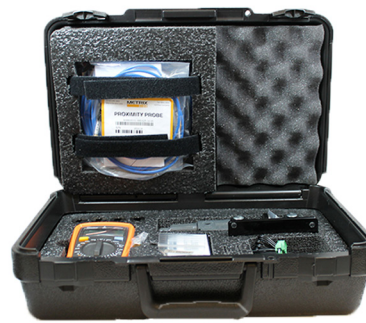
# Quick Start Guide

## MODEL DK2030

### DPS DEMO KIT - DESCRIPTION

The Metrix DPS Demo kit will allow you to demonstrate and test the features of the MX2033 Driver or MX2034 Transmitter when it is properly connected as a system. The kit will include everything needed to plot the gap voltage across the full range of Driver or Transmitter ranges.



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

Visit the webpages below for more information on the Metrix Digital Proximity System (DPS):
www.metrixvibration.com/resources/videos/digital-proximity-system-videos
www.metrixvibration.com/resources/animations/dps-animations

## DPS DEMO KIT - DESCRIPTION

| Component | Purpose | Metrix P/N |
|---|---|---|
| DPS Demo Kit Bundle | Demonstrate the configurability of the MX2034 DPS Proximity Transmitter or the linearity of the MX2033 DPS Driver. | DK2030 |

## INCLUDED IN KIT

| Component | Purpose | Metrix Model | Qty | Image |
|---|---|---|---|---|
| MX2034 DPS 4-20 mA Transmitter | DPS unit that will be demonstrated | MX2034-01-01-05-05-02-052-00 | 1 |  |
| Digital Micrometer (Includes 4 sleeves) | Show calibration | 9060-010 | 1 |  |
| 6061-T6 Aluminum (Light Weight) Target Material | Show calibration to a different metal | 9083-003 | 1 |  |
| 4140 Alloy Steel (Heavy weight) Target Material | Show calibration to a different metal | 9083-001 | 1 |  |
| 4M Extension Cable | Connect MX2034 to Proximity Probe | MX2031-040-00-05 | 1 |  |
| 1M Proximity Probe | Measures precise displacements | MX2030-01-000-025-10-05 | 1 |  |
| TIGHTVIEW® Fixture | Simulates a tight situation 12mm counterbore | 100913 | 1 |  |

## INCLUDED IN KIT (Continued)

| Component | Purpose | Metrix Model | Qty | Image |
|---|---|---|---|---|
| 24 Volt Power Supply (240V/120V AC to 24 V DC) | Provide power to MX2034 | 96002-048 (Digikey part # T1253-P6P-ND) | 1 |  |
| USB 2.0 Cable (A-type to Mini-B Type Connectors) | Connect computer to MX2034 | 96014-012 (Digikey part # Q362-ND) | 1 |  |
| BNC to Banana Plug Test Lead Cable | Connect DMM to MX2034 | 94065-006 (Digikey part # 501-1510-ND) | 1 |  |
| Digital Multimeter with Auto Ranging DC and Banana Plug Connectors | Gather readings from MX2034 | 94505-079 (Newark part # 02J5546) | 1 |  |
| Carrying Case | Case to secure all demo equipment | 99540-026 | 1 |  |
| Quick Start Guide | Setup demo instructions | 100896 | 1 |  |

## INCLUDED IN KIT (Continued)

| Component | Purpose | Metrix Model | Qty | Image |
|---|---|---|---|---|
| DPS Software | Configure the device | Follow the link: www.metrixvibration.com/products/proximity/digital-proximity-system/mx2034-4-20-ma-transmitter | 1 |  |

## BEFORE DEMO SET UP

Before showing the demo...

1. Ensure that the 24VDC Power Supply is still pre-connected to the DPS connector header. In case the power supply cable is disconnected from the header connector, reconnecting using the following:
   a. Power supply – (negative) MX2034 connector on the left as seen in picture - black wire
   b. Power supply + (positive) MX2034 connector in middle as seen in picture – red wire

2. Ensure that the DPS Configuration Software has been installed on your computer. Software can be found on the MX2033 and MX2034 product pages on the Metrix website under the Software tab. Instructions to install the software are located under the Documentation tab under “Software & Installation Manuals”.
3. Your DPS unit in the Demo kit will have a special cut out at the bottom to access the USB connector. If you are using a production DPS unit, then you will need to remove the bottom plate from the MX2034 by unscrewing the three screws found on the plate. Doing so will expose the USB Mini B

## BEFORE DEMO SET UP (Continued)

Figure 1. The USB connector is found on the bottom of the MX2034. Remove the back plane of the MX2034 to access it.

connector found on the bottom of the MX2034. (Figure 1)

