# S7085x
## 8-Port 10/100
## Fast Ethernet Switch
## Installation Guide

**Copyright January 2003**

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## TRADEMARKS

Ethernet is a registered trademark of Xerox Corp.

### Warning

This equipment has been tested and found to comply with the limits for Class B digital devices, 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 residential installation. 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. However, there is not guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio technician for help.
Notice: The changes or modifications not expressly approved by the party responsible for compliance could void the user authority to operate the equipment.

### CISPR 22 CLASS B

This device complies with EMC directive of the European Community and meets or exceeds the following technical standard:
EN 55022 - Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment. This device complies with CISPR 22 Class B.

## CE NOTICE

Marking by the symbol CE indicates compliance of this equipment to the EMC directive of the European Community. Such marking is indicative that this equipment meets or exceeds the following technical standards:
EN 55022/CISPR 22 Class B
EN 55024 – EN61000-3-2, EN61000-3-3, EN61000-4 series

# Table of Contents

# 1. Introduction

This 8-port Fast Ethernet switch series provides seven 10/100 TP ports and one 100BaseFX fiber port, each capable of transmitting or receiving information simultaneously at full wire speed to control and allocate the network bandwidth.


Front


Rear

The key features of this switch unit are:

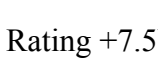
- **Optimized Bandwidth:** Combining eight 10/100Mbps-based Fast Ethernet switched ports, the switch delivers a high network bandwidth for your Fast Ethernet network.
- **Easy Migration:** With 10BaseT support on each 10/100 port, the switch provides a non-disruptive and smooth migration path from Ethernet to a Fast Ethernet network.
- **Fiber Uplink Support:** With 100BaseFX port, the switch provides connectivity to a Fast Ethernet network via fiber cable.
- **Easy Installation:** With the functions of auto-speed-sensing and auto-negotiation on each port, the switch supports plug-and-play installation which eliminates configuration problems.

## 1.1 Features

Designed for resolving congestion problems caused by bandwidth-hungry devices and bandwidth-intensive applications as well as a high number of users, the switches not only adhere to the IEEE 802.3 10BaseT, 802.3u 100BaseTX and 100BaseFX standards, but also feature:

- Seven 10/100BaseTX auto-negotiation switched ports and one 100BaseFX port for flexible connections to desktop PCs, servers and Fast Ethernet devices.
- 10/100BaseTX switched ports that support:
  - auto-negotiation with auto-negotiation devices
  - full-duplex or half-duplex operation
  - automatic MDI/MDI-X configuration
- For the 100BaseFX fiber port, the switch series support a variety of fiber connectors for different application needs. The fiber connectors include ST or SC for multimode fiber cables and SC for single mode fiber cables.
- Supports duplex mode selector for the 100BaseFX fiber port.
- Self-learning for active MAC addresses and address aging
- Store and forward switching to ensure only good packets are forwarded
- Forwarding and filtering at full wire speed
- Supports IEEE 802.3x flow control for full-duplex operation
- Supports back-pressure flow control for half-duplex operation
- Comprehensive LED indicators provide quick, easy to read port and switch information

## 1.2 Specifications

| | |
|---|---|
| **10/100 Ports** | IEEE 802.3 10BaseT, 802.3u 100BaseTX std.<br>Shielded RJ-45 jacks with Auto MDI-X detection<br>Auto-negotiation capable<br>Speed for 10Mbps or 100Mbps<br>Full-duplex or half-duplex mode support |
| **100FX Port** | IEEE802.3u 100BaseFX compliant<br>Fixed 100Mbps operation<br>Duplex mode selector – full duplex or half-duplex |
| **Flow Control** | IEEE 802.3x pause packet for full duplex operation<br>Back-pressure for half-duplex operation |
| **Cables** | 10BaseT Cat. 3, 4, 5 or higher (100 meters max.)<br>100BaseTX Cat. 5, 5e or higher (100 meters max.)<br>100BaseFX multimode or single mode fiber cable |
| **LED indicators** | Power status<br>Per port: Speed, Link, Activity, Duplex, Collision |
| **Forwarding rate** | 14,880 pps for Ethernet (10M)<br>148,800 pps for Fast Ethernet (100M) |
| **Filtering address** | Multicast/Broadcast/Unicast address |
| **MAC address** | 1K entries |
| **Aging time** | 240 seconds |
| **Environment** | Temperature 0°C to 40°C<br>Relative humidity 10% to 90% non-condensing |
| **Dimensions** | 180mm x 114mm x 26mm (WxDxH)<br>7.08 x 4.49 x 1.02 inch |
| **DC IN jack** | Rating +7.5V/1A, D6.3mm  D2.0mm |
| **DC IN voltage** | Operating +6.0V ~ +12.6VDC (Device DC input) |
| **Consumption** | DC input power consumption 6.3W @+7.5V |

## 100FX Port Fiber Specifications

| Model | Connector | Fiber Cable | Max. Distance*1 |
|---|---|---|---|
| S70853 | ST | MM*2 | 2 Km |
| S70854 | SC | MM | 2 Km |
| S70855-2 | SC | SM*3 | 20 Km |
| S70855-5 | SC | SM | 50 Km |
| S70855-7 | SC | SM | 70 Km |

