1200DD Series
Digital Data Display

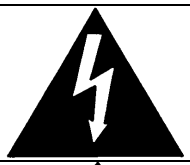
Instruction Manual

EVERTZ MICROSYSTEMS LTD.
5288 John Lucas Drive,
Burlington, Ontario, Canada,
L7L 5Z9
Phone: 905-335-3700
Sales Fax: 905-335-3573
Support Fax: 905-335-0909

Internet: Sales: sales@evertz.com
Tech Support: service@evertz.com
Web Page: http://www.evertz.com

Version 1.2 October 2006

IMPORTANT SAFETY INSTRUCTIONS

	The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated “Dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.
	The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (Servicing) instructions in the literature accompanying the product.

- Read these instructions
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer’s instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

WARNING TO REDUCE THE RISK OF FIRE OR ELECTRIC – SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOSITURE”
WARNING DO NOT EXPOSE THIS EQUIPMENT TO DRIPPING OR SPLASHING AND ENSURE THAT NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, ARE PLACED ON THE EQUIPMENT”
WARNING TO COMPLETELY DISCONNECT THIS EQUIPMENT FROM THE AC MAINS, DISCONNECT THE POWER SUPPLY CORD PLUG FROM THE AC RECEPTACLE”
WARNING THE MAINS PLUG OF THE POWER SUPPLY CORD SHALL REMAIN READILY OPERABLE”

INFORMATION TO USERS IN EUROPE

NOTE

This equipment with the CE marking complies with bother the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European standards:

- EN60065 Product Safety
- EN55103-1 Electromagnetic Interference Class A (Emission)
- EN55103-2 Electromagnetic Susceptibility (Immunity)

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to the European Union EMC directive. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

INFORMATION TO USERS IN THE U.S.A.

NOTE

FCC CLASS A DIGITAL DEVICE OR PERIPHERAL

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

WARNING

Changes or Modifications not expressly approved by Evertz Microsystems Ltd. could void the user's authority to operate the equipment.

Use of unshielded plugs or cables may cause radiation interference. Properly shielded interface cables with the shield connected to the chassis ground of the device must be used.

REVISION HISTORY

REVISION	DESCRIPTION	DATE
0.1	Preliminary Release	Jul 04
1.0	First Release – added 1201DD	May 05
1.1	Added Daylight Saving Time Freatures, and IRIG-B and GPS Inputs	Jul 05
1.2	Added NTP Input and VistaLINK® support	Oct 06

TABLE OF CONTENTS

Figures

This page left intentionally blank

1. OVERVIEW

The 1200DD Series Digital Data Displays are LED digital clocks with 7-segment-digits display. They may operate as a timecode-reading clock or as a digital SMPTE/EBU serial timecode reader, simply displaying the input timecode. In addition to SMPTE/EBU timecode, the clock can operate on the internal quartz time base, from IRIG-B, a GPS antenna or NTP. This multi-way reference capability allows easy integration into new or existing clock systems.

The 1200DD series displays are offered in two sizes.

Model	Description
1200DD	2 RU display with 2.25” high digits
1201DD	1 RU display with 1.00” high digits

Throughout this manual the term *1200DD series* will be used to describe the displays when describing common features. When necessary, the specific model numbers will be used to distinguish features only available on some models.

The model 1200DD clock face has 2.25” tall digits that may display HH:MM:SS AM/PM or HH:MM:SS FF, depending on the control settings. The model 1201DD clock face has 1.00” tall digits that may display HH:MM:SS AM/PM or HH:MM:SS FF, depending on the control settings. The brightness of the digital LEDs is adjustable. Clock installation is simple when one of the time sources is available. Apply power, connect time, and select an input source and the clock takes care of the rest, instantly setting to the correct time.

If time source fails, the two small character displays flash twice per second to signal its absence. Any time discrepancy on return of timecode is instantly corrected. This also applies to timecode changes such as Standard Time to Daylight Saving Time.

The 1200DD series displays may be preset to display an offset from local time. This local offset allows the display of any or all time zones at one location. This offset is user-programmable from -12 hours to +12 hours. When no source of timecode is available, the 1200DD series displays may be configured as a timecode generator, using its internal quartz crystal or GPS or IRIG-B or NTP.
When used as a generator, the 1200DD series displays can drive multiple high impedance, timecode reading devices. If AC power is lost, the 1200DD series displays maintain time internally via a crystal oscillator powered by a lithium battery. Self-setting to this time will occur if no input time source is available on power up. The LTC output time is the same as the input if the input is LTC or IRIG, and it is GMT if the input is GPS or NTP.

When the 1200DD has a valid input, it will automatically adjust its internal crystal oscillator so that if the reference is lost, it will maintain accurate time for a longer period.

The rear panel input connectors for timecode and output are XLR connectors. The IRIG-B input is a BNC and the NTP is a RJ-45 Ethernet connector. The GPS input is a DB9 connector. The GPS requires the –G option to be purchased.

When operating with no time source, the clock can be accurately set by means of three miniature pushbuttons on the front panel.

Features:

- Completely self-setting with SMPTE/EBU timecode input or battery back-up
- Built-in quartz time base oscillator with battery back-up
- May be operated as a timecode reader for use with countdowns
- Digital display is user-selectable between HH:MM:SS, 12/24 hour, HH:MM:SS FF and date
- May act as an NTP client
- May be configured as a timecode generator to drive other clocks
- IRIG reader reads 1 kHz IRIG-B sine wave amplitude modulated code (format B122)
- LED brightness is adjustable
- Runs on 50/60 Hz, 115/230 VAC power line
- User-programmable time offsets
- Rack mountable

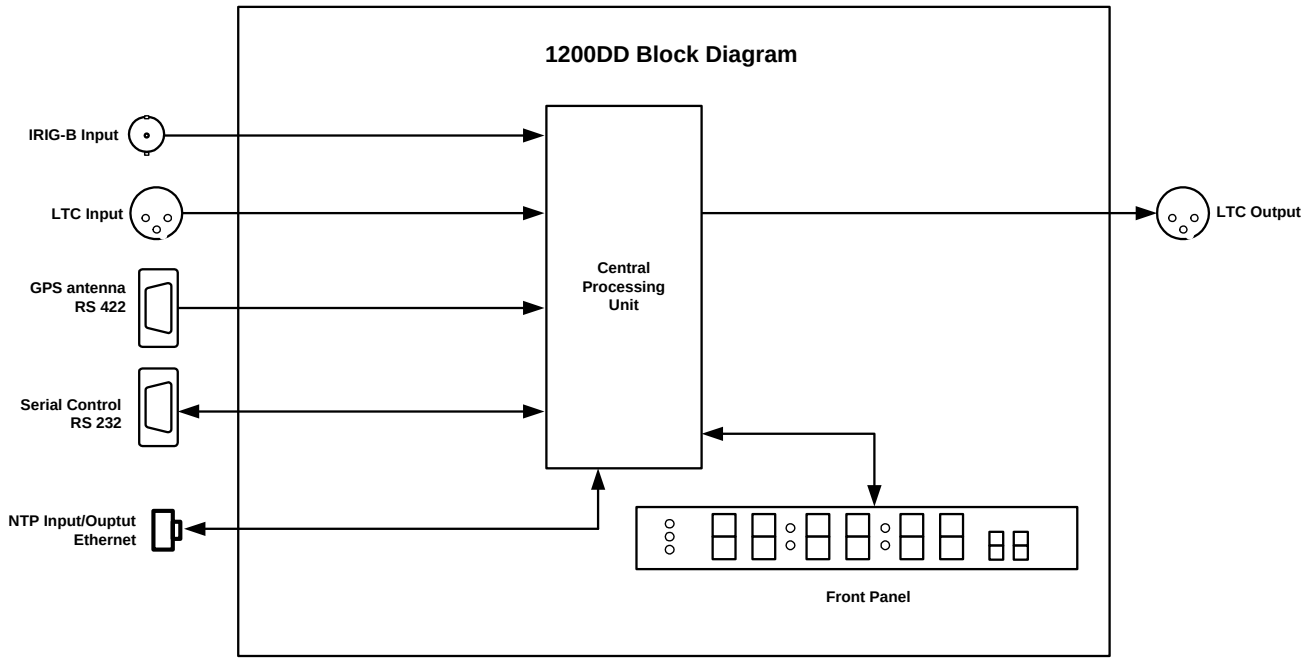


Figure 1-1: 1200DD series displays Block Diagram

2. INSTALLATION

Figure 2-2 shows the various connectors on the rear panel of the 1200DD. Sections 2.1.1 to 2.1.3 give an overview of the connectors and their functions.

