

Step 11. Enter to the Thermocouple Type Input Submenu
Press **⏏** to display flashing, previously selected Thermocouple type.

Step 12. Scroll through available selection of TC types
Press **⏏** to sequence thru flashing Thermocouple types, (select k -for type "K" CHROMEGA®/ALOMEGA®)
J K T E N DIN J R S B C - TC types
J k t E N dN J R S b C - Display

Step 13. Store TC type
After you have selected the Thermocouple type press **⏏** to store your selection, the instrument automatically advances to the next menu item.

Step 14. Enter to Reading Configuration Menu
The display shows **RdD** Reading Configuration, which is the top menu for 4 submenus: Decimal Point, Degree Units, Filter Constant and Input/Reading Submenus.

Step 15. Enter to Decimal Point Submenu
Press **⏏** to show **dE.C** Decimal Point.

Step 16. Display the Decimal Point position
Press **⏏** again to display the flashing Decimal Point position.

Step 17. Select the Decimal Point position
Press **⏏** to select **F.F.F.F** Decimal Point position.

Step 18. Store selected Decimal Point position
By pressing **⏏** momentarily the Decimal Point position will be stored and the instrument will go to the next menu item.

Step 19. Enter to Temperature Unit Submenu
Display shows **E.E.U.P** Temperature Unit.

Step 20. Display available Temperature Units
Press **⏏** to display the flashing Degree **F** or **C**.

Step 21. Scroll through Temperature Units selection
Press **⏏** to select **F** Degree.

Step 22. Store the Temperature Unit
Press **⏏** to display momentarily that the Degree Unit has been stored and the instrument will go automatically to the next menu item.

Step 23. Enter the Filter Constant Submenu
Display shows **F.L.E.R** Filter Constant Submenu.

Step 24. Display the Filter Constant Value Submenu
Press **⏏** to display the flashing, previously selected Filter Constant.

Step 25. Scroll through available Filter Constants
Press **⏏** to sequence thru Filter Constants **0001**, **0002**, **0004**, **0008**, **0016**, **0032**, **0064** and **0128**.

Step 26. Store the Filter Constant
Press **⏏** momentarily to store **0004** Filter Constant and the instrument will automatically go to the next menu item.

Step 27. Enter Alarm 1 Menu
The display will show **ALR 1** the top menu for Alarm 1. In the following steps we are going to enable Alarm 1, Deviation, Unlatch, Normally Open, Active Above, Enable at power on and +2°F High Alarm i.e. Process Value > Setpoint 1 Value +2°F will activate Alarm 1.

Note If Analog Output Option is installed and enabled, the controller will skip Alarm 1 Menu item to Analog Output.

Step 28. Enter Alarm 1 Enable/Disable Submenu
Press **⏏** to display flashing **dSbL** / **ENbL**.

Step 29. Enable Alarm 1 Submenu
If flashing **ENbL** is displayed, press **⏏**, if **dSbL** is displayed, press **⏏** until **ENbL** is displayed, then press **⏏** to store and go to the next menu item.

Step 30. Select the Deviation Control Type Submenu
Press **⏏**. If flashing **dE.N** Deviation is displayed press **⏏**, otherwise press **⏏** until flashing **dE.N** is shown. Now press **⏏** to store and go to next menu item.

Step 31. Select the Latched Type Submenu
Press **⏏**. If flashing **UNL E** Unlatched is displayed press **⏏**, otherwise press **⏏** until **UNL E** is displayed. Press **⏏** to store and advance to next menu item.

Step 32. Select the Normally Open Type of Contact Closure Submenu
Press **⏏**. If flashing **N.O.** Normally Open is displayed, press **⏏**, otherwise press **⏏** until **N.O.** is displayed. Press **⏏** to store and advance to next menu item.

Step 33. Select the Above Type of Active Submenu
Press **⏏**. If flashing **AbO.V** Above is displayed, press **⏏**, otherwise press **⏏** until **AbO.V** is displayed. Press **⏏** to store and advance to next menu item.

Step 34. Enable Alarm 1 at Power On (A.P.O.N)
Press **⏏**. If flashing **ENbL** is displayed, press **⏏**, otherwise press **⏏** until **ENbL** is displayed. Press **⏏** to store and advance to next menu item.

Step 35. Enter Alarm 1 High Submenu
Press **⏏** twice to skip **ALR.L** Alarm 1 Low value. **ALR.L** is for below & **ALR.H** for above.

Step 36. Set the Alarm 1 High value (ALR.H)
Press **⏏**. Press **⏏** or **⏏** until value to set the display to **002.0**. Press **⏏** to save.

