

## DISPLAY ABBREVIATIONS

<b>ALR1</b>	Alarm 1 Status		
<b>OFF</b>	Alarm 1 set Off	<b>ON</b>	Alarm 1 set On
<b>A1Md</b>	Alarm 1 Mode		
<b>A1LO</b>	Alarm 1 Low	<b>A1HI</b>	Alarm 1 High
<b>A1LH</b>	Alarm 1 Low/High		
<b>LO-1</b>	Alarm 1 Low	<b>-999..</b> <b>..9999</b>	Alarm 1 Low Value
<b>HI-1</b>	Alarm 1 High	<b>-999..</b> <b>..9999</b>	Alarm 1 High Value
<b>A1CR</b>	Display color when Alarm 1 triggered		
<b>GRN</b>	Green Color	<b>REd</b>	Red Color
<b>AMbR</b>	Amber Color		
<b>ALR2</b>	Alarm 2 Status		
<b>OFF</b>	Alarm 2 set Off	<b>ON</b>	Alarm 2 set On
<b>A2Md</b>	Alarm 2 Mode		
<b>A2LO</b>	Alarm 2 Low	<b>A2HI</b>	Alarm 2 High
<b>A2LH</b>	Alarm 2 Low/High		
<b>LO-2</b>	Alarm 2 Low	<b>-999..</b> <b>..9999</b>	Alarm 2 Low Value
<b>HI-2</b>	Alarm 2 High	<b>-999..</b> <b>..9999</b>	Alarm 2 High Value
<b>A2CR</b>	Display color when Alarm 2 triggered		
<b>GRN</b>	Green Color	<b>REd</b>	Red Color
<b>AMbR</b>	Amber Color		
<b>Out</b>	Alarm Latched/Unlatched selection		
<b>LAtC</b>	Latched	<b>UNLA</b>	Unlatched
<b>NO.CR</b>	Display Color in Normal condition		
<b>GRN</b>	Green Color	<b>REd</b>	Red Color
<b>AMbR</b>	Amber Color		
<b>MOdE</b>	Data Flow Mode		
<b>HOSt</b>	Host Mode	<b>SLAV</b>	Slave Mode
<b>baUd</b>	Baud Rate	<b>300..</b> <b>..19200</b>	Baud Rate Value
<b>FORM</b>	Data Format		
<b>7O1</b>	7 Bit, Odd, 1 Stop Bit	<b>7E1</b>	7 Bit, Even, 1 Stop Bit
<b>8N1</b>	8 Bit, No parity, 1 Stop Bit		
<b>COMM</b>	Communication Standard		
<b>232</b>	RS-232 Standard	<b>485</b>	RS-485 Standard
<b>AddR</b>	Device Address	<b>0000..</b> <b>..0099</b>	Address Value
<b>Miscellaneous:</b>			
<b>PEak</b>	Peak Value	<b>VALL</b>	Valley Value
<b>PROC</b>	Process Value	<b>RUN</b>	Run Mode
<b>OVLd</b>	Input Overload	<b>StOR</b>	Stored Message

## OPERATIONS

In **Slave Mode** the Remote Display will wait for commands and data from the Serial Bus.

In **Host Mode** the Remote Display will send data automatically and continuously into the Serial Bus.

When used in **RS-485 Mode**, the device must be accessed with an appropriate **Address Value**.

**Latched Mode:** Alarm remains latched until reset. To reset already latched alarm select any menu items and then press "up" or "down" button.

- Note** 1. In the examples for RS-485 it is assumed that the device address is 01.  
2. Decimal Point over 2 digits (ex:0.001) not recommended for RD4.

### Write alphanumeric characters to the Remote Display from the computer (Display in Slave Mode)

- Single Remote Display: (RS232) write 4(6) characters, then CR (carriage return)
- Multiple Remote Display: (RS485) write \*, device address (2 digit), CR, 4(6) characters, then CR
- How to display time format or colon ":", ex: 12:30, from keyboard enter: 1230!

## Host mode uses Newport product protocols

### Process Value (Display on Host Mode)

Press **▲** to request "Process" Value.  
a) RS-232 Mode, will send: \*X01  
b) RS-485 Mode, will send: \*01X01

**Note** If the RD4/RD6 is used with an iDRN/iDRX product, the meter will display Valley or Peak value depending on the jumper position on J14.

