

USER MANUAL

AC TO DC POWER CONVERTER



WELCOME TO THE FAMILY!



Thanks for purchasing the LATCH.IT RV Power Converter!
We are a family owned American business that
cares about your RV needs!



Please review, read and understand ALL instructions to ensure proper
functionality.

If you have any questions or concerns, don't hesitate to reach out to us,
we are always available at info@latchit.org

SEE FULL VIDEO INSTRUCTIONS AT
www.latchit.org



WARNINGS AND CAUTIONS

This Converter/Charger is engineered to convert 120 VAC into 12 VDC. It also supplies low voltage power for recharging 12 VDC batteries on board. The device operates on a "switch mode" principle and is designed to be maintenance-free with no components that require user servicing while limiting current.

To ensure your well-being and that of others, it's essential to thoroughly review all installation and operation guidelines before utilizing this product.

- **ENSURE VENTILATION OPENINGS REMAIN UNOBSTRUCTED AND CLEAR.**
- **AVOID MOUNTING IN NON-VENTILATED, ZERO CLEARANCE SPACES.**
- **DO NOT PLACE IN PROXIMITY TO FLAMMABLE SUBSTANCES OR LIQUIDS.**
- **AVOID INSTALLATION NEAR BATTERIES DUE TO POTENTIAL SPARKING RISK.**
- **ALL TERMINALS SHOULD BE CONNECTED IN ACCORDANCE WITH APPLICABLE ELECTRICAL STANDARDS.**
- **REFRAIN FROM TOUCHING OR ADJUSTING TERMINALS DURING OPERATION.**
- **DISASSEMBLY OF THE UNIT MAY LEAD TO ELECTRIC SHOCK; AVOID TO ENSURE SAFETY.**
- **ONLY TRAINED PROFESSIONALS SHOULD PERFORM MAINTENANCE OR SERVICE ON THIS UNIT.**
- **AVOID EXPOSURE TO RAIN AND OTHER LIQUID SUBSTANCES.**

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01

TECHNICAL SPECIFICATIONS

55A (800W)

Maximum Continuous DC Output Current 55AMPS

Maximum Continuous Input Power 800WATTS

Charge Mode 3 Stage

DC Output Voltage (Normal) 13.6 VDC \pm 1%

DC Output Voltage (Boost) 14.6 VDC \pm 1%

DC Output Voltage (Storage) 13.2 VDC \pm 1%

Input Voltage 105-130VAC

Input Voltage Frequency 50-60HZ

Efficiency (Typical) >85%

Max AC Current 10Amps

Over Current Protection Point 58-60Amps

Reverse Battery Protection YES

Electronic Current Limiting (Short Circuit Protection) YES

Over Voltage Protection YES

Over Temperature Protection YES

Back UP Thermal Protection YES

Electronic Fan Control (Start@50°C,Stop@38°C) ON/OFF

Line Regulation <1.0%

Load Regulation <1.0%

Operating Temperature Range 0---50°C

Storage Temperature -20---+80°C

100A (1460W)