Step 37. Enter the Alarm 2 Menu
The display will show **ALR2** the top menu for Alarm 2. Repeat steps from 28 to 36 to set for Alarm 2 the same conditions as for Alarm 1.

Step 38. Skip the Loop Break Time Menu (LOOP)
Press **⏏** to go to the **OUT 1** Output 1 Menu item.

Step 39. Configuration the Output 1 Menu

Note Set Alarm 1 Disabled (Step 29) to be able to Enable Output 1.

Configure Out 1 as **CeRL** / **Pid**, **ACTN** / **PURS**, **AUTO** / **dSbL**, **ANL** / **ENbL**, **PRoP** / **DO5.0**, **RESE** / **0180**, **RATE** / **018.0**, **CYCL** / **0010** and **dPNC** / **0003**. Please refer to the operator's manual if needed. Press **⏏** to save and go to the next menu item.

Step 40. Configuration of Display Color Selection
Press **⏏** until the **COLR** Display Color Selection Menu appears on the Display. Configure **COLR** as **N.CLR** / **GRN** (green), **I.CLR** / **RED** (red), **2.CLR** / **AMBR** (amber). Please refer to the operator's manual if needed.

Step 41. Run a Test
Press **⏏** until reset the controller and return to **RUN** Mode to display **075.0** (Ambient Temperature). Now you are ready to observe temperature as it rises 10°F higher than displayed. Touch the tip of the Thermocouple to raise the temperature above the Alarm 2 High value **082.0**, and AL2 will turn on, and Display Color will change from Green to Amber. Continue touching the tip to raise the temperature above the Alarm 1 High value **087.0** and Display Color will change from Amber to Red. Annunciator "1" is turning on and off displaying output 1.

SPECIFICATION

Accuracy:
±0.5°C temp;
0.03% rdg. process typical

Resolution:
1°/0.1°; 10 µV process

Temperature Stability:
0.04°C/°C RTD;
0.05°C/°C TC @ 25°C (77°F);
50 ppm/°C process

Display:
4-digits, 9-segments LED,
10.2 mm (0.40") with red, green and amber programmable colors

Input Types:
Thermocouple, RTD, Analog Voltage and Current

TC: (ITS90)
J, K, T, E, R, S, B, C, N, L

RTD: (ITS68)
100/500/1000 ohm Pt sensor
2-, 3-, or 4-wire; 0.00385 or 0.00392 curve

Voltage:
0 to 100 mV, 0 to 1 V, 0 to 10 Vdc

Current:
0 to 20 mA (4 to 20 mA)

Output 1:
Relay 250 Vac @ 3 A Resistive Load, SSR, Pulse, Analog Voltage and Current

Output 2:
Relay 250 Vac @ 3 A Resistive Load, SSR, Pulse

Options: Communication
RS-232 / RS-485 or 10BaseT or Excitation: 24 Vdc @ 25 mA
Exc. not available for Low Power Option

Line Voltage/Power:
90 - 240 Vac ±10%, 50 - 400 Hz*, or 110 - 375Vdc, **4W** for i16; **5W** for i16D
** No CE compliance above 60 Hz*

Low Voltage Power Option:
12-36 Vdc, **3 W**, power for i16
20-36 Vdc, **4 W**, power for i16D**
*** Units can be powered safely with 24 Vac but No Certification for CE/UL are claimed.*

Dimensions:
48 H x 48 W x 127 D mm
(1.89 x 1.89 x 5")

Weight:
159 g (0.35 lb)

Approvals:
FM, UL, C-UL, CE per EN61010-1:2001

WARNING: These products are not designed for use in, and should not be used for, patient-connected applications.

This device is marked with the international caution symbol. It is important to read the Setup Guide before installing or commissioning this device, as the guide contains important information relating to safety and EMC.

It is the policy of NEWPORT to comply with all worldwide safety and EMC/EMI regulations that apply. NEWPORT is constantly pursuing certification of its products to the European New Approach Directives. NEWPORT will add the CE mark to every appropriate device upon certification.

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NEWPORT Electronics, Inc. warrants this unit to be free of defects in materials and workmanship for a period of **one (1) year** from the date of purchase. In addition to NEWPORT's standard warranty period, NEWPORT Electronics will extend the warranty period for **four (4) additional years** if the warranty card enclosed with each instrument is returned to NEWPORT.

If the unit malfunctions, it must be returned to the factory for evaluation. NEWPORT's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by NEWPORT, if the unit is found to be defective, it will be repaired or replaced at no charge. NEWPORT's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of NEWPORT's control. Components which wear are not warranted, including but not limited to contact points, fuses, and traces.

