

TRANSMATION Products Group	934 FIELD CALIBRATION PROCEDURE	DOCUMENT NO.	REV.
		1-934	A
Created by: D.NEFF		Date: 15 FEB 96	Sheet 1 of 6

Rev	Date	Appd	DCN								
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Suggested Equipment:

- 1) Digital voltmeter with accuracy of $\pm 0.003\%$ of reading at 2V and $\pm 0.005\%$ of reading at 100V
 Note: The required accuracy is usually found only on meters with 7½ or more digits
- 2) 100 Ohm laboratory standard resistor with accuracy of $\pm 0.003\%$
- 3) Adjustable DC Voltage source, 0 to 95.000VDC with resolution of 0.001V and 0.01mV
- 4) Adjustable DC current source, 0 to 24.000mA with resolution of 0.001mA

ENABLING CALIBRATION:

Allow one hour for the Model 934 to stabilize to the ambient temperature of the calibration room. Remove the battery cover and the four black phillips head screws. While holding the 934 face down in one hand, carefully separate the top and bottom of the housing. Place the unit into calibration mode by placing the jumper located on the bottom board into CAL position (See Figure 1). Place all DIPS into the OFF position.

During calibration, the top half of the 934's LCD display prompts you with the input or output value being calibrated. The bottom half of the display indicates the measurement computed by the Model 934. When a pushbutton is pressed to store a calibration reading, the value in the top half of the LCD flashes once. Please pause for 10 seconds before proceeding for the 934 to compute the new calibration values.

SOURCE MODE ADJUSTMENT:

To change the output of the Model 934 during the calibration of the SOURCE functions, both coarse and fine adjustments are used. Place the READ toggle switch in the Max position for coarse adjustment and move the READ toggle switch to the READ position for fine adjustment.

mA:

- 1) Connect the Source leads in series with the 100 Ohm resistor. Connect the DVM parallel with the 100 Ohm resistor (See Figure 2).
- 2) Turn the unit on and wait for the unit to go into calibration mode (SOURCE and READ flashing).
- 3) Press the STORE pushbutton to select Source Mode.
- 4) Turn the Digital Pot (yellow knob) until mA is displayed and press the STORE pushbutton.
- 5) Dial the output with the READ toggle switch in the MAX position (coarse adjust) until the DVM displays approximately 0.0V. Move the READ toggle switch to READ (fine adjust) until the DVM reads 0.000mV $\pm 0.000096V$ and press the STORE pushbutton.

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- 6) Dial the output (using the same coarse and fine adjustments) until the DVM reads $2.400V \pm 0.00024V$ and press the STORE pushbutton.
- 7) Turn the unit off.

2-Wire Sim:

- 1) Connect the source leads in series with the current source and the 100 Ohm resistor. Connect the DVM parallel with the 100 Ohm resistor (See Figure 3).
- 2) Turn the unit on and wait for the unit to go into calibration mode (SOURCE and READ flashing).
- 3) Press the STORE pushbutton to select SOURCE Mode.
- 4) Turn the Digital Pot until 2-WIRE SIM is displayed and press the STORE pushbutton.
- 5) Disconnect the positive output lead from the 100 Ohm resistor and wait until the display reads 0.00 and press the STORE pushbutton.
- 6) Re-connect the positive output lead to the 100 Ohm resistor and dial the output until the DVM reads $2.4000V \pm 0.00024V$ and press the STORE pushbutton.
- 7) Turn the unit off.

mV:

- 1) Connect the Source leads to the DVM (See Figure 4).
- 2) Turn the unit on and wait for the unit to go into calibration mode (SOURCE and READ flashing).
- 3) Press the STORE pushbutton to select Source Mode.
- 4) Turn the Digital Pot until mV is displayed and press the STORE pushbutton.
- 5) Dial the output until the DVM reads $0.000mV \pm 0.040mV$ and press the STORE pushbutton.
- 6) Dial the output until the DVM reads $999.900mV \pm 0.100mV$ and press the STORE pushbutton.
- 7) Turn the unit off.

V:

- 1) Leave the Source leads connected as in the mV calibration (See Figure 4).

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- 2) Turn the unit on and wait for the unit to go into calibration mode (SOURCE and READ flashing).
- 3) Press the STORE pushbutton to select Source Mode.
- 4) Turn the Digital Pot until V is displayed and press the STORE pushbutton.
- 5) Dial the output until the DVM reads $0.000\text{mV} \pm 0.040\text{mV}$ and press the STORE pushbutton.
- 6) Dial the output until the DVM reads $20.000\text{V} \pm 0.002\text{V}$ and press the STORE pushbutton.
- 7) Turn the unit off.
- 8) Disconnect the source leads from the DVM.