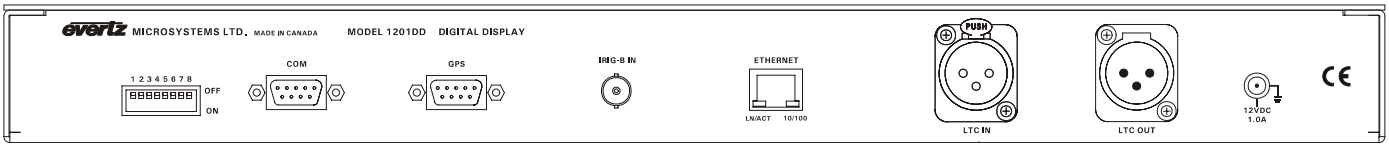


Figure 2-1: 1201DD Rear Panel

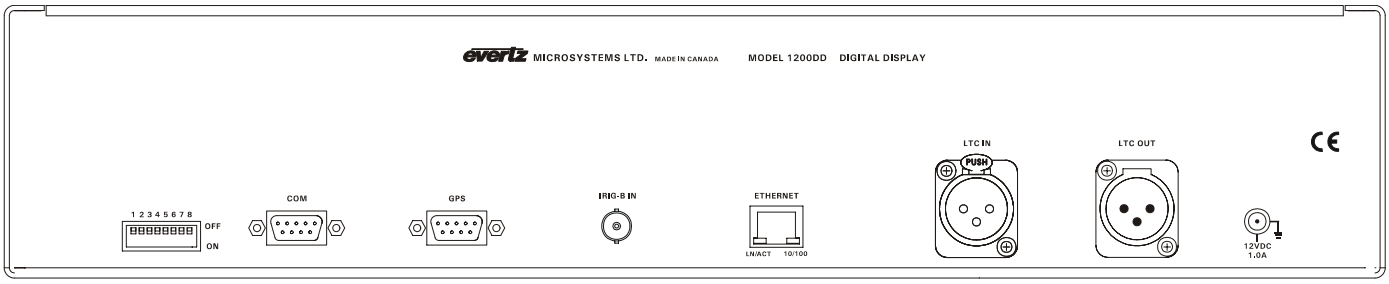
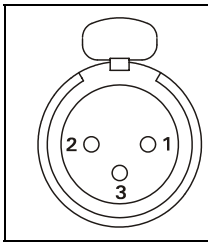


Figure 2-2: 1200DD Rear Panel

2.1. CONNECTORS

2.1.1. Time Code Connections

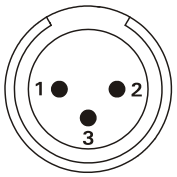
LTC IN This 3 pin female XLR connector is a balanced input for SMPTE 12M linear time code. When using an unbalanced input to the display, the signal should be applied to pin 3 of the **LTC IN** connector. The unused input, (pin 2) should be connected to ground (pin 1).



Pin #	Name	Description
1	GND	Signal Ground.
2	LTC IN+	LTC In + input
3	LTC IN-	LTC in – input

Figure 2-3: LTC In Pin Definitions

LTC OUT This 3 pin male XLR connector is a balanced output for SMPTE 12M linear time code. . When using an unbalanced output from the display, the signal should be connected to pin 3 of the **LTC OUT** connector. The unused output, (pin 2) should be left unconnected.



Pin #	Name	Description
1	GND	Signal Ground.
2	LTC OUT+	LTC Out + output
3	LTC OUT-	LTC Out – output

Figure 2-4: LTC Out Pin Definitions

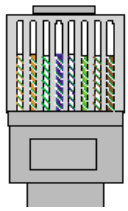
IRIG B IN This BNC connector is used to input IRIG B format 122 amplitude modulated time code for the display.

2.1.2. Ethernet Connections

The 1200DD series displays can be used as a Network Time Protocol server connected to other devices by Ethernet.

The 1200DD-GPS is designed to be used with either 10Base-T (10 Mbps) or 100Base-TX (100 Mbps) also known as Fast Ethernet, twisted pair Ethernet cabling systems. When connecting for 10Base-T systems, category 3, 4, or 5 UTP cable as well as EIA/TIA – 568 100 STP cable may be used. When connecting for 100Base-TX systems, category 5 UTP cable is required. The cable must be "straight through" with a RJ-45 connector at each end. Make the network connection by plugging one end of the cable into the RJ-45 receptacle of the 1200DD-GPS and the other end into a port of the supporting hub.

The straight-through RJ-45 cable can be purchased or can be constructed using the pinout information in Figure 2-5. A colour code wiring table is provided in Figure 2-5 for the current RJ 45 standards (AT&T 258A or EIA/TIA 258B colour coding shown). Also refer to the notes following the table for additional wiring guide information.



Pin #	Signal	EIA/TIA 568A	AT&T 258A or EIA/TIA 568B	10BaseT or 100BaseT
1	Transmit +	White/Green	White/Orange	X
2	Transmit –	Green/White or White	Orange/White or Orange	X
3	Receive +	White/Orange	White/Green	X
4	N/A	Blue/White or Blue	Blue/White or Blue	Not used (required)
5	N/A	White/Blue	White/Blue	Not used (required)
6	Receive –	Orange/White or Orange	Green/White or Green	X
7	N/A	White/Brown	White/Brown	Not used (required)
8	N/A	Brown/White or Brown	Brown/White or Brown	Not used (required)

Figure 2-5. Standard RJ45 Wiring Colour Codes

Note the following cabling information for this wiring guide:

- Only two pairs of wires are used in the 8-pin RJ 45 connector to carry Ethernet signals.
- Even though pins 4, 5, 7 and 8 are not used, it is mandatory that they be present in the cable.
- 10BaseT and 100BaseT use the same pins, a crossover cable made for one will also work with the other.
- Pairs may be solid colours and not have a stripe.
- Category 5 cable must use Category 5 rated connectors.

The maximum cable run between the 1200DD-GPS and the supporting hub is 300 ft (90 m). The maximum combined cable run between any two end points (i.e. 1200DD-GPS and PC/laptop via network hub) is 675 feet (205 m).

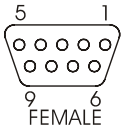
Devices on the Ethernet network continually monitor the receive data path for activity as a means of checking that the link is working correctly. When the network is idle, the devices also send a link test signal to one another to verify link integrity. The 1200DD-GPS rear panel is fitted with two LEDs to monitor the Ethernet connection.

10/100 This Amber LED is ON when a 100Base-TX link is last detected. The LED is OFF when a 10Base-T link is last detected (the LINK LED is ON). Upon power-up the LED is OFF as the last detected rate is not known and therefore defaults to the 10Base-T state until rate detection is completed.

LN/ACT This dual purpose Green LED indicates that the 1200DD-GPS has established a valid linkage to its hub, and whether the 1200DD-GPS is sending or receiving data. This LED will be ON when the 1200DD-GPS has established a good link to its supporting hub. This gives you a good indication that the segment is wired correctly. The LED will BLINK when the 1200DD-GPS is sending or receiving data. The LED will be OFF if there is no valid connection.

2.1.3. Serial Port Connections

COM This female 9 pin D connector is used for connecting a computer to upload firmware to the 1200DD. It is also used as a diagnostic port for troubleshooting. See section 4.3 for information on upgrading the firmware.



Pin #	Name	Description
1		
2	TxD	RS-232 Transmit Output
3	RxD	RS-232 Receive Input
4		
5	Sig Gnd	RS-232 Signal Ground
6		
7		
8		
9		

Figure 2-6: COM Port Pinout

GPS: A 9 pin female 'D' connector is provided for connection to the optional GPS receiver (1200DD-GPS version). Figure 2-7 shows the pinout of the serial port. See section 2.4 for information about mounting and connecting the GPS receiver.

Pin #	Name	Description
1	GND	Chassis ground
2	Tx-	Transmit A (Tx-) Output
3	Rx+	Receive B (Rx+) Input
4	PPS+	1 PPS Interrupt in +
5	+12V	+12 Volts DC out
6	PPS-	1 PPS Interrupt in -
7	Tx+	Transmit B (Tx+) Output
8	Rx-	Receive A (Rx-) Input
9	GND	Chassis ground

Figure 2-7: GPS Serial Port Pin Definitions

2.2. MOUNTING

The model 1200DD is equipped with rack mounting angles and fits into a standard 19 inch by 3 1/2 inch (483 mm x 90 mm) 2 rack unit space. The model 1201DD is equipped with rack mounting angles and fits into a standard 19 inch by 1 3/4 inch (483 mm x 45 mm) 1 rack unit space.

2.3. POWER

The 1200DD series displays come with an auto-ranging DC voltage adapter that automatically senses the input voltage. Power should be applied by connecting a 3-wire grounding type power supply cord to the power entry module on the DC voltage adapter. The power cord should be minimum 18 AWG wire size; type SST marked VW-1, maximum 2.5 m in length. The DC cable of the voltage adapter should be connected to the DC power jack on the rear panel.

2.4. GPS RECEIVER INSTALLATION

The model 1200DD-GPS and 1201-GPS displays are designed to work with the Trimble Accutime 2000 Smart Antenna that can be located up to 1000 feet from the display. The Smart Antenna houses the GPS receiver, antenna, power supply and other support circuitry in a sealed, shielded, self-contained unit with a digital interface to the main unit. The GPS Smart Antenna also receives power from the main unit through the connection cable.

2.4.1. Mounting the GPS Smart Antenna

The smart antenna's enclosure is completely waterproof and is designed for outdoor installation. It is protected against jamming signals and thus is suitable for reliable operation in most environments. Select an outdoor location for the antenna, like the roof of your building that has a relatively unobstructed view of the sky. Dense wood and concrete or metal structures will shield the antenna from satellite signals. The antenna can receive satellite signals through glass, canvas and thin fibreglass; thus it may be mounted inside a skylight, if an outdoor location is not possible.

The smart antenna is an active-head antenna. For optimal performance, locate the smart antenna as far as possible from transmitting antennas, including radar, satellite communication equipment and cellular transmitters. When locating the antenna near a radar installation, ensure that the antenna is positioned outside of the radar's cone of transmission. Follow the same guidelines when installing the antenna near satellite communication equipment. For best results, mount the antenna at least ten feet away from

satellite communication equipment. Do not mount the antenna near high vibration areas such as fan or motor housings, or near sources of heat such as exhaust stacks.

Consider the length of the cable run when selecting the location. A 50 foot cable is supplied; however, longer cables are available on special order from the factory. You may also wire a straight-through extender cable to extend the cable distance up to 200 feet. The smart antenna is designed for a pole mount with a 1" - 14 straight thread, which is a common marine antenna mount. For stationary installations a 3/4" pipe thread can be used, but a 1"-14 straight thread is recommended. Pole mounting is illustrated in Figure 2-8.

