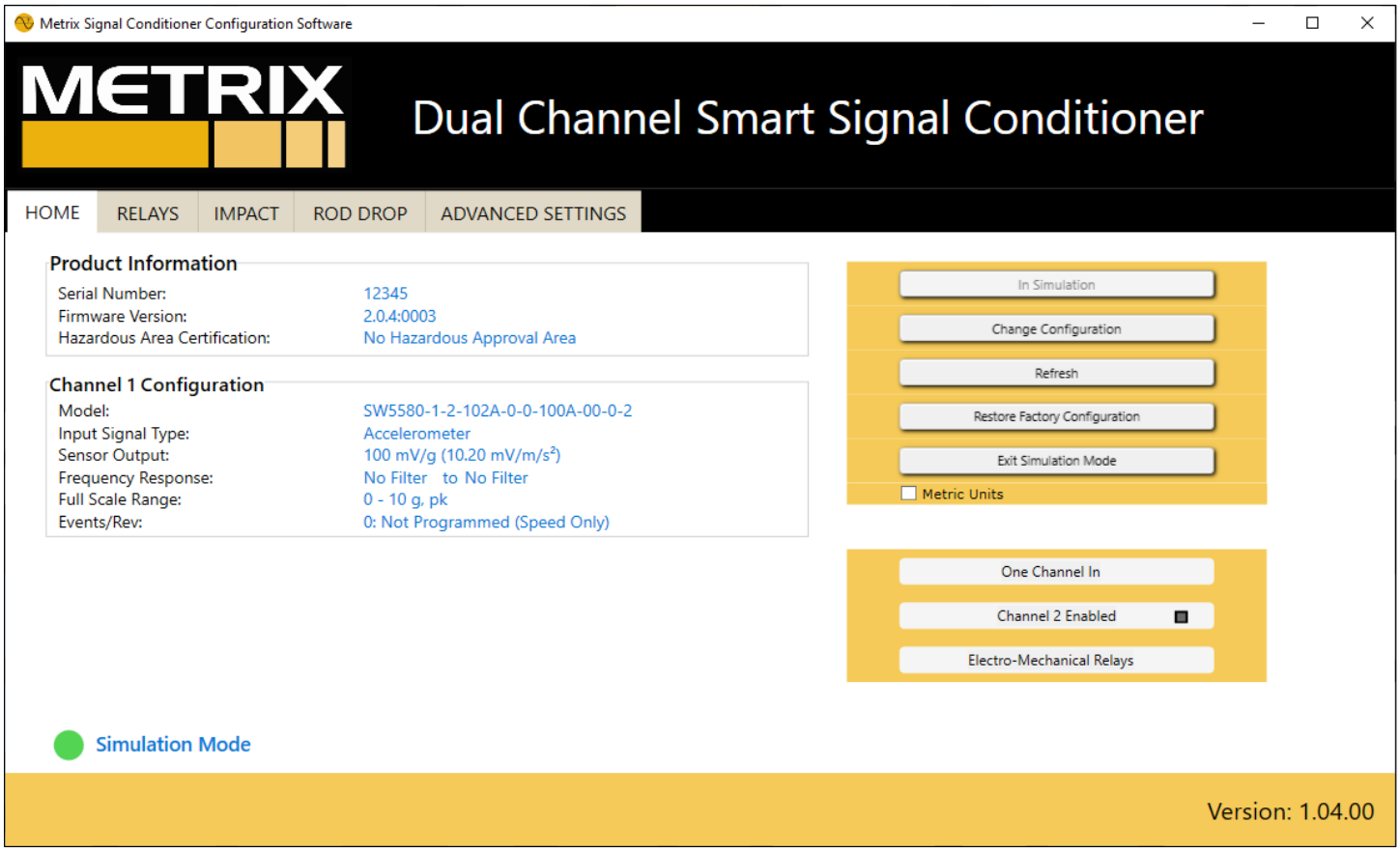
5580/SW5580 DUAL CHANNEL SMART SIGNAL CONDITIONER AND SWITCH

Software User Manual



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SOFTWARE DOWNLOAD

1. To download the software, click here or go to the Metrix website.
2. On the homepage, place mouse over PRODUCTS, under SEISMIC select SIGNAL CONDITIONERS > 5580 Smart Vibration Signal Conditioner or SW5580 Switch.

On the 5580 Smart Vibration Signal Conditioner or SW5580 Switch page, scroll down to find the Software Download Form.

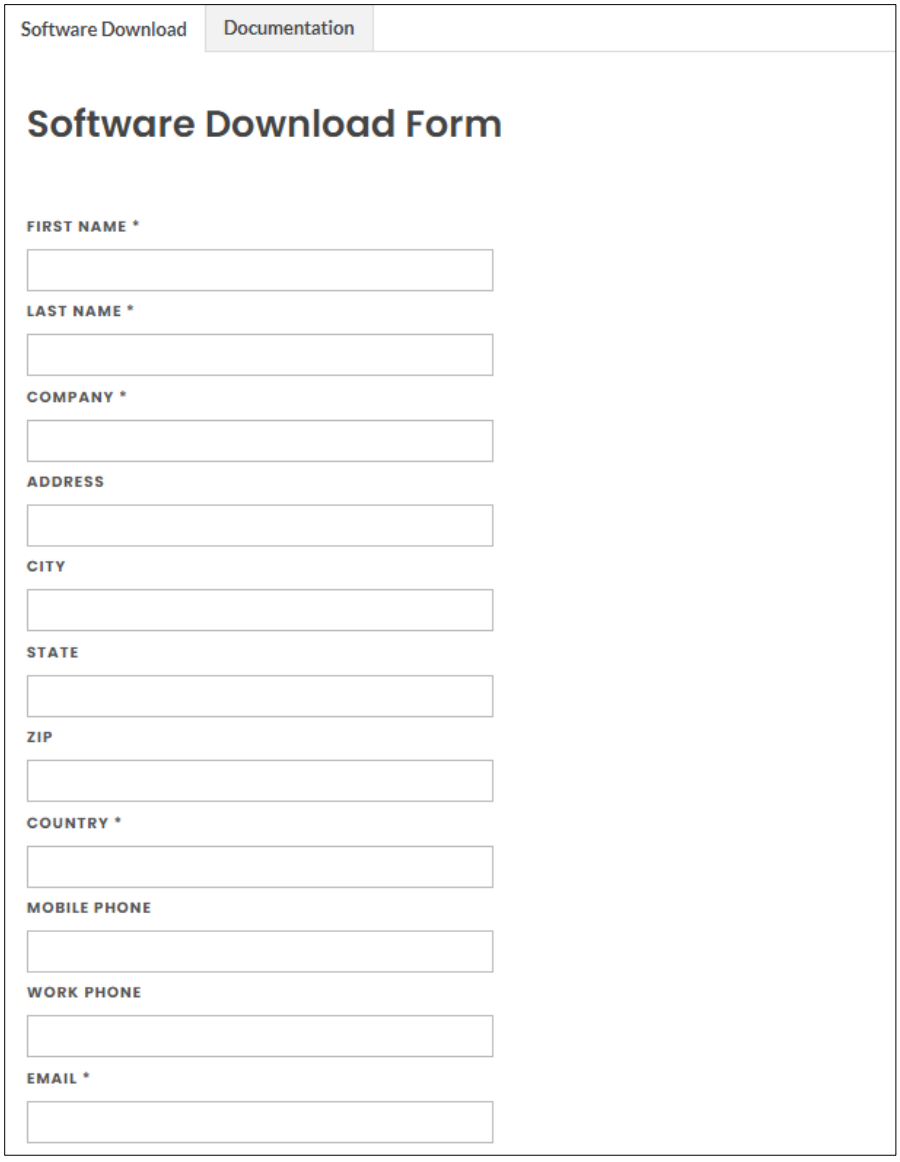
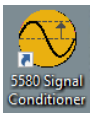


Figure 1: Required information for software download.

3. Enter all required information and submit.
4. Double-click the file Signal_Conditioner.exe and follow installation instructions.

OPENING APPLICATION

1. Double click on the application icon. 

2. Application will be displayed as seen in Figure 2.

Note: Unit will be detected if USB cable is already connected. Otherwise, connect USB cable to enable the "Connect" button.

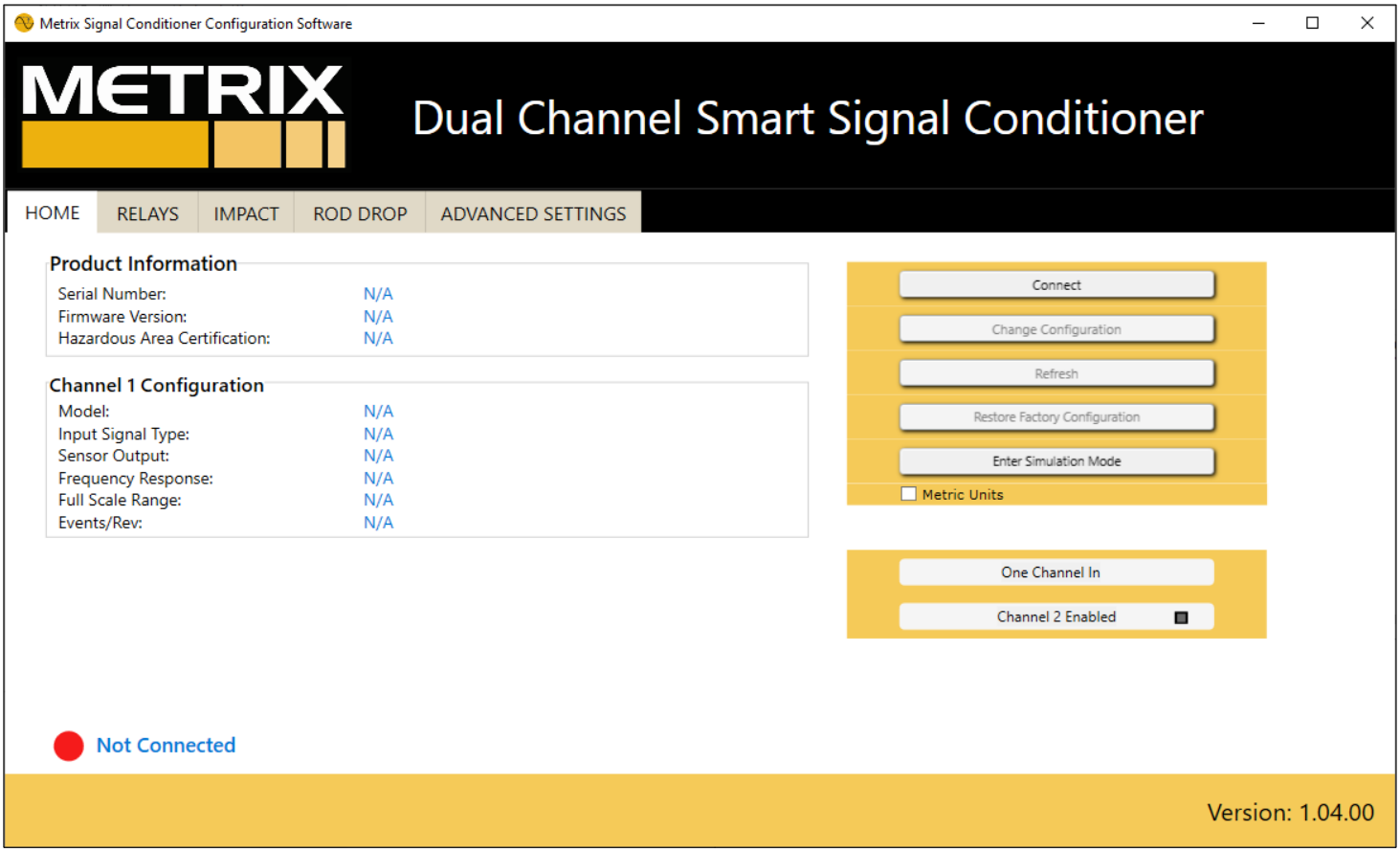


Figure 2: USB cable is connected, "Connect" button is enabled.

