SeriaLAN
Serial to IP Converter

Installation and Operation Guide

8000 602 050 Rev. B

About this Guide

The team at CXR Anderson Jacobson thanks you for choosing the SeriaLAN.

We hope that this equipment will provide you full satisfaction and in order to serve you even better, we thank you for returning the warranty card you will find at the end of this manual. We also invite you to read the last part of this manual, which provides useful information on the warranty terms and conditions, which apply to your equipment.

Forward

This manual describes how to install, operate and troubleshoot the SeriaLAN.

Chapter 1 an Overview

Chapter 2 describes the characteristics and typical configurations

Chapter 3 explains how to install and connect the equipment

Chapter 4 describes the front panel displays and switches as well as their use

Chapter 5 describes examples of typical applications

Chapter 6 explains how to configure the equipment

Chapter 7 lists all the SeriaLAN technical characteristics

Chapter 8 Will help you to resolve most of the difficulties encountered during the installation and operation of the unit.

Appendix A describes the connector pin-outs

Appendix B describes the connector cabling

Appendix C describes the connector cabling

Table of Contents

Safety Instructions

The following accesses are referenced as SELV (Safety Low Voltage] in conformity with EN.60950 standard:

- 5 VDC supply Input
- Admin : V.24 - RS232 configuration port
- LAN: Ethernet interface
- SERIAL: serial interface (RS-530/V.35/V.11/X.21/V.24)

The power supply adapter is the main switching element. To totally disconnect the equipment from the supply source we recommend you disconnect the power adapter from the mains wall outlet. Thus this plug must be installed close to the equipment and provided easy access. In order to comply with the safety regulations, it is imperative to use the accessories (power supply and cables) provided with the equipment. When access to the inside of the unit is necessary, it is imperative to disconnect the power cord from the mains - only CXR maintenance qualified person are allowed to open the enclosure. For safety reasons, any operation on the equipment and particularly opening the enclosure must be carried out by maintenance person qualified by CXR. The equipment must imperatively be returned to CXR in any case of anomaly, fall, loss of performance, water exposure, power supply damage, , ,

Environment

The SeriaLAN is designed for residential or light industrial use within the following environmental conditions:

- Storage Temperature 0 to 70 °C
- Operating Temperature: 0 to 45 °C
- Humidity: 0 to 90% without condensation
- Class: IP40
- Flammability: UL94-V0
- Equipment must not be exposed to excessive solar radiation
- Equipment must not be in contact with water. It must not be used near a water reserve or in a wet location.

Install the equipment in an area well suited for its good operation and its longevity :

- Equipment must not be exposed to excessive solar radiation
- Equipment must not be in contact with water. It must not be used near a water reserve or in a wet location.
- Equipment must be installed on a plane and horizontal surface, without vibration.
- Make sure the area is clean, dry and exempt of dust

- Make sure that nothing could obstruct the air vent of the product, and that no small size part (screw, staple, clip, …) could get into it.

Always disconnect the power supply connection before any operation (move, connecting other equipment, …) on the equipment.

Use

The SeriaLAN is a half-bridge designed to be connected on one end to a LAN (10/100 Base TX) and on the other end to a WAN equipment (DCE) through a serial RS-530 or X.21/V.11 or V.35 or V.24/V.28 interface. Two SeriaLAN units are required to establish a link. No guarantee is given as to compatibility with equipment from different suppliers.

➢ WAN Interface: RS-530 or X.21/V.11 or V.35 or V.24/V.28
➢ WAN Rate: set by the DCE (< 10 Mbit/s)
➢ Ethernet bridge :
      Ethernet, 802.3
      Frame buffer memory : 400
      Source Mac address memory : 10.000

Chapter 2   *Introduction*

SeriaLAN is an Ethernet/802.3 Bridge through a WAN interface (RS-530 or X.21/V.11 or V.35 or V.24/V.28). SeriaLAN is DTE equipment making a bridge through DCE equipment (Synchronous Modem, DSL Modem , CSU/DSU, Fiber Optical Modem, etc). SeriaLAN uses a store & forward mechanism. SeriaLAN is manageable by the network (LAN or WAN) through TCP/IP protocol.

2.1. LAN Interface

SeriaLAN connects to other equipment of the local area network through its LAN Ethernet 10 / 100 Base Tx interface.

To manage the burst of traffic, SeriaLAN stores Ethernet frames in a 400 frame buffer and then transmits them at the speed of the serial link.

The Ethernet bridge transmits all frames with no exception : that includes broadcast frames.

Filtering consists of transmitting only frames whose destination address is not known locally, i.e. it does not transmit frames whose destination address is locally known. This feature optimizes the traffic between SeriaLANs and increases the data rate as seen from the LAN side. The SeriaLAN bridge memorizes up to 10,000 local Ethernet addresses for this filtering feature. The address of hosts that do not transmit nor receive frames for 3 minutes, is automatically cleared from this memory : method of aging.

2.2. Serial line interface

SeriaLAN connects through a serial interface software configurable as:
- RS-530
- V.35
- RS-232/V.24/V.28
- X.21/V.11

The DB25 connector is well suited for RS-530 and V.24/V.28. An adapter cable could be necessary for the other modes:
- V.35 - M34 M - ISO 2593
- V.36 - DB37 M
- X.21/V.11 - DB15 M - ISO4903

The remote half-bridge will be:
- another CXR SeriaLAN

- a CXR Equipment on the remote LAN: MD20BT or MD2HUB, CV20BT, FO80BT or CopperLAN.

2.3. Installation and initial set-up

SeriaLAN is easy to install. The serial rate is established by the clocks of the DCE. The only need is to set the serial mode (RS-530 by default).

2.4. Configuration

SeriaLAN is managed through either access :
- ➢ From its RS232 console port (ADMIN port on the front panel), set up for VT.100 emulation at 19,200 , 8 bits, no parity. Configuration is controlled through VT100 menus organized into thematic parts.
- ➢ From its RS232 console port, thanks to a set of AT commands that control all parameters of the unit (19,200 BPS, 8,N, 1)
- ➢ Through the LAN or WAN with a Telnet session. An IP address must be set up in the unit.