READ MODE ADJUSTMENT:

mA:

- 1) Connect the Read leads to a current source in series with a 100 Ohm resistor. Monitor the current by placing a DVM across the 100 Ohm resistor (See Figure 5).
- 2) Turn the unit on and wait for the unit to go into calibration mode (SOURCE and READ flashing).
- 3) Press the RESET pushbutton to select Read mode.
- 4) Dial the unit so mA is displayed and press the RESET pushbutton.
- 5) Set the current source to 0.000mA so that the DVM reads $0.000\text{mV} \pm 0.096\text{mV}$ and press the RESET pushbutton.
- 6) Set the current source to 24.000mA so that the DVM reads $2.4000\text{V} \pm 0.00024\text{V}$ and press the RESET pushbutton.
- 7) Turn the unit off.

mV:

- 1) Connect the Read leads to a voltage source and place the DVM across the voltage source (See figure 6).
- 2) Turn the unit on and wait for the unit to go into calibration mode (SOURCE and READ flashing).
- 3) Press the RESET pushbutton to select Read mode.
- 4) Dial the unit so mV is displayed and press the RESET pushbutton.

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- 5) Set the voltage source to 0.000mV so that the DVM reads 0.000mV \pm 0.040mV and press the RESET pushbutton.
- 6) Set the voltage source to 999.90mV so that the DVM reads 999.90mV \pm 0.100mV and press the RESET pushbutton.
- 7) Turn the unit off.

V:

- 1) Leave the Read leads connected as in the mV calibration (See Figure 6).
- 2) Turn the unit on and wait for the unit to go into calibration mode (SOURCE and READ flashing).
- 3) Press the RESET pushbutton to select Read mode.
- 4) Dial the unit so V is displayed and press the RESET pushbutton.
- 5) Set the voltage source to 0.000V so that the DVM reads 0.000mV \pm 0.040mV and press the RESET pushbutton.
- 6) Set the voltage source to 95.000V so that the DVM reads 95.000V \pm 0.0097V and press the RESET pushbutton.
- 7) Turn the unit off.

COMPLETION of CALIBRATION:

Place the unit into normal operating mode by placing the jumper located on the bottom board back into the stored position (See figure 1). Place all DIPS into the ON position.