HOME

This tab displays the configuration stored in the unit.

Connect

Click “Connect” to connect device to the application, the screen will be populated with the configuration stored in the unit and all buttons will be enabled. See the figure below:

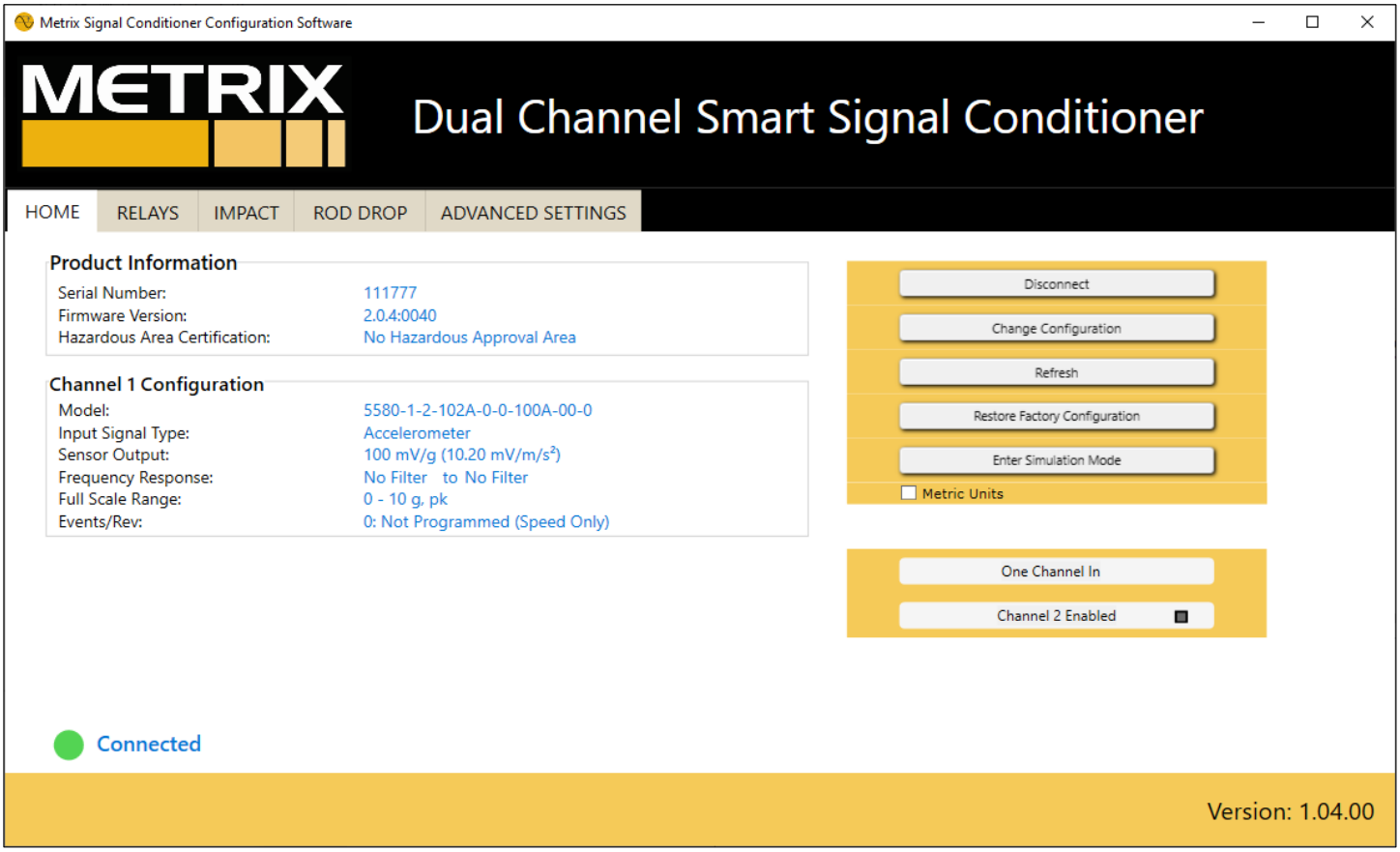


Figure 3: Screen displayed after connecting a 5580 unit.

Disconnect

“Disconnect” is enabled after connecting with unit.

Click “Disconnect” to close communication with the 5580/SW5580 unit.

Change Configuration

Click the “Change Configuration” button to display the following screen:

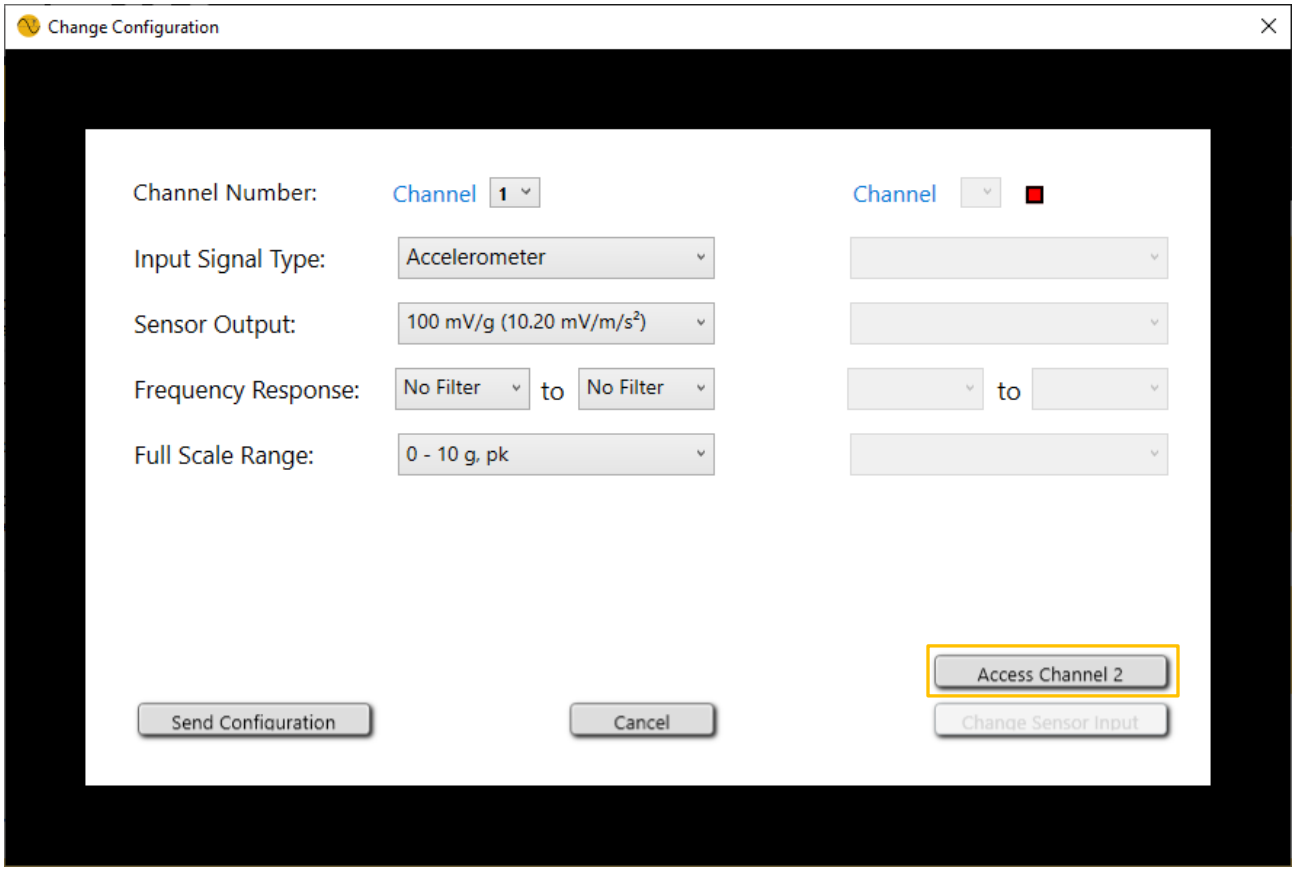


Figure 4: Change Configuration Screen.

Changes can be made to:

1. **Input Signal Type:** Velocity Sensor, Accelerometer, or Proximity Probe.
2. **Sensor Output:** Options vary for each sensor. Please refer to Datasheet.
3. **Frequency Response:** Please refer to Datasheet.
4. **Full Scale Range:** Options vary for each sensor. Please refer to Datasheet.
5. **Events/Rev:** For Speed Only.
6. **Channel:** Channel Number displayed in unit.

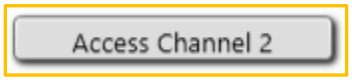


Figure 5: Access Channel 2 button.

Access Channel 2: Applicable only if channel two was not ordered. Use this button to enter the Access Key for channel 2. *(See page 24 for more details)*

Select the appropriate changes, then click “Send Configuration.”

Note:

- Password is required to change the configuration of the unit.
- Default password: mtrx

Enter the password and click “Enter.”
The following screen is displayed after the configuration has been set.

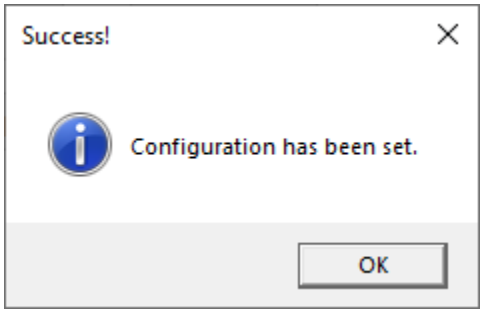


Figure 6: Success screen appears after configuration is stored in the unit.

