

CrossFire™ 8730
Fast Ethernet
Translation Switch

DOC-7046/1.2

Installation Guide

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Fast Ethernet Translation Switch

Installation Guide

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FCC Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Warning: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Declaration of Conformity

We Olicom A/S
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DK-2800 Lyngby
Denmark

declare under our sole responsibility that the product
CrossFire 8730

to which this declaration relates are in conformity with the following standards or other normative documents

EN 50082-1
EN 55022
EN 60950 including Amendments
EN 60825-1

following the provisions of 89/336/EEC Directive and 73/23/EEC Directive.

Modifications

If the device is changed or modified without the express approval of Olicom A/S the user may void his or her authority to operate the equipment.

Safety Notices

- ▶ **Danger:** To avoid shock hazard, do not connect or disconnect any cables or perform installation, maintenance, or reconfiguring of the CrossFire 8730 Fast Ethernet Translation Switch during an electrical storm.
- ▶ **Danger:** To avoid the possibility of electrical shock, switch power off and unplug the power cord from the outlet before detaching the power cord from the CrossFire 8730 Fast Ethernet Translation Switch.
- ▶ **Danger:** Do not open the CrossFire 8730 Fast Ethernet Translation Switch. Dangerous voltages inside.
- ▶ **Danger:** To avoid shock hazard the power cord must be connected to a properly wired and earthed receptacle. Any equipment to which the CrossFire 8730 Fast Ethernet Translation Switch will be attached must also be connected to properly wired and earthed receptacles.

Caution:

Observe the following power cable considerations before you begin installation of the CrossFire 8730 Fast Ethernet Translation Switch.

1. The socket outlet shall be installed near the equipment and shall be easily accessible.
2. To prevent electrical shock, the power cord set used must comply with national regulations.
 - 2a. The female receptacle of the cord must meet CEE-22 requirements.
 - 2b. The cord must be UL listed, CSA labelled, and consist of three conductors with a maximum of 15 feet in length.
Type SVT or SJT cord sets shall be used for units which stand on a desk or table. Type SJT cord sets shall be used for units which stand on floor.
 - 2c. The male plug for units operating at 115 VAC shall consist of a parallel blade, grounding type attachment plug rated 15 A, 125 VAC.
The male plug for units operating at 230 VAC shall consist of a tandem blade, grounding type attachment plug rated 15 A, 250 VAC.
The male plug for units operating at 230 VAC (outside of the United States and Canada) shall consist of a grounding type attachment plug rated 15 A, 250 VAC and have the appropriate safety approvals for the country in which the equipment will be installed.

- ▶ **Caution:** Support the CrossFire 8730 Fast Ethernet Translation Switch while you are installing the unit to avoid dropping it on the floor or any equipment beneath it in the rack. The CrossFire 8730 Fast Ethernet Translation Switch unit weighs approximately 9.5 kg (20.9 lbs).
- ▶ **Warning:** All RJ45 connectors must only be connected to safety extra low voltage (SELV) circuits like local area networking (LAN).

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About this Guide

This installation guide contains the information needed to install and get started with the CrossFire™ 8730 Fast Ethernet Translation Switch. The user of this guide is assumed to be a network technician familiar with the installation and operation of networking equipment.

In addition to this installation guide, the CrossFire 8730 Switch is delivered with the on-line *CrossFire 8730 Fast Ethernet Translation Switch—Reference Guide* enclosed as a pdf file on a cd-rom. The cd-rom also contains an on-line version of the installation guide. When you need information outside the scope of the installation guide, please refer to the reference guide.

This installation guide contains the following chapters:

Chapter 1, “Introduction”, contains detailed descriptions of the front and back panel of the CrossFire 8730 Switch as well as a list of features and specifications.

Chapter 2, “Preparing for Installation”, provides information to be read before the installation.

Chapter 3, “Installation”, contains instructions for installing, connecting and verifying the operation of the switch.

Chapter 4, “Switch Access”, explains how to set up a connection to access the switch console interface for switch management.

Chapter 5, “Troubleshooting”, gives troubleshooting hints that can be used to locate and resolve minor problems.

Chapter 6, “Getting in Touch with Technical Support”, lists Olicom’s support services such as hotline support, fax support and the support web, as well as other services such as bulletin board service, FTP server and e-mail.

Appendix A, “Cable and Pin Information”, lists cables and cable types that can be used with the switch.

Document Conventions

The following conventions are used in this guide:

- HELVETICA NARROW indicates keystrokes, as in “Press ENTER to select the item.”
- Items displayed on the screen, such as menus and parameters, are indicated with bold. For example, “Select **Configuration...** in the main menu.”



1. Introduction

This chapter introduces the CrossFire 8730 Switch. You will also find detailed information about the front and back panel as well as lists of features and specifications.

About the CrossFire 8730

The CrossFire 8730 Switch is designed specifically to reduce the costs and complexity of migrating from Token-Ring to Fast Ethernet. The switch provides twenty Token-Ring ports and four Fast Ethernet ports.

The CrossFire 8730 Switch effectively connects Token-Ring workgroups to Fast Ethernet and gives the benefit of LAN (Local Area Network) switching to eliminate congestion and maximise bandwidth.

The CrossFire 8730 Switch supports translational bridging for all key network protocols (SNA, IP, IPX, NetBios), all native Token-Ring features, including source routing and VLAN tagging (IEEE 802.1Q), and all network speeds for both standard Token-Ring (16/4 Mbps) and Ethernet (10/100 Mbps).

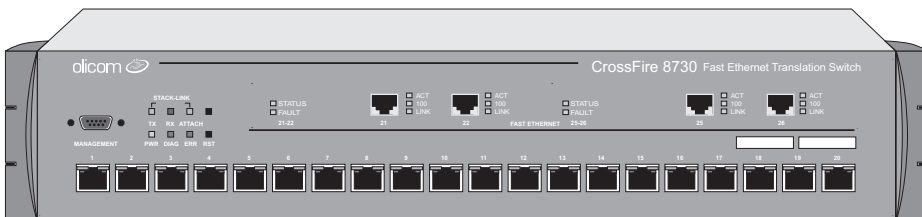


Figure 1. CrossFire 8730 Fast Ethernet Translation Switch

Front Panel Details

The connectors and LEDs (light emitting diodes) on the front panel of the CrossFire 8730 Switch are displayed in Figure 2. For detailed explanations, please see the tables and sections below.

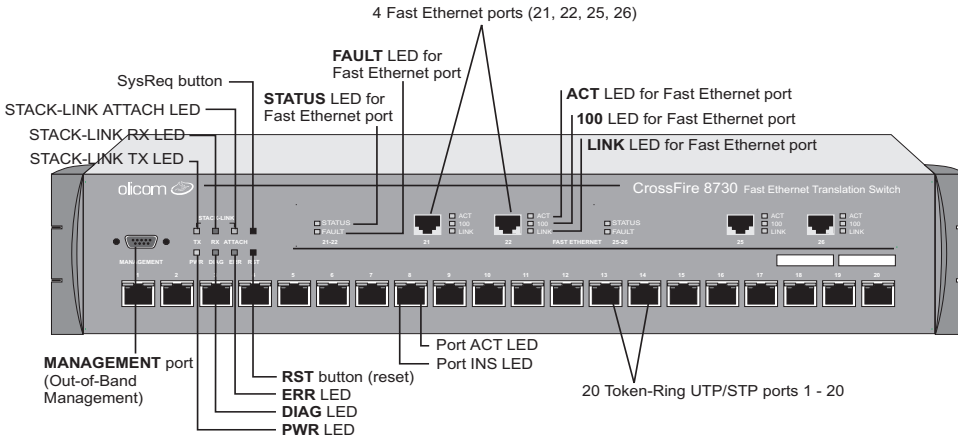


Figure 2. Front Panel LEDs, Switches, and Connectors

Connectors and Push-Buttons

The table below gives an overview of the connectors and push-buttons on the front panel. For detailed descriptions see the following pages in this chapter.

Name	Description
Ports 1 to 20	UTP/STP Token-Ring RJ-45 ports. Ports 19 and 20 can attach to a MAU/CAU RI/RO port. (MAU=Media Access Unit/CAU=Controlled Access Unit)
Ports 21, 22, 25, and 26	UTP5 10/100 Mbps Fast Ethernet RJ-45 ports.
MANAGEMENT	Console connection with DB-9 connector.
RST	Reset—full system reset of software and hardware.
SYS REQ (unlabeled)	System Request—initiates a set of system request menus on the attached console. If depressed for more than 5 seconds, the switch will accept download of the main image from the serial port via the X-modem protocol.

Table 1. Front Panel Connectors and Push-Buttons

Token-Ring Ports

- Twenty shielded RJ-45 connectors for Token-Ring connection.
 - Support for the IBM Cabling System via 150 ohm, shielded twisted-pair (STP); or 100/120 ohm unshielded twisted-pair (UTP) via Category 3, 4, or 5 cables.G
 - These ports allow half-duplex (HDX) or full-duplex (FDX) connections to other switches, hubs, or end nodes.
- The switch will automatically sense what type of Token-Ring connection is being employed on each of its Token-Ring ports. The connection can be:
 - to a shared-media segment via a Token-Ring concentrator (Station mode)
 - to another Token-Ring switch
 - operating at 4 Mbps or at 16 Mbps
 - to a dedicated-media segment, directly to a Token-Ring LAN station operating in half-duplex or full-duplex mode (Port mode)

The switch will automatically configure each port to operate at the highest possible capability level. No special crossover cables are required for Token-Ring stations on dedicated-media segments or for switch-to-switch connections; the same straight-through cabling is used regardless of the type of connection. This auto-sense/auto-configure capability of the switch can be overridden by explicit console management.

Any of the twenty Token-Ring ports can be configured as a TokenProbe port. It is used to monitor any one of the other Token-Ring ports. The activity can be traced by a special passive network analyzer attached to the TokenProbe port.

Fast Ethernet Ports

- Four standard RJ-45 connectors for Fast Ethernet connection
 - Support standard 100BASE-TX cabling.
 - These ports allow half-duplex (HDX) or full-duplex (FDX) connections to other switches, hubs, or end nodes.
 - Automatic speed detection.
 - 10/100 Mbps.

The four Fast Ethernet ports can connect to a standard Fast Ethernet adapter or can act as trunk ports and carry traffic from all of the 63 VLANs it is possible to configure in the switch. This is achieved using standard IEEE 802.1Q VLAN frame tagging (IEEE=Institute of Electrical and Electronics Engineers). For each VLAN, a virtual port is created which behaves much like an ordinary port.

MANAGEMENT port

The 9-pin male Out-of-Band Management (OBM) port labeled MANAGEMENT on the front panel functions as a DTE (Data Terminal Equipment) port.