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Direct all warranty and repair requests/inquiries to the NEWPORT Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO NEWPORT, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM NEWPORT'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR WARRANTY RETURNS, please consult NEWPORT for current repair BEFORE contacting NEWPORT:

- Purchase Order number under which the product was PURCHASED,
- Model and serial number of the product under warranty, and
- Repair instructions and/or specific problems relative to the product.

FOR NON-WARRANTY REPAIRS, have the following information available BEFORE contacting NEWPORT:

- Purchase Order number to cover the COST the repair,
- Model and serial number of product, and
- Repair instructions and/or specific problems relative to the product.

NEWPORT's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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i/16 Series & Process Controller

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This Quick Start Reference provides information on setting up your instrument for basic operation. The latest complete Communication and Operational Manual as well as free Software and ActiveX Controls are available at www.newportUS.com/i or on the CD-ROM enclosed with your shipment.

SAFETY CONSIDERATION



This device is marked with the international Caution symbol.

The instrument is a panel mount device protected in accordance with EN 61010-1:2001, electrical safety requirements for electrical equipment for measurement, control and laboratory. Remember that the unit has no power-on switch. Building installation should include a switch or circuit-breaker that must be compliant to IEC 947-1 and 947-3.

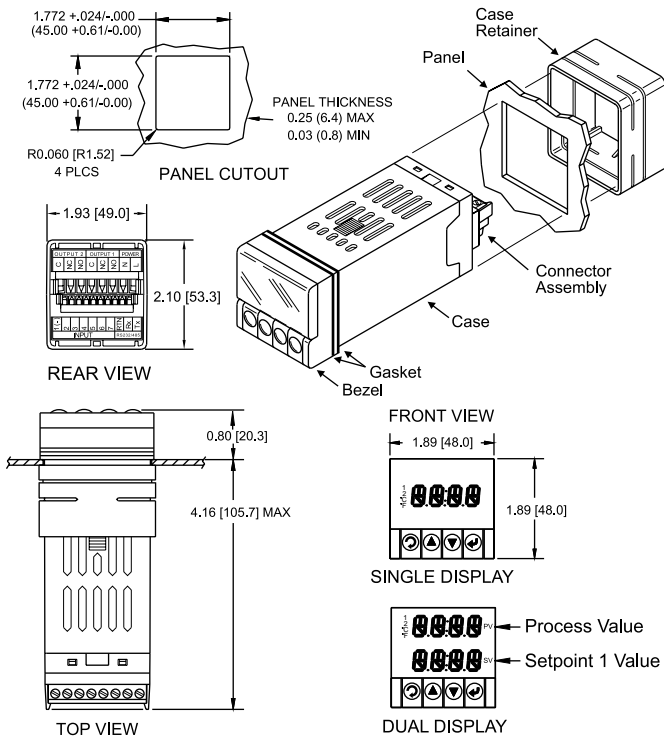
SAFETY:

- Do not exceed voltage rating on the label located on the top of the instrument housing.
- Always disconnect power before changing signal and power connections.
- Do not use this instrument on a work bench without its case for safety reasons.
- Do not operate this instrument in flammable or explosive atmospheres.
- Do not expose this instrument to rain or moisture.

EMC:

- Whenever EMC is an issue, always use shielded cables.
- Never run signal and power wires in the same conduit.
- Use signal wire connections with twisted-pair cables.
- Install Ferrite Bead(s) on signal wire close to the instrument if EMC problems persist.

MOUNTING



Panel Mounting Instruction:

- Using the dimensions from the panel cutout diagram shown above, cut an opening in the panel.
- Insert the unit into the opening from the front of the panel, so the gasket seals between the bezel and the front of the panel.
- Slide the retainer over the rear of the case and tighten against the backside of the mounting panel.

Disassembly Instruction:

If necessary, the unit may be removed from the panel and opened.



Warning: Disconnect all ac power from the unit before proceeding.

