Serial server / UPS

Operator's guide

Part MAN-ELP-0047

Designed and manufactured by
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1 Introduction

The Güralp serial server/UPS unit is a quick and simple way to connect Güralp digitizers and digital instruments to your network, based on the Lantronix X-Port.

The unit runs from a mains (outlet) power supply, and outputs serial streams directly over a TCP/IP connection. Scream! includes a facility for reading this kind of data stream.

These streams are *not* the same as Scream! server connections. The Scream! server runs over UDP/IP, and includes additional data integrity checks. If you need to run a Scream! server, you should either have a copy of Scream! running on a local PC which can do this, or use a Güralp DCM.

The unit also contains a rechargeable battery which can ensure an uninterrupted supply of power to the instrumentation for at least 12 hours. This battery is automatically trickle-charged when mains power is available.

2 Connections

The communications ports are located on one side of the unit.

- The *DATA IN* port is a 10-pin mil-spec socket, which should be connected directly to the output port of a Güralp digitizer or digital instrument. In addition to data, power for the instrument is also carried over this connection.

- The *RS232* port is a 9-pin D-type serial connector, for connection to a local computer. When this port is active, the Ethernet converter is disabled.

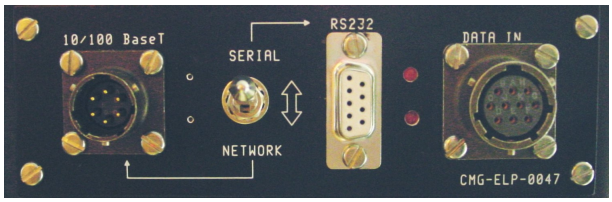
- The *10/100 BaseT* port is a 6-pin mil-spec plug, which should be connected to your network with a Güralp Ethernet cable. If you want to connect the unit directly to a PC, you will need a "cross-over" or null modem cable, available separately from Güralp Systems. When this port is active, the serial pass-through facility is disabled.

- The *Serial*/*Network* switch determines which of the above two ports is active. The switch latches into position when you release it, so that it cannot be inadvertently flipped. To change the setting, pull the switch outwards before moving it.

In addition to these ports, there is a standard 3-pin mains connector on the other side of the unit. This should be connected to a 110 – 240 V AC supply.

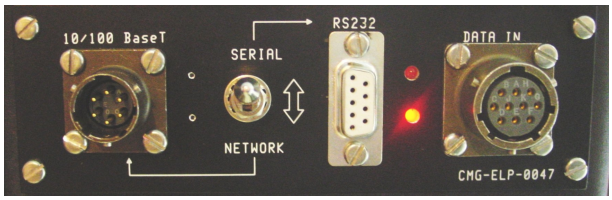
The LEDs on the side of the unit, between the two serial ports, display the current power status.

- When the unit is not using any power source, neither LED is lit.

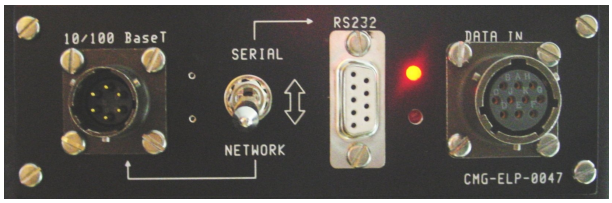
- 

  The unit will only draw power if the switch is set to *Network* or if an instrument is connected.

- When the unit is connected to the mains, the lower LED will be lit.



- When a sensor is drawing power from the battery, the upper LED will be lit.



  If the battery has too little charge remaining to run the sensor, the upper LED will not light. You should return the unit to mains power immediately to avoid losing too much data.

Two more LEDs, between the *10/100BaseT* port and the *Serial/Network* switch, indicate the status of the network interface. These will only be active when the switch is set to *Network*.

3 Installation

3.1 Connecting over the network

You will need a PC and the Lantronix DeviceInstaller utility to set up the XPort device for your network. The Lantronix DeviceInstaller utility can be downloaded (5 Mb) from the Lantronix web site at

```
http://www.lantronix.com/device-networking/utilities-tools/device-installer.html
```

This program requires the Microsoft .NET framework version 1.1 or later. This library is supplied as standard with Microsoft Windows XP. If you are running an earlier version of Windows, you may need to download it (23 Mb) from the Microsoft web site, or through Windows Update.

To install the server:

1. Connect a 110 – 240 V AC mains (outlet) power supply to the mains connector.

   The bottom LED between the serial ports will light, denoting that the unit is running from mains power.

2. Set the *Serial*/*Network* switch to *Network*.

   If the mains power supply is interrupted, the unit will switch to battery power, assuming there is sufficient charge in the battery to drive the network interface. If there is not, any network connections will be lost. You will need to restore the mains power to recharge the battery.

3. Connect your instrumentation to the *DATA IN* port.

   If the mains power supply is interrupted, the top LED between the serial ports should light, denoting that the instrument is drawing power from the battery.

