NetShelter Rack ATS

Fifth Generation AP44xxA Series Automatic Transfer Switch

Life Is On | Schneider Electric

# APC NetShelter Rack ATS - Intelligent & cyber-secure for seamless power switching

The APC NetShelter Rack Automatic Transfer Switch (ATS) AP44xxA series is the Fifth-Generation range of high availability switches offering greater control of your IT equipment from Cloud to Edge. With Industry leading reliability, agility, and manageability the APC NetShelter Rack ATS provides redundant power to single-corded equipment loads in the IT rack.

The Rack ATS has been upgraded with the Network Management Card 3 (NMC3) and various other technical advancements for network port sharing, environmental monitoring, and enhanced security. The Rack ATS offers industry-leading transfer time and improved outlet connections to ensure seamless power switching without interrupting the critical loads. Users can access and configure Rack ATS through secure Web UI, SNMP, CLI and are fully compatible with EcoStruxure IT.

This includes a variety of input-output connections in 1 Phase 100/120V, 200/208V, or 230V to multiple outlets ranging from 1440VA to 7440VA allowing users to address the most common power distribution requirements.

Ride-through time & transfer time

- Ride through time is measured in miliseconds (ms) and it is the length of time in which IT equipment can continue to function during a complete loss of power.
- Driven by attempts to improve efficiency, ride-through could be as low as 10-20ms.
- For systems with dual power supplies, increases the ride-through time by as much as 50-100%.
- Since many datacenters have moved to double conversion UPS, shorter cycle time has become the need of the hour.
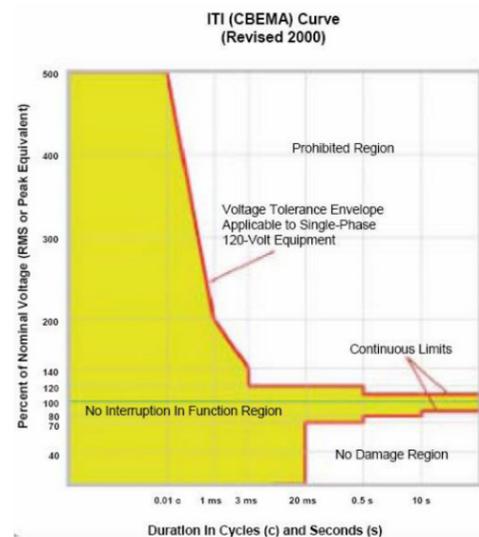

- This curve indicates that power supplies should be able to withstand 20ms of blackout without interruption in function. The power supply "rides through" this outage without issue.
- With this in mind, our current Rack ATS specification of a maximum transfer time of 10ms would result in no interruption.
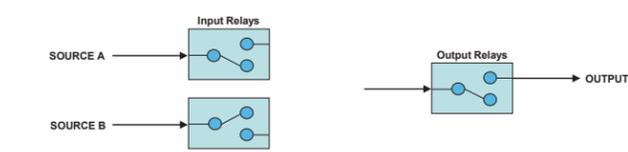
Robust out-of-phase switching

- 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

### Break before Make switching sequence

Note: Each relay block shown below represents two relays, each breaking individual lines (including neutral).
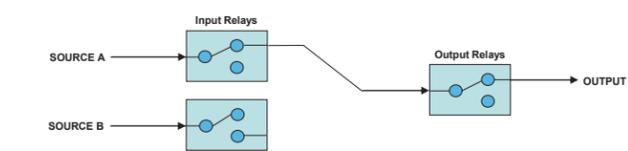
Source A is providing power to the outlets, while Source B is isolated from the system.

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. Crucial timing is controlled through the firmware (via firmware version 357 or greater).
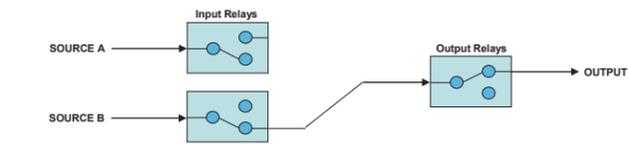
Relays are engaged and power is transferred to source B. Total transfer time typically is 8-12 ms.

Key Features

 RELIABILITY

Switching time <10ms

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.

Field-replaceable NMC

Integrated Network Management Card(NMC)/Display Module can be replaced in the field to minimize downtime disruption in the unlikely event of a failure.

Temperature and humidity sensor support

Enables you to monitor temperature and humidity in your Data Center or Network Closet.

