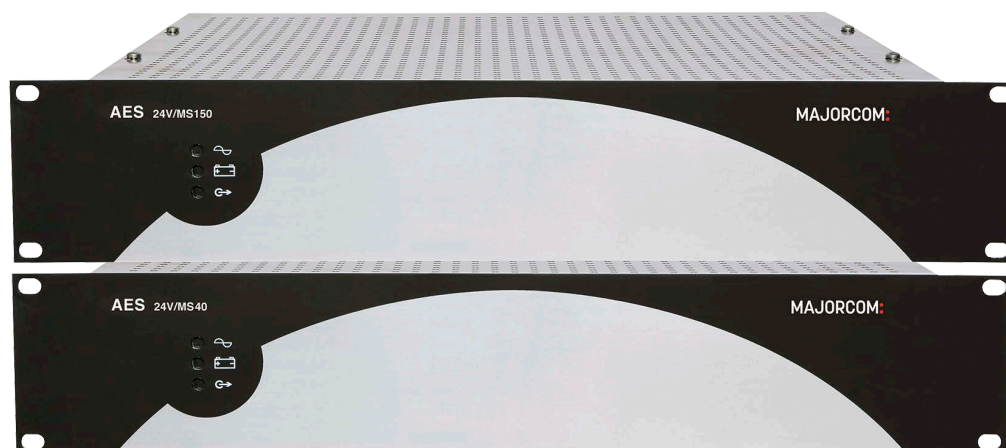


USER MANUAL

EN 54 4

AES24V MS40 AES24V MS150

POWER SUPPLY UNITS



MAJORCOM:

Manual to download in PDF format on www.majorcom.fr

TABLE OF CONTENTS

1. GENERAL INFORMATION	4
1.1 Front face	4
1.2 Environmental specifications	4
1.3 Electrical input and output specifications	4
• 1.3.1 Network input	4
• 1.3.2 Output	4
• 1.3.3 Specific features and technical specifications	5
• 1.3.4 Authorized batteries	5
2. INSTALLATION OF YOUR EQUIPMENT	6
2.1 Mounting	6
2.2 Batteries	6
3. CONNECTION	7
3.1 Connection diagram	7
3.2 Connection specifications	7
4. COMMISSIONING	8
5. POWER SUPPLY OPERATION	9
5.1 Alarms	9
5.2 Summary of available equipment	9
6. MAINTENANCE	10
7. FUSE PROTECTIONS	11
8. TROUBLESHOOTING PROCEDURE	12
9. TECHNICAL SPECIFICATIONS	13

INTRODUCTION

This manual includes instructions for the installation, commissioning and maintenance of this equipment. In order for the equipment to work properly, we recommend to carefully follow these instructions.

SAFETY PRECAUTIONS

This equipment is designed to be connected to the 230 V public distribution network. To avoid any risk of electric shock, **all INTERVENTIONS must be carried out with the equipment SWITCHED OFF** (upstream two-pole circuit-breaker open). Interventions with the equipment switched on are authorized only when it is impossible to switch the equipment off. The operation must only be performed by qualified personnel.

STANDARDS, DIRECTIVES AND PROTECTION OF THE ENVIRONMENT AND PUBLIC HEALTH

This product is compliant with LV and EMC directives (immunity and emission). It is compliant with standards EN60950-1 (2006), EN61000-6-1 (2007), EN61000-6-2 (2006), EN61000-6-3 (2007), EN61000-6-4 (2007), and EN 55022 class B (2007).

It is also compliant with the following trade standards :

- EN 54-4 (December 1997) and amendment A2 (February 2006): Fire detection and fire alarm systems. Part 4: power supply equipment.
- EN 12101-10 class A (January 2006): Smoke and heat control systems. Part 10: power supplies.
- EN 60849 (August 1998): Sound systems for emergency purposes (Paragraph 5.6).

The CPD CE Numbers is XXXXX, it was affixed in 2011.

These products have been manufactured in accordance with RoHS and WEEE environmental directives.



WARRANTY

This product is guaranteed for 24 (twenty four) from date of delivery. The battery is not included in the warranty.

