SwitchX 1U 36 Port FDR IB Switch Installation Guide

P/N:MSX6025F-1SFR, MSX6025F-1SRR, MSX6025T-1SFR, MSX6025T-1SRR, MSX6025F-1BFR, MSX6025F-1BRR, MSX6025T-1BFR, MSX6025T-1BRR, MSX6036F-1SRR, MSX6036T-1SFR, MSX6036T-1SRR, MSX6036F-1SFR, MSX6036F-1BRR, MSX6036T-1BFR, MSX6036T-1BRR, MSX6036F-1BFR

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Switch X SX60XX 1U 36 port FDR Switch Installation Guide

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Revision History

Table 1 - Revision History of this Installation Guide

Revision	Date	Details
1.1	July 17, 2011	Replaced the reference to Har 000022. Har 000022 is now in the MTUSB kit and not packed with the switch.
1.0	July 04, 2011	Initial release

About this Manual

This manual describes the installation and set-up instructions of the Mellanox SX60XX switch family, which is based on the SwitchX IB switch device.

Intended Audience

This manual is intended for users and system administrators responsible for installing and setting up the switch platform.

The manual assumes familiarity with the InfiniBand® architecture specification.

Related Documentation

The documentation set accompanying the SX60XX top of rack switch platform includes the following:

Table 2 - Reference Documents

Document Name	Description
InfiniBand Architecture Specification, Vol. 1, Release 1.2.1	The InfiniBand Architecture Specification that is provided by IBTA
Switch Hardware User Manual	This document contains HW descriptions, LED assignments and HW specifications among other things.
Mellanox MLNX-OS SwitchX Software User Manual	This document contains information regarding configuring and managing Mellanox Technologies' SwitchX Switch Platforms.
MLNX-OS Software WebUI User's Manual	WebUI user's manual for MLNX-OS
MLNX-OS Software Command Reference Guide	Command Reference Guide for MLNX-OS listing all of the commands available through MLNX-OS with explanations and examples.
MLNX-OS Software Configuration Guide	Configuration Guide for MLNX-OS displaying different configuration scenarios.

All of these documents can be found on the Mellanox Website. They are available either through the product pages or through the support page with a login of user and password.

Document Conventions

When discussing memory sizes, MB and MBytes are used in this document to mean size in mega bytes. The use of Mb or Mbits (small b) indicates size in mega bits.

This symbol makes recommendations to the user.

This symbol indicates information that is helpful to the user.

This symbol indicates a situation that can potentially cause damage to hardware or software.

BEWARE! This symbol indicates a situation that can potentially cause personal injury or damage to hardware or software.

Mellanox Part Numbering Legend

Mellanox Part Numbering Legend		
Place	Field	Decoder
M		Mellanox Technologies
SX	System Type	SwitchX Switch
P	Protocol	60 = IB 90 = VPI
MM	Management Options	25 = 36 Ports externally managed 36 = 36 ports internally managed
C	InfiniBand Port Config	F = FDR, T = FDR10, Q = QDR, D = DDR
-	Separator	
P	# Power Supplies	0=0, 1=1, 2=2....
F	Form factor	S = standard depth, B = short depth
Y	Air Flow direction	R= Connector side to PSU side airflow F= PSU side to Connector side airflow
R	RoHS	R = RoHS6

1 Installing the Switch in the Rack

1.1 Minimum and Maximum Rack Depth for these Switches.

This switch can be installed in any standard 19” rack with depths of 40cm to 80cm.

Make sure that the Installation kit you have is compatible with your rack.

To use the SwitchX series switch in a rack deeper than 60cm, order the switch with the standard depth, or order the MSX60-SKIT installation kit. The both of these solutions will allow you to install the switch in a 19” rack whose vertical supports are between 60cm and 80cm apart.

1.2 Rack Mounting

The switch platform can be rack mounted and is designed for installation in a standard 19” rack. The power side of the switch includes a hot-swap power supply module, a blank cover for an optional second PSU for redundancy, and a hot-swap fan tray. There are two possible air flow directions. Be sure that the switch air flow direction is compatible with your system, rack, and PSUs. The connector side of the switch has the QSFP ports, system LEDs, and management connection ports.

The switch platform contains auto-sensing 100 - 240 VAC connections for all possible PSUs.

The installer should use a rack capable of supporting the mechanical and environmental characteristics of a fully populated platform.

The rack mounting holes conform to the EIA-310 standard for 19-inch racks. Take precautions to guarantee proper ventilation in order to maintain good airflow at ambient temperature. Cable routing in particular should not impede the air exhaust from the chassis.

1.2.1 Installation Kits

There are two Installation kit options. One long and one short. Both the standard and the short switches can be mounted using the long rail kit. The short kit will only work with the short switch.

See “Mellanox Part Numbering Legend” on page 8 for explanation of the switch depth according to the Model numbers.

Table 3 - Installation Kit According to Rack Size

Kit OPN	Rack Size
MSX60-BKIT	40-60 cm
MSX60-SKIT	60-80 cm

1.3 Package Contents and Installation

Before you install your new SX60XX switch, unpack the system and check to make sure that all the parts have been sent, check this against the parts list below. Check the parts for visible damage that may have occurred during shipping.

The switch comes packed with the following items:

- 1 X – switch
- 1 X – installation kit
- 1 X – power cable for each PSU – Type B 6ft US 125V 10A cord
  - See "Replacement Parts Ordering Numbers" in the Appendix to order power cords for various countries.
  - A single power cord for each power supply unit can be ordered at no extra charge.
  - 1 X – HAR000028 – RS232 - female DB9 to male RJ45 harness

If anything is damaged or missing, contact your customer representative immediately.
For customer support go to:
www.mellanox.com =>support=>Customer Support Portal Login