Accessories

- One RJ45-RJ 45 cable and one RJ45-dB9 converter (pt# 7055031517) for the Admin port
- External power supply module
- This user's manual on the CXR CD-ROM that also includes the firmware upgrade files.
- A serial interface cable (in option).

Connections

- Connect the SeriaLAN per the following drawing. View is from the back side.
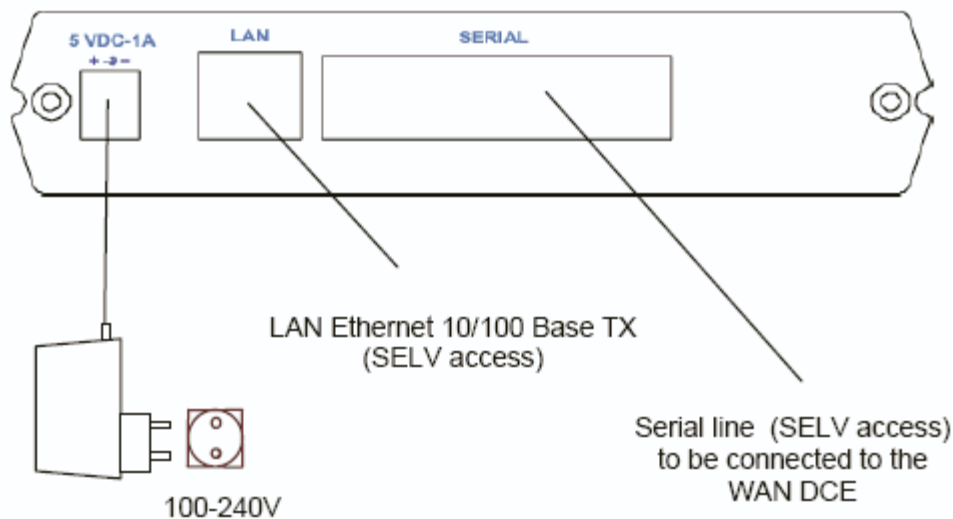
- For safety reasons it is imperative to use the accessories (power unit and cable) provided with the equipment.

Powering

- The AC power adapter is the main switching device. The electrical outlet should be located close to the equipment and provide easy access.

Six LED indicators and the console port socket are located on the front panel of the
SeriaLAN. The LEDs display an indication of the status of the unit.

Indicator	Function
✹ POWER	Shows that the equipment is powered.
CD (Carrier Detect)	ON when the unit receives a Carrier Detect signal from the DCE connected to the serial port.
100	ON when SeriaLAN Ethernet interface is running 100 MBPS.
LINK	ON when the unit is connected to an equipment of the Ethernet network (Switch, HUB….)
RX	Flashing when the unit is receiving data at the Ethernet interface.
TX	Flashing when the unit is transmitting data at the Ethernet interface.

A terminal or the serial port of a computer (19200,8,N,1) can connect to the front panel
ADMIN port. This connection is used for installing the unit and testing its operation, but it is
not required for further normal operation.

Chapter 5   *Local Area Network Connection*

SeriaLAN is usually used for interconnecting local area networks:
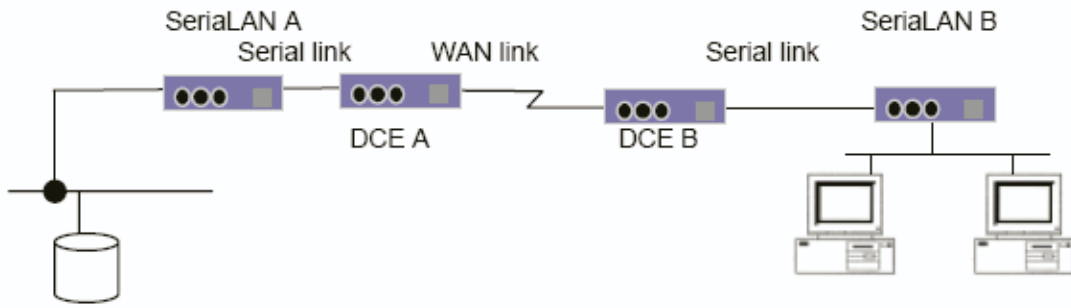
This chapter describes the operation of the SeriaLAN through its Control port.

The unit must be connected to a VT100 compatible terminal or to a PC running a VT100 terminal emulation software that should be configured as follows:

- Speed: 19200 bps
- Data format: 8 bits
- Parity: none
- Stop bit: 1
- Emulation: VT100
- Flow control: none

SeriaLAN configuration can be made either in VT100 Interactive menu mode or in AT command mode.

The use of the VT100 mode offers advantages such as simplicity and on line help.

The use of the AT commands allows writing configuration programs (scripts) which can be saved out of the unit on a PC for instance and can also be protected with a password.

All the SeriaLAN operating parameters can be modified and saved in either mode.

6.1. VT100 Interactive Menus

The unit sends the VT100 menu pages when it detects three consecutive <CR> or 'ENTER' characters.

The possible choices are listed on the bottom line of the screen:

- 1 to 9 are valid options on the menu to start a sub-menu or to change a parameter value
- P or p: to return to the Previous menu
- Q or q or <Esc>: to Quit the VT100 menus and return to the AT command mode

Some menus require the use of the arrow keys. These keys may need to be enabled in some terminal emulation software. Keys / * - + can be used alternatively in any case of problems with the arrow keys :

LEFT: /	RIGHT: *	UP: -	DOWN: +

6.1.1. Main Menu

```
                       CXR - SeriaLAN

                          Main menu

      1) WAN/Serial Parameters

      2) Admin Parameters

      3) User Settings

      4) Status & Statistics
------------------------------------------------------------------------

      Type your choice: 1 .. 4, Q(uit) and press RETURN
------------------------------------------------------------------------

                 SeriaLAN V1.18 - Mar 15 2004 - 03DC8A5F

                     SN: 0311000067002 - 0304
```

First menu provides access to the WAN/Serial parameter menu (1), the management parameter Admin menu (2), the user interface parameter menu (3) and the status and statistics menu (4).

Press 'Q' to exit the VT100 menus. A Telnet session is closed if 'Q' is pressed.