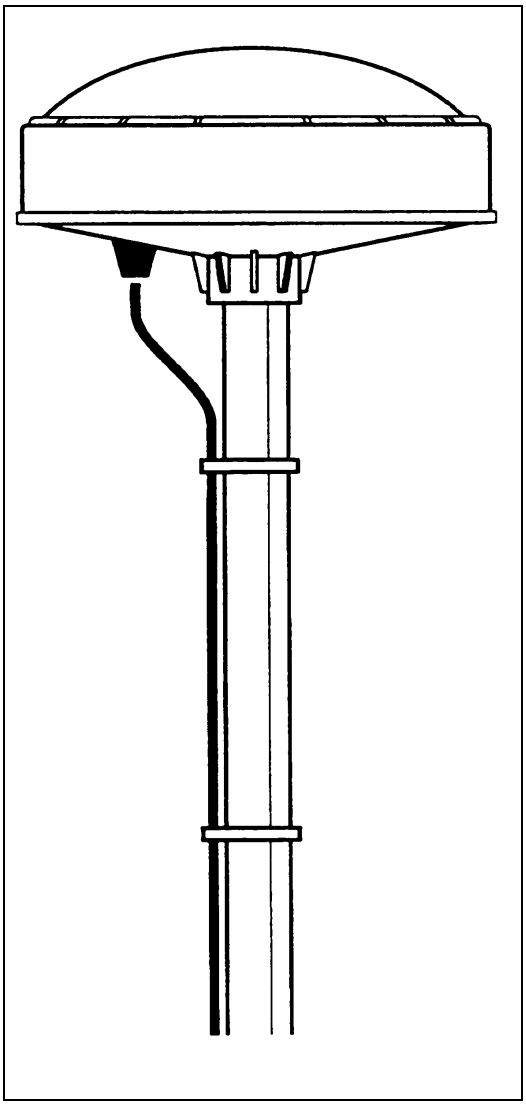


Figure 2-8: Pole Mounting the Smart Antenna

Secure the mounting pole to a solid structure so that it is oriented vertically. Thread the smart antenna onto the pole or pile and hand tighten until snug.

CAUTION: Over-tightening the smart antenna on the pole or using a tool could damage the threaded socket in the base of the antenna. In addition, do not use thread-locking compounds, since they can corrode plastic

2.4.2. Connecting the GPS Smart Antenna to the Display

A standard 50 foot long interface cable (Evertz part WA-T09) is provided with the GPS version of the display and the smart antenna. One end of this cable is fitted with a weather-tight 12 pin Molex connector. The other end is fitted with a 9 pin male subminiature D connector and should be connected to the GPS connector on the rear panel of the display. The pin out of the cable is shown in Figure 2-9. If you require a longer cable, a 100 foot (Evertz part WA-T76) or 400 foot cable (Evertz part WA-T11) may be ordered from the factory. Custom length weatherproof cables can also be special ordered. Alternately, you can wire a 9 pin Extender cable as shown in Figure 2-10.

Connect the 12 pin connector on the interface cable to the smart antenna. The connector on the interface connector has a locking ring for securing the connection.

CAUTION: Over tightening the locking ring can damage the connector on the smart antenna

Route the interface cable to the location of the display using the most direct path. Avoid routing the cable near hot surfaces, sharp or abrasive surfaces, or corrosive fluids or gases. Avoid sharp kinks or bends in the cable. Additional protection such as heat shrink tubing may be required to protect the cable jacket at points where the cable enters the building, especially if the opening is rough or sharp. Once the cable is run, use cable-ties to secure the cable to the pole and to provide strain relief for the connections. When securing the cable, start at the antenna and work towards the display. Connect the 9 pin male D connector to the GPS connector on the rear panel of the display. Power is provided from the display along the interface cable to the smart antenna.

Trimble antenna Mini-Con 12 pin (female)		Evertz 1200D Series Display 9 pin "D" style (male)
DC Ground	9 ---------- 1	Frame Ground
Receive Port (R-)	2 ---------- 2	TX A -
Transmit Port (T+)	5 ---------- 3	RX B +
Timing pulse 1pps	11 ---------- 4	1 PPS interrupt in +
DC Power IN	1 ---------- 5	+12 V DC Unreg.
Timing pulse 1pps	12 ---------- 6	1 PPS interrupt in -
Receive Port (R+)	3 ---------- 7	TX B +
Transmit Port (T-)	4 ---------- 8	RX A –
	---1	Frame Ground
	------ Drain Wire ----------	Shield

Figure 2-9: Accutime 2000 Smart Antenna to 1200DD Series Display Interface Cable (Evertz part WA-T09)

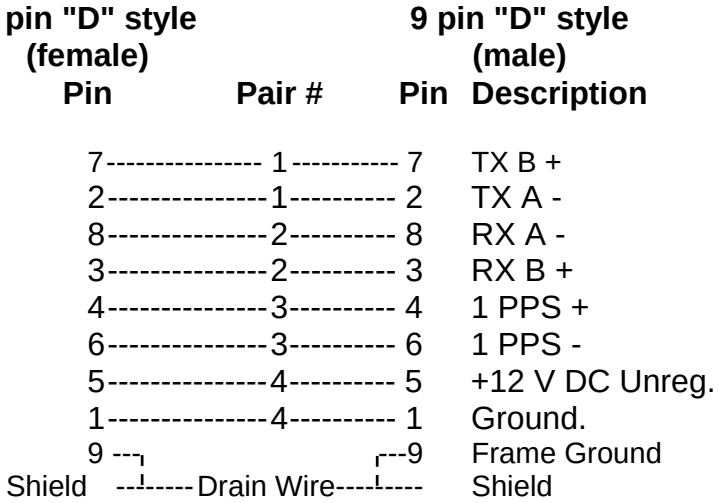


Figure 2-10: Accutime 2000 Extender Cable

When making your own extender cable be sure to use low capacitance twisted pair cable and adhere to the pairing shown in Figure 2-10.

2.4.3. System Startup

At power up, the smart antenna will automatically begin to acquire and track the GPS satellite signals. From a cold start, the smart antenna will normally take from 2 to 5 minutes to lock on to sufficient satellites to accurately determine the time.

This page left intentionally blank

3. OPERATION

3.1. REAR PANEL CONTROLS

The 1200DD series displays are equipped with an 8 position DIP switch allows the user to select various functions. DIP switch 1 is located at the left of the DIP switch, and the On position is down. Figure 3-1 gives an overview of the DIP switch functions. At the time of writing the DIP switches are not used.

DIP Switch	Function
1	Reserved
2	
3	
4	
5	
6	
7	
8	

Figure 3-1: DIP Switch Functions Overview

3.2. FRONT PANEL CONTROLS

The 1200DD series displays are equipped with three pushbuttons located at the left side of the front panel. They are used to operate the menu system and to control what is currently being displayed on the LED display.

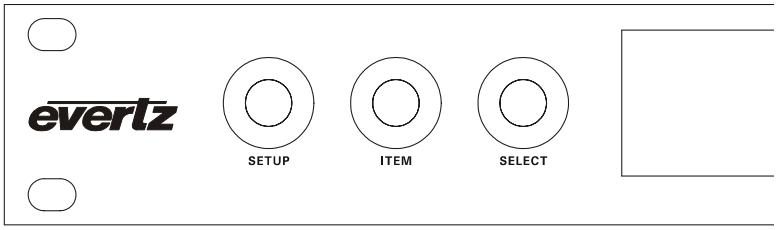


Figure 3-2: 1201DD Front Panel Controls

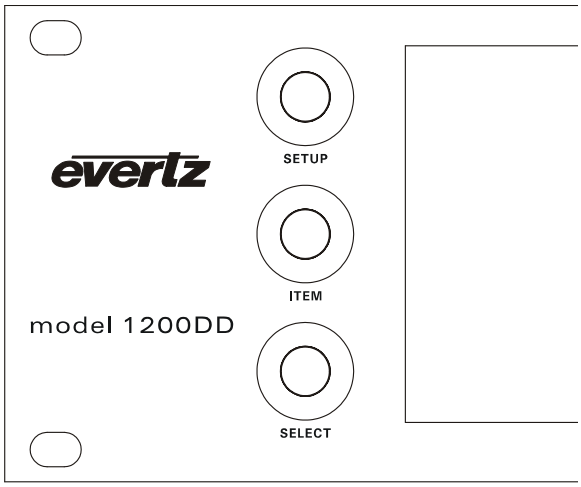


Figure 3-3: 1200DD Front Panel Controls

3.2.1. Pushbuttons

The pushbutton group consists of the **SELECT, ITEM** and **SETUP,** push buttons and is used to navigate the *Setup* menu system.

SETUP Enters the *Setup* menu. When you are in the *Setup* menu the **SETUP** pushbutton is used to move to the next higher sub-menu level or return to normal operation if at the top level of sub-menus.

ITEM When in the *Setup* menu, the **ITEM** pushbutton is used to move to the next item in the menu system. When in the bottom level of the menu the **ITEM** pushbutton is used to change the value of the menu item. When at the bottom level, the display flashes when the active value is shown and stops flashing when inactive values are shown

When not in the *Setup* menu, pressing the **ITEM** pushbutton makes the display brighter.

SELECT When in one of the *Setup* menus the **SELECT** pushbutton is used to move to the next lower sub-menu levels or to select a menu parameter that is to be changed. When at the bottom level of the menu the **SELECT** pushbutton is used to make the displayed parameter value active.

When not in the *Setup* menu, pressing the **SELECT** pushbutton makes the display dimmer.

3.2.2. Front Panel Displays

The main LED display on the 1200DD series displays consists of six 7 segment digits and a two character 14 segment alphanumeric display. In normal display modes the six digits are used to display the time or date. The alphanumeric display is used to display the AM/PM indicator when the time is being displayed in 12 hour mode. The alphanumeric display is used to display the day of the week when the date is being displayed.

When in the Setup menu, the alphanumeric display is used to display menu item, and the six large digits are used as alphanumeric displays to indicate the value of the menu item. Not all of the alphabetic characters can be displayed using the seven segment digits. Figure 3-4 shows the seven segment displays used to represent the various characters. Note that some of the alphabetic displays are identical to some of the numeric displays.