1. GENERAL INFORMATION

1.1 FRONT FACE



(1): LED Power Default (2): LED Battery Default (3): LED Output Voltage Default

1.2 ENVIRONMENTAL SPECIFICATIONS

Model	AES24V MS40	AES24V MS150
Operating Temperature	-10 to +45°C at 100% of load -10 to +55°C at 75% of load	
Relative Humidity	20 to 95%	

1.3 ELECTRICAL INPUT AND OUTPUT SPECIFICATIONS

1.3.1 NETWORK INPUT

Model	AES24V MS40	AES24V MS150
Power voltage	195 - 264VAC, 50-60Hz	
Primary Current	1A @ 195VAC	2A @ 195VAC
Breaker Circuit (D curve) need to be provided Upstream		

1.3.2 OUTPUT

Model	AES24V MS40	AES24V MS150
Outputs	Nominal Voltage 24VDC Floating Voltage Set at half-load and at 25°C: 27.2V +/- 0.5%	
	2 "Amplifiers" Outputs with a current of 20A maximum per Output on connectors 16mm ² 2 "Controllers" Outputs with a current of 5A maximum per Output on connectors 2.5mm ² The maximum current for all outputs is 40A	6 "Amplifiers" Outputs with a current of 40A maximum per Output on connectors 16mm ² 3 "Controllers" Outputs with a current of 5A maximum per Output on connectors 2.5mm ² The maximum current for all outputs is 150A
Outputs Relays	Output Relay without any voltage Battery Default Output Relay without any voltage Main Power Default Output Relay without any voltage 24V Output Default	

1.3.3 SPECIFIC FEATURES AND TECHNICAL SPECIFICATIONS

The Power supply and the public address and voice alarm system must be powered by the same mains.

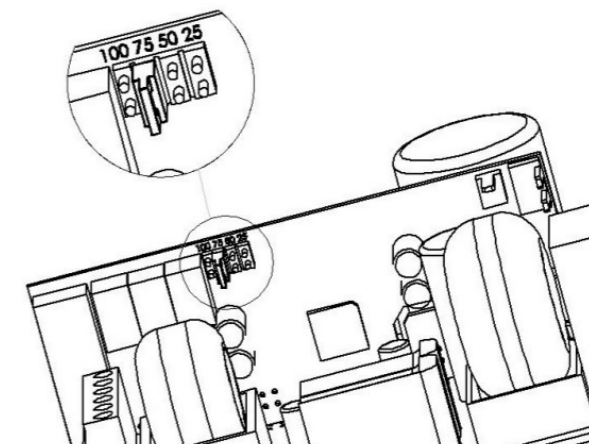
In normal operating mode : The power supply equipment recharges then maintains on charge from the normal backup supply, and provides current to the voice alarm system lower than I_{max a}.

In emergency operating mode : the total operating current is provided by the battery, including the current of the PA/VA amplifiers not exceeding 'I_{max b} mains not present' depending on the size of the battery.

Model	AES24V MS40	AES24V MS150
I _{max b}	40A (mains not present)	150A (mains not present)
I _{max b}	6A (mains present)	12A (mains present)
I _{max a}	6A - C/20 (battery capacity)	12A - C/20 (battery capacity)

1.3.4 AUTHORIZED BATTERIES

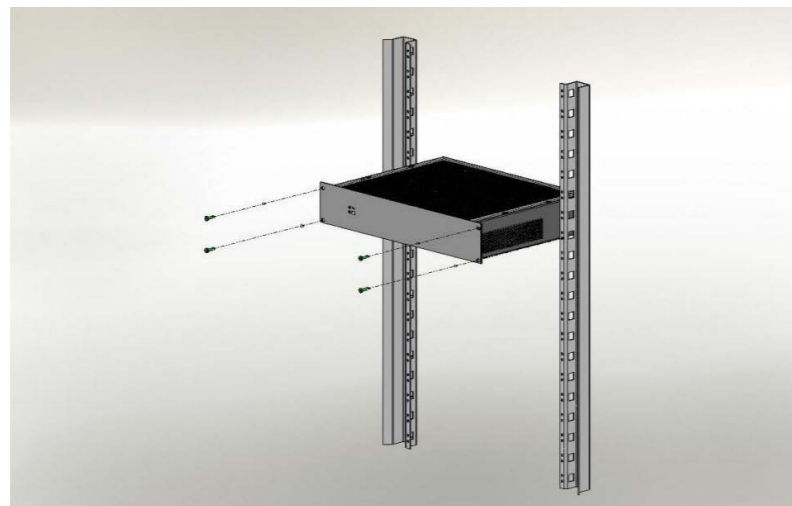
Model	AES24V MS40	AES24V MS150
Battery Capacity	Between 24 and 110Ah	Between 38 and 225Ah
<ul style="list-style-type: none"> Use batteries with a capacity of 86 to 225Ah (daughter board jumper on '75') For using 38 to 225Ah battery capacities, put daughter board jumper on '50'. In this case, I_{max b} = 100A (mains not present) and the threshold of 13mΩ±10% becomes 20mΩ±10%. 		



• Use **Yuasa, Powersonic, ABT, EnerSys, Effekta, Long** brand batteries. If you would like to use another battery brand, please have them approved.

2. INSTALLATION OF YOUR EQUIPMENT

2.1 MOUNTING



Note : When installing the module in the rack, the protection rating must comply with fire safety standards EN 54-4/ A2: IP30.

