

Interface Technology Group, Inc.



Model RDU 1.2

Reader Display Unit

Operation and Maintenance Manual

Firmware Version 1.00

**Interface Technology Group, Inc.
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Specifications:

Power Input:..... 90 – 265 VAC 47-470 Hz.
.....IEC Input connector 10W Nominal

Fuse:.....1 Amp

Dimensions:..... 19” Wide X 1.75” High (1 RU) X 10.25 Deep

Weight:.....4.5 Pounds

Operating Environment:..... 32° F to 100° F, 0 – 95% RH Non condensing

Signal Inputs:

IRIG-B Modulated code 10 mV to 10 V P-P. 10K ohm Input Impedance. Isolated BNC Connector with transformer isolation.

CS-524X or CS-5X4 at 4800, 9600, or 19.2K baud. Automatic baud rate detection. RS-422 input on Twinax and DB-9 Female connector.

Signal Outputs:

CS-5XXX buffered output RS-422 on DB-9 Female connector.

DB-9 Female connector – First motion (MLO) relay contacts. N.O. and N.C. contacts are available.

Ethernet port:

A 10-100 Base T port for control and status.

QUICK START INSTRUCTIONS

In order to get started quickly without reading the entire manual, a quick start lesson is provided here.

With the RDU-1.2 turned on, pressing the “Select” button will allow the user to scroll through the available modes or functions. When the desired mode is displayed, pressing

“Enter” will select the mode desired and present a drill down menu of options within that mode. Generally, the options can be modified by the “Up” and “Down” buttons until the desired option is displayed. Pressing the “Enter” button will select that option. At the end of the drill down menus, the final “Enter” button press will cause the RDU-1.2 to store all parameters and begin to display the mode selected.

Overview:

The model RDU-1.2 reads CS-524X, CS-5X4, and IRIG-B and displays these signals on a 16 digit alpha numeric dot matrix display.

The RDU-1.2 is capable of reading count and time codes as well as displaying any 16 digit ASCII text message. All settings including the displayed text are stored in non-volatile EEPROM memory.

The RDU-1.2 will read CS-524X and display either the EC (Event Count) field or the LT (Launch Time) field.

When CS-5X4 is selected, a specified identifier may be entered for use in selecting the desired count. A scan function is also available. When in the scan mode, all available identifiers are displayed in sequence. Pressing the enter button will instantly select the displayed identifier and begin to display the desired count.

Both CS524X or CS-5X4 may be displayed with decimal seconds or without. Both signals will be read with automatic baud rate detection.

Colons are displayed optionally. The display may be configured to display accumulated seconds in both CS-5 and IRIG-B display modes.

When the “P” character changes to an “A” character in the CS-5 stream, a relay will close. Both normally open and normally closed contacts are available on the rear panel.

The model RDU-1.2 will also read IRIG-B. In addition, an identifier may be selected and displayed on the LED screen. An offset of up to plus or minus 12 hours in ½ hour increments may be selected.

Leading zero blanking may be selected. There are two modes available. First is straight left to right leading zero suppression. Second is left to right per group leading zero suppression. Per group is defined as days, hours, minutes, and seconds. In the first case, the colons are extinguished as necessary. In the second case, colons will remain on.

The brightness of the display may be adjusted and the brightness level stored in EEPROM.

The current leap year identification may be entered so as to properly calculate offset times.

All mode changes and brightness changes will be stored in non-volatile memory. The unit will enter into the last selected mode when it is powered up and begin displaying the selected count.

Operation:

Connect a suitable AC mains power source to the rear IEC connector. Connect a CS-524X signal or a CS-5X4 signal to the DB-9 or Twinax RS-422 input connector. Connect an IRIG-B modulated signal to the isolated BNC connector. Turn on the AC power switch on the rear panel.

The RDU-1.2 will power up and read the last set-up that was entered. If a signal is available, the unit will display that count (or time) on the display.

Display Details:

The display is set-up by means of an on screen menu system. The select button steps through each of the menu screens. When the desired screen (or mode) is seen, pressing the enter button will either execute that option or drill down to the next level menu. For each menu level if there are options available, the up or down arrow will change the option. When the desired option is seen, pressing enter will execute that option.

