PowerShield®

Automatic Transfer Switch (ATS)

PSATS3K (16A)

PSATS6K (30A)

USER MANUAL

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1. Introduction

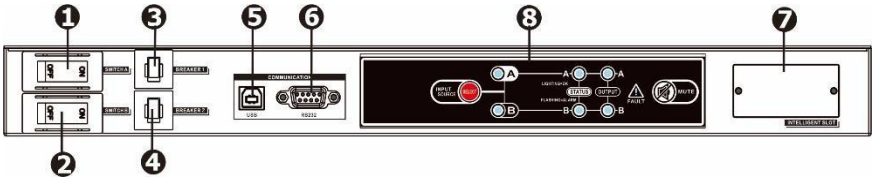
This PowerShield Automatic Transfer Switch product is designed with two independent power inlets to supply power to the load from a primary power source. Should primary power source fail, the secondary will automatically back up the connected equipment without any interruption. The transfer time from one line to another is seamless to the connected equipment. After switching to a secondary power source, the ATS can also switch power back to the primary input when power to the primary input is restored.

Package contents:

- ATS module
- User manual
- Mounting brackets

2. Product Overview

Front View – PSATS3K/PSATS6K



❶ Power switch for input source A

❷ Power switch for input source B

❸ Circuit breaker for output 2

❹ Circuit breaker for output 3

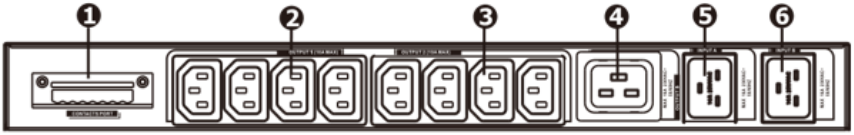
❺ USB communication port

❻ RS-232 communication port

❼ Communication slot

❽ Operation indicators (please refer to section 4 for the details)

Rear View – PSATS3K



❶ Contact port (please refer to section 7 for the details)

❷ Output receptacles “Output 3” (IEC 10A)

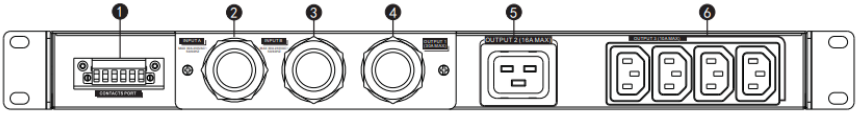
❸ Output receptacles “Output 2” (IEC 10A)

❹ Output receptacle “Output 1” (IEC 16A)

❺ Input source A connector

❻ Input source B connector

Rear View – PSATS6K



❶ Contact port (please refer to section 7 for the details)

❷ Input source A connector

❸ Input source B connector

❹ Hardwired output connector “Output 1” (Cable gland)

❺ Pluggable output receptacle “Output 2” (IEC 16A)

❻ Pluggable output receptacles “Output 3” (IEC 10A)

3. Important Safety Warnings

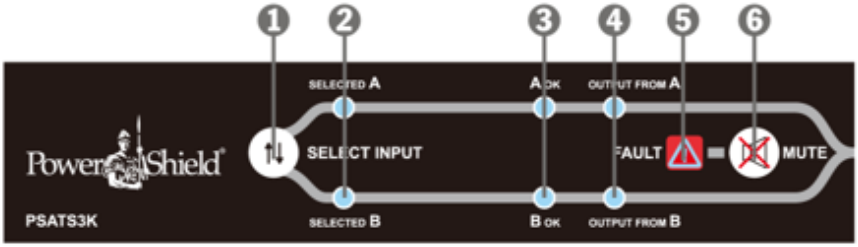
Before using the unit, please read all instructions and cautionary markings on the unit & this manual.

WARNING!! The ATS must be connected to earth when in use.
In line with current regulations, only use the cables that have been supplied with the machine where applicable. The power supply socket must be easily accessible to the operator.
WARNING!! The ATS has been designed exclusively to operate indoors. It is advisable to install it in areas where no inflammable liquids or gases, or other harmful or noxious substances, have been stored.
ATTENTION!! A soft damp cloth may be used to clean the outside of the machine (always with the system disconnected from the mains power supply and users).

