Quick Start Guide

MODEL DKSW5580

SW5580 DEMO KIT - DESCRIPTION

Metrix SW5580 Demo kit will allow you to demonstrate and test the features of the SW5580 using the MX2033 Driver and the SA6200A Accelerometer when they are properly connected as a system. The kit will include everything needed to demonstrate the SW5580 capabilities. It is assumed that the owner of this kit also has a DK2030 DPS Demo Kit as well as a Hardy Shaker.

This demo kit can be used for both Metric and English Unit Measurements.

Visit the webpages below for more information on the Metrix SW5580:
www.metrixvibration.com/resources/videos/5580-and-sw5580-videos
www.metrixvibration.com/resources/animations/reciprocating-compressor-monitoring-animation

SW5580 DEMO KIT - DESCRIPTION

Component	Purpose	Metrix P/N
SW5580 Demo Kit Bundle	Demonstrate the versatility and functions of the 5580/SW5580.	DKSW 5580-001

INCLUDED IN KIT

Component	Purpose	Metrix Model	Qty	Image
SW5580 Dual Channel Switch	Demonstration Unit	SW5580	1	
DPS MX2033 3-Wire Proximity Driver	DPS unit that will be demonstrated	MX2033-01-08-05-05	1	
Transducer Cable (1.5M)	3 conductor cable to connect the MX2033 to Channel 2 of the SW5580	9041-0015	1	
API-670 Accelerometer	Accelerometer to be mounted on a Shaker	SA6200A-501	1	
Acccelerometer Armored (0.9M) Cable (1M)	Connects Accelerometer to Channel 1 of the SW5580	9334-211-0009-0010	1	
Carrying Case	Case to secure all demo equipment	99540-029	1	

INCLUDED IN KIT (Continued)

Component	Purpose	Metrix Model	Qty	Image
Quick Start Guide	Setup demo instructions	1963579	1	
5580/SW5580 Software	Configure the 5580/SW5580	Follow the link: www.metrixvibration.com/products/switches/electronic-vibration-switches/sw5580-smart-vibration-switch	1	

NOT INCLUDED IN KIT (Needed for Demonstration)

Component	Purpose	Metrix Model	Qty	Image
HI-903/913 Shaker	Demonstrate Acceleration and Impact on the SW5580	HI-903/913	1	
DK2030 DPS Demo Kit	Demonstrate Rotor Position and Rod Drop	DK2030	1	

DEMO SET UP

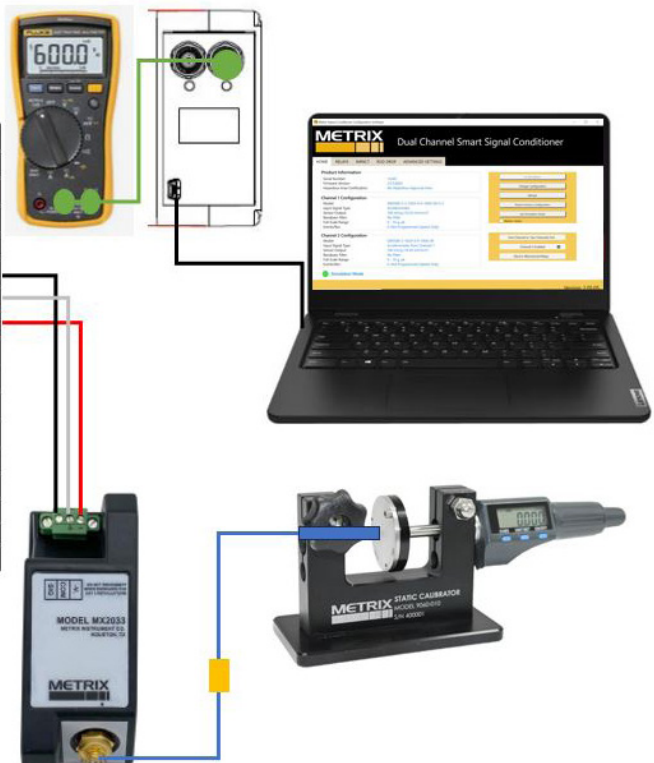
SW5580 Demonstration

(Accel / Impact and Position / Rod Drop)