3.3. AN OVERVIEW OF THE SETUP MENU SYSTEM

The key to the operational flexibility of the 1200DD series displays lies in the *Setup* menu system that provides a quick, intuitive method of configuring the display. The *Setup* menu uses the alphanumeric display to show menu items, and the six large digits are used as alphanumeric displays to indicate the value of the menu item.

The *Setup* menu system consists of a main menu with several choices for each menu item. The **SETUP, ITEM,** and **SELECT** pushbuttons are used to navigate the menu.

To enter the *Setup* menu system, press the **SETUP** key. This will bring you to the main *Setup* menu where you can use the **ITEM** key to move down the list of available top level menu items. A two character display in the alpha digits indicates the menu item you are displaying. The six large displays show the active value for that menu item. Once you have chosen the desired top level menu item, press the **SELECT** key to enter the bottom menu level. The six large digits will blink indicating that you are at the bottom level and that you are displaying the active item value.

To adjust any parameter, press the **ITEM** keys to adjust the parameter to its desired value. When you are showing the active value, the six large digits will flash on and off.

When you have selected the desired parameter value press the **SELECT** key to make that value the active value. The six large digits will flash indicating that the value shown is now the active value. Press the **SETUP** key to move back to the top menu level. You can select other items from the top level menu by pressing the **ITEM** key, followed by the **SELECT** key. Alternately you can exit the *Setup* menu by pressing the **SETUP** key.

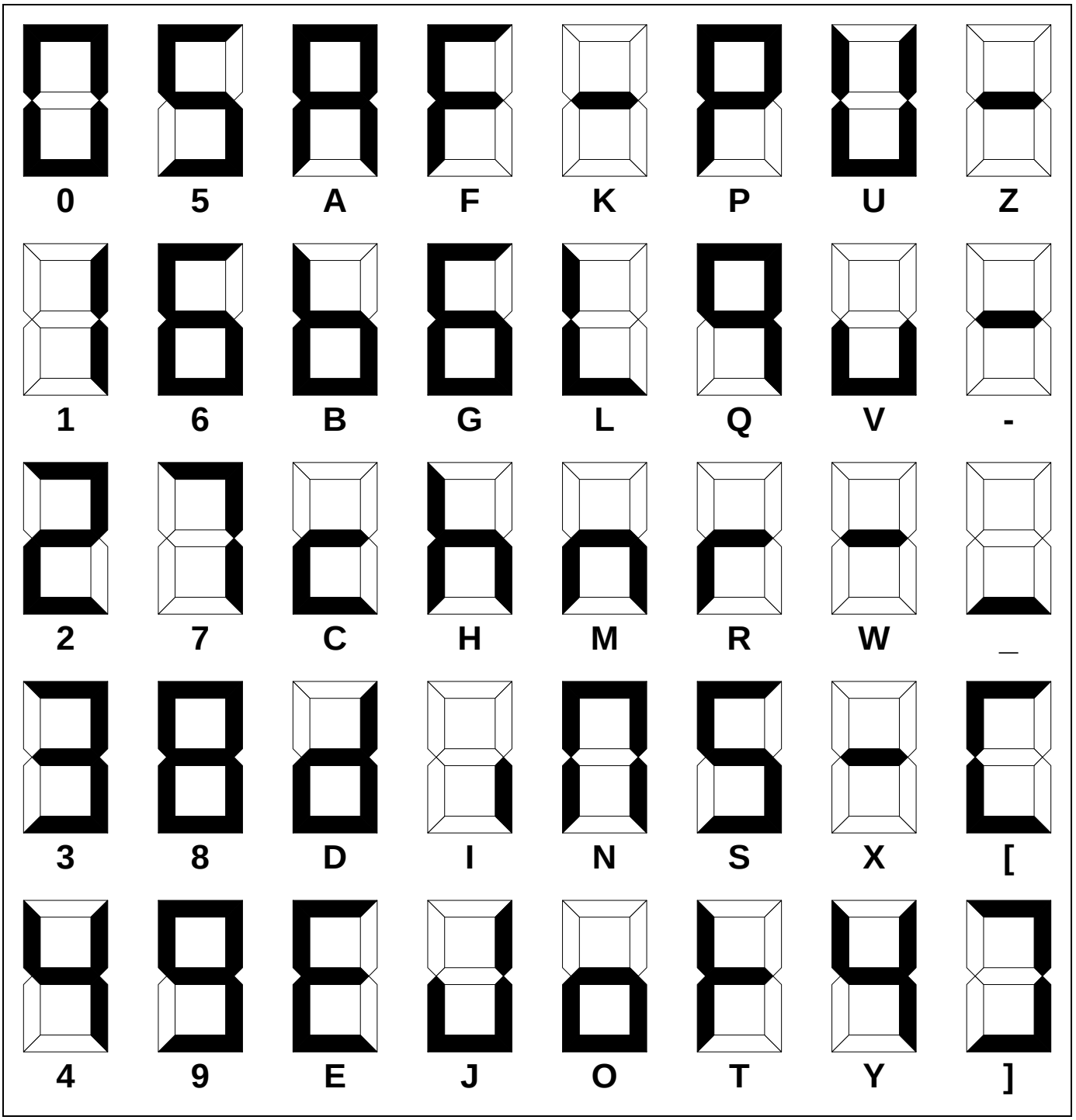


Figure 3-4: Seven Segment Alphabetic Character Displays

3.4. SETUP MENU – TOP LEVEL

The following section gives a brief description of the menu items available when you enter the *Setup* menu. Sections 3.4.1 to 3.4.11 provide detailed descriptions of the *Setup* menus. The tables in these sections are arranged in an indented structure to indicate the path taken to reach the control. Menu items or parameters that are underlined indicate the factory default values.

IP	Configures the input source for the display.
FR	Configures the frame rate of the output LTC.
DF	Configures the date format used to encode dates on the output LTC.
LZ	Configures the output LTC time zone offset.
TZ	Configures the time zone offset.
DZ	Configures the Daylight Saving Time rules.
DS	Configures the time or date display.
TD	Configures the time display format (12 or 24 hour).
DD	Configures the date display format (MM DD YY, DD MM YY, or YY MM DD).
ST	Set the time when there is no input.
SD	Set the date when there is no input.
IC	Configures the Internet Protocol items.

3.4.1. Setting the Input Source

IP
LTC
LTC ND
GPS
IRIG
NTP
NONE

With this menu item, you can select the source of time and date information.

When set to *LTC,* the 1200DD series displays will use time and date information from the LTC input.

When set to *LTC ND,* the 1200DD series displays will use time but not date information from the LTC input. When in this mode, it is important to enter the date manually. This is useful when the data had no date information since this looks like Legacy format date of January 1, 1980.

When set to *IRIG,* the 1200DD series displays will use time and date information from the IRIG B input. . When in this mode, it is important to enter the date manually since IRIG B has no year information in its data stream.

When set to *NTP,* the 1200DD series displays will use time and date information received by NTP from the Ethernet.
When set to *NONE,* the 1200DD series displays will free run on its internal crystal. The user must set the time and date using the *ST* and *SD* menu items. When the power fails, the time will be kept by the battery backed up clock and will be restored on power up.

3.4.2. Setting the Frame Rate of the Output LTC

FR
30
29.97 D
25
24

With this menu item, you can select the frame rate of the output LTC when there has been no timecode input to the display since it was powered up.

When set to *29.97 DF* the output LTC will count in the SMPTE drop frame mode at a frame rate of 29.97 frames per second.

When set to the other values the output LTC will count in the SMPTE non drop frame mode at the selected frame rate.

3.4.3. Setting the Date Format the Output LTC

DF
SP_BCD
SP_MJD
LEGACY

With this menu item, you can select the format of the date encoding in the output LTC.

When set to *SP_BCD* the date will be encoded in the SMPTE 309M BCD mode.

When set to *SP_MJD* the date will be encoded in the SMPTE 309M Modified Julian Date mode.

When set to *LEGACY* the date will be encoded in the Leitch CS5300 date format.

3.4.4. Setting the Time Zone Offset Enable for the Output LTC

LZ
LTC UT
LTC OS
LTC U2
LTC O2

With this menu item, you can select the offset of the output LTC.

When set to *LTD UT* the output LTC will be the same time as the input LTC, IRIG. If the input is GPS or NTP, the LTC output will be UTC time.

When set to *LTC OS* the output LTC will be offset by the time zone offset and any additional offset due to the application of the daylight saving time rules. The LTC time will be the same time as the displayed time.

When set to *LTD U2* the output LTC will be the same time as the input LTC, IRIG, GPS or NTP. The LTC output will be in 12 hour mode. That is the time will go from 00:00:00.00 to 11:59:59 and back to 00:00:00.00 for the following 12 hours.

When set to *LTC OS* the output LTC will be offset by the time zone offset and any additional offset due to the application of the daylight saving time rules. The LTC output will be in 12 hour mode. That is the time will go from 00:00:00.00 to 11:59:59 and back to 00:00:00.00 for the following 12 hours.

3.4.5. Setting the Time Zone Offset

TZ
00:00
..
11:30
12:00
-12:00
-11:30
..
00

With this menu item, you can select the time zone offset that will be applied from the time displayed.

The Time zone offsets can be set from 0 to 23.5 hours in one half our intervals. The time zone offset will be applied when displaying time or date from one of the input sources selected by the *IP* menu item

3.4.6. Setting the Time Daylight Saving Time Rules

Daylight Saving Time (DST) or Summer Time as it is called in many countries, is a way of getting more daylight out of the summer days by advancing the clocks by one hour during the summer. Then, the sun will appear to rise one hour later in the morning when people are usually asleep anyway, at the benefit of one hour longer evenings when awake. The sunset and sunrise are one hour later than during normal time.

To make DST work, the clocks have to be adjusted one hour ahead when DST begins, and adjusted back one hour to standard time when DST ends. There are many countries observing DST, and many who do not. Some countries adjust the clocks by two hours for DST.

