

**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).

**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 **R.D.D** 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 **d.E.E** 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.M.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 **000.1**, **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.

**Step 28. Enter Alarm 1 Enable/Disable Submenu**  
Press **⏏** to display flashing **D5bL** / **ENbL**.

**Step 29. Enable Alarm 1 Submenu**  
If flashing **ENbL** is displayed, press **⏏**, if **D5bL** 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 **d.d.E.N** Deviation is displayed press **⏏**, otherwise press **⏏** until flashing **d.d.E.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 **A.b.o.v** Above is displayed, press **⏏**, otherwise press **⏏** until **A.b.o.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 **ALR.2** 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. Configuration of Display Color Selection**  
Press **⏏** until the **COLR** Display Color Selection Menu appears on the Display. Configure **COLR** as **W.CLR** / **GRN** (green), **R.CLR** / **RED** (red), **P.CLR** / **AMBR** (amber). Please refer to the operator's manual if needed.

**Step 39. 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.

## 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

**Output 2':**  
Relay 250 Vac @ 3 A Resistive Load,  
SSR, Pulse  
<sup>†</sup> Only with -AL option

**Options: Communication:**

RS-232 / RS-422 / RS-485 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 - 375 Vdc, **4 W**

\* No CE compliance above 60 Hz

**Low Voltage Power Option:**

12 - 36 Vdc, **3 W\*\***  
**\*\* Units can be powered safely with 24 Vac  
but No Certification for CE/UL are claimed.**

**Dimensions:**  
25.4 H x 48 W x 126.3 D mm  
(1.0 x 1.89 x 5")

**Weight:**  
127 g (0.28 lb)

**Approvals:**  
FM, UL, C-UL, CE per EN 61010-1:2001

**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.

The information contained in this document is believed to be correct, but NEWPORT Electronics, Inc. accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

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### WARRANTY/DISCLAIMER

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 triacs.

NEWPORT is pleased to offer suggestions on the use of its various products. However, NEWPORT neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by NEWPORT, either verbal or written. NEWPORT warrants only that the parts manufactured by it will be as specified and free of defects.

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**CONDITIONS:** Equipment sold by NEWPORT is not intended to be used, nor shall it be used: (1) as a "Basic Component" under 10 CFR 21 (NRC), used in or with any nuclear installation or activity, or (2) in medical applications or used on humans. Should any Product(s) be used in or with any nuclear installation or activity, medical application, or used on humans, or misused in any way, NEWPORT assumes no responsibility as set forth in our basic WARRANTY/DISCLAIMER language, and, additionally purchaser will indemnify NEWPORT and hold NEWPORT harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

### RETURN REQUEST/INQUIRIES

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:

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

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


1. Purchase Order number to cover the COST the repair,
2. Model and serial number of product, and
3. 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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QUICK START



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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](http://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.

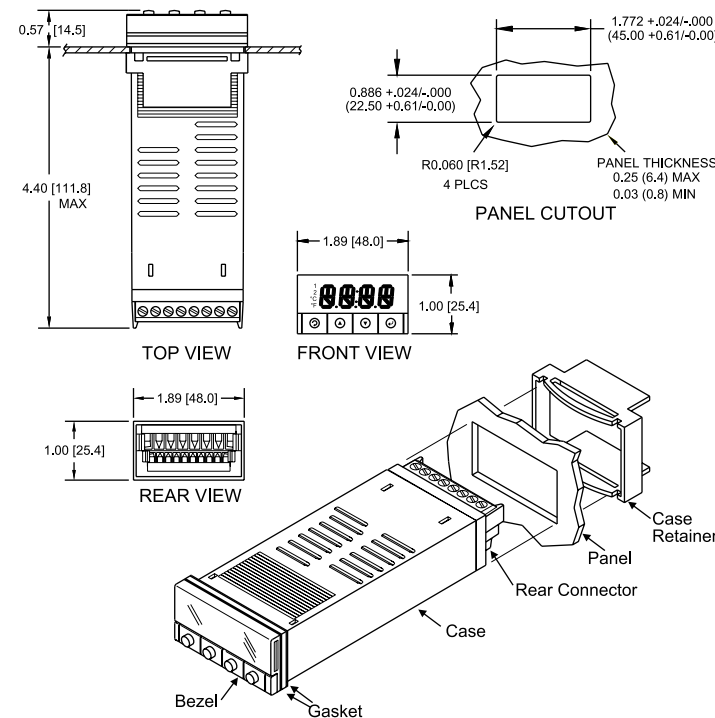
### SAFETY:

- 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.**

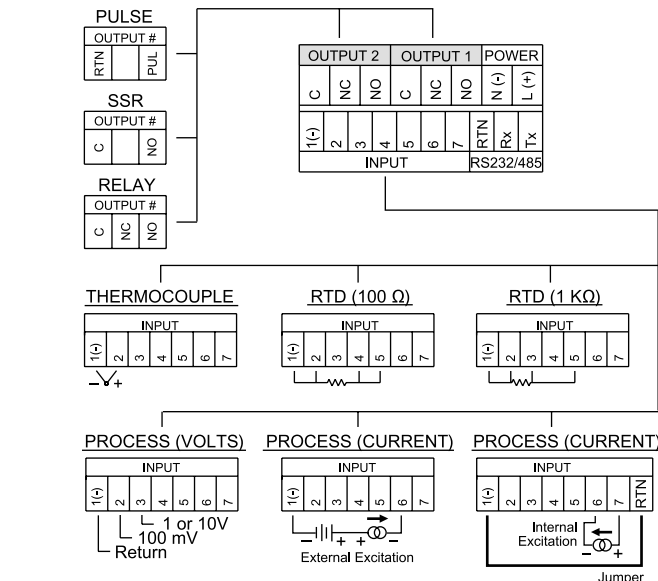
- Make sure the AC power is disconnected.
- Remove all wiring connections from the rear of the meter. To remove power and input connectors bend the side panel detents on the case outward to release the connectors, then pull connectors from the meter.
- To remove meter from the case, squeeze left and right sides of the bezel to release, then pull from case.

