DISPLAY ABBREVIATIONS

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

a) Single Remote Display: (RS232) write 4(6) characters, then CR (carriage return)

b) Multiple Remote Display: (RS485) write *, device address (2 digit), CR, 4(6) characters, then CR

c) 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.

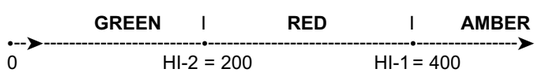
Example 1:

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:



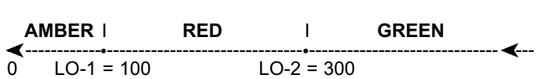
Example 2:

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:



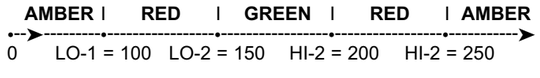
Example 3:

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: 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 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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M3566/0705

OPERATION MANUAL

RoHS 2 Compliant

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.

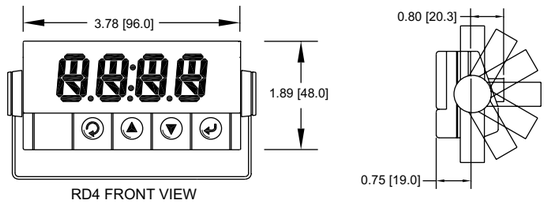
SAFETY:

- 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.

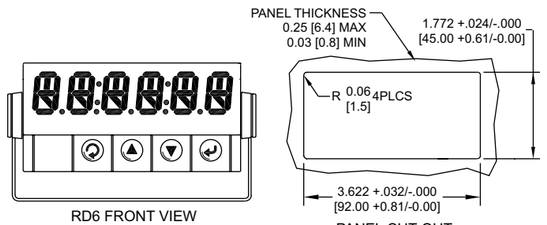
EMC:

- 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

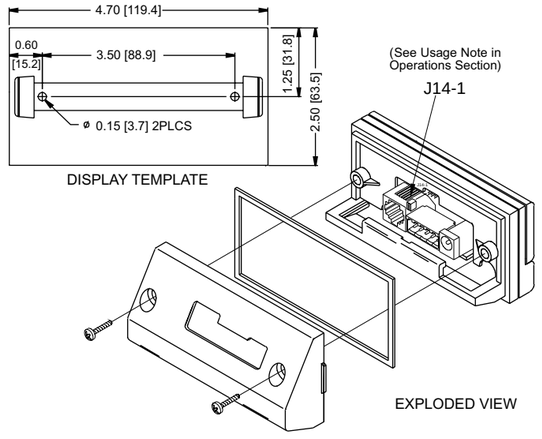


RD4 FRONT VIEW



RD6 FRONT VIEW

PANEL CUT-OUT



DISPLAY TEMPLATE

EXPLODED VIEW

Mounting Remote Display Through Panel:

1. Using the panel cutout diagram shown above, cut an opening in the panel.
2. Remove two screws at the back of remote display to remove back cover.
3. 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.
4. Align back cover to remote display and reinstall screws.

Mounting Remote Display on Bail:

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

Disassembly Instruction:

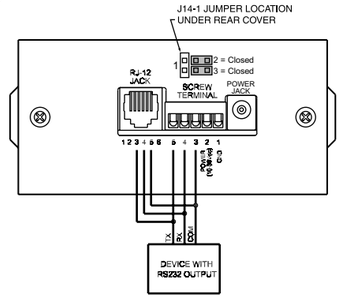
⚠ Warning: Disconnect all ac power from the unit before proceeding.

1. Remove all wiring connections from the rear of the instrument, by unplugging the power and input connectors.
2. Remove two screws at the back of remote display and back cover.
3. Remove the Remote Display from the panel.
4. 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).

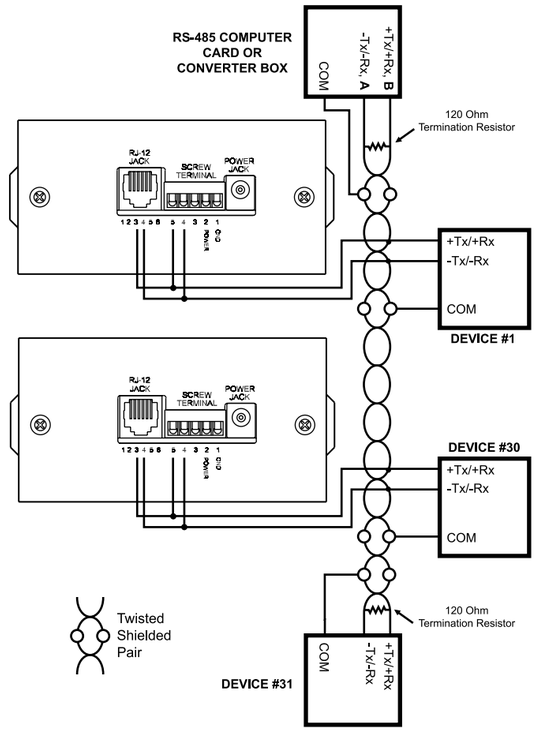


Device with RS-232 Pin Function	Host Mode		Slave Mode
	RJ-12	Screw Terminals	Screw Terminals
Receive (Rx)	4	5	4
Transmit (Tx)	3	4	5
Ground (RTN)	5	3	3

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.

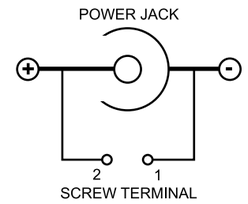


Note: Connections to the computer are optional.

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

(MENU)	• To enter the Menu, the user must first press button. • Use this button to advance/navigate to the next menu item. The user can navigate through all the top level menus by pressing . • While a parameter is being modified, press to escape without saving the parameter.
(UP)	• Press the up 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. • In the Run Mode pressing causes the display to flash the PEAK value several times before returning to the Run Mode. • In the top menu press causes the display to return to the Run Mode.
(DOWN)	• Press the down 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. • In the Run Mode press causes the display to flash the Valley value several times before returning to the Run Mode. • In the top menu press causes the display to return to the Run Mode.
(ENTER)	• Press this button to access the submenus from a Top Level Menu item. • Press this button to store a submenu selection or after entering a value – the display will flash a `SEtP` message to confirm your selection.

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

FLOW CHART

_____Underline denotes factory default setup

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