1. OBJECTIVE

Details calibration of controller powered, DC isolated current loops.

Controllers with installed options **IC**, **IO**, **IP, IR** in the controller part number have from one to four, 4-20mA current outputs.

This application note details calibration using the TV remote keypad and a local serial connection.

2. CALIBRATION
Using TV Remote Keypad

Calibration requires a digital voltmeter set to DC millivolts

1. Clip the DC voltmeter across the **J2** header terminals labeled **+** & **-**, located to the left of the green field wiring **+I-** terminals.

2. Ensure that the **V I** jumper, above and to the left on the **+I-** terminal block is on the **'I'** position.

3. The J2 terminals measure the current flowing in a 10 ohm resistor. 4mA = 40mV and 20mA=200mV.

4. Connect to the controller at the **123456** level password, Key ***Enter*** until you view **Adjust Setpoints** and key ***Channel UP*** or ***DOWN*** until you view **ADJUST 4-20mA LOOPS?** & then key ***Enter***.

5. ***Channel UP*** or ***DOWN*** until you view the **D/A#** that you wish to calibrate. Key ***PREV***ious to view the current 4 & 20mA span. Key ***Power*** and then ***Enter***, setting the 4mA and 20mA levels above the current sensor value.

6. Setting the span in Step 5. forces the loop to 4mA. Adjust the blue **O**FFSET potentiometer for the a DVM display of 40mV.

7. **ADJ**ust the span to force the loop to 20mA by setting the 4 & 20 levels to below the current sensor level. Adjust the blue **G**AIN potentiometer for a DVM display of 200mV.

8. Repeat steps 6 & 7 one or two more times in sequence, to dial in the 4 & 20mA levels.

3. CALIBRATION
R2-RM Controllers

Use the Section 2 procedure if you wish to calibrate in-situ using the on-site loop terminating resistance.

Section 3. procedure may be modified to use common loop terminating resistors from 22 ohm to 250 ohms.

Calibration requires a digital voltmeter and a 100 ohm resistor and a controller with either the **R2**, serial port or **RM**, serial port & modem options.

1. Disconnect the current output connected to the **+I-** terminals and connect a 100Ohm resistor across the **+I-** terminals.

2. Ensure that the **V I** jumper , above and to the left on the **+I-** terminal block is on the **'I'** position.

3. Connect a digital voltmeter on DC 20Volt range across the 100 ohm resistor.

4. Connect serially to the controller at the configure level password, enter Trackster Terminal or use Hyperterminal and the **CC** command to change the span of the 4-20 mA loop.

5. Verify that the **CC#** is the same as the **D/A#** that powers the output card. For example if the card cable connects to **D/A1**, then use **CC1** to adjust the span.
6. Set the span to force the loop to 4mA. Use the **CC** command to verify that the controller has set the loop to 4mA. Adjust the blue **O**FFSET potentiometer for 400mV or 0.4 VDC.

7. Set the span to force the loop to 20mA. Use the **CC** command to verify that the controller has set the loop to 20mA. Adjust the blue **G**AIN potentiometer for 2000mV or 2VDC.

8. Repeat steps 6 & 7 one or two more times in sequence, to dial in the 4 & 20mA levels.

9. Remove the 100 ohm resistor from the **+I-** terminals and reconnect the field wiring.