Maximum Continuous DC Output Current 100AMPS

Maximum Continuous Input Power 1460WATTS

Charge Mode 3 Stage

DC Output Voltage (Normal) 13.6 VDC \pm 1%

DC Output Voltage (Boost) 14.6 VDC \pm 1%

DC Output Voltage (Storage) 13.2 VDC \pm 1%

Input Voltage 105-130VAC

Input Voltage Frequency 50-60HZ

Efficiency (Typical) >85%

Max AC Current 20 Amps

Over Current Protection Point 103-105Amps

Reverse Battery Protection YES

Electronic Current Limiting (Short Circuit Protection) YES

Over Voltage Protection YES

Over Temperature Protection YES

Back UP Thermal Protection YES

Electronic Fan Control (Start@50°C,Stop@38°C) ON/OFF

Line Regulation <1.0%

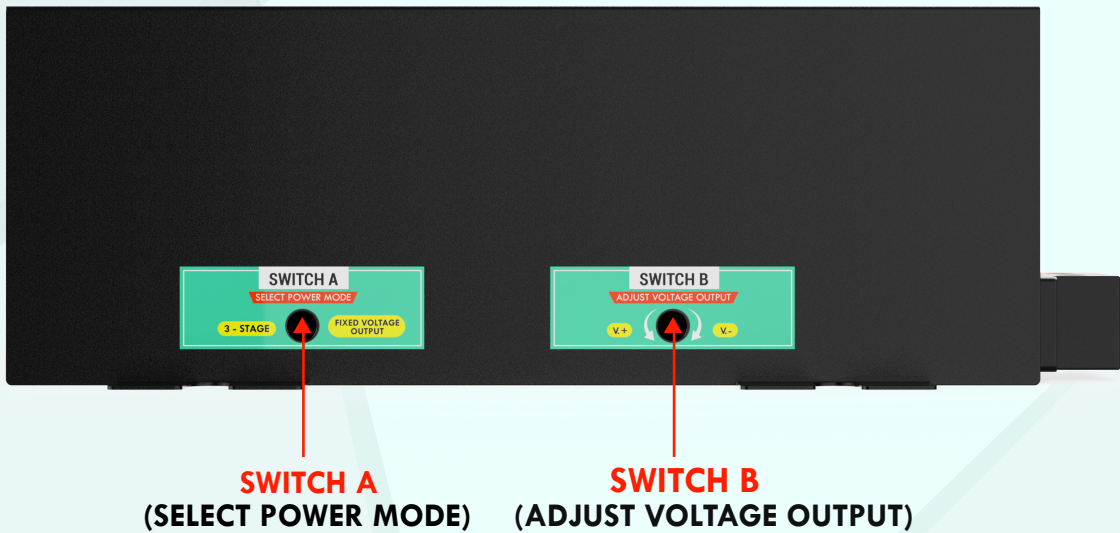
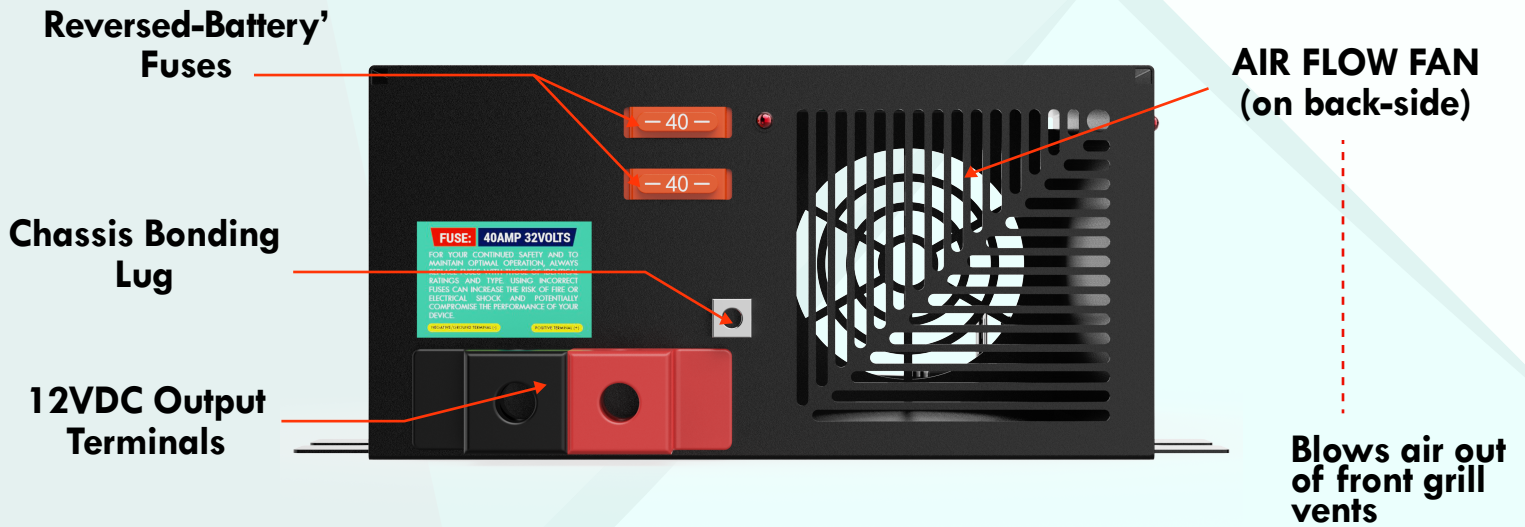
Load Regulation <1.0%

Operating Temperature Range 0---50°C

Storage Temperature -20---+80°C

02

TECHNICAL DRAWINGS



TESTED TO COMPLY WITH THESE STANDARDS:



03

INSTALLATION & USE INSTRUCTIONS

1. DC Power Disconnection: Prior to starting the installation process, it's crucial to disconnect all sources of DC power. This is a safety measure to prevent any accidental electrical discharge or short-circuiting during the setup.

2. Selecting the Ideal Location:

- Opt for an indoor location that's protected from exposure to weather conditions. It's crucial that this spot is easily reachable even post-installation.
- If you're considering a cabinet for installation, make sure it's roomy enough to facilitate the release of heat generated by the unit.
- It's important to leave a minimum of one inch of open space on both ends of the unit to ensure effective cooling through air circulation.
- Keep the unit away from areas prone to contamination from dirt, metallic particles, or moisture.
- As a safety measure, avoid installing the unit in areas where flammable liquids are stored or in compartments designed for battery storage.

3. Mounting the Unit: Utilize the provided flanges and standard fasteners to securely mount the unit on a solid surface that can support its weight.

4. Electrical Requirements:

- A 120 VAC receptacle should be situated within 36 inches of the Converter/Charger to provide power.
- Consideration should also be given to mounting near the locations of the batteries and the 12-volt DC distribution panel. This will facilitate easier and more efficient connections.
- Ensure that the power source is reliable and capable of handling the power requirements of the Converter/Charger.

