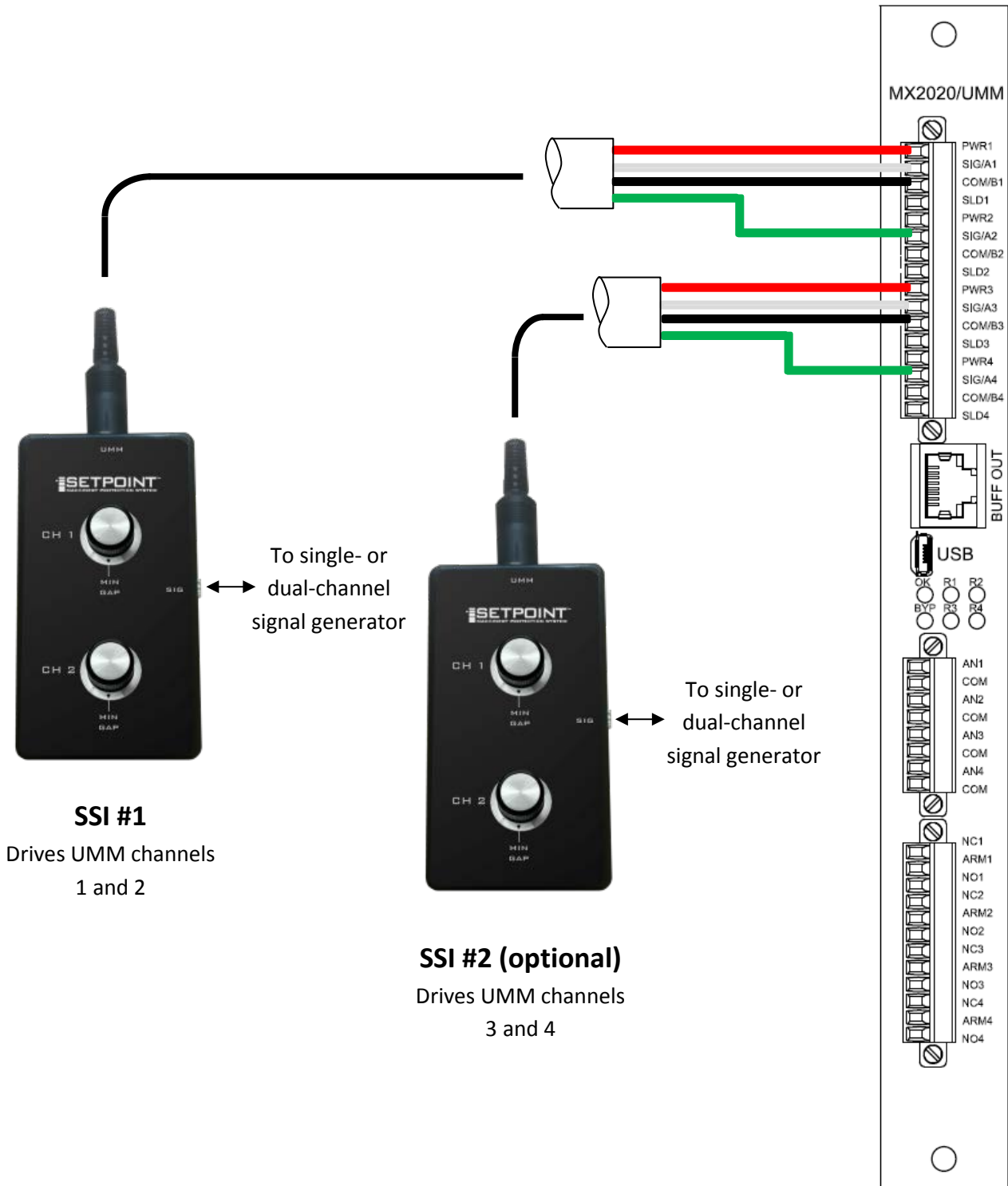
Special 36" pre-assembled cable (not shown) goes to CH 1 and CH 2 of UMM. Uses -24Vdc power from UMM (no batteries or separate power required). Cable is removable for easy transport. 4-pin DIN on one end, standard 16-terminal UMM connector on other end.

Signal Simulator Interface (SSI)

Rotary pots independently adjust gap voltage on CH 1 and CH2. Used for simulating axial thrust position and probe NOT OK conditions.

Standard 3.5mm stereo audio cable routes signal from iPod (or other function generator) into SSI.

Sig Gen app by Audio Artillery allows iPod/iPhone/iPad to act as a 2-channel function generator. User selects waveform type for each channel, amplitude in V_{pp}, frequency (Hz), and relative phase between channels. Signal is output via headphone jack.



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Experience Value

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