Dual input power cords

Supplies power to the connected load from primary and secondary power source i.e If among the two independent sources, the primary source becomes unavailable or out of configurable power range , the Rack ATS will seamlessly switch to draw power from the secondary source without interrupting critical loads.

2-years standard warranty and 5-years extended warranty

For peace of mind and use for years to come.

 AGILITY

32 Rack ATS Network Port Sharing(NPS)

Connect and manage up to 32 Rack ATSs from one IP address via one network connection to simplify and speed deployment while saving the cost required in having a dedicated network connection for each Rack ATS.

Flash Upgradeable

Quickly and easily upgrade firmware via network download for future product enhancements. Eliminates the need to replace products already installed in the field when new features are released.

APC Wi-fi USB device support

Supports APC Wi-fi USB device for Cableless installation & Setup

 MANAGEABILITY

Gigabit Ethernet Support

- Improved for today's faster networks & future-proofed for networks to come.
- Supports faster Communication at 1 Gbps (Gigabit per second) over Network.
- Enhance and standardize network connectivity across all assets in the data center.
- Built-in network connectivity, which allows remote management via Web User Interface (Web UI) its command line interface (CLI) , Simple Network Management Protocol (SNMP), or EcoStruxure Data Center Expert

LCES1 Mini NMC3 Network Management Card

- Color LCD display
- Remote monitoring and control of an individual Rack ATS by connecting it directly to the network
- New Rack ATSs utilize APC embedded Network Management Card 3 (NMC3) with enhanced security features including secured interfaces and a modified password policy providing peace of mind.
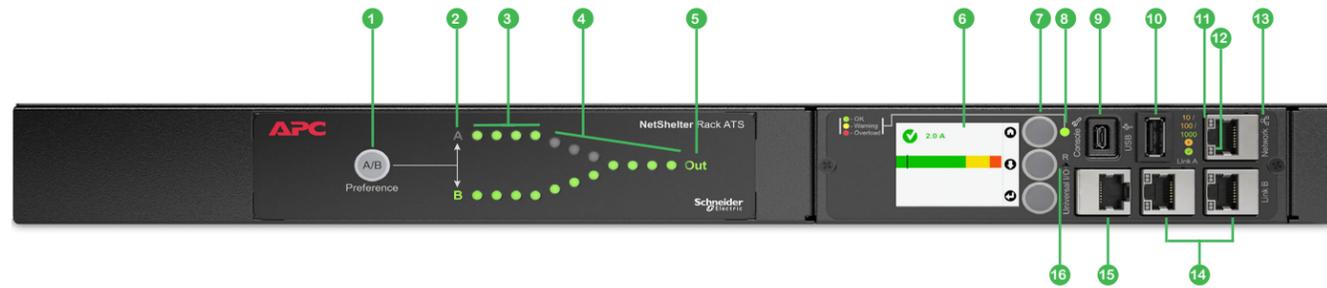
EcoStruxure IT Ready

- Seamless integration of one or many ATSs including alerts and control with EcoStruxure IT
- Allows IT and data center professionals to monitor and manage all their critical IT infrastructure on-premise, in the cloud, and at the edge from anywhere alarm notification in the event of an issue.
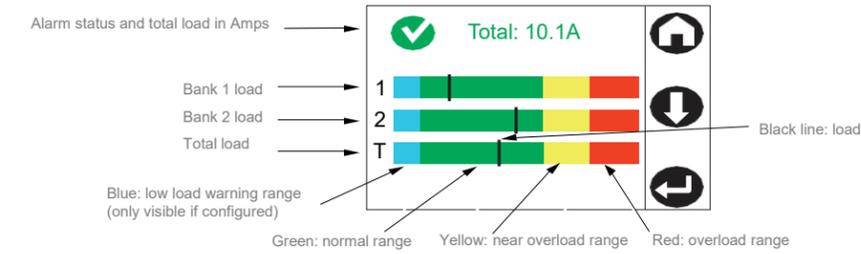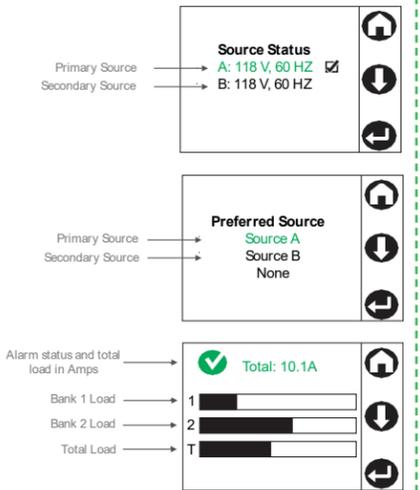
Front panel overview

LCD Display screens:

The front panel LCD Display automatically rotates between four default screens.

