



Metrology Made Simple



ADT226 / ADT227 Calibration Manual

ADT226 & ADT227 Calibration Manual

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1.0 - Scope

The Additel ADT226 and ADT227 are a series of multifunctional process calibrators. These calibrators have the capability of sourcing, simulating and measuring pressure, temperature, and electrical signals. Other features include a built in Barometer, USB type C and Bluetooth communications, high voltage measurement capability, dual channel pressure module ports, and a touch screen color display. The ADT227 also has the option of enabling full HART communication. These devices provide portability, functionality, and accuracy to fulfill the customer's calibration requirements. Please read this document carefully before attempting to perform any type of verification or adjustment. Also ensure that the operator has the metrological expertise and equipment to perform the work.

2.0 - References

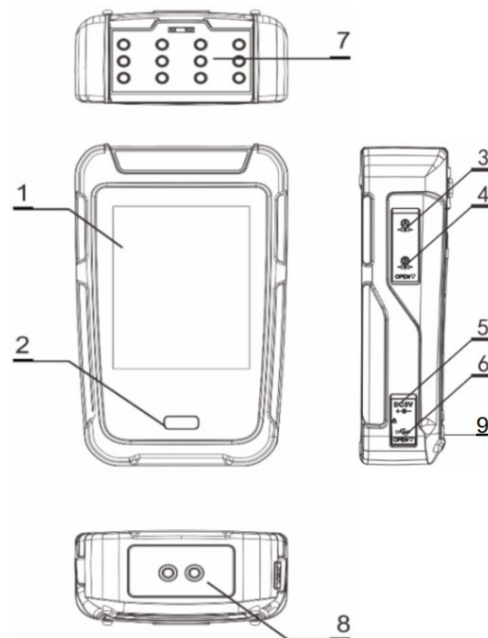
- Additel 286 Multifunction Reference Thermometer Readout User Manual
- Additel 875 Dry Well Calibrator User Manual
- Additel 761A User Manual

3.0 - Environmental Conditions

- Ideal Temperature and Humidity Conditions:
 - $23 \pm 5^{\circ}\text{C}$ with less than 80% relative humidity

4.0 - General Diagram and Description

No.	Part Name	Function
1	Touch Screen Display	Navigate the display area by touch screen.
2	Power Button	Hold to power ON/OFF the device.
3	LEMO Type Connection A	Connects to an external pressure module.
4	LEMO Type Connection B	Connects to an external pressure module.
5	Power Adapter Port	Connects to the power supply.
6	USB Type C Port	Connects to the USB communication.
7	Electrical Measurement Plugs	Connects to cables for electrical measurements.
8	AC Voltage Measure Plugs	Connects to cables for measuring AC 300V.
9	Barometer (ATM) Port	Connects to Festo hose for Barometer testing.



5.0 - Recommended Equipment and Specifications

Equipment	Specification/ Description	Recommended Model/ Item Number
Electrical Calibrator	Applicable to the ADT226/227 electrical ranges/accuracy	Fluke 5720A or equivalent
Electrical Readout	Applicable to the ADT226/227 electrical ranges/accuracy	ADT286
Resistance Decade Box	Applicable to ADT226/227 resistance ranges/accuracy	-
Waveform Generator	Applicable to the ADT226/227 frequency ranges/accuracy	Keysight 33512B or equivalent
Frequency Counter	Applicable to the ADT226/227 frequency ranges/accuracy	Keysight 53220A or equivalent
Temperature Source	Applicable to the ADT226/227 temperature ranges/accuracy	ADT875PC-155
Temperature Reference	Applicable to the ADT226/227 temperature ranges/accuracy	AM1710-12-ADT
Thermocouple	Characterized Type E	-
Pressure Calibrator	Applicable to ADT226/227 barometer specification	ADT761A-BP
Electrical Cable Connection	Red and black banana jack test leads	9022
Special TC Cable Connection	Banana jack to copper TC mini connector	-
Temperature Cable Connection	Bare wire to copper TC mini connector (Type E)	9080
Temperature Insert	Low temperature insert, insulation piece and plugs	ADT110-875-L-INSERT-C
Pressure Hose Connection	Festo hose (4mm)	-

6.0 - Date & Time

- 1) Hold the **Power Button** to turn the unit ON.
- 2) Press the **Home Icon** (top left) to display the main interface options.
- 3) Press **Setup** (bottom right) then press **Personalization**.
- 4) Press **Date & Time** to view the following parameters: Date, Time, Date Format, Date Separator, Time Zone, and 24-Hour Time. If necessary, use the touch screen display to adjust any of these parameters.
- 5) Press the **Home Icons** to return to the main interface. Press **Calibrator** (bottom left) to display the main calibration functions.

7.0 - Zero Procedure

On the Calibrator display, a Zero Icon is shown on the right side of the Measurement section for certain functions. If necessary, press the **Zero Icon** prior to starting electrical measurements to remove any offset.