During the months March/April to September/October, the countries in the Northern Hemisphere are having their summer and may observe DST, while the countries in the Southern Hemisphere are having winter. During the rest of the year (September/October to March/April) the countries in the Southern

Hemisphere are having their summer and may observe DST, while the countries in the Northern Hemisphere are having winter.

Daylight Saving Time is difficult to predict, as many countries change the transition days/principles every year because of special happenings or conditions that have happened or will happen.

How does the transition to DST start?
Let's say that DST starts at 2:00 am local time and DST is one hour ahead of standard time:

DST start transition		
Local time HH:MM:SS	**DST or normal?**	**Comments**
01:59:58	Normal	
01:59:59	Normal	
03:00:00	DST	DST started, time advanced by one hour
03:00:01	DST	
03:00:02	DST	

Note that local time is never between 2:00:00 - 2:59:59. At the transition from standard time to DST, this hour is skipped and therefore this day has only 23 hours (instead of 24 hours).

How does the transition from DST end?
Let's say that DST ends at 2:00 am local time and DST is one hour ahead of standard time:

DST end transition		
Local time HH:MM:SS	**DST or normal?**	**Comments**
00:59:59	DST	
01:00:00	DST	
01:00:01	DST	
...3556 seconds from 01:00:02 to 01:59:57 daylight saving time not shown...		
01:59.58	DST	
01:59.59	DST	
01:00:00	Normal	Time is turned back to normal
01:00:01	Normal	
...3556 seconds from 01:00:02 to 01:59:57 standard time not shown...		
01:59.58	Normal	
01:59:59	Normal	
02:00:00	Normal	
02:00:01	Normal	

Note that local time between 1:00:00 and 1:59:59 actually is repeated twice this day, first during DST time, then clocks are turned back one hour to normal time, and the hour is repeated during standard time and

therefore this day has 25 hours (instead of 24 hours). To avoid confusion when referring to time within this hour, it is important to tell whether it happened before of after the change back to normal time. For further information about daylight saving time in your area consult the web page http://www.timeanddate.com/time/aboutdst.html.

Because of the variation of daylight saving time rules throughout the world, the 5600MSC has several registers to allow the user to set the DST rules for their region. There is a set of DST registers for the LTC and each of the video outputs. For the sake of simplicity in the manual only the registers for the LTC DST will be described.

The *DZ* menu item, allows you to configure the daylight saving time rules applied to the displayed time. When in *DZ* menu, the 6 numeric displays show "DST", and the alphanumeric display flashes to indicate that there is another level of menus. Pressing select enters the selected menu item.

The following section gives a brief description of the menu items available when you enter the *DZ* menu item. Sections 3.4.1 to 3.4.11 provide detailed descriptions of the *DZ* sub menus. The tables in these sections are arranged in an indented structure to indicate the path taken to reach the control. Menu items or parameters that are underlined indicate the factory default values.

EN	Enables or Disables automatic application of Daylight Saving Time rules
MD	Configures DST Date Entry Mode mode.
SM	Sets DST start month
SW	Sets DST start week
SD	Sets DST start day
SH	Sets DST start hour
EM	Sets DST end month
EW	Sets DST end week
ED	Sets DST end day
EH	Sets DST end hour
OF	Sets number of hours of DST offset

3.4.6.1. Enable Automatic Daylight Saving Time Display

DZ
  EN
  DST ON
  DST OF
	With this menu item, you can enable automatic Daylight Saving Time.
	
	When set to ON, the time will be offset by number of hours offset if the date is between the starting date (Months, Weeks, Days, and Hours), and

the ending date.

When set to OFF, no Daylight Saving Time Offset will be applied.

3.4.6.2. Setting the DST Date Entry Mode

DZ
- *MD*
  - *DST 7*
  - *DST 30*

With this menu item, you can set the date mode for start and end of Daylight Saving Time.

When set to 7, the start and end time will be based on hours of the day, day of the week in units of 1 to 7, and weeks of the month, and month.

When set to 30, the start and end time will be based on hours of the day, day of the month, and month. Start and End Weeks will be ignored.

3.4.6.3. Setting the Beginning and End of Daylight Saving Time

The four *DST start* registers (*SH, SD, SM, SW)* set the DST beginning time and the four *DST end* registers (*EH, ED, EM, EW)* set the DST end time. For the sake of simplicity only the *DST start* registers will be described, although they both operate in the same way.

DZ
- *SM*
  - *ST 1M*
  - *ST 2M*
  - *ST 3M*
  - *ST 4M*
  - *…*
  - *ST 12M*

With this menu item, you can set the start Month for Daylight Saving Time.

The range is 1 to 12, representing January to December.
EN 10M is the default for EM.

DZ
- *SW*
  - *ST 1*
  - *ST 2*
  - *ST 3*
  - *ST 4*
  - *ST LST*

With this menu item, you can set the start week for Daylight Saving Time.

This menu item is only valid if DST Date Entry Mode is 7.
When set to 1, then the first week of the month is selected.
When set to 2, then the second week of the month is selected.
When set to 3, then the third week of the month is selected.
When set to 4, then the fourth week of the month is selected.
When set to LST, then the last week of the month is selected.
EN LST is the default for EW.

DZ
- *SD*
  - *ST 1D*
  - *ST 2D*
  - *…*

With this menu item, you can set the start day for Daylight Saving Time.

If DST Date Entry Mode is 7, then the range is 1 to 7, representing Sunday to Saturday.

If DST Date Entry Mode is 30, then the range is 1 to 31 representing the day of the month. The range is reduced to 28 if starting month is February, and 30 if the Month is April, June, September and November.

- *DZ*
  - *SH*
    - *ST 0H*
    - *ST 1H*
    - *ST 2H*
    - *…*
    - *ST 23H*

With this menu item, you can set the start hour for Daylight Saving Time.

The units are hours. 0H is midnight, 1H is 1AM etc.

3.4.6.4. Setting the DST Offset

- *DZ*
  - *OF*
    - *DST 1H*
    - *DST 2H*

This menu item allows the user to set amount of adjustment to be made when DST is active.
When set to 1, one hour is added to the time display.
When set to 2, two hours are added to the time display.

3.4.7. Selecting the Display Data

- *DS*
  - *TIME*
  - *DATE*
  - *LTC TM*
  - *LTC UB*
  - *STATUS*
  - *SERIAL*

With this menu item, you can select the data to be displayed on the front panel display.

When set to *TIME* the time information from the input source selected by the *IP* menu item will be displayed as HH:MM:SS (six digits with colons). The *TD* menu item selects whether the time will be displayed in 12 or 24 hour format.

When set to *DATE* the date information from the input source selected by the *IP* menu item will be displayed as six digits without colons. The *DD* menu item selects the date display format.

When set to *LTC TM* the time information from the input LTC will be displayed as HH:MM:SS:FF. The frames are shown in the alphanumeric display.

When set to *LTC UB* the user bit information from the input LTC will be displayed as 8 digits without the colons displayed.

When set to *STATUS* the status of the selected input is displayed
The alphanumeric display will show SY, and will flash if unlocked.

DS
- *TIME*
- *DATE*
- *LTC TM*
- *LTC UB*
- *STATUS*
- *SERIAL*

Input Selected.	Display	Meaning
NONE	NO REF	There is no input selected.
LTC	LTC 30	30 Frames per second LTC input found.
LTC	LTC29D	29.97 FPS drop frame LTC input found.
LTC	LTC 25	25 Frames per second LTC input found.
LTC	LTC 24	24 Frames per second LTC input found.
LTC	LTC NO	No suitable LTC input found.
GPS	GPScorr	A correct signal is being received.
GPS	GPS 0b	GPS antenna has not found any satellites.
GPS	GPS 1b	GPS antenna has found 1 satellite.
GPS	GPS 2b	GPS antenna has found 2 satellites.
GPS	GPS 3b	GPS antenna has found 3 satellites.
GPS	GPS nc	GPS antenna is not connected.
IRIG	IRIG IN	An IRIG-B signal as been found.
IRIG	IRIG NO	No suitable IRIG-B signal has been found.
NTP	NTP IN	The clock is syncronized using NTP.
NTP	NTP NO	No suitable NTP server has been found.

When set to SERIAL the display will show data entered through the serial port. If no data has been input through the serial port, the display will show 8 underscores. I.E. "_ _ _ _ _ _ _ _".

To enter data through the serial port, the format is:
Sxxxxxxxx where xxxxxxxx is the data to be entered. For example, to display "5600ddtm" enter "S5600ddtm" to the serial port.
To display the data with the colons turned on, use Cxxxxxxxx. For example to show 12:34:56AM, enter "C123456AM".
Note that this is volatile and will reset back to underscores each time the 1200dd is repowered.
It should also be noted that the first 6 characters are numeric, and not all alphabet characters can be displayed.

3.4.8. Selecting the Time Display Format

TD
- *12 HR*
- *24 HR*

With this menu item, you can select whether the time information will be displayed in 12 hour or 24 hour format.

When set to *12 HR* the time information will be displayed in 12 hour format. The AM or PM indication will be shown in the alphanumeric display.

When set to *24 HR* the time information will be displayed in 24 hour format. The alphanumeric display will be blank unless there is a loss of reference warning which will cause a flashing U.

3.4.9. Selecting the Date Display Format

DD
YYMMDD
MMDDYY
DDMMYY

With this menu item, you can select the date display format.

3.4.10. Setting the Time

ST
00:00:00

With this menu item, you can set the time in the internal clock of the 1200DD. Use the following procedure to set the time. You can press the **SETUP** key at any time to exit the *Set Time* mode without affecting the clock time.

Press the **SELECT** key to begin time entry - all digits blink. Press the **ITEM** key to advance the hours digits – the hours digits stop blinking.

Press the **SELECT** key to adjust the minutes – the hours digits start blinking, minutes digits stop blinking. Press the **ITEM** key to advance the minutes digits.

Press the **SELECT** key to adjust the seconds – the minutes digits start blinking, seconds digits stop blinking but keep running. Press the **ITEM** key to advance the seconds digits. The seconds digits will stop.

