

# ZONIT®

Structured Solutions



## Zonit® μATS™ Users Guide

μATS1-LV Version 1.2

# Table of Contents

Product Overview .....	2
Pre-Installation Considerations .....	2
Product Features .....	3
Installation.....	4
Optional Accessories .....	4
μATS™ Operational Indicators.....	5
Troubleshooting .....	6
Warranty .....	7
Product Specifications .....	8
APPENDIX A .....	9

Copyright © Zonit Structured Solutions LLC 2008-2012 All rights reserved.

# Product Overview

Product ID: Zonit® Micro Automatic Transfer Switch (“μATS™”)

Model: μATS1-LV

Description: The μATS™ is a small form factor, “zero-U” mounting, automatic transfer switch for 120VAC service. The μATS™ is for use with ITE equipment only. This product is suitable for use with electronic data processing equipment requiring high to ultra high power path reliability, with fast failover times needed by modern switched power supplies. It is also ideal for applications involving high or very high equipment deployment density. Several types of plug-strips and adaptors for the most common power distribution needs are also available for use with this product. Contact your Zonit® Structured Solutions sales representative for additional information.

## Pre-Installation Considerations

Prior to deployment of the μATS™, the following site considerations should be reviewed to ensure the μATS™ will function properly in its intended application.

### POWER TYPE & MOUNTING OPTIONS

The μATS™ has NEMA 5-15 plugs on both its A and B input cords, which are to be connected to 120V single phase power sources. The output is an IEC320 C13 receptacle, which is the most common input to modern electronic data processing equipment.

The μATS™ can be used in several configurations:

- Direct Attach — The μATS™ is connected directly to equipment via its integral IEC320 C13 receptacle.
- Y Cord Output — The μATS™ can be ordered with a 12” output cord terminating in a C13 receptacle.
- Y Cord Hydra Output — The μATS™ can be ordered with an output cord terminating in two or three C13 receptacles.

Note: For applications that use 208-240VAC input Zonit also offers μATS™ models for that application. Call or visit our website to learn more.

# Product Features

- The IEC320 receptacle was designed for “zero-U” mounting with most devices, no matter the orientation of the device power connector. The unit has a pair of mounting eyelets which can be used to attach the  $\mu$ ATS™ to any suitable support via the optional retention kit to ensure connection security.
- The power input plugs of the Zonit  $\mu$ ATS™ are labeled so that the user knows which is the A source and which is the B source. Further, the input plugs can be color coded as desired by the user to key the input plugs to any color-coding scheme used in the data center to identify power sources. Non-standard color cords are available at extra lead time and cost.
- The Zonit  $\mu$ ATS™ is designed to always use the A source if it is available and of acceptable quality. This allows data center managers to know and plan for the load on each power source -a requirement for power capacity management.
- Power quality problems of several types (interruptions, over-voltage, sag, etc.) are detected and will initiate a switch from the A to B source. This helps protect against downtime and makes it easy to use line + UPS power sources without risking downtime.
- The unit has current level sensing and will illuminate a yellow LED when the current draw approaches 12A which is the rated amperage capacity of the unit.
- The Zonit  $\mu$ ATS™ is equipped with a Virtual Circuit Breaker. The unit will disconnect the attached load from the service input (either the A source or the B source) if the current draw exceeds 12A for a duration similar, but slightly faster than, an 12A fast blow fuse, and will sound an audible alarm. If the  $\mu$ ATS™ is drawing from the A side it will illuminate a red LED and sound the warning buzzer continuously. If on the B side, the unit will briefly illuminate the red LED, sound the buzzer, and then it will shutdown. After removing the excessive load, if the A side power is still available the  $\mu$ ATS™ can then be reset by pressing the reset button on the rear of the case. If B side power is the only power available, it will require the A power cord to be placed on B to reset, after which it can be moved back to the A side, which will cause a switch back to the B side, until the A side power is restored.

