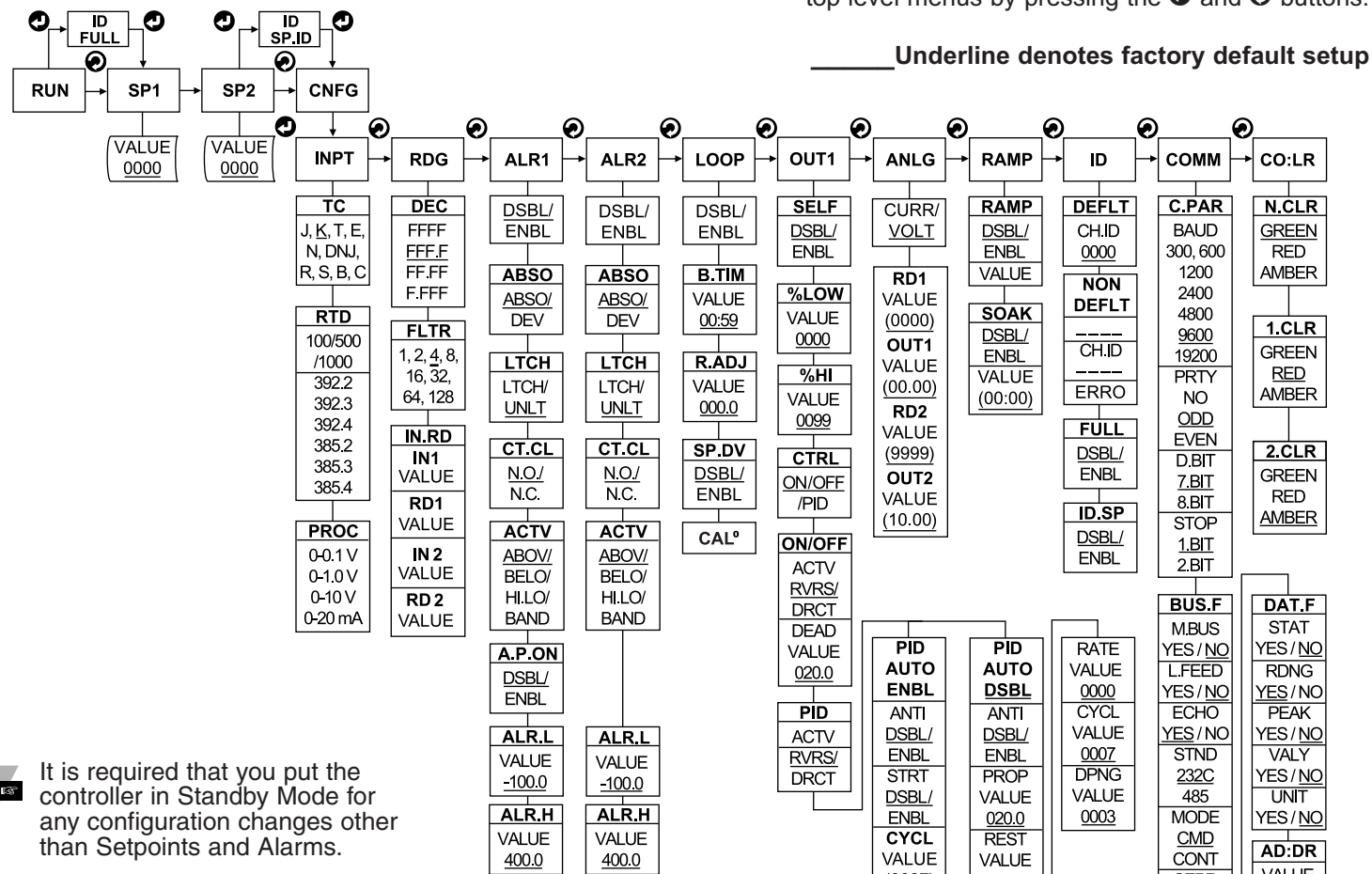


**FLOW CHART**



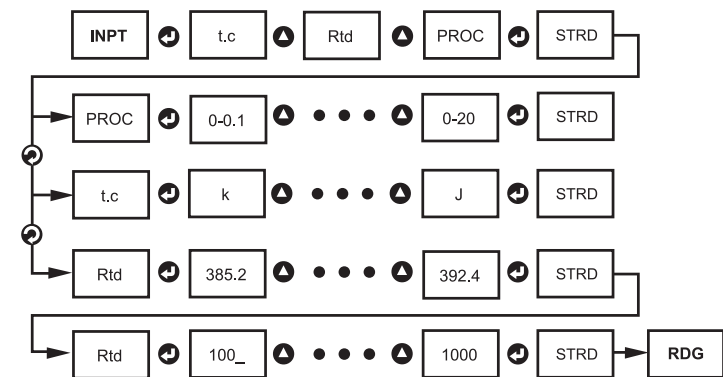
**Note** It is required that you put the controller in Standby Mode for any configuration changes other than Setpoints and Alarms.