PIN	Channel 1	
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
9	-	
	Dry Contacts	**Solid State**
10	Alert N.O.	Alert +
11	Alert N.C.	Not Used
12	Alert Common	Alert -
13	Danger N.O.	Danger +
14	Danger N.C.	Not Used
15	Danger Common	Danger Common

HI-913

Channel 2	
4-20mA +	
4-20mA -	
Raw signal out +	
Raw signal out -	
NC	PS
A/V +	PC
A/V -	PP
+	Reset
-	
Dry Contacts	**Solid State**
Alert N.O.	Alert +
Alert N.C.	Not Used
Alert Common	Alert -
Danger N.O.	Danger +
Danger N.C.	Not Used
Danger Common	Danger Common



CONNECTING DEMO HARDWARE

1. Layout the equipment per the illustration on pages 4 and 5.
2. Mount the SA6200A to the HI-903/HI-913 Shaker (hand tighten using counter torque to not stress the shaker mounting structure).
3. Connect the acceleration cable (9334-211-009-0010) to the SA6200A that is mounted on the HI-903/HI-913 Shaker.
4. Connect the acceleration cable to Channel 1 to the AV+/AV- Pins (Pins 6 and 7) on the SW5580 Smart Signal Conditioner.
5. Connect the Transducer Cable (9041-0015) to the MX2033 Proximity Driver terminal block (Red to Power (-V), White to Common (COM), Black to Signal (SIG)). Keep this connection for future demonstrations, just unplug it when not in use.
6. Connect the opposite end of the Transducer Cable to Channel 2 to the proximity terminals of the SW5580 Smart Signal Conditioner (Red to PS (Pin 7), White to PC (Pin 6), Black to PS (Pin 5)). Keep this connection for future demonstrations, just unplug it when not in use.
7. Connect the MX8030 Probe to the MX8031 Cable, and then connect the other end of the cable to the MX2033 Driver (ensure the MX2033 Driver is properly calibrated to the probe and cable).
8. Connect the power supply to 24 VDC to the +/-24 VDC Pins (Pins 8 and 9 of Channel 1) on the SW5580. Confirm that the power supply is properly connected to the SW5580 by plugging it in and seeing the SW5580 screen illuminate. If it does not illuminate, unplug the power supply and swap the wires between +/-24 VDC.

DEMONSTRATING THE SW5580 CAPABILITIES

Given: Download the free 5580/SW5580 Configuration software from the website. The SW5580 should be configured for Acceleration and Displacement. Channel 1 should be configured for Acceleration (100 mV/g or 10.2 m/sec^2) with a Scale Range of 0-10 g. Channel 2 should be configured for Proximity (200 mV/mil or 7.87 mV/µm) with a Scale Range of 10-90 mils. The Shaker should be configured for g's peak. The Proximity Probe should be gapped to 50 mils.

SA6200A ACCELEROMETER AND HI-913/903 SHAKER DEMONSTRATION

1. Connect the Computer, with the 5580/SW5580 Software loaded, to the mini-USB on the front panel of the SW5580.
2. Configure Channel 1 of the SW5580 for:
   Input Signal Type: Acceleration
   Sensor Output: 100 mV/g
   Bandpass Filters: None
   Full Scale Range: 0 to 10 g pk

3. Configure the Relays to:
   a. Channel 1 Alert Level: 2.5 g, pk 3 seconds No Latching
   b. Channel 1 Danger Level: 5 g, pk 3 seconds No Latching
4. Set up the HI-913/903 Shaker for 0 g's pk, at 60 Hz. The display on Channel 1 of the SW5580 should read 4 mA's and 0 g's (+/- 5%). If it does not, then verify connections, and ensure there is 24 VDC power to the SW5580.