Press the **SELECT** key to complete the time entry. All the digits will blink and the seconds digits will start counting as this is now the current time.

Press the **SETUP** key to exit the *Setup* menu and return to the normal display.

3.4.11. Setting the Date

SD
00 00 00

With this menu item, you can set the date in the internal clock of the 1200DD. Dates are always entered in the YYMMDD format regardless of the setting of the *DD* menu item setting.

Use the following procedure to set the date. You can press the **SETUP** key at any time to exit the *Set Time* mode without affecting the clock time.

Press the **SELECT** key to begin date entry - all digits blink. Press the **ITEM** key to advance the year digits – the year digits stop blinking.

Press the **SELECT** key to adjust the month – the year digits start blinking, month digits stop blinking. Press the **ITEM** key to advance the month digits.

Press the **SELECT** key to adjust the day – the month digits start blinking, the day digits stop blinking. Press the **ITEM** key to advance the day digits.

Press the **SELECT** key to complete the date entry. All the digits will blink as this is now the current date.

Press the **SETUP** key to exit the *Setup* menu and return to the normal display.

3.4.12. Setting the Internet Protocol and NTP Rules

DC	Sets DHCP or Static Internet Protocol.
IA	Sets IP Address.
IM	Sets IP Mask.
IG	Sets IP Gateway.
IU	Shows IP in use.
NS	Selects server (1 to 8) to be used in NA setting.
NA	Sets IP Address of NTP server (selected by NS).
TS	Selects trap destination (1 to 4) to be used in TA setting.
TA	Sets IP Address of trap destination (selected by TS).
TE	Enables or disables traps.

3.4.12.1. Set DHCP or Static Internet Protocol

IC
DC
DHCP
STATIC

With this menu item, you can enable dynamic or static networks.

When set to DHCP, the 1200DD will use a DHCP process to obtain its IP address and netmask and gateway from the system server.
When set to STATIC, the 1200DD will use the settings in IA, IM, and IG for IP address, IP netmask and IP gateway.

3.4.12.2. Internet Address Entry Procedure

The following procedure is used to when setting the various IP addresses and net mask. IP addresses are entered in a decimal/dot format. For example, 192.205.22.5 or 255.255.255.0. Each number set between the dots represents 8 bits ('octet') of the IP address, and has a range of 0 to 255.

1. When you enter one of address entry routines (by pressing the **SELECT** button), the display shows: `000___`, with the first 0 flashing. Press the **ITEM** button to advance the flashing digit from 0 to 2, to the message "ERASE" and back to 0. The "ERASE" message is only available on the first digit. If "ERASE" is showing when the **SELECT** is pressed, all of the IP address is set to 0.

2. When you have the correct first digit, press the **SELECT** button and the second digit will flash. Press the **ITEM** button to advance the flashing digit from 0 to 9, or 0 to 5 if the first digit is 2.

3. When you have the correct second digit, press the **SELECT** button and the third digit will flash. Press the **ITEM** button to advance the flashing digit from 0 to 9, or 0 to 5 if the first 2 digits are 25.

4. When you have the correct third digit, press the **SELECT** button to accept the first 'octet'. The display will show `_000__` with the first 0 flashing. You are now ready to enter the second 'octet' of the address. Entry is the same as for the first 'octet', but there is no "ERASE" item.

5. When you have the correct third digit, press the **SELECT** button to accept the second 'octet'. The display will show `__000_` with the first 0 flashing. You are now ready to enter the third 'octet' of the address. Entry is the same as for the second 'octet'.

6. When you have the correct third digit, press the **SELECT** button to accept the third 'octet'. The display will show `___000` with the first 0 flashing. You are now ready to enter the fourth and last 'octet' of the address. Entry is the same as for the second 'octet'.

7. When you have the correct third digit, press the **SELECT** button to accept the fourth 'octet'. If you are entering the NA or TA items, the menu will go up 1 level to facilitate entering multiple addresses.

The sequence is summarized below. The bold items are the flashing digits.

000___	First 8 bit item
0**0**0___	
00**0**___	
_**0**00__	Second 8 bit item
_0**0**0__	
_00**0**__	
__**0**00_	Third 8 bit

__0**0**0_	item
__00**0**_	
___**0**00	Fourth 8 bit item
___0**0**0	
___00**0**	

3.4.12.3. Setting the Internet Address

IC
IA
xxx.yyy.zzz.aaa

With this menu item, you can set the IP address used for static networks.

See section 3.4.12.2 for IP setting instructions. The default is 10.0.0.1

3.4.12.4. Setting the Internet Net Mask

IC
IM
xxx.yyy.zzz.aaa

With this menu item, you can set the IP net mask used for static networks.

See section 3.4.12.2 for IP setting instructions. The default is 255.255.255.0

3.4.12.5. Setting the Internet Gateway Address

IC
IG
xxx.yyy.zzz.aaa

With this menu item, you can set the IP gateway address used for static networks.

See section 3.4.12.2 for IP setting instructions. The default is 0.0.0.0

3.4.12.6. Showing the Internet Address In Use

IC
IU
xxx.yyy.zzz.aaa

With this menu item, you can see the IP address used by the 1200DD for static or dynamic networks.
In dynamic networks, the server allocating addresses will determine the IP in use. This shows address in use if DHCP is selected, and the Internet Address set above if static is selected.

The display will walk through the 4 octets of IP address in a similar method to the setting of IP's, but the ITEM and SELECT buttons will have no effect.

3.4.12.7. Selecting the NTP IP server

IC
NS
1
2
..
8

With this menu item, you can select the server that the NA instruction affects. There are 8 server addresses that can be used.

If the server address indicated by menu item this is set, then there will be an "I" before the number. For example if server 1 and 3 have their IP addresses set, as this item is scrolled through, it would show:

"i1"
" 2"
"i3"
" 4"
" 5"
" 6"
" 7"
" 8"

3.4.12.8. Setting the Server Internet Address

IC
NA
xxx.yyy.zzz.aaa

With this menu item, you can set the IP address used by the NTP lock. Up to 8 IP addresses that can be set. First select the address you want to enter using the NS menu item.

See section 3.4.12.2 for IP setting instructions. The default is 0.0.0.0

When the address is entered, you will be returned to the NS menu above to facilitate entering multiple servers.

3.4.12.9. Selecting the Trap IP

IC
TS
1
2
3.
4

With this menu item, you can select the trap that the TA instruction affects. There are 4 trap addresses that can be used.

If the trap address indicated by this is set, then there will be an "I" before the number. For example if traps 1 and 3 have their IP addresses set, as this item is scrolled through, it would show:
"i1"
" 2"
"i3"
" 4"

3.4.12.10. Setting the Trap Internet Address

IC
TA
xxx.yyy.zzz.aaa

With this menu item, you can set the IP address that the 1200DD will send traps to.
There are 4 IP addresses that can be set. This operates on the one pointed to by TS.

See section 3.4.12.2 for IP setting instructions. The default is 0.0.0.0

When the address is entered, you will be returned to the TS menu above to facilitate entering multiple trap addresses.

3.4.12.11. Enabling traps

IC
TE
On
Off

With this menu item, you can enable trap sending.

When set to On, a trap will be sent to all IP addresses set in Selecting the Trap IP when reference is obtained or lost.

4. TECHNICAL DESCRIPTION

4.1. SPECIFICATIONS

4.1.1. LTC Input

Standard: SMPTE 12M linear time code – 24, 25 or 30 Fps nominal.
Connector: XLR 3 pin female.
Signal Level: 1 V to 4.5 p-p.
Input impedance: > 30K ohm, balanced

4.1.2. LTC Output

Standard: SMPTE 12M linear time code – 24, 25 or 30 Fps nominal.
Connector: XLR 3 pin male.
Signal Level: 1 V p-p.
Output impedance: 100 ohm balanced

4.1.3. IRIG Input

Standard: IRIG 200-95 Format B122
Connector: 3 pin female XLR type connector
Level: 0.2 to 4V p-p, unbalanced

4.1.4. GPS Receiver

Temperature: -30°C to +70°C
Humidity: 95% R.H. Condensing at 60°C
Dimensions: 5.8“ D x 3.9” H (147mm x 100mm)
Cable Options: Standard 50’ (part number WA-T09)
Optional 100’ (order WA-T76)
Optional 400’ (order WA-T11)

4.1.5. Serial Port:

Connector: Female DB-9
Level: RS232
Baud Rate: 57.6 Kbaud
Format: 8 data bits, no parity, 2 stop bits

4.1.6. Ethernet:

Network Type: Fast Ethernet 100 Base-TX IEEE 802.3u standard for 100 Mbps baseband CSMA/CD local area network
Ethernet 10 Base-T IEEE 802.3 standard for 10 Mbps baseband CSMA/CD local area network
Connector: RJ-45
NTP Standard: RFC-1305 compliant, broadcast and server mode support.
Must be referenced to GPS

4.1.7. Time Keeping

Accuracy: < 2 seconds per day with power on, no timecode present.
< 10 seconds / day with power removed.
Time Zone Offset: 0 to 23½ hours in ½ hour increments
Set with menu.

4.1.8. Backup Battery

Type: CR-2032 3 volt lithium cell.
Life expectancy: > 5 years

4.1.9. Electrical

Voltage: 12 VDC powered from auto ranging 100 ⇔ 240 VAC, 50/60 Hz adapter
Power: 15 Watts
Safety: Complies with EU safety directives
EMI/RFI: Complies with FCC Part 15 Class A regulations
Complies with EU EMC directive

4.1.10. Physical

Dimensions:

1200DD: 17" W x 3.5" H x 2.75" D
(483 mm W x 90 mm H x 56 mm D)

1201DD: 17" W x 1.75" H x 2.75" D
(483 mm W x 45 mm H x 56 mm D)

4.2. SERVICING INSTRUCTIONS

CAUTION – These servicing instructions are for use by qualified service personnel only. To reduce risk of electric shock do not perform any servicing instructions in this section of the manual unless you are qualified to do so.