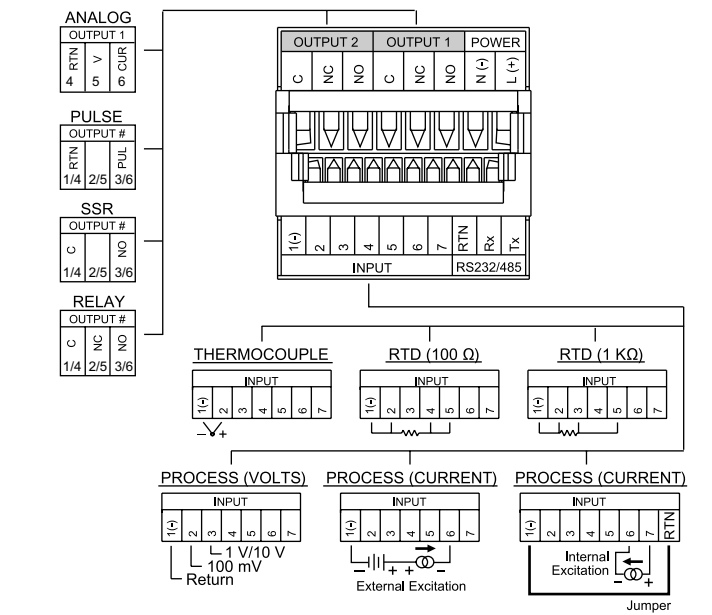
- Make sure the AC power is disconnected.
- Remove all wiring connections from the rear of the meter. To remove power and input connectors squeeze top and bottom of the case near the connector site for release, then pull connectors from the case.
- To remove meter from the case, squeeze top and bottom of the bezel to release, then pull from case.

WIRING

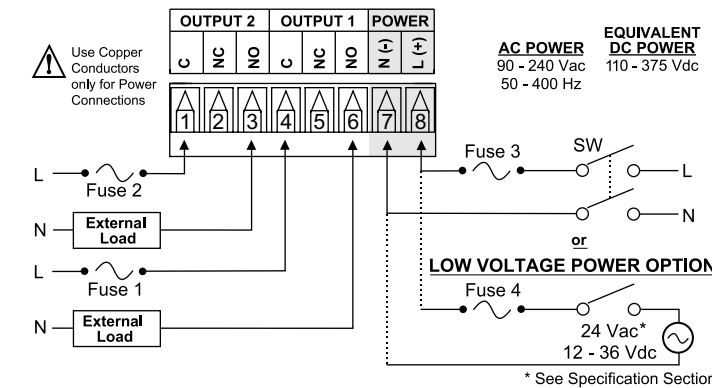
Wire the instrument according to the figure shown below.



Warning: Do not connect ac power to your device until you have completed all input and output connections. This device must only be installed by a specially trained electrician with corresponding qualifications. Failure to follow all instructions and warnings may result in injury!



Connect the main power connections as shown in the figure below.



FUSE	Connector	Output Type	For 115Vac	For 230Vac	DC
FUSE 1	Output 1	Relay	3 A(T)	3 A(T)	-
FUSE 2	Output 2	Relay	3 A(T)	3 A(T)	-
FUSE 3	Power	N/A	100 mA(T)	100 mA(T)	100 mA(T)
FUSE 4	Power	N/A	N/A	N/A	400 mA(T)

CONFIGURATION

MENU Mode:

Flashing display in MENU Mode means you can make your selection by pressing **⏏** button. If the flashing display is not a four digit value, pressing **⏏** button will always direct the instrument one step backward of the top menu item. The second push on the **⏏** button will reset the instrument except after the setpoint and the alarms, that will go to the RUN Mode without resetting the instrument. The **⏏** button will always sequence the instrument thru the menu items.