SA6200A ACCELEROMETER AND HI-913/903 SHAKER DEMONSTRATION (Continued)

5. Show the Customer the Setup. Have the customer increase the vibration to 2 g's peak on the Shaker. Point out that the alarm has not initiated and the reading on the Display screen agrees with the Shaker for both "g" level and milliamps (+/- 5%). You can do this at several points during the demonstration, for the next steps. Also, show that the mA reading on the Display is the same as on the Voltmeter reading the 4-20 mA output.
6. Increase the vibration level to 2.6 g's peak. Wait 3 seconds and then the Alert Relay should trip (flashing Yellow LED). Continue to increase the vibration level to 5.1 g's peak, wait 3 seconds, and then the Danger Relay should trip (flashing Red LED).
7. Have the Customer lower the vibration level to 4.5 g's and have them notice that the LED changed from flashing Red to flashing Yellow, because "Latching" was not selected. Continue to lower the vibration level to 2 g's peak. The LED will change to Green.
8. Ask the Customer if they have any questions. Allow the customer to change configuration parameters in the SW5580 Software, Send them, and then Test them with the Shaker.

MX8030 / MX2033 THRUST POSITION OR ROD POSITION DEMONSTRATION USING THE DIGITAL MICROMETER

1. Connect the Computer, with the 5580/SW5580 Software loaded, to the mini-USB on the front panel of the SW5580.
2. Configure Channel 2 of the SW5580 for:
   Input Signal Type: Displacement
   Sensor Output: 200 mV/mil (7.87 mV/um)
   Bandpass Filters: None
   Full Scale Range: 10 to 90 mils, average gap

MX8030 / MX2033 THRUST POSITION OR ROD POSITION DEMONSTRATION USING THE DIGITAL MICROMETER (Continued)

3. Configure the Relays to:
   a. Channel 2 Alert Level:
   Over: 58 mils Under: 42 mils 3 seconds No Latching
   b. Channel 2 Danger Level:
   Over: 70 mils Under: 30 mils 3 seconds No Latching
4. Set up the Digital Micrometer with 50 mils of gap. The display on Channel 2 of the SW5580 should read 12 mA's and 50 mils (+/- 5%). If it does not, then verify connections, and ensure there is 24 VDC power to the SW5580.
5. Show the Customer the Setup. Have the customer increase the gap to 55 mils (+5 mils) on the Digital Micrometer. Point out that the alarm has not initiated and the reading on the display screen agrees with the Digital Micrometer for both "mils" and milliamps (+/- 5%). You can do this at several points during the demonstration, for the next steps.
6. Increase the gap to 60 mils (+5 mils). Wait 3 seconds and then the Alert Relay should trip (flashing Yellow LED). Continue to increase the Gap to 75 mils (+15 mils), wait 3 seconds, and then the Danger Relay should trip (flashing Red LED).
7. Have the Customer decrease the Gap 10 mils to a 65 mil Gap and notice that the LED changed from flashing Red to flashing Yellow, because "Latching" was not selected. Continue to decrease the Gap to 50 mils. The LED will change to Green.
8. Have the Customer decrease the Gap to invoke the narrow Gap alarms, namely 42 and 30 mils. Point out that the Voltmeter voltage, from the Channel 2 BNC, decreases on decreasing Gap and vice versa.
9. Ask the Customer if they have any questions. Allow the customer to change configuration parameters in the SW5580 Software, Send them, and then Test them with the Digital Micrometer.

IMPACT DEMONSTRATION USING THE SA6200A ACCELEROMETER AND HI-913/903 SHAKER (Continued)

1. Connect the Computer, with the 5580/SW5580 Software loaded, to the mini-USB on the front panel of the SW5580.
2. Configure Channel 1 of the SW5580 for:
   Input Signal Type: Acceleration
   Sensor Output: 100 mV/g
   Bandpass Filters: None
   Full Scale Range: 0 to 10 g pk
3. Set up the Shaker for 1 g at 20 Hz.
4. Using the SW5580 Software configure Impact, by going to the "Impact" tab:
   a. Select Configure Channel 1 for Impact radio button.
   b. Insert 150 mV for the Threshold Level.
   c. Insert 2400 RPM into the RPM field. This is for demonstration purposes only. This will cause the Reset time to become 0.4 seconds (simulating 16 throws of the piston).
   d. Click on "Get" and the Baseline Impact Value will be generated. It should be 100 mV (+/- 5%) from the Shaker setpoint (1 g).
   e. Click on Send.
5. Configure the Relays for Impact (values for demonstration only – limitations of the Shaker):

a. Channel 1 Alert Level:	13 Impacts	3 seconds	No Latching
b. Channel 1 Danger Level:	16 Impacts	3 seconds	No Latching