*1: Operating on full duplex mode
*2: Multimode fiber – 62.5/125μm, 50/125μm
*3: Single Mode fiber – 9/125μm

## 100FX Port Optical Specifications

| Model | Wavelength | Tx Power | Rx Power |
|---|---|---|---|
| S70853 | 1310nm | -19~ -14dBm | -31dBm min.-14dBm max. |
| S70854 | 1310nm | -19~ -14dBm | -31dBm min.-14dBm max. |
| S70855-2 | 1310nm | -15~ - 8dBm | Sensitivity -33dBm max. |
| S70855-5 | 1310nm | -5~ 0dBm | Sensitivity -35dBm max. |
| S70855-7 | 1310nm | 0~ + 5dBm | Sensitivity -37dBm max. |

# 2. Installing the Switch

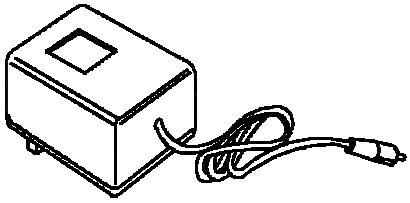
## 2.1 Unpacking

Check to see that you have everything before you start the installation.

· Installation guide

· The switch unit

· One AC power adapter for the unit



## 2.2 Checking AC Power

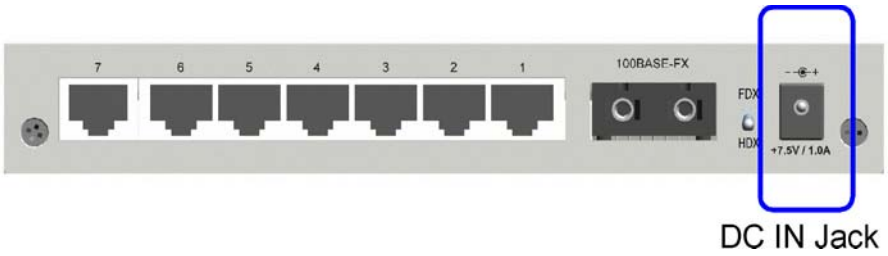
Before you begin the installation, check the AC voltage of your area. The AC power adapter used to supply the DC power for the unit should have the AC voltage matching the commercial power voltage in your area. The specifications of the AC power adapter are:

· AC input power: AC power voltage of your area

· DC output power: +7.5VDC 1A min.

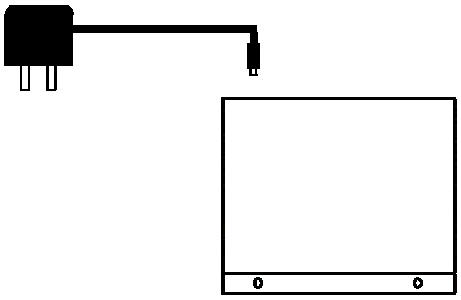
· DC plug type: 


The DC power socket for the AC power adapter is located on the rear of the switch as shown below:

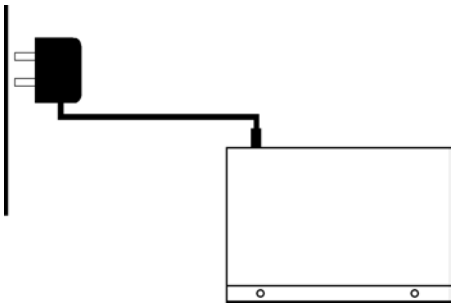


## 2.3 Installing the Switch

1. Install the switch with the AC power adapter provided.



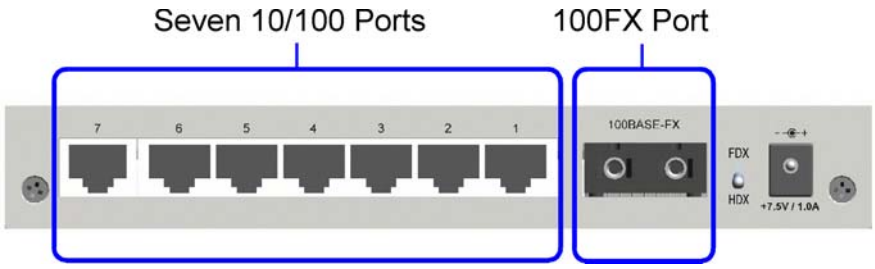
2. Connect the power adapter cable to the switch before connecting the adapter to the AC outlet.



