Serial-Stat™

XC-LAN232 Ethernet Add-On Adapter

TCP/IP (Internet Protocol) Addressable Interface

Enables XCI Systems on Any TCP/IP LAN

(1) RS-232C and (1) 10BaseT Port

GENERAL DESCRIPTION

The XC-LAN232 is a complete Local Area Network adapter designed to work the XC-SSA family of serial communications controllers. The XC-LAN232 includes all of the necessary intelligence to enable Plug-N-Play capability between any 10BaseT LAN and any XCI Thermostat network. The LAN232 allows simple integration with any XCI Network and a personal computer. One RS-232C and one 10BaseT port is included with the adapter for complete versatility of environments. The unit ships complete with a power supply and a 10BaseT LAN connection cable. Also included is XCI's ComPort redirector software that allows the Com port on the host PC to be automatically redirected to the TCP/IP address selected for the XC-LAN232 adapter. Installation and set-up takes only minutes to complete. With the TCP/IP addressing, any XCI network can now be accessed over the Internet!

Standard Features

Hardware

- One RS-232 Serial Port; 25 pin female Sub-D jack
- One 10BaseT Port; standard RJ-45 receptacle
- 10BaseT Network Patch Cord Included
- 9-25 Pin Serial Cable included for connection to any XC-SSA Network Controller
- Separate 12VDC power transformer included
- Firmware updates can be done with the TFTP protocol over the LAN or Internet
- Rugged aluminum case with mounting wings
- Advanced protection circuitry for data inputs/outputs
- Full TCP/IP addressing allowed for connection to any networks of any size

RS-232 Features

- Connects directly to the Network Controller Modem port

10BaseT Features

- Standard 4-wire RJ-45 cable allows direct connection to any 10BaseT hub
- Supported transparent network connections include TCP/IP (binary stream) or Telnet protocols.
- Firmware updates can be done with the TFTP protocol.

Software/Manuals

- XCI ComPort Redirector software included
- Redirector software allows virtual Com port connection to the assigned XC-LAN232 TCP/IP address
- Installation Manual and System Administrator Manual included
- All Manuals/Software/Application Notes available on the web site

Note : Specifications subject to change without notice.

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P/N 220053-001

XC-LAN232 Hardware Setup Guide

Rev A – 03/19/2004

Getting Started

This document will provide a step-by-step setup procedure to connect the XC-SSA(x)/CLK to an Ethernet network using the XC-LAN232 Device.

What You Will Need

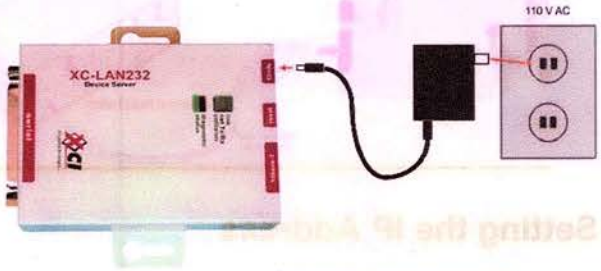
1. PC or Laptop w/ Windows 98,NT,2000, or XP and one Serial Port.
2. XC-LAN232 Device and Cables provided [DB25-DB9 Serial Cable, RJ45 Ethernet Patch Cable]
3. XCI Software & Documentation CD [Provided w/ XC-SSA(x)/CLK]
4. Information needed from the IT Department or Network Administrator (see below table).