6. Have the Customer observe the Display for Channel 1. It should be reading 0 Impacts and 4 mA. This is because the Threshold has not been exceeded. Increase the vibration amplitude to 2 g's, this will cause the Threshold to be exceeded (2 g's = 200 mV peak) at 20 Hz. This results in eight (8) impacts

IMPACT DEMONSTRATION USING THE SA6200A ACCELEROMETER AND HI-913/903 SHAKER (Continued)

during the time window (Reset Time = 0.4 seconds, 0.4 seconds x 20 cycles per second = 8 impacts (simulated)). The Display should now read 12 mA and 8 Impacts. The Voltmeter reading milliamps should show 12 mA's (+/- 5%) (4 mA + 8 mA = 12 mA, 1 mA per Impact).

7. Have the Customer change the Shaker frequency to 25 Hz. This will cause 10 Impacts in the Time Window (Reset Time = 0.4 Seconds, 0.4 seconds x 25 cycles per second = 10 impacts (simulated)). The Display should now read 14 mA's and 14 Impacts. Wait 3 seconds and then the Alert Relay should trip (flashing Yellow LED). Continue to increase the frequency to 30 Hz, wait 3 seconds, and then the Danger Relay should trip (flashing Red LED).
8. Have the Customer lower the frequency level to 25 Hz and have them notice that the LED changed from flashing Red to flashing Yellow, because "Latching" was not selected. Continue to lower the frequency level to 20 Hz. The LED will change to Green.
9. Ask the Customer if they have any questions. Allow the customer to change configuration parameters in the SW5580 Software, Send them, and then Test them with the Shaker.

MX8030 / MX2033 ROD DROP DEMONSTRATION

1. Connect the Computer, with the 5580/SW5580 Software loaded, to the mini-USB on the front panel of the SW5580.
2. Configure Channel 2 of the SW5580 for:

   Input Signal Type: Displacement
   Sensor Output: 200 mV/mil (7.87 mV/um)
   Bandpass Filters: None
   Full Scale Range: 10 to 90 mils, average gap

MX8030 / MX2033 ROD DROP DEMONSTRATION (Continued)

3. Gap the Proximity Probe to 50 mils (-9 VDC).
4. Using the SW5580 Software configure Rod Drop, by going to the “Rod Drop” tab:
   a. Insert 40 Inches for L1.
   b. Insert 48 Inches for L2 (This makes the L2/L1 Ratio 1.2, which will be multiplied by the Gap voltage readings in mils to obtain Rod Drop (or Rider Band wear)).
   c. Insert -9 Vdc for the Zero Wear Point.
   d. Enable the Rod Drop Channel by clicking on the Enable radio buttom.
   Configure the Relays to:
   a. Channel 1 Alert Level:
   Over: 62 mils Under: 38 mils 3 seconds No Latching
   b. Channel 1 Danger Level:
   Over: 74 mils Under: 26 mils 3 seconds No Latching
5. Set up the Digital Micrometer with 50 mil gap. The display on Channel 2 of the SW5580 should read 12 mA’s and 50 mils (+/- 5%). If it does not, then verify connections, and ensure there is 24 VDC power to the SW5580, and the Gap voltage is equal to the setting in the Rod Drop Tab of the SW5580 Software.
6. Show the Customer the Setup. Have the customer increase the gap to 54 mils (+4 mils) on the Digital Micrometer. Point out that the alarm has not initiated and the reading on the display screen is 20% higher, due to the L1/L2 ratio. Have the customer test the alarms as in the other demonstrations.

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