Click “OK” to return to the main screen.

Change Configuration - Two Channel Mode ONLY

If channel configuration "2" was ordered or if the second channel was enabled from the configuration software *(See page 24 for more details)*, Change Configuration window will look like Figure 7.

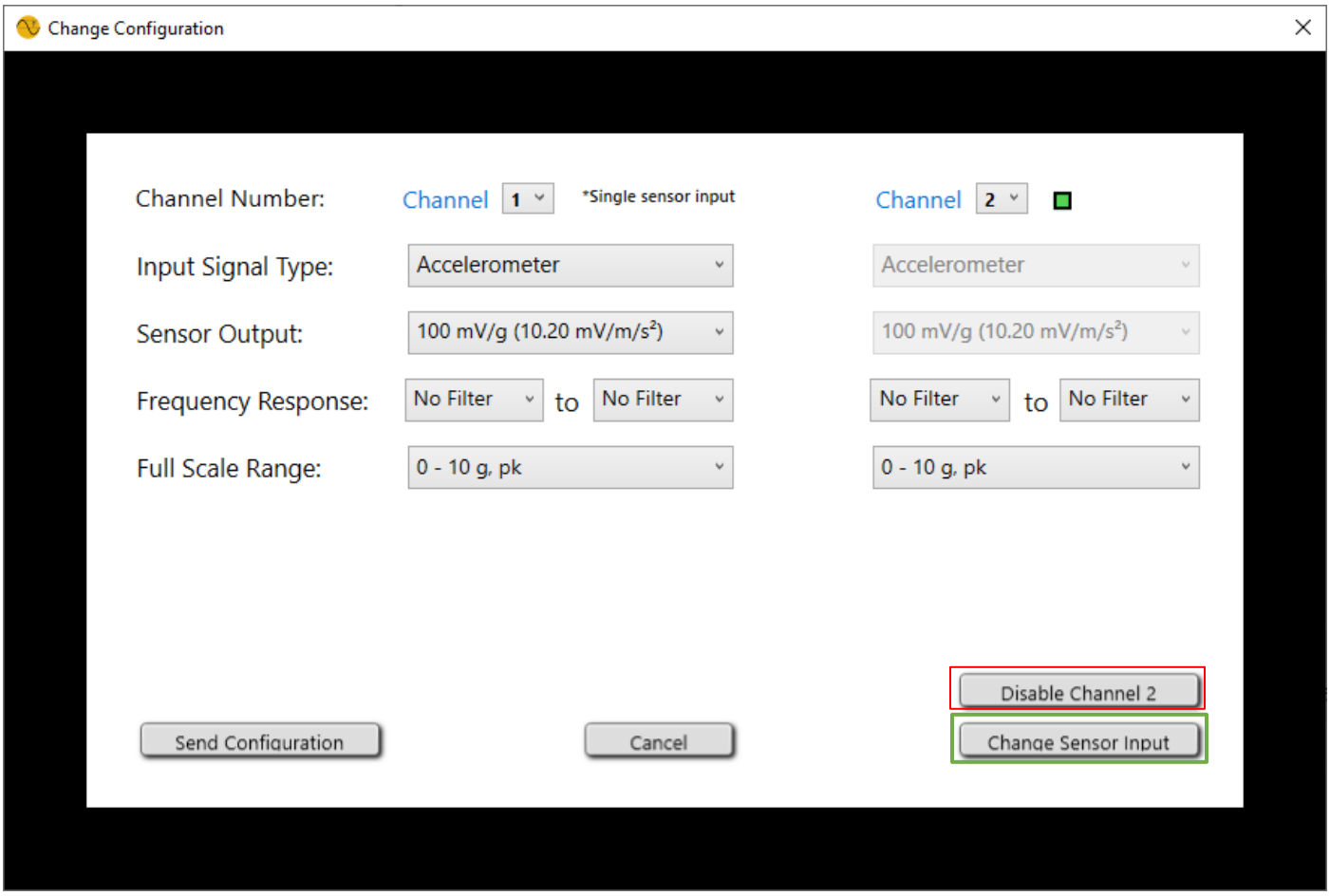


Figure 7: Change Configuration Screen for two channel mode.

Figure 8: Disable Channel 2 button.

Disable Channel 2 - Use this button to disable/enable the second channel. Disabling the channel will change the button to "Enable Channel 2."
Enabling the second channel will result in:

- The same configuration as that of the first channel.
- *Dual sensor input: For Dual Channel measurements, inputs to both channels 1 and 2.

Note: Password is required to make changes.

Figure 9: Change Sensor Input button.

Change Sensor Input - Use this button to change the sensor input mode. Observe the change in mode after each click:

1. *Single sensor input: *(See Figure 7, top center)*

   For Dual Path measurements the input channel is Channel 1.

   - One accelerometer input may generate an accelerometer output and an integrated velocity output.
   - One accelerometer input may generate an accelerometer output and an impact output.
   - One velocity input may generate a vibration output and an integrated position output.
   - One proximity input may generate a position output (gap) and a vibration output.

   Note: Input Signal Type and Sensor Output cannot be changed.

2. *Dual sensor input: *(See Figure 7, top center)*

   For Dual Channel measurements, inputs to both Channels 1 and 2.

   - Two acceleration inputs generate two acceleration outputs.
   - Two acceleration inputs generate two impact outputs.
   - One acceleration and one velocity input generate one acceleration and one velocity output.
   - Two velocity inputs generate two velocity outputs.
   - One velocity input and one proximity input generate one velocity and one proximity output (proximity output can be vibration, position, or speed).

Refresh

Clicking “Refresh” will retrieve the loaded configuration from the unit and populate the values displayed on the screen.

Restore Factory Configuration

Clicking “Restore Factory Configuration” will restore the unit to the original configuration from factory.

Note:

- Password is required to restore the configuration of the unit
- **SW5580 ONLY:** The two relay levels at factory are set at one quarter (1/4) and one half (1/2) of the full-scale range.

Simulation Mode

Simulation Mode allows the user to get acquainted with the Dual Channel Smart Signal Conditioner application prior to using in the field.

Selecting “Enter Simulation Mode” will display the following:

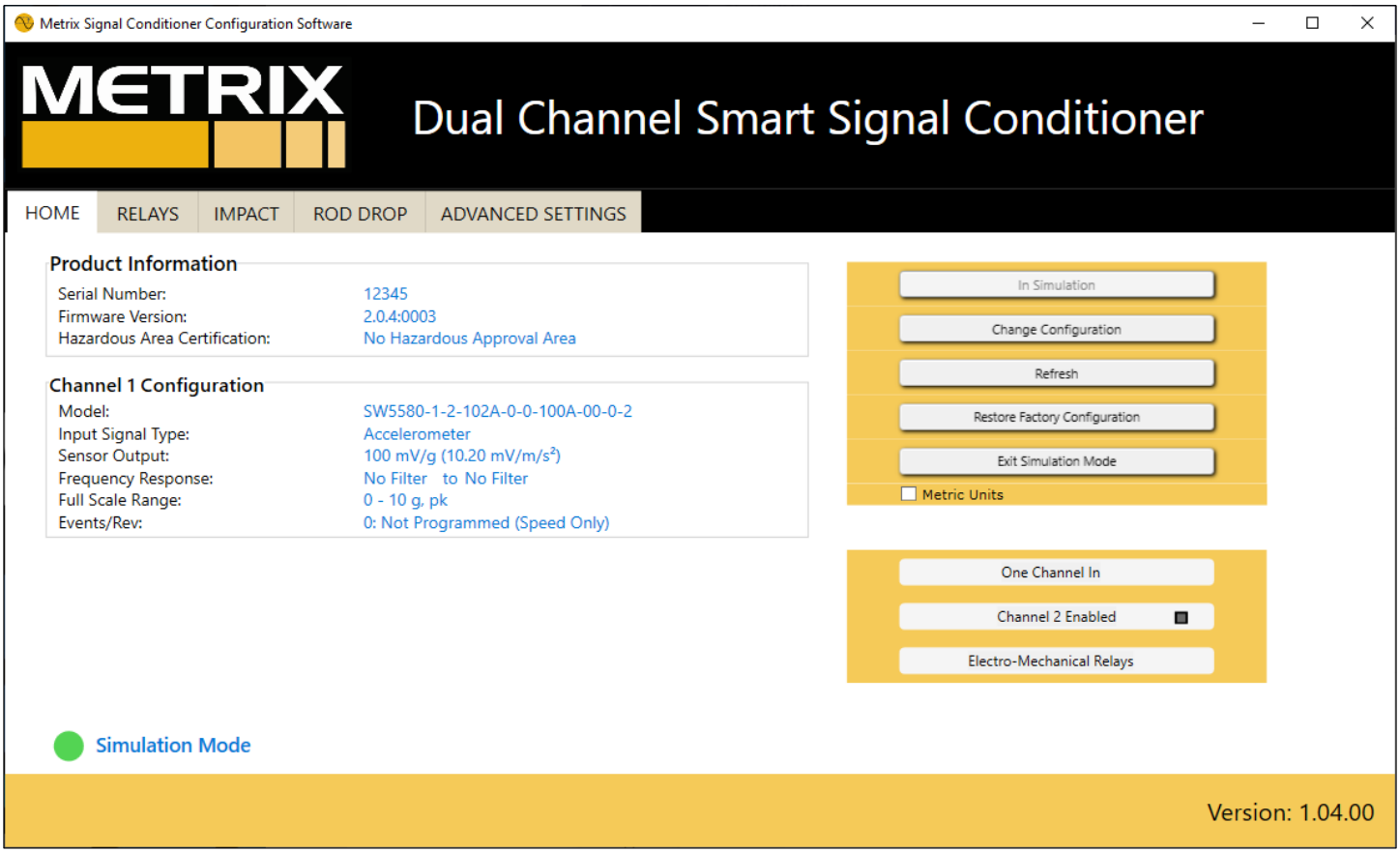


Figure 10: Simulation Mode Screen with an SW5580 Configuration.

The screen is populated with a simulated configuration for an SW5580 unit, and all buttons are enabled. Change Configuration, Refresh and Restore Factory Configuration buttons have functionality that allows user to become acquainted with this application.

Simulation Mode Access Key: password

Select “Exit Simulation Mode” to go back to the default main screen.

Metric Units

Metric units are available by selecting “Metric Units” checkbox on the HOME page.

RELAYS

This tab allows user to change Relay Settings (**SW5580 SIGNAL CONDITIONER ONLY**).