1.3.1 Installing the Switch in the Rack

Tools and Customer Supplied Parts

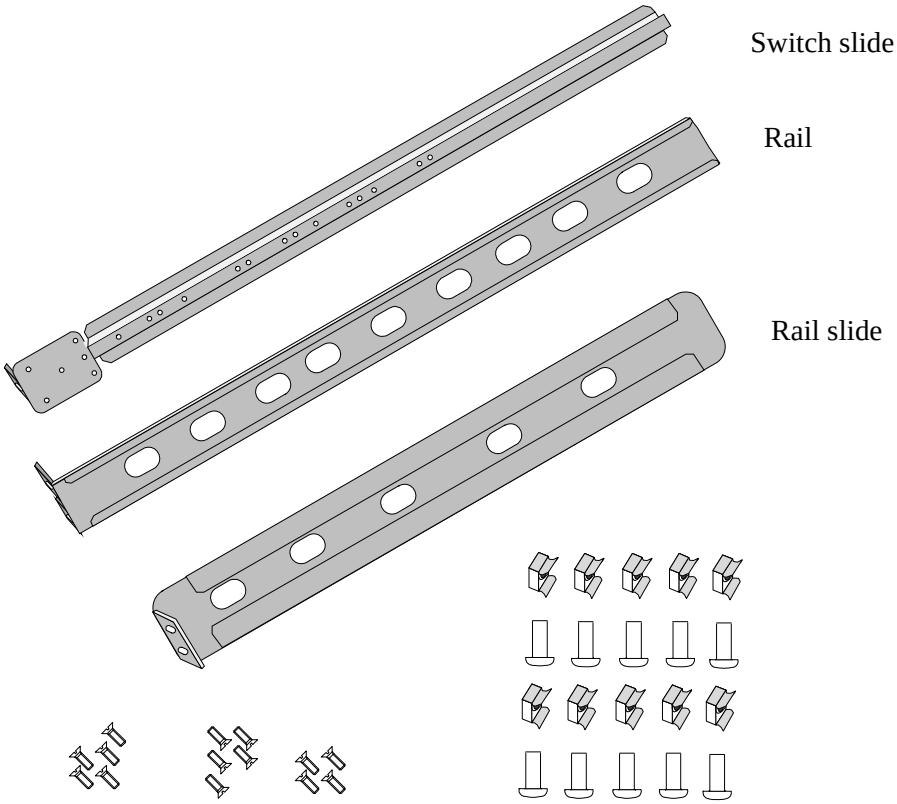
- Phillips Screwdrivers #1 and #2
- ESD strap
- ESD mat
- grounding screw
- grounding wire sufficient to reach a valid ground.

For racks from 60cm to 80cm deep either use the standard depth switches with the long rail kit or the short switches with the long rail kit.

Parts included in the rail kit:

- 2 rails
- 2 rail slides
- 2 switch slides
- 14 recessed flat head screws for the standard switch
- 10 caged nuts
- 10 pan head screws M6

Figure 1: Rack Rail Kit Parts



1. Place the ESD mat on the floor where you will be working and put on the ESD strap. Make sure the ESD strap is touching your skin and that the other end is connected to a verified ground.
2. Choose which side of the switch you want even with the rack vertical support. Either the side with the power supply units or the side with the QSFP connectors can be even with one of the vertical rack supports.

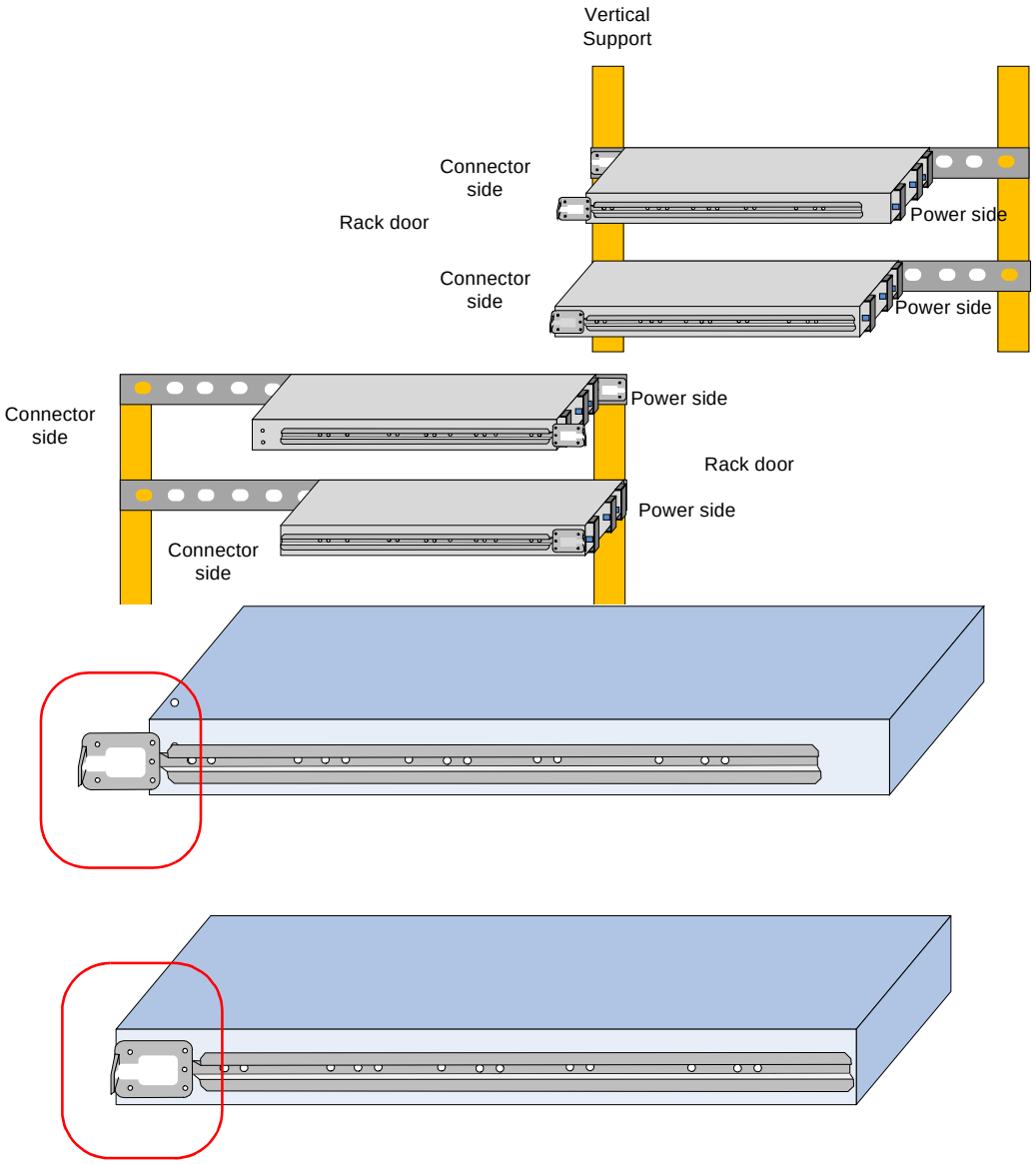
Things to consider before choosing where to mount the rails and rail slides.

The distance between the rack and the door can be as little as 4 cm on one side of the rack and as much as 18 cm on the other side of the rack. Keep in mind that there can be as many as 36 cables connected to the switch.

- Do you want the connector side recessed in the rack to allow for a larger cable bending radius? It is possible to recess the connector side by 5cm by optional placement of the switch rails. See Figure 2,“Mounting Options”.
- Will the connector side be recessed past other equipment in the rack and will this be problematic?