6.1.2. WAN/Serial Parameters

```
                          CXR - SeriaLAN

                          WAN/Serial Menu

      1) Serial Mode :            RS-530

      2) Bridge Filter :          enable

      3) Compression :            disable

      4) Link available :         =CD

      5) RTS behavior :           ON

      6) DTR behavior :           ON
------------------------------------------------------------------------

            Type your choice: 1 .. 6, P(revious) and press RETURN
------------------------------------------------------------------------
```

Enter and validate the number of the parameter to modify ('1' and Enter for example). The values of parameters scroll automatically.

Serial Mode:

Set this mode according to the WAN connected equipment (DCE). Possible choices are:

- **RS-530:** this serial mode uses a DB25 connector.
- **V.35:** this serial mode is usually used through an M34 connector. A DB25F/M34M adaptation cable could be necessary.
- **V.24/V.28:** this serial mode uses a DB25 connector.
- **X.21/V.11:** this serial mode is usually used through a DB15 connector. A DB25F/DB15M adaptation cable could be necessary.

Changes in the serial mode are taken into account when this menu is exited and after answering Y to the question :

```
"Some parameters changed: Do you want to restart connection? (Y/N)"
```

Bridge filter:

This parameter activates or disables the filtering of the Ethernet frames depending on their destination address and the known local addresses.

- Disable: no filtering, all frames are transmitted
- Enable : filtering. Only frames whose destination address is unknown, are transmitted.

Compression:

This parameter activates or disables the data compression. It will be efficient up to 256Kbit/s. When using SeriaLAN at higher rates data compression must be disabled.

- Disable: no data compression.
- Enable : all the traffic is compressed. To be used at rates less than 256 Kbit/s.

Link Available :

This parameter determines the criterion taken into account by SeriaLAN to consider WAN connection established. The possible choices are "Always" (in this case SeriaLAN considers that the DCE is always connected) or one of the signals of the serial interface selected (by default CD or I for X.21/V.11 mode).

Behavior of the outgoing signals:

This parameter sets the behavior of the outgoing signals of the serial interface of SeriaLAN (C in mode X.21/V.11 or RTS and DTR in the other modes): those can be permanent (ON or OFF) or follow the state of an incoming signal (I in mode X.21/V.11 or CD, CTS, DSR in the other modes). The action on the signals takes effect at the exit of the menu without starting again connection.

Parameters are saved in the non volatile memory when the 'P' (Preceding menu) key is pressed. The connection may be restarted to take into account the change of parameters Otherwise, they will be used at the next reset of the unit only.

6.1.3. Admin Parameters

```
                        CXR - SeriaLAN

                     Admin Parameters Menu
       1) IP Address :      192.168.1.1
       2) Netmask :         255.255.255.0
       3) Gateway :         192.168.1.254
       4) TelnetD :         valid
       5) FTPD :            valid
       6) Bootp :           invalid
-----------------------------------------------------------------------
       Type your choice: 1 .. 6, P(revious) and press RETURN
-----------------------------------------------------------------------
```

Enter and validate the number of the parameter to change ('1' and Enter for example). Enter the literal value of the parameters 1, 2 and 3. Then validate the parameter with the Enter key.

IP Address :
Configure the IP address of the unit. This parameter is used only to manage the unit from the LAN or from the remote network. In other cases, it should be left at 0.0.0.0

Netmask :
Set the network mask to comply with the network IP address map.

Gateway :
Enter the address of the default gateway (router) that gives access to the unit from a remote network. Leave this parameter at 0.0.0.0 if no router is used.

TelnetD:
This parameter enables the management of the unit through Telnet sessions (TCP port 23). SeriaLAN can serve up to 5 simultaneous sessions.

FTPD:
This parameter enables updates of the internal code (firmware) through FTP protocol. SeriaLAN is then an FTP server that serves connections from any user with the administrator password. The firmware provided by CXR (*.LM file) should be sent to the unit in binary mode as the file name : update.lm (for example : put update.lm)

Bootp:

If this parameter is set, then the SeriaLAN asks a bootp server for its IP address, subnet mask and default gateway address. Parameters 1, 2 and 3 are then not available, and display the parameters provided by the bootp server.

Parameters are saved in the non volatile memory when the 'P' (Previous menu) key is pressed. The unit may be restarted to take into account the change of parameters. Otherwise, they will be used at the next reset of the unit only.

6.1.4. User Setting Parameters

```
                      CXR - SeriaLAN

                    User Settings Menu

     1) Language :                      English

     2) Graphic char set :              disable

     3) Auto-logout time limit :      0 (disable)

     4) Maintenance password

     5) System manager password

     6) Site Name :
 ---------------------------------------------------------------------

        Type your choice: 1 .. 6, P(revious) and press RETURN

 ---------------------------------------------------------------------
```

This menu sets the parameters of the user interface :
- ➢ Menu language : English or French
- ➢ Graphical characters set supported by some VT100 terminal or software
- ➢ Inactivity timeout of the administration port or of the Telnet session. The user is logged out after this timeout.
- ➢ Site name : identify the unit by a 20 character string. This name is displayed in all menus. Enter a single space to delete the site name.
- ➢ Passwords : the System Manager level gives a full access to the unit while the Maintenance one gives only access to the display of the configuration and of the status and diagnostics. Enter a single space to erase a password.

6.1.5. Status and Statistics

```
                         CXR - SeriaLAN
                      Status & Statistics Menu
+--------------------------------+---------------------------------+
|          WAN RS-530            |              Ethernet           |
|                                |                                 |
+--------------------------------+---------------------------------+
|       UP since 000d 01:01:43   |      UP since 000d 02:57:06     |
| CD State :        ON           | Link :     UP                   |
| DSR State :       ON           | Speed :   100Mbs                |
| CTS State :       ON           | Nb Rx Frames :    10796         |
|                                | Nb Tx Frames :     8322         |
| Nb Rx Frames       8322        | Nb Broadcasts :   10793         |
| Nb Tx Frames :    10796        | Nb Local Frames:      0         |
|                                |                                 |
+--------------------------------+---------------------------------+
          1) Restart connection 2) Reset counters 3) Alarms
  -----------------------------------------------------------------
        Type your choice: 1 .. 3, P(revious) and press RETURN
  -----------------------------------------------------------------
```

➢ The left side shows information on the serial WAN connection :

WAN RS-530

Shows the operating mode (RS-530, X.21/V.11, V.35 or V.24/V.28).

