Omnitron Systems

iConverter® XM5-1G
Network Interface Device

Quick Start Guide

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Warning

The operating description in this Instruction Manual is for use by qualified personnel only. To avoid electrical shock, do not perform any servicing of this module other than that contained in the operating instructions, unless you are qualified and certified to do so by Omnitron Systems Technology, Inc. (Omnitron)

Caution

Never attempt to open or remove the cover or tamper with the chassis. All user-required operations can be performed without opening the chassis. There are no user replaceable or serviceable parts in this unit. Equipment is not intended to be installed and used in a place (home, school, or public area) accessible to the general population.

Warranty

This product is warranted to the original Buyer against defects in material and workmanship for a period of TWO YEARS from the date of shipment. By registering this product with Omnitron within 90 days from the original purchase date the warranty can be extended to THREE YEARS. To register, complete and mail or fax the enclosed Registration Form. The product can be also registered at www.omnitron-systems.com. During the in-warranty period, Omnitron will, at its option, repair or replace a product which is proven to be defective. Repair work performed on an in-warranty product is warranted for the greater of the remainder of the original warranty period or three (3) months from the date of shipment of the repaired product from Omnitron. Out-of-warranty repair work is warranted for three (3) months from the date of shipment of the repaired product and covers exclusively only the actual performed repairs. For warranty service, the product must be sent to an Omnitron designated facility, at Buyer's expense. Omnitron will use its standard shipping method to return the repaired product to Buyer's designated Continental United States address.

Limitation of Warranty

The foregoing warranty shall not apply to defects resulting from improper or inadequate use and/or maintenance of the equipment by Buyer, Buyer-supplied equipment, Buyer-supplied interfacing, unauthorized modifications or tampering with equipment (including removal of equipment cover by personnel not specifically authorized and certified by Omnitron), or misuse, or operating outside the environmental specification of the product (including but not limited to voltage, ambient temperature, radiation, unusual dust, etc.), or improper site preparation or maintenance. Software/Firmware components are provided "as is" and without warranty of any kind. No other warranty is expressed or implied. Omnitron specifically disclaims the implied warranties of merchantability and fitness for any particular purpose.

Exclusive Remedies

The remedies provided herein are the Buyer's sole and exclusive remedies. Omnitron shall not be liable for any direct, indirect, special, incidental, or consequential damages of any kind, whether based on contract, tort, or any legal theory.

General and Copyright Notice

Any dispute between a Buyer and Omnitron shall be governed by the laws of the State of California, U.S.A. without regard to its choice of law principles. Any action brought between a Buyer and Omnitron may only be brought in the state or federal courts located in the county of Orange in California and each party consents to the jurisdiction of those courts.

The information contained in this publication is subject to change without notice. Omnitron Systems Technology, Inc. is not responsible for any inadvertent errors.

PRODUCT OVERVIEW

This document describes the basic installation and configuration of the XM5-1G Network Interface Device (NID).

The iConverter XM5-1G is an intelligent Network Interface Device (NID), that delivers advanced Carrier Ethernet services and provides demarcation at the edges of a network. The XM5-1G enables rapid service deployments, Service Level Agreement (SLA) assurance and protection switching.

The SFP ports on the XM5-1G support SERDES 100BASE-X or 1000BASE-X fiber transceivers and SERDES 1000BASE-T or SGMII 10/100/1000BASE-T copper transceivers. The SFP interfaces operate in manual mode or auto-negotiation and support full duplex operation.

The RJ-45 Ethernet ports support 10BASE-T, 100BASE-TX and 1000BASE-T protocols, auto-negotiation, auto MDI/MDI-X crossover and can be manually forced to a specific speed and duplex mode using the Command Line Interface.