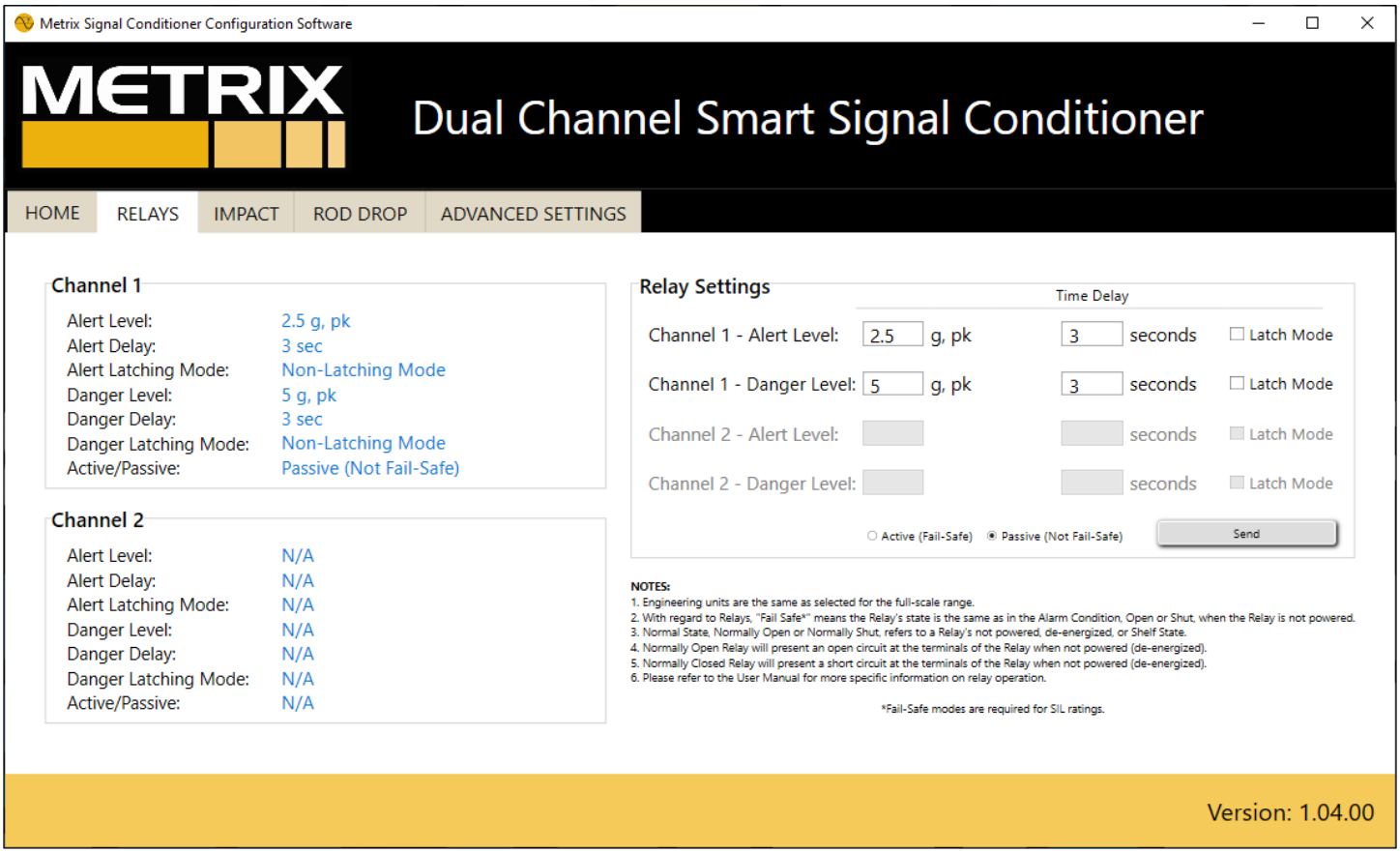


Figure 11: Relay Screen (SW5580 Only)

Changes can be made to:

1. **Alert Level:** Input value must be within full scale range.
2. **Danger Level:** Input value must be within full scale range.
3. **Time Delay:** Delay value must be between 1 to 300 seconds.
4. **Latch Mode:** Latching or Non-Latching.
5. **Active/Passive:** Active (Fail-Safe) or Passive (Not Fail-Safe).

Note: The two relay levels at factory are set at one quarter (1/4) and one half (1/2) of the full-scale range.

NOTES:

1. Engineering units are the same as selected for the full-scale range.
2. With regard to Relays, “Fail Safe*” means the Relay’s state is the same as in the Alarm Condition, Open or Shut, when the Relay is not powered.
3. Normal State, Normally Open or Normally Shut, refers to a Relay’s not powered, de-energized, or Shelf State.
4. Normally Open Relay will present an open circuit at the terminals of the Relay when not powered (de-energized).
5. Normally Closed Relay will present a short circuit at the terminals of the Relay when not powered (de-energized).
6. Please refer to the User Manual for more specific information on relay operation.

   *Fail-Safe modes are required for SIL ratings.

Select the intended configuration for the relays, then click “Send.”

If applicable enter password, otherwise, Figure 12 will be displayed after the values are stored in the unit.

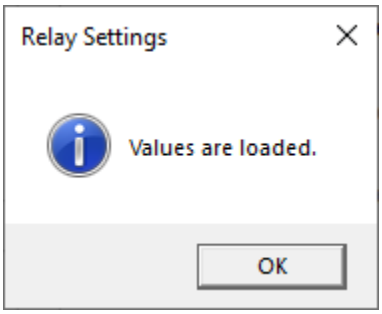


Figure 12: Relay screen after values are loaded.

Click “OK” to close the message window.

IMPACT

This tab allows user to configure the unit to Impact Measurement.

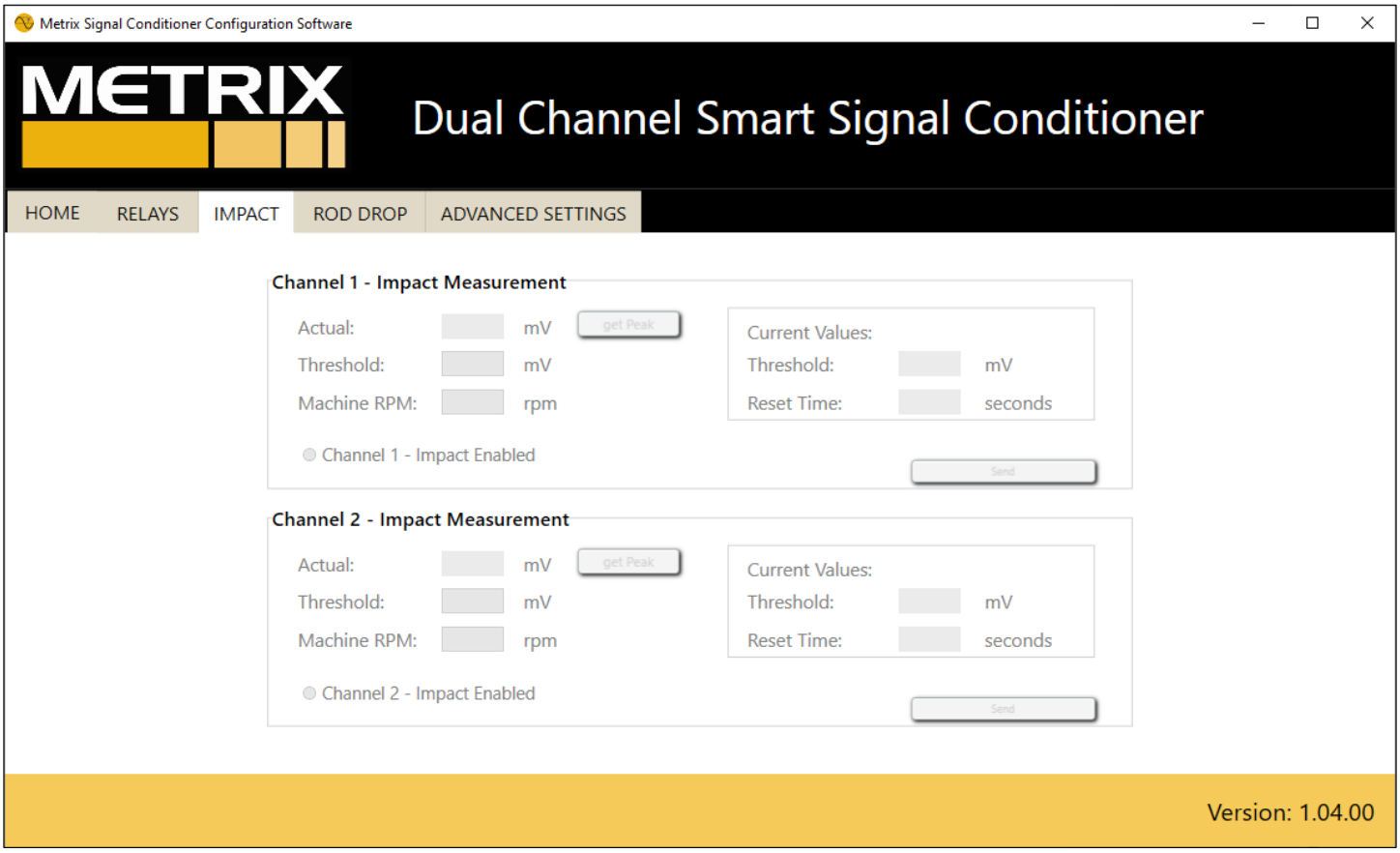


Figure 13: Impact Screen

Note:

1. The Impact Measurement must have a 100mV/g Accelerometer input.
2. If signal conditioner was ordered as Impact Measurement, the Impact tab is enabled and populated with the configuration ordered.
3. Using the configuration software to enable Impact Measurement will configure the unit to default values. *(See Figure 15)*
4. For Two Channel Mode, sensor input is configured from the Change Configuration window.
    - ***Single sensor input** - For Dual Path measurements only Channel 1 can be the input channel. One accelerometer input may generate an accelerometer output and an impact output.

    - ***Dual sensor input** - For Dual Channel measurements, there are two Acceleration inputs to Channels 1 and 2.
      Two acceleration inputs generate two impact outputs.

Selecting the channel Impact Enabled option will prompt the following message:

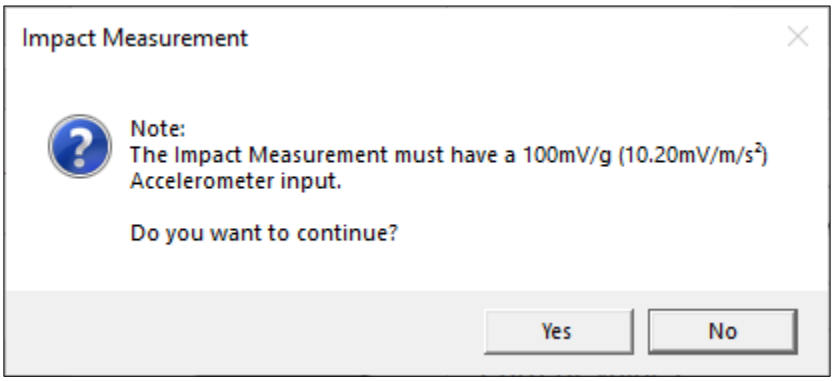


Figure 14: Impact Measurement sensor input requirement.