2.2 BATTERIES

The battery temperature sensor must be placed as close to the battery as possible.

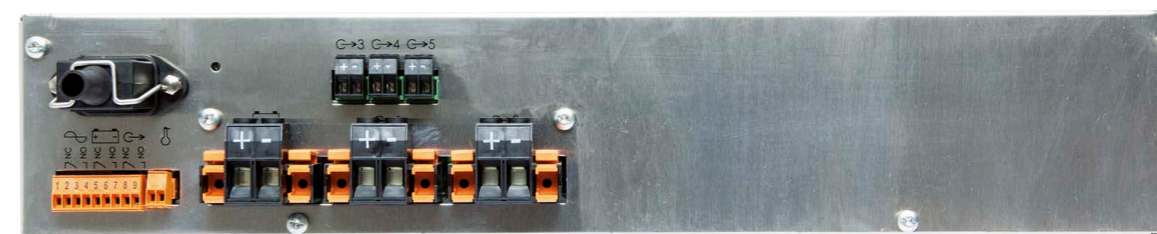


Model	AES24V MS40	AES24V MS150
Battery wiring instructions	The power supply takes a resistance measurement of the battery mesh every 4 hours.	
	The trigger threshold of the fault is 50 mΩ±10 %.	The trigger threshold of the fault is 13 mΩ±10 %
	Exceeding this threshold is signalled by a battery fault and means that the power supply with its associated battery will not have the desired autonomy in the event of a mains outage. To avoid initiating this fault, please note the following elements:	
	<ul style="list-style-type: none"> Use batteries with a capacity of 24 to 110 Ah. Use Yuasa, Powersonic brand batteries. If you would like to use another battery brand, please have them approved (see chapter 1.3.4). Use battery cables that are as short and large as possible (16 mm² max). <ul style="list-style-type: none"> for a cross-section of 10 mm², the resistance is 2 mΩ/m. for a cross-section of 16 mm², the resistance is 1.25 mΩ/m. 	<ul style="list-style-type: none"> Use authorized batteries (see chapter 1.3.4). Use battery cables that are as short and large as possible (35 mm² max). <ul style="list-style-type: none"> for a cross-section of 10 mm², the resistance is 2 mΩ/m. for a cross-section of 16 mm², the resistance is 1.25 mΩ/m. for a cross-section of 25 mm², the resistance is 0.8 mΩ/m. for a cross-section of 35 mm², the resistance is 0.6 mΩ/m.
	Example: for battery cables (+ and -) 1.5 m in length and with a cross-section of 10 mm ² , the resistance is 6mWΩ.	
Battery cables (+ and -) of 1.5 m in length and cross-section of 16 mm ² allow correct operation with all the recommended batteries.	Battery cables (+ and -) of 1.5 m in length and cross-section of 25 mm ² allow correct operation with all the recommended batteries.	

- Position the temperature sensor as close to the battery as possible.
- The connections and crimping should be given special care.
- A battery fuse adds 1 to 2 mΩ.

3. CONNECTION

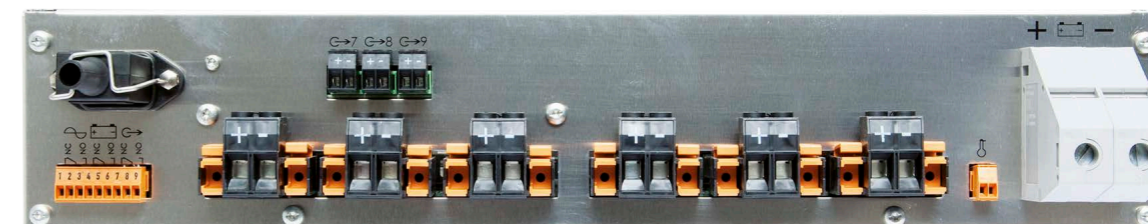
3.1 CONNECTION DIAGRAM



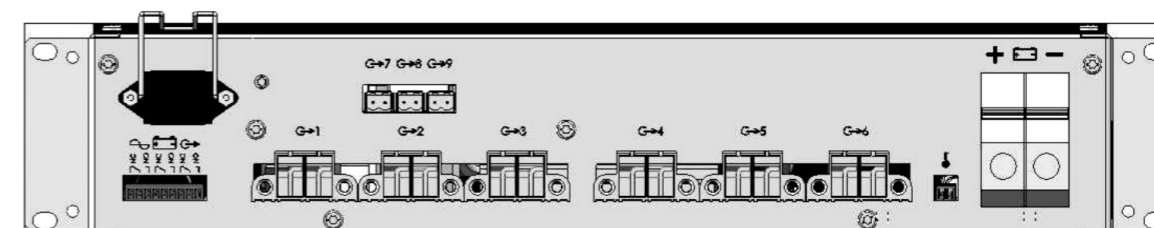
AES24V MS40 rear panel



AES24V MS40



AES24V MS150 rear panel



AES24V MS150

Important : the openings provided in the cabinet must be used. Do not create additional openings as doing so may cause the device to malfunction and voids the warranty.

