

USER MANUAL



GENIO MULTISWITCH

USMSATS

**Multi Switch ATS for 19" rack mount
16 A single phase**

INTRODUCTION

Thank you for choosing our product.

Riello UPS specialises in designing, developing and manufacturing uninterruptible power supplies (UPS) and accessories.

The Automatic Transfer Switch (ATS) described in this manual is a high quality product which has been carefully designed and built in order to guarantee the highest levels of performance.

This manual contains detailed instructions for using and installing the product.

We recommend that this manual is referred to before attempting any operations on the ATS.

NOTE: Some images contained within this document are for indication purposes only, and therefore may not identically match the products in use.

ENVIRONMENTAL PROTECTION

During the development of its products, Riello UPS dedicates extensive resources to managing environmental concerns.

All our products meet the objectives defined in the environmental management system developed by the company in compliance with standards in force.

No hazardous materials such as CFC, HCFC or asbestos are used in this product.

When evaluating packaging used, Riello UPS favours recyclable materials, which are listed in the table below. Please dispose of these materials in compliance with your local standards.

DESCRIPTION	MATERIAL
Packaging corners	Polystyrene
Box	Cardboard
Protective bag	HD Polyethylene

DISPOSING OF THE PRODUCT

The ATS contains internal components that (when disposed of) are considered Toxic or Hazardous Waste e.g electronic circuit boards. Please refer to qualified personal regarding the safe disposal of these items.

SECURITY

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. The power supply socket must be easily accessible to the operator.

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.

Operation

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.

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OVERVIEW

RECEIVING THE MATERIAL

After opening the package, please check its contents. The ATS package contains the following material:

- No. 1 ATS module
- No. 1 user manual (this document)
- No. 2 fixing brackets with relative screws for rack cabinet mounting
- No. 1 USB cable
- No. 2 output IEC-IEC 10A cables
- No. 1 output IEC-IEC 16A cable
- No. 2 input IEC-SCHUCKO 16A cables
- No. 1 warranty card

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STORING

If this ATS module is to be stored prior to installation, it should remain in the original packing, in a dry place (storage temperature range: from -40 °C to +70 °C).

FUNCTION

The ATS source transfer switch is a simple and effective solution to manage the redundancy provided by two independent power sources, ensuring the uninterrupted operation of mission-critical equipment.

The ATS allows the automatic or manual transfer of your loads between two independent power sources without interrupting the supply of power. Either of the two sources may be designated as the preferred power source, with the other becoming the alternate source. In the event of a failure, the transfer from one source to the other is automatic and instantaneous.

Automatic transfer to the alternative source takes place if the voltage of the preferred source goes outside a tolerance above or below of the nominal value. Return to the preferred source is automatic when the voltage returns within the tolerance range.

To provide a maximum level of protection for the connected equipment, both power sources should be on-line type UPSs. However, the ATS module can also be supplied by one UPS and another type of source, or by two non-UPS sources providing a sinusoidal output (AC system, engine generator set, etc.).

CHARACTERISTICS

The ATS has the following characteristics:

- Input current up to 16A
- Output 10A thermal protections for OUTPUT 1 and 2 (10A outputs)
- 7 LEDs display
- Thresholds for to transfer from preferred to alternate source settable by user.
- RS232, USB communication ports and contacts port.
- Maximum operating temperature 40°C
- Dimensions: 1U x 19" x 330mm
- Weight: 5 Kg

ATS VIEWS

Figure 6 shows in detail the front and rear views of the ATS.