Click “YES” and enter password if applicable.

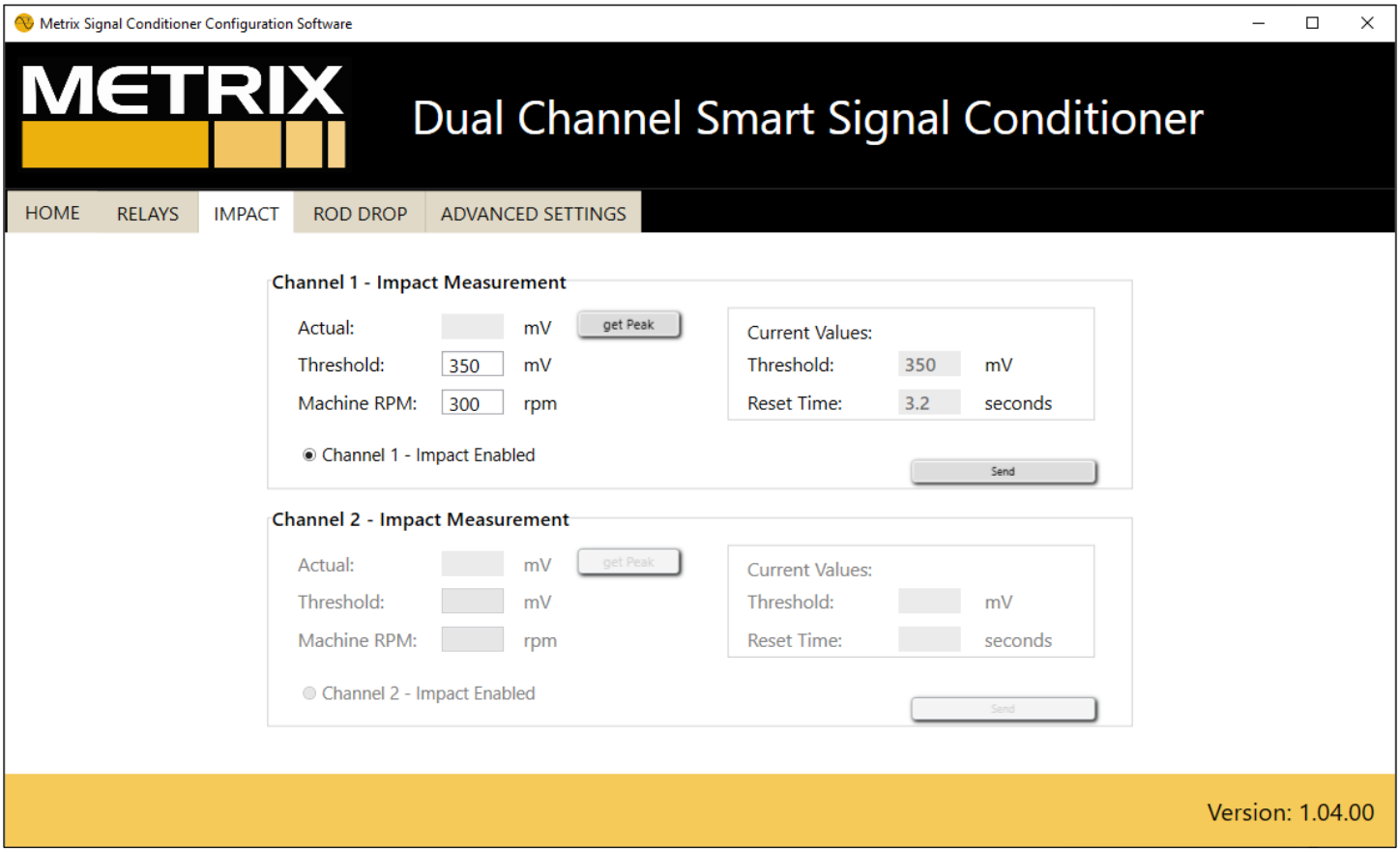


Figure 15: Unit configured for Impact Measurement.

get Peak

Get Peak button obtains the actual mV value from the Impact Measurement.

For Impact Measurement, changes can be made to:

1. **Threshold:** Level must be between 50 and 1200 mV.
2. **Machine RPM:** Value must be between 300 and 3600 RPM.

Enter the intended values for Impact Measurement, then click “Send.” If applicable enter password.

Current Values will update:

1. **Threshold:** Threshold level in mV.
2. **Reset Time:** In seconds. Placing mouse cursor over “Reset Time” shows calculation example.
   - Calculation Example:

     Reset Time = $\left(16\ revolutions * 60\frac{seconds}{minute}\right) / 300\frac{revolutions}{minute}$ = 3.2 seconds

RELAYS TAB (SW5580 ONLY)

Relay settings for Impact Measurement can be configured from the Relays tab. Alert and Danger levels are impacts.

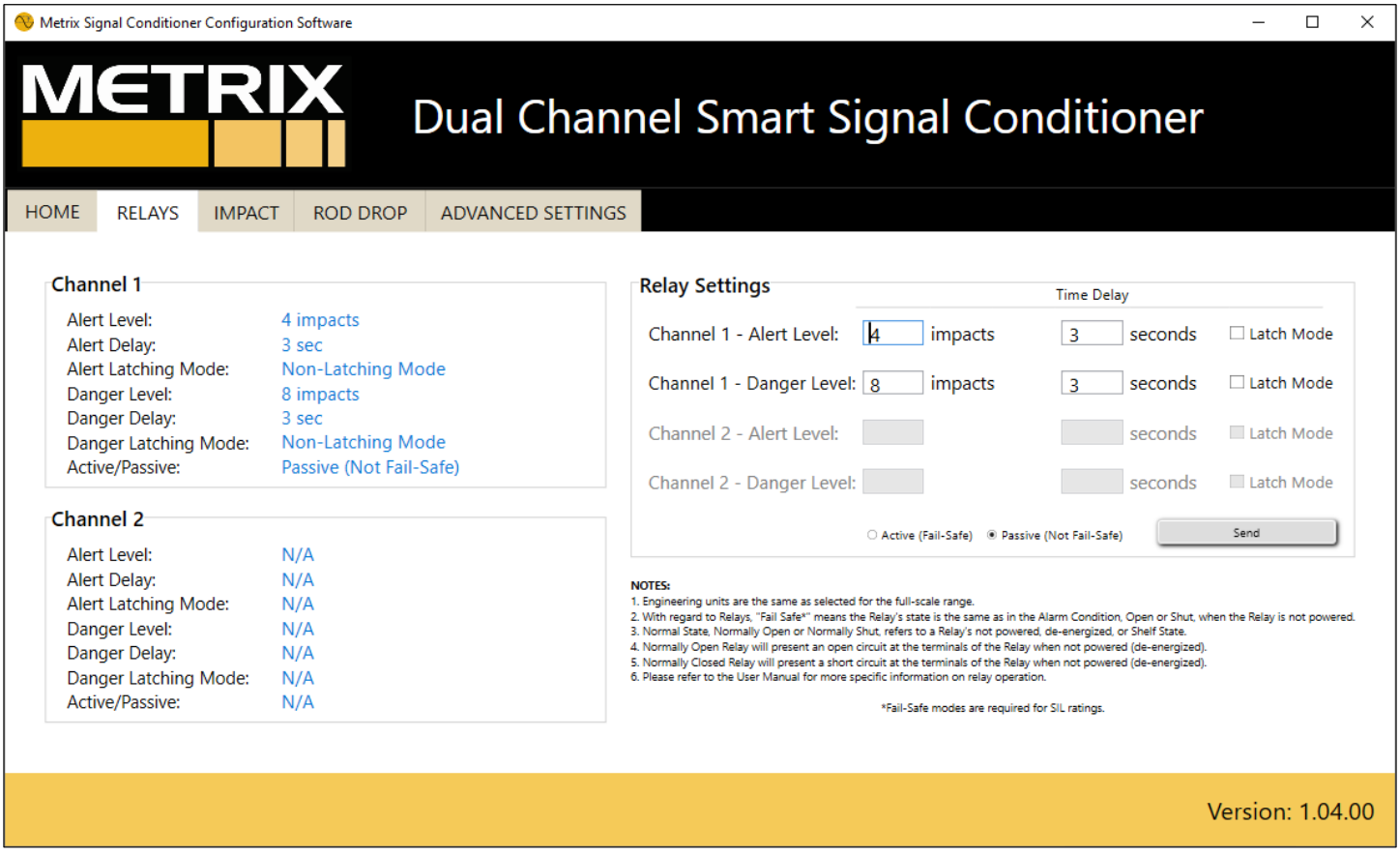


Figure 16: Relays tab for Impact Measurement.

Change Configuration – Impact Enabled

Change Configuration window will show the channel is impact enabled *(See Figure 17)*.

Note: Using the "Send Configuration" button will disable Impact Measurement from the unit.

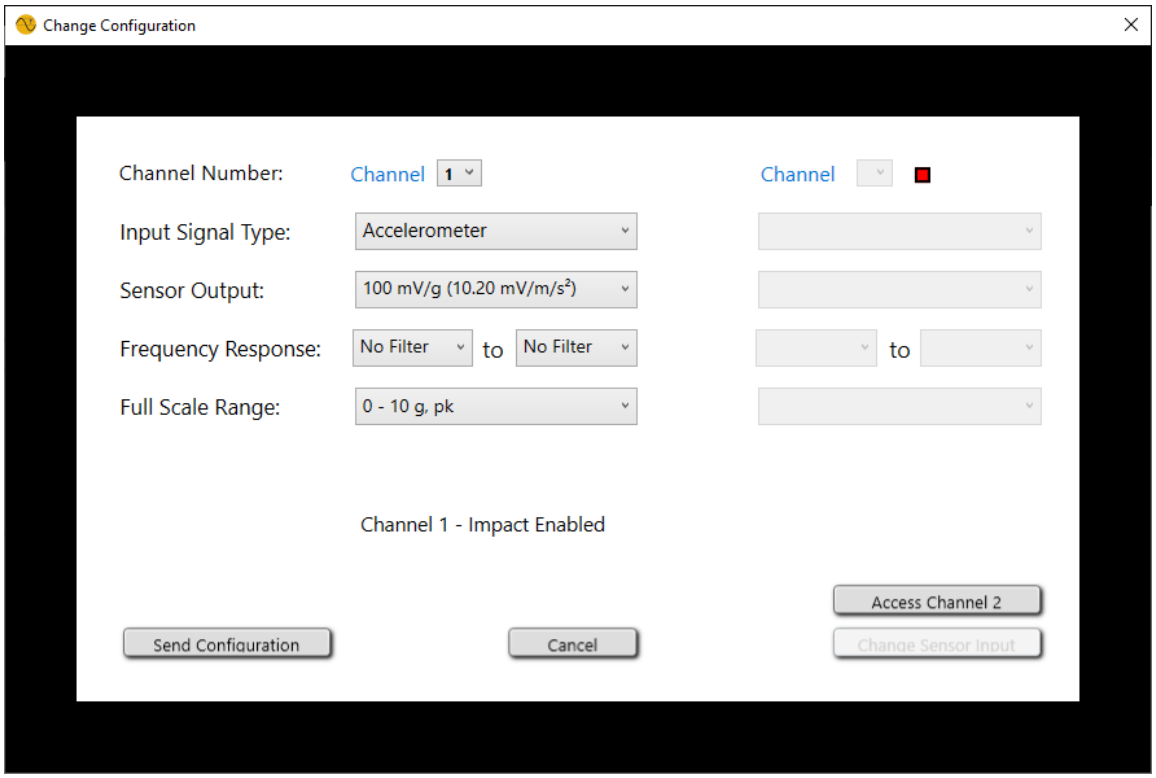


Figure 17: Change Configuration screen, Channel 1 is impact enabled.