3.2 CONNECTION SPECIFICATIONS

Model	AES24V MS40	AES24V MS150
Mains	2.5mm ²	
Battery	16mm ²	50mm ²
'Amplifiers' load	2 outputs : 16mm ²	6 outputs : 16mm ²
'Controlers' load	3 outputs : 2.5mm ²	3 outputs : 2.5mm ²
Alarm reports (plug-in)	15mm ²	

4. COMMISSIONING

Connect the battery wires to the terminal strip, but do not connect the battery terminals.

After the electrical connections are made (mains, loads and batteries) :

1. Close the upstream mains circuit-breaker.
2. Check the load output voltage.
3. Connect the battery terminals.

Your apparatus is in operation when the 3 LEDs are green.

5. POWER SUPPLY OPERATION

5.1 ALARMS



Mains fault (normal source) : signalled locally by a yellow LED and remotely by dry contact with delay (failsafe).

- If the mains is not present or < 195 V.
- If the mains fuse is blown or not present.
- If the product is out of service.

Battery fault (emergency power) : signalled locally by a yellow LED and remotely by dry contact with delay (fail-safe).

- If the battery is not present : The battery test is performed in the following manner: every 30 seconds for the first 20 minutes after commissioning : every 15 minutes after the first 20 minutes. If a fault is detected, the test is performed every 30 seconds up to 20 minutes after the fault disappears.
- If the internal impedance is too high (test every 4 hours maximum on a charged battery).The impedance limit value is :

AES24V MS40	AES24V MS150
50mΩ+/-10%.	13mΩ+/-10%

- If the battery voltage :

AES24V MS40	AES24V MS150
< 21.6V+/-3%.	< 1.8V/cell+/-3%.

No voltage on one of the Outputs : signalled locally by a yellow LED and remotely by dry contact with delay (fail-safe).

5.2 SUMMARY OF AVAILABLE EQUIPMENT

Temperature compensation :

A battery voltage compensation system maintains the charge characteristics within the limits specified by the battery manufacturer across the entire operational temperature range.

Battery low voltage cut-out :

The cut-out threshold is :

AES24V MS40	AES24V MS150
21.6V ±3 %	1.8 V/cell ±3 %

The element causing the cut-out will be in the + position.

6. MAINTENANCE

In order to ensure maximal and durable service, we strongly recommend that your product be maintained clean and ensure that it is installed in a dry and ventilated location. We shall in no case be liable for damages associated with improper use or incorrect maintenance of the equipment.

WARNING

Replacing the original battery with a battery of incorrect type may result in an explosion hazard. Used batteries must be disposed of in compliance with recycling requirements.

7. FUSE PROTECTIONS

AES24V MS40	AES24V MS150
F1 MOTHER BOARD (MAINS): RATING BREAKING CAPACITY - SIZE	
2 A Time lag 5x20 1500 A	6.3 A Time lag 5x20 1500 A
F1 TO F2 'AMPLIFIERS BOARD' (2 OUTPUTS) : RATING - TYPE - SIZE	
20 A gG 10x38	32A gG 10x38
F1 TO F3 'CONTROLLERS' BOARD (3 OUTPUTS): RATING - TYPE - SIZE	
5A F 5x20	

8. TROUBLESHOOTING PROCEDURE

If the Power supply does not deliver voltage :

- Check mains presence on the mains terminal strip
- Check the fuses
- Check the voltage value on output terminals
- The voltage on the battery cables must be identical to that of the load
- Check that each 12 Vdc battery has a voltage greater than or equal to 11.5 Vdc
- Repeat the measurement after having disconnected the load and the battery
- Recheck the signalling of the indicator lights (see chapter 5)
- If all the steps are validated, check the compatibility of your load

If the battery indicator light remains red :

- Check if the battery voltage is between 12Vdc and 30Vdc
- Check the battery voltage polarity

If the battery does not take over after a mains fault :

- Check the voltage on the battery terminals
- Check the battery fuse
- Check the voltage on output terminals

If the indicator lights are not illuminated :

- Check mains presence on the mains terminal strip
- Check the battery connection
- Check that the wire ribbon is properly connected
- Check the voltage on output terminals

For additional technical assistance, contact Majorcom :
+ 33 (0) 5 61 31 86 87

9. TECHNICAL SPECIFICATIONS

Model	AES24V MS40	AES24V MS150
Dimensions (W x D x H)	483 x 395 x 89mm	
Weight	3.1kg	5.4kg

AES24V MS40

AES24V MS150

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