- Press **Home ⌂** or **Down ◐** to move through these screens manually.
- Press **Select ⊜** to go to the main menu or select menu items. **Down ◐** allows you to move through menu items and screens.
- After 30 seconds without activity, the LCD display will revert to the default screens.

Alarm status and total load in Amps

Bank 1 load
Bank 2 load
Total load

Blue: low load warning range (only visible if configured)

Green: normal range   Yellow: near overload range   Red: overload range

Black line: load

Default LCD display screens

Primary Source
Secondary Source

Source Status
A: 118 V, 60 HZ ☑
B: 118 V, 60 HZ

Primary Source
Secondary Source

Preferred Source
Source A
Source B
None

Alarm status and total load in Amps

Total: 10.1A

Bank 1 Load
Bank 2 Load
Total Load

1
2
T

Note: The number of banks varies by model.

Items	Function
① Preference A/B button	Press to set a preferred power source: the first press sets Source A, the second press sets Source B, and the third press sets no preference.
② Source A and B LEDs	Indicates preferred power source. If no source is preferred, both LEDs are illuminated. You can also see the Preferred Source on the LCD Display.
③ Input Connector LEDs	Provides information about input voltage from each source. If the RMS input voltage and measured frequency are within the selected tolerance range, the corresponding LED will be illuminated. In a normal operating condition (full source redundancy) both sets of LEDs are illuminated.
④ Output Connector LEDs	Indicates which source is being used for the output (only one path will be illuminated at any time). Together, the Source Preference LEDs, the Connector LEDs, and the Output LED show the power flow through the Rack ATS.
⑤ Output LED	Shows that voltage is available at the output for the Rack ATS.
⑥ LCD Display	View Rack ATS status, settings, and product information.
⑦ Display navigation buttons	On the LCD Display, icons indicate the purpose of adjacent buttons. ⌂ Home: Press to move through monitor screens or return to monitor screens from sub-menus. ◐ Down: Press to move through monitor screens or menu items. ⊜ Select: Press to select menu items or navigate to the main menu from monitor screens.
⑧ Load Status LED (identifies overload and warning conditions)	● Solid Green: OK. No Overload (Critical) or Near Overload (Warning) alarms are present. ● Solid Yellow: At least one near Overload (Warning) alarm is present, but no Overload (Critical) alarms are present. ● Flashing Red: Overload. At least one Overload (Critical) alarm is present.
⑨ Console port	Connect your computer to the Rack ATS for local access to the CLI. Use a Micro USB cable (not provided).
⑩ USB port	Use USB drives for firmware upgrades.
⑪ 10/100/1000 Status LED (indicates network status)	▮ Solid Yellow: The Rack ATS is connected to a network operating at 10–100 Megabits per second (Mbps). ▮ Solid Green: The Rack ATS is connected to a network operating at 1000 Mbps. ▮ Flashing Yellow: The Rack ATS is receiving or transmitting data packets at 10–100 Mbps. ▮ Flashing Green: The Rack ATS is receiving or transmitting data packets at 1000 Mbps.
⑫ Network status LED	Off: The Rack ATS is connected to an unknown network. ▮ Solid Green: The Rack ATS has valid TCP/IP settings. ▮ Flashing Green: The Rack ATS does not have valid TCP/IP settings.* ▮ Solid Orange: A hardware failure has been detected in the Rack ATS. ▮ Flashing Orange: The Rack ATS is making BOOTP requests. ▮ Flashing orange and green (alternating): The Rack ATS is making DHCP requests. * If you do not use a BOOTP or a DHCP server, see Local Access to the CLI, page , or Remote Access to the CLI, page 35 of User Guide to configure the TCP/IP settings.
⑬ Network Port	Connects the Rack ATS to the network using a network cable (not provided).
⑭ Link A and Link B ports	Reserved for future use.
⑮ Universal I/O	Port for connecting an optional APC Temperature Sensor (AP9335T) or an optional APC Temperature/ Humidity Sensor (AP9335TH).
⑯ Reset switch	Restarts the network and serial communication.

SKUs configurations - Existing vs New

Here's a technical features comparision chart between the existing Rack ATS AP44xx series vs Fifth-Generation APC Netshelter Rack ATS AP44xxA series.