Whatever options or selections are made, they will be stored in memory and re-called on power up. Thus, once set-up, the unit may be turned off and on again without having to do anything.

Pressing the Select button will Cause the following:

? IRIG-B

Pressing the up button will jump to the next menu item. (CS-5)

Pressing the down button will jump to the previous menu item. (VERSION)

Pressing enter will display the available ID characters that may be assigned. (NONE, A-Z).

The up and down arrows will scroll through the available ID characters.

Pressing enter will select the display ID character and display:

X OFFSET XX.X H

Pressing the up or down buttons will scroll through the available offsets.
(Plus or minus 12 hours in ½ hr increments)

Pressing enter will select the desired offset and display:

? ACC SEC YES (or NO)

Pressing the up or down buttons will alternate between YES and NO
YES= Displays the count in accumulated seconds mode.
NO=Displays the count in standard mode.

If YES was selected, Pressing enter will select and store the accumulated seconds mode and begin the display mode.

If NO was selected, the following will appear:

? COLONS YES (or NO)

Pressing the up or down buttons will alternate between YES and NO

YES= Displays the colons.

NO= Turns the colons off.

After pressing Enter, the mode will be stored and the display will begin.

? CS-5

Pressing the up button will jump to the next menu item. (CS-5X4)

Pressing the down button will jump to the previous menu item. (IRIG-B)

Pressing enter will select CS-5 mode the menu will jump to the EC or LT Mode selection.

? CS-5X4

Pressing the up button will jump to the next menu item. (TEXT MODE)

Pressing the down button will jump to the previous menu item. (CS-5)

Pressing enter will select CS-5X4 mode and display:

X ID CHAR (where X= the current ID char)

Pressing up or down will scroll through the list of available ID characters
From which to select a CS-5 signal.

Pressing enter will select and store the currently displayed identifier and
go to the EC / LT Menu.

? CS-5 EC (or LT)

Pressing the up or down button will alternate between EC or LT display mode.
This affects both CS-524X and CS-5X4 modes

Pressing enter will select and store the currently displayed mode.

IF EC is selected, the menu will jump to the ? **Accum seconds** menu.
IF LT is selected, the menu will jump to the ? **Decimal Seconds** Menu.

? ACC SEC YES (or NO)

Pressing the up or down buttons will alternate between YES and NO

YES= Displays the count in accumulated seconds mode.
NO=Displays the count in standard mode.

If YES was selected, Pressing enter will select and store the accumulated
seconds mode.

If NO was selected, the following will appear:

? DEC. SEC YES (or NO)

Yes will cause tenths of seconds to be displayed. No will not allow tenths to be
displayed.

Pressing up or down buttons will alternate between yes and no.

Pressing enter will select and store the displayed mode. The following menu will
appear:

? COLONS YES (or NO)

YES= Displays the Colons.
NO=Turns off the Colons.

Pressing up or down buttons will alternate the yes and no.

Pressing enter will select and store the displayed mode. The RDU-1.2 will then begin displaying the selected mode.

? TEXT MODE

The RDU-1.2 will display the current text in memory. The first character will be flashing indicating that the up or down arrows may be used to change the character.

Pressing Select will cause the editable character to move to the right one character. The flashing character is the one that may be changed with the up and down buttons.

Repeated pushes of the Select button will increment the flashing character to the next character position.

Pressing enter will select and store the currently displayed Text message and will cause the RDU-1.2 to go into text display mode.

X SCAN (where X= the currently found ID char)

Pressing the up button will jump to the next menu item.
Pressing the down button will jump to the previous menu item.
The available CS-5 identifiers will be displayed in sequence.

Pressing enter will select and store the currently displayed identifier.

? BRIGHTNESS

Pressing the up or down buttons selects brightness level

Pressing enter will select and store the current level.

? LEAP YEAR 1 (or current leap year number 0-4)

Pressing the up or down buttons will scroll through 1, 2, 3 and 4.

- 1= The first year after a leap year
- 2= The second year after a leap year
- 3= The third year after a leap year

4= The current year is the leap year

Pressing enter will select and store the displayed leap year.

ZERO SURP 1 (or current suppression level 0-2)

Pressing up or down buttons will scroll through 0, 1, and 2.

0= No leading zero suppression.

1= Straight left to right leading zero suppression.