**J14-1 Closed:** factory default position  
**J14-1 Open:** applies only for iDRN/iDRX-PR/-ST/-FP models  
**J14-2 and J14-3:** Do not remove, for factory use only.

### Peak Value (Display on Host Mode)

Press **▲** to request "Peak" value:  
a) RS-232 Mode, will send: \*X02 (or \*X03 **†**)  
b) RS-485 Mode, will send: \*01X02 (or \*01X03 **†**)

### Valley Value (Display on Host Mode)

Press **▼** to request "Valley" value.  
a) RS-232 Mode, will send: \*X03 (or \*X04 **†**)  
b) RS-485 Mode, will send: \*01X03 (or \*01X04 **†**)  
**† = if connected with iDRN/iDRX-PR/-ST/-FP models**

### Display Color Setup (Alarm Setup)

This menu allows the user to select the color of the display in normal conditions and when alarm is triggered. If user wants the Display to change color every time when both Alarm 1 and Alarm 2 are triggered, the Alarm values should be set in such a way that Alarm 1 is always on the top of Alarm 2 value, otherwise value of the Alarm 1 will overwrite value of Alarm 2 and Display color would not change when Alarm 2 is triggered.

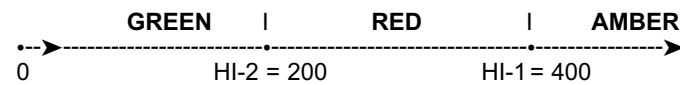
#### Example 1:

**Alarm 1 setup:** "ON", Alarm Mode High "A1HI", Alarm High Value "HI-1"=400, Alarm Color "A1CR"=Amber

**Alarm 2 setup:** "ON", Alarm Mode High "A2HI", Alarm High Value "HI-2"=200, Alarm Color "A2CR"=Red

**Normal Color:** "NO.CR"=Green

**Display colors change sequences:**



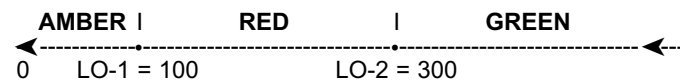
#### Example 2:

**Alarm 1 setup:** "ON", Alarm Mode Low "A1LO", Alarm Low Value "LO-1"=100, Alarm Color "A1CR"=Amber

**Alarm 2 setup:** "ON", Alarm Mode LO "A2LO", Alarm High Value "LO-2"=300, Alarm Color "A2CR"=Red

**Normal Color:** "NO.CR"=Green

**Display colors change sequences:**



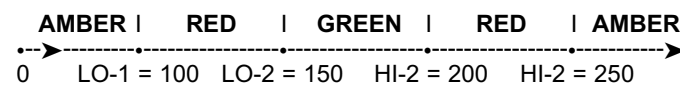
#### Example 3:

**Alarm 1 setup:** "ON", Alarm Mode Low/High "A1LH", Alarm Low Value "LO-1"=100, Alarm High Value "HI-1"=250, Alarm Color "A1CR"=Amber

**Alarm 2 setup:** "ON", Alarm Mode Low/High "A2LH", Alarm Low Value "LO-2"=150, Alarm High Value "HI-2"=200, Alarm Color "A2CR"=Red

**Normal Color:** "NO.CR"=Green

**Display colors change sequences:**



### Display Color Change (by serial communication)

Using Microprocessor Version 1.6 and above, while in Slave mode, with alarms disabled. ~~~R to turn the display Red.

~~~G to turn the display Green.

~~~O to turn the display Amber.

## SPECIFICATION

### Display:

**RD4:** 4-digit, 9-segment LED,  
21 mm (0.83")

**RD6:** 6-digit, 9-segment LED,  
17 mm (0.67")

with red, green and amber programmable colors.

**Alarm:** Alarm 1 & 2 programmable Latch/Unlatch, High, Low, High/Low

**Serial Input:** Serial ASCII RS-232 or RS-485 Menu selectable

**Input levels:** RS-232 and RS-485 Standard Voltage levels.

**Baud Rate:** 300, 600, 1200, 2400, 4800, 9600, 19200

**RS-485 address:** 0 to 99

**Data Format:** 7O1-7 bit, Odd, 1 stop bit

7E1- 7 bit, even, 1 stop bit  
8N1 - 8 bit, No parity, 1 stop bit.