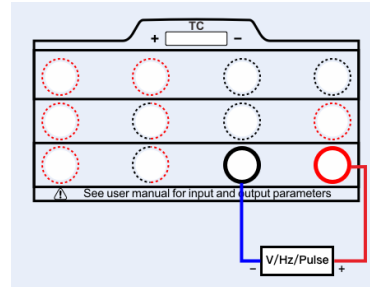
8.0 - Electrical Verification

The top half of the Calibrator screen displays the Measurement (input) functions while the bottom half displays the Source (output) functions. The Measure and Source icons (left) can be pressed to change functionality between voltage, current, frequency, TC, RTD, etc.

8.1 - DC Voltage Verification

1) Press the **Source Icon** and select **(-150~150)mV** to source DC Voltage. Connect the unit according to the diagram.

Diagram 8.0
(DC Voltage Source)



2) Verify the values in the table.

DC Voltage Source (-150~150)mV		
Test Point (mV)	Spec - 226 (mV)	Spec - 227 (mV)
-150	± 0.038	± 0.023
0	± 0.015	± 0.015
150	± 0.038	± 0.023

3) Press the **Source Icon** and select **(-1.5~1.5)V** to source DC Voltage.

4) Verify the values in the table.

DC Voltage Source (-1.5~1.5)V		
Test Point (V)	Spec - 226 (V)	Spec - 227 (V)
-1.5	± 0.00038	± 0.00023
0	± 0.00015	± 0.00015
1.5	± 0.00038	± 0.00023

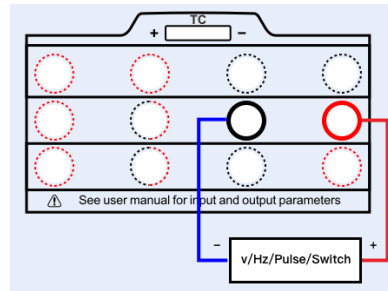
5) Press the **Source Icon** and select **(-15~15)V** to source DC Voltage.

6) Verify the values in the table.

DC Voltage Source (-15~15)V		
Test Point (V)	Spec - 226 (V)	Spec - 227 (V)
-15	± 0.0038	± 0.0023
0	± 0.0015	± 0.0015
15	± 0.0038	± 0.0023

7) Press the **Measure Icon** and select **(-30~30)V** to measure DC Voltage. Connect the unit according to the diagram. Press the **Zero Icon** (right) prior to taking measurements.

Diagram 8.1
(DC Voltage Measure)



8) Verify the values in the table.

DC Voltage Measure (-30~30)V		
Test Point (V)	Spec - 226 (V)	Spec - 227 (V)
-30	± 0.0060	± 0.0030
0	± 0.0015	± 0.0015
30	± 0.0060	± 0.0030

9) Press the **Measure Icon** and select **(-300~300)mV** to measure DC Voltage.

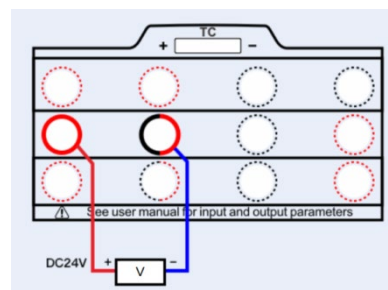
10) Verify the values in the table.

DC Voltage Measure (-300~300)mV		
Test Point (mV)	Spec - 226 (mV)	Spec - 227 (mV)
-300	± 0.060	± 0.030
0	± 0.015	± 0.015
300	± 0.060	± 0.030

8.2 - 24V Loop Power Output Verification

1) Press the **24V Icon** at the top of the display. Ensure that this icon is highlighted as blue to enable 24V loop power. Connect the unit according to the diagram.

Diagram 8.2
(Loop Power Output)



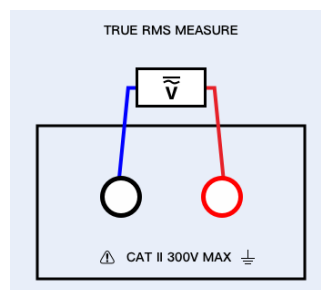
2) Verify the values in the table.

Loop Power Output (24V)		
Test Point (V)	Spec - 226 (V)	Spec - 227 (V)
24	± 1.00	± 1.00

8.3 - High Voltage Verification

1) Press the **Measure Icon** and select **300V** to measure DC High Voltage. Press the **Setup Icon**, next to 300V. Select **DC** for the PV then press the **Check Icon** to confirm. Connect the unit according to the diagram. Press the **Zero Icon** prior to taking measurements.

Diagram 8.3
(High Voltage Measure)



2) Verify the values in the table.

DC High Voltage Measure (0~300)V		
Test Point (V)	Spec - 226 (V)	Spec - 227 (V)
0	± 0.03	± 0.03
200	± 0.13	± 0.13

3) Press the **Measure Icon** and select **300V** to measure AC High Voltage. Press the **Setup Icon** next to 300V. Select **AC** for the PV then press the **Check Icon** to confirm.

4) Source 200V 60Hz. Verify the values in the table.

