FlexSwitch™ 1Fx+4U Model 6750-FK Replacement Kit

User Manual

PRODUCT OVERVIEW

The 6750-FK is the replacement for the discontinued FlexSwitch Model 600XC 1Fx + 4U. The 6750-FK replacement kit consists of one *iConverter* 10/100BASE-TX to 100BASE-FX Media Converter Module and one *iConverter* 4Tx Switch Module installed in a *iConverter* 2-Module Chassis.

The 6750-FK provides five auto-negotiating 10/100 RJ-45 ports with auto-crossover that enables easy attachment to hubs, switches and workstations. The 100BASE-FX fiber port supports half or full duplex operation.

The 6750-FK features on-board and front panel accessible DIP-switches for manual configuration of the ports.

Chassis Models

FlexSwitch Replacement Matrix				
Disconnected Part	Replacement Part			
	Connector Type		Fiber Type	Distance
	SC	ST		
6750-0	6750-0-FK	-	MM	5km
6750-2	6750-2-FK	-	SM	30km
6750-3	6750-3-FK	-	SM	60km
6751-0	-	6751-0-FK	MM	5km
6751-2	-	6751-2-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

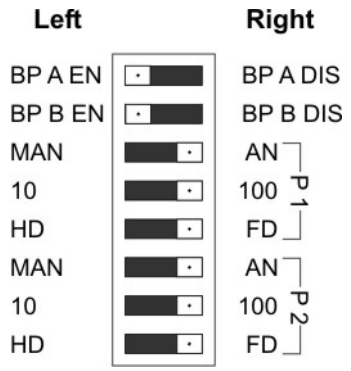
5) Verify Operation

1) Configure DIP-Switches

The 6550-FK has been pre-configured with Auto-Negotiation enabled on all RJ-45 ports for plug and play easy of use. However, the iConverter Modules offer additional configuration flexibility.

4 Port Switch Module

Each 4-Port Switch Module has been pre-configured for Auto-Negotiation with Backplane A and B Enabled.



4 Port Switch Module Default DIP-Switch Settings

Backplane Port A Enable/Disable

This DIP-Switch must be in the LEFT “Enable” position for the module to operate correctly. The switch provides backplane connectivity with the other switch module.

Backplane Port B Enable/Disable

This DIP-Switch must be in the LEFT “Enable” position for the module to operate correctly. The switch provides backplane connectivity with the other switch module.

Port 1 and Port 2 RJ-45 Auto-Negotiate/Manual

When this DIP-Switch is in the RIGHT “AN” position, the Port automatically determines the speed and duplex mode of the connecting copper device. If the connecting device cannot provide the proper signal to indicate its own mode of operation, this DIP-Switch should be set to the LEFT “Man” position. Manual mode requires manually configuring the RJ-45 port to match the speed and the duplex mode of the connecting device using the Speed and Duplex DIP-Switches.

When a port is configured for Auto-Negotiation, the automatic crossover detection is enabled for that particular port. Automatic crossover detection is disabled when the port is configured for manual negotiation.

Port 1 and Port 2 Speed 10/100Mbps

When the port is configured for Manual Mode (AN/MAN in the LEFT position), the Speed DIP-Switch determines the speed of operation for the designated port. Setting the Speed DIP-Switch to the RIGHT “100” position forces the port to operate at 100Mbps. Setting this DIP-Switch to LEFT “10” position forces the port to operate at 10Mbps. Adjust the Speed DIP-Switch to match the speed of the connecting device.

Port 1 and Port 2 Duplex Full/Half-Duplex

When the port is configured for Manual Mode (AN/MAN in the LEFT position), the Duplex DIP-Switch determines the duplex operation mode for the port. Setting the Duplex DIP-Switch to the RIGHT “FD” position forces the port to operate in Full-Duplex. Setting this

DIP-Switch to the LEFT “HD” position forces the port to operate in Half-Duplex. Adjust the Duplex DIP-Switch to match duplex mode the connecting UTP device.

When a port is configured for Auto-Negotiation, the Duplex DIP-Switch will determine if the port advertises Full-Duplex or Half-Duplex. When the Duplex DIP-Switch is in the “FD” position, the port advertises Full-Duplex and Half-Duplex capability. When in the Duplex DIP-Switch is in the “HDX” position, the port advertises only in Half-Duplex capability.

Fiber Module - Front Panel

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

Fiber Module Front Panel Default DIP-Switch 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

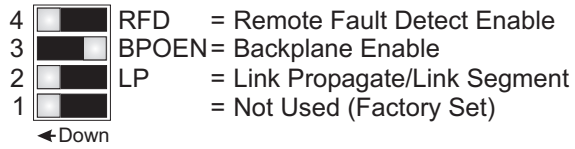
When the UTP “AN/Man” DIP-Switch is in the “Man” position, the “FDX/HDX” DIP-Switch selects the duplex mode of the RJ-45 port. When in the “FDX” position, the RJ-45 port operates in Full-Duplex mode. When in the “HDX” position, the RJ-45 port operates in Half-Duplex. Set the duplex mode to match the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



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 DC Power

The over current protection for the connection with centralized DC shall be provided in the building installation and shall be a UL listed breaker rated at 20 Amps, and installed per the National Electrical Code, ANSI/NFPA-70.

