

# APC Next Generation Rack ATS (AP44xx series)

**Power redundancy for single corded equipment**



**Next Generation Rack ATS with multiple outlets eliminate the need for a secondary Rack PDU downstream of Rack ATS.**

- > Seamless power transfer (<10 ms)
- > Continuous source monitoring
- > Current monitoring and alarms
- > Robust out-of-phase switching
- > Network management interface
- > Multiple outlets
- > Enhanced cybersecurity (TLS 1.2)
- > 10 KAIC overcurrent protection
- > Field replaceable LCD Display/intelligence module
- > ROHS compliant, cd free

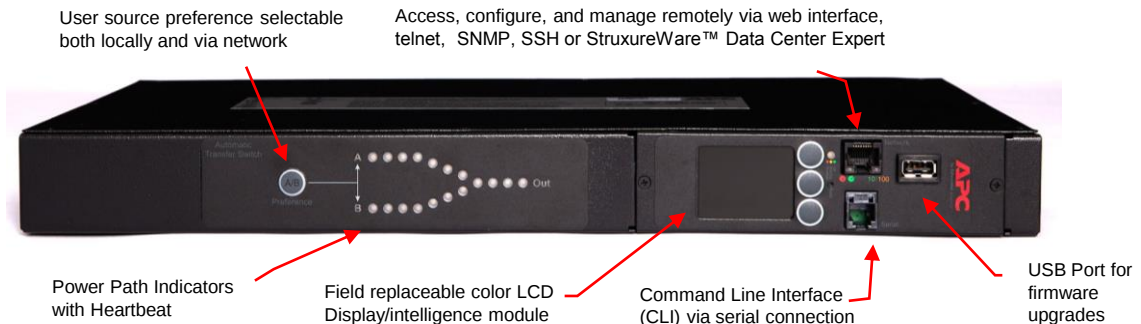


The APC Rack Automatic Transfer Switch (ATS) is a high availability switch that provides redundant power to connected equipment and has two input power cords, one for each AC source. The Rack ATS supplies power to the connected load from a primary AC source. If that primary source becomes unavailable, the Rack ATS automatically transfers loads to the secondary source. The transfer time from one source to the other is seamless to the connected equipment, as the switching occurs safely between the two input sources regardless of any phase differences. The units have built-in network connectivity, which allows for remote management through Web, SNMP, SSH, Telnet, or StruxureWare™ Data Center Expert.

With the Next Generation of Rack ATS, end users can take advantage of many new features. With multiple outlets, several devices can be plugged directly into the Rack ATS without the need for an additional Rack PDU. Current monitoring and alarms help prevent downtime to the equipment by providing aggregate current measurements and warnings when power consumption draws near the maximum rating of the Rack ATS. Built-in network and local interfaces allow for custom configuration settings for added flexibility. The Rack ATS product family includes a variety of input and output connections to distribute 100/120V, 200/208V, or 230V power to multiple outlets. Having a variety of inputs and outputs allow users to adapt to varying power distribution requirements.