A terminal can be attached to this port to access the switch console interface for switch management. The terminal can be attached directly to the port or remotely via a modem connection.

The MANAGEMENT port automatically detects the baud rate of the terminal to which it is attached.

Reset Button

The switch has a recessed reset button labelled RST that is located on the front panel. Pressing the reset button resets the hardware and software and clears all tables and memory, including the address tables. Pressing the reset button does not clear the values stored in non-volatile random access memory (NVRAM).

System Request Button

This unlabelled recessed button is located on the front panel above the reset button. Pressing the button causes the **System Request** menu to appear on the console device attached to the MANAGEMENT port. Pressing the button for more than five seconds will initiate a modem download of the main image.

► **Note:** The system request button should be used only at the direction of service personnel. The button is recessed to prevent accidental activation.

Labels

The two labels at the right on the front panel are:

- The MAC (Media Access Control) Address Label:
The unique globally assigned Base MAC-Address of the switch.
- The Switch Number Label:
Blank label for an individual user identification of the switch.

Status and Activity LEDs

The switch features three *status* LEDs at the left on the front panel that show the current status of the switch. There are also three *activity* LEDs at the left that indicate the activity of the optional stacker link module. Moreover, each *Token-Ring port* has two LEDs. These two LEDs are unlabelled and located on the upper edge of each port. Also, to the right of each of the four *Fast Ethernet ports* there are three LEDs. Finally, port 21 and 22 share two status LEDs, as do port 25 and 26. Refer to Figure 2 in this chapter for the exact locations of all the LEDs.

Table 2 below lists the front panel LEDs and their meanings.

LED	State	Meaning
PWR	<i>Off</i>	The switch is not connected to a power outlet, or the power supply is faulty.
	<i>On</i>	The switch is receiving power.
DIAG	<i>On</i>	The DIAG diagnostics LED is on during the power-on self-test. During download of a new software image, the DIAG LED blinks to indicate the clearing (slow blink) and reloading (faster blink) of FLASH memory.
ERR	<i>On</i>	The ERR LED is off during normal operation. If the LED turns on, an error has occurred. Power the switch down and up again. The ERR LED should not turn on again. Note that this LED turns on if the switch is powered from a redundant power supply only.
Stack-link TX	<i>On or blinking</i>	Data is being transmitted to the stack link.
Stack-link RX	<i>On or blinking</i>	Data is being received from the stack link.
Stack-link ATTACH	<i>On</i>	A connection has been established to the stack.
Token-Ring Ports:		
Left LED on Token-Ring port (INS)	<i>On</i>	The Token-Ring port is inserted into the ring.
	<i>Blinking</i>	The port is disabled.
Right LED on Token-Ring port (ACT)	<i>On or blinking</i>	Data is being transmitted to or received from the port.
Fast Ethernet Ports:		
STATUS (green)	<i>On</i>	Diagnostics is in process on port 21/22 or 25/26.
	<i>Off</i>	No diagnostics is in process on port 21/22 or 25/26.

Table 2. Front Panel LEDs

LED	State	Meaning
FAULT (yellow)	<i>On</i>	A failure has occurred on Fast Ethernet port 21/22 or 25/26.
	<i>Off</i>	The Fast Ethernet ports are working correctly.
ACT (green)	<i>Flashing</i>	The port is receiving and/or transmitting frames.
	<i>Off</i>	Currently no traffic on the port.
100 (green)	<i>On</i>	The port is in 100 Mbps mode.
	<i>Off</i>	The port is in 10 Mbps mode.
LINK (green)	<i>On</i>	The port is active.
	<i>Off</i>	The port is not inserted.

Table 2. Front Panel LEDs

Back Panel Details

This is the back panel of the CrossFire 8730 Switch:

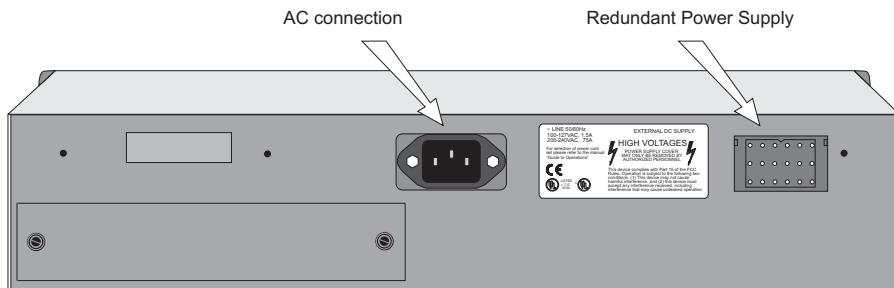


Figure 3. The Back Panel

Table 3 lists the back panel connectors on the switch.

Name	Description
AC connection	Standard AC power connection.
Redundant power supply	Connector for the optional redundant power supply unit.

Table 3. Back Panel Connectors

Features

Performance and Advanced Features

- High-speed translation between Token-Ring and Fast Ethernet
- Dedicated Translation Processors
 - Four Field Programmable Gate Arrays (FPGA) and two RISC processors are dedicated to the process of translating between Token-Ring and Fast Ethernet. This ensures the high-speed, low-latency performance needed to avoid creating a bottleneck at Fast Ethernet ports.
- Three switching modes:
 - Low latency *cut-through mode* for the Token-Ring ports
 - *Store and Forward mode* for both Token-Ring and Fast Ethernet ports
 - *Auto* (adaptive cut-through) for the Token-Ring ports
- Enhanced bridging modes:
 - Transparent Bridging
 - Source Route Switching
 - Source Route Bridging (SRB)
 - Source Route Transparent Bridging (SRT)
- Support for duplicate MAC address schemes
- Automatic port sensing of operating mode and media speed
- Multiple Token-Ring port operation modes:
 - Half-duplex concentrator and station
 - Full-duplex concentrator and station (DTR, Dedicated Token-Ring)
 - RI/RO-like connection
- Fast Ethernet port operation modes
 - Half-duplex, 10 or 100 Mbps
 - Full-duplex, 10 or 100 Mbps
- Spanning tree protocol (STP) support:
 - IEEE 802.1D for all ports
 - IBM Spanning Tree Protocol for the Token-Ring ports

- IEEE 802.1Q support for the Fast Ethernet ports
 - This standard frame-tagging protocol is used by the Fast Ethernet ports to carry frames belonging to different VLANs over the same physical Fast Ethernet link.
- CrossLink high-speed inter-switch connection using Token-Ring ports (up to 256 Mbps using eight Token-Ring ports)
- Advanced filtering (MAC address / Protocol)
- VLAN (Virtual LAN) support
- Support for transmission priorities
- Congestion control
- IP multicasts address translation
 - IP multicasts translated to a single functional address on the Token-Ring side, and IP multicasts on the Token-Ring side translated to multiple MAC addresses on the Ethernet side.
- IP fragmentation
 - IP fragmentation makes it possible to easily connect IP networks between Token-Ring and Ethernet networks. The IP fragmentation scheme ensures that IP packets larger than 1500 bytes are split up before transmission to the Ethernet LAN.
- NetBios addresses translation
 - Translation of NetBios functional address from the Token-Ring side to a specific Ethernet group address, and frames with an additional functional addresses from Token-Ring side are not forwarded on the Ethernet side.
- Dual home FEP
 - A Token-Ring network using Source Route Bridging (SRB) can support duplicate MAC addresses. This capability has been exploited by SNA (Systems Network Architecture) gateways, which can provide a redundant host connection: two gateways have the same MAC address but are on different rings and due to the source routing discovery process the SNA sessions are randomly distributed between the two gateways. Sessions are established between configured MAC addresses.
- Broadcast Suppression

On output, the Fast Ethernet ports must keep the rate of broadcast frames sent to Ethernet within the limit set by the **Max Broadcast Rate (frames/sec)** parameter that defines the maximum broadcast frame count per second. Broadcasts include:

- ARE (All-Routes Explorer), STE (Spanning Tree Explorer) source routed frames
- unknown destination frames
- frames with the MAC header broadcast bit set

Management

- Extensive and sophisticated network management:
 - SNMP management
 - Out-of-band management via Telnet and VT100 consoles
 - Graphical management application for HP OpenView for Windows 95 and Windows NT (for information on additional management applications for Unix, please contact your local Olicom representative)
- Support for RMON (Remote Monitoring) and standard MIBs
- Network statistics
- LAN probe port mirroring
- Fault isolation and detection
- Download via TFTP (Trivial File Transfer Protocol) or X-modem of new switch microcode
- Up- and download of switch configuration via TFTP

Scalability and High Availability

- Up to 5,500 active local LAN stations per group of four Token-Ring ports (1-4, 5-8, 9-12, 13-16, 17-20)
- Up to 15,000 active LAN stations per Fast Ethernet port
- A maximum of 10,000 active local LAN stations per switch
- Stackable architecture
- Optional redundant power supply

Installation

- Rack or surface mounting
- Plug-and-Play for transparent forwarding:
 - Automatic learning of network configuration
 - Transparent to high-level protocol
- Automatic sensing and configuration of ports

- A factory-assigned MAC address (the switch can also be configured with a locally administered MAC address)

Specifications

The tables on the following pages list the product specifications for the CrossFire 8730 Switch.

Hardware

Specification	Value
Number of Token-Ring ports	20
Number of Fast Ethernet ports	4
MANAGEMENT port	TIA/EIA-232-F, DB9 male connector (EIA=Electronic Industry Association)
Number of switches in stack	8 using the CrossFire 8300 Switch Stacker 5 using the CrossFire 8635 Internal Stacker Module 2 using the CrossFire 8630 Stacker Link Module
Maximum number of Token-Ring ports in stack	160 using the CrossFire 8300 Switch Stacker 100 using the CrossFire 8635 Internal Stacker Module 40 using the CrossFire 8630 Stacker Link Module
Maximum number of Fast Ethernet ports in stack	32 using the CrossFire 8300 Switch Stacker 20 using the CrossFire 8635 Internal Stacker Module 8 using the CrossFire 8630 Stacker Link Module
Rack mount	19" rack mount (hardware included)
Dimensions	Width: 48.3 cm (19") Depth: 40.0 cm (15.74") Height: 8.80 cm (3.46")
Weight	9.5 kg (20.9 lbs)

Table 4. Hardware Specifications

Specification	Value
Power	100 to 240 VAC autosensing
Frequency	50/60 Hz
AC current rating	1.5 A @ 120 V; 0.75 A @ 220 V

Table 4. Hardware Specifications

TokenRing Performance

Specification	Value
Global lookup table size (stations and bridges)	10,000
Local lookup table size, total for 4 Token-Ring ports (stations and bridges)	5,500
Maximum number of logical rings	63
Maximum frame rate per port	57,000 pps in each direction (measured with a frame size of 19 bytes).
Maximum aggregate frame rate per 4 ports	200,000 pps in each direction. Full media speed for frame sizes above 28 bytes.
Throughput per port	16 Mbps in each direction for all frame sizes.
Aggregate switching rate (unicast or broadcast) for entire switch	1,500,000 pps for smallest frame sizes.
Within switch latency (cut-through)	35 μ s