# Installation

- Unpack the  $\mu$ ATS™ shipping carton and verify the unit is intact and undamaged and is the model ordered for the desired application.
- Insert the  $\mu$ ATS™ main unit via the integral IEC320 C13 receptacle into the equipment to be powered. If the plug on the  $\mu$ ATS™ will not insert because of clearance issues, order the optional Y cord output. Do NOT yet plug in either the A or B input cords of the  $\mu$ ATS™ – that will be done at a later step.
- If it is desired or required to physically secure the  $\mu$ ATS™ to the equipment, then use the  $\mu$ ATS™ Retention Kit (Part Number  $\mu$ ATS1-RET) and follow the included instructions to physically secure the  $\mu$ ATS™ to the equipment.
- Check that the equipment is turned off if a power supply switch is on the equipment.
- Now insert the  $\mu$ ATS™ A power source cord into a suitable 120VAC receptacle that supplies the primary power source. Remember that the  $\mu$ ATS™ will always use the A power source when it is available. Then, insert the  $\mu$ ATS™ B power source cord into a suitable 120VAC receptacle that supplies the secondary B power source. The illumination of the  $\mu$ ATS™ LED indicators will show that the unit is operational. Note: If the equipment has no power switch it will turn on as soon as the A side  $\mu$ ATS™ power cord is connected.

If the equipment has a power switch, turn it on.

## Optional Accessories

The following optional accessories are available for the Zonit  $\mu$ ATS™ .

1.  $\mu$ ATS™ Retention Kit – Order Part Number  $\mu$ ATS1-RET. This kit consists of a pair of keyhole style brackets and matching zip-lock nylon ties. Use it in situations where it is desirable to physically attach the Zonit  $\mu$ ATS™ to the equipment being powered.
2. Y Cord Output with C13 receptacle on 12” output cord. It is used to connect the  $\mu$ ATS™ to the equipment being powered in situations where clearance to plug it in directly is an issue or it is desired to place the  $\mu$ ATS™ in a location where its indicators can more conveniently be viewed.

# μATS™ Operational LED Indicators

The μATS™ has five LED indicators: green, blue, orange, yellow and red. It also has an audible alarm. They are used as follows to indicate the operational state of the μATS™:

- Green LED lit: The μATS™ is operating normally and drawing power from the A power source.
- Orange LED lit: The μATS™ is detecting an over-voltage condition on the A power source and has disconnected from that source. It is drawing on the B power source (where over-voltage is not monitored). The μATS™ will continue to monitor the voltage on the A source and switch back to the A source once the over-voltage condition is corrected.
- Red LED lit: The μATS™ has had its 12A capacity limit exceeded and activated the Virtual Circuit Breaker, disconnecting from both power sources. An audible alarm will be generated. To reset the μATS™ after correcting the overload condition the reset button on the rear of the unit must be pressed or the A power source must be shut off and restored (cycled).
- Yellow LED lit: The μATS™ is operating normally, however the current draw is approaching 12A. The user should review if current draws will exceed 12A in cold start scenarios, which could trip the Virtual Circuit Breaker.
- Blue LED lit: The μATS™ is operating normally and drawing power from the B power source. The primary source is offline and not available or in an under-voltage or over-voltage condition.

No LEDs lit: The μATS™ is not receiving power from the A or B sources, has experienced an overload while on the B side with the A side unavailable, or it has blown its internal protective overload fuses. If the fuses are blown, the unit must be returned to Zonit for service. To determine if the unit has overloaded while on the B side when the A side was unavailable, plug the A side input plug into a known good power source and the unit will reset if it is working properly.

Important Note: The μATS™ continues to connect the A source to the C13 outlet, even if the internal circuit board fails, which could result in no LEDs being lit. The automatic transfer switch function will not work, but the unit will continue to pass power from the A source to the C13 outlet.

# Troubleshooting

The  $\mu$ ATS™ is designed and tested for the highest reliability possible. Factory testing is extensive, and all circuits are fully tested for load capacity, isolation, circuit breaker trip limits, etc. Problems encountered with improper voltages or inactive circuits will generally be traced to abnormal conditions of the branch circuit wiring delivering the source power to the  $\mu$ ATS™. This unit contains no serviceable parts and must be returned to the manufacturer for repair or replacement.