Below is a flowchart showing how to navigate through all top level menus by pressing the **↶** and **↷** buttons.

Underline denotes factory default setup

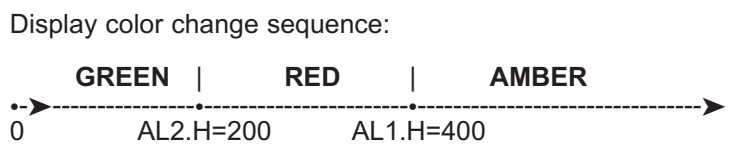
**INPUT MENU SETUP (operation example)**

Below is a flowchart showing how to navigate through the submenus of Input menu item by pressing the front buttons.

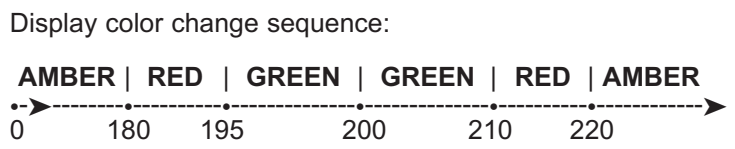


**DISPLAY COLOR SETUP (examples)**

**Example 1:**  
**Output 1 & Alarm 2:** SSR  
**Alarm setup:** Absolute, Above, Alarm 2 HI Value "ALR.H" = 200, Alarm 1 HI Value "ALR.H" = 400  
**Color Display setup:** Normal Color "N.CLR" = Green, Alarm 1 Color "1.CLR" = Amber, Alarm 2 Color "2.CLR" = Red



**Example 2:**  
**Output 1:** Relay, Set Point 1 = 200,  
**Alarm 2:** Relay, Set Point 2 = 200  
**Alarm 1 setup:** Deviation, Band, "ALR.H" = 20  
**Alarm 2 setup:** Deviation, Hi/Low, "ALR.H" = 10, "ALR.L" = 5  
**Color Display setup:** "N.CLR" = Green, "1.CLR" = Amber, "2.CLR" = 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 (ITS 90):**  
 J, K, T, E, R, S, B, C, N, L  
**RTD (ITS 68):**  
 100/500/1000 ohm Pt sensor  
 2-, 3-, or 4-wire; 0.00385 or 0.00392 curve  
**Input Impedance:**  
 10 MΩ for 100 mV  
 1 MΩ for 1 or 10 Vdc  
**Voltage:**  
 0 to 100 mV (±50 mV), 0 to 1 V, 0 to 10 Vdc  
**Current:**  
 0 to 20 mA (5 Ω load)

**Output 1:**  
 (Control/Alarm Output)  
 Relay 250 Vac @ 3 A Resistive Load,  
 SSR, Pulse  
**Output 2:**  
 (Alarm Output)  
 Relay 250 Vac @ 3 A Resistive Load,  
 SSR, Pulse  
**Output 3:**  
 (Retransmission)  
 Isolated Analog Voltage and Current  
 Current: 10 V max @ 20 mA output  
 Voltage: 20 mA max for 0 - 10 V output  
**Options: Communication**  
 RS-232 / 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, 5 W  
 \* No CE compliance above 60 Hz  
**Low Voltage Power Option:**  
 20 - 36 Vdc, 4 W\*\*  
 \*\* Units can be powered safely with 24 Vac  
 but No Certification for CE/UL are claimed.  
**Dimensions:**  
 48 H x 48 W x 127 mm D  
 (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 OMEGA to comply with all worldwide safety and EMC/EMI regulations that apply. OMEGA is constantly pursuing certification of its products to the European New Approach Directives. OMEGA will add the CE mark to every appropriate device upon certification.

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

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OMEGA ENGINEERING, 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 OMEGA's standard warranty period, OMEGA Engineering will extend the warranty period for **four (4) additional years** if the warranty card enclosed with each instrument is returned to OMEGA.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA'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 OMEGA's control. Components which wear are not warranted, including but not limited to contact points, fuses, and triacs.

