

FlexSwitch™ 2Fx+2U Model 6540-FK Replacement Kit

User Manual



PRODUCT OVERVIEW

The 6540-FK is the direct replacement for the discontinued FlexSwitch Model 600XC 2Fx + 2U. The 6540-FK replacement kit consists of two iConverter 10/100BASE-Tx to 100BASE-Fx Media Converter Modules installed in a iConverter 2-Module chassis.

The 6540-FK provides two 10/100 auto-negotiating RJ-45 ports with auto-crossover and two 100BASE-Fx fiber ports.

The two 100BASE-Fx fiber ports support half or full duplex operation.

The 6540-FK features front panel accessible DIP-Switches for convenient configuration of the single RJ-45 and fiber port. On-board DIP-Switches configure the link mode and backplane operation. The backplane is enabled by default.

Chassis Models

FlexSwitch Replacement Matrix				
Disconnected Part	Replacement Part			
	Connector Type		Fiber Type	Distance
	SC	ST		
6540-0	6540-0-FK	-	MM	5km
6540-2	6540-2-FK	-	SM	30km
6540-3	6540-3-FK	-	SM	60km
6541-0	-	6541-0-FK	MM	5km
6541-2	-	6541-2-FK	SM	30km

INSTALLATION PROCEDURE

- 1) Configure DIP-Switches
- 2) Install Module in Chassis and Connect Cables
- 3) Installing the Chassis
- 4) Apply AC Power
- 5) Verify Operation

1) Configure DIP-Switches

Front Panel DIP-Switches

The modules have been pre-configured as illustrated below. Using the front panel DIP-Switch, the module can be re-configured for customer specific applications.

- Fiber Full-Duplex = FDX HDX = Fiber Half-Duplex
- UTP Auto Negotiate = AN Man = UTP Manual
- UTP 100Mbps = 100 10 = UTP 10Mbps
- UTP Full-Duplex = FDX HDX = UTP Half-Duplex

Front Panel DIP-Switches Showing Factory Default Settings

Fiber Full/Half-Duplex

When in the Fiber Full/Half-Duplex DIP-Switch is in the “FDX” position, the fiber port operates in Full-Duplex mode. When in the “HDX” position, the fiber port operates in Half-Duplex mode and its distance is limited by the IEEE 802.3 standard to 412 meters.

UTP Auto/Manual Negotiate

When the UTP “AN/Man” DIP-Switch is in the Auto-Negotiate “AN” position, the converter Auto-Negotiates and matches the 10/100 speed and duplex mode of a mating Auto-Negotiating device connected to its RJ-45 port.

When the UTP “AN/Man” DIP-Switch is in the “Man” position, the converter does not auto-Negotiate and operates in the mode selected by the Full/Half Duplex “FDX/HDX” and “10/100” DIP-Switches.

UTP 10/100

When the UTP “AN/Man” DIP-Switch is in the “Man” position, the UTP “10/100” DIP-Switch selects the speed of the RJ-45 port. When in the “100” position (factory default), the RJ-45 port operates at 100 Mbps. When in the “10” position the RJ-45 port operates at 10 Mbps.

UTP Full/Half-Duplex

When the UTP “AN/Man” DIP-Switch is in the “Man” position, the “FDX/HDX” DIP-Switch selects the duplex mode of the RJ-45 port. When in the “FDX” position, the RJ-45 port operates in Full-Duplex mode. When in the “HDX” position, the RJ-45 port operates in Half-Duplex. Set the duplex mode to match the connecting device and check for link status.

Note: Attaching the Auto-Negotiating RJ-45 port of the 6540-FK to a device with a manual/forced /hard-coded RJ-45 port may result in an unpredictable port setting with excessive collisions and poor link performance. When operating in Manual mode, both mating ports MUST be set manually to the same speed and duplex mode.

On Board DIP-Switches

The modules have on-board DIP-Switches for the configuration of the Link Modes and Backplane connectivity. For more information on Link Mode, see the [Link Mode Application Note](#). The modules are pre-configured as illustrated below.