To disable Impact Measurement from the Impact tab, de-select the "Impact Enabled" option for the channel.

Note: Disabling impact will restore the channel to the following Accelerometer configuration:

- Input Signal Type: Accelerometer
- Sensor Output: 100 mV/g (10.20 mV/m/s²)
- Frequency Response: No Filter
- Full Scale Range: 0 – 10 g, pk
- Events/Rev: 0: Not Programmed (Speed Only)

ROD DROP

This tab allows user to configure the unit to Rod-Drop measurement.

Note:

- Rod-Drop is only available for **Proximity Probe Systems** configured for **Position**.

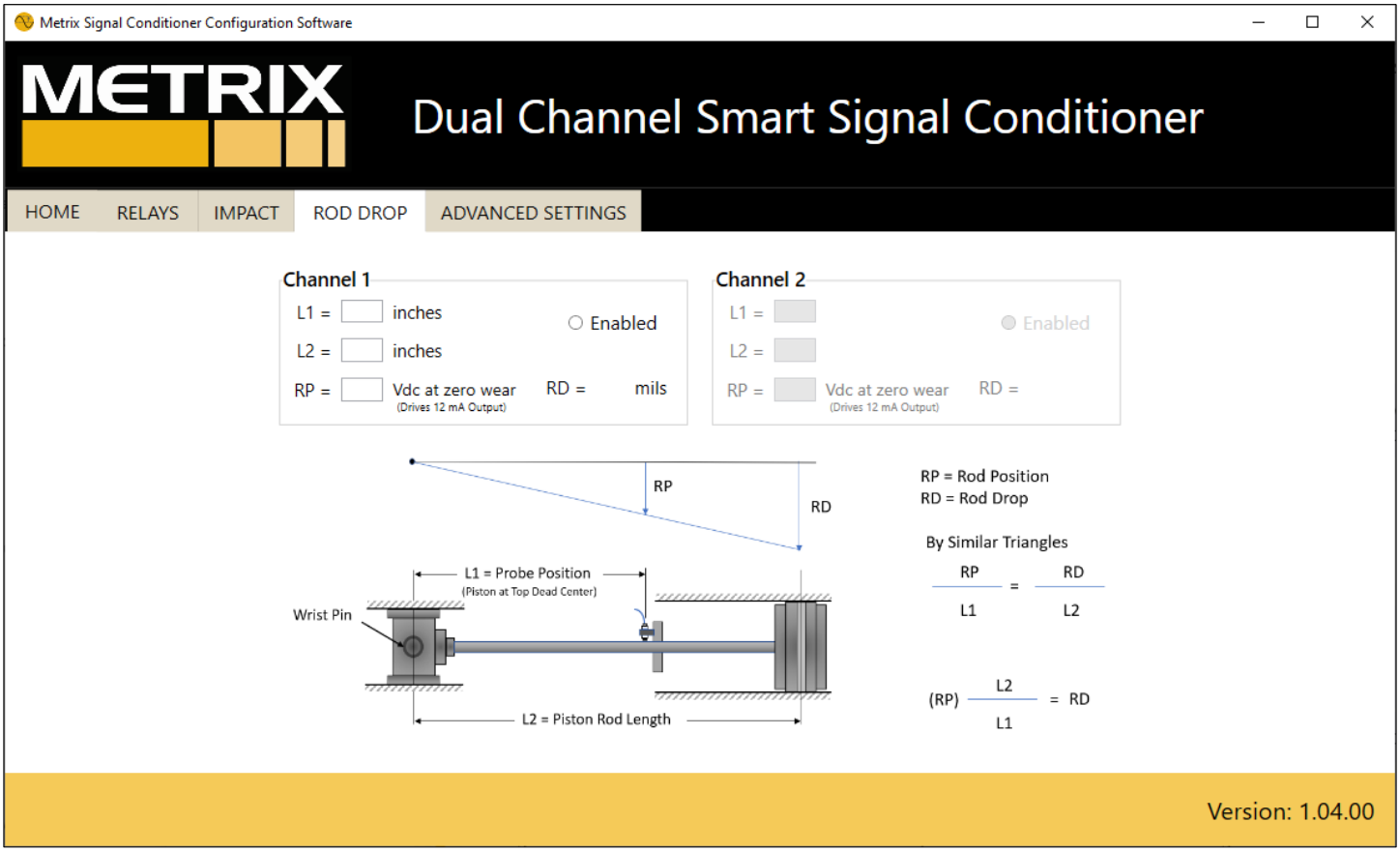


Figure 18: Rod-Drop Screen.

Rod-Drop User Inputs:

1. **L1 = Probe Position:** Value for L1 cannot be greater than value for L2.
2. **L2 = Piston Rod Length**
3. **RP = Rod Position:** Value must be between within +/- 3V DC of the mid-range of the probe. Example: 10-90 mil Scale Factor Range, mid-range is 50 mils or -9V DV (-6V DC and -12V DC).

Rod Drop Displayed Value:

RD = Rod Drop: Value in will be displayed after "Enable" option has been selected.

Enter values for L1, L2 and RP, then click “Enabled.”
The Rod-Drop message appears before Rod Drop is enabled. *(See Figure 19)*

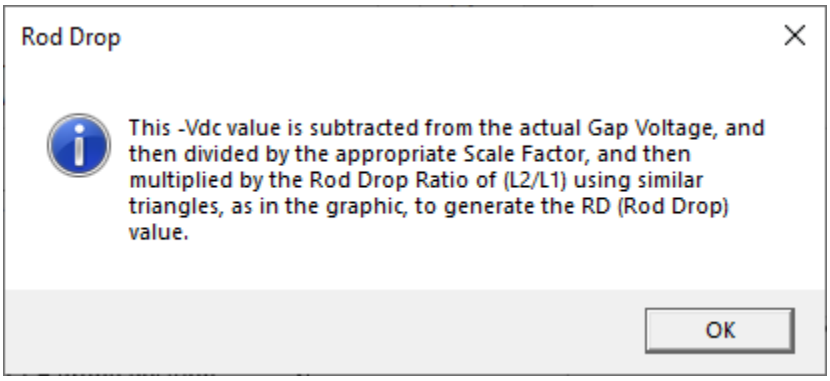


Figure 19: Rod Drop Message

Click “OK” to exit the message window.

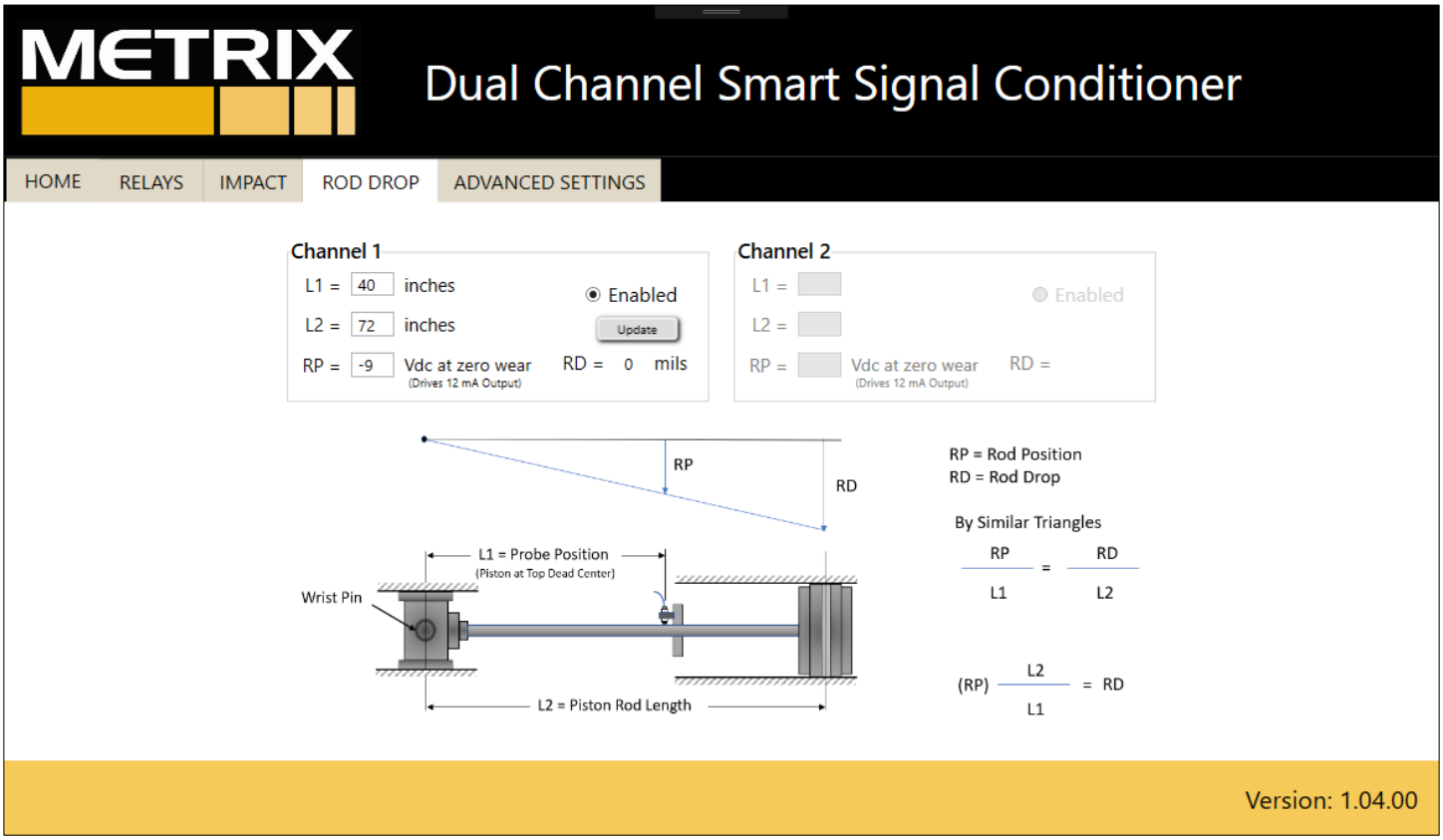


Figure 20: Channel 1 – Rod Drop Enabled.

