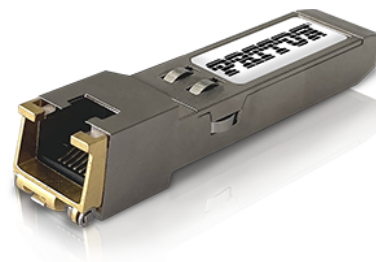


# Terminal/Device/Print Converters & Servers

Connect-IT CIT-SFP Serial (RS-232/422/485) Device  
Server SFP Module



## Connect $\leftrightarrow$ IT

*The SFP Device Server lets you Transport, Control, Monitor, and Collect data from all your serial devices over IP/Ethernet. It is cost-effective and feature-rich, linking virtually any serial RS-485/422/232 device to any IP network over a secure connection.*

### Overview

Patton's Connect-IT SFP module is an Industry 4.0 device that encapsulates asynchronous serial data into IP packets for transport through the network via UDP or TCP. The module can be plugged into any Ethernet device with SFP ports that support 100BASE-FX and/or 1000BASE-X.

Consequently, the device can function as a Device Server, Terminal Server and/or Serial-over-IP Extender. This allows transport, control, access, and monitoring of Asynchronous RTUs and other devices over the Ethernet/IP/LAN networks.

The serial Interfaces are user selectable using software to for RS-232, RS-422 or RS-485 and can support data rates from 75 bps to 230 Kbps. The unit works with 3rd-Party Com-Ports, COM-Servers, and Com-Server Applications, and can function as a Com-Port Extender.

Serial data transmission can be done using UDP or TCP protocols. UDP allows Point-To-Point (PTP) or Point-To-Multipoint (PTMP) operation. Point-To-Multipoint mode enables broadcasting nodes to build a broadcast configuration.

Configuration and management is done via password protected Web, Telnet or SSH access. For security the Web, Telnet and SSH access can be set to write-protected using a switch module. Digital Diagnostic Monitoring (DDM) Available.

The SFP module is packaged in a rugged fully metallic enclosure and supports operating temperatures between -40°C to +85°C and includes an embedded temperature sensor.

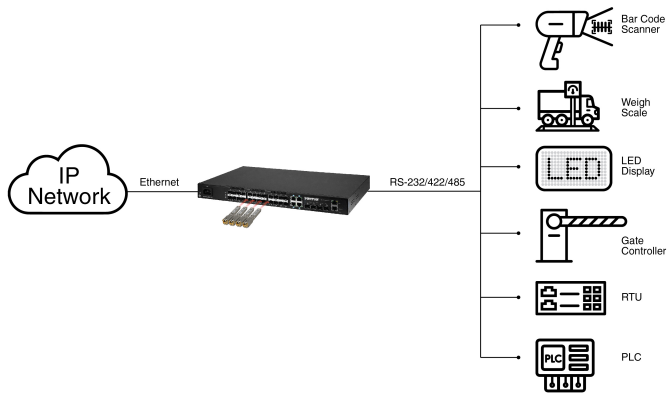
### Features

- **Multiple Applications** - This unique Device Server, Terminal Server and Serial-over-IP Extender comes packaged as a miniature SFP module.
- **Small Form Pluggable** - The SFP module can be installed any router, switch or media gateway that has an SFP slot and eliminates “box stacking” installations.
- **Conversion and Transport** - . Transport, Control, Access, and Monitor Asynchronous Serial Terminals and Devices over the Ethernet/IP/LAN networks.
- **Selectable Serial Interfaces** - Software Selectable for RS-232, RS-422 or RS-485.
- **Flexible Data Rates** - Supports Serial Interface Speeds from 75 bps to 230 Kbps.
- **COM-PORT Support** - Compatible with 3rd-Party COM-Servers, Com-Server Applications, and can function as a Com-Port Extender.
- **Gigabit Support** - Supports 100BASE-X and/or 1000BASE-X via SFP Interface.
- **Industry 4.0** - Used for Industry 4.0 Applications Enhancing Industrial Ethernet Switch & Router connectivity to Serial Devices.
- **Multiple Protocols & Topologies** - Serial data transmission can be done using UDP or TCP protocols. UDP allows Point-To-Point (PTP) or Point-To-Multipoint (PTMP) operation. Point-To-Multipoint mode enables broadcasting nodes to build a broadcast configuration.
- **Configuration & Management** - Configuration & Management is done via password protected Web, Telnet or SSH access. For security the Web, Telnet and SSH access can be set to write-protected using a switch module. Digital Diagnostic Monitoring (DDM) Available.