- The installation kit allows for a 2” recess of the switch past the vertical support.

Figure 2: Mounting Options

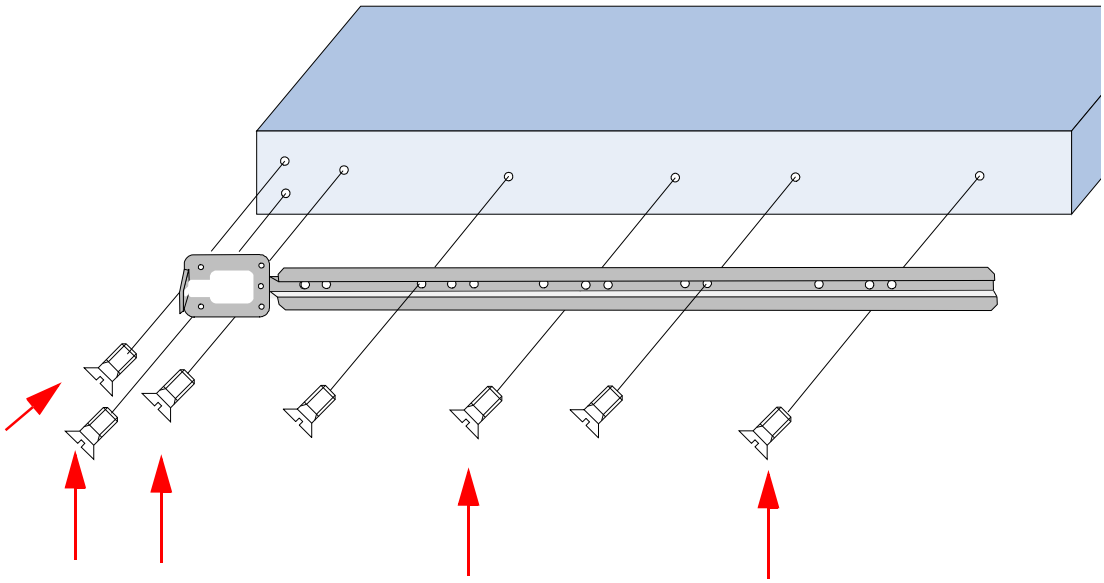


3. Decide which mounting option you want to use.

To use the rail kit to transfer the power cord from the connector side to the power side go now to “Transferring the Power Cord” on page 27.

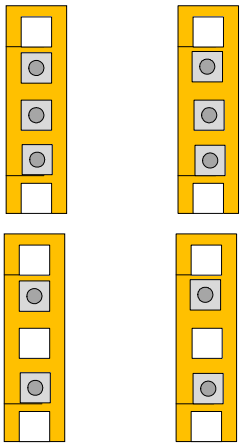
4. Screw the switch slides onto the switch. Use 5 flat head screws for short switches and 7 screws for standard depth switches, to connect each switch slide.

Figure 3: Screwing on the Rail



5 screws per side are needed for the short switch
7 screws per side are needed for the standard switch

Figure 4: Inserting the Caged Nuts

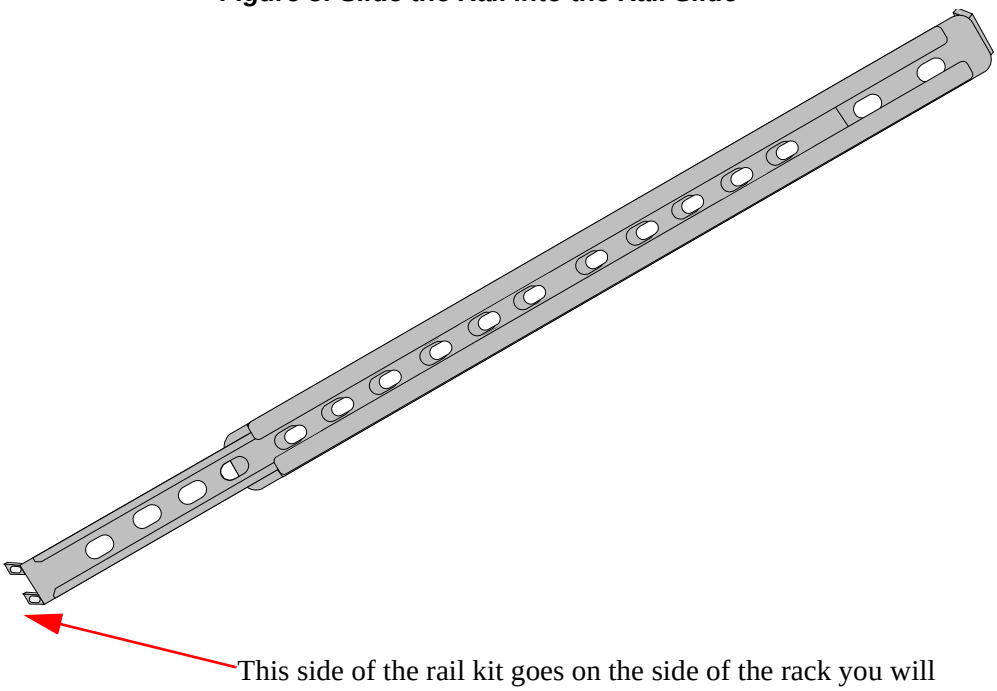


Side you will slide the swich into

Second side

5. Clip 6 caged nuts into the holes in the rack on the side of the rack you will be sliding the switch into. Check that both sides of the switch, power side and connector side, are at the same level in the rack.
6. Clip 4 more caged nuts into the holes on the opposite side of the rack Check that both sides of the switch, left and right, are the same level in the rack.
7. Slide the rail into the rail slide.
8. Using two of the bolts for each corner install the rails and rail slides in the rack. Do not tighten the bolts yet.

Figure 5: Slide the Rail into the Rail Slide



This side of the rail kit goes on the side of the rack you will slide the switch into. This is the same side of the switch that will be next to the vertical support.

9. Slide the switch into the rails.
10. Tighten the bolts to 9.2 Nm or 81.5 pound inches.
11. Put the switch into place and screw the bolts into the nuts. Tighten the bolts to 9.2 Nm or 81.5 pound inches.
12. Ground the switch.
13. Plug in the power cables.
14. Check the Status LEDs and confirm that all of the LEDs show status lights consistent with normal operation.

Warning: Any yellow or red status LEDs are cause for concern and must be dealt with immediately.

It can take up to 5 minutes to boot up, during which time the status LED may indicate red.

15. You can start connecting all of the cables to the switch.

FDR and FDR10 are only guaranteed to work with approved Mellanox Cables.