**Power Supply:** 10 to 36 VDC (2 W) or AC adapter 120/240 VAC to 12 VDC (200 mA).

Operating Temperature: 0 to 50°C

**Storage Temperature:** -20 to 85°C  
Relative Humidity: 0 to 85 %

**Protection:** NEMA-4x (IP65) front Bezel only.

**Dimensions:** 48 H x 96 W x 38 D mm (1.89" x 3.78" x 1.5")

**Panel Cutout:** 1.772" (45 mm) x 3.622" (92 mm)

**Approvals:** 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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- Model and serial number of the product under warranty, and
- Repair instructions and/or specific problems relative to the product.

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- Model and serial number of product, and
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# OPERATION MANUAL



## RD4 / RD6 Remote Display

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## RD4 AND RD6 REMOTE DISPLAY

### DESCRIPTION:

The RD4 and RD6 are 4(6) digit master/slave displays providing remote readout from instruments such as programmable controllers, digital panel meters and other instruments with serial output. Two communication interfaces are supported in Remote Display: RS-232 and RS-485 and can be programmed through front panel buttons.

The RD4/RD6 remote display can be mounted in a 1/8 DIN panel cut-out or surface mounted with the included bale.

The Remote Display features big bright 21mm (0.83") and 17.3mm (0.68") 9 segment LED's that can be programmed to change color between Green, Amber, and Red to indicate alarms.

Serial Communications can be made to an RJ-11 jack or screw terminals. In the Slave mode, the RD4/RD6 can be used for displaying Alphanumeric characters from a computer.

Power is supplied from 10 to 36 Vdc power supply or AC adapter 120/240 Vac to 12 Vdc (200 mA).

Compatible Host device must feature serial RS232 or RS485 output.

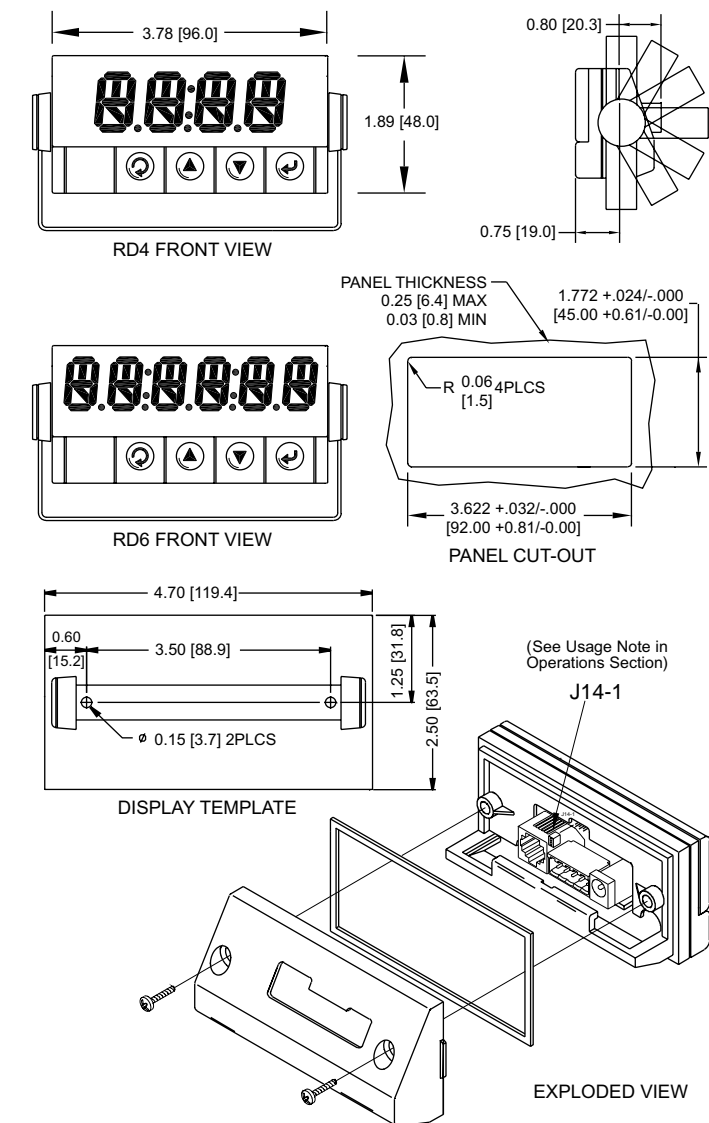
### SAFETY:

- The instrument is a panel mount device protected in accordance with EN61010-1:2001.
- This device does not provide safety isolation. Therefore, always use a Safety Agency Approved DC power source.

