Brüel & Kjær Vibro
a spectris company

Product specifications and ordering information

SP-2020/SSI Signal Simulator Interface

iSETPOINT® by Brüel & Kjær Vibro

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 offset[1] adjustment from -2 V to-22 V, 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 3.5 mm 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 used between the SSI and the monitoring system has an RJ45 connector on the SSI end and flying leads terminated in ferrules on the other end, allowing insertion into the I/O terminal blocks used with most monitoring systems, including B&K Vibro VC-8000, VC-6000, Bently Nevada 3500, and many others.

Combined, the SSI and a signal generator allow testing and verification[3] 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 connected vibration monitor and does not require a battery or other external power source.

For an affordable and highly compact signal generator solution, an Apple iPod® Touch, iPhone®, or iPad® device running our free BKVtools app can be used.

Connect the Headphone Out jack on the iDevice to the SIG jack on the SSI using the included SIG cable[4]. For even greater flexibility, off-the-shelf Bluetooth devices[5] can be used to wirelessly connect the SSI to the associated iDevice running BKV*tools*.

NOTES:

1. Most signal generators are capable of supplying only +/- 5 V of DC offset. 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. While surprisingly accurate, the BKVtools app and corresponding iPad/iPhone/iPod hardware is not suitable for system calibration tasks that require traceability to a reference standard.
4. The SIG cable has a 3.5 mm stereo male plug on each end.
5. For example, MPOW's Bluetooth receiver (model MBR1).

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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.
- **Capable**
  Most signal generators, regardless of price, provide only ± 5 V of DC offset adjustment. In contrast, the SSI solution delivers the full range of DC offset adjustment required by proximity probe channels. The result is a complete 2-CH vibration signal simulator solution with adjustable waveform type, amplitude, frequency, phase, and gap voltage offset range. The SSI can thus be used to simulate outputs from thrust probes, radial vibration probes, seismic sensors, and phase reference probes, ideal for conducting loop checks and other system verification tasks.

Specifications

All specifications are at +25 °C (+77° F) unless otherwise noted. Specifications are subject to change without notice.

Power	-24 Vdc (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	• **Monitor:** Standard RJ45 connector (male) one end; four flying leads with ferrules on other end (SIG 1, SIG 2, COM, PWR) • **SIG: 24AWG**, 3 conductors, shielded; 3.5mm male stereo plug both ends
Cable Length	• **Monitor:** 36" (914 mm) • **SIG:** 72" (1829 mm)
Weight (including cables)	0.5 lbs (227 g)
Operating Temperature	-5 to + 150° F (-20 to +65° C)

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Ordering Information

SETPOINT Signal Simulator Interface (SSI)

This part includes only the SSI and cables. Signal generator, iDevice, and (optional) Bluetooth receiver sold separately by their respective manufacturers.

SP-2020/SSI-AA-BB

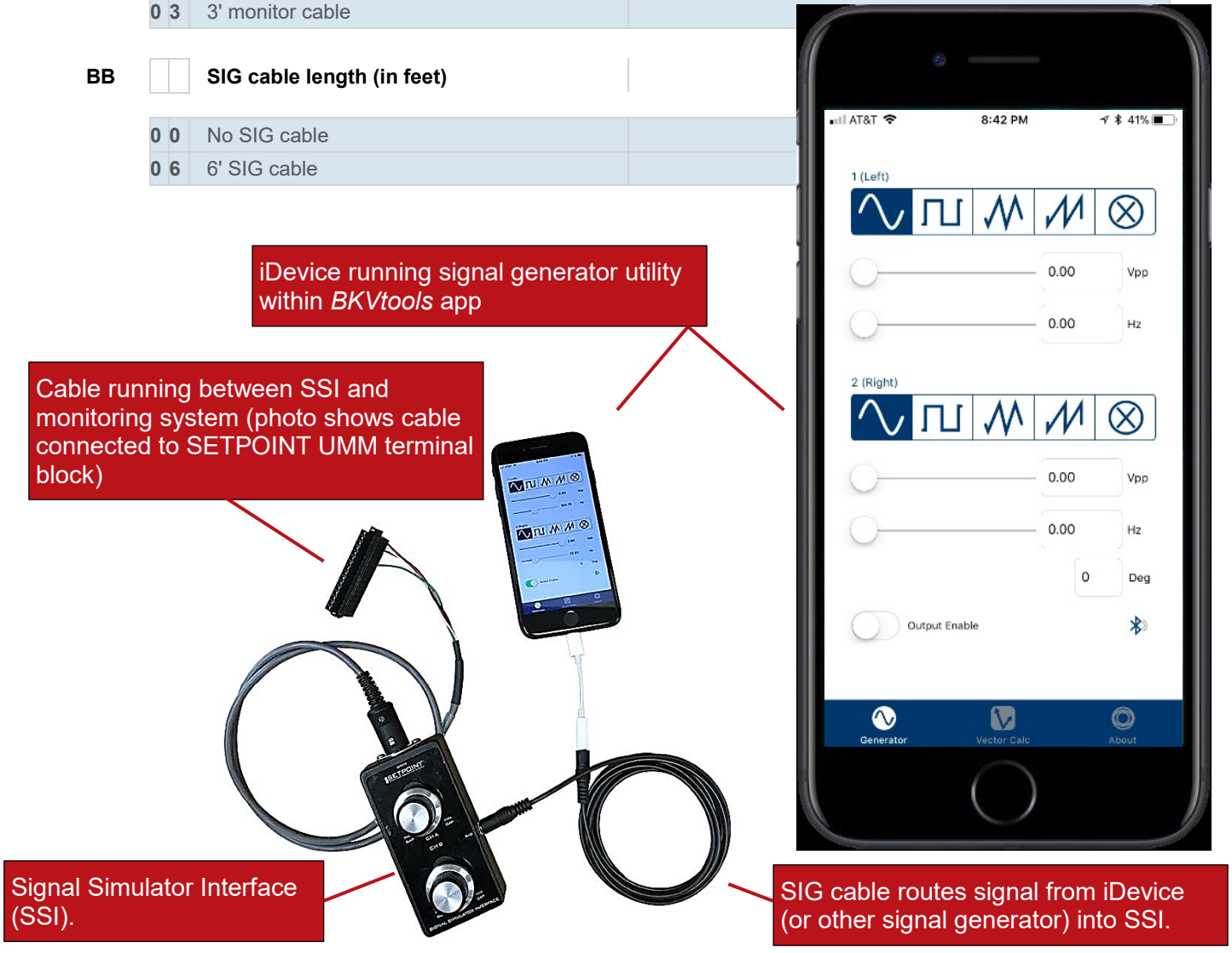
SETPOINT Signal Simulator Interface (SSI)

