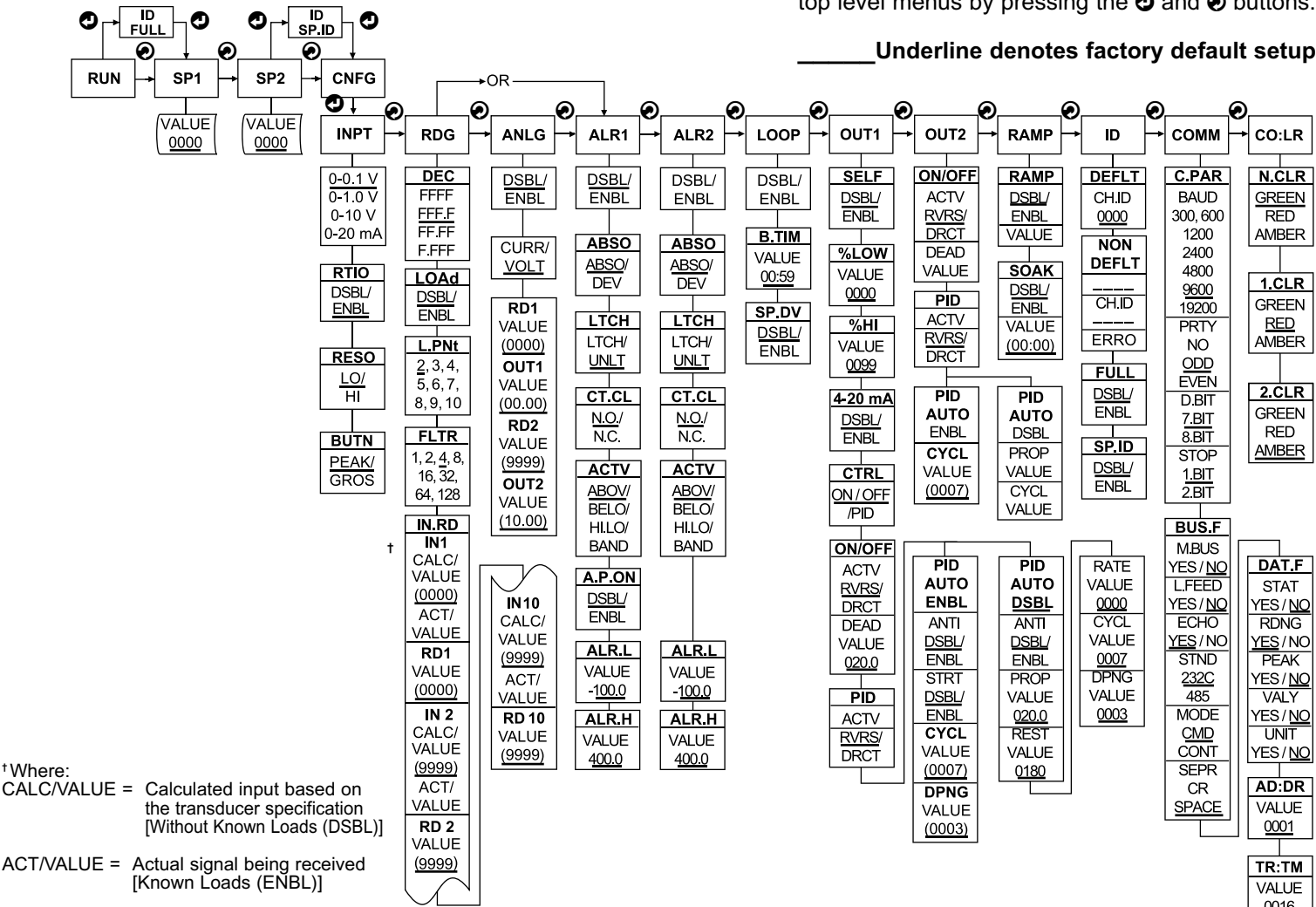


FLOW CHART

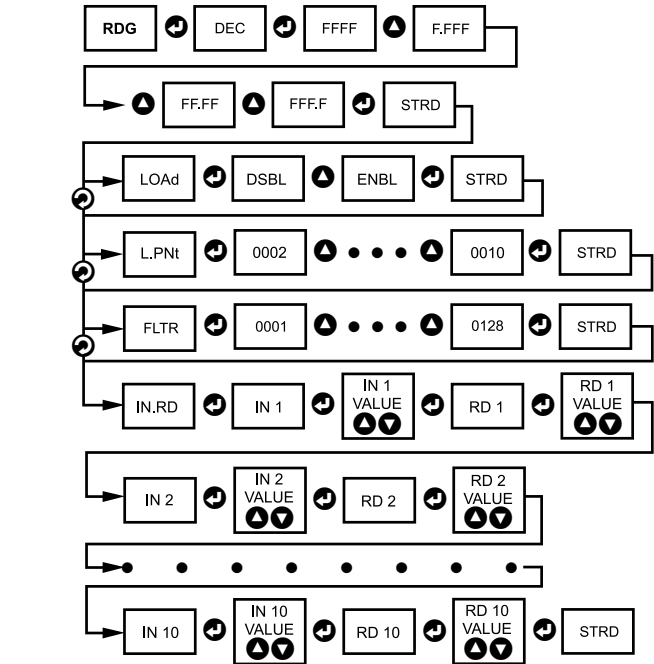


†Where:  
CALC/VALUE = Calculated input based on the transducer specification [Without Known Loads (DSBL)]

ACT/VALUE = Actual signal being received [Known Loads (ENBL)]

READING CONFIGURATION SETUP (operation example)

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



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

**Underline denotes factory default setup**

SPECIFICATION

**Accuracy:** 0.03% rdg.

**Resolution:** 10 / 1  $\mu$ V process

**Linearization Points:** 10 Points

**Temperature Stability:**

50 ppm/°C

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

**Input Types:**

Analog Voltage and Current

**Voltage:** 0 to 100 mV,

0 to 1V ( $\pm$ 100 mV),

0 to 10Vdc

**Input Impedance:**

10 M $\Omega$  for 100 mV,

1 M $\Omega$  for 1 or 10 Vdc

**Current:** 0 to 20 mA (5  $\Omega$  load)

**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 10Base T

or **Excitation:** 5 Vdc @ 40 mA,

10 Vdc @ 60 mA

Exc. not available for Low Power Option

**Line Voltage/Power:**

90 - 240 Vac  $\pm$ 10%, 50 - 400 Hz\*,

or 110-300 Vdc, **4W** single display;

**5W** dual display

\* *No CE compliance above 60 Hz*

**Low Voltage Power Option:**

12 - 36Vdc, **3 W\*\*** single display;

20 - 36Vdc, **4 W\*\*** dual display;

*\*\*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:**

UL, C-UL, UKCA, CE per 2014/35/EU

**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.

**TRADEMARK NOTICE:**

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WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

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 in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

**OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA 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 OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by the company will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY:** The remedies of purchaser set forth herein are exclusive, and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.

CONDITIONS: Equipment sold by OMEGA 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, used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY / DISCLAIMER language, and, additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

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 the 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. OMEGA is a trademark of OMEGA ENGINEERING, INC.

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MQS3538/0822



**Series** CNiS16 / CNiS16D Process / Strain Gauge Controller

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.omega.com/specs/iseries](http://www.omega.com/specs/iseries).

SAFETY CONSIDERATION

**This device is marked with the international Caution symbol.**

The instrument is a panel mount device protected in accordance with 2014/35/EU. 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.