# Applications

## Mixed Ethernet and Serial Connectivity

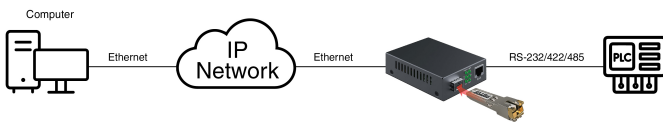
The Connect-IT SFP Device Server, can be installed in the SFP slots of any Ethernet Switch, including the Patton 24-SFP-Port Industrial Switch (/fp2124r/) and provide Serial Connectivity to a variety of industrial devices.



- **Industrial Grade** - The Hot-pluggable SFP module is packaged in a rugged fully metallic enclosure for Low EMI, has an operating temperature between -40°C to +85°C, and includes an embedded temperature sensor. It offers low power consumption (< 500mW).

## COM-Server (COM Port Extender, Virtual Serial Port) Point-To-Point

The CIT-SFP can be used with Com-Servers. The unit can be configured as a RSIP server providing a port number and public IP address to a RSIP client (Computer).



## UDP or TCP Point-To-Point Operation

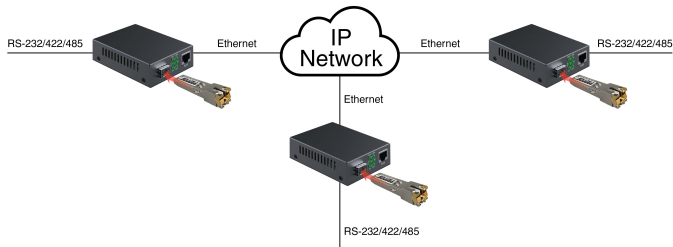
The CIT-SFP can be configured for point-to-point operation using either TCP or UDP. For UDP operation the two units are configured with each other's IP Address and PORT Number. For TCP Point-To-Point operation one unit is configured as Server and the other as Client.



## Point-To-MultiPoint or UDP Broadcast Operation

The CIT-SFP can be configured for Point-to-Multipoint and/or Broadcast operation. For Multipoint operation endpoint sends serial data with a multicast IP Address (IPM) and some PORT Number (PORTM) as outgoing address.

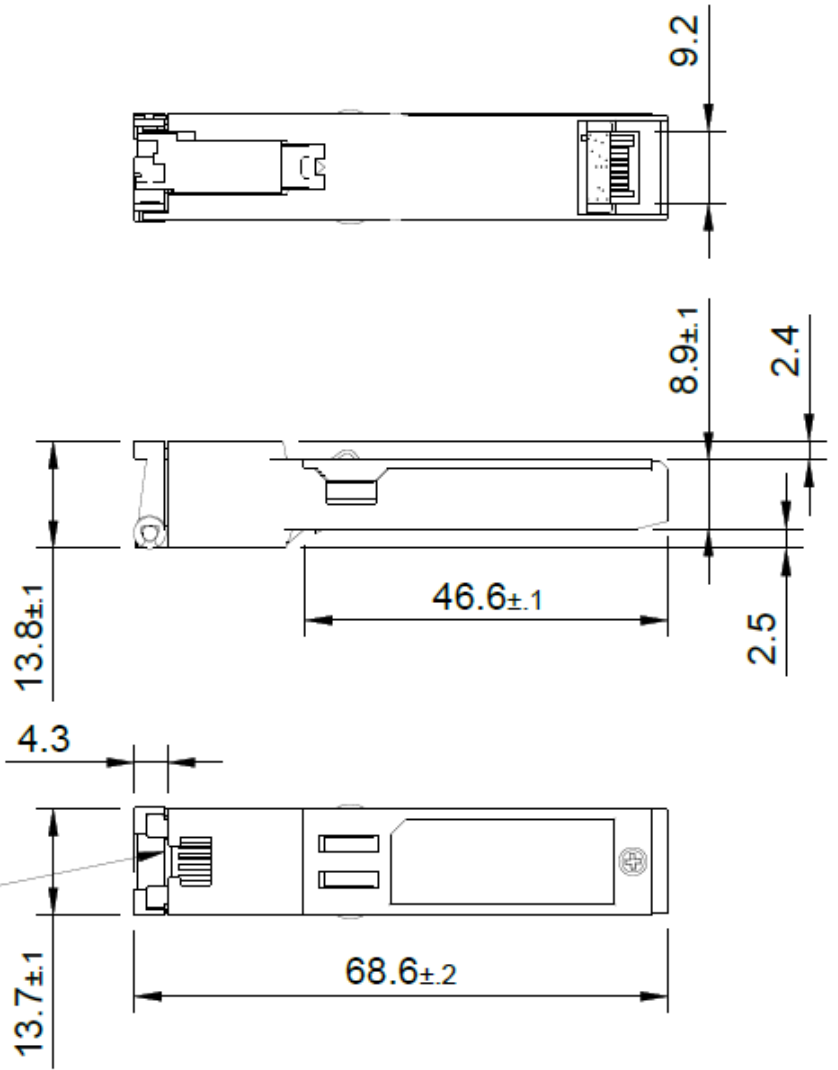
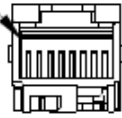
Only unit with input PORT Number PORTM accepts the received data and other units will discard it. Any multicast address acceptable in the application network can be used. Units distinguish incoming broadcast data by destination PORT Number (PORTM). For UDP Broadcast Mode the units send their serial data to the multicast IP Address (IPM). Incoming and outgoing PORT Number (PORTM) are the same for all units to receive each other's serial data.