This equipment requires 18-60VDC/1.0Amp rated power. Appropriate overloading protection should be provided on the DC power source outlets utilized.

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

NOTE: The DC power battery return (BR) terminal or positive terminal must be grounded at the source end (power feed or DC mains power end). The DC power BR input terminal is not connected to the equipment frame (chassis), so it is configured as DC-I according to the GR-1089-CORE, Issue 4 (sec 9.8.3) definitions.

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 and switch the circuit breaker to the OFF position.

Prepare a power cable using a three conductor insulated wire (not supplied) with 12AWG to 14AWG thickness. Cut the power cable to the length required.

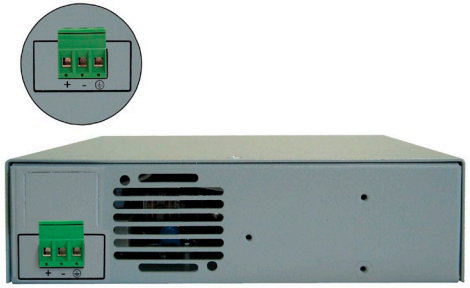
Strip approximately 3/8 of an inch of insulation from the power cable wires.

Connect the ground wire to the ground terminal on the chassis by fastening the stripped end to the DC power connector (ground).

Connect the power cables to the chassis 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.



Rear of 2-Module Chassis with DC Power 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.

5) LED Indicators

Each module has LED indicators to provide connection information.

4 Port Switch Module

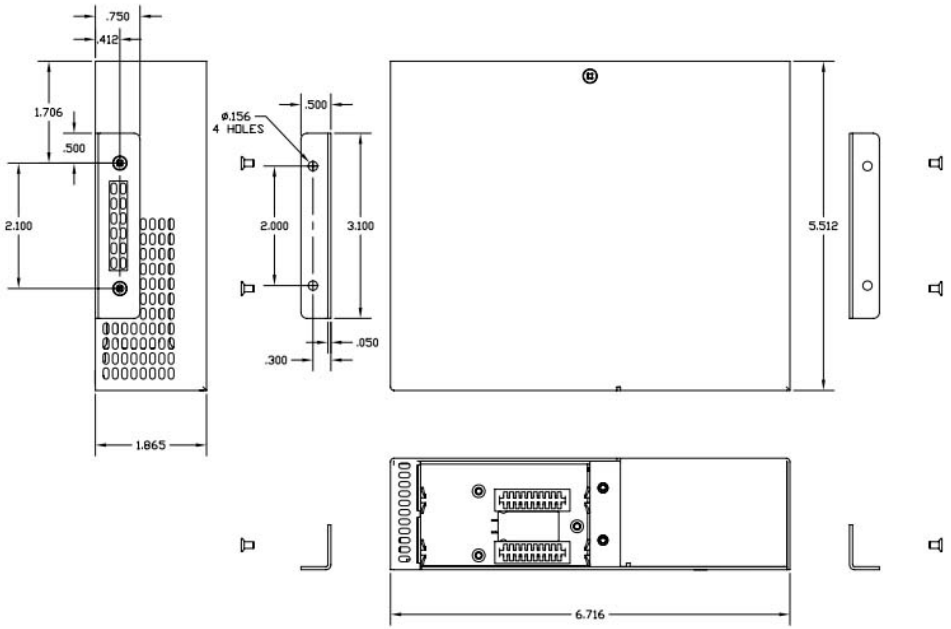
LED Function "Legend"	Color	OFF	ON
Power "Pwr"	Yellow	No power	Module has power
Port *x* "100 Link"	Green	Not linked at 100Mbps	ON: Linked at 100Mbps Blinking: Data activity
Port *x* "10 Link"	Green	Not linked at 10Mbps	ON: Linked at 10Mbps Blinking: Data activity
x = Port number (1 - 4)			

Fiber Module

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: EMI: ACT:	UL, CE, UKCA FCC Class A TAA, BAA, NDAA
Environmental	RoHS, WEEE, REACH	
Frame Size	1,536 bytes	
Port Type	Copper: Fiber:	10/100BASE-T (RJ-45) 100BASE-FX (ST, SC)
Cable Type	Copper: Fiber:	EIA/TIA 568A/B, Cat 5 UTP and higher Multimode: 50/125µm, 62.5/125µm Single-mode: 9/125µm
DC Power Requirements	+/- 18 to 60 VDC 1,0A @ -48 VDC	
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	

General and Copyright Notice

Warranty

This product is warranted to the original purchaser (Buyer) against defects in material and workmanship for a period of two (2) years from the date of shipment. A lifetime warranty may be obtained by the original purchaser by registering this product at www.omnitron-systems.com/support within ninety (90) days from the date of shipment. During the warranty period, Omnitron will, at its option, repair or replace a product which is proven to be defective with the same product or with a product with at least the same functionality.

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.

No other warranty is expressed or implied. Omnitron specifically disclaims the implied warranties of merchantability and fitness for any particular purpose.

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, whether based on contract, tort, or any legal theory.

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.omniton-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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