Do not use any type of solvent as this may damage the external finishing of the machine.

ATTENTION!! The ATS has been designed exclusively for professional use.
NOTE: These instructions may be modified by the wiring regulations in force in the country where the ATS is purchased.

4. Operation Indicators & Status



❶ Preferred Source Selector

❷ Priority setting LEDs

❸ Power source status LEDs

❹ Output source LEDs

❺ Fault indicator

❻ Alarm mute button

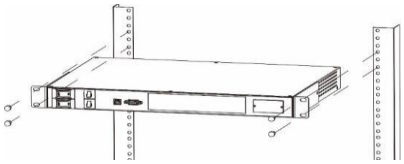
Indication type	LED description	LED status	Condition	Alarm
Priority setting LEDs	Source A (❷)	ON	Source A is preferred	OFF
	Source B (❷)	OFF		
	Source A (❷)	OFF	Source B is preferred	OFF
	Source B (❷)	ON		
Power source status	Status of source A (❸)	OFF	Inlet A has no power input	OFF
		ON	Inlet A has power input, and power is OK	OFF
		Flashing	Inlet A has power input, but power is out of SPEC	OFF
	Status of source B (❸)	OFF	Inlet B has no power input	OFF
		ON	Inlet B has power, and power is OK	OFF
		Flashing	Inlet B has power input, but power is out of SPEC	OFF
Output status	Output from source A (❹)	ON	Power A is output	OFF
	Output from source B (❹)	OFF		
	Output from source A (❹)	OFF	Power B is output	OFF
	Output from source B (❹)	ON		
	Output from source A (❹)	OFF	NO OUTPUT	OFF
	Output from source B (❹)	OFF		
Alarm	Fault (❺)	OFF	Alarm not present	OFF
		ON	Alarm present	Continuously

5. Installation

NOTE: Before installation, please inspect the unit. Be sure that nothing inside the package is damaged.

Mounting the Unit

The unit can be mounted in a standard 19" rack. Fasten the mounting brackets to the unit using the screws provided. With brackets attached securely, users can mount the unit in a standard 19" rack as shown below.

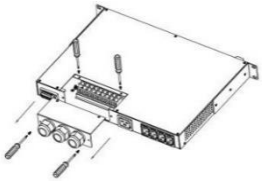
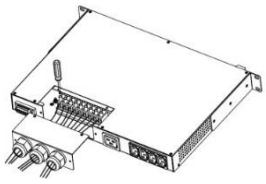
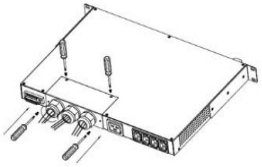


NOTE: If the temperature around the unit will rise above 40 °C, ventilation is required

Connecting power supply & loads to the ATS

PSATS3K Connect the ATS input plugs “input source A connector” and “input source B connector” to the two independent power sources or UPSs using the IEC-IEC 16A cables supplied.
Plug the load into the output 10A (“Output 1 and 2”) or 16A (“Output 3”) sockets depending on requirements.

PSATS6K

Step 1: Remove the terminal cover by removing four screws.	**Step 2:** Fasten the 2 x hardwired inputs & output (“Output 1”) cabling through the cable glands.	**Step 3:** Fasten the terminal cover and cable gland to the unit. Plug softwired loads to the output 10A (“Output 3”) or 16A (“Output 2”) sockets depending on requirements.
		

6. Operation

Power On/Off

Put the input power switches in “ON” position. The output will then be supplied by the source set as selected.

Setting preferred power source

It is possible to set the power source preference to supply the output by pushing the button of “source preference selector”. The default power source is “Source A”.

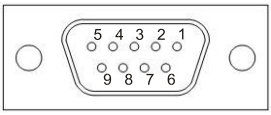
Function	Description	Default	Possible configuration
Source preference selector	Input that normally supplies the load	Source A	• Source A • Source B

7. Communication Port

The ATS is supplied with the following communication ports:

- Serial port is available with RS232 com. port and USB com. port on the front panel. **NOTE: the use of one port automatically excludes the other.**
- Contacts port on the rear panel.

