ST24A/ST48A
Voice Switches

Quick Install Guide

◻◻ Mitel®

Powering connections

Introduction

The ST24A/ST48A Voice Switch package contains:

- ST24A or ST48A Voice Switch
- Power cord
- Adhesive rubber feet (for placement on a surface)
- Cable retainer(s) for an RJ-21 Telco cable(s) (a metal bracket with a Velcro strap)

About the ST24A/ST48A*

The ST24A/ST48A Voice Switches connect enterprise telephone extensions through an internal IP network.

The switch provides connectivity through:

- One audio input port (3.5 mm stereo) for connecting to a music-on-hold source
- One audio output port (3.5 mm stereo) for connecting to a corporate paging system or night bell. You can use an optional paging adapter to provide a balanced output as well as a contact closure ideal for overhead paging systems. Refer to the *Paging Adapter (PA-1) Quick Install Guide* for information about the Paging Adapter.
- Two RJ-45 10/100/1000 Mbps LAN connectors
- One DB-9 (female), RS-232C maintenance port (default 115,200 bps, 8 bits, no parity, 1 stop bit, no handshake) for serial communications
- USB port for logging/troubleshooting
- One or two RJ-21X ports for connections to analog extensions via a punch-down block or patch panel

* This document also applies to ShoreTel branded models of the same model number.
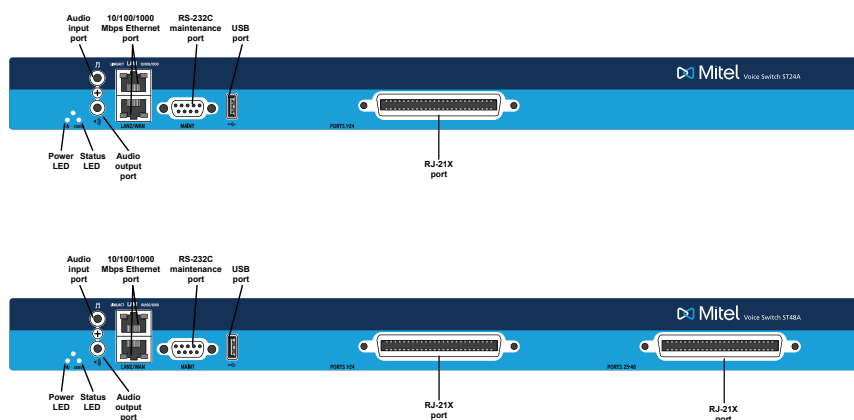
Installation Equipment

To install the switch, you need the following equipment:

- AC surge protector for the power connection
- RJ-45 cable for connecting the switch to the local area network
- Music-on-hold source with a standard mini-headphone adapter (optional)
- Permanent earthing connector for grounding the device
- RJ-21 telephone cable(s) (female connector on end that is connected to the voice switch) for analog port connections
- RJ-21 to RJ-11 patch panel(s) for connecting telephones
- #1 Phillips screwdriver

Choosing a Location

To ensure optimum operating conditions for the Voice Switch, verify the operating environment is adequately ventilated, free of gas or airborne particles, and isolated from electrical noise.

Installing the Voice Switch (Rack Mount)

The Voice Switch is equipped with pre-installed rack-mount ears for easy installation into a standard 19-inch rack.

1 Lift the Voice Switch to the desired height and attach it to the frame with four standard rack screws.

2 Insert the screws in both the upper and lower positions on the rack-mount ears.

Verify there is at least two inches of open space around all vent holes.
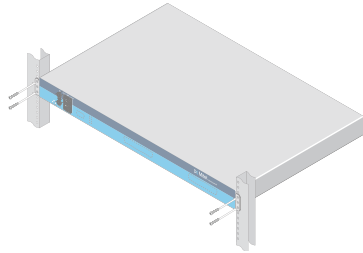
Installation des Switch (Gestell)

Der switch ist mit vier installierten Ösen für die einfache Installation in einem 19 Zoll Gestell ausgerüstet.

1 Den Voice Switch zur gewünschten Höhe heben und mit vier standard Gestellschrauben befestigen.

2 Die Schrauben sind in die obere und untere Position der Öse einzufügen.

Es ist sicherzustellen daß mindestens 5cm Abstand zu allen Belüftunbgsöffnungen vorhanden ist.

Mounting the Voice Switch on a Flat Surface

Before placing the switch on a flat surface, attach the provided rubber feet to the bottom corners of the device. (You can stack up to three switches in a surface installation.)