### WIRING

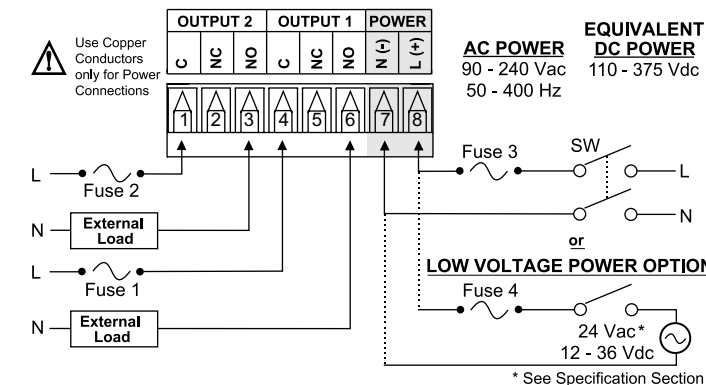
Wire the instrument according to the figure shown below.



**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)

**Note** Output 1 and 2 are for -AL Alarm Option only.

### 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.

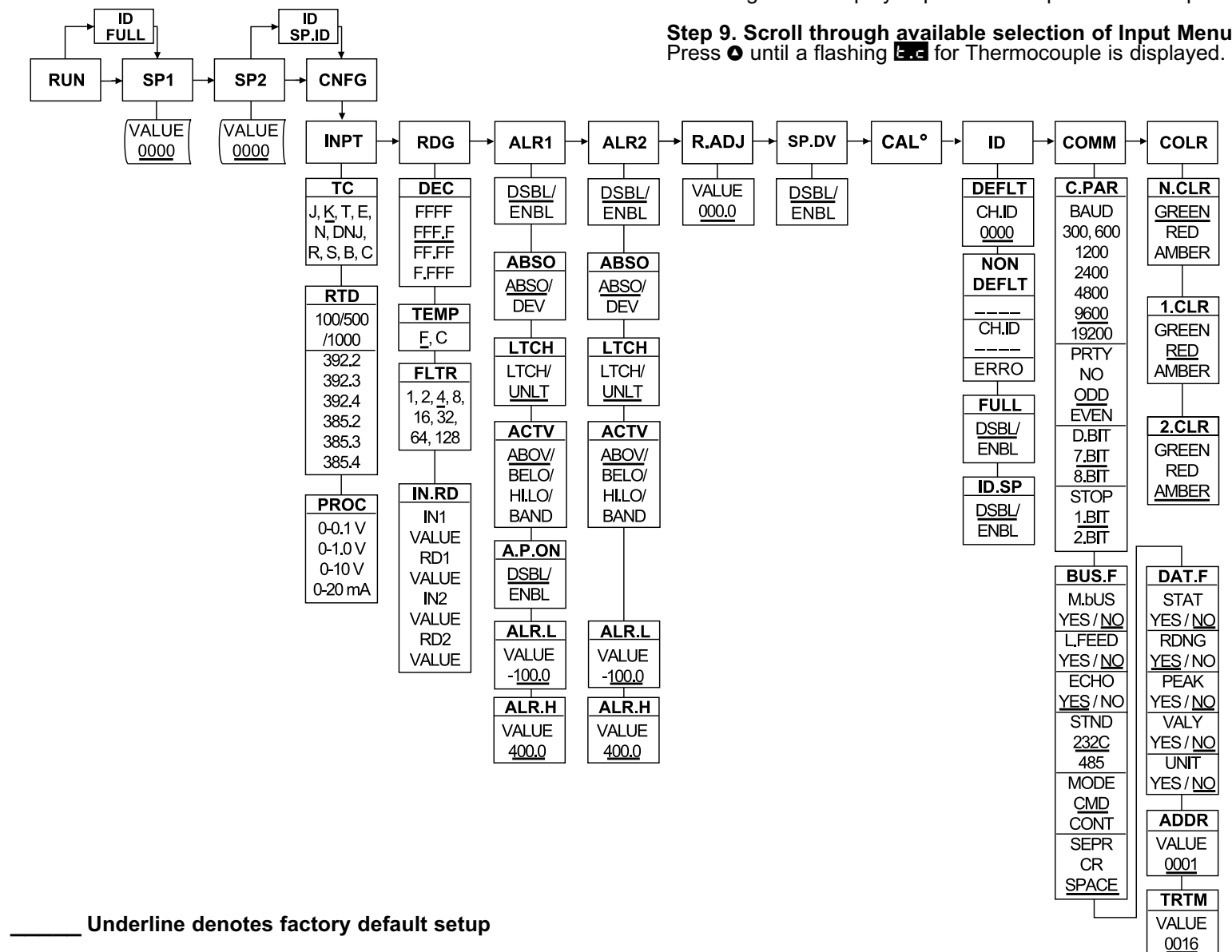
#### The **⏏** button has two functions:

- 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. Press **⏏** one more time to go back to RUN Mode.

### FLOW CHART



           Underline denotes factory default setup