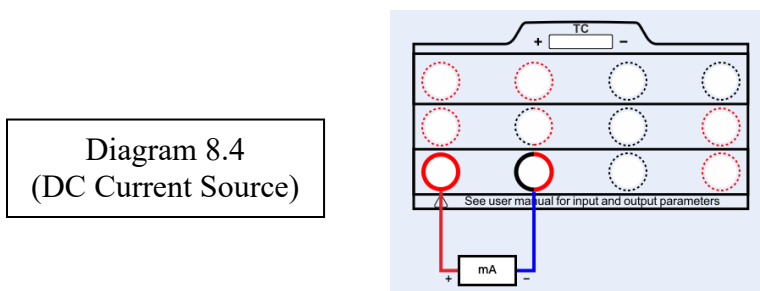
AC High Voltage (60Hz) Measure (0~300)V		
Test Point (V)	Spec - 226 (V)	Spec - 227 (V)
200	± 1.15	± 1.15

5) Source 200V 400Hz. Verify the values in the table.

AC High Voltage (400Hz) Measure (0~300)V		
Test Point (V)	Spec - 226 (V)	Spec - 227 (V)
200	± 1.15	± 1.15

8.4 - DC Current Verification

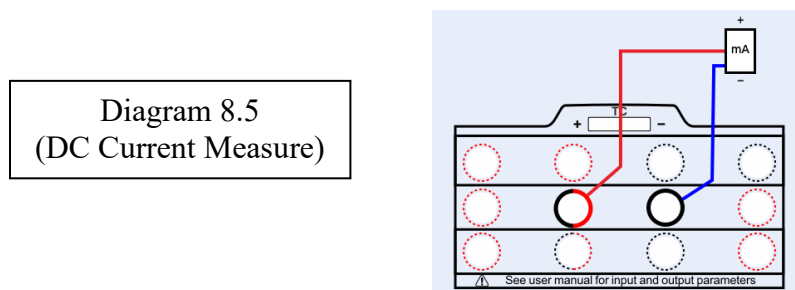
1) Press the **Source Icon** and select **(0~25)mA** to source DC Current. Connect the unit according to the diagram.



2) Verify the values in the table.

DC Current Source (0~25)mA		
Test Point (mA)	Spec - 226 (mA)	Spec - 227 (mA)
0	± 0.0013	± 0.0013
10	± 0.0028	± 0.0023
25	± 0.0050	± 0.0038

3) Press the **Measure Icon** and select **(-30~30)mA** to measure DC Current. Connect the unit according to the diagram. Press the **Zero Icon** prior to taking measurements.



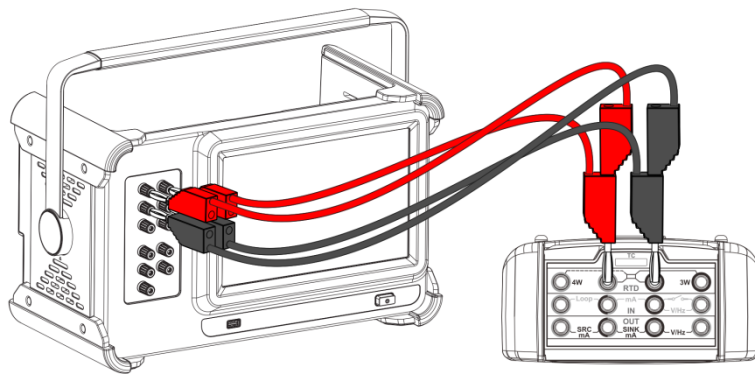
4) Verify the values in the table.

DC Current Measure (-30~30)mA		
Test Point (mA)	Spec - 226 (mA)	Spec - 227 (mA)
-30	± 0.0060	± 0.0045
0	± 0.0015	± 0.0015
30	± 0.0060	± 0.0045

8.5 - Resistance Verification

1) Press the **Source Icon** and select **RTD** to source Resistance. Press the **Setup Icon** next to RTD. Select **Ω** as the Sensor type and **400 Ω** for the Range then press the **Check Icon** to confirm. Connect the unit according to the diagram. Note: A 2 wire setup from the unit is connected to a 4 wire setup from the readout device.

Diagram 8.6
(Resistance Source)



2) Verify the values in the table.

Resistance Source (0~400) Ω		
Test Point (Ω)	Spec - 226 (Ω)	Spec - 227 (Ω)
25	± 0.024	± 0.021
100	± 0.035	± 0.025
200	± 0.050	± 0.030
400	± 0.080	± 0.040

3) Press the **Setup Icon** next to RTD. Select **Ω** as the Sensor type and **4000 Ω** for the Range then press the **Check Icon** to confirm.

4) Verify the values in the table.

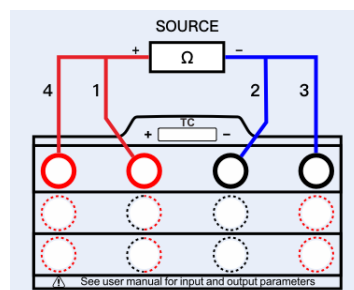
Resistance Source (0~4000) Ω		
Test Point (Ω)	Spec - 226 (Ω)	Spec - 227 (Ω)
25	± 0.20	± 0.20
400	± 0.26	± 0.24
1000	± 0.35	± 0.30
2000	± 0.50	± 0.40
4000	± 0.80	± 0.60

5) Press the **Measure Icon** and select **RTD** to measure Resistance. Press the **Setup Icon** next to RTD.