- 4 RFD = Remote Fault Detect Enable
 - 3 BPOEN = Backplane Enable
 - 2 LP = Link Propagate/Link Segment
 - 1 = Not Used (Factory Set)
- ← Down

On-Board DIP-Switches Showing Factory Default Settings

Remote Fault Detection

When the Remote Fault Detect “RFD” DIP-Switch is in the UP position, the RFD mode is selected. When in the DOWN position, the RFD mode is disabled.

Note: Connecting two converters with both set to RFD mode is an illegal setting and will cause a “deadly embrace” lockup.

A and B Backplane Enable

This DIP-Switch must be in the UP position for the module to operate correctly. The backplane must be enabled for the modules to communicate.

Link Propagate/Link Segment

When both the Link Propagate/Link Segment “LP” and the Remote Fault Detect “RFD” DIP-Switches are in the DOWN position, Link Segment mode is enabled. When the Link Propagate/Link Segment “LP” DIP-Switch is in the UP position, and the Remote Fault Detect “RFD” DIP-Switch is in the DOWN position, Link Propagate mode is enabled.

Note: Setting both the “LP” and the “RFD” to the UP positions on the same module is an illegal mode that will result in unpredictable behavior.

2) Install Module in the Chassis and Connect the Cables

The modules are pre-installed in the 2-Module chassis with the backplane enabled on both modules.

- a. Carefully slide the module into an open slot in the chassis. Align the module with the installation guides and ensure that the module is firmly seated against the backplane. Secure the module by fastening the front panel thumbscrew (push in and turn clockwise to tighten) to the chassis front. Verify the “Pwr” LED is ON (indicating the chassis is powered).



- b. Connect an appropriate multimode or single-mode fiber cable to the fiber port of the installed modules. It is important to make sure 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.
- c. Connect the RJ-45 ports via a Category 5 cable to a 10BASE-T or 100BASE-Tx Ethernet device.

3) Installing the Chassis

Wall and Rack Mounting

The 2-Module chassis can be wall/rack mounted by attaching the optional wall/rack mount brackets (8249-0). A 19” Rack Mount Shelf (8260-0) is available to install two 2-Module chassis.

The operating temperature of this equipment is 0 to 50 degrees C. If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack must not exceed the maximum rated temperature for the chassis used.

Installation of the equipment should be such that the air flow in the front and back of the unit is not compromised or restricted.

Installing this equipment into a rack in such a way as to make it unstable **may cause injury or death**. Always make sure that the rack you are installing this equipment into is properly secured, stable, balanced and designed to carry the weight and weight distribution of this equipment.

Never use this equipment to carry any weight except its own. Never use it as a shelf to support the weight of other equipment.

4) Apply AC Power

Power source should be available within 5 ft. of the chassis and installed per the National Electrical Code, ANSI/NFPA-70.

This equipment requires a 100-240VAC, 0.5Amp, 50/60Hz power outlet. Appropriate overloading protection should be provided on the AC power source outlets utilized.

Appropriate overloading protection should be provided on all AC power source outlets utilized.

Attach the AC power cord to the back of the chassis. Connect the AC power cords to the AC outlets and switch the outlets ON.

Any installed iConverter modules will illuminate the power LED.

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.



Rear of 2-Module Chassis with Power Cord

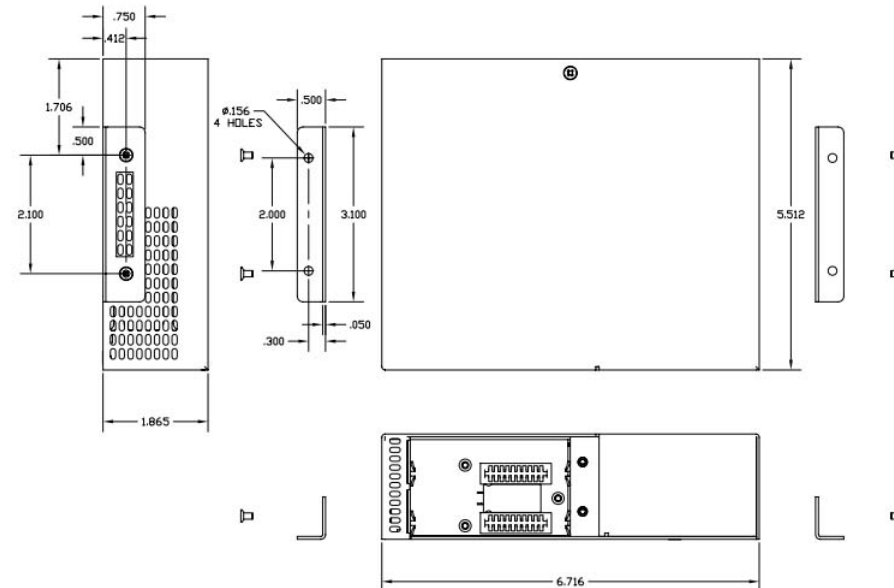
5) LED Indicators

Each module has LED indicators to provide connection information.