Table 5. TokenRing Performance Specifications

Translation Performance

Specification	Value
Destination lookup table size	15,000
RIF table source routed frames	12,000
Aggregate performance for two Fast Ethernet ports	150,000 pps
Maximum one-way performance for two Fast Ethernet ports	150,000 pps
Maximum forwarding rate for two Fast Ethernet ports	150,000 pps
Maximum performance for IP fragmentation	8,000 pps (98% of Fast Ethernet bandwidth)

Table 6. Translation Performance Specifications

Software

Specification	Value
Maximum number of VLANs	63
Network management	<ul style="list-style-type: none"> - SNMP Management Platform - Console - Telnet sessions - Switch Manager for HP OpenView for Windows 95 and NT - Included in Olicom ClearSight Management System - Additional management applications available on Unix platforms: <ul style="list-style-type: none"> —HP OpenView NNM for HP-UX —Tivoli TME 10 NetView for AIX
Software updates	Flash PROM, TFTP, X-modem (PROM=Programmable Read Only Memory)
Protocol compatibility	Transparent to higher layer protocols
Spanning tree protocol support	IEEE 802.1D compliant IBM Spanning Tree Protocol
MIBs supported (Management Information Base)	<ul style="list-style-type: none"> - SNMP MIB II (RFC1213) - SR Bridge MIB (RFC1525) - Bridge MIB (RFC1493) - Evolution of the Interfaces Group of MIB-II (RFC1573) - RMON MIB/TR extensions - selected groups only (RFC1757/1513) - IEEE 802.5 MIB (RFC1749/1748) - IEEE 802.5r DTR MIB - IEEE 802.5r DTR MAC MIB - oc8600 unit MIB - oc8660 unit MIB - VTP MIB

Table 7. Software Specifications

Operating Environment

Specification	Value
Thermal dissipation	122 W
MTBF	49,000 hours
Operating Temperature: Non-operating Temperature:	10 to 40°C (50 to 104°F) -10 to 70°C (13 to 158°F)
Humidity: Operating Non-operating	8 to 80% (non-condensing) 90% @ 45°C (113°F)
Electromagnetic emissions certification	FCC Class A EN55022 Class A
Safety	UL1950 CSA C22.2 No. 950 EN60950

Table 8. Specifications for Operating Environment



2. Preparing for Installation

Before installing the CrossFire 8730 Fast Ethernet Translation Switch, read this chapter carefully.

When you have read this chapter and are ready to start to install, follow the instructions in Chapter 3, “Installation”.

Safety Recommendations

Follow these guidelines to ensure general safety during and after the installation:

- Keep the chassis area clear and dust-free during and after installation.
- Keep tools away from walk areas where you and others could trip over them.
- Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.

Safety with Electricity

Follow these guidelines when working on equipment powered by electricity.

- ▶ **Danger:** Do not open the switch. Dangerous voltages inside.
- ▶ **Danger:** To avoid shock hazard, the power cord must be connected to a properly wired and earthed receptacle. Any equipment to which the switch will be attached must also be connected to properly wired and earthed receptacles.
- ▶ **Warning:** Before working on equipment that is connected to power lines, remove jewelry (including rings, necklaces, bracelets and watches). Metal objects will heat up when connected to power and ground and can cause serious burns or weld the metal object to the terminals.
- ▶ **Warning:** Do not work on the system or connect or disconnect cables during periods of lightning activity. Read the installation instructions before you connect the system to its power source.

To turn power **off** the switch, you must disconnect the power cord; there is no ON/OFF switch. Note that if the switch is connected to an external Redundant Power Supply Unit (RPSU), the power cord must be removed from both units.

- Locate the emergency power-off switch for the room in which you are working. Then, if an electrical accident occurs, you can act quickly to turn off the power.

- Before working on the system, unplug the power cord. To avoid the possibility of electrical shock, unplug the power cord from the outlet before detaching the power cord from the switch.
- Disconnect all power before doing the following:
 - installing or removing a chassis
 - working near power supplies
 - performing a hardware upgrade
- Do not work alone if potentially hazardous conditions exist.
- Never assume that power is disconnected from a circuit. Always check.
- Look carefully for possible hazards in your work area, such as moist floors, ungrounded power extension cables, and missing safety grounds.
- If an electrical accident occurs, proceed as follows:
 - Use caution; do not become a victim yourself.
 - Unplug the power cord(s).
 - If possible, send another person to get medical aid. Otherwise, assess the condition of the victim and then call for help.
 - Determine if the person needs rescue breathing or external cardiac compressions; then take appropriate action.

Preventing Electrostatic Discharge Damage

Electrostatic discharge (ESD) can damage equipment and impair electrical circuitry. It occurs when electronic components are improperly handled and can result in complete or intermittent failures. Always follow ESD-prevention procedures when removing and replacing components. Ensure that the chassis is electrically connected to earth ground using an ESD mat or a ground wire. Wear an ESD-preventive wrist strap, ensuring that it makes good skin contact. To safely channel unwanted ESD voltages to ground, connect the clip to an unpainted surface of the chassis frame. To properly guard against ESD damage and shocks, the wrist strap and cord must operate effectively. If no wrist strap is available, ground yourself by touching the metal part of the chassis.

- **Caution:** For safety, periodically check the resistance value of the antistatic strap, which should be between 1 and 10 M Ω .

Site Requirements

Following are the site requirements for installation.

Environment

Choose a clean, dust-free, preferably air-conditioned location. Avoid direct sunlight, heat sources, or areas with high levels of EMI (Electromagnetic Interference).

Chassis Accessibility

Make sure the front and back panel of the equipment is accessible so that you can monitor the LED indicators and access the control switches. Leaving enough clearance at the front and back will also allow easier cabling and service.

Cooling and Airflow

Two fans, which are located at the left side of the switch, cool the interior by drawing air through vents on the left side and forcing heated air out through holes in the right side. If the internal temperature exceeds 50°C (112°F), a temperature error is reported to the console.

- **Caution:** To protect the equipment from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of 40°C (104°F). To prevent airflow restriction, you must allow at least 7.6 cm (3") of clearance around chassis openings for proper airflow.

Power

The source electrical outlet should be installed near the switch, easily accessible, and properly grounded.

Also, observe the following power cable considerations before you start the installation of the CrossFire 8730 Switch.

1. The socket outlet shall be installed near the equipment and shall be easily accessible.
2. To prevent electrical shock, the power cord set used must comply with national regulations.
 - 2a. The female receptacle of the cord must meet CEE-22 requirements.

- 2b. The cord must be UL listed, CSA labelled, and consist of three conductors with a maximum of 15 feet in length. Type SVT or SJT cord sets shall be used for units which stand on a desk or table. Type SJT cord sets shall be used for units which stand on floor.
- 2c. The male plug for units operating at 115 VAC shall consist of a parallel blade, grounding type attachment plug rated 15 A, 125 VAC.
The male plug for units operating at 230 VAC shall consist of a tandem blade, grounding type attachment plug rated 15 A, 250 VAC.
The male plug for units operating at 230 VAC (outside of the United States and Canada) shall consist of a grounding type attachment plug rated 15 A, 250 VAC and have the appropriate safety approvals for the country in which the equipment will be installed.

- ▶ **Caution:** Support the CrossFire 8730 Switch while you are installing the unit to avoid dropping it on the floor or any equipment beneath it in the rack. The CrossFire 8730 unit weighs approximately 9.5 kg (20.9 lbs).
- ▶ **Caution:** To separate the switch from the power, pull the power cord completely out from the socket. The power socket must be easily accessible and located near the unit.
- ▶ **Warning:** All RJ-45 connectors must only be connected to safety extra low voltage (SELV) circuits like local area networking (LAN).
- ▶ **Warning:** This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that a fuse or circuit breaker no larger than 120 VAC, 15A U.S. (240 VAC, 10A international) is used on the phase conductors (all current-carrying conductors).
- ▶ **Warning:** A voltage mismatch can cause equipment damage and may pose a fire hazard. If the voltage indicated on the label is different from the power outlet voltage, *do not connect the chassis to that receptacle.*
- ▶ **Caution:** If you are using the redundant power supply unit CrossFire 8311 note that this unit is **not** hot-swappable. Both the CrossFire 8311 unit and the switch **must be off** before connecting or disconnecting the DC power cable.

Unpacking and Inspecting

Immediately after receiving the equipment, examine all shipping containers and contents for damage. If any damage has occurred, notify the shipping carrier. Unpack the unit by removing the packing material and lifting it from its protective enclosures. Visually examine the equipment and check the container for related parts and accessories. You should have the following items:

- One CrossFire 8730 Fast Ethernet Translation Switch
- One printed guide, the *CrossFire 8730 Fast Ethernet Translational Switch—Installation Guide* (this guide).
- Two pdf files enclosed on a cd-rom, containing the following two on-line guides:
 - *CrossFire 8730 Fast Ethernet Translation Switch—Reference Guide.*
 - An on-line version of this guide, the *CrossFire 8730 Fast Ethernet Translational Switch—Installation Guide.*

Note that the on-line version of the installation guide may be of a later date than the printed version (see the version number *v. 1.X*).

- One OC-8830 Token-Ring Switch Program Disk Set
- One OC-8840 Token-Ring Switch Manager for HP OpenView for Windows (also works as stand-alone without HP Open View under Windows).
- One *CrossFire 8600 Series Token-Ring Switch Manager for HP OpenView for Windows—Guides to Operations*
- One serial cable for the management port
- One plastic bag containing four adhesive rubber feet and rack mounting screws, Allen key, nuts and washers.

Report any missing parts and any damage not related to shipping to your customer service representative.

► **Note:** Keep the packing materials for future use. *All components returned under warranty should be shipped in their original packing materials.*

If you have received your equipment before your site is fully prepared, after inspection, you should keep all of the components in the original shipping containers and store them in a physically and environmentally safe place.

Physical Configuration Restrictions

This section contains information about the physical configuration restrictions for the switch. In brief, you must remember the following rules when planning to install the switch:

- For shared-media LAN segments, acceptable distances are defined by the hub or concentrator attached to the switch port.
- If you create parallel paths directly between switches, be sure that you have enabled the spanning tree protocol (see “Spanning Tree for TrBRF Screen” in the *CrossFire 8730 Fast Ethernet Translation Switch—Reference Guide*). The default setting for the spanning tree protocol is disabled.
- The spanning tree protocol will not function between different BRFs within one switch.

The following sections provide greater detail about the physical restrictions.