### 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



### Mounting Remote Display Through Panel:

- Using the panel cutout diagram shown above, cut an opening in the panel.
- Remove two screws at the back of remote display to remove back cover.
- 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.
- Align back cover to remote display and reinstall screws.

### Mounting Remote Display on Bail:

- Use the Remote Display template to mark the location of mounting screws on the flat surface.
- Be sure to leave enough room around the bail (as noted on the template drawing) to allow for removal and rotation of the display.
- The display can be rotated to 12 positions for the best viewing angle.

### Disassembly Instruction:

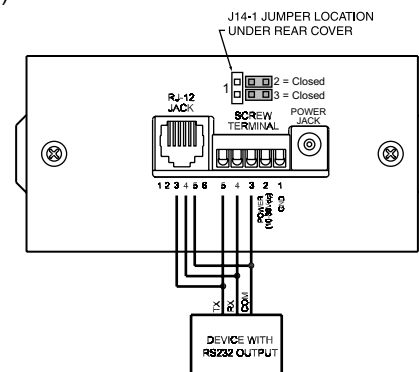
**Warning: Disconnect all ac power from the unit before proceeding.**

- Remove all wiring connections from the rear of the instrument, by unplugging the power and input connectors.
- Remove two screws at the back of remote display and back cover.
- Remove the Remote Display from the panel.
- To remove the Remote Display from the bail, spread mounting ears.

### WIRING

#### Wiring RS-232 Interface.

The RS-232 standard (point-to-point) allows a single device to be connected to the Remote Display using a three-wire connection (full duplex).



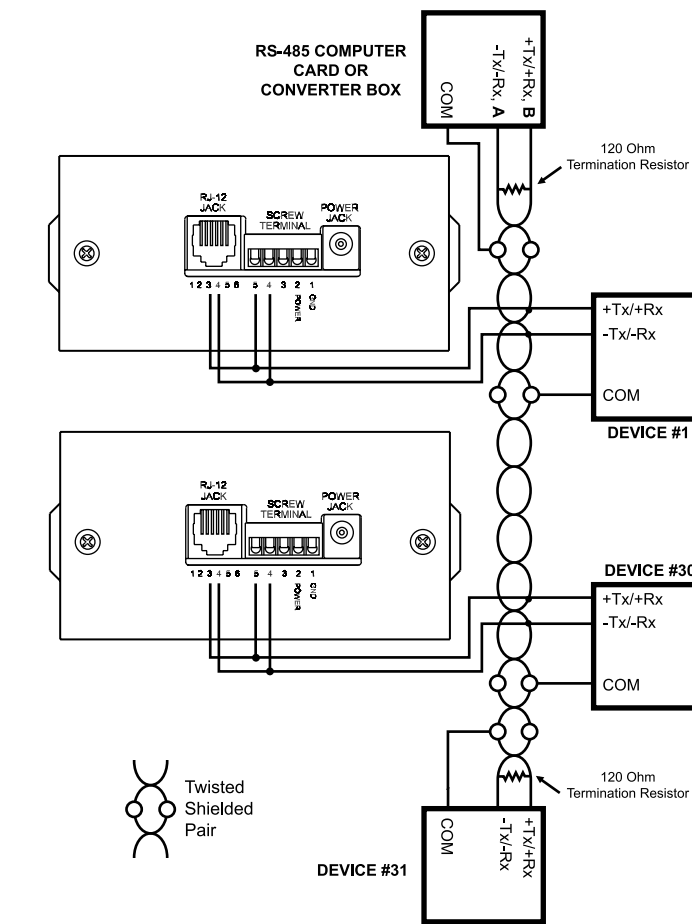
| Device with RS-232 Pin Function | Host Mode |                 | Slave Mode      |
|---------------------------------|-----------|-----------------|-----------------|
|                                 | RJ-12     | Screw Terminals | Screw Terminals |
| Receive (Rx)                    | 4         | 5               | 4               |
| Transmit (Tx)                   | 3         | 4               | 5               |
| Ground (RTN)                    | 5         | 3               | 3               |

Note 1: In Slave Mode, the Remote Display will wait for commands and data from the Serial Bus.