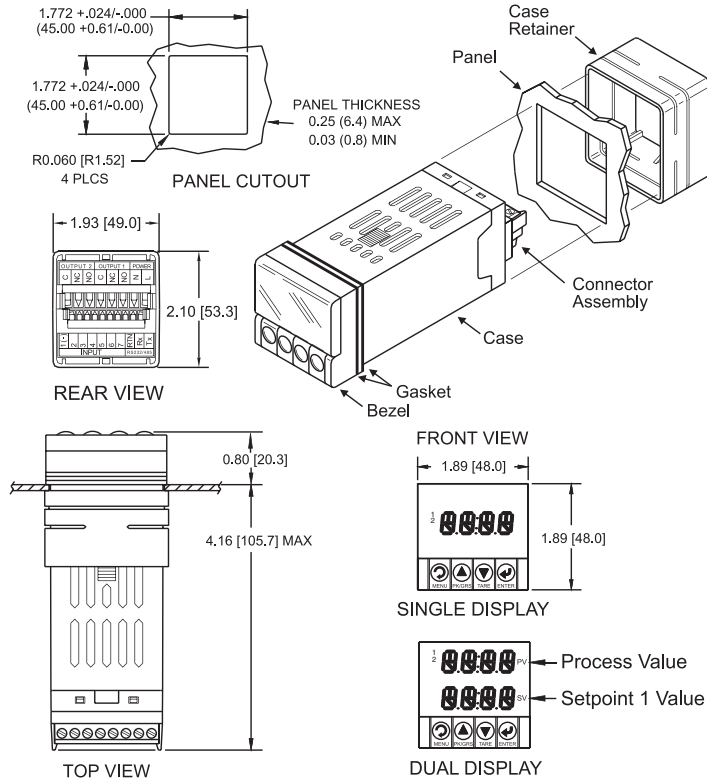
SAFETY:

- 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.**

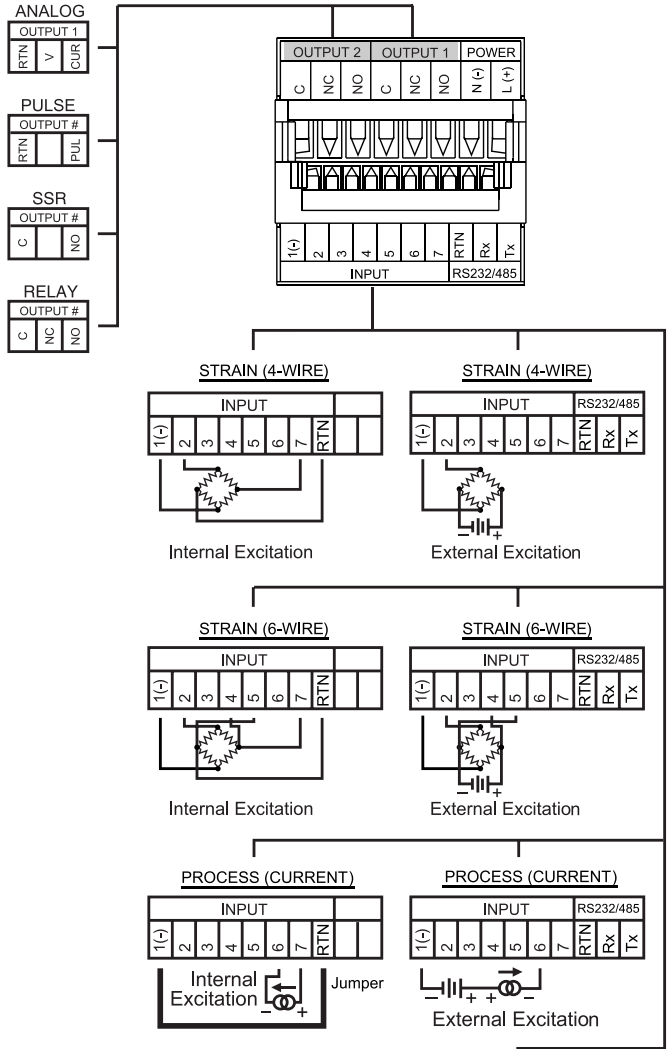
- Remove all wiring connections from the rear of the meter. To remove connector assembly, squeeze top and bottom of the case near the connector site for release, then pull connectors from case.
- To remove meter from the case, squeeze top and bottom of the bezel to release, then pull from case.

WIRING

Wire the instrument according to the figure shown below.