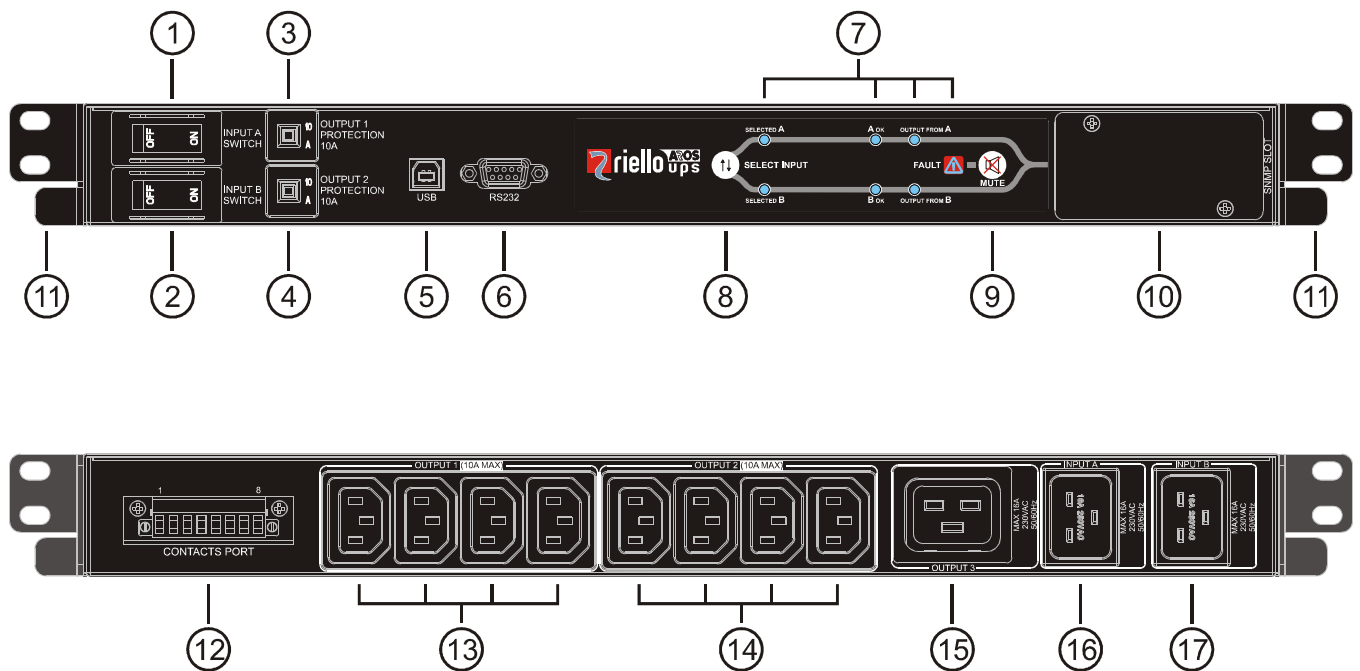


Fig. 6: front and rear views of ATS module.

FIGURE 6 LEGEND:

- | | |
|--|--|
| ① "INPUT A" switch | ⑩ SNMP expansion slot |
| ② "INPUT B" switch | ⑪ Fixing brackets for rack cabinet mounting |
| ③ Output 10A thermal breaker "OUTPUT 1" | ⑫ Contacts port (see the relative paragraph for its functioning) |
| ④ Output 10A thermal breaker "OUTPUT 2" | ⑬ Output IEC 10A sockets "OUTPUT 1" |
| ⑤ USB communication port | ⑭ Output IEC 10A sockets "OUTPUT 2" |
| ⑥ RS232 communication port | ⑮ Output IEC 16A socket "OUTPUT 3" |
| ⑦ LED indication panel (see related paragraph) | ⑯ Input 16A plug "INPUT A" |
| ⑧ Preferred source selection button | ⑰ Input 16A plug "INPUT B" |
| ⑨ Acoustic signal mute button | |

CONTROL PANEL

The LED display on the front of the ATS shows the general functioning status of the ATS.