4.2.1. Battery Replacement

The 1200DD series displays are fitted with a 3V Lithium battery type CR2032. This battery is used to power non-volatile memory of some of the display's parameters and time while power is removed from the display. Before attempting to change the battery remove power from the 1200DD series display.

In order to replace the lithium battery you will need to remove the top cover of the display by removing the Philips head screws on the top and one from the front panel. Use the following procedure to change the battery.

1. The battery is located in a socket on the main circuit board.
2. Carefully remove the battery.
3. Replace with a new CR-2032 or equivalent 3 volt lithium cell. Note that the + is up on the battery.
4. Replace the top cover of the display.

CAUTION
Danger of explosion if battery is incorrectly replaced
Replace only with the same or equivalent type

4.2.1.1. Safety Guidelines and Precautions concerning the Use of 3V Lithium Batteries

Please observe the following warnings strictly. If misused, the batteries may explode or leak, causing injury or damage to the equipment.

- The batteries must be inserted into the equipment with the correct polarity (+ and -).
- Do not attempt to revive used batteries by heating, charging or other means.
- Do not dispose of batteries in fire. Do not dismantle batteries.
- Do not short circuit batteries.
- Do not expose batteries to high temperatures, moisture or direct sunlight.
- Do not place batteries on a conductive surface (anti-static work mat, packaging bag or form trays) as it can cause the battery to short.

4.3. UPGRADING THE FIRMWARE

4.3.1. Overview

The firmware in the 1200DD series displays is contained on a FLASH EPROM. From time to time firmware updates will be provided to add additional features to the unit.

You will need the following equipment in order to update the Firmware

- PC with available communications port. The communication speed is 57600 baud, therefore a 486 PC or better with a 16550 UART based communications port is recommended.
- "Straight-thru" serial extension cable (DB9 female to DB9 male) or (DB25 female to DB9 male).
- Terminal program that is capable of Xmodem file transfer protocol. (Such as HyperTerminal)
- New firmware supplied by Evertz.

4.3.2. Terminal Program Setup

1. Connect the serial cable to the COM DB9 connector on the rear panel

2. Connect the 9 pin connector on the end of the serial update cable to the PCs' RS-232 communications port

3. Start the terminal program.

4. Configure the port settings of the terminal program as follows:

Baud	**57600**
Parity	**no**
Data bits	**8**
Stop bits	**2**
Flow Control	**None**

5. Power up the 1200DD series display unit.

4.3.3. Initiating Firmware From The Terminal Program

You may send commands to the 1200DD series displays Boot monitor in order to upgrade the 1200DD series displays application firmware. To initiate firmware uploading from a terminal program follow procedure described in steps 7 to 12.

7. Power up the 1200DD series display. As you apply power to the model 1200DD display press and hold the **SELECT** key. As you apply power to the model 1201DD display press and hold the **SETUP** key. After the unit powers up, a banner with the boot code version information should appear in the terminal window. If the unit continues to boot-up, simply cycle the power and repeat this step. An alternate method is to hold all three buttons SETUP, ITEM and SELECT down for 5 seconds. The display will say, "UPGRADE".

   For example:

```
EVERTZ MFC5407 MONITOR 2.1.3
COPYRIGHT 1997, 1998, 1999, 2000, 2001 EVERTZ MICROSYSTEMS LTD.
COLD BOOT |
```

8. The following is a list of possible reasons for failed communications:

   - Defective Serial Upgrade cable.
   - Wrong communications port selected in the terminal program.
   - Improper port settings in the terminal program. (Refer to step 4 for settings). Note that HyperTerminal will not change port settings while connected. Click on HyperTerminal's "Disconnect" Button then click the "Reconnect" button to activate changes to the port settings.

4.3.4. Uploading The New Firmware

9. You should now see a prompt asking you to upload the file.

10. Upload the "*.bin" file supplied using the X-Modem transfer protocol of your terminal program. If you do not start the upload within 10 minutes the unit's Boot code will time out. You can restart the upgrade process by power cycling the unit.

    The bin file will have a name something like
    1200DD.bin

11. The boot code will indicate whether the operation was successful upon completion of the upload.

    For Example:

```
UPLOAD OKAY
MFC5407 WARM BOOT> |
```

12. The following is a list of possible reasons for a failed upload:

- If you get the message "transfer cancelled by remote" you must restart the terminal program and load the bin file, then remove and install the module again.
- The supplied “*.bin” file is corrupt.
- Wrong file specified to be uploaded.
- Wrong file transfer protocol used – make sure you specify Xmodem, not Xmodem 1K.
- The PCs’ RS-232 communications port can’t handle a port speed of 57600.
- Noise induced into the Serial Upgrade cable.

4.3.5. Completing The Upgrade

13. You can now close the terminal program and disconnect the RS-232 serial cable from the PC.

This page left intentionally blank

5. *VISTA*LINK® CONFIGURATION AND CONTROL

*Vista*LINK® is Evertz's remote monitoring and control capability over an Ethernet network using Simple Network Management Protocol (SNMP). SNMP is a standard computer network protocol that enables different devices sharing the same network to communicate with each other. *Vista*LINK® is used to control the 1200DD series display and also to monitor its status.

There are 3 components of SNMP:

1. An SNMP manager also known as a Network Management System (NMS) is a computer running special software that communicates with the devices in the network. Evertz *Vista*LINK®-C Configuration Utility graphical user interface (GUI), third party or custom manager software may be used to monitor and control Evertz *Vista*LINK® enabled products.

2. Managed devices (such as 1200DD series displays), each with a unique address (OID), communicate with the NMS through an SNMP Agent. The 1200DD series displays communicate directly with the manager using its internal the mini-Agent.

3. A virtual database known as the Management Information Base (MIB) lists all the variables being controlled and which both the Manager and Agent understand. Please contact Evertz for further information about obtaining a copy of the MIB for interfacing to a third party Manager/NMS.

5.1.1. Connecting the 1200DD Series Display to *Vista*LINK®

Follow the instructions in section 2.1.2 to connect the 1200DD series display to the Ethernet network. Once you have established a physical connection you will need to set up the IP address, subnet, and SNMP TRAP destination addresses of the 1200DD series display using the procedure outlined in section 3.4.12.

5.1.2. Installing *Vista*LINK®

In order to control the 1200DD series display, you will need at version 10.3.123 or later of the *Vista*LINK®-C configuration tool. If you received the *Vista*LINK® Toolkit CD-ROM with the 1200DD series display, insert it into the PC's CD-ROM drive. In a few seconds a screen will appear with a menu guiding you through the *Vista*LINK® installation. You want to press the button to install the *Vista*LINK-C Configuration tool.

If you have an older version of *Vista*LINK®, or you are upgrading firmware in an existing 1200DD series display and do not have *Vista*LINK® contact the Evertz customer support department to receive your free copy of the *Vista*LINK®-C Configuration utility.

5.1.3. Using *Vista*LINK® to Configure the 1200DD series display

The 1200DD series displays should be auto-discovered by *Vista*LINK® PRO and appear under the *Hardware* section of the *Vista*LINK® PRO Navigation Tree named with its given IP Address. If the 1200DD series display is not auto-detected (because it is on another subnet) it can be manually added by right clicking the *Hardware* node and selecting *Add/Update frame*.

Right click the discovered 1200DD series display to open the *Configuration View* screen. The screen is broken into eight tabs. To view the other screens, click on the appropriate tab of the configuration screen. Figure 5-1 shows the General Settings screen and Figure 5-2 shows the IP Address settings screen.

Once you have finished configuring the 1200DD series display items on the configuration screen you can save the configuration in VistaLINK®. You can also send it to the 1200DD series display by pressing the *Apply* button on the VistaLINK® toolbar.