2= Left to right by group leading zero suppression.

Pressing enter will select and store the level of leading zero suppression.

QUIT NO CHANGE

Pressing the up button will jump to the next menu item. (VERSION)

Pressing the down button will jump to the previous menu item. (ZERO SURP)

Pressing enter will exit the menu system without saving changes.

Pressing Select will cause a jump to the ? **IRIG_B** Menu.

VERSION 1.00 (or the current version)

Pressing the up button will jump to the next menu item. (? IRIG-B)

Pressing the down button will jump to the previous menu item. (QUIT NO CHANGE)

Pressing enter will exit the menu system and save any changes.

Remote Control:

RS-232 Port:

Remote control of the RDU 1.2 is accomplished through the Ethernet port or via the RS-232 port on the rear of the unit.

Connecting a computer running a terminal program such as Hyperterminal set up as 9600-N-8-1 allows control and status information to be passed from or to the reader display unit. A standard straight through cable is required. Only pins 2,3, and 5 are utilized.

Hitting Enter (C/R) will cause the RDU-1.2 to respond with: RDU-1.2 #XXXX> Where XXXX is the serial number of the unit.

KEYWORDS:

The following are keywords or words that are used by the RDU-1.2 to control the unit via remote commands. The keywords may be upper or lower case. The words must be typed correctly without back spacing or making corrections. Incorrect typing or misunderstood words are returned as typed followed by a question mark.

STATUS (C/R) Returns the status of the display.

MODE (C/R) Enters into a dialog to control the function of the display.

Entering the mode command results in a dialog starting with the mode of operation desired. The currently programmed variable is display and alternate selections are displayed. If the current variable is desired to stay the same, a (C/R) or Enter may be used and the next variable will be displayed.

If a mistake is made, hitting the escape key will cause the dialog to move up (or back) one level. Repeated escape keys can cause the dialog to exit out of command mode.

At the end of the dialog, a question will appear: "Store Program? (Y/N)" Either Y or N (or ESC) must be entered. If a Y is entered, the operational data will be stored and begin operation as programmed.

Ethernet Port:

The Ethernet port may be used in exactly the same way as the RS-232 port by using a Telnet program to connect to the IP address of the RDU 1.2. The IP address of the port may be set to a fixed address or by dynamically set through DHCP. The factory default is DHCP mode. The default telnet port is 10001. The default XPORT control port is 9999.

The Ethernet port module is a Lantronix XPort module. It is recommended that the Lantronix web site WWW.lantronix.com be consulted to understand how to use the interface. A utility program from Lantronix called Device Installer (current version 4.1.0.9) should be downloaded and used to set up the IP address. This utility program makes it easy to set up the parameters of the XPort device to customize it for the particular network application.

Note that the XPort must be configured to provide a Modem Ctrl Out (DCD) signal on configurable pin (CP) #1 (input, active low). This is necessary for the RDU-1.2 to switch control ports from the RS-232 to the ethernet port when a telnet session is established.

Rear Panel Connections:



IRIG-B Input:

Isolated BNC. Transformer coupling. 10K input impedance. 10 mV to 10 V.

I/O CS-5XXX:

DB-9 Female. RS-422. Pin 3=D+, Pin 8=D-, Pin 9=Chassis Gnd. Buffered Output: Pin 7=D+, Pin 2=D-

Input CS-524X:

TWINAX connector. Center (Tip) pin= D+ Ring= D-.

First Motion Contacts:

DB-9 Female: Common = pin 3, N.C. = pin 1, N.O. = pin 5

AC INPUT:

AC mains voltage is applied through the IEC connector. 90– 265 VAC 47-470 Hz.

Ethernet Port:

RJ-45 network connector

Power Supply:

The translator uses a “Universal Input” switching power supply for cool and reliable operation. The power supply accepts any common voltage between 90 and 265 VAC or 100 to 370 Volts DC without any adjustment. A separate line filter is built into the CS5X4R-1 for an additional measure of EMI suppression. The Power supply used is UL listed and approved by several other agencies.

Routine Maintenance:

Remove dust from the cabinet when it accumulates. The front panel may cleaned with a soft cotton cloth. Use only a small amount of mild soap and water solution to dampen the cloth if necessary.

No routine checks or adjustments are required.