1.3.2 Grounding the Switch

Check to determine if your local or national electrical codes require an external ground to all IT components. If so, connect a ground wire to one of the casing screws and connect the other end to a valid ground. If you choose to not use the ground screw, make sure that the rack is properly grounded and that there is a valid ground connection between the chassis of the switch and the rack. Test the ground using an Ohm meter.

Some national and/or local codes may require IT components to be bonded and externally grounded (not including the power cord ground). You must follow all national and local codes when installing this equipment.

1.3.3 Power Connections and Initial Power On

The switch platform ships with one or two Power Supply Units. For switches with only one unit installed, a second PSU may be installed at a later time. Each supply has a separate AC receptacle. The input voltage is auto-adjusting for 100 - 240 VAC, 50-60Hz power connections. The power cords should be standard 3-wire AC power cords including a safety ground and rated for 15A or higher.

Caution: The switch platform will automatically power on when AC power is applied. There is no power switch. Check all boards, power supplies, and fan tray modules for proper insertion before plugging in a power cable.

Caution: After inserting a power cable and confirming the green system status LED light is on; make sure that the Fan Status indicator shows green.

If the fan status indicator is not green then unplug the power connection and check that the fan module is inserted properly and that the mating connector of the fan unit is free of any dirt and/or obstacles.

Caution: When turning off the switch, make sure ALL Connector LEDS are off to ensure a powered down status.

Do not hot swap the power supply if your switch has only one power supply. You must power down the system to replace the power supply unit when there is only one PSU in the switch.

Figure 6: Two Power Inlets - Electric Caution Notifications

CAUTION

Risk of electric shock and energy hazard. The two PSUs are independent.

Disconnect all power supplies to ensure a powered down state inside of the switch platform.

ACHTUNG

Gafahr des elektrischen Schocks. Entferrnen des Netzsteckers elnes Netzteils spannungsfrei. Um alle Einhieten spannungsfrei zu machen sind die Netzstecker aller Netzteile zu entfernen

ATTENTION

Risque de choc et de danger e’lectriques. Le de’branchment d’une seule alimentation stabilise’e ne de’branch uniquement qu’un module “Alimentation Stabilise’e”. Pour isoler completement le module en cause, Il faut de’brancher toutes les alimentations stabilise’es.

2 Internally Managed Vs. Externally Managed

The following table shows which switches come with a management CPU and which do not.

Externally managed (unmanaged) switches are plug and play out of the box. All switches come with the latest firmware burned on the flash. Updating the firmware stack for the externally managed switches is done in-band only. When a new firmware release is available (e-mail notification) you can upgrade the device through a link to the Mellanox web-page firmware download site.

All internally managed switches have internal chassis management and can support IB fabric of up to 648 nodes. Internally managed switches need an initial configuration before they will start working.

Table 4 - Switch Management

Family	Internally/ Externally Managed	Management Connections
SX6025	Externally managed (unmanaged)	Plug and Play All firmware updates should be done in-band using Mellanox firmware management tools. I2C port access using MTUSB-1 device is required for firmware updates if in-band burning is not possible.
SX6036	Internally managed	RS232 cable DB9 to RJ45 included in the box to connect to host PC for initial configuration of the switch. After initial configuration the switch can be managed through the Ethernet port using a remote connection.

3 Configuring the Switch

3.1 Introduction

The procedures described in this chapter assume that you have already installed and powered-on your switch according to the instructions in *Switch Installation Guide*, this document.

3.2 Externally Managed Switches

Unmanaged (Externally managed) switches, that is the SX6025 switches, do not get configured. On unmanaged switches, the CONSOLE, Ethernet, and USB connectors are not found do not work. Instead there is an I2C connector.

The unmanaged switches are Plug and Play and all firmware updates should be done in-band. The I2C connection should only be used if the firmware image was corrupted to the point that the regular firmware tools cannot successfully reburn the correct image.

When you install the switch, it comes with the latest firmware burned on the board. You will not need to burn firmware unless you get notification from Mellanox that a newer version of firmware for your switch has been released.

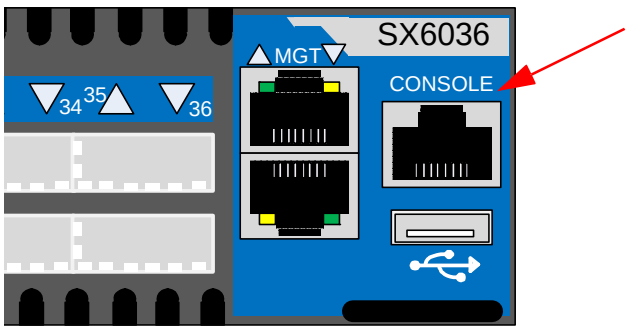
3.3 Managed (Internally Managed) Switches

Internally managed switches must be configured before they will work. Follow the procedures below to configure the switch.

3.3.1 Configuring the Switch for the First Time

Step 1. Connect the host PC to the Console (RJ-45) port of the switch system using the supplied cable. The Console ports for SX60XX systems are shown below as examples.

Figure 7: Console Port



Make sure to connect to the Console RJ-45 port of the switch and not to the (Ethernet) MGT port.

No remote IP connection is available at this stage.

Step 2. Configure a serial terminal program (for example, HyperTerminal, minicom, or Tera Term) on your host PC with the settings described in Table 5.

Table 5 - Serial Terminal Program Configuration

Parameter	Setting
Baud Rate	9600
Data bits	8
Stop bits	1
Parity	None
Flow Control	None

Step 3. Login (from a serial terminal program) as *admin* and use *admin* as password. This starts the Mellanox configuration wizard.

Step 4. Go through the Mellanox configuration wizard. Table 6 shows an example of a wizard session.

Table 6 - Configuration Wizard Session - IP Configuration by DHCP (Sheet 1 of 2)

Wizard Session Display (Example)	Comments
Mellanox configuration wizard Do you want to use the wizard for initial configuration? yes	You must perform this configuration the first time you operate the switch or after resetting the switch to the factory defaults. Type ‘y’ and then press <Enter>.
Step1: Hostname? [switch-1]	If you wish to accept the default hostname, then press <Enter>. Otherwise, type a different hostname and press <Enter>.
Step 2: Use DHCP on mgmt0 interface? [yes]	Perform this step to obtain an IP address for the switch. (mgmt0 is the management port of the switch.) If you wish the DHCP server to assign the IP address, type ‘yes’ and press <Enter>. If you type ‘no’ (no DHCP), then you will be asked whether you wish to use the ‘zeroconf’ configuration or not. If you enter ’yes’ (yes Zeroconf), the session will continue as shown in Table 7. If you enter ’no’ (no Zeroconf), then you need to enter a *static* IP, and the session will continue as shown in Table 8.