Select **Ω** as the Sensor type, **4** for the Wires, and **400 Ω** as the Range. Press the **Check Icon** to confirm.

Connect the unit according to the diagram.

Diagram 8.7
(Resistance Measure)



6) Verify the values in the table.

Resistance (4 Wire) Measure (1~400) Ω		
Test Point (Ω)	Spec - 226 (Ω)	Spec - 227 (Ω)
25	± 0.024	± 0.021
100	± 0.035	± 0.025
200	± 0.050	± 0.030
400	± 0.080	± 0.040

7) Press the **Measure Icon** and select **RTD** to measure Resistance. Press the **Setup Icon** next to RTD.

Select **Ω** as the Sensor type, **4** for the Wires, and **4000 Ω** as the Range. Press the **Check Icon** to confirm.

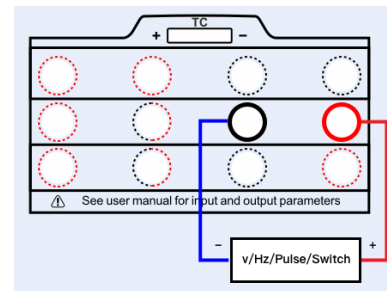
8) Verify the values in the table.

Resistance (4 Wire) Measure (1~4000) Ω		
Test Point (Ω)	Spec - 226 (Ω)	Spec - 227 (Ω)
25	± 0.20	± 0.20
400	± 0.26	± 0.24
1000	± 0.35	± 0.30
2000	± 0.50	± 0.40
4000	± 0.80	± 0.60

8.6 - Frequency Verification

1) Press the **Measure Icon** and select **(0.01~50K)Hz** to measure Frequency. Connect the unit according to the diagram.

Diagram 8.8
(Frequency Measure)

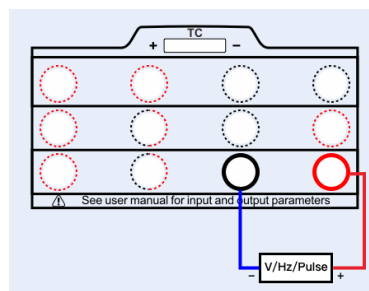


2) Verify the values in the table.

Frequency Measure (0.01~50,000)Hz		
Test Point (Hz)	Spec - 226 (Hz)	Spec - 227 (Hz)
100	± 0.007	± 0.004
1,000	± 0.070	± 0.040
50,000	± 2.700	± 1.200

3) Press the **Source Icon** and select **(0.01~50K)Hz** to source Frequency. Set the Vpp (Amplitude) to **5.000 V** and the wave format to **Square Wave**. Connect the unit according to the diagram.

Diagram 8.9
(Frequency Source)



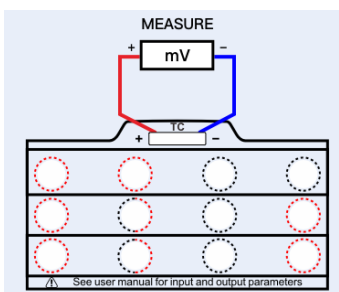
4) Verify the values in the table.

Frequency Source Square (0.1~50,000)Hz		
Test Point (Hz)	Spec -226 (Hz)	Spec -227 (Hz)
100	± 0.007	± 0.004
1,000	± 0.070	± 0.040
50,000	± 2.700	± 1.200

8.7 - TC Verification

1) Press the **Source Icon** and select **TC** to source Thermocouple. Press **Setup Icon** next to TC. Select **mV** as the Sensor type then press the **Check Icon** to confirm. Connect the unit to the electrical readout device using the banana jack to copper TC mini connector wire.

Diagram 8.10
(TC Source)

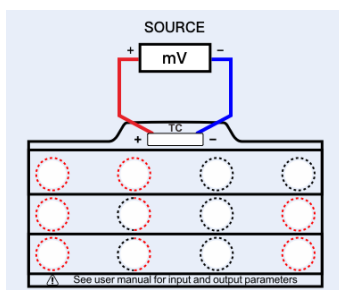


2) Verify the values in the table.

TC Voltage Source (-10~75)mV		
Test Point (mV)	Spec - 226 (mV)	Spec - 227 (mV)
-10	± 0.0053	± 0.0038
0	± 0.0038	± 0.0030
75	± 0.0150	± 0.0090

3) Press the **Measure Icon** and select **TC** to measure Thermocouple. Press the **Setup Icon** next to TC. Select **mV** as the Sensor type then press the **Check Icon** to confirm. Connect the unit to the electrical source device using the banana jack to copper TC mini connector wire.