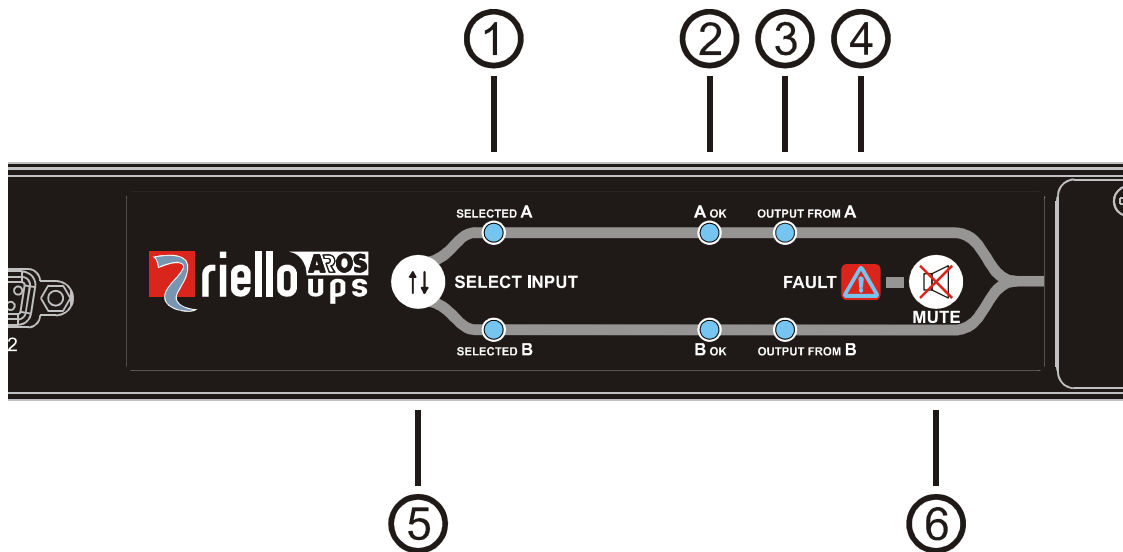


Fig. 7: Focus of LED display.

FIGURA 7 LEGEND:

①	Preferred input indication
②	Input "OK" indication
③	Output supplied indication
④	Alarm indication
⑤	Preferred source selection button
⑥	Acoustic signal mute button

INSTALLATION

Figure 8 shows how to install the ATS module in a 19-inch bay (with a depth of 600mm), using the four screws supplied, at the desired height in the cabinet uprights. The module is not as wide as the bay and therefore does not obstruct the flow of air.

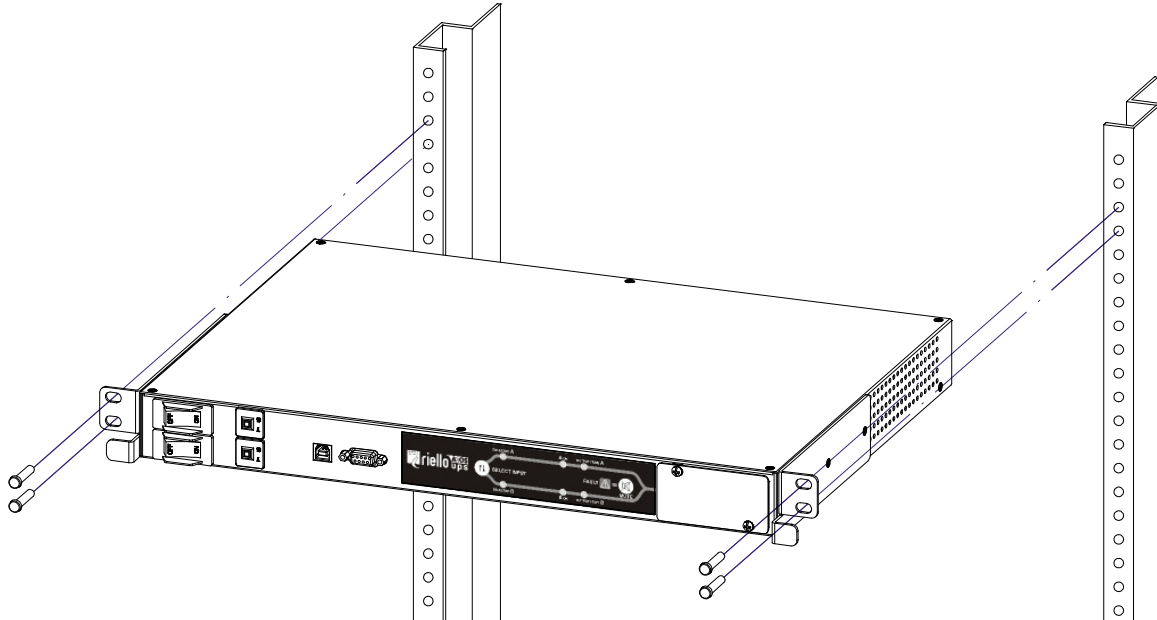


Fig. 8: ATS module in a rack cabinet mounting.