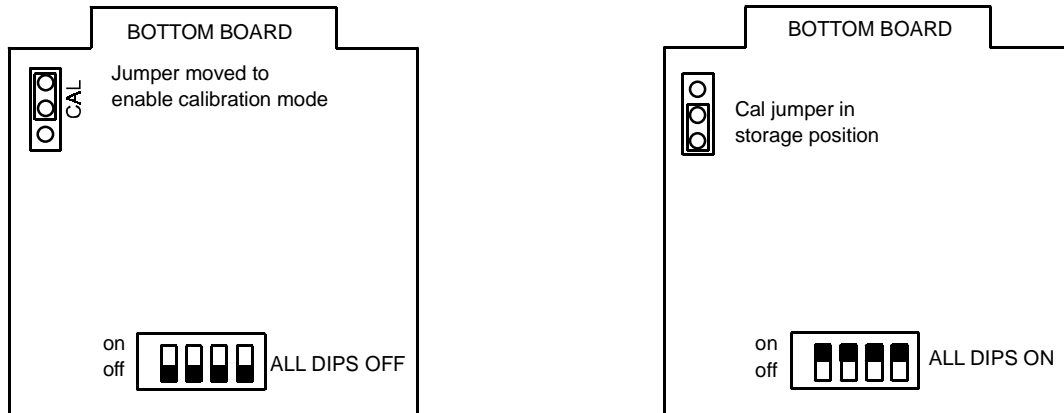


FIGURE 1

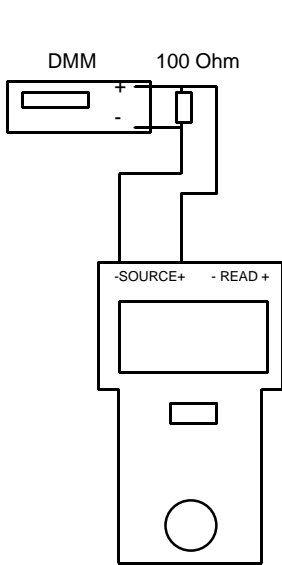


FIGURE 2

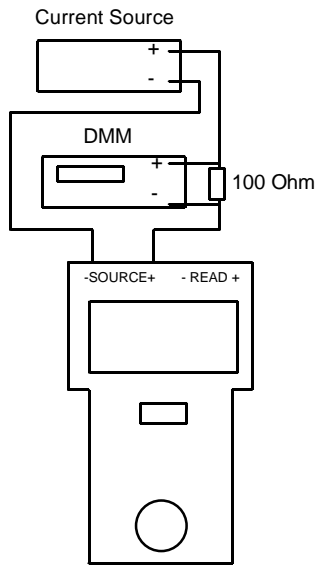


FIGURE 3

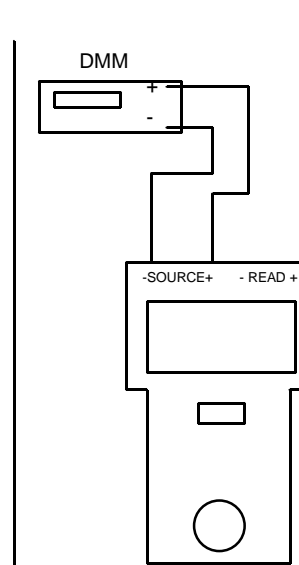


FIGURE 4

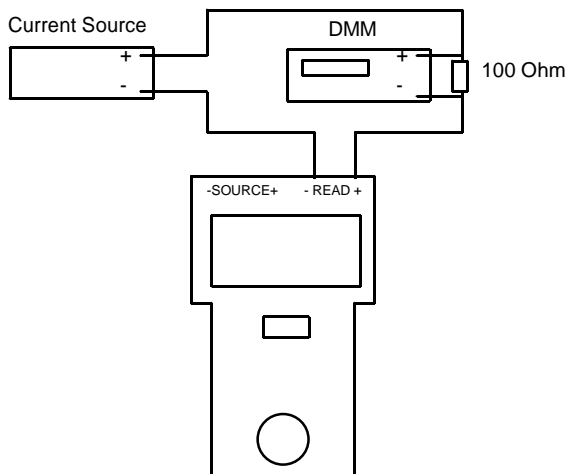


FIGURE 5

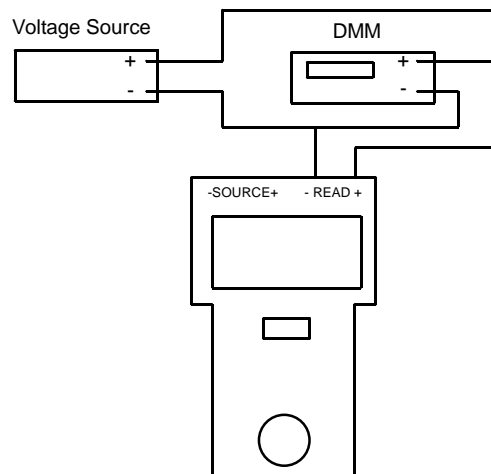


FIGURE 6

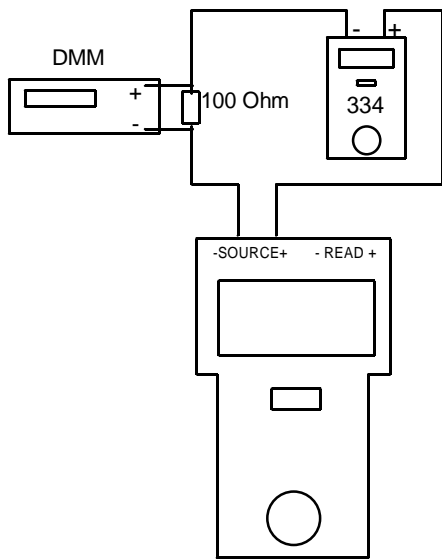


FIGURE 7

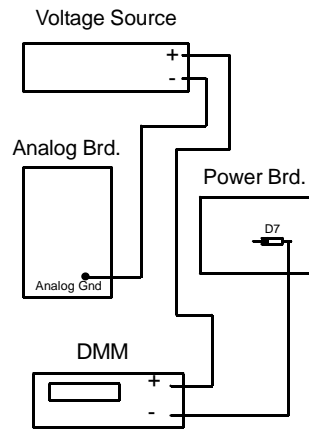


FIGURE 8

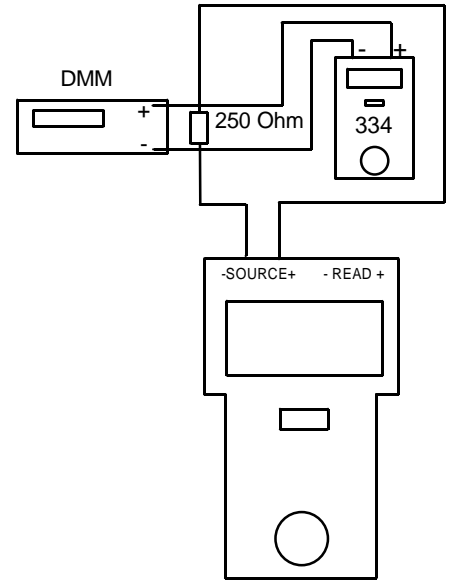


FIGURE 9