Installation des Voice Switch (flache Oberfläche)

Zur Installation auf einer flachen Oberfläche sind zuerst die mitgelieferten Gummifüße an den Ecken des Gerätes zu befestigen. (Bis zu drei Geräte können in dieser Weise aufeinander gestellt werden.)

Attaching an Earthing Connector

To meet electrical safety requirements for proper grounding, you must connect a permanent earthing protector between the Voice Switch and the wiring system earth ground.

1 Connect a ground wire (#14 AWG wire or larger) to the screw on the back of the unit and to the right of the product label.

2 Connect the other end of the ground wire to the wiring system ground.

CAUTION: Always connect the permanent earthing connector before attempting to connect the switch to a LAN segment and telecommunication lines.

Einen Erdungsleiter anschließen

Um den elektrischen Sicherheitsanforderungen für eine korrekte Erdung nachzukommen, müssen Sie einen permanenten Erdungsschutz zwischen dem Gerät und der Erde des Kabelsystems installieren.

1 Schließen Sie ein Erdungskabel (Nr. 14 AWG oder größer) an die Schraube an der Rückseite des Geräts an, die sich rechts neben dem Produktetikett befindet

2 Schließen Sie das andere Ende des Erdungskabels an die Erde des Kabelsystems an.

VORSICHT: Schließen Sie immer zuerst den permanenten Erdungsschutz an, bevor Sie versuchen, das Gerät an ein LAN-Segment und Telekommunikationsleitungen anzuschließen.

Servicing Procedures

WARNING: The ST24A/ST48A Voice Switch contains no internal field serviceable parts. Return the equipment to Mitel for any required service procedures.

CAUTION: Internal fuses should be serviced only by qualified Mitel personnel. If internal fuses are blown and require replacement, return the ST24A/ST48A Voice Switch to Mitel for service.

WARTUNGSVERFAHREN
ACHTUNG: Der ST24A/ST48A Voice Switch enthält keine internen Teile, die vor Ort gewartet werden können. Senden Sie das Gerät an Mitel, falls Wartungsarbeiten erforderlich sein sollten.

VORSICHT: Interne Sicherungen dürfen nur von qualifizierten Mitel-Mitarbeitern gewartet werden. Wenn interne Sicherungen ausgetauscht werden müssen, senden Sie den ST24A/ST48A Voice Switch zur Wartung an Mitel.

Connecting the Voice Switch to the Network

Once the ST24A/ST48A Voice Switch is secured to a rack or placed on a surface, you can connect it to the data network.

Use an RJ-45 Ethernet cable to connect one or both of the LAN ports to the network subnet.

While both ports can detect and respond to link status, the switch creates a data connection on only one LAN port at a time.
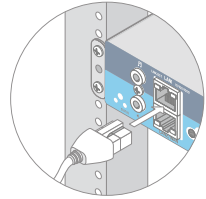
Powering on the Voice Switch

After connecting the switch to the network, power on the device by connecting it to an AC power source.

1 Plug an AC surge protector (not provided) into a grounded AC power source.

2 Plug one end of the provided power cord into the receptacle on the back of the switch, then plug the other end into the AC surge protector.
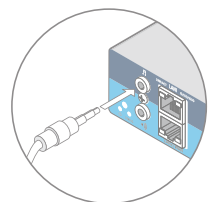
The power LED flashes momentarily, and remains lit.

• If the LED is not lit, verify the power cord is plugged into the switch and the power source.

• If the LED continues flashing, there is an internal error. Unplug the switch to power it off, then power it back on. Refer to the "Configuring Switches" chapter in the *Mitel Connect System Administration Guide* for information on flash patterns, or contact technical support at http://www.mitel.com/shoretel.

The LAN ports auto-sense the network transport rate. When the network connection is established, the network LED indicates a transport rate of 10/100/1000 Mbps, and whether the switch is receiving and transmitting data.

Optional Connections

After connecting the switch to the LAN, you can make optional connections, including input from a music-on-hold source or output to your internal paging system.

1 Connect a music-on-hold source (CD player or other audio source) to the audio input port.

2 Connect your site's paging system to the audio output port. You can use a paaging adapter to facilitate paging connections. Refer to the *Paging Adapter (PA-1) Quick Install Guide* for more information.

Connecting Telephone Lines

Use an RJ-21 cable and the provided cable retainer to connect the voice switch to the telephone company's punch-down block or patch panel.
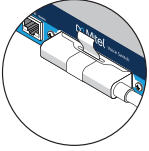
1 Use a #1 Phillips screwdriver to remove the two screws on either side of the RJ-21X port, then place the retainer on the port and re-attach the screws.