# 3. Making Network Connections

## 3.1 Switched Ports

The following figure shows the location of the switched ports:




## 3.2 Making UTP Connections

**10/100 TP Port Configuration**

All 10/100 TP ports support configuration as follows:

Auto-negotiation capable
Highest capability: 100M Full duplex
Speed: auto-sensing for 100Mbps or 10Mbps
Duplex: Full duplex, half-duplex
Auto MCI-X function

The following table lists the configuration used for the 10/100 port when it connects to different devices:

| Connected Device | Configuration Used |
|---|---|
| 10BaseT hub port | 10Mbps, half-duplex |
| 100BaseTX hub port | 100Mbps, half-duplex |
| Auto-negotiation port | Determined by auto-negotiation process |
| Non-auto*1 half-duplex port | auto-speed-sensing *2, half-duplex |
| Non-auto full-duplex port | Not supported |

*1 Non-auto: non-auto-negotiation
*2 speed is determined by auto-sensing function

**Cables**

Depending on the connection speed, use the proper UTP cables:

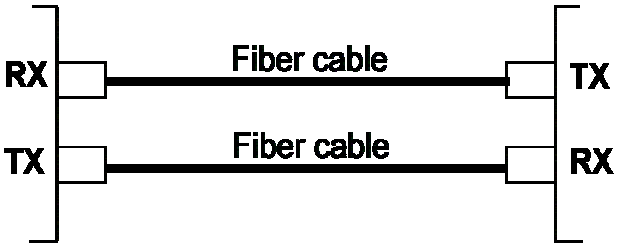
| Speed | Cables used | Distance |
|---|---|---|
| 100M | Cat. 5, 5e, or higher grade | 100 meters |
| 10M | Cat. 3, 4, 5, 5e or higher grade | 100 meters |

**Auto-MDI-X Function**

An Auto-MDI-X function will automatically detect if a crossover is required and make the swap of Tx pair and Rx pair internally. With this function, straight-through cable can be used for any connection. MDI to MDI-X connection rule is not necessary anymore. You can use just straight-through type cable for all your connections.

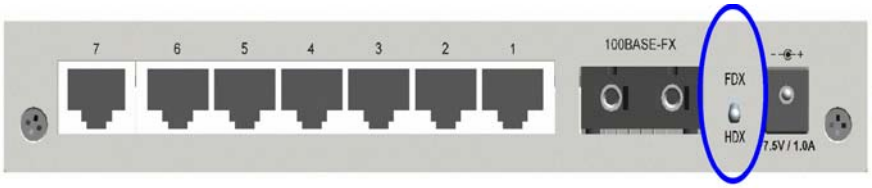
## 3.3 Making Fiber Connection

For different fiber connections, several alternative models can be selected for different fiber connections. Refer to Section 1.2 for model selection. The following figure illustrates a connection example between two SC fiber ports:




**100FX Duplex Selector**

This selector is used for 100FX port duplex mode selection as follows:




100FX Duplex Selector

| Setting Position | Duplex Mode |
|---|---|
| FDX | Full duplex |
| HDX | Half duplex |

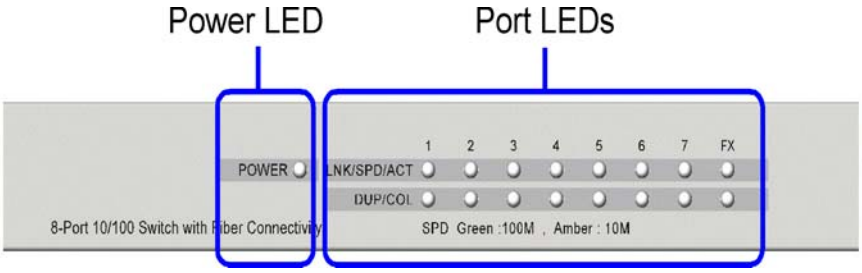
The following table lists the maximum **MM** fiber cable length connecting to different devices:

| Connected Device | Distance (MMF cable) |
|---|---|
| Network card half-duplex fiber port | 400 m |
| Network card full-duplex fiber port | 2 km |
| Class I hub half-duplex fiber port | 160 m |
| 2 Class II hub half-duplex fiber port | 112 m |
| Switched half-duplex fiber port | 400 m |
| Switched half-duplex fiber port | 2 km |

# 4. LED Indicators

## 4.1 LED Panel

The switch provides comprehensive LED indicators for diagnosing and monitoring the operation of the switch as illustrated below:




## 4.2 Interpretation

**LED Functions**

**POWER LED:** indicates the power status of the switch.

**LNK/SPD/ACT LED:** indicates the link status, connection speed status, and traffic status of the switched port

**DUP/COL LED:** indicates the duplex status and collision status of the switched port

**LED States and Indications**

| LED | State & Color | | Indication |
|---|---|---|---|
| POWER | Off | ------- | No power is supplied to the switch |
| POWER | On | Green | Power is being supplied to the switch |
| LNK/SPD/ACT | On | Green | Speed 100M, link up |
| LNK/SPD/ACT | On | Amber | Speed 10M, link up |
| LNK/SPD/ACT | Blink | Green | Speed 100M, link up, Tx/Rx activities |
| LNK/SPD/ACT | Blink | Amber | Speed 10M, link up, Tx/Rx activities |
| LNK/SPD/ACT | On | ------- | Link down |
| DUP/COL | On | Green | Full duplex mode |
| DUP/COL | Off | ------- | Half-duplex mode, no collision |
| DUP/COL | Blink | Green | Half-duplex mode, collisions |