UP since 000d 01:01:43

Shows the serial connection status (UP or DOWN) and the time elapsed from the last
state change (days, hours, minutes and seconds).

CD,DSR,CTS or I State

Shows the state of the incoming signals (set by the DCE equipment).

Nb RX Frames

Shows the number of Ethernet frames received from the remote unit

Nb TX Frames

Shows the number of Ethernet frames sent to the remote unit.

➢ The right side of the picture shows information on the Ethernet LAN interface :

UP since 000d 02:57:06

Shows the LAN port status (UP or DOWN) and the time elapsed from the last state change (days, hours, minutes and seconds).

`Link`

Shows the state of the Ethernet LAN port, as the LINK front panel Led.

`Speed`

Shows the Ethernet interface speed : 100 MBPS on a 100 Base TX, or 10 MBPS for a 10 Base-T network.

`Nb RC Frames`

Shows the number of Ethernet frames received from the local network.

`Nb TX Frames`

Shows the number of Ethernet frames sent over the local network.

`Nb Broadcasts`

Shows the number of Broadcast or Multicast Ethernet frames received from the local network. These frames are also counted in the number of received frames. These frames are always transmitted to the remote unit.

`Nb Local Frames`

Shows the number or frames received from the local network, and filtered as they are addressed to a local host. These frames are not transmitted to the remote unit.

➢ In this menu, available actions are :

1. Restart the connection : this action aborts the serial link. A new one is started with the last saved parameters (first menu).
2. Reset counters : reset all frame counters (LAN and WAN)
3. Alarms : displays the 18 last events, dated from the last reset or power-up of the unit. Time elapsed from last reset is displayed on top of the menu. Events are serial connection and loss of carrier, (LL active, LL inactive), and connection or loss of link of the LAN port (DTE active, DTE inactive)

7.1. Transmission Modes

- ➢ Serial modes: RS-530, V.35, V.24/V.28, V.11/X.21
- ➢ Serial transmission conforms to UIT-T: V.11,X.21,V.24,V.28,V.35
- ➢ Serial link electric levels are set by software parameters
- ➢ Serial link termination (impedances) are set by software parameters
- ➢ The cable ensure only a possible mechanical contact reorganization
- ➢ Maximum rate: 10 Mbit/s (fixed by DCE clocks) except 128 Kbit/s in V.24/V.28 mode.
- ➢ Maximum transfer rate: about 8 Mbit/s.
- ➢ LAN: Ethernet, 802.3
- ➢ Bridge: Store and Forward
- ➢ Maximum Ethernet frame size: 1548 (transparent to VLAN tags)
- ➢ Frame buffer memory: 400
- ➢ MAC address memory: 10.000
- ➢ MAC address filtering: filtering or transparent bridge

7.2. General Characteristics

Size : Length x Width x Height :   5.75 x 5.65 x 1.2 inches (146.5 x 144 x 30.7 mm)
Weight :   1.1 Lbs (0.5 kg)
                                     Power adapter :0.22 Lbs (0.1 kg)
Power consumption :   1 A / 5 VDC
Operating Temperature :   32° – 113° F (0 to 45°C)
Storage Temperature :   32° – 158° F (0 to 70°C)
Humidity :   90% non condensing.

Safety : as per EN 60950 standard
EMC : as per EN 61000-6-1 and EN 61000-6-3 standards

This chapter describes the unit operation phases and provides a diagnostic for most of the problems encountered during installation and operation of the SeriaLAN.

8.1. Configuration and management phase

Trouble	Check
Equipment does not answer the commands	➢ The front panel led stays on permanently when a terminal is connected. ➢ The connection of the ADMIN socket to the terminal or computer through the adapter provided with the unit and labeled 7055 031 517. ➢ The terminal parameters : 19,200 BPS, 8 data bits, 1 stop bit, no parity. ➢ If a terminal is connected, the unit sends a welcome message at power up.
The unit has already been set up	➢ In case of doubt on the previously set configuration, the unit can be reset to default factory configuration by the command : AT $Z ➢ Set the serial mode. Then let the units try to connect.
The Ethernet LINK is not up.	➢ The LAN socket connects to a switch or hub through a straight cable, or to a computer through a cross connect cable. ➢ The cable quality must be category 5 to support 100 Base TX rate. ➢ If the LAN equipment does not support automatic 10/100 rate negotiation then the SeriaLAN may be set for fixed rate by the following commands : AT*S1&WZ sets 10 Base T, and AT*S2&WZ set it for 100 Base TX. AT&V shows the current configuration.
The unit does not answer the Ping	➢ The front panel LINK led is permanently on. ➢ The previous LINK trouble. ➢ An IP address and a subnet mask are set in the second menu. ➢ If no gateway is used, then set the gateway parameter to 0.0.0.0 (menu 2) ➢ Disable bootp protocol (Menu 2).
DCE does not support frame ground and signal ground being connected.	Open SeriaLAN. Remove J1.

8.2. Bridge

Trouble	Check
Some machines are not accessed through the SeriaLAN	➢ Some frames may corrupt the bridge algorithm : try to disable the filtering bridge (Menu 1). ➢ A machine has moved from one side of the bridge to the other : wait for 3 minutes then try again. If it still fails then disable the filtering in menu 1. ➢ Try to change the aging delay whose value is 3 minutes in the default factory configuration. It may be changed by the command : AT*A300&w which sets it to 300 seconds (values from 10 to 600 seconds are enabled).
Throughput is less than the WAN rate	➢ Data compression is disabled: if the WAN rate is greater than 256Kbit/s the compression can slow down the traffic.