What to Ask For:	Example	Your Information
Static IP Address on the LAN (Local Area Network)	66.238.8.44	
Default Gateway IP Address	66.238.8.1	
Subnet Mask (NetMask)	255.255.255.0	

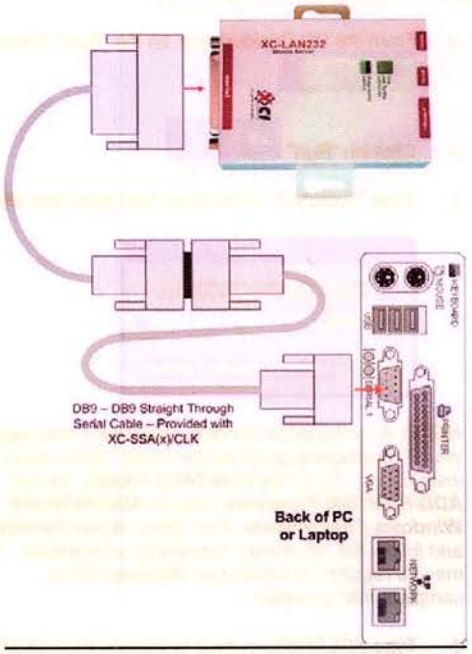
**For more information on Ethernet refer to 'XC-LAN232 Hardware Installation Guide'*

Connecting the XC-LAN232 Device

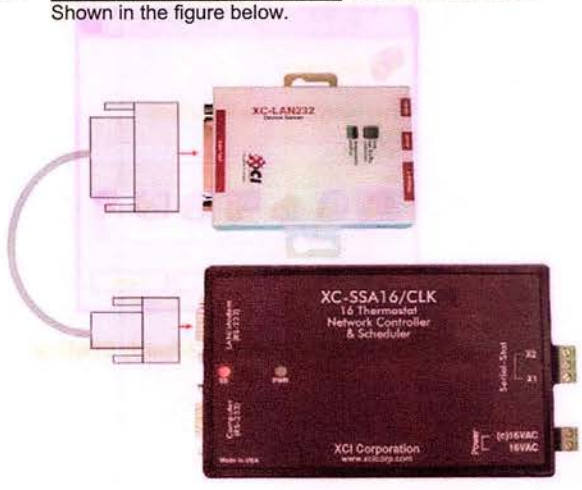
1. **Power Connection**



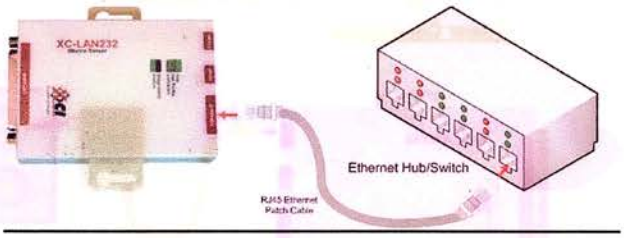
2. **Connecting directly to your PC/Laptop for Configuration** use the provided DB25-DB9 Cable as shown in the figure below. [The DB9-DB9 Cable provide with the XC-SSA(x)/CLK can be used to extend the length of this cable where needed.]



3. **Connection to XC-SSA(x)/CLK** for normal operation. Shown in the figure below.



4. **Ethernet Connection** to Switch or Hub. (Figure 1.4)



Setting the IP Address

1. **Running HyperTerminal**
   Any Terminal Emulation Software can be used; however; HyperTerminal is built into Windows so the example below shows how to use HyperTerminal to configure the IP Address of the XC-LAN232 Device. Refer to the above section about "***Connecting the XC-LAN232 Device directly to your PC/Laptop for Configuration***"

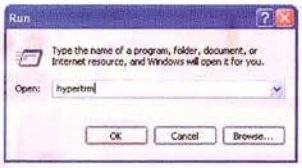
   a. From the PC Desktop click on the "Start" Menu

   b. Click on "Run"

   c. Type "hypertrm" in the blank field and Click OK.