If any condition exists that would indicate a problem, follow this process:

1. Check A and B source panel(s) (or PDU) circuit breakers. Be sure the A and B branch circuit breakers are fully engaged. Snap them off and back on again. Check the LED indicators at the  $\mu$ ATS™.
2. Using a different  $\mu$ ATS™, if available, can be useful in determining if the circuit is at fault or if the  $\mu$ ATS™ is the source of the problem. If the same results are attained with two  $\mu$ ATS™ units, the problem is likely to be in the branch feeder circuit.
3. If a problem is indicated on only one plug-strip feeding the  $\mu$ ATS™, or at a particular receptacle on a plugstrip, move  $\mu$ ATS™ input plug(s) to receptacles on plugstrips that test OK.
4. The following tests should be done by a qualified electrician only. Using a suitable volt meter, test the 120VAC A and B source receptacles.
  - a. Verify inter-phase voltage of 208VAC.
  - b. Verify phase to neutral voltages of 120VAC.
  - c. Verify 0.0 volts from Neutral to Ground.
  - d. Verify less than 1 ohm from Neutral to Ground.
5. If any fault is located with the branch feeder circuit, have a certified electrician correct it.
6. If the branch feeder circuit checks out as acceptable and a problem persists at the  $\mu$ ATS™, return it to the factory.

# Warranty

The  $\mu$ ATS™ made by Zonit Structured Solutions, LLC in the U.S.A. is warranted to be free of defects in materials and workmanship for a period of 3 years from date of purchase. If the product becomes defective during the warranty period, we will elect to either repair or replace it free of charge. After contacting Zonit Structured Solutions, LLC for a return authorization, send the product (with the original proof of purchase and freight prepaid) to Zonit Structured Solutions, LLC, 1790 30th Street #140, Boulder, Colorado, 80301.

This warranty does not include repair or replacement of any connected equipment. This warranty excludes damage to Zonit product if a surge or spike reaches the product through an unprotected source connected to it. It does not apply to any product which has been repaired or altered in any manner by anyone other than Zonit Structured Solutions, LLC or to any product which has been installed, connected, used, or otherwise adjusted other than in accordance with written instructions furnished by Zonit Structured Solutions, LLC. Zonit Structured Solutions, LLC shall also not be obligated to repair or replace the product which is found to be in need of repair because of damage resulting from accident or misuse. Zonit Structured Solutions, LLC makes no other express warranty for the product. No agent, representative, dealer, or employee of Zonit Structured Solutions, LLC has the authority to increase or alter the obligations or limitations of this warranty.

THIS WARRANTY IS IN LIEU OF ALL OTHER EXPRESS OR IMPLIED WARRANTIES INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WHETHER ARISING BY LAW, CUSTOM, OR CONDUCT, AND THE RIGHTS AND REMEDIES PROVIDED UNDER THIS WARRANTY ARE EXCLUSIVE AND IN LIEU OF ANY OTHER RIGHTS OR REMEDIES. IN NO EVENT SHALL ZONIT STRUCTURED SOLUTIONS, LLC BE LIABLE, WHETHER IN CONTRACT. UNDER ANY WARRANTY, IN TORT (INCLUDING NEGLIGENCE), IN STRICT LIABILITY OR OTHER-WISE, FOR SPECIAL, INCIDENTAL, CONSEQUENTIAL, INDIRECT OR OTHER SIMILAR DAMAGES, INCLUDING, BUT NOT LIMITED TO, PERSONAL INJURY, PROPERTY DAMAGE, DAMAGE TO OR LOSS OF EQUIPMENT. LOST PROFITS OR REVENUE, COSTS OF RENTING REPLACEMENTS AND OTHER ADDITIONAL EXPENSES. ZONIT STRUCTURED SOLUTIONS, LLC'S LIABILITY SHALL NOT IN ANY EVENT EXCEED THE AMOUNT OF THE PURCHASE PRICE OF THE PRODUCT. Some states do not allow limitations on how long an implied warranty lasts, and some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation and exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.