If the temperature inside the bay will rise above 40 °C, ventilation is required.

CONNECTIONS

For connecting the ATS, plug "INPUT A" and "INPUT B" to the mains or to the UPS depending using the SCHUCKO-IEC or IEC-IEC 16A cables supplied.

Plug the user load to the output 10A ("OUTPUT 1 and 2") or 16A ("OUTPUT 3") sockets depending on user's requirements.

Put the input switch in "ON" position. The output will then be supplied by the source set as preferred (Default: "INPUT A").

NOTE: if one of the two input sources is a UPS Line Interactive or a UPS set in ECO mode, connect this one to the INPUT A of ATS and the other source (mains or other) to the INPUT B.

CONFIGURING THE ATS

It is possible to set the input preferred to supply the output by pushing the button "select input".

The following table shows the configurations available.

FUNCTION	DESCRIPTION	DEFAULT	POSSIBLE CONFIGURATIONS
Preferred input ⁽¹⁾	Selection of input that normally supplies the load	INPUT A	<ul style="list-style-type: none"> INPUT A INPUT B

⁽¹⁾ If an internal ATS failure occurs or both input sources are not good at the same time, the ATS output will be connected automatically to the INPUT A independently of the preferred input selection.

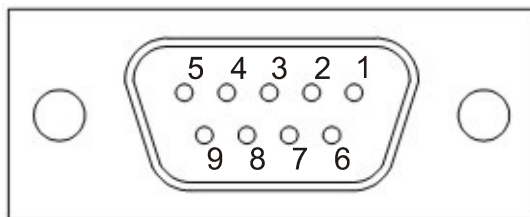
COMMUNICATION PORTS

The ATS is supplied with the following communication ports:

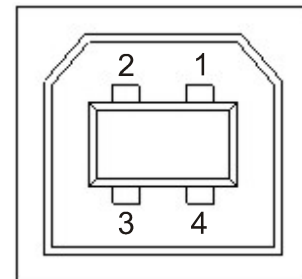
- Serial port is available with RS232 connector and USB connector on the front panel.
NOTE: the use of one port automatically excludes the other.
- Expansion slots for additional COMMUNICATION SLOT interface boards
- Contacts port on the rear panel.

RS232 AND USB CONNECTORS

RS232 CONNECTOR



USB 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			

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

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

The RS232 and USB communication ports allows remote monitoring of the ATS via software; available for free download at www.riello-ups.com.

At the rear of the ATS a contact port is available that allows remote monitoring via internal relays (see related paragraph).

COMMUNICATION SLOTS

The ATS is equipped with an expansion slot for accessory communication boards, enabling the equipment to communicate using the main communication standards.

Some examples:

- Second RS232 port
- Serial duplicator
- Ethernet agent with TCP/IP, HTTP and SNMP protocol
- JBUS / MODBUS protocol converter

To insert the board, unscrew the slot cover and carefully insert into the slot.
For further information on the accessories available, visit the web site.

CONTACTS PORT

The contacts port is formed using eight (8) pins numbered from left to right (see fig. 9), which can be connected to an external monitoring system (such as a BMS) in order to monitor the operational status of the ATS. The external equipment must respect the voltage and current characteristics of contacts port.