   NOTE: *If, at this point Windows displays a message that "This program could not be found," follow these instructions: Go to the* ***CONTROL PANEL*** *then to* ***ADD/REMOVE Programs****, then to* ***ADD/REMOVE Windows Components****, then Select* ***HyperTerminal*** *and follow the 'on-screen' installation instructions. You may be required to insert your Windows CD to complete this operation.*

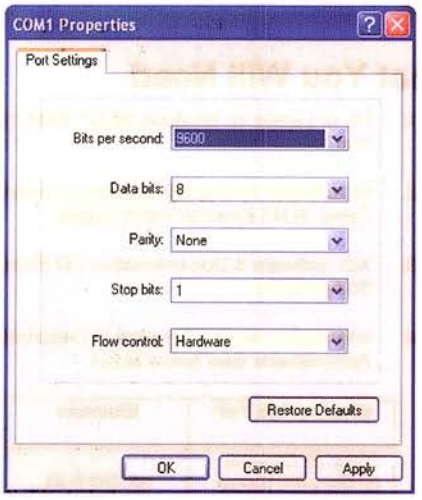
   d. Type XCLAN232 in the Connection Description Window and Click OK

   e. Select Proper COM Port (Usually COM1 or COM2) and Click OK.

   f. On the Properties Window select the following and Click OK:

Bits Per Second	**9600**
Data Bits	**8**
Parity	**NONE**
Stop Bits	**1**



   g. At the bottom left hand side of the HyperTerminal Window it should indicate "Connected"

2. **Powering Up the Unit**
   Please read the entire section about powering up the XC-LAN232 before continuing.

   a. If the XC-LAN232 is powered up already, unplug the power cable from the XC-LAN232.

   b. With the HyperTerminal Window open, hold down the 'X' key on the keyboard and plug the power cable into the XC-LAN232 at the same time.

c. On the HyperTerminal Window you will see:

```
**
Serial Number 6621020  MAC address 00:20:4A:66:52:1C
Software version 04.5 (011025)
Press Enter to go into Setup Mode
```

d. Press ENTER on the keyboard within 5 seconds to go to Setup Mode

e. On the HyperTerminal Window you will see some information scroll by and at the bottom there will be the following Menu:

```
Change Setup  : 0 Server configuration
                1 Channel 1 configuration
                5 Expert settings
                6 Security
                7 Factory defaults
                8 Exit without save
                9 Save and exit                 Your choice ? 0_
```

3. Entering the IP Address

a. From the Main Menu (in the above figure) press '0' then ENTER on the keyboard.

```
IP Address : (192) _
```

b. Type in the digits BEFORE the **first** decimal of the IP Address to be used for this XC-LAN232 Device and press ENTER.

```
IP Address : (192) 66.(168)
```

c. Type in the digits BEFORE the **second** decimal of the IP Address to be used for this XC-LAN232 Device and press ENTER.

```
IP Address : (192) 66.(168) 238.(000)
```

d. Type in the digits BEFORE the **third** decimal of the IP Address to be used for this XC-LAN232 Device and press ENTER.

```
IP Address : (192) 66.(168) 238.(000) 8.(010)
```

e. Type in the digits AFTER the **third** decimal of the IP Address to be used for this XC-LAN232 Device and press ENTER.

```
IP Address : (192) 66.(168) 238.(000) 8.(010) 44
Set Gateway IP Address (N) Y
```

4. Entering the Gateway Address

a. After the IP address had been entered the HyperTerminal Window will display the question shown in the above example image. Type 'Y' as shown and press ENTER.

b. Type in the digits BEFORE the **first** decimal of the Gateway Address to be used for this XC-LAN232 Device and press ENTER.

```
Gateway IP addr (000) 66_
```

c. Follow the same process as entering the IP Address from the above section to complete the entering of the Gateway Address. After pressing enter for the last set of digits, the below message should appear.

```
Gateway IP addr (000) 66.(000) 238.(000) 8.(000) 1
Netmask: Number of Bits for Host Part (0=default) (08)
```

5. Entering the Subnet Mask (Netmask)

a. When the above message is displayed, refer to the below table to determine the number to enter that corresponds to the Netmask to be used for this XC-LAN232 Device. (The most common Netmasks are highlighted)