8.3. Serial link - Connection

Trouble	Check
The WAN link is DOWN	➢ The criterion "Link available" selected in Menu 1 is present (State of CD, DSR, CTS..) in the table of Menu 4. ➢ Try to set "Link available" (3 of Menu 1) on "Always".
WAN link is UP but there are bad frames or no traffic	➢ That the DCE gives one (V.11/X.21) or two clocks according to the mode. ➢ The rate given by the DCE must be less than 10 Mbit/s in RS-530, V.11/X.21 and V.35 modes. ➢ The rate given by the DCE must be less than 128 Kbit/s in V.24/V.28 mode. ➢ The DCE sets data with regard to the clocks in a normal way (the data changes on the falling edges). ➢ That the bit error level on the WAN link is low. Look at the extended error counter nbRxHdlcBad (type ! in the Menu then type "count" ; quit by "end").

WAN link is UP but some frames are lost	➢ That the WAN is not too slow (64 Kbit/s for example) compared to LAN traffic (100 Mbit/s) according to the type of traffic (UDP without flow control) in which case the bridge loses frames (drop) when these memories arrive at saturation. Look at the extended counter nbxxDrop(type ! in the Menu then type "count" ; quit by "end").

If the trouble remains after the above verification, please contact your distributor or call
CXR Hot Line: E-mail at: ajsupport@cxr.com - Telephone: 1+ 510-657-8810

8.4. Firmware Upgrade

The internal firmware may be upgraded to :
➢ Get an up-to-date software with new features and enhancements.
In any case, CXR provides a SeriaLAN_xxx.lm or update.lm binary file. This file may also be found on the CD-ROM, in the Firmware folder.
The firmware upgrade may be achieved from one of these methods :
➢ Locally from the serial port of a PC connected to the ADMIN port of the unit.
➢ Through the TCP-IP network and a FTP transfer

8.4.1. Local upgrade

The AJLoad software is provided on the CD-ROM in the 'tools/english/loader/ajload.exe' folder, to proceed with the local download of the SeriaLAN :

1. Copy AJLoad.exe onto the PC / Windows computer.
2. Check the selected COM port is the one connected to the Admin port of the SeriaLAN.
3. Select the path to and the file name of the SeriaLANxxx.lm file
4. Check the file version by clicking on the Identify button of the File window
5. Check the proper communication between the PC and the SeriaLAN by clicking on the Identify button of the Target window
6. Start the upgrade by clicking on the Download button.
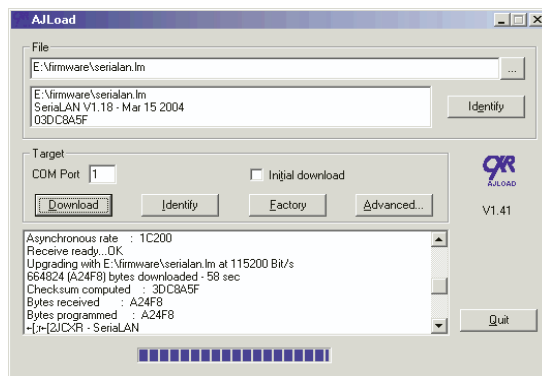
Wait for the end of the upgrade : the SeriaLAN restarts after a few seconds.
Proceed again with the unit configuration in case of new parameters.

8.4.2. Through the LAN

This method requires an FTP client.

1. Check that the FTP server of the SeriaLAN is enabled : FTP=enable in menu 2.
2. On the PC, open a FTP client to the SeriaLAN address.
3. Enter the FTP user name : any name or none

Enter the Administrator password of the SeriaLAN (if it was set)

4. Enter the bin command to set a binary transfer mode
5. Enter the following command :
   put SeriaLAN.lm update.lm
   The first parameter **SeriaLAN.lm** is the provided file name. Also specify the path if needed (D:\firmware\SeriaLAN.lm).
   The other parameter is the destination file name for the SeriaLAN : it must be **update.lm**.
6. Wait for the end of the transfer : SeriaLAN restarts after a few seconds. You can then complete the FTP session (close or quit command).

```
D:\firmware>ftp 192.168.1.135
Connect at 192.168.1.135.
220 SeriaLAN FTP server (Version 1.13) ready.
User (192.168.1.135:(none)) :
230 User logged in.
ftp> bin
200 Type set to I.
ftp> put SeriaLAN.lm update.lm
200 PORT command successful.
150 BINARY data connection.
226 Transfer complete.
ftp : 879832 octets sent in 5.88 seconds at 149.76 Kb/sec.
ftp> quit
D:\firmware>
```

Proceed again with the unit configuration in case of new parameters.
It is usually required to update both units of a link : you should then update the remote SeriaLAN first.

A.1 Admin Port V.24 - RJ45

The front panel ADMIN port connects to a terminal for the management of the SeriaLAN:


Pin	Signal	I/O	Description	DB9 pin
1	107 - DSR	O	Modem ready – always ON	6
2	109 - CD	O	Modem connected – always ON	1
3	108 - DTR	I	Terminal ready	4
4	102 - GND	-	Electric ground	5
5	104 - RXD	O	Data received by the terminal	2
6	103 - TXD	I	Data sent by the terminal	3
7	106 - CTS	O	Modem ready to send	8
8	105 - RTS	I	Terminal ready to send	7

An RJ-45 to DB-9 adapter (ref 7055 031 517) is provided to connect to the DB-9 socket of most computer COM port.
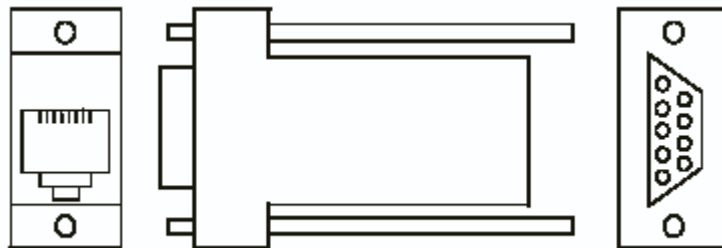
A.2 Serial port - WAN