Table 6 - Configuration Wizard Session - IP Configuration by DHCP (Sheet 2 of 2)

Wizard Session Display (Example)	Comments
Step 3: Admin password (Press <Enter> to leave unchanged)? <new_password> **Step 4:** Confirm admin password? <new_password>	To avoid illegal access to the machine, please type a password and then press <Enter>. Then confirm the password by re-entering it. Note that password characters are *not* printed.
You have entered the following information: 1. Hostname: <switch name> 2. Use DHCP on mgmt0 interface: yes 3. Admin password (Enter to leave unchanged): (CHANGED) To change an answer, enter the step number to return to. Otherwise hit <enter> to save changes and exit. Choice: <Enter> Configuration changes saved. To return to the wizard from the CLI, enter the "configuration jump-start" command from configuration mode. Launching CLI... <switch name> [>	The wizard displays a summary of your choices and then asks you to confirm the choices or to re-edit them. Either press <Enter> to save changes and exit, or enter the configuration step number that you wish to return to. Note: To run the command "configuration jump-start" you must be in Config mode.

Table 7 - Configuration Wizard Session - IP Zeroconf Configuration

Wizard Session Display - IP Zeroconf Configuration (Example)
Mellanox configuration wizard Do you want to use the wizard for initial configuration? y **Step 1:** Hostname? [switch-112126] **Step 2:** Use DHCP on mgmt0 interface? [no] **Step 3:** Use zeroconf on mgmt0 interface? [no] yes **Step 4:** Default gateway? [192.168.10.1] **Step 5:** Primary DNS server? **Step 6:** Domain name? **Step 7:** Admin password (Enter to leave unchanged)? You have entered the following information: 1. Hostname: switch-112126 2. Use DHCP on mgmt0 interface: no 3. Use zeroconf on mgmt0 interface: yes 4. Default gateway: 192.168.10.1 5. Primary DNS server: 6. Domain name: 7. Admin password (Enter to leave unchanged): (unchanged) To change an answer, enter the step number to return to. Otherwise hit <enter> to save changes and exit. Choice: Configuration changes saved. To return to the wizard from the CLI, enter the "configuration jump-start" command from configure mode. Launching CLI... switch-1 >

Table 8 - Configuration Wizard Session - Static IP Configuration

Wizard Session Display - Static IP Configuration (Example)
Mellanox configuration wizard Do you want to use the wizard for initial configuration? y **Step 1:** Hostname? [switch-112126] **Step 2:** Use DHCP on mgmt0 interface? [yes] n **Step 3:** Use zeroconf on mgmt0 interface? [no] **Step 4:** Primary IP address? 192.168.10.4 Mask length may not be zero if address is not zero (interface mgmt0) **Step 5:** Netmask? [0.0.0.0] 255.255.255.0 **Step 6:** Default gateway? 192.168.10.1 **Step 7:** Primary DNS server? **Step 8:** Domain name? **Step 9:** Admin password (Enter to leave unchanged)? You have entered the following information: 1. Hostname: switch-112126 2. Use DHCP on mgmt0 interface: no 3. Use zeroconf on mgmt0 interface: no 4. Primary IP address: 192.168.10.4 5. Netmask: 255.255.255.0 6. Default gateway: 192.168.10.1 7. Primary DNS server: 8. Domain name: 9. Admin password (Enter to leave unchanged): (unchanged) To change an answer, enter the step number to return to. Otherwise hit <enter> to save changes and exit. Choice: Configuration changes saved. To return to the wizard from the CLI, enter the "configuration jump-start" command from configure mode. Launching CLI... switch-1 >

Step 5. Before attempting a remote (for example, SSH) connection to the switch, check the mgmt0 interface configuration. Specifically, verify the existence of an IP address. To check the current mgmt0 configuration, enter the following commands:

```
sx-43 [standalone: master] > enable

sx-43 [standalone: master] # show interfaces mgmt0
```

The following is an example of the output:

```
Interface mgmt0 state
   Admin up:           yes
   Link up:            yes
   IP address:         192.168.10.43
   Netmask:            255.255.255.0
   Speed:              1000Mb/s (auto)
   Duplex:             full (auto)
   Interface type:     ethernet
   Interface source:   physical
   MTU:                1500
   HW address:         00:02:C9:11:2A:AE
   Comment:

RX bytes:          1343502058          TX bytes:     313920869
RX packets:        17589211            TX packets:     992717
RX mcast packets:  0                   TX discards:    0
RX discards:       0                   TX errors:      0
RX errors:         0                   TX overruns:    0
RX overruns:       0                   TX carrier:     0
RX frame:          0                   TX collisions:  0
                                          TX queue len:   1000
```

3.4 Rerunning the Wizard

If you want to rerun the wizard run the following commands:

```
sx-43 [standalone: master] > enable
sx-43 [standalone: master]# configure terminal
sx-43 [standalone: master]# configuration jump-start
```

4 Connecting to the Switch Platform

4.1 Starting an SSH Connection to the Switch (CLI)

Step 1. Set up an Ethernet connection between the switch and a local network machine (“the remote machine” henceforth) using a standard RJ-45 connector.

Step 2. Connect to the remote machine (*rem_mach1* is used as an example).

Step 3. Start a remote shell to the switch using the following command: `<switch_IP_address>` is the IP address of the switch or its DNS name.

```
rem_mach1 >  ssh -l <username> <ip address>


Mellanox MLNX-OS Switch Management


Password:
Last login: Thu Apr 28 11:24:13 2011 from 192.168.10.1


    Mellanox Switch


sx-43 [standalone: master] >
```

Step 4. You can enter any supported command now.

4.2 Starting a WebUI Connection to the Switch

Step 1. Set up an Ethernet connection between the switch and a local network machine (“the remote machine” henceforth) using a standard RJ-45 connector.