# Specifications

<b>Serial Interface</b>	<ul style="list-style-type: none"><li>• RS-232/485/422 (ITU-T Rec RS-232/V28 or RS485/422)</li><li>• Bit Rates (bps) 75, 150, 200, 300, 600, 1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 56000, 57600, 115200, 128000, 230400, 256000</li><li>• Format Bits: 5...8, Stop bits: 1 or 2, Parity: none/even/odd</li></ul>
<b>Serial Connector</b>	<ul style="list-style-type: none"><li>• RJ-45 (8-pins)</li><li>• Pin-Out RS232. Pin 4 Ground, Pin 5 RX, Pin 6 TX, Pin 7 CTS, Pin 8 RTS</li><li>• Pin-Out RS485/RS-422 Full Duplex. Pin 4 Ground, Pin 5 RX-, Pin 6 TX+, Pin 7 RX+, Pin 8 TX-</li><li>• Pin-Out RS485 Half Duplex. Pin 4 Ground, Pin 5 DX-, Pin 7 DX+</li></ul>
<b>Serial Payload</b>	<ul style="list-style-type: none"><li>• Over UDP or TCP</li></ul>
<b>Operating Modes</b>	<ul style="list-style-type: none"><li>• UDP Point-To-Point</li><li>• UDP Point-To-MultiPoint (“Master” sends serial data using a multicast IP Address (IPM) with a PORT Number (PORTM). Endpoints with input PORT Number PORTM accept received data and other endpoints will discard it</li><li>• TCP Point-To-Point (configured as Server and Client)</li><li>• COM-Server (COM Port Extender, Virtual Serial Port) Point-To-Point. Serial data endpoint should be configured as Server and the Terminal as Client.</li></ul>
<b>Configuration</b>	<ul style="list-style-type: none"><li>• WebGUI</li><li>• Telnet and SSH CLI Commands (according to ITU-T Rec. M.3400 Telecommunication Management Networks)</li></ul>
<b>Toggle Switch</b>	<ul style="list-style-type: none"><li>• Left Position = Factory Default. The unit will start-up to its default values</li><li>• Center Position = Normal Mode. Remote Management enabled</li><li>• Right Position = Blocking Mode. Write protected, so you can only read the values in the CLI and/or WebGUI</li></ul>
<b>SFP Ethernet Interface</b>	<ul style="list-style-type: none"><li>• MSA Compliant</li><li>• 100 Mbps (100Base-FX)</li><li>• 1000 Mbps (1000Base-X)</li></ul>
<b>SFP Host Power</b>	<ul style="list-style-type: none"><li>• MSA Compliant</li><li>• Input Voltage 3.135 (Min), 3.3 (Typical), 3.465 (Max) V DC</li><li>• Input Current 120 (Typical), 140 (Max) mA</li></ul>
<b>Diagnostics</b>	<ul style="list-style-type: none"><li>• The SFP MSA defines an enhanced memory map with a digital diagnostic monitoring interface for SFP transceivers that allows pseudo real time access to device operating parameters. It defines a 256 bytes memory map which is accessible over a 2-wire serial interface at the 8-bit address 1010000X (A0h), the ID fields. The digital diagnostic monitoring interface makes use of the 8-bit address 1010001X (A2h)</li></ul>
<b>Environmental</b>	<ul style="list-style-type: none"><li>• Storage Temperature -40 to +85 °C</li><li>• Operating Temperature -40 to +85 °C</li><li>• Relative Humidity 5 to 95% non-condensing</li></ul>
<b>Compliances</b>	<ul style="list-style-type: none"><li>• Safety EN 62368-1:2020/A11:2020, IEC 62368-1:2020/A11:2020</li><li>• EMC EN 300 386 V1.6.1:2012, EN 55032:2015/A11:2020 class B, EN 55035:2017/A11:2020 criterion A, EN 61000-4-2:2009 ± 8 kV contact discharge ± 15 kV air discharge, EN 61000-4-3:2020 10 V/m (80-1000 MHz), EN 61000-4-6:2014 10 V (150 kHz-80 MHz)</li><li>• RoHS RoHS2 Directive 2011/65/EU and 2015/863/EU WEEE Directive 2012/19/EU</li><li>• Lifetime/MTBF: 1’392’757 H, λ (10-9 h-1) = 718, Siemens Norm SN 29500, Temperature 40°C</li></ul>

RJ-45 Connector



RJ-45 Connector