4. Connect the USB cable to your PC and to the connector found on the bottom of the MX2034.
5. Start the DPS Configuration Software.
6. Plug 24VDC power supply into a wall outlet, connect to MX2034 or DPS.
7. Once powered up the software will automatically detect the DPS unit and populate the “Current configuration” settings on the DPS software.
8. The first column on the HOME tab of the software will display the “Current Configuration”. To run the standard demo equipment, ensure it shows the following: (MODEL: MX2034, TARGET: AISI 4140, PROBE: MX2030, LENGTH: 5 Meters, Full-Scale Range 10-90 mils (250-2250 µm)).
9. If the “Current Configuration” is not set for the standard demo or you would like to change some of the settings, select the specific configuration you desire from the pull down menu on the second column in the software called “Change Configuration”. (NOTE: older DPS units will have less options than new units such as ‘speed’).
10. Once you have selected all the options you desire from the pull down menu, hit the “SEND” button under the “Change Configuration” section. This will automatically download your desired setting to the DPS unit.
11. OPTION: You can also verify that the setting are correct by pressing the “Refresh” button in the second column on the HOME screen, or you can shut the software down and restart. After each restart, the software will retrieve the current setting from the DPS unit and display it. This will allow the user to confirm the current settings that are configured in the DPS unit.
12. The demo setup is now completed. You will now be using the DPS software to demonstrate the linearity of the MX2034 Proximity System.

## CONNECTING DEMO HARDWARE

1. Once you have confirmed that the DPS units are configured to your specific hardware, you can begin the demonstration; otherwise, refer back to #1 on page 4.
2. **Ensure that the default target material (AISI 4140 stainless steel) is loaded in the Digital Micrometer. Note that the target material is secured to the Digital Micrometer with only 1 screw (remaining 2 screws are packed separately in the kit). This is done intentionally to allow for a quick swap of target material.**
3. Confirm that the power supply is properly connected to the DPS unit.
4. Connect the DPS unit to the extension cable and the other end to the probe.
5. Select the appropriate sleeve that will allow you to connect the probe to the static calibrator.
6. Finally connect the BNC cable with banana plug to the multimeter and DPS BNC header of the unit.
7. Connect the DPS unit to the computer with the DPS software using the mini USB cable contained in the kit. The DPS in the demo kit has a plate that allows easy access to the USB connection, otherwise remove the DIN rail mounting.

## DEMONSTRATING THE DPS

When properly configured, this demo will highlight the linearity of the Digital Proximity System at 200mV/mil from 10mil to 90mil range (7.8mV/µm across 250-2250µm) using the DPS software.

1. Press the ON/OFF button on 9060-010 to turn on the digital micrometer, then press UNIT/SET button to select the Metric or English Unit for test.
2. Please have the customer change the micrometer settings whenever possible. The more customer involvement, the better.

## DEMONSTRATING THE DPS (Continued)

3. With everything connected, start the DPS software. Ensure that the serial number of the DPS unit shows up on the homescreen. If the serial number doesn't show up, the unit is not connected. Ensure that the DPS unit is powered up and connected properly.
4. With the proximity probe in contact with the target material, back the micrometer out 10 mils (250µm) so that the proximity probe head is now 10 mils (250µm) from the target. Demo setup should resemble Figure 2. Go to the Verification tab in the DPS software and press the "Get" button for 10 mils (250µm).
5. Move the digital micrometer every 10 mils (250µm) and record dating using the DPS software by pressing the "Get" button. Follow these steps to 100 mils (2250µm).
6. Using the DPS software, point out that the Incremental Scale Factor (ISF) is within limits and that the curve is linear and the Deviation from Straight Line (DSL) is within limits. If it is not, perform a "Tuning" step and Custom Calibration if necessary. Refer to the DPS Software Installation Manual for instructions.

Figure 2. Completed Demo Setup

## DEMONSTRATING MATERIAL TYPE - DPS VERSATILITY

1. Without changing the configuration of the DPS software, replace the 4140 steel disc on the static calibrator with the aluminum disc.
2. Perform steps 3-5 above for the aluminum target. Notice that the curve is not linear and does not meet specification.
3. Reconfigure the DPS unit using the DPS software. Go to "Change Configuration" and, in the Material Type, select 6061-T6 Aluminum.
4. Perform the "Tuning" steps as outlined in the DPS software and perform the verification steps 3-5 above.

## DEMONSTRATING MATERIAL TYPE - DPS VERSATILITY (Continued)

5. Point out that the Incremental Scale Factor (ISF) is within limits and that the curve is linear and the Deviation from Straight Line (DSL) is within limits. If it is not, perform a Custom Calibration. Refer to the DPS Software Installation Manual for instructions.

## ADDITIONAL DPS DEMONSTRATIONS

Several variations to this demo can also be conducted to showcase the DPS functionality. All of these will require the DPS unit to be reconfigured first using the DPS software:

1. TIGHTVIEW® Demonstration - This demonstration uses the TIGHTVIEW® fixture found in the DPS Demo Kit. There is a video that shows how to perform this demonstration on the Metrix website: www.metrixvibration.com/resources/videos/digital-proximity-system-videos
2. Changing System Length Demonstration - This demonstration shows that you can change a 9 meter system to a 7 meter or 5 meter system length, and the system will meet API 670 requirements. See the Changing System Length Demonstration on the website: www.metrixvibration.com/resources/videos/digital-proximity-system-videos
3. Competitive Probe and Cable Demonstration - This demonstration shows that the DPS can work with a competitive probe and cable quite easily. There's a video that shows how to perform this demonstration on the Metrix website. It's called Compatibility with BN Probes & Cables: www.metrixvibration.com/resources/videos/digital-proximity-system-videos

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