For more information including the complete User Manual on the XM5-1G models, access Omnitron's registration page and register the product:

http://www.omnitron-systems.com/create-an-account.php

INSTALLATION PROCEDURE

1) AC/DC Power Installation

2) Installing SFP Transceivers and Connecting the Cables

3) Configure Module via Command Line Interface

4) Verify Operation

1) AC/DC POWER INSTALLATION

AC Power

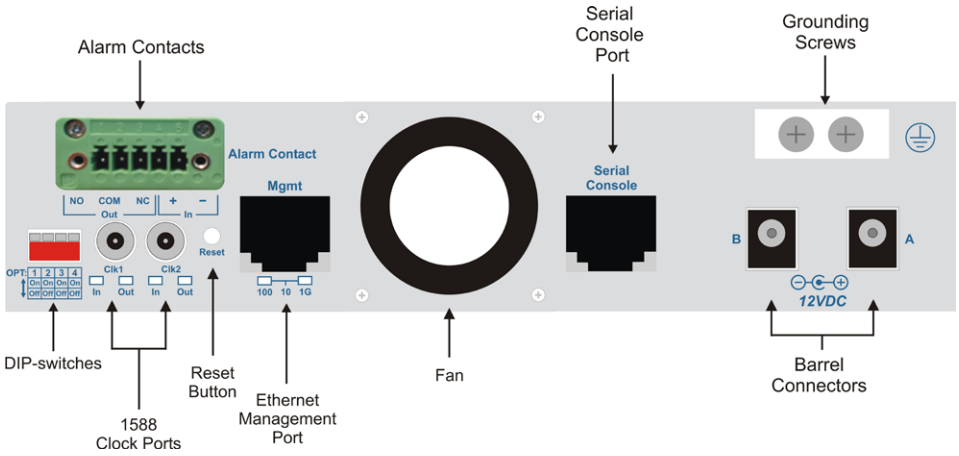
To power the XM5-1G using the AC/DC adapter, connect the barrel plug at the end of the wire on the AC/DC adapter to the 2.5mm DC barrel connector (center-positive) on the back of the XM5-1G. Then connect the AC/DC adapter to an AC outlet Confirm the XM5-1G has powered up properly by checking the status of the Power LED located on the front of the XM5-1G.

NOTE: The barrel connector input supports +12VDC only.

Depending on the model number of the module, a second power source is available. Use the same power supply installation procedure above for the second power supply.

Installation of the equipment should be such that the air flow in the front, back, side and top vents of the XM5-1G are not compromised or restricted.

If the installation requires grounding, secure the grounding wire to the ground screws. See the figure on the next page for the location of the grounding screws.



Rear View with Dual AC Barrel Connector

WARNING!!!

NEVER ATTEMPT TO OPEN THE CHASSIS OR SERVICE THE POWER SUPPLY OR FAN MODULE. OPENING THE CHASSIS MAY CAUSE SERIOUS INJURY OR DEATH.
THERE ARE NO USER REPLACEABLE OR SERVICEABLE PARTS IN THIS UNIT.

DC Power

A power source should be available within 5 ft. of the XM5-1G. The over current protection for connection with centralized DC shall be provided in the building installation, and shall be a UL listed circuit breaker rated 20 Amps, and installed per the National Electrical Code, ANSI/NFPA-70.

The XM5-1G requires +/- 20 to 60VDC (48VDC @ 1.1 Amp max rated power). Appropriate overloading protection should be provided on the DC power source outlets utilized.

WARNING: Only a DC power source that complies with safety extra low voltage (SELV) requirements can be connected to the DC-input power supply.

WARNING REGARDING EARTHING GROUND:

- This equipment shall be connected to the DC supply system earthing electrode conductor or to a bonding jumper from an earthing terminal bar or bus to which the DC supply system earthing electrode is connected.
- This equipment shall be located in the same immediate area (such as adjacent cabinets) as any other equipment that has a connection between the earthed conductor of the same DC supply circuit and the earthing conductor, and also the point of earthing of the DC system. The DC system shall not be earthed elsewhere.
- The DC supply source is to be located within the same premises as this equipment.
- There shall be no switching or disconnecting devices in the earthed circuit conductor between the DC source and the earthing electrode conductor.

Locate the DC circuit breaker of the external power source, and switch the circuit breaker to the OFF position.

Prepare a power cable using a three 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.