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**RETURN REQUESTS/INQUIRIES**

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'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 have the following information available BEFORE contacting OMEGA:  
 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, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:  
 1. Purchase Order number to cover the COST of the repair,  
 2. Model and serial number of product, and  
 3. Repair instructions and/or specific problems relative to the product.

OMEGA'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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**iSeries** CNi16A Temperature / Process Controller with Isolated Analog Output Board



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**START HERE**

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 are available at [www.omega.com/specs/iseries](http://www.omega.com/specs/iseries).

**SAFETY CONSIDERATION**

**Warning:** 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.

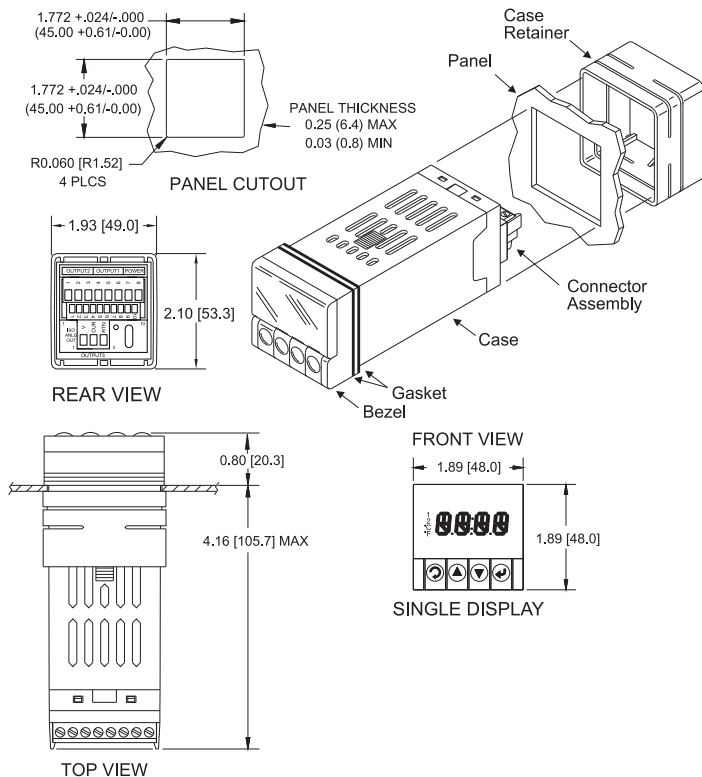
**SAFETY:**

- Do not exceed voltage rating on the label located on the top of the instrument housing.
- Always disconnect power before changing signal and power connection.
- 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:**

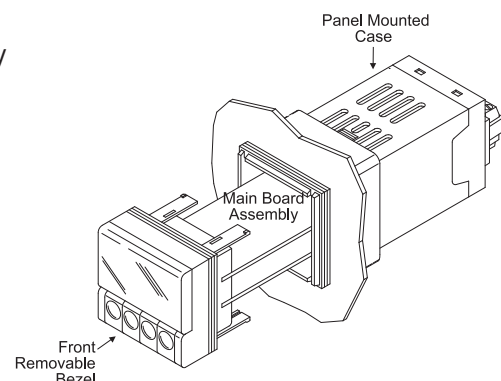
- Using the dimensions from the panel cutout diagram shown, cut an opening in the panel.
- Insert the unit into the opening from the front of the panel, so the gasket seals between the bezel and the front of the panel.
- Slide the retainer over the rear of the case and tighten against the backside of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

**Disassembly Instruction:**

If necessary, the board assembly may be removed from the front of the case housing.