Required Network Preparation - Frame Length Limit

The CrossFire 8730 Switch supports a *maximum physical frame length* of 18,192 bytes on Token-Ring ports (from the Frame Control (FC) to the Frame Check Sequence (FCS) characters). This corresponds to a Maximum Transfer Unit (MTU) of 17,800 bytes.

The *default* maximum physical frame length for Token-Ring ports is 4,546 bytes which corresponds to an MTU of 4,472 bytes. The *actual* MTU size of a VLAN is configured in the **VLAN Parameter Configuration for TrBRF** screen, see the *CrossFire 8730 Fast Ethernet Translation Switch—Reference Guide*.

The switch truncates Token-Ring frames larger than the configured maximum physical frame length and adds an abort sequence at the end. Characteristically, if frames longer than the frame length limit are sent, the abort sequences will be reported as frame errors by other ring stations.

In a stack of switches, all stacker link modules in the stack must support 18,192 byte frames (18 K frames) for any switch in the stack to support Token-Ring frames sizes longer than 4,546 bytes.

To verify that your hardware supports 18 K frames, view the **Module Information** screen, described in the *CrossFire 8730 Fast Ethernet Translation Switch—Reference Guide*. Stacker link modules that do not support 18 K frames will have the text **(4k)** displayed immediately after the hardware revision level.

For information on how to upgrade your stacker link modules that currently do not support 18 K frames, please contact your local Olicom representative.

Note: It is most important that you consider the impact of the frame length limit,

and make sure that the workstations and servers in the network have been configured to use a maximum frame length of equal or less than the switch. If this is not done you may experience problems after the switch has been installed in the network.

Cables and Distances between Devices

The Token-Ring ports supports attachment to 100 ohm and 120 ohm twisted-pair (UTP or STP), and 150 ohm STP, as defined in the EIA/TIA 568A and ISO/IEC 11801:1995.

The Fast Ethernet ports use standard or crossover UTP-5 copper cables.

See Appendix A, “Cable and Pin Information” for specific information on supported cable types, cable lengths and connector pinouts.



3. Installation

This chapter contains step-by-step instructions for installing, connecting and verifying that the CrossFire 8730 Switch is operating properly.

Installation Summary

The installation sequence is listed in the steps below.

1. Plan for installation.
 - Read Chapter 2, “Preparing for Installation”.
 - Make sure you read “Required Network Preparation - Frame Length Limit” on page 22.
2. Unpack the switch.
3. Gather the materials.
4. Mount the switch.
5. Connect the switch to the network.
6. Verify the operation of the switch.
7. If you will be customizing the configuration of the switch or monitoring its activity, configure the switch. Refer to Chapter 4, “Switch Access” in this guide and to the “Switch Configuration” chapter in the on-line *CrossFire 8730 Fast Ethernet Translation Switch—Reference Guide*.

Unpacking Instructions

There are no special safety precautions that need to be taken when unpacking the switch. Simply follow these steps:

1. Open the large carton.
2. Remove the switch from its protective packaging.
3. Visually inspect the switch to ensure that it was not damaged during shipment.
4. Check the contents of the carton. See section “Unpacking and Inspecting” on page 21 for a list on package contents.

If any item is missing or damaged, contact your local Olicom representative.

Materials Needed for Installation

To install the switch, you need the following items:

- If the unit will be installed in a rack, you need:
 - A rack inventory chart and a cabling chart from your network administrator.
 - The supplied set of screws, nuts and washers along with the Allen key tool.
 - A properly earthed power cord.
- If the unit will be installed on a surface (such as a tabletop), you will need:
 - A cabling chart from your network administrator.
 - The four supplied adhesive rubber feet.
 - A properly earthed power cord.

Mounting the Chassis

The switch can be mounted in a standard 19-inch rack or cabinet, or can be mounted on any flat surface such as a tabletop. The installation area should be near a power source and should have enough room around the front and back panels for cabling and access to controls. Use the following procedures for the installation of the switch.

- ▶ **Warning:** Only trained and qualified personnel should be allowed to install or replace the CrossFire 8730 Switch.

Rack or Cabinet Mounting

If you install the equipment in a closed or multi-unit rack, observe the environmental guidelines from the previous chapter, Chapter 2, “Preparing for Installation”.

- ▶ **Caution:** The following rack mounting instructions need to be observed to ensure that the switch and any other equipment are mechanically stable.

The following steps describe how to mount the switch in a rack or cabinet:

1. Remove the bracket covers on each side of the switch to expose the rack mounting brackets. Access to the retaining screws is obtained by opening the cap on the front of each bracket cover. Use the Allen key supplied with the switch to remove the two 6 mm Allen screws. When you have removed the screws, push the bracket cover towards the back of the switch and lift the cover off. Keep the screws for later use.

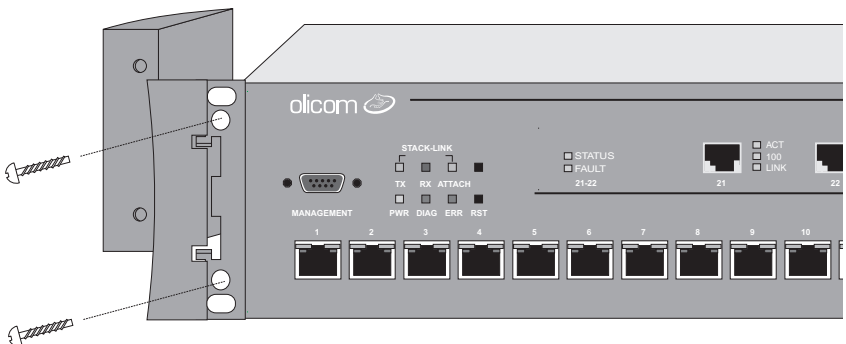


Figure 4. Exposing the Rack Mounting Bracket

Before starting the next step, be sure you have the proper hardware for mounting the chassis with the exposed brackets to your cabinet or rack.

- Position the switch, with the exposed mounting brackets, in the rack or cabinet and slide it up or down until the bracket holes line up with the rack holes. Attach the chassis brackets to the rack using the Allen screws you removed above and the nuts supplied with the switch. Close the cap again to conceal the screws.

► **Note:** Only fixed brackets are supplied with these units. If you want to install a sliding pullout mount, you will need to provide the extra mounting hardware.

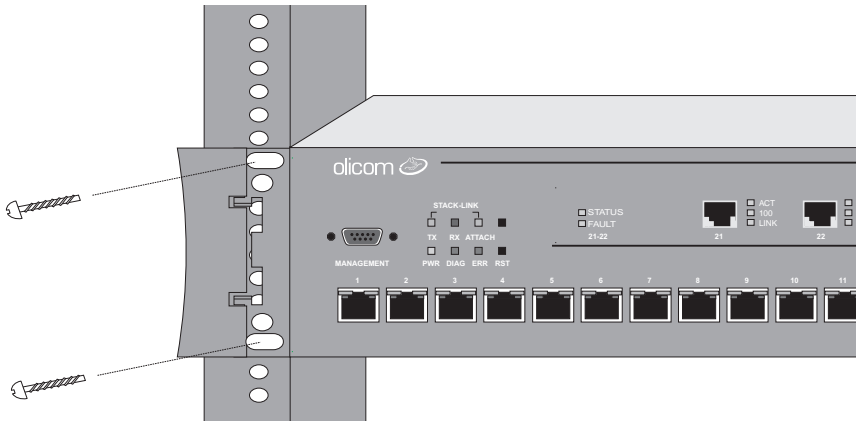


Figure 5. Mounting the Switch in a Rack or Cabinet

Table-Mounting

The switch operates at a low noise level, which makes it suitable for a large enough flat surface, such as a table or a similar area.

Four self-adhesive pads are supplied with the switch. The pads must be mounted in the four recesses on the bottom of the switch. When the pads are mounted, simply place the switch on a clear, level location. Leave enough room around the switch for ventilation and access to the controls and cable connectors.

► **Caution:** Due to weight constraints, place no more than three units (or the equivalent weight of other equipment) directly on top of another chassis. More than three units on top of another unit may cause damage to the lower unit. *One* unit weighs about 9.5 kg (20.9 lbs).

Cabling

This section provides instructions for connecting devices (such as hubs, servers, personal computers, and workstations) to the switch. Remember these tips when connecting cables:

- Avoid stretching or bending the cables excessively.
- Avoid routing the cables near potential sources of electromagnetic interference, such as motorized devices and fluorescent lights.
- Avoid trip hazards by routing the cables away from aisles and other areas where people walk. If such routes cannot be avoided, use floor cable covers or similar material to secure and protect the cables.
- Be sure that the cables connected to the switch are supported so that the cable connectors are not excessively strained.
- For Token-Ring, use a Category 3 or better UTP cable or a 150 ohm STP or STP-A cable with an impedance-matching balun at each end.
- For Fast Ethernet, use a Category 5 or better UTP cable.

Connecting the Fast Ethernet Ports

The Fast Ethernet ports use standard or crossover UTP-5 copper cables. The maximum cable length is 100 m (328 feet).

1. Insert the modular RJ-45 jack from either end of a standard or crossover UTP-5 cable into one of the Fast Ethernet connectors.
2. Connect the other end of the cable to:
 - another CrossFire 8730 Fast Ethernet port (using a crossover UTP-5 cable)
 - 100/10 MB Ethernet adapter (using a crossover UTP-5 cable)
 - 100/10 MB Ethernet switch or hub port (using a standard UTP-5 cable)

Connecting Devices to the Token-Ring Ports

If you will not be using building wiring (in-the-wall cables) to connect the device to the switch, perform the following steps. If you will be using building wiring, follow the steps in section “Connecting Devices to the Token-Ring Ports Using Building Wiring” on page 30.

Follow the steps below to connect one or more devices to the Token-Ring ports on the switch:

1. Using the Switch Cabling Chart provided by your network administrator as a guide, connect the cables between the switch and other devices as illustrated in Figure 6. Note that the figure illustrates an RJ-45 connector on each end. Depending on the cable type you use, the device end of the cable may also have a 9-pin D-shell or 150 ohm Data Connector.
2. If the switch is rack-mounted, dress the switch end of the cables through a cable management bracket, if one is present on your rack.
3. Label each end of the cables so that it will be easy to find the device if you have to troubleshoot a network problem.

Suggested information to place on the label includes the room location of the device at the other end, a unique cable identification number, the MAC address of the connected device, and the number of the port to which the cable is attached.