Serial Ports: RS-232 & USB connectors



RS-232 connector

PIN #	NAME	TYPE	SIGNAL
1			
2	TX	OUT	Serial line TX
3	RX	IN	Serial line RX
4			
5	GND	POWER	
6	+12V	POWER	
7			
8			
9			

USB connector

PIN #	SIGNAL
1	VBUS
2	D-
3	D+
4	GND

NOTE: The utilization of the communication port is optional and is not necessary for the correct functioning of the ATS.

Contacts Ports

The contacts port is formed using six (6) pins numbered from left to right (see fig. 1), which can be connected to an external monitoring system (such as a BMS) to monitor the operational status of the ATS.
The external equipment must comply with the voltage and current characteristics of the contacts port.

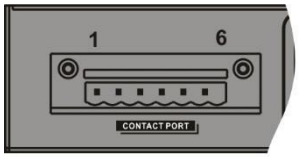


Fig. 1: Focus on contacts port.

The contacts port provides the following pins:
Pin 1: Common contact.
Pin 2: “Source B” active contact - pins 1 and 2 closed = output supplied by “Source B”
Pin 3: “Source A” active contact - pins 1 and 3 closed = output supplied by “Source A”
Pin 4: “Source A” status OK contact - pins 1 and 4 closed = “Source A” is present and normal
Pin 5: “Source B” status OK contact - pins 1 and 5 closed = “Source B” is present and normal
Pin 6: Status OK contact – pins 1 and 6 closed = ATS operation normal

The following diagram shows the functioning of the contacts port.

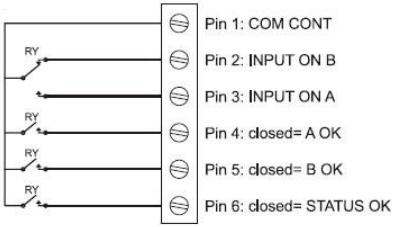


Fig. 2: Contacts port basic diagram.

ATTENTION: Contacts connector pins are rated at a current of 8A and voltage of 250VAC.

8. Troubleshooting

Use the table below to solve minor problems.

Problem	Possible Cause	Solution
The ATS with mains voltage present, does not turn on. (The LEDs don't flash, and no audible alarm present.)	No connection with input plugs	Connect the mains to the input plugs as indicated in the installation section.
	Input switch in "OFF" position	Turn the input switches in "ON" position.
	Input power failure	Check that the mains voltage is present or check if the UPS supplying the ATS is powered on.
	Upstream Fuse or CB disconnected	Reset the protective device. Warning: check that there is no overload or short-circuit at the output of the UPS.
The load is not powered.	Output not connected	Connect the load to the output sockets or HW connector (PSATS6K)
	10A/16A Internal thermal protection device has tripped	The internal protection will operate in the event of a short circuit or overload on one of the 10A/16A output sockets. The thermal protection can be reset by pushing the button which will result in the power being reconnected to the load. Therefore prior to attempting a reset of the thermal protection, please check the connected loads rating and/or determine if there is any overload. Then once reset, reconnect each load one at a time to ensure no problems exists.
No display or display provides incorrect information.	There is power supply problem in display.	Shut down the ATS completely and wait for a few seconds. Switch the ATS on again, if the problem persists, contact PowerShield or your preferred service partner.
The display is off, but the load is powered.	There is a power supply problem in the display.	Contact PowerShield or your preferred service partner.

If there is any abnormal situation not listed above, please call PowerShield immediately for professional technical support.