Diagram 8.11
(TC Measure)



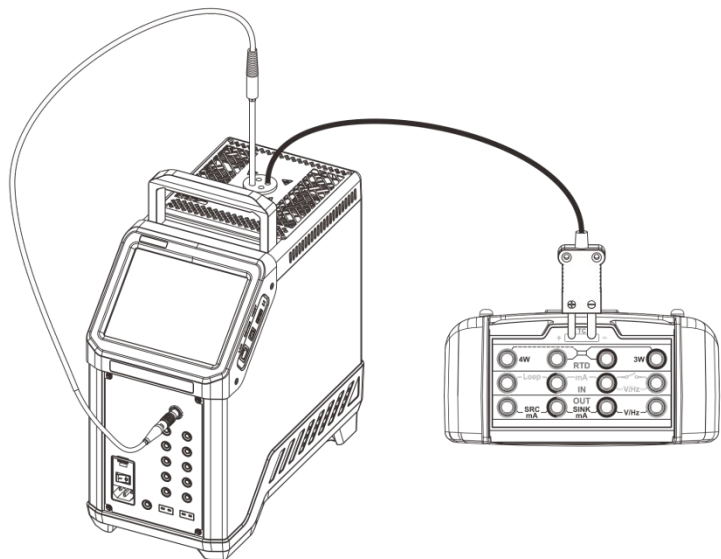
4) Verify the values in the table.

TC Voltage Measure (-10~75)mV		
Test Point (mV)	Spec - 226 (mV)	Spec - 227 (mV)
-10	± 0.0053	± 0.0038
0	± 0.0038	± 0.0030
75	± 0.0150	± 0.0090

5) Press the **Measure Icon** and select **TC** to measure Thermocouple. Press the **Setup Icon** next to TC. Select **E** as the Sensor Type, **0.001** as the Resolution, **°C** as the Temperature Unit, and **Internal(Int)** as the Sensor CJC type. Additel uses a temperature source (ADT875PC-155), reference probe (AM1710-12-ADT), and a characterized Type E Thermocouple for Cool Junction Compensation (CJC).

6) Connect the unit according to the diagram. Insert and plug in the reference probe into the temperature source to get an external (EXT) readout value. Insert one end of the Type E cable (bare wire) into the temperature source and set the internal (INT) temperature of the drywell to 20.0°C. Connect the other end of the Type E cable (TC connection) into the 226/227 and allow enough time for the temperature to stabilize.

Diagram 8.12
(CJC Measure)



7) Verify the values in the table.

CJC Measure (Type E)		
Test Point (°C)	Spec - 226 (°C)	Spec - 227 (°C)
20.0	± 0.15	± 0.15

9.0 - Barometer Verification

- 1) Press the **Icon bar** at the top of the screen, which displays the time, battery life, 24V, etc. The barometer is displayed at the left side with an analog gauge display icon.
- 2) Press this **Barometer Icon** and select kPa as the unit of measurement.
- 3) Lift the rubber ATM (atmosphere) flap on the back of the unit to reveal the hose connection. Using a blue Festo hose (4mm), connect the barometer pressure system to the unit's ATM port.
- 4) Verify the values in the table.

Barometric Pressure Sensor (60~110)kPa.a		
Test Point (kPa.a)	Spec - 226 (kPa.a)	Spec - 227 (kPa.a)
60	± 0.055	± 0.055
80	± 0.055	± 0.055
100	± 0.055	± 0.055
110	± 0.055	± 0.055

10.0 - Electrical Calibration

- 1) Press the **Home Icon > Setup > Service > Calibration**.
- 2) Input the Password as **123456** then press the **Check Icon** to confirm.
- 3) The electrical calibration menus are broken up into multiple categories: Electrical Measure, Electrical Output, Temperature, and ACM.

10.1 - DC Current Measure Calibration

- 1) Press **Electrical measure calibration** to calibrate the measurement functions.
- 2) Press **(-30~30)mA** to calibrate DC Current Measure.
- 3) Press **Multi-Point Calibration**.
- 4) Press the **Play Icon** to begin the calibration for DC Current Measure (± 30 mA).

- 5) Source the current for the first calibration point. If necessary, press the Reference number to edit the value. Press the **Next Icon** to record an Actual Value. Repeat this step for each of the calibration points.
- 6) Press **OK** to save the calibration data for DC Current Measure ($\pm 30\text{mA}$).
- 7) Press the **Back Icon** to return to the electrical measure calibration options.

10.2 - DC Voltage Measure Calibration

- 1) Press **(-30~30)V** to calibrate DC Voltage Measure.
- 2) Press **Multi-Point Calibration**.
- 3) Press the **Play Icon** to begin the calibration for DC Voltage Measure ($\pm 30\text{V}$).
- 4) Source the voltage for the first calibration point. If necessary, press the Reference number to edit the value. Press the **Next Icon** to record an Actual Value. Repeat this step for each of the calibration points.
- 5) Press **OK** to save the calibration data for DC Voltage Measure ($\pm 30\text{V}$).
- 6) Press the **Back Icon** to return to the electrical measure calibration options.
- 7) Press **(-300~300)mV** to calibrate DC Voltage Measure.
- 8) Press **Multi-Point Calibration**.
- 9) Press the **Play Icon** to begin the calibration for DC Voltage Measure ($\pm 300\text{mV}$).
- 10) Source the voltage for the first calibration point. If necessary, press the Reference number to edit the value. Press the **Next Icon** to record an Actual Value. Repeat this step for each of the calibration points.
- 11) Press **OK** to save the calibration data for DC Voltage Measure ($\pm 300\text{mV}$).
- 12) Press the **Back Icon** to return to the electrical measure calibration options.