A DB25 male socket connects to the Data Communication Equipment (DCE).
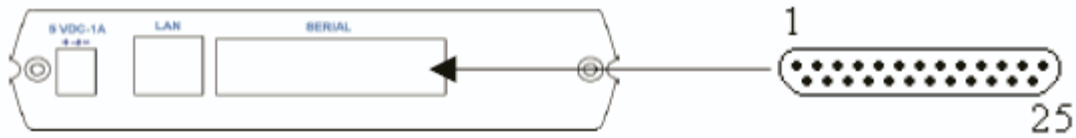
Pin	RS-530	V.35	V.24/V.28	X.21/V.11	I/O
1	101–F.GND	101–F.GND	101–F.GND	F. GND	-
2	103 (A) – TXD (A)	103 A – TXD A	103 – TXD	TA (Transmit)	O
3	104 (A) – RXD (A)	104 A – RXD A	104 – RXD	RA (Receive)	I
4	105 (A) – RTS (A)	105 – RTS	105 – RTS	CA (Command)	O
5	106 (A) – CTS (A)	106 – CTS	106 – CTS		I
6	107 (A) – DSR (A)	107 – DSR	107 – DSR		I
7	102–S.GND	102–S.GND	102–S.GND	S.GND	-
8	109 (A) – CD (A)	109 – CD	109 – CD	IA (Indication)	I
9	115 (B) – RCK (B)	115 B - RCK B	SB (Clock)		I
10	109 (B) – CD (B)	IB (Indication)			I
11	113 (B) – XCK (B)	113 B - XCK-B		XB	O
12	114 (B) – TCK (B)	114 B – TCK B			I
13	106 (B) – CTS (B)				I
14	103 (B) – TXD (B)	103 B – TXD B	TB (Transmit)		O
15	114 (A) – TCK (A)	114 A – TCK A	114 – TCK		I
16	104 (B) – RXD (B)	104 B – RXD B	RB (Receive)		I
17	115 (A) – RCK (A)	115 A – RCK A	115 – RCK	SA (Clock)	I
18	141 – LL	141 – LL	141 – LL		O
19	105 (B) – RTS (B)	CB (Command)			O
20	108 (A) – DTR (A)	108 – DTR	108 – DTR		O
21					-
22	107 (B) – DSR (B)				I
23	108 (B) – DTR (B)				O
24	113 (A) – XCK (A)	113 A – XCK A	113 – XCK	XA	O
25					-

A.3 Port LAN 10/100Base TX - RJ45

An RJ45 socket connects to the LAN. A category 5 cable should be used to connect the unit to a switch or a hub. A cross connect cable should be used to connect the unit to a computer.
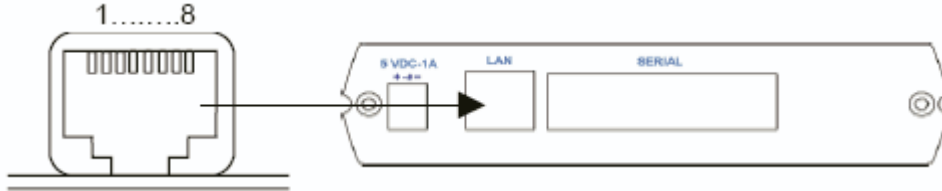
Pin	Signal	I/O	Description
1	Transmit +	O+	Transmit wire +
2	Transmit -	O-	Transmit wire -
3	Receive +	I+	Receive wire +
4			Not connected
5			Not connected
6	Receive -	I-	Receive wire -
7			Not connected
8			Not connected

Appendix B   Cables

B.1 RS-232/V.24/V.28 Interface - DB25F-DB25M Cable

DB25F Pin	V.24 Signal	DB25M Pin
1	101 – F.GND	1
2	103 – TXD	2
3	104 – RXD	3
4	105 – RTS	4
5	106 – CTS	5
6	107 – DSR	6
7	102 – S.GND	7
8	109 – CD	8
9		9
10		10
11		11
12		12
13		13
14		14
15	114 – TCK	15
16		16
17	115 – RCK	17
18	141 – LL	18
19		19
20	108 – DTR	20
21	140 – RL	21

22		22
23		23
24	113 – XCK	24
25		25

The D25-F - DB25-M extension cable can be used to connect an RS-232, V.24/V.28 DCE (ref CXR CA 999016).
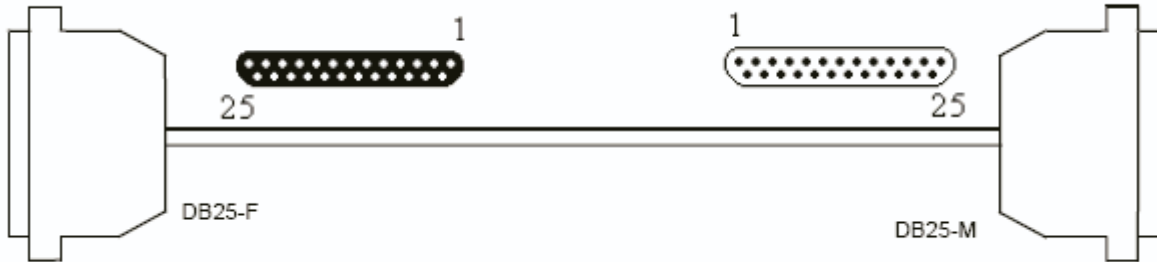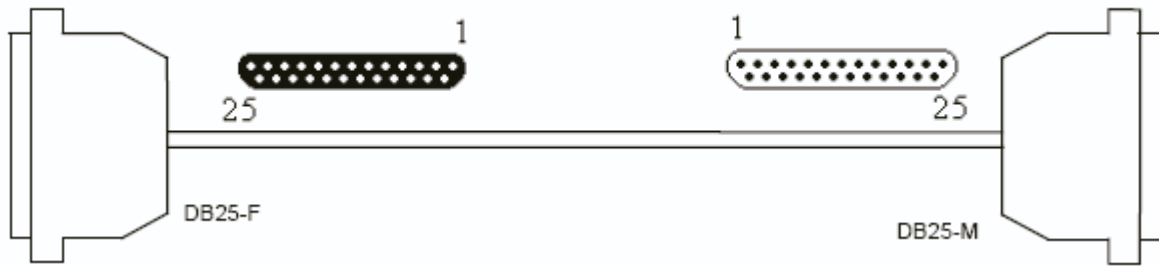