Update

To update the RD (Rod Drop) value, re-enter values and click “Update.”

Note:

RELAYS TAB (SW5580 ONLY)

- Relay levels have the Rod Drop multiplier applied.

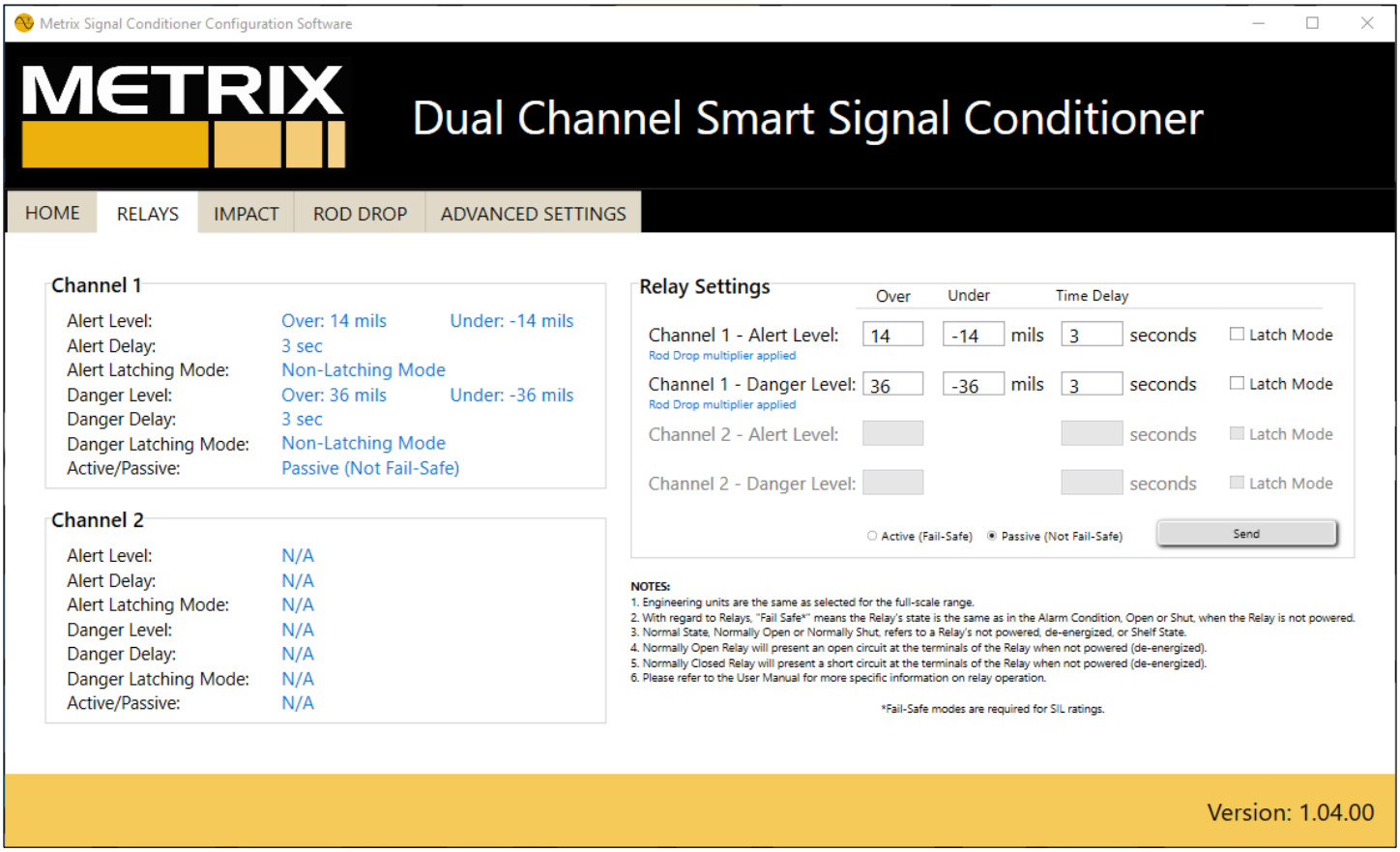


Figure 21: Relays Screen with Rod Drop enabled.

To disable Rod Drop, de-select the “Enabled” option from the Rod Drop tab.

ADVANCED SETTINGS

This tab allows user to change the 4-20mA Direction for **Proximity Probe Systems** configured for **Position** only.

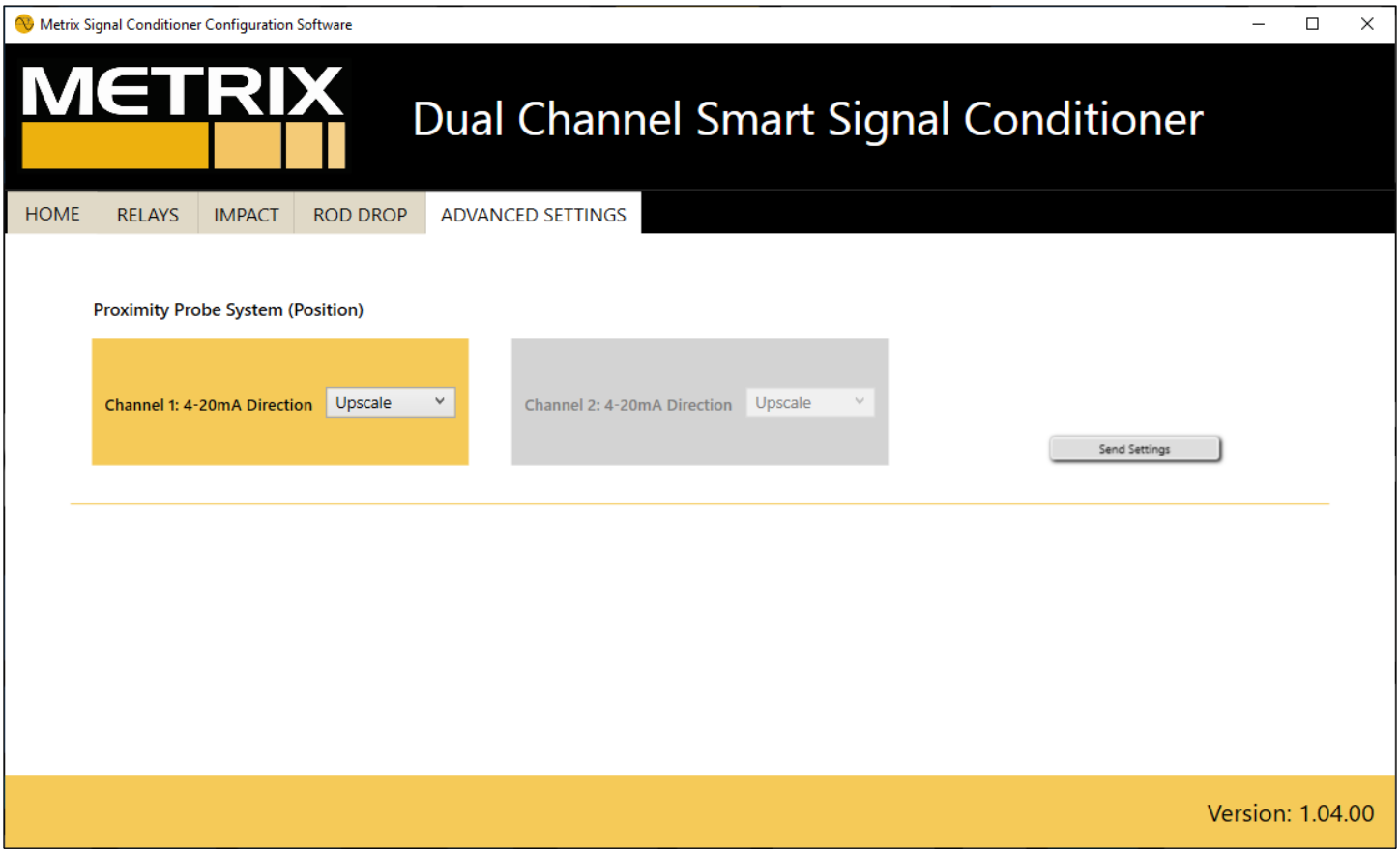


Figure 22: Advance Settings Screen. Channel 1 configured for Position.

From the drop-down, user can change the Upscale or Downscale direction for the 4-20mA.
When a selection is made, the following message appears:

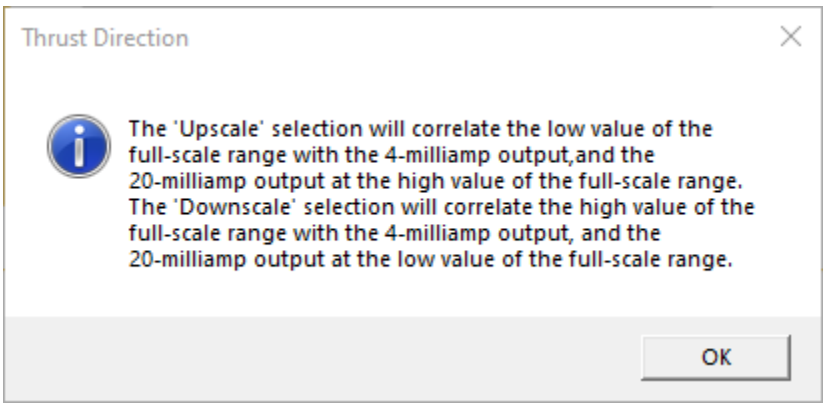


Figure 23: Thrust Direction Message.

Note: Thrust Direction: The “Upscale” selection will correlate the low value of the full-scale range with the 4-milliamp output, and the 20-milliamp output at the high value of the full-scale range. The “Downscale” selection will correlate the high value of the full-scale range with the 4-milliamp output, and the 20-milliamp output at the low value of the full-scale range.

Click “OK” to exit the message window and click “Send Settings” to apply the change.

Once the settings have successfully changed, the window in Figure 24 appears.