10.3 - Frequency Measure Calibration

- 1) Press **(0.01~50K)Hz** to calibrate Frequency Measure.
- 2) Press **Multi-Point Calibration**.
- 3) Press the **Play Icon** to begin the calibration for Frequency Measure.

- 4) Source the frequency for the calibration point. If necessary, press the Reference number to edit the value. Press the **Next Icon** to record an Actual Value.
- 5) Press **OK** to save the calibration data for Frequency Measure.
- 6) Press the **Back Icons** to return to the main calibration options.

10.4 - DC Voltage Source Calibration

- 1) Press **Electrical output calibration** to calibrate the source functions.
- 2) Press **(-150~150)mV** to calibrate DC Voltage Source.
- 3) Press **Multi-Point Calibration**.
- 4) Press the **Play Icon** to begin the calibration for DC Voltage Source ($\pm 150\text{mV}$).
- 5) The unit will source the voltage for the first calibration point. Press on the **Actual Value** to edit it and match this number with the value displayed by the readout device. Press the **Next Icon** to record the Actual Value. Repeat this step for the other calibration points.
- 6) Press **OK** to save the calibration data for DC Voltage Source ($\pm 150\text{mV}$).
- 7) Press the **Back Icon** to return to the electrical output calibration options.
- 8) Press **(-1.5~1.5)V** to calibrate DC Voltage Source.
- 9) Press **Multi-Point Calibration**.
- 10) Press the **Play Icon** to begin the calibration for DC Voltage Source ($\pm 1.5\text{V}$).
- 11) The unit will source the voltage for the first calibration point. Press on the **Actual Value** to edit it and match this number with the value displayed by the readout device. Press the **Next Icon** to record the Actual Value. Repeat this step for the other calibration points.
- 12) Press **OK** to save the calibration data for DC Voltage Source ($\pm 1.5\text{V}$).
- 13) Press the **Back Icon** to return to the electrical output calibration options.
- 14) Press **(-15~15)V** to calibrate DC Voltage Source.
- 15) Press **Multi-Point Calibration**.

- 16) Press the **Play Icon** to begin the calibration for DC Voltage Source ($\pm 15\text{V}$).
- 17) The unit will source the voltage for the first calibration point. Press on the **Actual Value** to edit it and match this number with the value displayed by the readout device. Press the **Next Icon** to record the Actual Value. Repeat this step for the other calibration points.
- 18) Press **OK** to save the calibration data for DC Voltage Source ($\pm 15\text{V}$).
- 19) Press the **Back Icon** to return to the electrical output calibration options.

10.5 - DC Current Source Calibration

- 1) Press **(0~25)mA** to calibrate DC Current Source.
- 2) Press **Multi-Point Calibration**.
- 3) Press the **Play Icon** to begin the calibration for DC Current Source (0~25)mA.
- 4) The unit will source the current for the first calibration point. Press on the **Actual Value** to edit it and match this number with the value displayed by the readout device. Press the **Next Icon** to record the Actual Value. Repeat this step for the other calibration points.
- 5) Press **OK** to save the calibration data for DC Current Source (0~25)mA.
- 6) Press the **Back Icon** to return to the electrical output calibration options.

10.6 - Frequency Source Calibration

- 1) Press **(0.01~50K)Hz** to calibrate Frequency Source.
- 2) Press **Multi-Point Calibration**.
- 3) Press the **Play Icon** to begin the calibration for Frequency Source.
- 4) The unit will source the frequency for the calibration point. Press on the **Actual Value** to edit it and match this number with the value displayed by the readout device. Press the **Next Icon** to record the Actual Value.
- 5) Press **OK** to save the calibration data for Frequency Source.
- 6) Press the **Back Icon** to return to the electrical output calibration options.

- 7) Press **Sine(0.01~50K)Hz** to calibrate Frequency Source (Sine Wave).
- 8) Press **Multi-Point Calibration** then press **Frequency**.
- 9) Press the **Play Icon** to begin calibration.
- 10) The unit will source the frequency for the first calibration point. Press on the **Actual Value** to edit it and match this number with the value displayed by the readout device. Press the **Next Icon** to record the Actual Value. Repeat this step for the other calibration points.
- 11) Press **Multi-Point Calibration** again then press **Amplitude**.
- 12) Press the **Play Icon** to begin calibration.
- 13) The unit will source the amplitude for the first calibration point. Press on the **Actual Value** to edit it and match this number with the value displayed by the readout device. Press the **Next Icon** to record the Actual Value. Repeat this step for the other calibration point.
- 14) Press the **Back Icons** to return to the Calibration options.