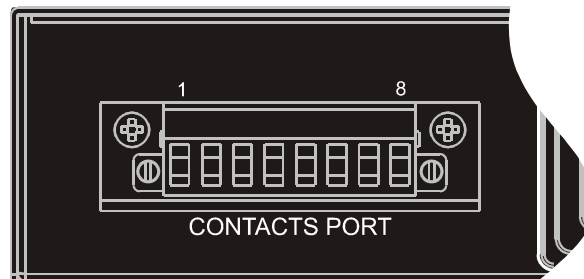


Fig. 9: Focus on contacts port.

The contacts port provides the following pins:

- Pin 1: supplies +12V d.c. and a maximum 100mA current usable as user needs.
- Pin 2: GND.
- Pin 3: common contact.
- Pin 4: "INPUT B" active contact (if the contact between "pin 4" and "pin 3" is closed, output is supplied by "INPUT B").
- Pin 5: "INPUT A" active contact (if the contact between "pin 5" and "pin 3" is closed, output is supplied by "INPUT A").
- Pin 6: "INPUT A" OK contact (if the contact between "pin 6" and "pin 3" is closed, "INPUT A" is present and regular).
- Pin 7: "INPUT B" OK contact (if the contact between "pin 7" and "pin 3" is closed, "INPUT B" is present and regular).
- Pin 8: Status OK contact (if the contact between "pin 8" and "pin 3" is closed, ATS functioning status is regular).

The following diagram shows the functioning of the contacts port.

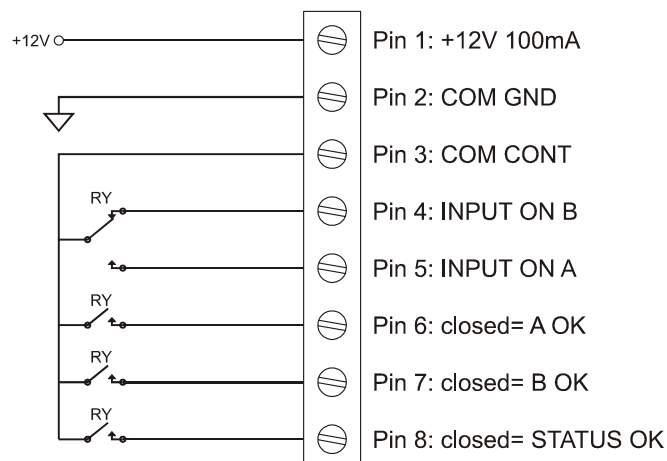
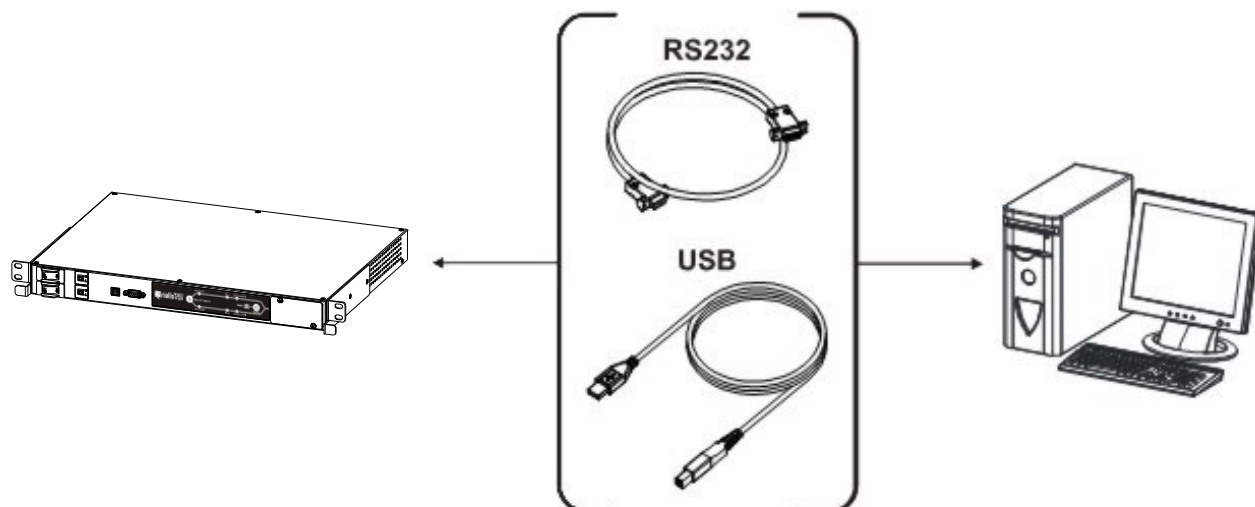


Fig. 10: Contacts port basic diagram.