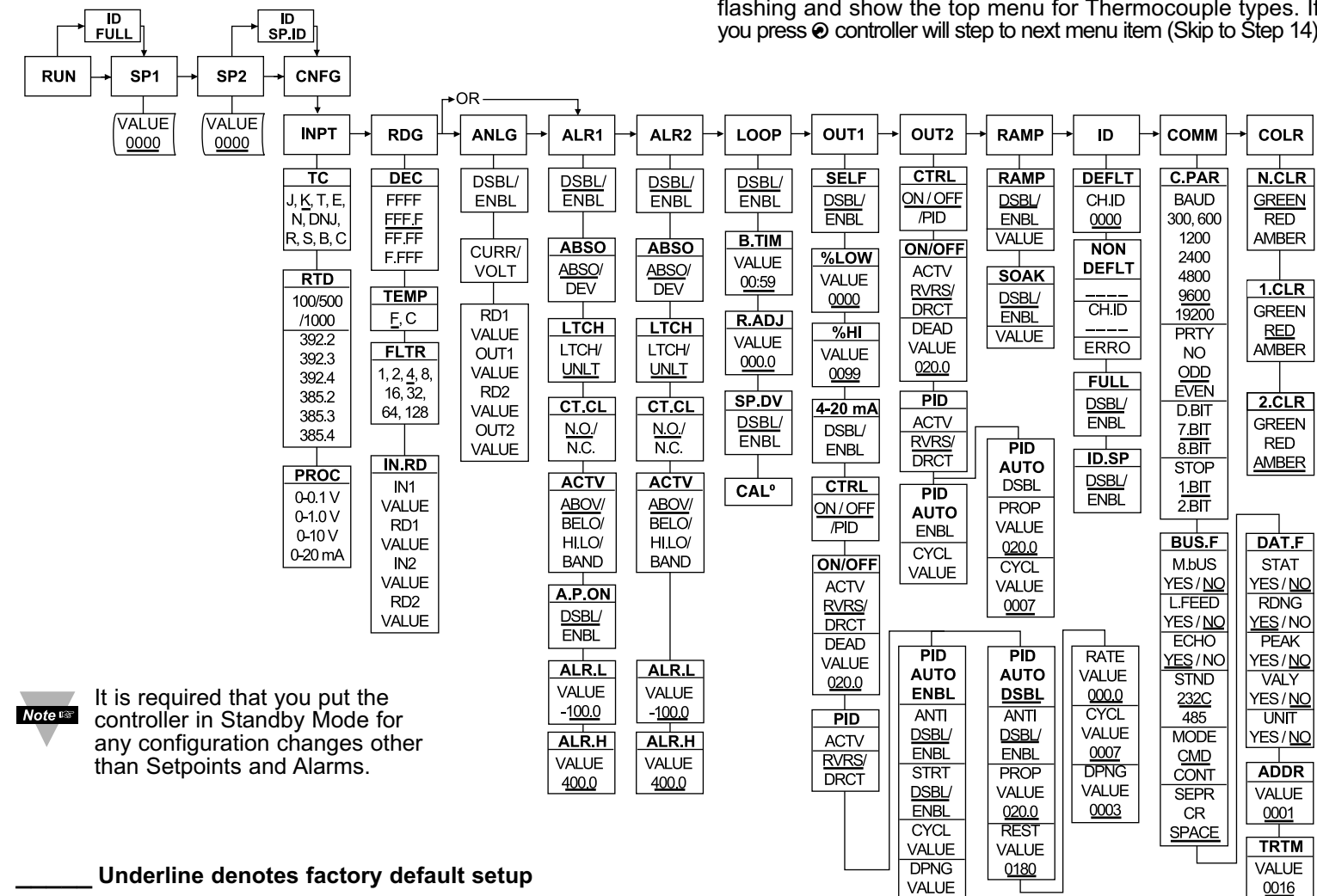
The **⏏** button has two functions:

- To save a selected flashing display
- To direct the instrument to the next submenu level

RUN Mode:

- ⏏** causes the display to flash the PEAK with the corresponding value. Press again to go back to RUN Mode.
- ⏏** causes the display to flash VALLEY with the corresponding value. Press again to go back to RUN Mode.
- ⏏** causes flashing PEAK or VALLEY to reset corresponding values. Pressing **⏏** twice will cause the display to flash **Stby** and put the instrument into standby, which disables all outputs and alarms. Press **⏏** one more time to go back to RUN Mode.

FLOW CHART



Note: It is required that you put the controller in Standby Mode for any configuration changes other than Setpoints and Alarms.

Underline denotes factory default setup

OPERATION - (For Thermocouple Input)

Step 1. Apply Power to the Instrument

When your device is first powered up it will display the ambient temperature (assume 75°F).

Step 2. Enter Setpoint 1 Menu

Press **⏏** one time from run mode to get to **SP1** Setpoint 1.

Step 3. Enter the Setpoint 1 Value Submenu

Press **⏏**. Display shows the previous selection of Setpoint 1.

Step 4. Change the Setpoint 1 Value

Press **⏏** or **⏏** until desired value is displayed.

Step 5. Store the Setpoint 1 Value

Set the Setpoint 1 to 10 degree higher than Process value (SP1 = 85) and press **⏏** to store, display flashes **Stby** message and advances to **SP2** Setpoint 2 Menu.

Step 6. Store the Setpoint 2 Value

Repeat steps 3 and 4. Set the Setpoint 2 to 5 degree higher than Process value (SP2 = 80) and press **⏏** to store, display flashes **Stby** message and advances to **CNFG** Configuration Menu.

Step 7. Enter the Input Type Menu

Press **⏏** to enter **INPT** Input Type Menu.

Step 8. Enter to the submenu items of Input Menu

Press **⏏** to display Input: Process, RTD or Thermocouple. If flashing **Stby** is displayed press **⏏** and proceed to Step 11.

Step 9. Scroll through available selection of Input Menu

Press **⏏** until a flashing **Stby** for Thermocouple is displayed.

Step 10. Enter to the Thermocouple Input Submenu

Press **⏏** to store Thermocouple Input. The display will stop flashing and show the top menu for Thermocouple types. If you press **⏏** controller will step to next menu item (Skip to Step 14).