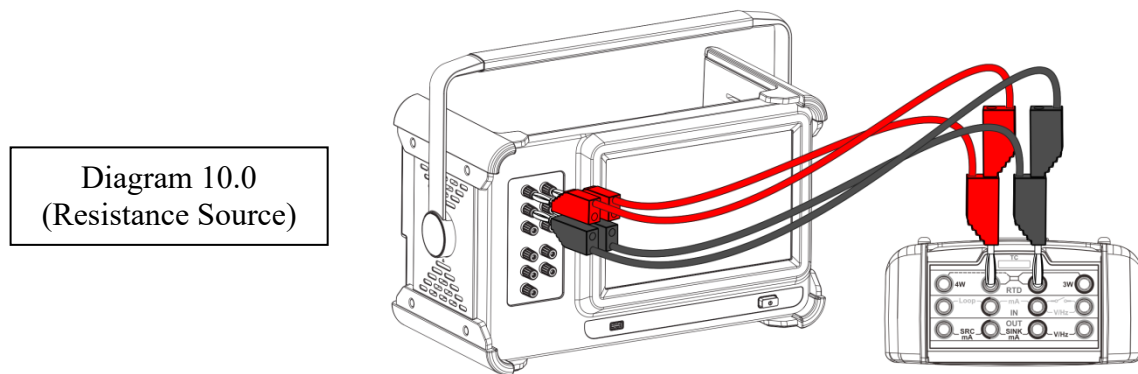
10.7 - Resistance Measure Calibration

- 1) Press **Temperature** to calibrate the temperature functions.
- 2) Press **RTD 4W 400Ω Measure** to calibrate the 4 wire Resistance Measure (400Ω).
- 3) Press **Multi-Point Calibration**.
- 4) Press the **Play Icon** to begin resistance calibration.
- 5) Source the resistance for the first calibration point. Press the Reference number to edit the value. Press the **Next Icon** to record an Actual Value. Repeat this step for each of the calibration points.
- 6) Press **OK** to save the calibration data for Resistance Measure (400Ω).
- 7) Press the **Back Icon** to return to the temperature functions.
- 8) Press **RTD 4W 4KΩ Measure** to calibrate the 4 wire Resistance Measure (4KΩ).
- 9) Press **Multi-Point Calibration**.
- 10) Press the **Play Icon** to begin resistance calibration.

- 11) Source the resistance for the first calibration point. Press the Reference number to edit the value. Press the **Next Icon** to record an Actual Value. Repeat this step for each of the calibration points.
- 12) Press **OK** to save the calibration data for Resistance Measure (4K Ω).
- 13) Press the **Back Icon** to return to the temperature functions.

10.8 - Resistance Source Calibration

- 1) Press **RTD 2W 400 Ω Source** to calibrate the 2 wire Resistance Source (400 Ω). Note: A 2 wire setup from the unit is connected to a 4 wire setup from the readout device.



- 2) Press **Multi-Point Calibration**.
- 3) Press the **Play Icon** to begin resistance calibration.
- 4) The unit will source the resistance for the first calibration point. Press on the **Actual Value** to edit it and match this number with the value displayed by the readout device. Press the **Next Icon** to record the Actual Value. Repeat this step for the other calibration point.
- 5) Press **OK** to save the calibration data for Resistance Source (400 Ω).
- 6) Press the **Back Icon** to return to the temperature functions.
- 7) Press **RTD 2W 4K Ω Source** to calibrate the 2 wire Resistance Source (4K Ω).
- 8) Press **Multi-Point Calibration**.
- 9) Press the **Play Icon** to begin resistance calibration.

10) The unit will source the resistance for the first calibration point. Press on the **Actual Value** to edit it and match this number with the value displayed by the readout device. Press the **Next Icon** to record the Actual Value. Repeat this step for the other calibration point.

11) Press **OK** to save the calibration data for Resistance Source ($4K\Omega$).

12) Press the **Back Icon** to return to the temperature functions.

10.9 - TC Measure Calibration

1) Press **TC mVMeasure** to calibrate the Thermocouple mV measurement. Connect the unit to the electrical source device using the banana jack to copper TC mini connector wire.

2) Press **Multi-Point Calibration**.

3) Press the **Play Icon** to begin TC calibration.

4) Source the voltage for the first calibration point. If necessary, adjust the Reference value. Press the **Next Icon** to record the Actual Value. Repeat this step for the other calibration point.

5) Press **OK** to save the calibration data for TC mV measure.

6) Press the **Back Icon** to return to the temperature functions.

10.10 - TC Source Calibration

1) Press **TC mVSource** to calibrate the Thermocouple mV source. Connect the unit to the electrical readout device using the banana jack to copper TC mini connector wire.

2) Press **Multi-Point Calibration**.

3) Press the **Play Icon** to begin TC calibration.