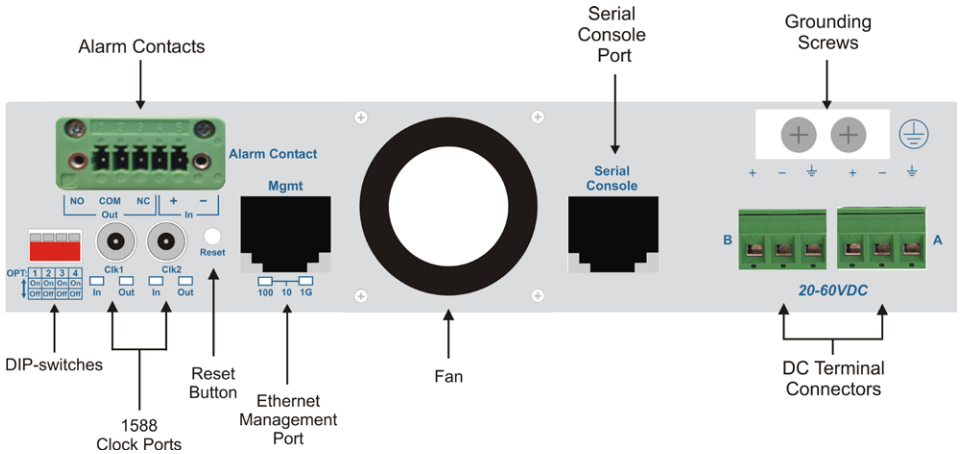
Connect the power cables to the terminal by fastening the stripped ends to the DC power connector.

WARNING: Note the wire colors used in making the positive, negative and ground connections. Use the same color assignment for the connection at the circuit breaker.

Connect the power wires to the circuit breaker and switch the circuit breaker ON. The Power LED will indicate the presence of power.

Installation of the equipment should be such that the air flow in the front, back and side vents of the XM5-1G are not compromised or restricted.

If the installation requires grounding, secure the grounding wire to the ground screws. See figure below for the location of the grounding screws.



Rear View with Dual DC Terminal Connector

WARNING!!!

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2) INSTALLING SFP TRANSCEIVERS AND CONNECTING THE CABLES

The SFP interfaces support SERDES 100BASE-X or 1000BASE-X fiber transceivers and SERDES 1000BASE-T or SGMII 10/100/1000BASE-T copper transceivers.

a. Insert the fiber or copper transceivers into the SFP receptacles on the module.

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

The XM5-1G has the ability to detect the speed and automatically configure the port to match the speed of approved transceivers. Some fiber transceivers will need to be configured using the *port* CLI commands to configure the speed of the port to match the speed of the installed SFP transceiver.

b. Connect the appropriate multimode or single-mode fiber cable to the fiber port of the installed module. When using dual fiber, 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) transceivers 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.

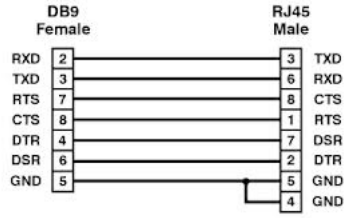
c. For models with fixed RJ-45 ports, connect the RJ-45 port via a Category 5 or better cable to a 10BASE-T, 100BASE-TX or 1000BASE-T Ethernet device (depending on the configuration of the port).

3) CONFIGURE MODULE via COMMAND LINE INTERFACE

To configure the XM5-1G using the serial port, attach a DB-9 serial (RS-232) equipped computer with terminal emulation software such as Procomm or Putty to the serial console port on the XM5-1G using the included cable.

The serial console port is located on the back of the device. Attach the ends of a serial adapter cable to the serial port of the PC and the RJ-45 connector of the XM5-1G. The port is a standard RS-232 asynchronous serial interface.

The serial adapter cable pin-outs are illustrated below.



Serial Adapter Cable Pin Outs

Serial Console Port Settings

Start the terminal emulation program and select the correct COM Port. Set the serial port to the following:

Bits Per Second	115,200	Stop Bits	1
Data Bits	8	Parity	NONE
Hardware Flow Control	NONE		

Once the module has booted, an Entry screen will be displayed on the attached PC. If a password has been configured, enter the password and press <ENTER>. A system prompt, '>', will be displayed. At the module prompt (>), enter *?*, *help* or *h* to view the command options.

4) VERIFY OPERATION

Verify the module is operational by viewing the status of the LED indicators. The table below provides a description for each LED indicator.

The Power LED(s) indicate the module is receiving power from the external power source.