ATTENTION: the pins of the contact port are able to carry a 1A maximum current and 48V maximum voltage.

SOFTWARE



MONITORING SOFTWARE

PowerShield³ software ensures an effective and user-friendly monitoring of the ATS, displaying important items of information such as the input voltage, load applied and phase displacement angle between inputs. It can also automatically perform shutdown operations, send e-mails, sms and network messages when specific user-selected events occur.

Installation operations:

- Connect the RS232 communication port of the ATS to a COM communication port of a PC via the serial cable provided, or connect the USB port of the ATS to a USB port of the PC using a standard USB cable.
- Download the software from www.riello-ups.com, selecting the desired operating system.
- Follow the installation program instructions.
- For more detailed information about **PowerShield³**, refer to the software manual which can be downloaded from our website www.riello-ups.com.

CONFIGURATION SOFTWARE

The **ATSTools** software allows the configuration of the ATS via USB or RS232. For a list of possible configurations available to the user, refer to the software manual.

INSTALLATION OPERATIONS

- Connect one of the ATS's communication ports to one of the PC's communication ports using the cable supplied.
- Follow the installation instructions given in the software manual which can be found in our web site www.riello-ups.com -> **support**.



CAUTION:

If the RS232 communication port is used, it is not possible to communicate with the USB port and vice versa.

It is advisable to use a cable which is shorter than 3 metres for communication with the ATS. To obtain additional communication ports with different functions, independent from the standard USB and RS232 ports on the ATS, various accessories are available which can be inserted into the communication card slot.



To check the availability of new, more updated software versions and for more information about the accessories available, consult the website.

DISPLAY INDICATION

The LED display shows the general functioning status of the ATS. The table below lists and describes the signal displayed.

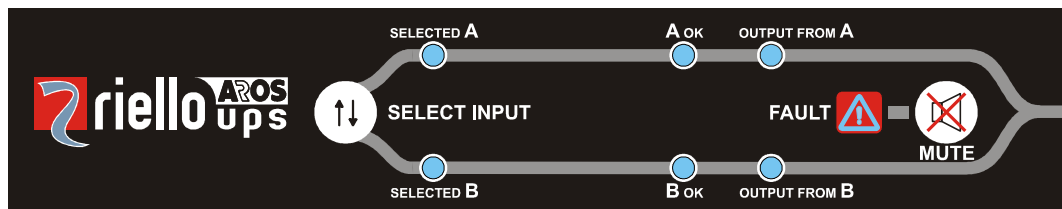


Fig. 11: Focus on LED display.

FIGURE 11 LEGEND:

Indication type	LED description	LED status	Condition	Sound
Preference indication	SELECTED A	ON	Power A is preference	OFF
	SELECTED B	OFF		
	SELECTED A	OFF	Power B is preference	OFF
	SELECTED B	ON		
Input power status	A OK	OFF	Inlet A has no power input	OFF
		ON	Inlet A has power input, and power is OK	OFF
		BLINKING	Inlet A has power input, but power is out of SPEC	OFF
	B OK	OFF	Inlet B has no power input	OFF
		ON	Inlet B has power, and power is OK	OFF
		BLINKING	Inlet B has power input, but power is out of SPEC	OFF
Output status	OUTPUT FROM A	ON	Power A is output	OFF
	OUTPUT FROM B	OFF		
	OUTPUT FROM A	OFF	Power B is output	OFF
	OUTPUT FROM B	ON		
	OUTPUT FROM A	OFF	No output	OFF
	OUTPUT FROM B	OFF		
Alarm	FAULT	OFF	Alarm not present	OFF
		ON	Alarm present	Continuous

TROUBLESHOOTING GUIDE

Irregular operation of the ATS is not always an indication of a fault, and can often be resolved quickly and simply. Please consult the table below, which may help you deal with some common issues.