4. To continue installing the switch, go to “Applying Power” on page 32.

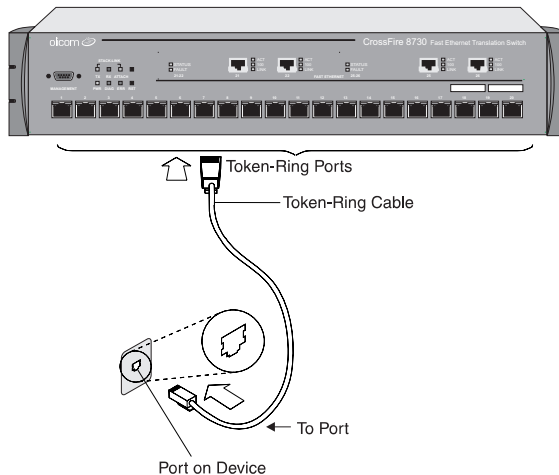


Figure 6. Connecting Devices to Token-Ring Ports

Connecting Devices to the Token-Ring Ports Using Building Wiring

If you will use building wiring (in-the-wall cables) to connect the device to the switch, perform the following steps:

1. Using the Switch Cabling Chart provided by your administrator as a guide, connect the cables between the devices and the faceplates as illustrated in Figure 7.

2. Label the faceplate, so that it will be easier to find the device if you have to troubleshoot a network problem.
3. In the wiring closet, connect a cable to the Token-Ring connector on the patch panel or other equipment where the building wiring terminates.



Note: Do not connect these cables to the Ring-In or Ring-Out port on a media access unit (MAU) unless you use port 19 or 20 on the switch.

4. Connect the other end of the cable to a Token-Ring port on the switch.
5. Label this cable.
6. If the switch is rack-mounted, dress the switch end of the cables through a cable management bracket, if one is present on your rack.
7. To continue installing the switch, continue with “Applying Power” on page 32.

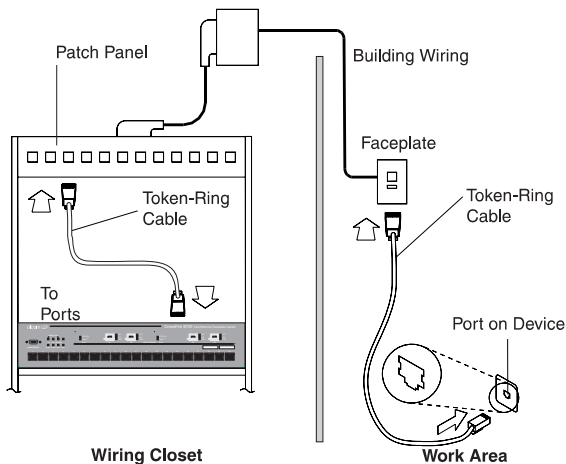


Figure 7. Connecting using Building Wiring

Checking the Installation

Before you apply power to the switch, inspect the installation thoroughly. Verify that all cables are installed correctly. Check cable routing, so a cable will not be damaged or create a safety hazard. Be sure all equipment is mounted properly and securely.

Applying Power

The switch chassis does not have an on/off switch. *Power is on when the unit is plugged into a power source.*

There are no user serviceable parts inside a switch. Any internal upgrades or service should be performed by qualified personnel **only**.

- **Warning:** Unplug the power cord before you work on a system that does not have an on/off switch.
- **Warning:** When installing the unit, the ground connection must always be made first and disconnected last.
- **Warning:** This equipment is intended to be grounded. Ensure that the host is connected to earth ground during normal use.
- **Warning:** Do not touch the power supply when the power cord is connected. Line voltages are present within the power supply when the power cord is connected.

Use the following steps to power on your equipment.

1. Ensure that you are using the correct power source.
2. Using a power cable that complies with national regulations, plug the female end of the cable into the AC power connector on the back panel of the switch (see Figure 8).
3. Plug the male end of the power cord(s) into a properly grounded electrical outlet.

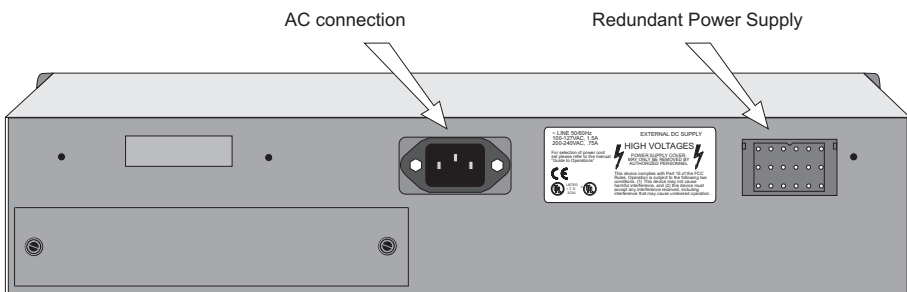


Figure 8. The Back Panel

4. Verify that the power LED is on. If not, make sure the outlet is working properly. If the outlet is working, but the power LED and the fans are not on, see Chapter 5, “Troubleshooting”.
5. When the switch powers on, observe the self-test diagnostic that the unit runs for approximately 1-2 minutes. The DIAG LED is on for the duration of the test, turning off when the self-test is complete.
6. At the completion of the diagnostics, the front panel LEDs should be illuminated according to the status of the unit’s configuration. See page 2 for a description of the controls and LEDs on the switch.

▶ **Note:** If the switch fails to power up correctly or if it encounters any unrecoverable error, the ERR LED will be on or flashing on. If the ERR LED is on or flashes, see Chapter 5, “Troubleshooting”.

▶ **Caution:** If you are using the CrossFire 8311 redundant power supply unit, note that this unit is **not** hot-swappable. Both the CrossFire 8311 unit and the switch **must be off** before connecting or disconnecting the DC power cable.



4. Switch Access

The CrossFire 8730 Switch can be configured in two ways:

1. Using the switch console.

You can access the switch console interface

- directly, by connecting a VT100 terminal emulator to the RS-232 port labelled MANAGEMENT.

OR

- remotely, via Telnet.

2. Using SNMP based graphical management applications:

- The Olicom Switch Manager for HP OpenView for Windows
- Other Simple Network Management Protocol (SNMP) based applications

This chapter only describes how to access the switch console via the MANAGEMENT port. Refer to the section “Console/Telnet Sessions” in the on-line *CrossFire 8730 Fast Ethernet Translation Switch—Reference Guide* for information on configuring serial console and/or telnet console sessions.

Network management applications (in-band management) are beyond the scope of this guide. However, note that to be able to manage the switch by the network management application via SNMP, you will have to configure a few settings first in the switch console. These are typically the IP Address, SNMP Community, and Trap Receiver.

For more information on the network management applications, see the *Olicom Switch Manager for HP OpenView—Guide to Operations* or the documentation supplied with your network management application.

Connecting to the Console

The two following subsections explain how to connect to the switch console. You can connect directly or via a modem. For detailed information on cabling and pins, see Chapter A, “Cable and Pin Information”.

Connecting a Terminal Directly to the MANAGEMENT Port

1. Connect one end of a crossover TIA/EIA-232 cable (commonly known as a RS-232 cable) to the MANAGEMENT port. This is a male DB-9 connector configured as a DTE (Data Terminal Equipment) device.
2. Connect the other end of the cable to a PC or another DTE device.

OR

1. Attach a null-modem adapter to the MANAGEMENT port.
2. Attach a straight-through modem cable to the null-modem adapter.

Connecting to the MANAGEMENT Port Using a Modem

1. Connect one end of a straight-through TIA/EIA-232 modem cable to the MANAGEMENT port. This is a male DB-9 connector configured as a DTE device.
2. Connect the other end of the cable to a modem.

Figure 9 shows the location of the cable connection on the front panel of the switch.

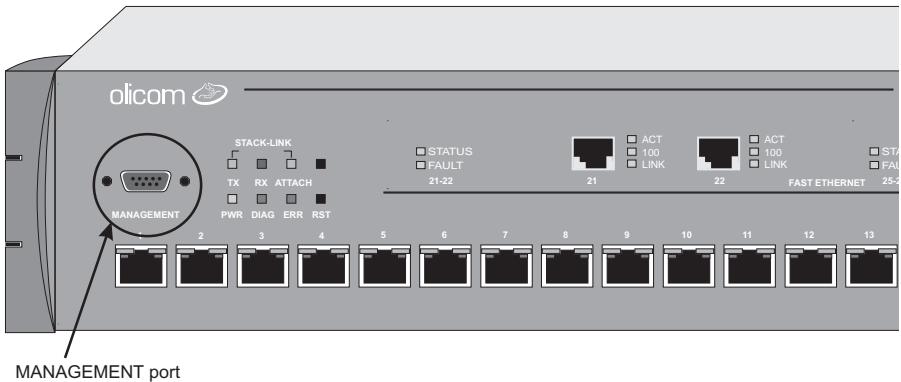


Figure 9. View of Console Connection—the MANAGEMENT Port

Use the values in the following table to set the configuration parameters on your

console for interfacing to the switch.

Specification	Value
Baud Rate	2400, 4800, 9600, 19200, 38400, 57600
Parity	None
Data bits	8
Stop bits	1
Handshaking	None
Terminal emulation	VT100
Duplex	Full
Software flow control (XON/XOFF)	Off (input and output)
Hardware flow control (RTS/CTS)	Off
Autobaud upon break	On
Line wrap	On
Screen scroll	On
CR translation	CR
Backspace (BS) translation	Destructive
Break length (milliseconds)	350
Enquiry (ENQ)	Off
EGA/VGA true underline	Off
Terminal width	80
ANSI 7 or 8 bit commands	7

Table 9. Console Configuration Settings

Specification	Value
Microsoft Windows™ terminal emulation	Disable the Use Function, Arrow, and Ctrl Keys for Windows option located in the Terminal Preference menu

Table 9. Console Configuration Settings

At power on (cold boot), the switch performs a series of self-test diagnostics verifying that hardware components are functioning. An example of the self-test diagnostic screen is shown later in this chapter.

Communication Problems

If the diagnostic list does not appear, or is garbled, try adjusting the baud rates between the console and the switch by using the Autobaud routine within the switch. To do this, press the reset button on the front of the switch and wait for the internal diagnostics to finish (the DIAG LED turns off). The reason for the reset is that in case the switch's Autobaud routine is disabled, resetting will enable it.

Depending on the type of console, there are several console command keys that will potentially initiate the Autobaud routine in the switch. Four of those keys are ENTER/RETURN, the combination keys ALT-B, the BREAK key, and ESC.

After the DIAG LED goes out, try one of the command keys at the console, and press it repeatedly. If there is no response, wait several seconds and again, press it repeatedly. If necessary, perform the same routine using the other command keys.

If that does not work, and there is at least a garbled output on the screen, try pushing the unlabelled system request button on the switch. As soon as garbled characters appear, press the console's ENTER (or RETURN) key twice in rapid succession. (Again, try the other command keys as necessary).

If there is still a problem, try the following steps:

1. Check all of the cable connections.
2. Check the baud rate at the console's set up screen; if it is not set to 9600, try that setting.
3. Try setting the console baud rate to different values up or down, and pressing ENTER for each selection.
4. If you are using a terminal emulation program, try exiting the program and restarting.
5. If you still can not get the connection to work, contact technical support as described in Chapter 6, "Getting in Touch with Technical Support".

