

***iConverter X21* Standalone Module USER MANUAL**

The Omnitron *iConverter*® X21 is a serial to fiber media converter featuring several configuration modes enabling connection to a wide variety of X.21 and RS-530 applications. Data rates of up to 8Mbps are supported.

The X21 supports standard DCE sourced timing and terminal timing modes. The included adapter cable accommodates different connector gender types. The X21 features local loopback on the serial and fiber ports to facilitate testing and installations.



PIN	Signal Name	Interchange Circuit (AKA)	Direction		Notes
			DTE	DCE	
11 01	Transmit + Transmit -	T (TXD)	IN	OUT	
02 07	Control + Control -	C (RTS)	IN	OUT	
08 12	Receive + Receive -	R (RXD)	OUT	IN	
13 03	Indication + Indication -	I (CTS)	OUT	IN	
04 09	Signal Element Timing + Signal Element Timing -	S (RXC)	OUT	IN	
10 14	DTE Signal Element Timing + DTE Signal Element Timing -	X (TXC)	IN	OUT	
06	Shield Ground	Shield	N/A		Connect to Chassis Ground
15	Signal Ground	G (GND)	N/A		Connect to Logic Ground
05	N/A				Spare Pin

Figure E: Serial Port Signal Definitions

3) VERIFY OPERATION

Once the module has been installed and configured per steps 1 and 2, verify the module is operational by viewing the LED indicators.

The Power LED indicates the module is receiving power.

The Fiber Optic link LED indicates the fiber optic connection has been established.

Verify the serial port is configured for the correct mode of operation. Check the DCE/DTE and TD/RD LEDs.

LED Function "Legend"	Color	OFF State	ON State
Power "Pwr"	Green	No power	Module has power
Fiber Optics "P1"	Green	No Fiber Link	On: Fiber signal detected Blinking: Activity
Fiber Optics "Err"	Amber	No error detected	Error detected on fiber (No clock or corrupted messages)
Serial Port "DCE"	Green	Not configured for DCE-facing	Configured for connection to a DCE device
Serial Port "DTE"	Green	Not configured for DTE-facing	Configured for connection to a DTE device
Timing Mode "TD/RD"	Green	No activity / No clock detected	Blinking: Activity
Loopback "Local LB"	Amber	Loopback/Test mode not enabled	Blinking: Unit in loopback

Figure F: LED Indicators

INSTALLATION PROCEDURE

- 1) Configure DIP-Switches
- 2) Install Standalone Module and Connect Cables
- 3) Verify Operation

1) CONFIGURE DIP-SWITCHES

FRONT PANEL DIP-SWITCH

SW1 - DCE/DTE

When this DIP-switch is in the "DCE" (default) position, the serial port is configured to connect to a DCE device. When the DIP-switch is in the "DTE" position, the serial port is configured to connect to a DTE device.

SW2 - SET CLOCK (RXC) POLARITY

When this DIP-switch is in the Receive Clock "RC" (default) position, the clock edge used to sample the data on the serial port is defined by the TIA/EIA-334-C specification. When the DIP-switch is in the Receive Clock Inverted "Inv" position, the data on the serial port is sampled on the inverted clock edge.

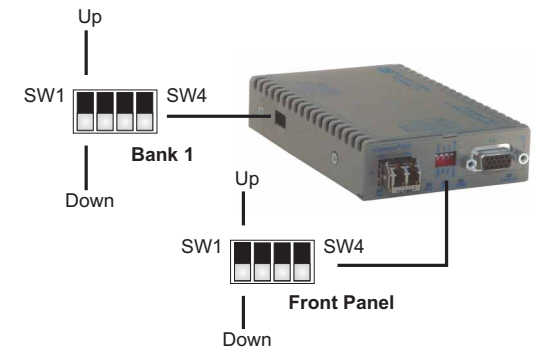


Figure A: DIP-Switch Location

SW3 - DTE SET CLOCK (TXC) POLARITY

When this DIP-switch is in the Terminal Timing Clock “TTC” (default) position, the clock edge used to sample the data on the serial port is defined by the TIA/EIA-334-C specification. When the DIP-switch is in the Terminal Timing Clock Inverted “Inv” position, the data on the serial port is sampled on the inverted clock edge.