# Rack ATS Features

## Front Panel interface

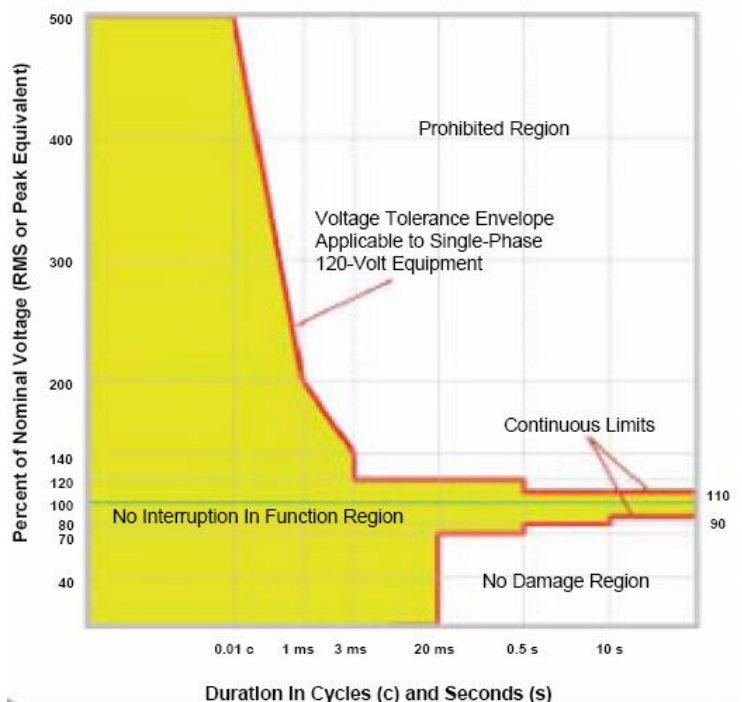


## Seamless power transfer

APC Rack ATS units switch power seamlessly to IT equipment. Per the ITI Curve, typical power supplies will operate 20ms after AC voltage drops to zero. The IEEE 1100-1999 standard also references the ITI curve. The SSI (Server System Infrastructure) standard recommends a hold-up time for power supplies to be a minimum of 21 ms for a voltage range of 100-240V. However, some devices have been observed to require 10-20ms.

Based on this, the AP44xx series Rack ATS has been designed to switch in <10ms (<12ms if configured for low sensitivity). The switching time includes the time for the built-in intelligence to determine whether the voltage and frequency are in range. Any point of failure in the electronics does not cause a drop out of the output voltage because the unit incorporates redundancy of its electronic circuitry to avoid fault tolerance.

ITI (CBEMA) Curve  
(Revised 2000)



# Rack ATS Features

## Robust out-of-phase switching

To prevent relay welding, both hot and neutral lines are switched using a break-before-make system so there is no cross-connection of sources, regardless of the phase between sources.

- AC sources are isolated prior to switching outputs, eliminating the chances of relays welding at contacts
- Sources can be up to 180 degrees out-of-phase



## Current monitoring and alarms

Current monitoring and alarms help prevent downtime by providing aggregate current measurements and warnings when power consumption draws near the maximum rating of the Rack ATS.

- Aggregate current metering display
- Overload warnings locally and via network
- Fully customizable settings

### Load Configuration

**Status**

Current

0.0 A

Normal Load

Peak Current

2.0 A

**Configuration**

Low Load Warning (1 to 16)

0

A

Near Overload Warning (1 to 16)

12

A

Overload Alarm (1 to 16)

15

A

Peak Current

☐ Reset (last reset at 06/22/2017 12:15:48)

Apply

Cancel

## Continuous source monitoring

With a built-in intelligent interface, APC Rack ATS units can monitor both sources for voltage and frequency fluctuation.

- "Real time" monitoring of input voltage and frequency
- Auto detection of nominal frequency
- User Configurable voltage and frequency range settings

### Status

**Unit Status**

Source B selected, Switchover Possible

**Source Status**

Selected Source

Source B

Source B Selected

Power Supplies

Source A 28V

OK

Source B 28V

OK

Source B Boost Voltage

OK

Others

Phase Synchronization

Out of Sync

Front Panel

Unlocked

Event Counts

Redundancy Loss

0

Source Preference Change

1

Frequency Out of Range

0

Reset Event Count

☐

Preferred Source

Source B

Source A

OK

Source A Boost Voltage

OK

1.0V

OK

Over Current

0

Surge/Deep

0

Apply

Cancel

## Network management interface

User interface allows remote access to unit status and settings locally and remotely. Fully configurable menu options give users the flexibility to set unit options.