PROBLEM	POSSIBLE CAUSE	SOLUTION
THE ATS WITH THE MAINS VOLTAGE PRESENT, DOES NOT TURN ON (THE LEDs DOES NOT BLINK AND NO BEEP IS EMITTED)	NO CONNECTION WITH INPUT PLUGS	Connect the mains to the input plugs as indicated in the installation paragraph
	INPUT SWITCHES IN "OFF" POSITION	Turn the input switches in "ON" position
	MAINS VOLTAGE NOT PRESENT (BLACKOUT)	Check that the mains voltage is present or check if the UPS supplying the ATS is powered on.
	PROTECTIVE DEVICE UPSTREAM ACTIVATED	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	NO CONNECTION WITH OUTPUT SOCKETS	Connect the load to the output sockets
	INTERVENTION OF 10A THERMAL PROTECTION	The thermal protection device will operate in the event of a short circuit or overload on one of the 10A output sockets. The thermal protection can be reset by pushing the button in 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 are any problems. Then once reset reconnect each load one at a time to ensure no problems exists.
THE DISPLAY SHOWS NOTHING OR PROVIDES INCORRECT INFORMATION	THE DISPLAY HAS POWER SUPPLY PROBLEMS	Shut down the ATS completely and wait for a few seconds. Switch the ATS on again, if the problem persists, contact the nearest technical support centre.
THE DISPLAY IS OFF BUT THE LOAD IS POWERED	THE DISPLAY HAS POWER SUPPLY PROBLEMS	Contact the nearest technical support centre.

TECHNICAL DATA

Model	ATS
Nominal Voltage	220/230/240 Vac
Nominal Frequency	50 or 60Hz
Maximum Current	16A
Switching time	8-12ms typical, 16ms maximum
Display	7 LEDs display
Buzzer	Acoustic signal for overload, overtemperature, short-circuit or others internal faults.
Protections	Overload, overtemperature, short-circuit
Dimensions (W x D x H)	483 (19") x 330 x 44 (1U) mm
Weight	5 Kg
Ambient Temperature ⁽⁶⁾	0 – 40 °C
umidity	0–95% non-condensing
Noise	< 25 dB

INPUT VOLTAGE AND FREQUENCY THRESHOLDS (DEFAULT SETTINGS)

FUNCTION	DESCRIPTION	DEFAULT SETTING
Low voltage INPUT A not good	Lower voltage value of INPUT A to switch on INPUT B	180V
Low voltage INPUT A good	Lower voltage value of INPUT A to return on INPUT A (with A setted as preferred and output supplied by INPUT B)	190V
High voltage INPUT A not good	Higher voltage value of INPUT A to switch on INPUT B	258V
High voltage INPUT A good	Higher voltage value of INPUT A to return on INPUT A (with A setted as preferred and output supplied by INPUT B)	248V
Low voltage INPUT B not good	Lower voltage value of INPUT B to switch on INPUT A	180V
Low voltage INPUT B good	Lower voltage value of INPUT B to return on INPUT B (with B setted as preferred and output supplied by INPUT A)	190V
High voltage INPUT B not good	Higher voltage value of INPUT B to switch on INPUT A	258V
High voltage INPUT B good	Higher voltage value of INPUT B to return on INPUT B (with B setted as preferred and output supplied by INPUT A)	248V
Low frequency INPUT A	Lower frequency value for INPUT A to switch on INPUT B	45Hz
High frequency INPUT A	Higher frequency value for INPUT A to switch on INPUT B	55Hz
Low frequency INPUT B	Lower frequency value for INPUT B to switch on INPUT A	45Hz
High frequency INPUT B	Higher frequency value for INPUT B to switch on INPUT A	55Hz

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