Diagnostic Screen

The diagnostic self-test displays two different screens, depending on whether you perform a cold boot (power-on cycle with full diagnostics), or a warm boot (a reset without full diagnostics). The warm boot contains portions of the complete cold boot list.

The following is an *example* of a diagnostic screen during a boot process. The actual screen may vary depending on such things as hardware, options, software version levels and other factors:

BootStrap Firmware v2.3, Copyright 1996-1998

- Initiating bootstrapping sequence.
- Boot image integrity check...Passed.
- Control transferred to boot process.

Boot Firmware (Phase II) v2.3, Copyright 1996-1998

```

Program memory test.....Passed.
- Relocating main image to
DRAM.....
.....Done.

```

Main image integrity check...succeeded.

Control transferred to main process.

Starting Power On Self Test Diagnostics.

- Network memory test 32-bits.....Passed.
- Network memory test 16-bits.....Passed.
- Network memory test 8-bits.....Passed.
- Port register and memory test.....Passed.
- Single port loopback test.....Passed.
- All ports linked loopback test.....Passed.
- Port MAC test.....Passed.
- Completed Power On Self Test Diagnostics.

System Software Version 3.10.2.0, Copyright 1994-1999.

System started on Sat. February 20, 1999 12:07:38

8 Megabytes System memory

2 Megabytes Network memory

- Initialization started
- File system initialized
- System temperature is within safe operating levels
- Checking file system integrity
- Coldboot initialization started
- LAN ports detected:
 - RJ-45 Token Ring: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
 - Fast Ethernet: 21 22
 - Fast Ethernet: 25 26
 - StkPort : 29
- Initializing Ports: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

```

20 21 22 25 26 29
- Initializing system address table
- System entering stand-alone mode
- Booting TS Ports: 21 22 25 26
- System initialization complete- Enabling port: 1 2 3 4 5 6 7 8 9 10
11 12 13 14 15 16 17 18 19 20 21 22 25 26 29

```

Press RETURN key to activate console...

Depending upon which tests have run, verify that all diagnostics have passed and that the ERR LED is off. If the ERR LED is on, read the screen to determine which test failed. See also Chapter 5, “Troubleshooting”, to help find the cause.

At the end of the boot messages, you should be prompted to press RETURN (that is, ENTER). The following greeting screen of the switch console interface should appear:

```

Olicom CrossFire FE Translation Switch Manager

(c) Copyright Olicom A/S, 1995-1999 - All rights reserved

MAC Address:          000083:E346A0
System Description:   Olicom CrossFire 8730; SW Rev 3.10.1
System Name:         Backbone Switch
System Contact:      System Support
System ID:           1.3.6.1.4.1.285.9.14
Serial Number:       E346A0

Type Password, then press <RETURN>:
-- No password has been set, press <RETURN> to continue. --
-- To terminate TELNET connection now, press <CTRL><B> --

```

At the top level screen, press the ENTER key (RETURN) to enter the main menu.

► **Note:** If you have forgotten the password, you can delete it by depressing the unlabeled SysReq button on the front panel of the switch for one second. Then release it and select **Point 4. Clear the system password.**

The following sections in this chapter shortly describes the main menu and provide information about navigating in the switch console interface.

All of the menus and screens in the switch console interface are described in the *CrossFire 8730 Fast Ethernet Translation Switch—Reference Guide*. These descriptions cover configuring and monitoring the switch as well as viewing statistics on the switch.

General Guidelines for Using the Console Interface

To work with the switch console menus and screens, follow these guidelines:

- To select an item on a screen or a menu, highlight it by using the arrow keys and then press ENTER. If you need to specify additional information for that item—for example, selecting **Yes** or **No** or supplying a *value*—a prompt appears on the screen.
- In most cases, new values are saved when you select **Return**.
- The **More** item means there is more information available. Selecting **More** and pressing ENTER displays the next screen of information.
- **Port** refers to the number of a specific port on a switch.
- **Index** refers to the numerical order of a list.
- To return to the main menu from any screen, press CTRL-P. Note that any changes made to the screen you were in will not be saved when you do this. To return to the greeting screen, press CTRL-B.
- To refresh the console screen, press CTRL-L.
- The switch console automatically returns to the greeting screen after five minutes of inactivity. Five minutes is the default value. The time can be changed at the **Console Configuration** menu as explained in the *CrossFire 8730 Fast Ethernet Translation Switch—Reference Guide*. To open this menu from the main menu, select **Configuration → Console Configuration**.
- For protection against inadvertent or unauthorized access to configuration screens, you may establish a password that users must enter at the greeting screen. If no password is configured, just press ENTER and the main menu is presented. To establish a password, see the section “Password Menu” in the *CrossFire 8730 Fast Ethernet Translation Switch—Reference Guide*.

Navigating within the Menus

Use the arrow keys (also referred to as cursor keys) to highlight an item on the screen or menu.

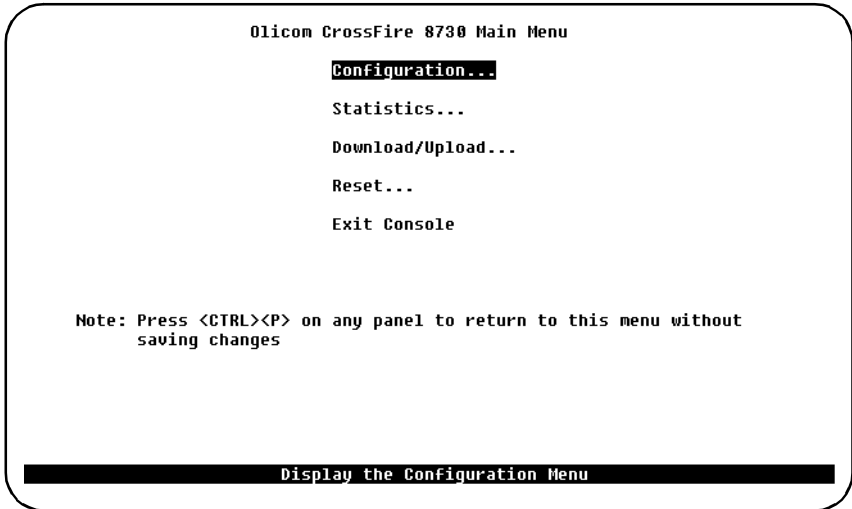
- Items that end with three dots, opens another screen or menu. Pressing the ENTER key on such an item will display the new screen or menu.
- If the item on the screen is a command, such as **Reset**, selecting the command and pressing ENTER will execute the command.

Unless specified differently, all the screens and menus are accessed in the same way.

The following section describes the items on the main menu.

Main Menu

This is the main menu of the switch console interface. All the screens and menus you can access from this menu are described in the *CrossFire 8730 Fast Ethernet Translation Switch—Reference Guide*. The main items are shortly listed below.



Configuration...

Displays the **Configuration** menu, which enables you to view and set the switch configuration parameters.

Statistics...

Displays the **Statistics** menu for the switch.

Download/Upload...

Displays the **Download/Upload** menu.

Reset...

Displays the **Reset** menu.

Exit Console

Highlighting this command and pressing ENTER will return the console to the greeting screen (on a Telnet session, this will cause the session to close).



5. Troubleshooting

This chapter contains procedures that help you troubleshoot problems with a CrossFire 8730 Fast Ethernet Translation Switch and its connections to other devices.

Obtaining Service

There are no serviceable parts inside the switch. Do not remove the cover for any reason. If you think your switch requires service, please contact Olicom Technical Support. Please refer to Chapter 6, “Getting in Touch with Technical Support” for instructions.

Troubleshooting in a Network

The switch console and SNMP management agent give you access to important statistics and other information about the network, as seen by the switch. (See the *CrossFire 8730 Fast Ethernet Translation Switch—Reference Guide*).

The “Port Statistics Menu” section in the *CrossFire 8730 Fast Ethernet Translation Switch—Reference Guide* can be helpful in isolating network level problems.

The Switched Port Analyzer feature allows a network analyzer to be attached to a port on the switch to monitor, in real time, switch activity of another port. See “Monitoring Port Traffic” in the *CrossFire 8730 Fast Ethernet Translation Switch—Reference Guide* for information on configuring the Switched Port Analyzer.

Start of Troubleshooting Process

If one or more devices (such as PCs) connected to a switch are unable to communicate with other devices in the network, use the following steps to start the troubleshooting process:

1. Locate the switch to which the device is connected. Use the network sketch, the label on the cable connected to the device, or other network records to help you locate the switch.
2. If you have set up a console session (see Chapter 4, “Switch Access”), it can be used to determine whether diagnostics have been completed correctly. A list of normal diagnostic messages is shown on page 39.
3. Observe the LEDs on the switch front panel. Figure 2 on page 2 illustrates the LEDs. For explanations of the LEDs, see section “Status and Activity LEDs” on page 4. Review this section before proceeding with the troubleshooting process.
4. Use Table 10 below to locate the symptom that best describes the communication problem and the LED pattern you observed. Then, go to the section that contains the recommended actions for resolving the problem and follow that procedure.

Choosing a Troubleshooting Procedure

Use Table 10 to determine which troubleshooting procedure you should use. For a description of the status LEDs and their meanings, see “Status and Activity LEDs” on page 4.


Symptom and LED State	Go To:
All of the LEDs are off.	Procedure A
The ERR LED or the DIAG are on.	Procedure B
None of the devices connected to the switch can communicate, the ERR LED is off, and the PWR LED is on.	Procedure C
A single device connected to a Token-Ring port is having trouble communicating.	Procedure D
A single device connected to a Fast Ethernet port is having trouble communicating.	Procedure E
 Note: Segment refers to a single cable or interconnected cables between a switch port and the device at the other end.	

Table 10. Symptom, LED State and Recommended Procedure

Procedure A

Use this procedure if all of the LEDs are off:

1. Verify that the power cord is connected at both ends and that the power outlet is working.
2. If the power cord is connected correctly, the outlet is working, and the problem persists, the problem is in the switch. In that case, contact technical support as described in Chapter 6, “Getting in Touch with Technical Support”.

Procedure B

Use this procedure if the ERR LED is on:

1. Verify that the power to the internal power supply is on. If the power is off (and the switch is powered only by the redundant power supply), apply power to the internal power supply. If the ERR LED turns off after this, resume using the switch, otherwise proceed to step 2 below.

2. Reset the switch by disconnecting the power cord, waiting 10 seconds, and then reconnecting it to the electrical outlet. If the problem goes away, resume using the switch.
3. If you have just downloaded new microcode, clear NVRAM and reset the switch using the instructions in the *CrossFire 8730 Fast Ethernet Translation Switch—Reference Guide*, Chapter 3, “Switch Configuration”, section “Reset Screen”.