LED Function "Legend"	Color	OFF State	ON/Blinking State
Power "Pwr A"	Green/ Yellow	No power	Solid Green: Module has power Blinking Yellow (10Hz): Fan Alarm
Power "Pwr B" (Dual power models only)	Green/ Yellow	No Power	Solid Green: Module has power Blinking Yellow (10Hz): Fan Alarm
P1, P2 Link Activity "1G"	Green	Port not linked at 1G	Solid Green: Port linked at 1G Blinking Green (10Hz): Data activity Blinking Green (1Hz): Energy detected but no link
P1, P2 Link Activity "100"	Green	Port not linked at 100M	Solid Green: Port linked at 100M Blinking Green (10Hz): Data activity Blinking Green (1Hz): Far-end fault detected but no link
P1, P2 Link Activity "100" and "1G" (RJ-45 models only)	Green	Port not linked at 10M	Solid Green: Port linked at 10M Blinking Green (10Hz): Data activity
P3 - P8 Link Activity "1G"	Green	Port not linked at 1G	Solid Green: Port linked at 1G Blinking Green (10Hz): Data activity Blinking Green (1Hz): Energy detected but no link
P3 - P8 Link Activity "100"	Green	Port not linked at 100M	Solid Green: Port linked at 100M Blinking Green (10Hz): Data activity Blinking Green (1Hz): Far-end fault detected but no link
P3 - P8 Link Activity "100" and "1G" (RJ-45 models only)	Green	Port not linked at 10M	Solid Green: Port linked at 10M Blinking Green (10Hz): Data activity
Mgmt "1G" (Located on the back)	Green	Port not linked at 1G	Solid Green: Port linked at 1G Blinking Green (10Hz): Data activity Blinking Green (1Hz): Auto-negotiation detected but no link
Mgmt "100" (Located on the back)	Green	Port not linked at 100M	Solid Green: Port linked at 100M Blinking Green (10Hz): Data activity Blinking Green (1Hz): Far-end fault detected but no link
Mgmt "100" and "1G" (Located on the back)	Green	Port not linked at 10M	Solid Green: Port linked at 10M Blinking Green (10Hz): Data activity

LED Indicators

NOTE: LED indicators will vary depending on the model.

Specifications

Description	***iConverter* XM5-1G** 1G Network Interface Device	
Standard Compliances	IEEE 802.1Q, 802.1ad, 802.1p, 802.3, 802.3ah, 802.1ag, 1588v2 RFC 2819 (RMON), 2863 (IF-MIB), 2131 (DHCP), 2544, 5357, 4541 ITU-T G.8031, G.8032, G.8262, Y.1731, Y.1564 MEF Carrier Ethernet 2.0 Certified MEF 6.2, 9, 10.2, 14, 21, 26.1, 30, 31, 33	
Management	Telnet, SNMPv1, SNMPv2c, SNMPv3, SSH, Serial Console	
Regulatory Compliances*	UL, CE, FCC Class A, NEBS Level 3, RoHS2 (6/6), WEEE, REACH	
Frame Size	Up to 10,056 bytes	
Port Types	Copper:	10/100/1000BASE-T (RJ-45)
	Fiber:	1000BASE-X 100BASE-X
	Serial: (Management)	RS-232 (RJ-45)
	Copper: (Management)	10/100/1000BASE-T (RJ-45)
Cable Types	Copper:	EIA/TIA 568 A/B, Category 5 and higher
	Fiber:	Multimode: 50/125um, 62.5/125um Single-mode: 9/125um
	Serial: (Management)	EIA/TIA 568 A/B, Category 3 and higher
	Copper: (Management)	EIA/TIA 568 A/B, Category 5 and higher
AC Power Requirements	AC Power Adapter:	100-240VAC~ 50-60Hz 0.3A @ 110VAC
DC Power Requirements	2.5mm Barrel Connector:	12VDC Maximum power consumption 30W
	3-Pin Terminal:	+/- 20VDC to 60VDC Maximum power consumption 30W
Temperature	Commercial: Wide: Extended: Storage:	0 to 50° C -40 to 60° C -40 to 75° C -40 to 80° C
Dimensions	W: 7.29" x D: 9.15" x H: 1.63" L: 185.17mm x B: 232.41mm x H: 41.4mm	
Weight	3.24 lbs (1.47 kg)	
Humidity	5% to 95% (non-condensing)	
Altitude	-100m to 4,000m (operational)	
Warranty	2 years standard; 3 years with registration	

*Pending