SW4 - LOOPBACK

When “L-LB” is selected, the serial port data signals are looped back to the attached device. At the same time, the fiber port is looped. If the module has Terminal Timing enabled (see DIP-SWITCH BANK 1), the clock signals are also looped back to the attached device.

Switch	Down	Up
SW1	DCE: DCE Interface enabled	DTE: DTE Interface enabled
SW2	RC: RXC Clock polarity normal	Inv: RXC Clock polarity inverted
SW3	TTC: TXC Clock polarity normal	Inv: TXC Clock polarity inverted
SW4	Norm: Loopback disabled	L-LB: Loopback enabled

Figure B: Front Panel DIP-Switches

DIP-SWITCH BANK 1

SW1 - TERMINAL TIMING

When this DIP-switch is in the “Off” (default) position, Terminal Timing is disabled. When this DIP-switch is in the “On” position, Terminal Timing is enabled. When Terminal Timing disabled, it uses the ‘Signal Element Timing’ clock (SET clock, circuit S, X.21 pin pair 6, 13) as supplied by the DCE device to time Transmit data (TXD) and Receive data (RXD). This is called Contra-directional Timing. When Terminal Timing is enabled, it uses ‘DTE Signal Element Timing’ clock (DTE SET clock, circuit X, X.21 pin pair 7, 14) as supplied by the DTE device to time TXD, and uses ‘Signal Element Timing’ clock to time RXD. This is called Co-directional Timing.

When Terminal Timing is used, both the local and remote modules must be set to use Terminal Timing, as well as the devices connected to each module. All four units must be in Terminal Timing Mode.

Switch	Down	Up
SW1	Off: Terminal Timing disabled	On: Terminal Timing enabled
SW2	Off: Reserved	On: Reserved
SW3	Off: Reserved	On: Reserved
SW4	Off: Reserved	On: Reserved

Figure C: Side DIP-Switches

2) INSTALL STANDALONE MODULE AND CONNECT CABLES

- a. The X21 Serial Media Converter is available in tabletop and wall-mounting models. For wall-mounting, attach the unit to a wall, backboard or other flat surfaces. For tabletop installations, place the unit on a flat level surface. Attach the rubber feet to the bottom of the unit to prevent the unit from sliding. Make sure the unit is placed in a safe, dry and secure location.

To power the unit using the AC/DC adapter, connect the AC/DC adapter to the AC outlet. Then connect the barrel plug at the end of the wire on the AC/DC adapter to the 2.5mm DC barrel connector (center-positive) on the chassis. Confirm that the unit has powered up properly by checking the power status LED located on the front of the unit.

To power the unit using a DC power source, prepare a power cable using a two-conductor insulated wire (not supplied) with a 14 AWG gauge minimum. Cut the power cable to the length required. Strip approximately 3/8 of an inch of insulation from the power cable wires. Connect the power cables to the standalone unit by fastening the stripped ends to the DC power connector.

Connect the power wires to the DC power source. The Power LED should indicate the presence of power.

WARNING: Note the wire colors used in making the positive and negative connections. Use the same color assignment for the connection at the DC power source.

NOTE: If mounting with a safety ground attachment, use the safety ground screw at the rear of the unit.

- b. When using the SFP model (8859-0), insert the SFP Fiber transceiver into the Port 1 SFP receptacle on the X21 converter (see SFP Data Sheet 091-17000-001 for supported transceivers).

NOTE: The release latch of the SFP Fiber transceiver must be in the closed (up) position before insertion.

- c. Connect the included adapter cable to the serial port on the X21 converter. Use the appropriate gender plug to attach the X.21 device.
- d. Connect an appropriate multimode or single-mode fiber cable to the fiber port of the installed module. It is important to ensure that the transmit (TX) is attached to the receive side of the device at the other end and the receive (RX) is attached to the transmit side. Single-fiber (SF) media converter models operate in pairs. The TX wavelength must match the RX wavelength at the other end and the RX wavelength must match the TX wavelength at the other end.

SERIAL PORT CONNECTOR

The serial port is a DE-15 female connector with the following pin-out configuration.

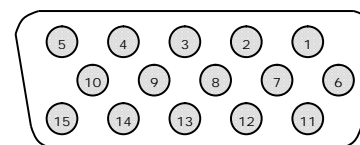


Figure D: Serial Port Connector Pin-out for X.21 and RS-530