B.2. RS-530 Interface - DB25F-DB25M Cable

DB25F Pin	RS-530 Signal	DB25M Pin
1	101–F.GND	1
2	103 (A) – TXD (A)	2
3	104 (A) – RXD (A)	3
4	105 (A) – RTS (A)	4
5	106 (A) – CTS (A)	5
6	107 (A) – DSR (A)	6
7	102–S.GND	7
8	109 (A) – CD (A)	8
9	115 (B) – RCK (B)	9
10	109 (B) – CD (B)	10
11	113 (B) – XCK (B)	11
12	114 (B) – TCK (B)	12
13	106 (B) – CTS (B)	13
14	103 (B) – TXD (B)	14
15	114 (A) – TCK (A)	15
16	104 (B) – RXD (B)	16
17	115 (A) – RCK (A)	17
18	141 – LL	18
19	105 (B) – RTS (B)	19
20	108 (A) – DTR (A)	20
21		21
22	107 (B) – DSR (B)	22

23	108 (B) – DTR (B)	23
24	113 (A) – XCK (A)	24
25		25

The D25-F - DB25-M extension cable can be used to connect an RS-530 DCE (ref CXR CA
999016). It will be used preferably at rates lower than 2 Mbit/s.

B.3 V.36 Interface - DB25F-DB37M Cable

DB25F Pin	RS-530/V.36 Signal	DB37M Pin
1	101–F.GND	1
2	103 (A) – TXD (A)	4
3	104 (A) – RXD (A)	6
4	105 (A) – RTS (A)	7
5	106 (A) – CTS (A)	9
6	107 (A) – DSR (A)	11
7	102–S.GND	19
8	109 (A) – CD (A)	13
9	115 (B) – RCK (B)	26
10	109 (B) – CD (B)	31
11	113 (B) – XCK (B)	35
12	114 (B) – TCK (B)	23
13	106 (B) – CTS (B)	27
14	103 (B) – TXD (B)	22
15	114 (A) – TCK (A)	5
16	104 (B) – RXD (B)	24
17	115 (A) – RCK (A)	8
18	141 – LL	10
19	105 (B) – RTS (B)	25

20	108 (A) – DTR (A)	12
21		14
22	107 (B) – DSR (B)	29
23	108 (B) – DTR (B)	30
24	113 (A) – XCK (A)	17
25		18

The D25-F - DB37-M cable can be used to connect a V.36 DCE (ref CXR CA 602053).
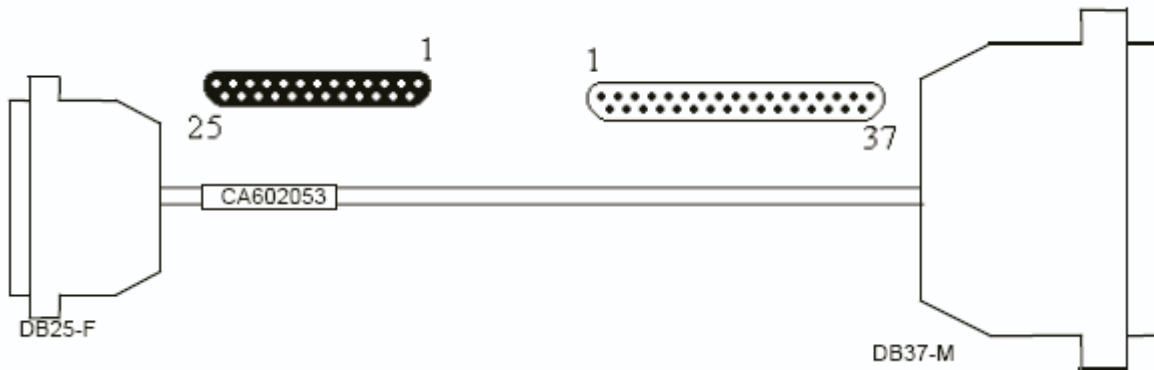
B.4 Interface V.35 Interface - DB25F-M34M Cable

DB25F Pin	V.35 Signal	MRAC34M Pin
1	101–F.GND	A
2	103 (A) – TXD (A)	P
3	104 (A) – RXD (A)	R
4	105 (A) – RTS (A)	C
5	106 (A) – CTS (A)	D
6	107 (A) – DSR (A)	E
7	102–S.GND	B
8	109 (A) – CD (A)	F
9	115 (B) – RCK (B)	X
10		
11	113 (B) – XCK (B)	W
12	114 (B) – TCK (B)	AA
13		
14	103 (B) – TXD (B)	S
15	114 (A) – TCK (A)	Y
16	104 (B) – RXD (B)	T
17	115 (A) – RCK (A)	V
18	141 – LL	K
19		

20	108 (A) – DTR (A)	H
21		
22		
23		
24	113 (A) – XCK (A)	U
25		

The D25-F - M34-M cable can be used to connect a V.35 DCE (ref CXR CA 602044).
Warning: the M34 pin diameter is 1.6 mm (international standard) . The locking
mechanism is done by screws.
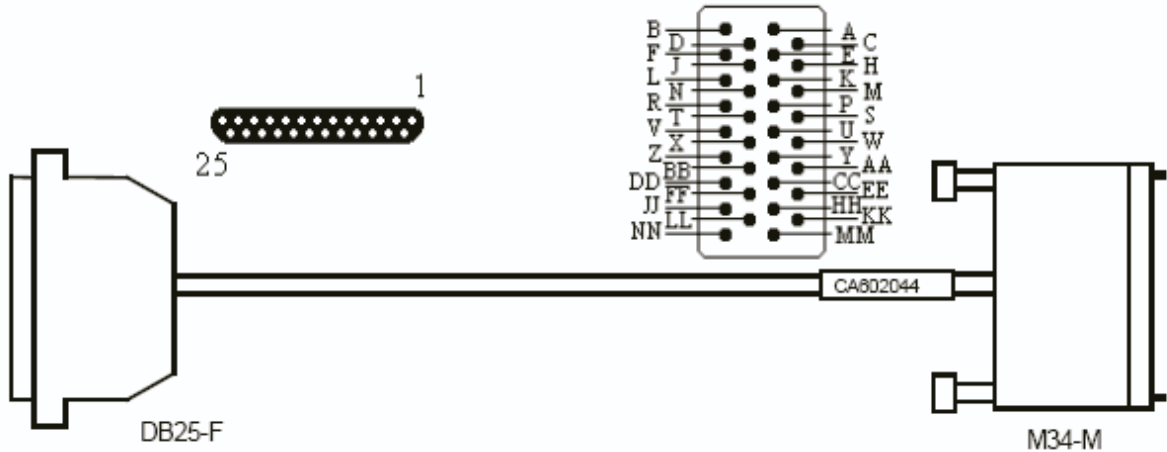
B.5 X.21/V.11 Interface - DB25F-DB15M Cable