1U

2U

Features	Existing Rack ATS AP44xx series	Fifth-Generation Rack ATS AP44xxA series
Temperature / Humidity Sensor support	-	√
32 Rack ATS Network Port Sharing	-	√
Flash upgradable	-	√
APC Wi-Fi USB device connectivity port	-	√
Gigabit Ethernet support	-	√
Color LCD Display	-	√
Network Management Card	NMC2	Upgraded NMC3
Security Protocols	√	Enhanced
Communicates with EcoStructure IT	-	√
Console Port	-	√
Link A and Link B ports	-	√
Universal I/O	-	√

Technical specifications

Features	AP4421A	AP4422A	AP4423A	AP4424A
Input Voltage	230V	230V	230V	230V
Output Voltage	230V	230V	230V	230V
Voltage Tolerance	± 10%	± 10%	± 10%	± 10%
Rated Current	10A	16A	16A	32A
Frequency	50/60Hz	50/60Hz	50/60Hz	50/60Hz
Load Capacity	2000 VA	3840 VA	3700 VA	7400 VA
(Number of Inlet sockets) Inlet Standard	(2) C14	(2) IEC 309	(2) C20	(2) IEC 309
(Number of Outlet sockets) Outlet Standard	(12) C13	(1) IEC 309	(8) C13, (1) C19	(16) C13, (2) C19
Number of Rack Unit	1U	1U	1U	2U
Dimension (H x W x D)	43.7 x 431.8 x 236.2 mm	43.7 x 431.8 x 236.2 mm	43.7 x 431.8 x 236.2 mm	88.1 x 431.8 x 236.2 mm
Weight	3.93 kg	4.21 kg	3.74 kg	6.94 kg

Features	AP4430A	AP4431A	AP4432A	AP4433A	AP4434A
Input Voltage	200V, 208V	208V	200V, 208V	208V	208V
Output Voltage	200V, 208V	208V	200V, 208V	208V	208V
Voltage Tolerance	± 10%	± 10%	± 10%	± 10%	± 10%
Rated Current	20A	30A	30A	12A	20A
Regulatory Derated Input Current (North America)	16A	24A	24A	-	-
Frequency	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz
Load Capacity	3300 VA	4992 VA	4992 VA	3300 VA	3300 VA
(Number of Inlet sockets) Inlet Standard	(2) NEMA L6-20P	(2) L6-30P	(2) NEMA L6-30P	(2) C14	(2) C20
(Number of Outlet sockets) Outlet Standard	(8) C13, (1) C19	(1) NEMA L6-30R	(16) C13, (2) C19	(12) C13	(8) C13, (1) C19
Number of Rack Unit	1U	2U	2U	1U	1U
Dimension (H x W x D)	43.7 x 431.8 x 236.2 mm	88.1 x 431.8 x236.2 mm	88.1 x 431.8 x236.2 mm	43.7 x 431.8 x 236.2 mm	43.7 x 431.8 x 236.2 mm
Weight	4.83 kg	6.49 kg	6.58 kg	3.74 kg	3.74 kg

Technical specifications

Features	AP4450A	AP4452A	AP4453A	AP4450AJ	AP4452AJ
Input Voltage	100V, 120V	120V	120V	100V	100V
Output Voltage	100V, 120V	120V	120V	100V	100V
Voltage Tolerance	± 10%	± 10%	± 10%	± 10%	± 10%
Rated Current	15A	20A	30A	15A	20A
Regulatory Derated Input Current (North America)	12A	16A	24A	-	-
Frequency	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz
Load Capacity	1440 VA	1920 VA	2880 VA	1440 VA	2000 VA
(Number of Inlet sockets) Inlet Standard	(2) NEMA 5-15P	(2) NEMA L5-20P	(2) NEMA L5-30P	(2) NEMA 5-15P	(2) NEMA L5-20P
(Number of Outlet sockets) Outlet Standard	(10) NEMA 5-15R	(1) NEMA L6-30R	(10) NEMA 5-20R	(10) NEMA 5-15R	(8) NEMA 5-15R
Number of Rack Unit	1U	1U	2U	1U	1U
Dimension (H x W x D)	43.7 x 431.8 x 236.2 mm	43.7 x 431.8 x 236.2 mm	88.1 x 431.8 x236.2 mm	43.7 x 431.8 x 236.2 mm	43.7 x 431.8 x 236.2 mm
Weight	4.4 kg	4.4 kg	6.33 kg	4.4 kg	4.4 kg

Life Is On | Schneider Electric

Explore APC Solutions at
apc.com