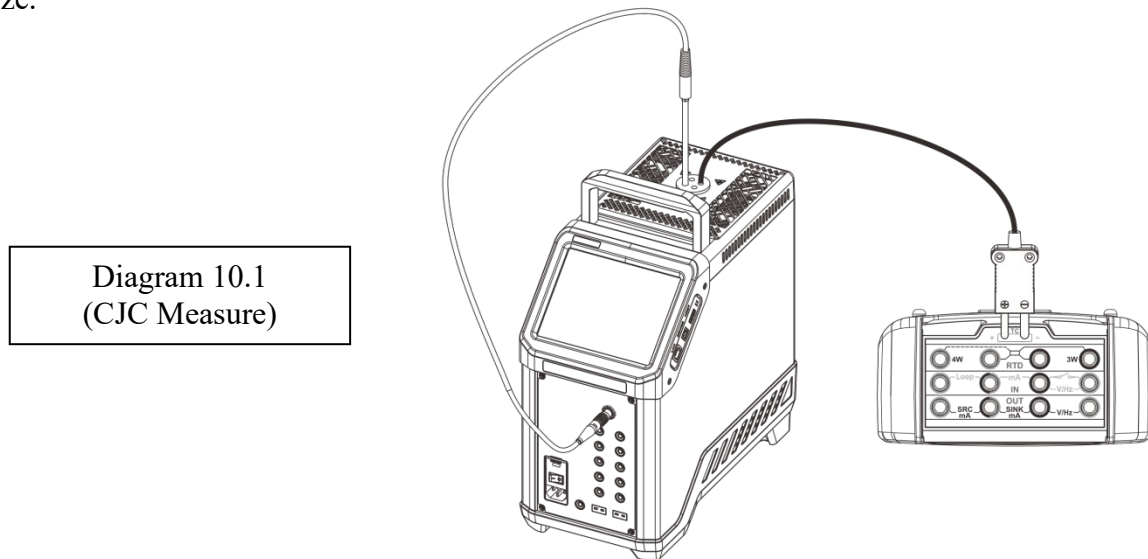
4) The unit will source the voltage for the first calibration point. Press on the **Actual Value** to edit it and match this number with the value displayed by the readout device. Press the **Next Icon** to record the Actual Value. Repeat this step for the other calibration point.

5) Press **OK** to save the calibration data for TC mV source.

6) Press the **Back Icon** to return to the temperature functions.

10.11 - CJC Calibration

- 1) Press **CJC** to calibrate the cool junction compensation. Additel uses a temperature source (ADT875PC-155), reference probe (AM1710-12-ADT), and a characterized Type E Thermocouple.
- 2) Connect the unit according to the diagram. Insert and plug in the reference probe into the temperature source to get an external (EXT) readout value. Insert one end of the Type E cable (bare wire) into the temperature source and set the internal (INT) temperature of the drywell to 20.0°C. Connect the other end of the Type E cable (TC connection) into the 226/227 and allow enough time for the temperature to stabilize.



- 3) Press the **Play Icon** to begin CJC calibration.
- 4) Press **Sensor type** and set it to type E. Press **References** and input the readout value as stated by the external reference probe. Press the **Next Icon** to record the Offset Value.
- 5) Press **OK** to save the calibration data for CJC.
- 6) Press the **Back Icons** to return to the Calibration options.

10.12 - High Voltage Calibration

- 1) Press **ACM Calibration** to calibrate the high voltage measure functions.
- 2) Press **DC** to calibrate the direct current measure.

- 3) Press **Multi-Point Calibration**.
- 4) Press the **Play Icon** to begin the DC high voltage measure.
- 5) Source the voltage for the first calibration point. If necessary, adjust the Reference value. Press the **Next Icon** to record the Actual Value. Repeat this step for the other calibration points.
- 6) Press **OK** to save the calibration data for the DC high voltage measure.
- 7) Press the **Back Icon** to return to the ACM Calibration options.
- 8) Press **Frequency** to calibrate the frequency measure.
- 9) Press the **Play Icon** to begin the frequency high voltage measure.
- 10) Source 30V 500Hz. If necessary, adjust the Reference value. Press the **Next Icon** to record the Actual Value.
- 11) Press **OK** to save the calibration data for the DC high voltage measure.
- 12) Press the **Back Icon** to return to the ACM Calibration options.
- 13) Press **AC** to calibrate the alternating current measure.
- 14) Press the **Play Icon** to begin the AC high voltage measure.
- 15) The calibration points are broken up into tables of corresponding voltages (0.3, 3, 30, 300)V and frequencies (60, 500)Hz. Press the Next Icon to record the values. Repeat for each calibration point.
- 16) Press **OK** to save the calibration data for the AC high voltage measure.
- 17) Press the **Home Icons** to return to the main interface. Press **Calibrator** to display the main calibration functions.
- 18) Repeat the Electrical Verification (8.0).

11.0 - Barometer Calibration

- 1) Press the **Home Icon > Setup > Service > Calibration**.
- 2) Input the Password as **123456** then press the **Check Icon** to confirm.

- 3) Press **Barometer Calibration** to calibrate the barometric pressure sensor of the unit. Ensure that the barometric pressure calibrator is connected to the ATM port on the back of the unit.
- 4) Press **Dual Point Calibration**.
- 5) Press the **Play Icon** to begin BP calibration.
- 6) Source the pressure for the first calibration point. Allow enough time for it to stabilize. If necessary, adjust the Reference value. Press the **Next Icon** to record the Actual Value. Repeat this step for the other calibration point.
- 7) Press **OK** to save the BP calibration.
- 8) Repeat the Barometer Verification (9.0).