DB25F Pin	X.21/V.11 Signal	DB15M Pin
1	Chassis GND	1
2	TA (Transmit)	2
3	RA (Receive)	4
4	CA (Command)	3
5		
6		
7	S.GND	8
8	IA (Indication)	5
9	SB (Clock)	
10	IB (Indication)	12
11		
12		
13		
14	TB (Transmit)	9
15		
16	RB (Receive)	11
17	SA (Clock)	
18		

19	CB (Command)	10
20		
21		
22		
23		
24		
25		

The D25-F - DB15-M cable can be used to connect an X.21/V.11 DCE (ref CXR 999 385011).
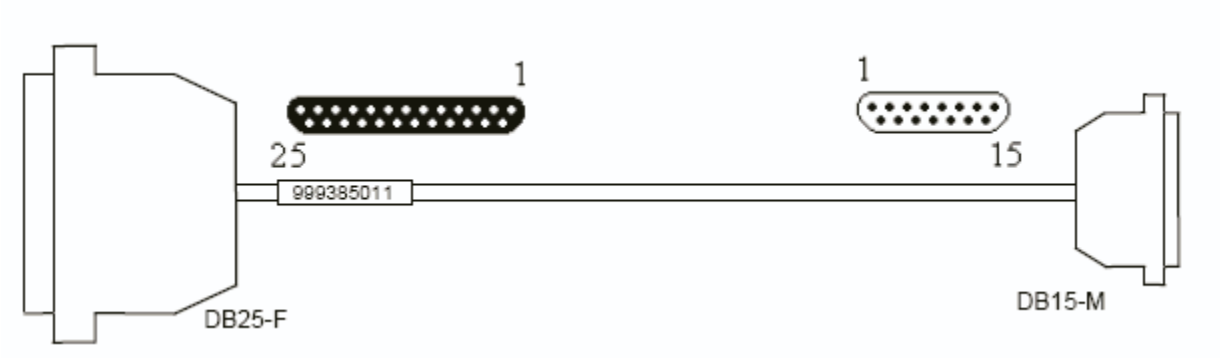
Product Warranty

Seller warrants to Buyer that any unit shipped to Buyer, under normal and proper use, be free from defects in material and workmanship for a period of 12 months from the date of shipment to Buyer. This warranty will not be extended to items repaired by anyone other than the Seller or its authorized agent. The foregoing warranty is exclusive and in lieu of all other warranties of merchantability, fitness for purpose, or any other type, whether express or implied.

Remedies and Limitation of Liability

A. All claims for breach of the foregoing warranty shall be deemed waived unless notice of such claim is received by Seller during the applicable warranty period and unless the items to be defective are returned to Seller within thirty (30) days after such claim. Failure of Seller to receive written notice of any such claim within the applicable time period shall be deemed an absolute and unconditional waiver by buyer of such claim irrespective of whether the facts giving rise to such a claim shall have been discovered or whether processing, further manufacturing, other use or resale of such items shall have then taken place. B. Buyer's exclusive remedy, and Seller's total liability, for any and all losses and damages arising out of any cause whatsoever (whether such cause be based in contract, negligence, strict liability, other tort or otherwise) shall in no event exceed the repair price of the work to which such cause arises. In no event shall Seller be liable for incidental, consequential, or punitive damages resulting from any such cause. Seller may, at its sole option, either repair or replace defective goods or work, and shall have no further obligations to Buyer. Return of the defective items to Seller shall be at Buyer's risk and expense. C. Seller shall not be liable for failure to perform its obligations under the contract if such failure results directly or indirectly from, or is contributed to by any act of God or of Buyer; riot; fire; explosion; accident; flood; sabotage; epidemics; delays in transportation; lack of or inability to obtain raw materials, components, labor, fuel or supplies; governmental laws, regulations or orders; other circumstances beyond Seller's reasonable control, whether similar or dissimilar to the foregoing; or labor trouble, strike, lockout or injunction (whether or not such labor event is within the reasonable control of Seller)

Copyright Notice

FCC Radio Frequency Interference Statement

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. **NOTE** - Shielded Telecommunication (T1 or E1) and Ethernet cables must be used with the CXR-Anderson Jacobson SeriaLAN to ensure compliance with FCC Part 15 Class A limits.

CAUTION – To reduce the risk of fire, use only No. 26 AWG or larger listed Telecommunication cables.

Repairs & Customer Service

If trouble is experienced with a SeriaLAN, please contact the CXR Telcom Service Center. If the equipment is causing harm to the telephone network, the telecommunications service provider may request that you disconnect the equipment until the problem is resolved.

> **CXR Telcom Service Center**
> **47971 Fremont Blvd.**
> **Fremont, CA 94538**
>
> **Phone (U.S.)**   **510-657-8810**
> **Fax**   **510-657-1158**
> **Email**   **ajsupport@cxr.com**
> **Web**   **www.cxr.com**

Warranty Card CXR Anderson Jacobson

SENDER / USER:

Name:

Company:

Address:

Material:

☑ **SeriaLAN**

Serial Number: [   ]

Date of Purchase:

Equipment Purchased from:

We would also like to know your comments on the equipment you purchased in order to improve its quality and services.

Did the equipment arrive in good condition?	☐ YES	☐ NO
Did you find the equipment easy to operate?	☐ YES	☐ NO
Is the manual clear and comprehensive?	☐ YES	☐ NO
Do you have all necessary accessories for operating the product?	☐ YES	☐ NO

Remarks :

Mail to: **CXR Anderson Jacobson – Quality Assurance**
            47971 Fremont Blvd
            Fremont, CA 94538

Or FAX to: 1+ 510-657-1158