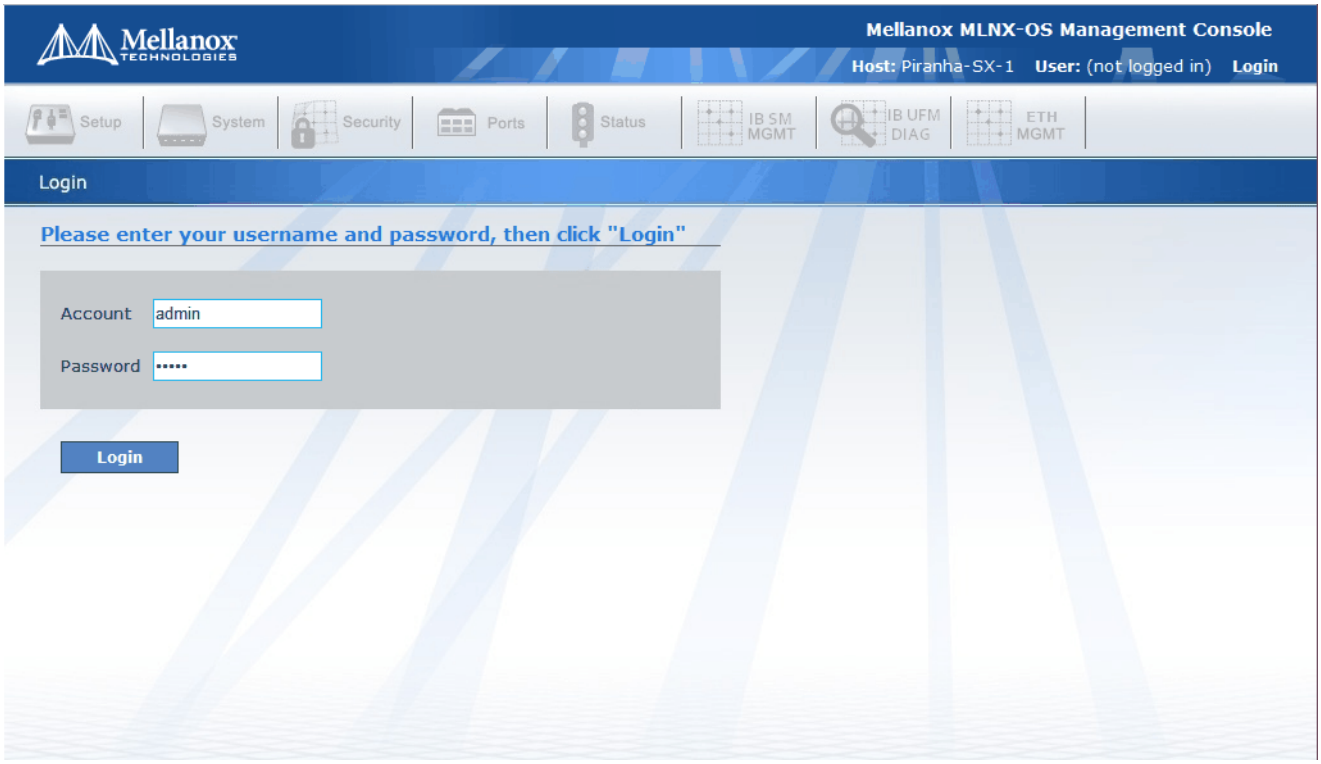
Step 2. Start a Web browse – Google Chrome, Microsoft Internet Explorer 7.0 or Mozilla Firefox 3.0.

Make sure the screen resolution is set to 1024*768 or higher.

Step 3. Enter as URL the following: http://<switch_IP_address> where <switch_IP_address> is the IP address of the switch or its DNS name.

Step 4. You will receive the login window for remote management of the switch. The following figure shows an example. Note that the default username is *admin*

Figure 8: Web UI Login Page



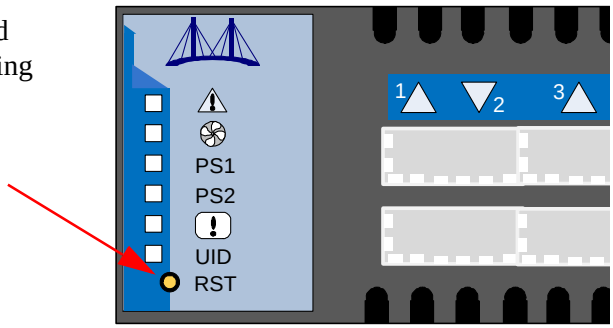
4.3 Resetting the Switch

On the connector side panel under the system LEDs is a reset button. This reset button requires a tool to be pressed.

DO NOT use a sharp pointed object such as needle or push pin for pressing the Reset button. Sharp objects can cause damage, use a flat object to press this reset button.

Figure 9: Reset Button

Press the reset button to reset the main and management CPUs and to delete the existing password.



This button resets both the CPU of the switch device and the CPU of the management module. It thereby resets all of the ports by bringing them down and powering them up when the button is pushed. A quick push of this button performs this reset. When the button is held down for 15 seconds the switch is reset and the password is deleted. You will then be able to enter without a password and make a new password for the user admin.

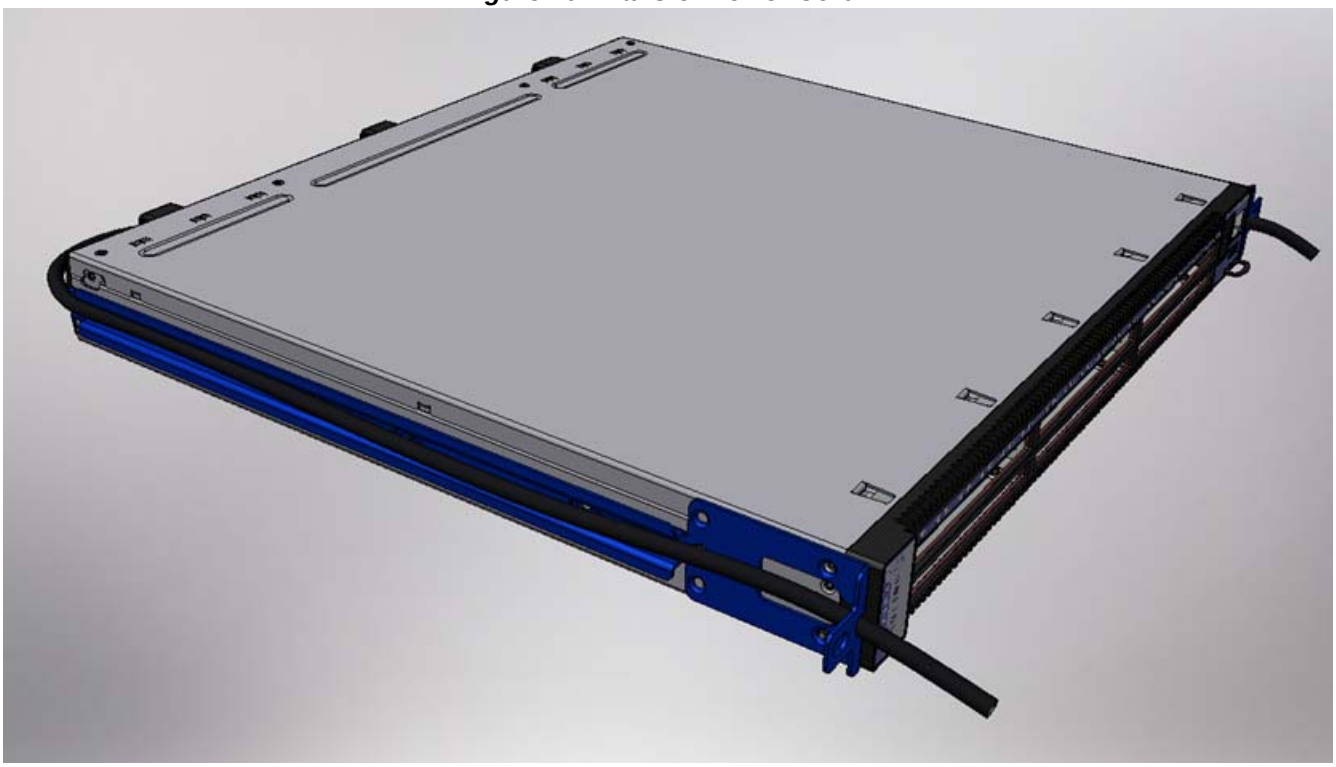
The SwitchX Series User Manuals can be found at:
http://www.mellanox.com