Netmask	Host Bits
255.255.255.252	02
255.255.255.248	03
255.255.255.240	04
255.255.255.224	05
255.255.255.192	06
255.255.255.128	07
255.255.255.0	**08**
255.255.254.0	09
255.255.252.0	10
255.255.248.0	11
...	...
255.255.0.0	**16**
...	...
255.128.0.0	23
255.0.0.0	**24**

b. Once the 'Host Bits' that correspond to the correct Netmask have been determined, enter the Host Bit value in the HyperTerminal Window as shown below and press ENTER.

```
Netmask: Number of Bits for Host Part (0=default) (08) 08_
```

c. After pressing ENTER, a message will ask if Telnet Config Password is to be Changed, **press 'N'** as shown in the example image below (Sec. 6a)

6. Save and Exit

a. Shown below, is the Main Menu that will appear in the HyperTerminal Window after the above process of configuring all Ethernet Information is complete. Type a '9' and press ENTER on the keyboard to Save and Exit.

```
Change telnet config password (N) N

Change Setup  : 0 Server configuration
                1 Channel 1 configuration
                5 Expert settings
                6 Security
                7 Factory defaults
                8 Exit without save
                9 Save and exit                 Your choice ? 9
```

b. A conformation "Parameters Stored..." Message will appear, followed by an "*" on the next line in the HyperTerminal Window. At this point HyperTerminal can be closed.

c. Refer to the above section about "***Connecting the XC-LAN232 Device to the XC-SSA(x)/CLK***" and complete this procedure.

Troubleshooting

1. **Check Connections**

   a. Power Connection – Make sure the power connection is secure and is plugged into an active outlet in the wall or on a power strip. The green power light on the XC-LAN232 Device should be on.

   b. Ethernet Connection

      i. Connection on XC-LAN232 Device – The Link Light should indicate if the device has a good connection to the Ethernet Hub/Switch it is connected to on the Network.

      ii. Connection to Ethernet Switch/Hub – Most Hubs and Switches come equipped with a "Link Indication Light." If you are not sure where the Ethernet Switch/Hub is, ask the Network Administrator.

   c. XC-SSA(x)/CLK Connection – Make sure the provided DB9-DB25 cable is securely connected to the **LAN/Modem Port** on the XC-SSA(x)/CLK.

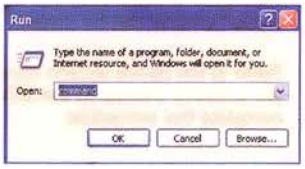
2. **Pinging**

Ping is a simple utility that sends "packets" of data to the XC-LAN232 and waits for a response to verify that a PC connected to the network can "see" the XC-LAN232.

   a. From the PC Desktop click on the "Start" Menu

   b. Click on "Run" 

and type "command" in the blank field and Click OK.



   c. When the Command Window Appears type: **ping [ip address of XC-LAN232]** and press ENTER. Potential Results shown in the figure below.

      i. If the response: "**Reply from [ip address of XC-LAN232]**" appears in the Command Window, the device is configured correctly and talking to the Ethernet Network. If there are still problems communicating with the XC-SSA(x)/CLK, refer to the XCI DeviceComm Manager Overview or the XC-SSA(x)/CLK Installation Manual.

      ii. If the response: "**Request timed out**" appears in the Command Window, either the IP Address has not been set correctly in the XC-LAN232 Device or the Ethernet Connection with the Network has not been established.

3. **Web Browser**

   a. From the desktop of a PC or Laptop that is on the same Ethernet Network as the XC-LAN232 [you can ensure that this is the case by pinging the device as in the example above] open Internet Explorer

   b. In the "Address Bar" of Internet Explorer, type http://[IP Address of XC-LAN232 Device]/ Example:

   c. If a Java Plug-in is already installed, the device is ready to be configured using the menus in the Browser window. If a Java Plug-in is not yet installed, go to http://www.java.com/en/download/windows_automatic.jsp