► **Note:** Clearing NVRAM returns all configuration parameters to their default values.

If the problem is corrected, resume using the switch.

4. One or more bad ports can cause this symptom, and the remaining ports might continue to operate.
 - Reset the switch and monitor the diagnostic messages that appear for port failures. The section “Diagnostic Screen” on page 39 includes a sample diagnostic screen. Try to correct any individual port problems that are detected.
 - If the problem is corrected, resume using the switch.
5. If the problem does not go away, the problem is in the switch.

Procedure C

Use this procedure if all devices connected to the switch are having communication problems, the ERR LED is off, and the PWR LED is on:

1. Reset the switch by disconnecting power cord for 10 seconds.
 - If the problem goes away, resume using the switch.
 - If the status LEDs indicate a failure, go to “Procedure B”.
 - If the problem persists, check all the configuration parameters.
 - If the problem has still not been resolved, go to “Procedure D” for Token-Ring ports and “Procedure E” for Fast Ethernet ports, and try to get individual ports working.

Procedure D

Use this procedure if one device connected to a Token-Ring port is having a communication problem. The ERR LED and the DIAG LEDs are off, and other attached devices can communicate through the switch:

1. Check the port LEDs.

- If the port INSRT LED is on, the problem is probably external to the switch. Go to Step 2.
 - If the port INSRT LED is off, the port is probably disabled. Check that the port configuration matches the attached device, and then go to Step 3.
2. If the INSRT LED on the failing port is on, and the attached device still cannot communicate:
- If the attached device is directly connected, it might be set up incorrectly. Go to step 4.
 - In a shared environment, check the segment cabling and the media access unit.
 - If problem persists, try another identically configured port on the switch. If the new port works there is a problem with the failed port. Obtain service. Contact your local Olicom representative.
3. Do the following:
- Using the switch console or the SNMP manager, check to see whether the failing port is disabled. If it is, enable it. A port will disable itself when the **Cfg Loss Threshold** parameter is exceeded (this parameter is described in the *CrossFire 8730 Fast Ethernet Translation Switch—Reference Guide*, Chapter 3, “Switch Configuration”). This can be caused by poor cables, a faulty station connected to the switch, or a bad port on the switch.
 - If the port is not disabled, disconnect the port cable. Try moving the cable to another port until service can be arranged. If the switch can be temporarily removed from service, connect a console and reset the switch with diagnostics to see whether the port passes diagnostics and initializes. If it does not, the problem is in the switch. In this case, contact technical support as described in Chapter 6, “Getting in Touch with Technical Support”.
4. Restart the communication program on the failed connected device.
- If the communication program appears to start without errors, observe the INSRT LED on the switch port. If it is on, the problem may have gone away. Check the **Cfg Loss Threshold** parameter in the **Port Configuration** screen for possible causes of the failure. The **Configuration** screen is described in the *CrossFire 8730 Fast Ethernet Translation Switch—Reference Guide*.
 - If the problem persists, try another identically configured port on the switch. If the new port works there is a problem with the failed port. Obtain service. Contact your local Olicom representative.

5. If the switch is connected to a token-ring concentrator, perform the following steps:
 - Verify that the switch duplex setting matches the attached device.
 - Verify that the concentrator is operating correctly.
 - Verify that only one cable interconnects the two devices. In other words, only one switch port should be connected to a port on the concentrator.

► **Note:** If a Token-Ring port is configured to “speed auto sense” mode, and is connected to shared-media where there are no active stations, the port will not open until another station becomes active and sets the ring speed. If necessary, this can be avoided by configuring the port to “fixed speed” mode.

6. For each device that is having a communication problem, connect its segment to another Token-Ring port on the switch. Try each of the remaining ports to determine whether the problem will go away.
 - If the problem goes away, the problem might be in the switch. Contact your local Olicom representative.
 - If the problem persists, continue with step 7.
7. The problem does not appear to be in the switch and the cables and devices connected to the switch. The problem might be in the network applications or other software running on the devices. See the software documentation for software problem determination procedures, or consult your network administrator for assistance.

Procedure E

Use this procedure if one device connected to a Fast Ethernet port is having a communication problem. The ERR LED and the DIAG LEDs are off, and other attached devices can communicate through the switch:

1. Check the port LEDs.
 - If the port LINK LED is on, go to Step 2.
 - If the port LINK LED is off, the port is probably disabled or is not wired correctly. Go to Step 3.
2. If the LINK LED on the failing port is on, and the attached device still cannot communicate, see the **Statistic** menu for more information about port behaviour and check the ACT LED:
 - If it is blinking, check the **Fast Ethernet Port Configuration** screen for possible causes of failure. This screen is described in the *CrossFire 8730 Fast Ethernet Translation Switch—Reference Guide*.

- If it is **not** blinking and if the attached device is directly connected, it might be set up incorrectly. Go to step 4.
If it is **not** blinking in a shared environment, check the segment cabling and the media access unit.
 - If the problem persists, try another identically configured port on the switch. If the new port works there is a hardware problem with the failed port. Obtain service. Contact your local Olicom representative.
3. Do the following:
- Using the SNMP manager, check to see whether the failing port is disabled. If it is, enable it.
 - If the port is not disabled, verify that your cables are wired correctly (see “Cabling” on page 29).
 - If the problem persist, disconnect the port cable. Try moving the cable to another port until service can be arranged. If the switch can be temporarily removed from service, connect a console and reset the switch with diagnostics to see whether the port passes diagnostics and initializes. If it does not, the problem is in the switch. In this case, contact technical support as described in Chapter 6, “Getting in Touch with Technical Support”.
4. Restart the communication program on the failed connected device.
- If the communication program appears to start without errors, observe the LINK LED and the ACT LED on the switch port. If LINK LED is on and ACT LED is blinking, the problem may have gone away.
 - If the problem persists, try another identically configured port on the switch. If the new port works there is a problem with the failed port. Obtain service. Contact your local Olicom representative.
5. The problem does not appear to be in the switch and the cables and devices connected to the switch. The problem might be in the network applications or other software running on the devices. See the software documentation for software problem determination procedures, or consult your network administrator for assistance.



6. Getting in Touch with Technical Support

If support is not provided by your organization or the local vendor, you can at any time relay information to or contact Olicom Technical Support via one of the listed services. In addition, BBS, e-mail, FTP or WWW provide up-to-date software updates, application notes, quick fixes and various utilities which may solve your problem.

Before You Contact Olicom Technical Support

- Boot the switch to run the power-on diagnostics. Capture and print the diagnostics (note that any traffic through the switch will be disrupted). . .
- Dump the switch configuration to a file using Display Summary and print the file
- Print any messages in the Message Log Information Screen
- If possible, attach a display summary screen captured from the console or telnet
- If possible, simplify the environment by removing other devices.
- Fill in as much as possible in the included Problem Report Form
- Contact your local Olicom representative

Hotline Support

Call the following numbers for help with *any* problem you may encounter when installing Olicom software and hardware products:

- USA:** (+1) 1-800-OLICOM-1(24 hours a day, 7 days a week)
 (+1) 972 907-4200 (24 hours a day, 7 days a week)
- Europe:** (+45) 45 27 01 02 (Denmark, Monday to Friday, 7 am to 6 pm GMT + 1)
 (+48) 58 348 15 20 (Poland, Monday to Friday, 8 am to 6 pm GMT + 1)

Fax Support

For assistance with any problem you may encounter when installing Olicom software and hardware products, Olicom's Support department will reply either by fax or by telephone within 24 hours, Monday to Friday. Use one of the following fax numbers:

- USA:** (+1) 972 671-7524
Europe: (+45) 45 27 02 40 (Denmark)
(+48) 58 348 15 01 (Poland)

Internet E-Mail

Olicom customer support is available on e-mail through Internet. You will receive a reply within 24 hours. Use one of the following e-mail addresses:

- USA:** support@olicom.com (the Americas)
Europe: support@olicom.dk (ROW, the rest of the world)

Anonymous Internet FTP Server

All Olicom's software updates, application notes, quick fixes, etc. can be obtained from our anonymous FTP server. To connect, open an FTP session to:

- USA:** ftp.olicom.com
Europe: ftp.olicom.dk

Internet World Wide Web Server (WWW)

The Olicom WWW server contains up-to-date information about Olicom products, newsletters and press releases. It also contains addresses of all Olicom offices and support centers worldwide. Our software library contains the latest driver and software revisions. The WWW server can be accessed using the following web addresses:

- USA:** <http://www.olicom.com>
Europe: <http://www.olicom.dk>

Olicom Support WEB

The Olicom Support WEB contains, for example, technical support hints, driver and software updates, a problem report form, support news as well as updated versions of guides and manuals.

USA: <http://www.olicom.com>

Europe: <http://www.olicom.dk>

Select “Services & Support” from the main page.

Problem Report Form

Fill in both sides of this Problem Report Form, print out the relevant system configuration files and fax or mail to Olicom Technical Support. You can also fill in and send a Problem Report Form from Olicom's web site on the Internet.

Switch Information	
Switch type:	
Hardware revision:	
Software version:	
Switch Configuration	
Port configuration:	
Stack Configuration:	
UEM Configuration:	
Adapter Information	
Adapter type:	
Operating system:	
Network OS:	
Driver name:	
Driver version:	

Company: _____ Name: _____

Address: _____

Country: _____ Phone/Fax: _____

E-mail: _____

Problem Description

Blank area for problem description.

Network Installation Sketch

Blank area for network installation sketch.



Appendix A. Cable and Pin Information

This appendix provides information on cables that can be used with the CrossFire 8730 Fast Ethernet Translation Switch. It also provides minimum pin-out information to be used to verify that the cables are correctly wired.

Connecting to the Out-of-Band Management Port

Table 11 lists the type of cables that are used when connecting to the OBM port (labeled MANAGEMENT) on the front panel of the switch.

Cable Function	Cable Type or Cable Solution
Connect a modem to the MANAGEMENT port.	Connect one end of a straight-through TIA/EIA-232 modem cable to the MANAGEMENT port and the other end to the modem.
Connect a PC or other DTE device to the MANAGEMENT port.	Connect one end of a crossover TIA/EIA-232 cable to the MANAGEMENT port and the other end to the PC or DTE device <i>or</i> attach a null-modem adapter to the MANAGEMENT port. Then, attach a straight-through modem cable to the null-modem adapter.

Table 11. Connecting to the Management Port

Out-of-Band Management Port and Cable Pin-Outs

The switch's Out-of-Band Management (OBM) port (labeled MANAGEMENT on the front panel) is an TIA/EIA-232 port wired as a DTE. For this reason, you cannot use a straight-through modem cable to directly connect a terminal to the MANAGEMENT port.