9. Specifications

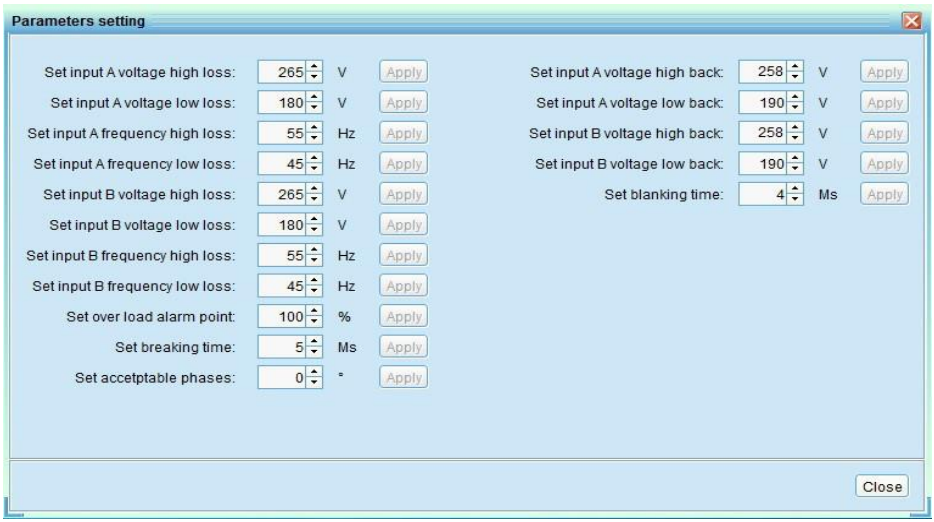
AUTOMATIC TRANSFER SWITCH		
Model Number	PSATS3K	PSATS6K
INPUT		
Input Voltage Nominal	220/230/240VAC	
Acceptable Input Voltage range	180–258VAC	
Input Frequency	50Hz / 60Hz	
Maximum Input Current	16A	30A
OUTPUT		
Output Voltage	220/230/240VAC	
Transfer time	9 ms (typical)	6 ms (typical)
SWITCHING		
Topology	RELAY	RELAY + SCR
CONNECTION		
Input	2 x 16A (C20)	2 x 30A HW Terminals
Output	8 x 10A (C13), 1 x 16A (C19)	1 x 30A HW Terminal, 4 x 10A (C13), 1 x 16A (C19)
Communication Included	USB, RS232 and AS400	
Communication Optional	PSSNMPV4 Network Card	
PHYSICAL		
Dimension, D x W x H (mm)	330 x 438 x 44	
Net Weight (kgs)	5	
ENVIRONMENTAL		
Operating Temperature	0-95 % RH @ -5°C to 45°C (non-condensing)	
WARRANTY		
Manufacturer's Warranty	2 Years	

10. Appendix

Input Voltage and Frequency Thresholds

FUNCTION	DESCRIPTION	DEFAULT SETTING
Input voltage range for Source A	If Source A is the active source, when the input voltage is outside this range, the ATS will automatically switch to Source B.	180V – 265V
Return voltage point for Source A	When input voltage of Source A is back to normal, the ATS will switch back to Source A. (Setting is Source A as Preferred Power source)	Low: 190V High: 258V
Input voltage range for Source B	If Source B is the active power source, when the input voltage of source B is outside this range, the ATS will automatically switch to Source A.	180V – 265V
Return voltage point for Source B	When input voltage of Source B is back to normal, the ATS will switch back to Source B. (Setting is Source B as Preferred power source)	Low: 190V High: 258V
Input frequency for Source A	If Source A is the active source, when the input frequency of source A is outside this range, the ATS will automatically switch to Source B.	45Hz – 55Hz
Input frequency for Source B	If Source B is the active source, when the input frequency of source B is outside this range, the ATS will automatically switch to Source A.	45Hz – 55Hz

Default factory settings:



11. Warranty

IMPORTANT: Warranty Registration

To validate product warranty, you should register your product online. Please visit PowerShield's online product warranty web page to register at this link >

www.powershield.com.au/product-registration.php

NOTE: For information about our Warranty Terms and Conditions, please visit our web site **www.powershield.com.au** under Support.

This user manual contains instructions relating to safety, installation, operation, maintenance and warranty of this product. Please keep this manual in a safe place for future references

WARRANTY SERVICE PROCESS:

1. Review the problems discussed in the troubleshooting section of this manual to eliminate common problems.
2. Verify that no input/output circuit breakers have tripped. A tripped circuit breaker is the most common problem.
3. If the problem persists, please call **1300-305-393** for PowerShield technical support or complete the RMA application form at the PowerShield website > **www.powershield.com.au/rmaform/**
4. The following details are needed for warranty claims.

- **Model number**
- **Serial number**
- **The date of purchase**

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For more information, please visit

www.powershield.com.au or phone 1300 305 303