Note 2: In Host Mode, the Remote Display will send data automatically and continuously into the Serial Bus.

#### Wiring RS-485 Interface.

The RS-485 standard (multipoint) allows a computer, one or more devices and Remote Displays (up to 32) to be connected using a two-wire connection (half-duplex) plus a common wire to connect to the shield of the cable. It is recommended to use shielded cable with one twisted pair for EMI noise protection.

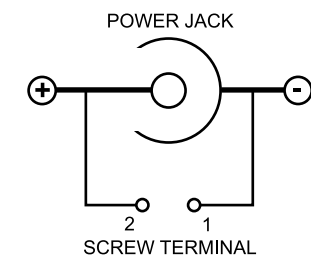


Note: Connections to the computer are optional.

| Computer Card or Converter Box Pin Function | Device with RS-485 Pin Function | Remote Display |                |
|---------------------------------------------|---------------------------------|----------------|----------------|
|                                             |                                 | RJ-12          | Screw Terminal |
| A, -Tx/-Rx                                  | -Tx/-Rx                         | 4              | 4              |
| B, +Tx/+Rx                                  | +Tx/+Rx                         | 3              | 5              |
| COM                                         | COM                             |                | 3              |

### Power Connection:

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



### CONFIGURATION

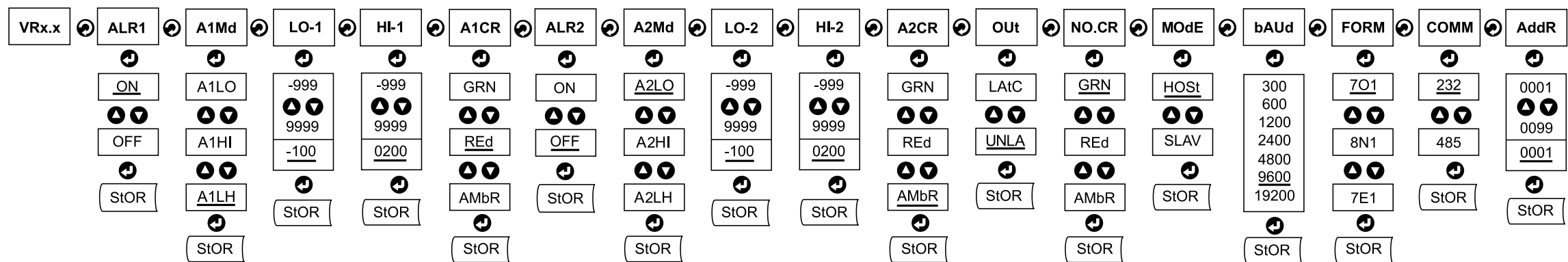
Button Functions in Configuration Mode

|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <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 <b>(MENU)</b> 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 submenu selections. When a numerical value is displayed press this key to increase value of a parameter that is currently being modified.</li> <li>In the Run Mode pressing <b>(UP)</b> causes the display to flash the PEAK value several times before returning to the Run Mode.</li> <li>In the top menu press <b>(UP)</b> causes the display 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 scroll through submenu selections. When a numerical value is displayed press this key to decrease value of a parameter that is currently being modified.</li> <li>In the Run Mode press <b>(DOWN)</b> causes the display to flash the Valley value several times before returning to the Run Mode.</li> <li>In the top menu press <b>(DOWN)</b> causes the display 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>StOR</b> message to confirm your selection.</li> </ul>                                                                                                                                                                                                     |

Note: x, w, z, and some punctuations are non-printable characters.

### FLOW CHART

Below is a flowchart showing how to navigate through all menus by pressing front buttons.



\_\_\_\_ Underline denotes factory default setup