4. Connect the *10*/*100BaseT* port to your network, or directly to a PC using a “cross-over” cable.

5. *If a DHCP server is running on your network*, it may assign the serial server an IP address automatically. If you can find out this

address, skip to step 16.

6. Start the PC, and run the Lantronix DeviceInstaller utility. If your PC has more than one network adapter, select the one connected to the correct network and click **OK**.

7. Click **Search**, and select the unit from the list of servers discovered by the utility.

8. If the unit appears in black, it already has an IP address (possibly assigned by your DHCP server.) Check that the IP address is correct, and skip to step 14. If the IP address shown is not in the range you expect, click **Assign IP** and skip to step 10.

9. If the unit appears in red (with the label *Unreachable*), click **Assign IP**.

10. If you are prompted, enter the MAC address of the device under *Device Identification*. The MAC address is printed on the label on top of the unit. Click **Next**.

11. Select *Assign a specific IP address* and click **Next**. (*Alternatively*, to query a DHCP server, select *Obtain an IP address automatically*, check the settings, click **Next**, and skip to step 14.)

12. In the next page, enter the IP address and subnet mask you want to use for the unit. Also enter the default gateway if required. On local networks, you can normally leave this setting at `0.0.0.0`.

13. Click **Assign**, and wait for the unit to configure itself. When the confirmation message appears, click **Finish**.

14. Select the device from the list in the main window, and choose **Tools → Ping** from the menu. Ping replies should appear in the *Status* area below.

15. Click **Close**.

16. Browse to the serial server's Web site, either by clicking the **Web** icon in the DeviceInstaller utility, or by entering its IP address into your browser:

    ```
    http://192.168.123.45/
    ```

    Your browser must support Java for this to work.

17. Use the *Menu* buttons on the left to navigate the site. In particular, make sure that the *Serial Port Settings* are set to the correct values to communicate with your digitizer.

18. Click the **Update Settings** button when you are done.

19. Run Scream!, and choose **Windows → Network Control** from the main window to open the *Network Control* window.

20. Switch to the *My Client* tab, and right-click in the server list below.

21. Choose **Add TCP Server...**.

22. Enter the IP address and port number on which the server is waiting for requests, separated by a colon **:** (*e.g.* `192.168.42.98:10001`). If you have not altered it in the server's configuration, the port number will be 10001.

23. Test communications by right-clicking on the newly-added server entry, and selecting **Connect**. If communication is good, the *Status* column will change to *Connected.*

24. Check that data streams appear in Scream!'s main window.

25. To disconnect from the server, right-click on its entry and select **Disconnect**. Scream! automatically disconnects from all connected servers when it exits.

    If the server loses power, either because the battery has run down or because the panel switch on the unit is flipped to *Serial*, the data connection will be lost. You will need to **Disconnect** Scream! from the server, and then **Connect** once more to start receiving data.

3.2 Connecting over a serial link

1. Set the *Serial*/*Network* switch to *Serial*.

2. Connect a 110 – 240 V AC mains (outlet) power supply to the mains connector.

   The bottom LED between the serial ports will light, denoting that the unit is running from mains power.

3. Connect your instrumentation to the *DATA IN* port.

4. Connect the *RS232* port to your PC or other serial device.

5. Start the PC, and run Scream!. Configure the serial port. The *RS232* port duplicates the pins of the *DATA IN* port, so the baud rate and other settings depend on the digitizer's configuration.

6. Check that data streams appear in Scream!'s main window.

Appendix A Connector pinouts

Appendix A.1 *10-100BaseT* port

This is a standard 6-pin mil-spec plug (02E-10-06P).

Pin	Function
B	Data transmit +ve (RJ45 pin 1)
C	Data receive +ve (RJ45 pin 3)
E	Data receive –ve (RJ45 pin 6)
F	Data transmit –ve (RJ45 pin 2)

Appendix A.2 *RS232* port

This is a 9-pin D serial socket. The pinouts are reversed relative to the standard, allowing you to connect a straight-through serial cable between the connector and a standard serial port.

Pin	Function
1	CD – Carrier detect
2	TXD – Data transmit
3	RXD – Data receive
4	DSR – Data set ready
5	GND – Ground
6	DTR – Data terminal ready
7	CTS – Clear to send
8	RTS – Request to send
9	RI – Ring indicator

Appendix A.3 *DATA IN* port

This is a standard 10-pin mil-spec socket (02E-12-10S). The pinout is such that the port can be connected to the serial output of a DM24 digitizer using a straight-through cable.

Pin	Function
A	Power 0 V
B	Power +10 to +35 V
C	RS232 RTS
D	RS232 CTS
E	RS232 DTR
F	RS232 DSR
G	RS232 ground
H	RS232 CD
J	RS232 transmit
K	RS232 receive