LED Function "Legend"	Color	OFF	ON
Power "Pwr"	Yellow	No power	Module has power
Port 1 Fiber Duplex "FDX"	Green	Fiber in Half Duplex	Fiber in Full Duplex
Port 1 Fiber Link "Lk/Act"	Green	No fiber link	ON: Fiber linked Blinking: Fiber activity
Port 2 RJ-45 Negotiation "AN"	Green	RJ-45 in Manual negotiation	RJ-45 in Auto negotiation
Port 2 RJ-45 Speed "100"	Green	RJ-45 not linked at 100Mbps	RJ-45 linked at 100Mbps
Port 2 RJ-45 Speed "10"	Green	RJ-45 not linked at 10Mbps	RJ-45 linked at 10Mbps
Port 2 RJ-45 Duplex "FDX"	Green	RJ-45 in Half Duplex	RJ-45 in Full Duplex
Port 2 RJ-45 Link "Lk/Act"	Green	No RJ-45 link	ON: RJ-45 linked Blinking: Data activity

LED Indicators

Mechanical



Specifications

Standards	IEEE 802.3
Regulatory Compliances	Safety: UL, CE, UKCA EMI: FCC Class A ACT: TAA, BAA, NDAA
Environmental	RoHS, WEEE, REACH
Frame Size	1,536 bytes
Port Type	Copper: 10/100BASE-T (RJ-45) Fiber: 100BASE-FX (ST, SC)
Cable Type	Copper: EIA/TIA 568A/B, Cat 5 UTP and higher Fiber: Multimode: 50/125µm, 62.5/125µm Single-mode: 9/125µm
AC Power Requirements	100 to 240VAC, 50/60Hz 0.5A @ 120VAC
Dimensions W x D x H	6.7" x 5.51" x 1.87" (435.6 mm x 228.6 mm x 44.5 mm)
Weight	3.0 lbs. (1.36 kg)
Temperature	Commercial: 0 to 50°C Storage: -40 to 80°C
Humidity	5% to 95% non-condensing
Altitude	-100m to 4,000m
Warranty	Lifetime warranty with 24/7/365 free Technical Support

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For warranty service, the product must be sent to an Omnitron designated facility, at Buyer's expense. Omnitron will pay the shipping charge to return the product to Buyer's designated US address using Omnitron's standard shipping method.

Limitation of Warranty

The foregoing warranty shall not apply to product malfunctions 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.

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Environmental Notices

The equipment covered by this manual must be disposed of or recycled in accordance with the Waste Electrical and Electronic Equipment Directive (WEEE Directive) of the European Community directive 2012/19/EU on waste electrical and electronic equipment (WEEE) which, together with the RoHS Directive 2015/863/EU, for electrical and electronic equipment sold in the EU after July 2019. Such disposal must follow national legislation for IT and Telecommunication equipment in accordance with the WEEE directive: (a) Do not dispose waste equipment with unsorted municipal and household waste. (b) Collect equipment waste separately. (c) Return equipment using collection method agreed with Omnitron.

The equipment is marked with the WEEE symbol shown to indicate that it must be collected separately from other types of waste. In case of small items the symbol may be printed only on the packaging or in the user manual. If you have questions regarding the correct disposal of equipment go to www.omnitron-systems.com/support or e-mail to Omnitron at intlinfo@omnitron-systems.com.



Safety Warnings and Cautions



ATTENTION: Observe precautions for handling electrostatic discharge sensitive devices.



WARNING: Potential damage to equipment and personal injury.



WARNING: Risk of electrical shock.

CUSTOMER SUPPORT INFORMATION

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