For a terminal connection, you can use either a null-modem cable or a modem cable with a null-modem adapter attached. For a modem connection, you can use a standard modem cable.

This section provides pin-out information for the cables you can use to connect to the MANAGEMENT port.

Management Port Pin-Out

Pin	Signal Name
Shell	CHS GND
3	TXD
2	RXD
7	RTS
8	CTS
6	DSR
5	SIG GND
1	DCD
4	DTR
9	RI

Table 12. Pin-Out of the Management Port

TIA/EIA-232 Modem Cable Connections

Use a standard straight-through modem cable to connect the switch's MANAGEMENT port to a modem.

TIA/EIA 232 Null-Modem Connections

Use a null-modem (crossover) cable shown in Figure 10 to connect the MANAGEMENT port to a terminal (DTE) with a 25-pin connector. Alternatively, you can use a modem cable and a null-modem adapter. DTR (pin 20) and RTS (pin 4) must be on, or high, on your terminal or in your terminal emulation program.

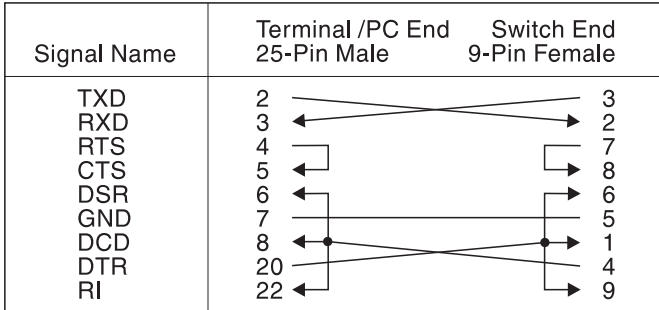


Figure 10. TIA/EIA 232 Null-Modem Cable for the 25-pin Connector

Use a null-modem (crossover) cable shown in Figure 11 to connect the MANAGEMENT port to a terminal (DTE) with a 9-pin connector. Alternatively, you can use a modem cable and a null-modem adapter. DTR (pin 4) and RTS (pin 7) must be on, or high, on your terminal or in your terminal emulation program.

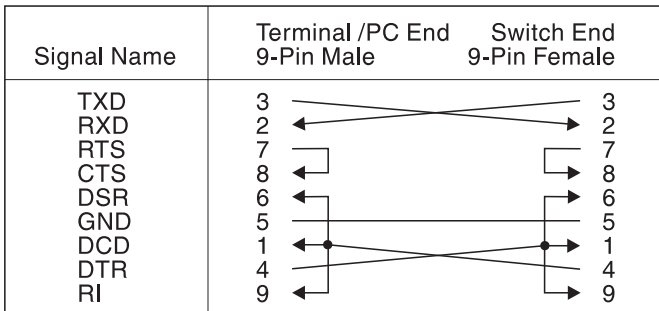


Figure 11. TIA/EIA 232 Null-Modem Cable for the 9-pin Connector

Token-Ring Ports

Twisted-Pair Cable Pin-Outs

When connecting devices to the token-ring ports on the switch, you must use a straight-through cable. Diagrams of these cables follow.

Straight-Through 100-Ohm/120-Ohm Cable

The switch RJ-45 connector makes ground available on the shield and on pins 1, 2, 7, and 8. Shielded cables will provide continuity for ground to any shielded connector on the other end of the cable.

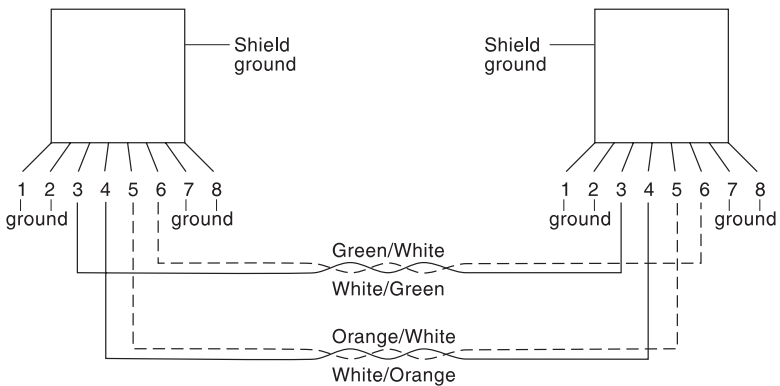


Figure 12. Straight-Through Cable

150-Ohm IBM STP Data Connector-to-RJ-45 Straight-Through Cable

RJ-45 Pins	IBM Cabling System Data Connector Color Code
1	ground
2	ground
3	←————→ Black
4	←————→ Red
5	←————→ Green
6	←————→ Orange
7	ground
8	ground
Shield	←————→ Shield

Figure 13. Data Connector-to-RJ-45 Straight-Through Cable

Cabling Recommendations

The tables in this section contain the maximum supported lobe lengths. The maximum lengths reflect the longest lengths supported by the transmission characteristics of IEEE 802.5-compliant adapters. The recommended distances for the various cable types are set by North American and international commercial building wiring standards. These standards state that standards-compliant horizontal copper cabling shall not exceed 90 m (295 ft) leaving 10 m (33 ft) total for required patch cabling in both the office and telecommunications closet. It is good practice to follow the cabling standards guidelines when installing building cabling to help ensure a longer useful life for your cabling infrastructure, migration to new technologies, and maximum flexibility for the network configuration.

Cable Type	Impedance
Types 1 and 1A	150 Ohm
Types 2 and 2A	150 Ohm
Type 8	150 Ohm
Type 9	150 Ohm
Type 3	100 Ohm
Category 3	100 and 120 Ohm
Category 4	100 and 120 Ohm
Category 5	100 and 120 Ohm

Table 13. Copper Cable Types

If you are installing new cabling for data applications, it is recommended that you use the following types of cable:

- For lobe cabling from the telecommunications closet to the wall outlet, it is recommended that 150-ohm STP or four-pair Category 5 cable that meets the international cable standard (ISO/IEC 11801) or North American cabling standard (EIA/TIA 568A).

Number Of Attaching Devices

A Token-Ring network supports up to 255 attaching devices or nodes on a single network when using 150 Ohm shielded media (type 1, 1A, 2, or 2A). When cable segments in the network are 100 or 120 Ohm, this number is decreased to 132 (72 if using any 4 Mbps only adapters or filters).

Cable Length and Lobe Wiring Rules for Dedicated-Media Token-Ring Segments

The Olicom Token-Ring network dedicated-media (full-duplex) connections support only one attached entity (workstation or switch) per connection.

In a Token-Ring network, the section of cable that attaches a device to an access unit is called a lobe.

The tables in this section specify the maximum supported lobe lengths for the types of cables listed below. An additional 10 m (33 ft) per lobe length is allowed to accommodate patch cables, unless otherwise specified.

Ring Speed	Types 1 and 1A	Types 2 and 2A	Type 8	Type 9
4 Mbps	750 m (2,460 ft)	750 m (2,460 ft)	376 m (1,234 ft)	500 m (1,640 ft)
16 Mbps	430 m (1,410 ft)	430 m (1,410 ft)	215 m (705 ft)	295 m (968 ft)

Table 14. Lobe Length for 150 Ohm Shielded Media

Ring Speed	100 Ohm Type 3	100 Ohm Category 3
4 Mbps	100 m (328 ft)	250 m (820 ft)
16 Mbps	Not Supported	100 m (328 ft)

Table 15. Lobe Lengths for 100 Ohm Shielded or Unshielded Cable

Ring Speed	100 or 120 Ohm Category 4	100 or 120 Ohm Category 5
4 Mbps	350 m (1,148 ft)	350 m (1,148 ft)
16 Mbps	200 m (656 ft)	200 m (656 ft)

Table 16. Lobe Lengths for 100 or 120 Ohm Shielded or Unshielded Cable

Cable Length and Lobe Wiring Rules for Shared-Media Token-Ring Segments

The types of cables that can be used in shared-media segments (half-duplex) are the same as those described above for dedicated-media segments.

- ▶ **Note:** The acceptable cable lengths are defined by the hub or concentrator attached to the switch port, but in general the distances are half of that stated in the tables above for dedicated-media segments.

Fast Ethernet Ports

The Fast Ethernet ports use standard or crossover UTP-5 copper cables. The maximum cable length is 100 m (328 feet).

Twisted-Pair Cable Pin-Outs

The Fast Ethernet ports use standard RJ-45 connectors and Ethernet pin-outs without internal crossovers. Figure 14 shows the pin-out. When connecting the Fast Ethernet ports to compatible servers and workstations, ensure that you use a crossover cable wired for 10BaseT and 100BaseTX. When connecting to other switches or repeaters, ensure that you use a straight-through cable.

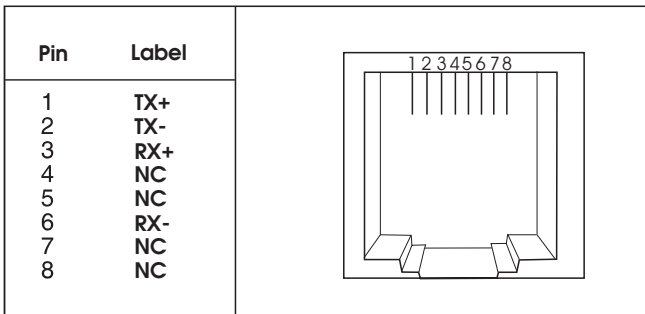


Figure 14. RJ-45 Pin-Out

Crossover and Straight-Through Cable Pin-Outs

The schematics of crossover and straight-through cables are shown in Figure 15 and Figure 16.

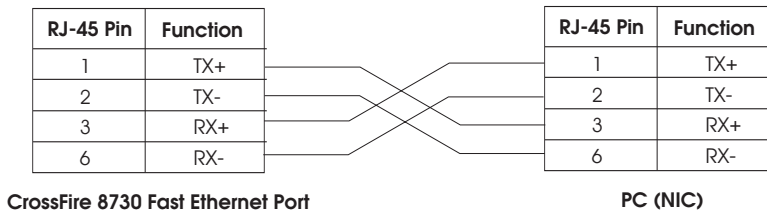


Figure 15. Crossover Cable Schematic

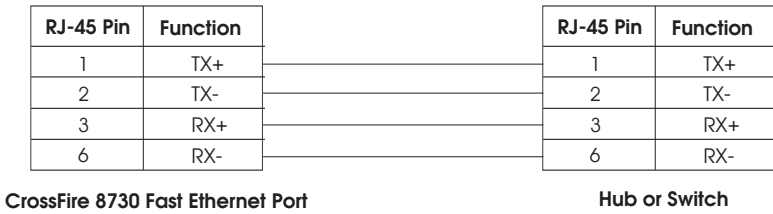


Figure 16. Straight-Through Cable Schematic



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