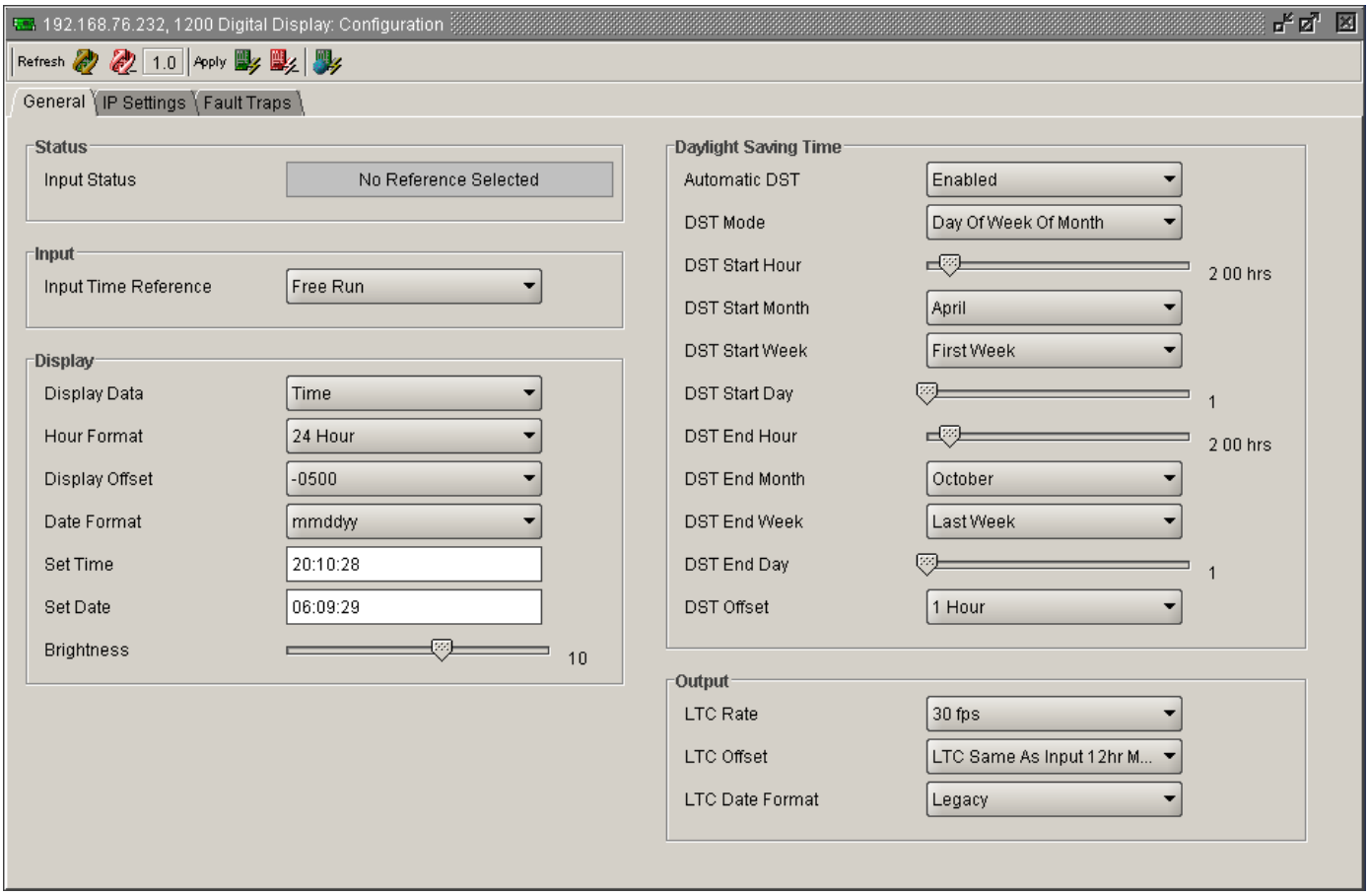


Figure 5-1: VistaLINK® Configuration - General Settings

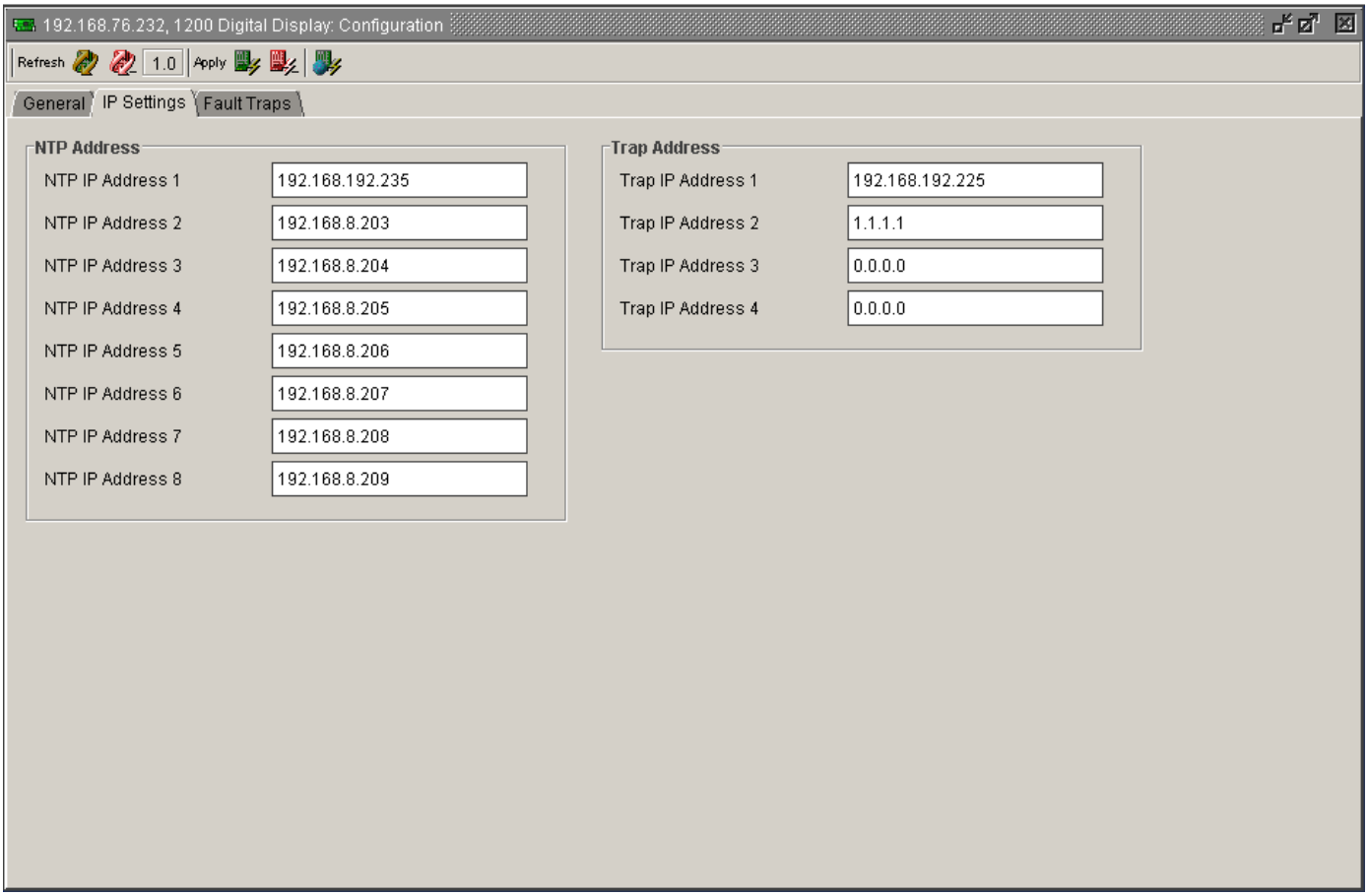


Figure 5-2: VistaLINK® Monitoring – NTP and Trap Settings

5.1.4. Using *Vista*LINK® to Enable the Fault Reporting Traps of the 1200DD series display

Figure 5-3 shows the tab used to determine which trap messages will be sent by the 1200DD series display.

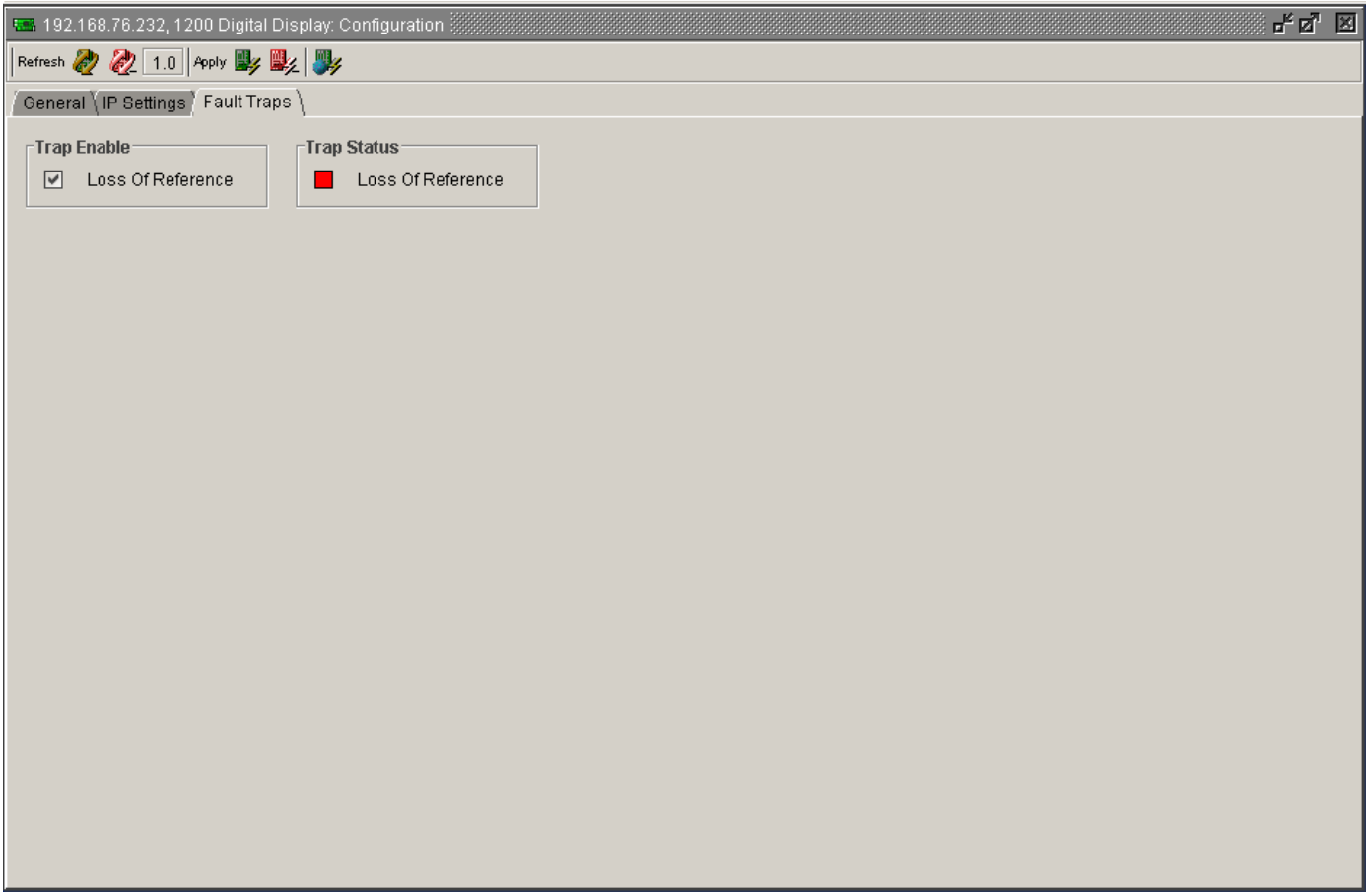


Figure 5-3: VistaLINK® Monitoring –Faults