

Analog Output Scaling Procedure

- From the normal display mode, press and hold the **[P]** button for four (4) seconds.

The display will scroll:

--- INPUT SETUP

followed by:

SKIP (the default selection)

- Press the **[P]** button three (3) times to skip the Calibration and Display Select modes.

The display will scroll:

--- SELECT ANALOG OUTPUT

followed by: **SKIP**

(the default selection)

- Use the **[▲]** and **[▼]** arrows to select either **A_OUT 1** or **A_OUT 2** and then press the **[P]** button.

The display will scroll:

--- SET ZERO VALUE

- Use the **[▲]** or **[▼]** arrows to set the meter to the value you wish to display at the low analog output setting.

For example, if you want the 0-10V analog output to deliver 0V at a reading of -100, you would set that value as shown above. If you are using a 4-20 mA output, this would be the value you wish to display at 4 mA.

- Press the **[P]** button to accept the low analog output setting.

The display will scroll:

--- SET FULL SCALE VALUE

- Use the **[▲]** or **[▼]** arrows to set the meter to the value you wish to display at the high analog output setting.

For example, if you want the 0-10V analog output to deliver 10V at a reading of 100, you would set that value as shown above. If you are using a 4-20 mA output, this would be the value you wish to display at 20 mA.

- Press the **[P]** button to accept the high analog output setting.

The display will scroll:

--- SET DATA SOURCE

- Use the **[▲]** and **[▼]** arrows to select either **CH 1** or **CH 2** and then press the **[P]** button.

Analog Output Scaling of the selected output is now complete.

The display will scroll:

--- CALIBRATE OUTPUT

followed by: **NO** (the default or **[▼]** arrow selection) and **YES** (the **[▲]** arrow selection). This calibration should only be performed if you want to verify that the low and high analog output signals are correct using a calibration device such as a multimeter. Because your meter has been factory calibrated, this should not be necessary. If you wish to perform the calibration of the analog output, please consult the DMC-A2 User Manual which can be downloaded from the Macro Sensors website at:

www.macrosensors.com

This output calibration procedure should also not be confused with the Calibration Procedure on page 3 of this guide!

- Press the **[P]** button to skip the analog output calibration.

The display will scroll:

--- SELECT ANALOG OUTPUT

If you wish to scale the other output, go back to step 3 and continue the procedure. If you wish to return to the normal display mode, press the **[P]** button 3 or 4 times in rapid succession until the LVDT output reading is displayed.



Meter Connections



WARNING: AC and DC input signals and power supply voltages can be hazardous. Do not connect live wires to screw terminal plugs, and do not insert, remove, or handle screw terminal plugs with live wires connected.