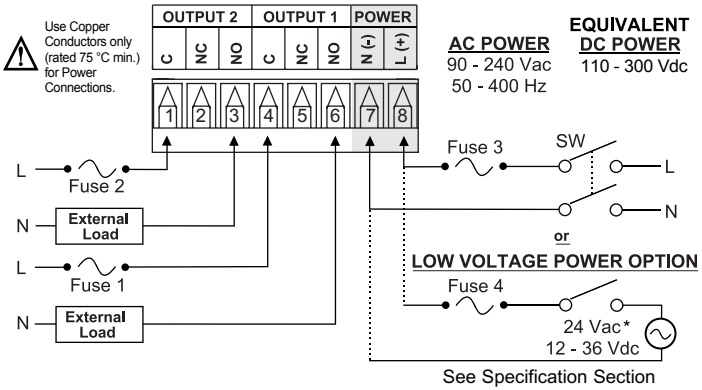
**Warning: Do not connect ac power to your device until you have completed all input and output connections. This device must only be installed by a specially trained electrician with corresponding qualifications. Failure to follow all instructions and warnings may result in injury!**



Note

If instrument has the communication option, the internal excitation is not available. Use external excitation to power your transducer.

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>⏏</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>⏏</b>.</li><li>While a parameter is being modified, press <b>⏏</b> to escape without saving the parameter.</li></ul>
<b>PK/GRS (UP)</b>	<ul style="list-style-type: none"><li>Press the up <b>⬆</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>⬆</b> button down for approximately 3 seconds will speed up the rate at which the setpoint value is incremented.</li><li>In the Run Mode pressing <b>⬆</b> causes the display to flash the PEAK or GROSS value – press again to return to the Run Mode.</li></ul>
<b>TARE (DOWN)</b>	<ul style="list-style-type: none"><li>Press the down <b>⬇</b> button to go back to a previous Top Level Menu item.</li><li>Press this button twice to reset the controller to the Run Mode.</li><li>When a numerical value is flashing (except setpoint value) press <b>⬇</b> to scroll digits from left to right allowing the user to select the desired digit to modify.</li><li>When a setpoint value is displayed press <b>⬇</b> to decrease value of a setpoint that is currently being modified. Holding the <b>⬇</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>⬇</b> causes the display to flash TARE value to tare your reading (zeroing).</li></ul>
<b>ENTER</b>	<ul style="list-style-type: none"><li>Press the enter <b>⏏</b> button to access the submenus from a Top Level Menu item.</li><li>Press <b>⏏</b> 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>To reset flashing PEAK or GROSS press <b>⏏</b>.</li><li>In the Run Mode, press <b>⏏</b> twice to enable Standby Mode with flashing <b>STBY</b>.</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 (Range)
<b>INPt</b>	Input Type (range)	<b>0 - 0.1</b>	100 mV Input Voltage
<b>0 - 1.0</b>	1 V Input Voltage	<b>0 - 10</b>	10 V Input Voltage
<b>0 - 20</b>	20 mA Input Current		
<b>RtO</b>	Ratiometric Operation	<b>RESO</b>	Display Resolution
<b>bUtN</b>	Button Peak/Gross	<b>PEAK</b>	Peak Value
<b>GROS</b>	Gross Value		
<b>RdG</b>	Reading Configuration		
<b>dEC</b>	Decimal Point	<b>F.FFF</b>	Decimal Point Position
<b>LOAD</b>	Input Load	<b>EnbL</b>	Scaling with Known Loads (Actual Value)
<b>DSbL</b>	Scaling without Known Loads (Calculated Value)	<b>L.PNt</b>	Linearization Points
<b>0002..</b>	Number of Linearization Points	<b>FLtR</b>	Filter Constant
<b>..0010</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>Rd 1</b>	Reading 1
<b>IN 2</b>	Input 2	<b>Rd 2</b>	Reading 2
<b>...</b>	...	<b>...</b>	...
<b>IN 10</b>	Input 10	<b>Rd 10</b>	Reading 10
<b>ANLG</b>	Analog Output	<b>CURR</b>	Current Output
<b>VoLt</b>	Voltage Output	<b>Rd 1</b>	Reading 1
<b>Out.1</b>	Output 1	<b>Rd 2</b>	Reading 2
<b>Out.2</b>	Output 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>°LO</b>	Percent Low	<b>°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>OUt2</b>	Output 2 Menu		
<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>dSbL</b>	Disable	<b>ENbL</b>	Enable
<b>ERRO</b>	Error	<b>+ OL</b>	Input (+) Overload

\* For abbreviations of Communication Option see Communication Manual.