Appendix A: Transferring the Power Cord

To use the rail kit to transfer the power cord from the connector side to the power side follow these directions. Do you want to install power cords on both sides of the switch or only one side? For each power cord you want to transfer:

1. Once you have decided which side of the switch will be next to the vertical support?
2. Make sure that you place the cord so that the correct end of the cord will be at the power side of the switch. This will depend on which of the four mounting options you choose.

Figure 10: Transfer Power Cord

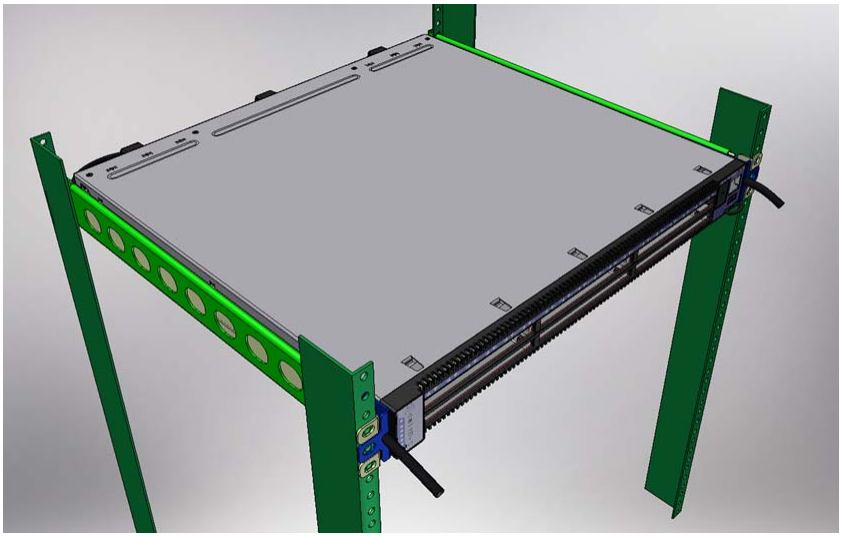


3. Put the power cord in the switch slide channel.
4. Screw the switch slides to the switch. Make sure to use two cord clamps per switch slide. These will be needed to hold the cord during the switch installation process.

Figure 11: Install the Power Cord Clip

5. Push the power cord into the cord clamps.

Figure 12: Transfer Power Cord Finished



6. Return to step 4 on page 12 and continue the installation.

Appendix B: QSFP Interface

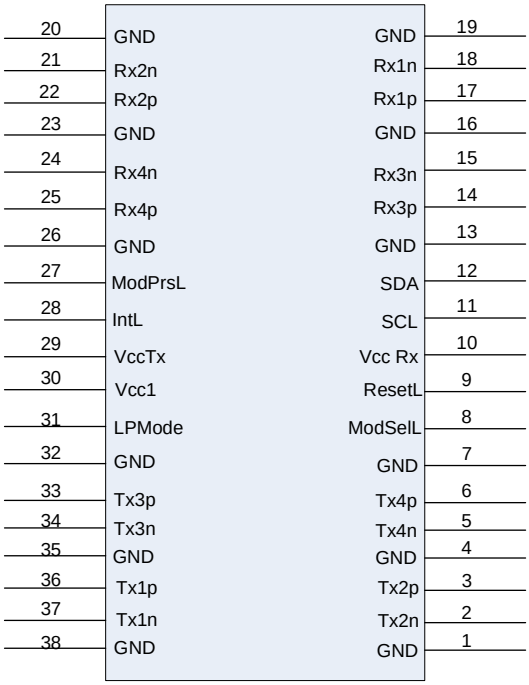
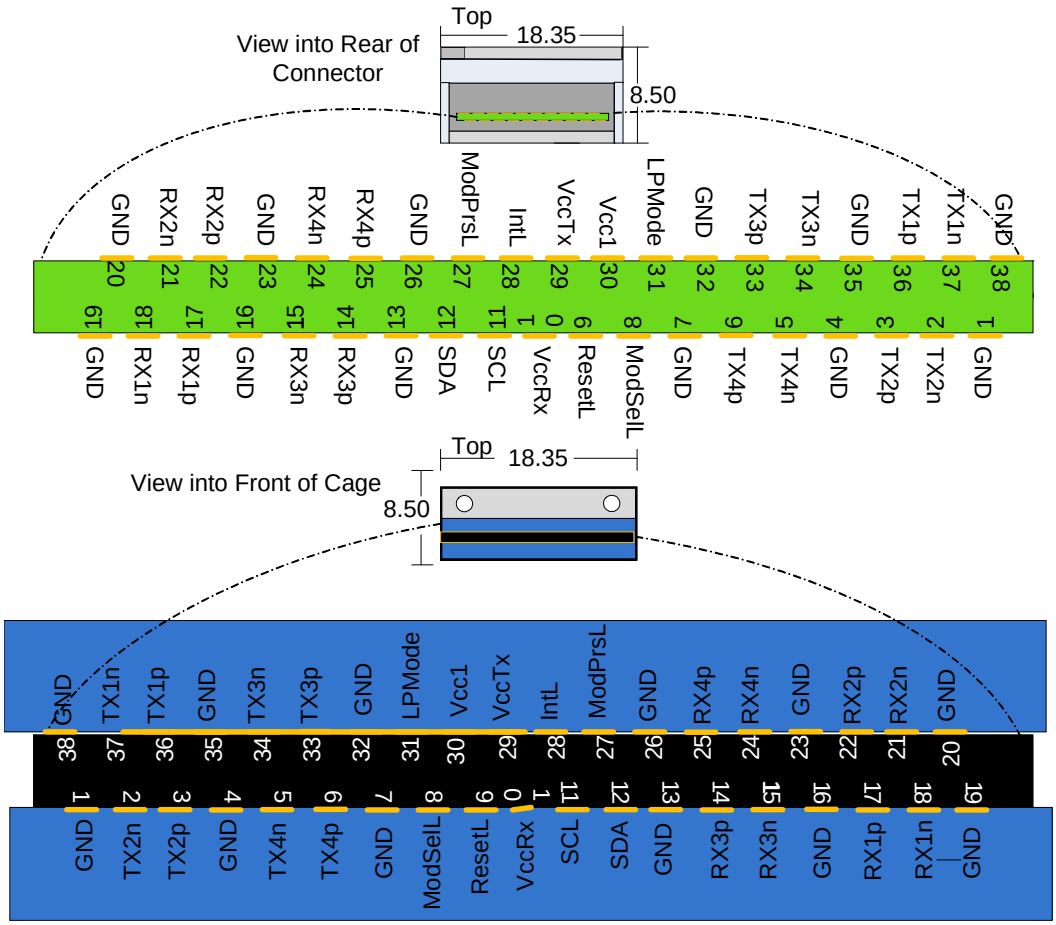