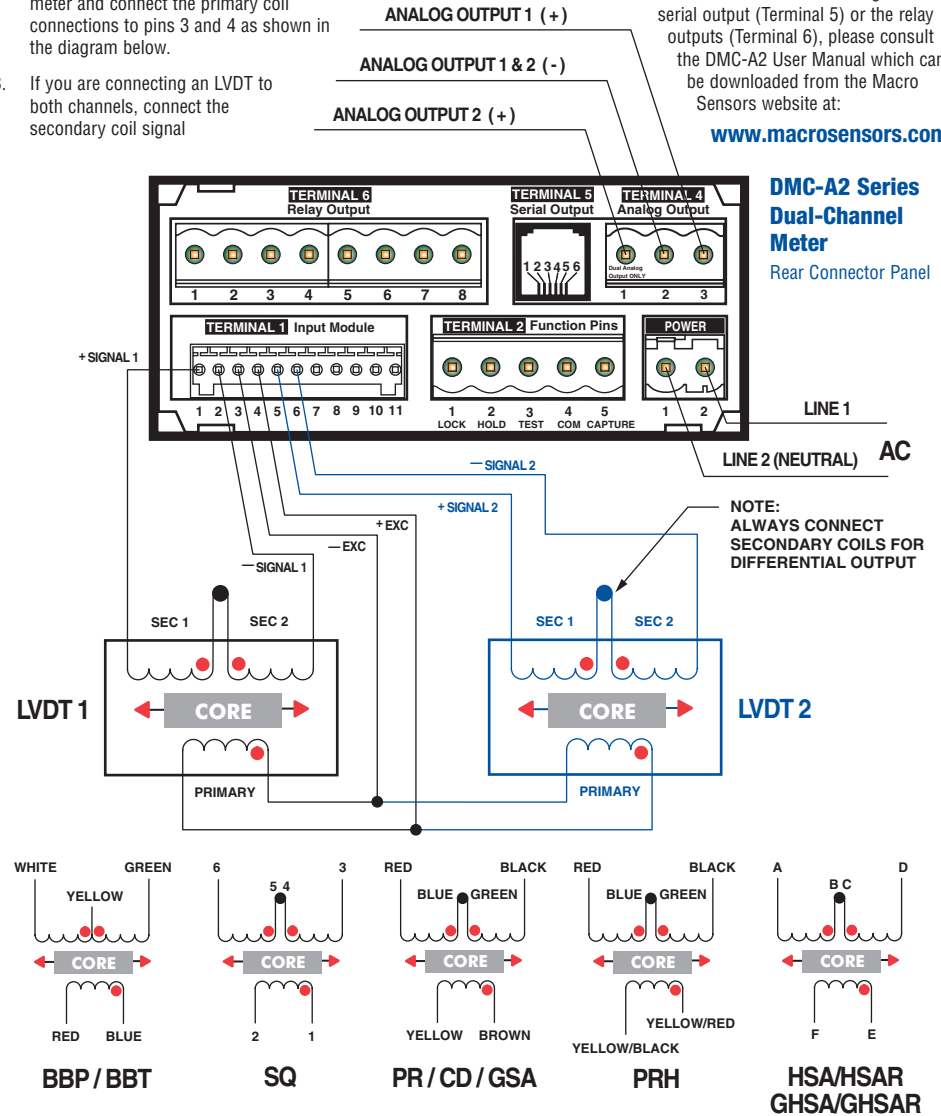
- Locate the wiring diagram below that corresponds to the series of LVDT you are connecting to the meter, and identify the primary and secondary lead wires, terminals, or pin connections on the LVDT.
- Connect the LVDT secondary coil signal connections to pins 1 and 2 of Terminal 1 on the back of the meter and connect the primary coil connections to pins 3 and 4 as shown in the diagram below.
- If you are connecting an LVDT to both channels, connect the secondary coil signal

connections of LVDT 2 to pins 5 and 6 of Terminal 1 and connect the primary coil connections to pins 3 and 4 with those of LVDT 1 as shown in the diagram below.

- If you are connecting the meter's analog output(s) to any external devices, connect them to the corresponding pins on Terminal 4 as shown below.
- Connect AC power to the POWER connector on the rear of the meter as shown below. The LED display will illuminate when power is connected.

Note: For information on using the serial output (Terminal 5) or the relay outputs (Terminal 6), please consult the DMC-A2 User Manual which can be downloaded from the Macro Sensors website at:

www.macrosensors.com



Meter Setup

Input Signal Setup

Note: When the meter is powered on, it automatically defaults to its normal display mode or "View" mode (see the the DMC-A2 User Manual for more information). You can always safely exit to the display mode at any time, from any point within any mode (setup, calibration, etc.), without any danger of changing or affecting any previous settings, by pressing the **P** button 3 or 4 times in rapid succession.

- From the normal display mode, press and hold the **P** button for four (4) seconds.

The display will scroll:
___ INPUT SETUP

followed by:
SKIP (the default or **▼** arrow selection) and **ENTER** (the **▲** arrow selection)

- Press the **▲** button (for the **ENTER** selection) and then press the **P** button.

The display will scroll:
___ SELECT SUPPLY FREQUENCY

followed by: **60HZ** (the default or **▼** arrow selection) and **50HZ** (the **▲** arrow selection). 60Hz is the typical supply frequency in the United States.

- Press the **P** button to select the **60HZ** setting.

The display will scroll:
___ SELECT EXCITATION IN KHZ

followed by the present excitation frequency setting. Choices from 1.44 KHz to 11.52 KHz are selectable by using the **▼** and **▲** arrow buttons.

- Use the **▲** and **▼** arrows to select **2.88** and then press the **P** button.

The display will scroll:
___ SELECT OUTPUT RATE

followed by the present output rate. Choices from 1 Hz to 20 Hz are available by using the **▲** and **▼** arrow buttons. The 4 Hz option usually provides the best frequency response with the least amount of noise.

- Use the **▲** and **▼** arrows to select **4 HZ** and then press the **P** button.