2 Plug the Telco cable into the port, then pull the Velcro strap tightly around the cable connector and fasten it.
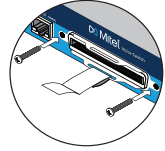
3 Connect the other end of the Telco cable to the punch-down block or patch panel.

CAUTION: To reduce risk of fire, use only No. 26 AWG or larger (e.g. 24 AWG) UL Listed or CSA certified telecommunication line cord.

VORSICHT: Um das Brandrisiko zu verringern, verwenden Sie nur Telekommunikationsleitungen Nr. 26 AWG oder größer (z.B. 24 AWG) mit UL- oder CSA-Zulassung.

For detailed information on switch port and trunk configuration, see the "Configuring Switches" and "Configuring Trunks" sections in the *Mitel Connect System Administration Guide*.

ST24A/ST48A Voice Switch RJ-21X Port Pinout

ST24A: When connected directly to a 24-port patch panel, the voice switch's 24 analog channels map to ports 1 through 24 on the patch panel as shown in the table below.

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Port No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	X
Port Type	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	X
Pin No.	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50

Pin Pairs	Assignment
1,26 to 24,49	24 extension ports (E) for telephones

ST48A: When connected directly to a 24-port patch panel, the voice switch's lower 24 analog channels, 1 through 24, map to ports 1 through 24 on the patch panel connected to the left RJ-21X connector.

The ST48A Voice Switch's upper 24 analog channels, 25 through 48, map to ports 1 through 24 on the right RJ-21X connector.

Network Configuration

Once the Voice Switch is installed and powered on, it must be configured for network operations. A switch gets a network configuration by assignment from a DHCP server, or directly from an administrator console (see procedure below).

NOTE: For more information on setting up a switch for automatic configuration by a DHCP server, see the *Mitel Connect Planning and Installation Guide*.

Configuring the Voice Switch from a Console

1. Use a straight-through serial cable, DB9 male to DB9 female, or suitable USB-to-RS-232 serial adapter to connect the switch maintenance port to a console PC.

2. On the PC or laptop, start a terminal emulation program and connect to the voice switch using these serial communication settings: 115,200 bps, 8 data bits, no parity, one stop bit, no handshake.

3. At the login prompt, enter:

   Login: root
   Password: **ShoreTel**

4. Type `stcli` to bring up a configuration tool to set network parameters and view current status. The default switch configuration is to use DHCP for network parameters and automatic detection of speed, duplex, and flow control settings.

5. Choose Menu Options and follow the onscreen instructions for setting network parameters, including IP address, subnet mask, and gateway.

Switch Status & Specifications

Power LED

The blue power LED indicates the operating status of the switch.

Light	Description
Steady	The switch is powered on, and the internal software is running.
Flashing	Continuous flashing or a two-flash pattern indicates a failed internal self-test (i.e. hardware failure). Refer to "Configuring Switches" in the *Mitel Connect System Administration Guide* for details on other flash patterns.
Off	The switch is not powered on, or the software is not running.

Status LED

The status LED provides voice switch activity information.

Color	Activity	Description
Off		No ports are assigned.
Green	Steady	No ports are handling active calls.
	Flashing-Fast	At least one port is handling an active call.
Yellow	Steady	No ports are handling active calls and at leaset one port is out of service.
	Flashing-Slow	The switch is not connected (or has lost connection) to an STI server.
	Flashing-Fast	At least one port is handling an active call and at least one port is out of service.

Network LEDs

Each LAN connector provides two LEDs (Link/Act and 10/100/1000) that indicates the activity and communication speed of the connected network.

LED	Color/State	Description
Link/Act	Off	There is no link present.
	Green-Steady	There is a link present, but no data packets are being transmitted or received.
	Green-Flashing	There is a link present, and data packets are either being transmitted or received.
10/100/1000	Off	A 10 Mbps link is present.
	Green	A 100 Mbps link is present.
	Yellow	A 1000 Mbps link is present.

Specifications

Feature	Specification
Dimensions	14.80 x 17.17 x 1.73 inches (376 x 436 x 44 mm)
Weight	12.0 lb (5.45 kg)
Input voltage	100-240 VAC, 50-60 Hz
Power consumption	3A max.
Humidity	5-90% relative humidity (non-condensing)
Operating temperature	0-50˚ C