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

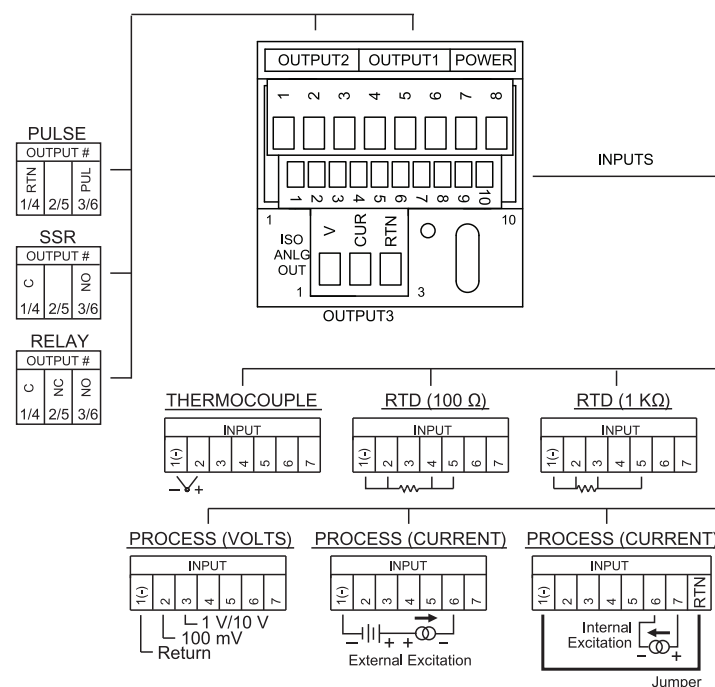
- Remove the board assembly from the case by pulling at the sides of the bezel.
- The bezel along with the board assembly will unlatch from the case housing.



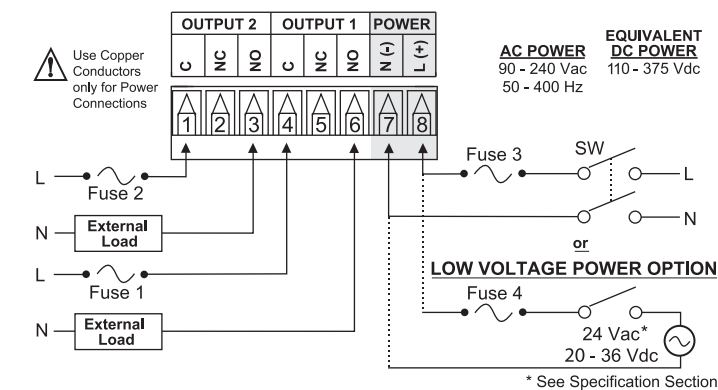
**WIRING**

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 in the figure shown 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**

Button Functions in Configuration Mode

<b>MENU</b>	<ul style="list-style-type: none"> <li>To enter the Menu, the user must first press <b>MENU</b> button.</li> <li>Use this button to advance/navigate to the next menu item. The user can navigate through all the top level menus by pressing <b>MENU</b>.</li> <li>While a parameter is being modified, press this button to escape without saving the parameter.</li> </ul>
<b>(UP)</b>	<ul style="list-style-type: none"> <li>Press the up <b>(UP)</b> button to scroll through "flashing" selections. When a numerical value is displayed press this key to increase value of a parameter that is currently being modified.</li> <li>Holding the <b>(UP)</b> button down for approximately 3 seconds will speed up the rate at which the set point value is incremented.</li> <li>In the Run Mode pressing <b>(UP)</b> causes the display to flash the PEAK value – press again to return to the Run Mode.</li> </ul>
<b>(DOWN)</b>	<ul style="list-style-type: none"> <li>Press the down <b>(DOWN)</b> button to go back to a previous Top Level Menu item.</li> <li>Press this button <b>twice</b> to reset the controller to the Run Mode.</li> <li>When a numerical value is flashing (except set point value) press this button to scroll digits from left to right allowing the user to select the desired digit to modify.</li> <li>When a set point value is displayed press this button to decrease value of a set point that is currently being modified. Holding the <b>(DOWN)</b> button down for approximately 3 seconds will speed up the rate at which the setpoint value is decremented.</li> <li>In the Run Mode pressing <b>(DOWN)</b> causes the display to flash the Valley value - press again to return to the Run Mode.</li> </ul>
<b>ENTER</b>	<ul style="list-style-type: none"> <li>Press this button to access the submenus from a Top Level Menu item.</li> <li>Press this button to store a submenu selection or after entering a value — the display will flash a <b>StRd</b> message to confirm your selection.</li> <li>Press this button to reset flashing PEAK value.</li> <li>In the Run Mode, press ENTER twice to enable Standby Mode with flashing <b>StBy</b> - press again to return to the Run Mode.</li> </ul>

**Note:** Reset: Except for Alarms, modifying any settings of the menu configuration will reset the controller prior to resuming Run Mode.