AA **Monitor cable length (in feet)**

0 0	No monitor cable
0 3	3' monitor cable

BB **SIG cable length (in feet)**

0 0	No SIG cable
0 6	6' SIG cable



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Wired or Wireless Connections

Can be hardwired to iDevice's headphone jack using SIG cable

Or can be connected wirelessly to iDevice using off-the-shelf Bluetooth receiver.

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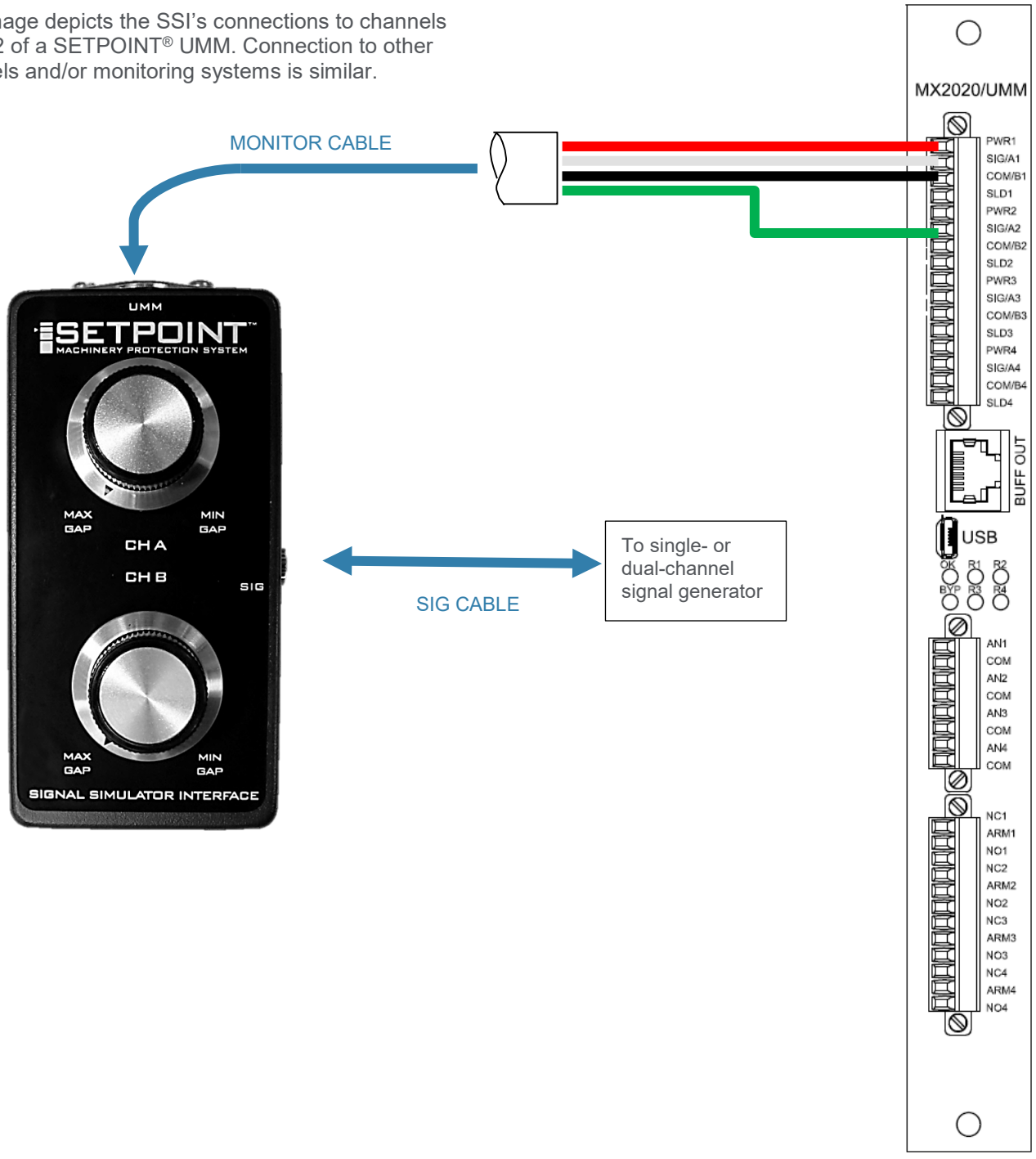
Typical Wiring Diagram

This image depicts the SSI's connections to channels 1 and 2 of a SETPOINT® UMM. Connection to other channels and/or monitoring systems is similar.



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