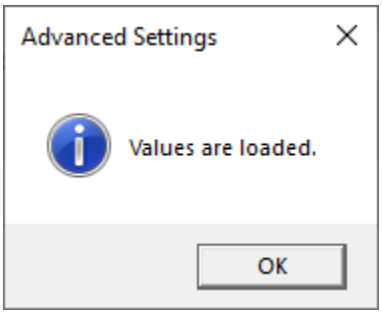


Figure 24: Advanced Settings screen after the change is applied.

Click “OK” to exit the message window.

PASSWORD

Password is required to change or restore a configuration in the unit. The following window appears to enter the password.

Note: Default password: mtrx

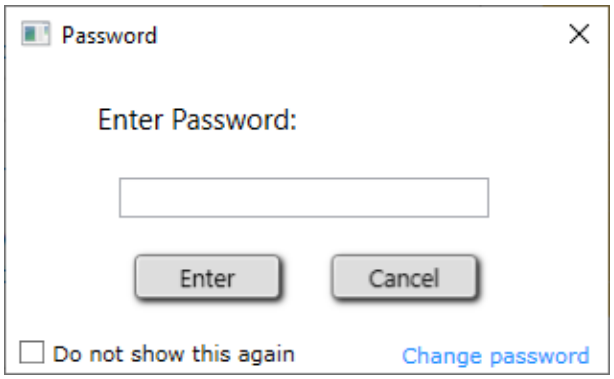


Figure 25: Password Window

- Entering the correct password will change or restore the configuration in the unit.
- Entering an incorrect password will prompt the following message to appear:

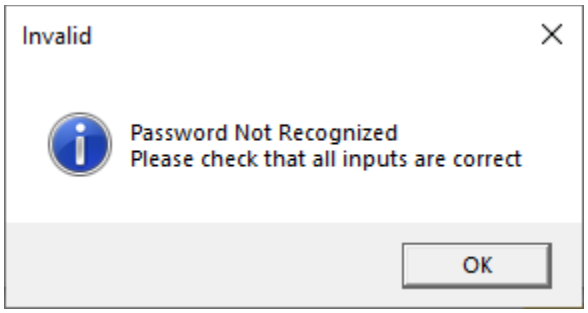


Figure 26: Message for an incorrectly entered password.

Password Options:

1. **Do not show this again**
   This selection will not require the password to be entered again while the unit is connected.

Note: Each time the unit is connected, password is required to change the configuration of the unit.

2. **Change password**

   Changing existing password can be done by clicking the "Change password" label on the bottom right corner of the Password window. *(See Figure 25)*

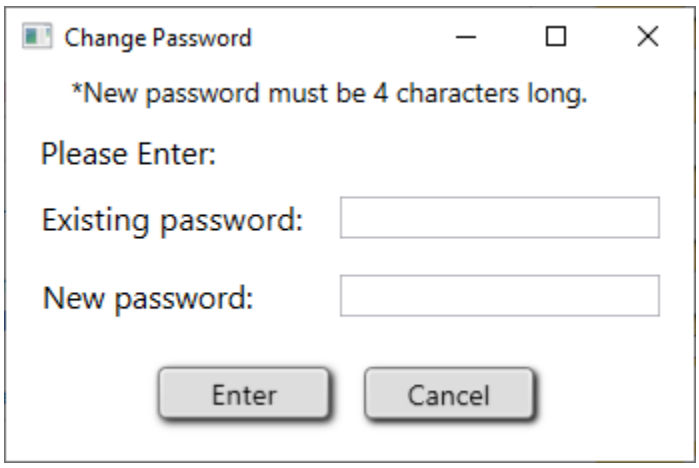


Figure 27: Change Password window.

Enter existing password and new password, then click "Enter." Once the new password has changed, the following message appears:

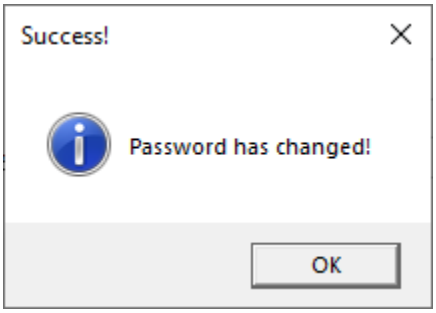


Figure 28: Success screen appears after new password is saved.

Click "OK" to return to the Password window.

ACCESS KEY

If only channel configuration “1” is entered in the order, channel 2 will be disabled by manufacturer. With an additional fee, Metrix will ship a passcode for user to enable channel 2 from the configuration software.

To open Access Key window, in the **HOME** tab select **Change Configuration > Access Channel 2**.

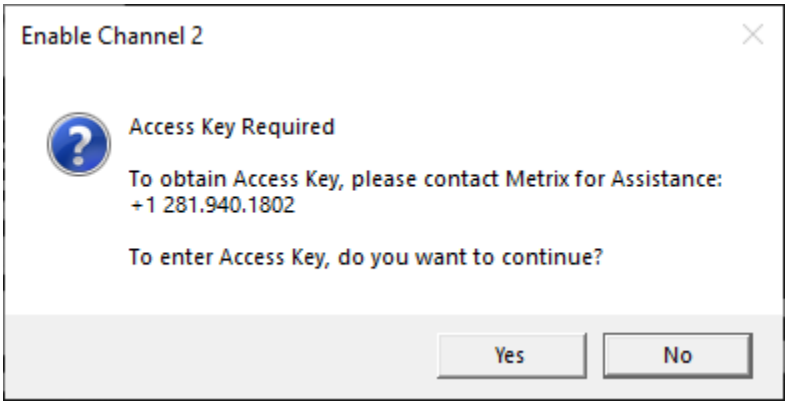


Figure 29: Access Key Required Message.

Select “Yes” to open Access Key window.

> **Note:** Password is required to change the settings in the unit.
>
> This does not apply if the password was entered and “Do not show this again” was checked.

If applicable, enter the password and click “Enter,” otherwise, Access Key window opens.

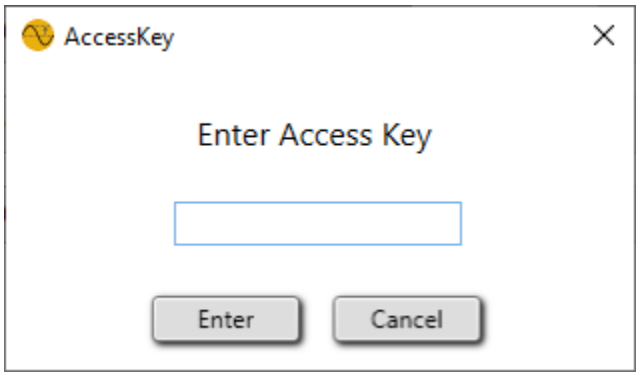


Figure 30: Access Key Screen.

Enter Access Key and click “Enter.”

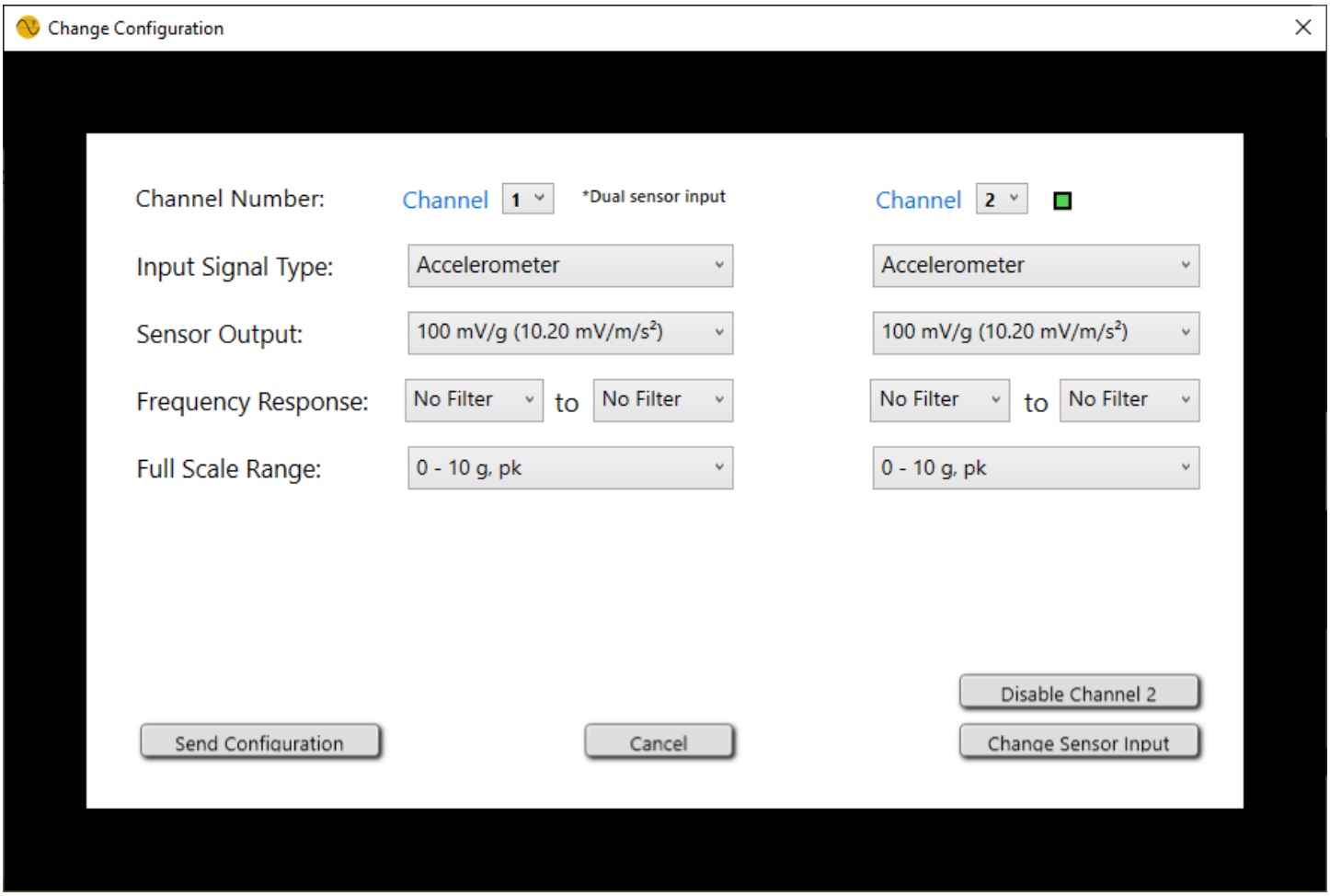


Figure 31: Change Configuration Window. Channel 2 is active after Access Key is entered.

Note:

- Channel 2 is configured with the same configuration as channel 1.
- Unit is set up as *Dual sensor input - For Dual Channel measurements, inputs to both Channels 1 and 2