

# Connecting Sun Electronic Systems temperature cycling chambers and stand-alone controllers to an Ethernet network using a Lantronix UDS1100 serial to Ethernet device

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# **INTRODUCTION:**

This guide demonstrates how to connect and control Sun Electronic Systems products from a network connection. It is intended for users who wish to connect their Sun product to an existing network or to allow users to continue using their existing RS232 applications on a PC without RS232 COM ports. This example should be used as a guide. For specific details, consult user documentation for you serial to Ethernet device.

## **REQUIREMENTS:**

- 1. A Sun Electronic Systems product such as the EC1X/0X/1.3W/127 chamber or PC1000, PC100, PC100-2, TC02 standalone controllers.
- Minimum 3-wire cable with DB25M on both ends for the EC1X/EC0X/1.3W/127 chambers, PC1000 and TC02 stand-alone controllers OR

Minimum 3-wire cable with DB25M on one end and DB9M for connecting to the PC100 and PC100-2 controllers.

- 3. Serial to Ethernet device such as LANTRONIX model UDS1100 or similar (purchased separately).
- 4. Lantronix drivers (comes with device):
  - a. Device Installer software (to assign IP and configure serial settings for UDS device)
  - b. COM port redirector software (driver to re-direct data from virtual COM port to Ethernet port)
- 5. RS232 software to communicate/control chamber with. This can be the users existing RS232 software, RS232 Demo from <u>www.sunelectronics.com</u>, terminal emulation software such as Windows Hyperterminal, Tera Term etc.



Serial to Ethernet device (UDS1100 or similar)

PC used to control chamber

Diagram 1. Example connection of Sun chamber with serial to Ethernet device such as the UDS1100

## **GENERAL PROCEDURE:**

The general procedure to get started controlling your Sun product over a network connection is as follows (for complete details, see UDS user guide). This example assumes a Lantronix UDS1100 single port serial to Ethernet device is used to connect to a simple LAN:

1. Construct or purchase an RS232 cable (3 wires minimum) wired according to the diagram below:

UDS110 DB25 M	0 IALE	EC1X/0X//127/1.3w/PC1000/TC02/TC01 DB25 MALE
(2) RX	←	(2) TX
(3) TX		→ (3) RX
(7) GND	)	(7) GND
OR		
UDS110 DB25 M	0 IALE	PC100/PC100-2 DB9 MALE
(2) RX	←	(3) TX
(3) TX		→ (2) RX
(3) TX (7) GND	·	→ (2) RX (5) GND

- 2. Connect RS232 cable from the Sun product to the UDS 1100 device server.
- 3. Connect an Ethernet cable from the RJ45 port on UDS 1100 to an existing network connection (router).
- 4. Supply power to the UDS 1100 device using power supply included with device.
- 5. Supply power to Sun chamber/controller.
- 6. Install the Redirector and Device Installer software that came with the UDS device.
- 7. Configure the UDS device as follows (see UDS user guide for complete details):
- Use the Device Installer software to assign an IP address for the UDS (see user guide of UDS device for details). The default IP of device is 0.0.0.0, which will cause it to automatically assign itself an IP address if attached to a DHCP server (router must be set up for DHCP). If necessary, you can connect to the UDS with the serial cable provided by LANTRONIX and, using terminal emulation software such as hyperterminal, you can configure the IP address for 0.0.0.0 to allow the device to auto-assign an IP address or assign one manually if necessary.

- Once the UDS can be recognized by the Device Installer software and an IP address assigned, the device can be selected from the list and configured using the web configuration tool.
- The default network and server parameters will usually suffice, the channel 1 serial settings should be set up as follows:

Protocol: RS232
Baud rate: Same as chamber/controller (see SDEF or MENU for current baud rate of chamber/controller)
Data bits: 8
Flow control: none
Parity: none
Stop bits: select 1 for most boards (REV E and earlier) select 2 for REV G and later

• See the screen shots below for the remaining parameters. These values might need modification depending on the type of network the device is installed on. See network administrator for assistance.







- 8. Configure the Lantronix COM port redirector software (ver 4.x):
  - Run the Lantronix  $\rightarrow$  CPR Manager application
  - Select Device  $\rightarrow$  Search from the menu to search for UDS device
  - The device should appear at the bottom of the screen.
  - Select the ComPort  $\rightarrow$  Add and Remove from menu
  - Select an available ComPort and click OK.
  - Select the Com Port that was just created and double click the IP address of the UDS at the bottom of the screen.
  - Click on the SAVE icon to save this configuration.
  - Start communicating with chamber/controller using custom RS232 application, Sun RS232 demo (found at <u>www.sunelectronics.com</u>) or terminal emulation software such as Hyperterminal, Tera Term etc.

#### \*\*\*SET UP IS COMPLETE UNLESS YOU HAVE AN OLDER VERSION OF THE REDIRECTOR SOFTWARE\*\*\*

- 9. Configuration for older versions of the Lantronix Redirector software (ver 3.x):
- Use COM Setup to select an available virtual COM port to be redirected.
- Select ADD IP to enter the IP address and TCP port. The IP address of the UDS device is obtained from the Device Installer software and the TCP port should be 10001 for channel 1 and if using a 2 channel UDS device, channel 2 will be 10002.
- Select Port Settings and check RAW MODE.

🔁 Lantronix Redirector Configuration				
Advanced C <u>o</u> m Setup Silent Mode	Port Configuration Redirect COM3 To: 192.168.0.159:10001	Move <u>Up</u> Move Do <u>w</u> n Add I <u>P</u>		
Chebury II.	Port Settings Web Configuration	<u>R</u> emove		
Status: Jidle	Disconnect Help Save Close			

Port Settings	×	
Timeout Reconnect  Server Reconnect  Inband Listen  Connection Timeout  OK Can	<ul> <li>Force v2 Protocol</li> <li>No Net Close</li> <li>✓ Raw Mode</li> <li>✓ Reconnect Limit</li> <li>Cel <u>H</u>elp</li> </ul>	
IP Service Setup	X	
Host: 192.168.0.159		Enter IP address assigned to your UDS here
OK Canc	el	

10. Start communicating with chamber/controller using custom RS232 application, Sun RS232 demo (found at <u>www.sunelectronics.com</u>) or terminal emulation software such as Hyperterminal, Tera Term etc.

NOTES:

- When using an existing application, be sure that the virtual com port selected in the redirector software is incorporated into the code when opening the com device.
- The chamber/controller connected to the UDS1100 device can be accessed from any computer on the LAN that has the com port redirector software installed. However, only **one computer** on the network can connect to the device at a time.