Table 9 - QSFP Connector Pinout

Connector Pin Number	Connector Pin Name	Signal Description
1	GND	Ground
2	Tx2n	Transmitter Inverted Data Input
3	Tx2p	Transmitter Non-Inverted Data Input
4	GND	Ground
5	Tx4n	Transmitter Inverted Data Input
6	Tx4p	Transmitter Non-Inverted Data Input
7	GND	Ground
8	ModSelL	Module Select
9	ResetL	Module Reset
10	Vcc Rx	+3.3 V Power supply receiver
11	SCL	2-wire serial interface clock
12	SDA	2-wire serial interface data
13	GND	Ground
14	Rx3p	Receiver Non-Inverted Data Output
15	Rx3n	Receiver Inverted Data Output
16	GND	Ground
17	Rx1p	Receiver Non-Inverted Data Output
18	Rx1n	Receiver Inverted Data Output
19	GND	Ground
20	GND	Ground
21	Rx2n	Receiver Inverted Data Output 3
22	Rx2p	Receiver Non-Inverted Data Output 3
23	GND	Ground
24	Rx4n	Receiver Inverted Data Output 3
25	Rx4p	Receiver Non-Inverted Data Output 3
26	GND	Ground
27	ModPrsL	Module Present
28	IntL	Interrupt
29	Vcc Tx	+3.3 V Power supply transmitter
30	Vcc 1	+3.3 V Power Supply
31	LPMode	Low Power Mode
32	GND	Ground
33	Tx3p	Transmitter Non-Inverted Data Input
34	Tx3n	Transmitter Inverted Data Input
35	GND	Ground
36	Tx1p	Transmitter Non-Inverted Data Input
37	Tx1n	Transmitter Inverted Data Input
38	GND	Ground


Top
View into Rear of Connector
18.35
8.50
GND 20
RX2n 21
RX2p 22
GND 23
RX4n 24
RX4p 25
GND 26
ModPrsL 27
IntL 28
VccTx 29
Vcc1 30
LPMode 31
GND 32
TX3p 33
TX3n 34
GND 35
TX1p 36
TX1n 37
GND 38
GND 19
RX1n 18
RX1p 17
GND 16
RX3n 15
RX3p 14
GND 13
SDA 12
SCL 11
VccRx 10
ResetL 9
ModSelL 8
GND 7
TX4p 6
TX4n 5
GND 4
TX2p 3
TX2n 2
GND 1
Top
View into Front of Cage
18.35
8.50
GND 38
TX1n 37
TX1p 36
GND 35
TX3n 34
TX3p 33
GND 32
LPMode 31
Vcc1 30
VccTx 29
IntL 28
ModPrsL 27
GND 26
RX4p 25
RX4n 24
GND 23
RX2p 22
RX2n 21
GND 20
GND 1
TX2n 2
TX2p 3
GND 4
TX4n 5
TX4p 6
GND 7
ModSelL 8
ResetL 9
VccRx 10
SCL 11
SDA 12
GND 13
RX3p 14
RX3n 15
GND 16
RX1p 17
RX1n 18
GND 19

Appendix C: RJ45 Console and Ethernet Interfaces

The RJ45 Console and Ethernet interfaces uses the EIA 568A standard wiring color coding.

CONSOLE

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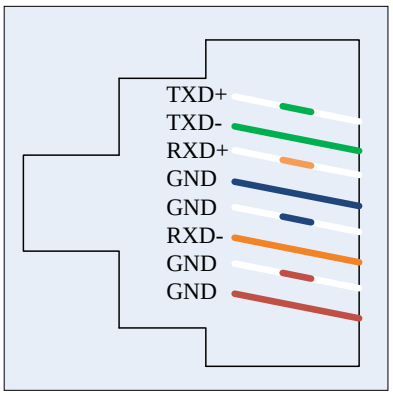

Looking into the Socket

Table 10 - RJ45 Pinout

Connection	Signal	Pin#	Color
TXD+	RJ45_RTS#	1	G/W
TXD-	RJ45_DTR#	2	G
RXD+	RJ45_TXD	3	O/W
GND	GND	4	Bl
GND	GND	5	Bl/W
RXD-	RJ45_RXD	6	O
GND	GND	7	Br/w
GND	GND	8	Br

Appendix D: Replacement Parts Ordering Numbers

Table 11 - Replacement Parts Ordering Numbers

Part Description	OPN
I2C DB9 or RJ45 to USB Adapter	MTUSB-1
Fan module with power supply side to connector side air flow	MSX60-FF
Fan module with connector side to power supply side air flow	MSX60-FR
300W Power Supply w/ Power Supply Side to Connector side air flow	MSX60-PF
300W Power Supply w/ Connector side to Power Supply side air flow	MSX60-PR
Power cord Type C13-C14	ACC000251
Power cord Type B for USA, Canada, Mexico, Taiwan	ACC000204
Power cord Type H for Israel	ACC000205
Power cord Type E/F for Sweden, France, Germany, Netherlands, Russia	ACC000207
Power cord Type G for UK	ACC000208
Power cord Type D for India	ACC000209
Power cord Type I for China	ACC000210
Power cord Type J for Switzerland	ACC000211
Power cord Type B for Japan,	ACC000212
Power cord Type I for Australia	ACC000213
Installation Kit for short switches in racks 40-60 cm deep	MSX60-BKIT
Installation Kit for short or standard switches in racks 60-80 cm deep	MSX60-SKIT