- Built in network management
- Accessible via Web (Ethernet), telnet (serial), SNMP, and Command Line Interface (CLI)
- Compatible with StruxureWare™ Data Center Expert

Schneider Electric

Automatic Transfer Switch Application

No Alarms

1 | en | English | 2 | Log Off | Help |

Home

Status

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Tools

Logs

About

**Home**

**Active Alarms**

No Alarms Present

**Switch/Source Status**

Source B selected, Switchover Possible

**Load Status**

Output Power

0.00 kW

Load

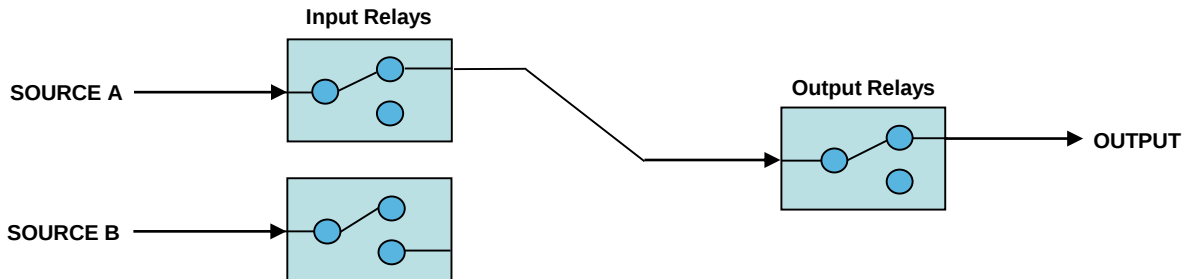
0.0 A

Normal Load

# “Break Before Make” Switching Sequence

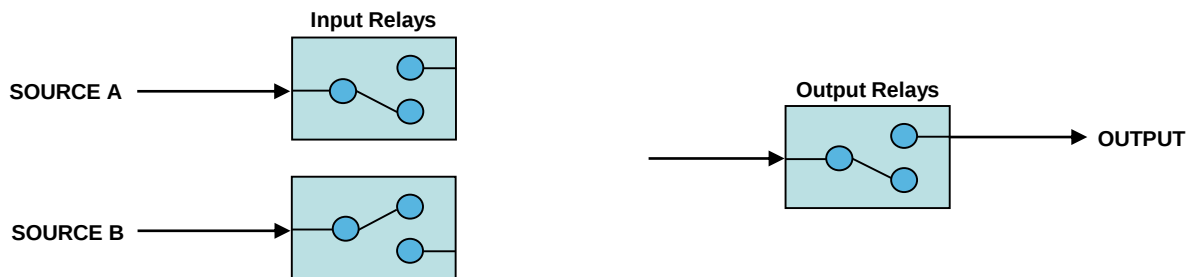
NOTE: Each relay block shown below represents two relays, each breaking individual lines (including neutral).

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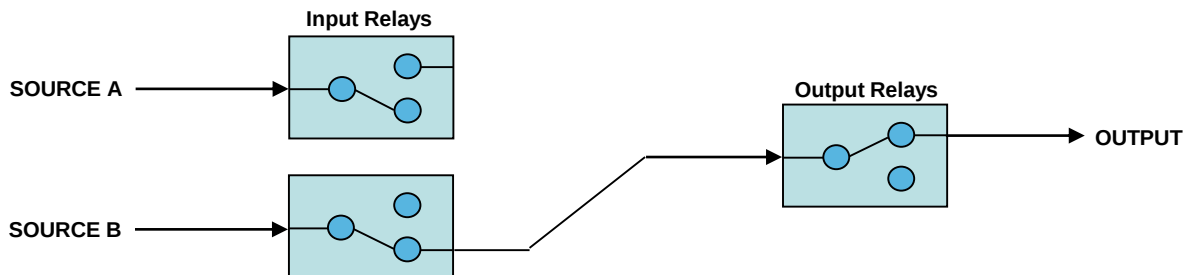
Source A is providing power to the outlets, while Source B is isolated from the system.

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Firmware detects that source A is out of the user specified tolerance range. The input power from Source A is removed, then the output is disconnected. This allows for out-of-phase switching and significantly reduces the opportunity for relay welding.

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Relays are engaged and power is transferred to source B.

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