# Specifications

Zonit  $\mu$ ATS1-LV

ELECTRICAL	
Nominal Input Voltage Range	120V
Nominal Input Frequency	50/60 Hz
Input Connectors	NEMA 5-15 plugs on 2 foot attached cords. 6 foot cords available.
Output Connectors	One IEC C13 receptacle. Y cord and hydra outputs available.
Maximum total current draw	12A
PHYSICAL	
Size (H x W x D)	0.75 x 1.60 x 4.25 in (1.9 x 4.06 x 10.8 cm)
Weight	0.91b (3.9kg)
Shipping weight	Qty.1: 1.1 lb (0.5 kg), Qty. 25: 24.5 lb (11.1 kg)
ENVIRONMENTAL	
Elevation: Operating (above MSL)	0 to 10,000 ft (0 to 3000m)
Elevation: Storage (above MSL)	0 to 50,000 ft (0 to 15 000m)
Temperature: Operating	23 to 140 F (-5 to 60 C)
Temperature: Storage	-13 to 149 F (-25 to 65 C)
Operating Humidity	0 to 95%, non-condensing
APPROVALS	
Safety Verification	US & Canada: UL/cUL - Europe: CE

# Appendix A

Product ID: Zonit® Micro Automatic Transfer Switch (“μATS™”)

Model: All

Option μATS™ Retention Kit — Part Number μATS1-RET

Description: This kit consists of a pair of keyhole style brackets and matching zip-lock nylon ties. Use the kit in situations where it is desirable to physically attach the Zonit μATS™ to the equipment being powered or secure it to the rack where the equipment is mounted.

## Installation

- Take the μATS™ Retention Kit out of its shipping materials (it may be bundled with a μATS™ unit or shipped separately, depending on how it was ordered) and verify that there are two keyhole style brackets and two matching zip-lock nylon ties, intact and undamaged.

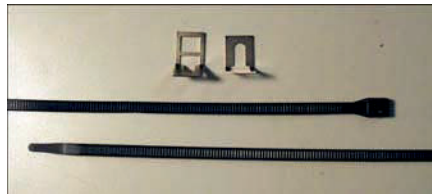


Figure 1 – μATS™ Retention Kit Materials

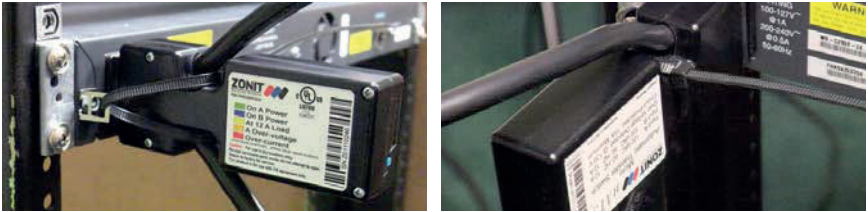
- Make sure that the equipment the μATS™ Retention Kit will be installed onto is powered down. If the equipment is already powered up, be sure to follow the manufacturers recommended shutdown procedure before powering it down.

- Locate a screw on the rear panel of the powered-down equipment that you are installing the μATS™ Retention Kit onto. Choose a screw that is close to the power inlet. Orient the zip-lock tie wrap retainer so that it will be pulled as close to the center axis of the power inlet as is practical. Loosen the screw slightly - only enough to slide the supplied tie wrap retainer underneath it. It is recommended that you do not remove the screw. Once the tie wrap retainer is slid underneath the screw, tighten it securely. See Figure 2 for an example installation.



Figure 2 – Installation of Tie Wrap Retainer

- Insert the  $\mu$ ATS™ unit into the equipment to be powered.
- Take one or both of the zip-lock tie wraps supplied with the  $\mu$ ATS™ Retention Kit and thread them through the retention eyelets in the case of the  $\mu$ ATS™. If only one tie wrap will be used, it can be advantageous to thread it through both of the  $\mu$ ATS™ retention eyelets as shown in Figure 3a and 3b. Note that the square end of the zip tie is positioned so that it is aligned parallel to the top edge of the  $\mu$ ATS™ case. This makes threading and tightening the zip tie much easier.



Figures 3a & 3b –  $\mu$ ATS™ Retention Kit Installed

- If desired, clip off the excess length of the zip-lock tie with a suitable tool.
- Now connect the  $\mu$ ATS™ to power following the instructions in the  $\mu$ ATS™ User Guide.
- Turn on the equipment following the manufacturers recommended startup procedure.