The display will scroll:
___ SELECT DECIMAL POINT CH 1

followed by the present decimal point setting for channel 1. Choices from no decimal point to five (5) decimal places are selectable by using the **▲** and **▼** arrow buttons. When calibrating the meter (see page 3) the user will usually set the span display value so that it represents some desired number of measurement units. The maximum display value is 999999 and the minimum is -199999. Because the DMC-A2 uses a fixed decimal point, select a number of decimal places that will not limit the maximum or minimum display values. For example, if you select three decimal places, the maximum displayed value will be 999.999 and the minimum will be -19.999.

- Use the **▲** and **▼** arrows to select the desired number of decimal places and then press the **P** button.

The display will scroll:
___ SELECT DECIMAL POINT CH 2

followed by the present decimal point setting for channel 2.

- Use the **▲** and **▼** arrows to select the desired number of decimal places for channel 2 and then press the **P** button.

The display will scroll:
___ SELECT CALIBRATION CHANNEL

followed by: **SKIP** (the default selection). The Input Setup procedure is now complete and the **___ SELECT CALIBRATION CHANNEL** message represents the first step of the Calibration Procedure. If you want to continue with calibration, proceed to the next page. If you wish to return to the normal display mode, press the **P** button 3 or 4 times in rapid succession until the LVDT output reading is displayed.

Meter Setup

Calibration Procedure

Note: If you are continuing from the Input Setup procedure on the preceding page, the message **___ SELECT CALIBRATION CHANNEL** will scroll across the display. If you are starting the Calibration Procedure from the normal display mode, press and hold the **P** button for four (4) seconds until **___ INPUT SETUP** followed by **SKIP** scrolls across the display. Then press the **P** button once more to enter the calibration mode.

- With the message **___ SELECT CALIBRATION CHANNEL** followed by **SKIP** scrolling across the display, use the **▲** and **▼** arrows to select the desired channel and press the **P** button.

The display will scroll:
___ SELECT CALIBRATION METHOD

followed by: **SKIP** (the default selection)

- Press the **▲** button (for the **NULL** selection) and then press the **P** button.
- The display will scroll:
___ ADJUST LVDT 50 DISPLAY READS ZERO

Identifying the "NULL" position of the LVDT is particularly important when using a free-core LVDT but it should also be used to check the physical mounting of any LVDT to ensure that the core will be positioned at the center of the LVDT's linear range at the approximate center of the LVDT's physical measurement range/stroke.

- Press the **▲** or **▼** arrow to activate the display.

The unit will display an arbitrary reading based on the current position of the LVDT.

- Adjust the LVDT until the display reads as close to zero as possible. It does not have to be exact and the reading may fluctuate slightly depending on the signal.

Make sure that the mounting of the LVDT and the measurement apparatus attached to the core will allow adequate movement in both directions from the NULL position that is within the LVDT's physical measurement range/stroke.

- Press the **P** button.

Once again, the display will scroll:
___ SELECT CALIBRATION METHOD followed by: **SKIP** (the default selection)

- Press the **▲** button twice for the **AUTO** selection) and then press the **P** button.

The display will scroll:
___ SET SENSOR TO ZERO POSITION - - - PRESS P BUTTON TO ACCEPT

- Adjust the LVDT until it is at the **physical** position where you want the meter to display a zero reading.
- Make sure that this position is within the LVDT's physical measurement range/stroke.

- Use the **▲** or **▼** arrows to set the display to zero and then press the **P** button.

The display will scroll:
___ SET SENSOR TO SPAN POSITION - - - PRESS P BUTTON TO ACCEPT

- Now adjust the LVDT until it is at the **physical** position where you want the meter to display the span setting.
- Make sure that this position is within the LVDT's physical measurement range/stroke.

- Use the **▲** or **▼** arrows to set the display to the span value and then press the **P** button.

Channel 1 is now calibrated.

Once again, the display will scroll:
___ SELECT CALIBRATION METHOD followed by: **SKIP** (the default selection). If you want to continue with calibration of an LVDT on channel 2, press the **P** button and go back to step 1 when the message, **___ SELECT CALIBRATION CHANNEL** scrolls across the display.

If you wish to return to the normal display mode, press the **P** button 3 or 4 times in rapid succession until the LVDT output reading is displayed.

If you wish to scale the analog output, go to the Analog Output Scaling Procedure on page 4.