**DISPLAY ABBREVIATIONS**

<b>SP1</b>	Set Point 1 Value	<b>SP2</b>	Set Point 2 Value
<b>CNFG</b>	Configuration Menu		
<b>INPt</b>	Input Type Menu	<b>t.c</b>	Thermocouple Input
<b>k. . . J</b>	Thermocouple Type	<b>Rtd</b>	RTD Input
<b>385.2</b>	RTD Curve and Connection Type (2, 3, 4-Wire)	<b>100 _</b>	100 _/500 _/1000 _ RTD Sensor
<b>392.4</b>		<b>1000</b>	
<b>PROC</b>	Process Input		
<b>0 - 0.1</b>	100 mV Input Voltage	<b>0 - 1.0</b>	1 V Input Voltage
<b>0 - 20</b>	20 mA Input Current	<b>0 - 10</b>	10 V Input Voltage
<b>RdG</b>	Reading Configuration	<b>dEC</b>	Decimal Point
<b>F.FFF</b>	Decimal Point Position	<b>FLtR</b>	Filter Constant
<b>..FFFF</b>			
<b>0001..</b>	Filter Constant Value	<b>IN.Rd</b>	Input/Reading Scale and Offset Menu
<b>..0128</b>			
<b>IN 1</b>	Input 1	<b>IN 2</b>	Input 2
<b>Rd 1</b>	Reading 1	<b>Rd 2</b>	Reading 2
<b>ALR1</b>	Alarm 1 Menu	<b>AbSo</b>	Absolute Mode
<b>dEV</b>	Deviation Mode	<b>LtCH</b>	Latched Mode
<b>UNLt</b>	Unlatched Mode	<b>Ct.CL</b>	Contact Closure
<b>N.o.</b>	Normally Open	<b>N.c.</b>	Normally Closed
<b>ActV</b>	Active Type	<b>AboV</b>	Active Above
<b>bELo</b>	Active Below	<b>Hi.Lo</b>	Above High/Below Low
<b>bANd</b>	Above or Below Band	<b>A.P.oN</b>	Alarm Enable/Disable at Power On
<b>ALR.L</b>	Alarm Low Value	<b>ALR.H</b>	Alarm High Value
<b>ALR.2</b>	Alarm 2 Menu		
<b>LOOP</b>	Loop Break Menu	<b>b.tIM</b>	Loop Break Time
<b>R.AdJ</b>	Reading Adjust	<b>SP.dN</b>	Set Point Deviation
<b>Out1</b>	Output 1 Menu	<b>SELF</b>	Manual Control
<b>o°LO</b>	Percent Low	<b>o°HI</b>	Percent High
<b>CtRL</b>	Control Type	<b>ON.OF</b>	On/Off Control
<b>4 - 20</b>	Amplitude Control	<b>PId</b>	PID Control
<b>ActN</b>	Action Type	<b>RVRS</b>	Reverse Action
<b>dRct</b>	Direct Action	<b>ANt1</b>	Anti Integral
<b>AUto</b>	Auto PID	<b>A.tUN</b>	Auto Tune PID
<b>StRt</b>	Start Auto Tune PID	<b>PRoP</b>	Proportional Band
<b>RESt</b>	Reset Setup	<b>RAtE</b>	Rate Setup
<b>CYCL</b>	Cycle Time	<b>dPNG</b>	Damping Factor
<b>dEAd</b>	Dead Band		
<b>ANLG</b>	Analog Output		
<b>VoLt</b>	Voltage Output	<b>CURR</b>	Current Output
<b>Out.1</b>	Output 1	<b>Rd 1</b>	Reading 1
<b>Out.2</b>	Output 2	<b>Rd 2</b>	Reading 2
<b>RAMP</b>	Ramp Time	<b>SOAk</b>	Soak Time
<b>Id</b>	ID Code Menu	<b>CH.Id</b>	Change ID Code
<b>FULL</b>	Full ID	<b>SP.Id</b>	Set Point ID
<b>COMM</b>	Communication Option*	<b>NONE</b>	Communication is Not Installed
<b>COLR</b>	Display Color Selection	<b>N.CLR</b>	Normal Color Display
<b>1.CLR</b>	Alarm 1 Color Display	<b>2.CLR</b>	Alarm 2 Color Display
<b>REd</b>	Display Color is Red	<b>AMbR</b>	Display Color is Amber
<b>GRN</b>	Display Color is Green		
<b>ENbL</b>	Enable	<b>dSbL</b>	Disable
<b>ERRo</b>	Error	<b>+ OL</b>	Input (+) Overload
<b>+OPN</b>	Input (+) Open		

\* For abbreviations of Communication Option see Communication Manual.