4. **Further Information**

   a. ***XC-LAN232 Hardware Installation Guide***

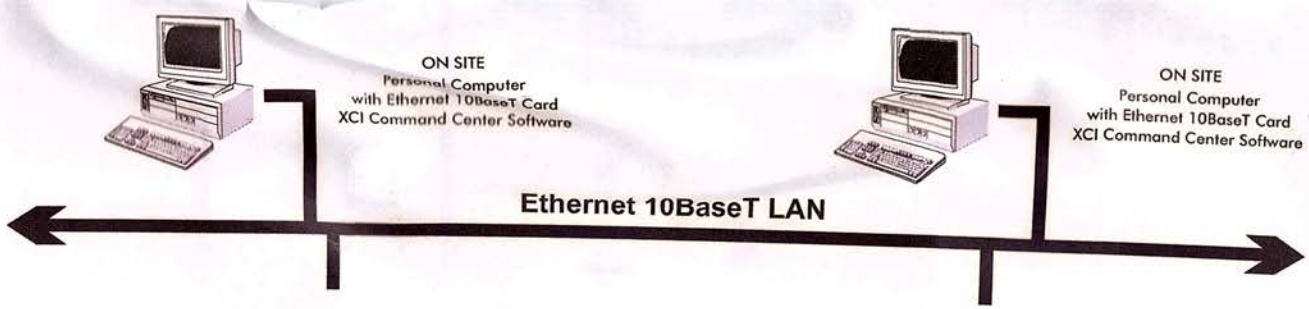
   b. ***XC-LAN232 Installation Guide for Win95/98***

   c. ***XCI DeviceComm Manager Overview***

   d. http://www.xcicorp.com/

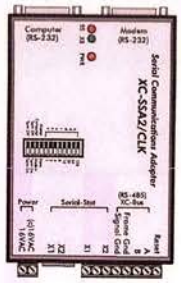
it's gotta be simple...

Typical 10BaseT Ethernet Communications Network

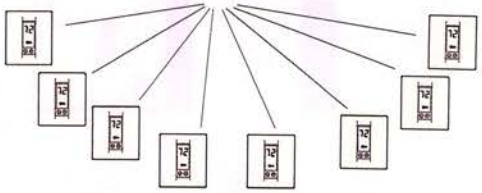


XC-LAN232
Ethernet Bridge
Thin Server

RS-232 cable included with each adapter

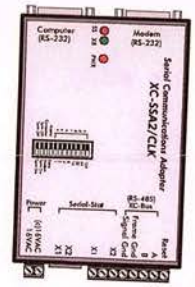


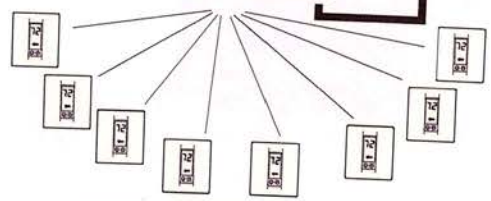
XC-SSA16/CLK
XC-SSA32/CLK, or
XC-SSA2/CLK
Network Controller



up to 32 Serial-Stats

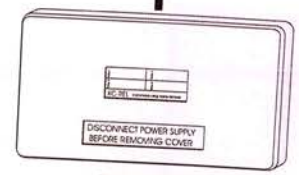
RS-232 cable included with each adapter



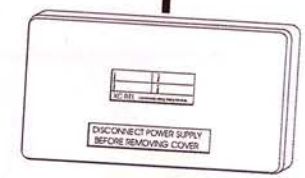


up to 32 Serial-Stats

XC-Bus (RS-485)



XC-REL
Relay Module



XC-REL
Relay Module

XCI's HVAC Control Equipment has the unique capability to be connected directly to an Ethernet Local Area Network using 10BaseT configurations. Each XC-LAN232 bridge provides a unique IP address on a private network. This enables any PC connected to the LAN to gain access to the XCI HVAC Network. It is the responsibility of the network administrator to create the appropriate virtual LAN or firewalls to prevent unauthorized use.

The information in this bulletin is may be altered at any time by XCI.

Suggested LAN configuration is a CLASS C network (192.168.xx.xx).
Each host should have an XCI Network Controller.
Software configuration performed by one of several methods depending on your operating system. See software for details.

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