5. Power Source: Ensure a 120 VAC receptacle is within a 3-foot radius of the Converter/Charger to supply power.

6. Electrical Connections: Ensure all connections are tightened securely. Loose connections can lead to overheating of terminals and wires. Refer to the unit labels for recommended terminal torque values.

7. Fan Operation: The fan will not run continuously. It operates based on temperature control and will run as needed. Do not leave the power converter unattended when plugged in.

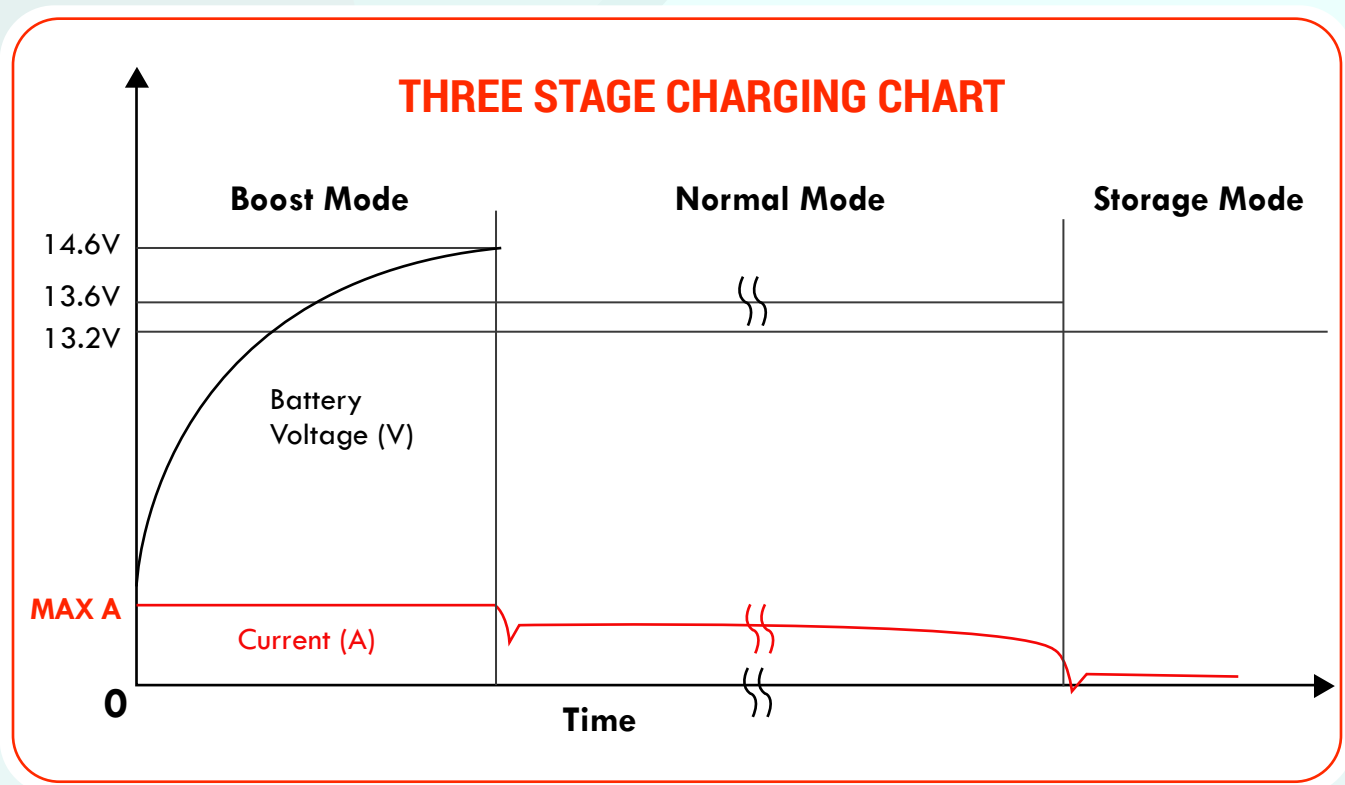
8. Professional Installation: This product must be installed by a certified electrician.

- **120 VAC Connection:** Before connecting the 120 VAC, ensure the AC circuit breakers are off. Do not turn them on until the installation is complete.
- **Grounding:** Use a minimum of 8 AWG copper wire to connect from the vehicle/device chassis to the Converter/Charger Bonding Lug.
- **Power Cord Connection:** Firmly connect the attached power cord on the Converter/Charger to the 120 VAC receptacle.
- **12 VDC Wiring:** It's crucial to use the correct wire gauge. Use a minimum of 8 AWG size copper wire.
 - *Positive Connection:* The terminal marked + or **POS** is for the RV 12 VDC positive connection.
 - *Negative Connection:* The terminal marked - or **NEG** is for the RV 12 VDC negative connection.
 - *Over-current Protection:* The 12 VDC output wiring does not require over-cur-

9. 3-Stage Charging Mode: This is the default setting with the Smart Charging mode 'ON' and the Output Voltages preset to 14.6V, 13.6V and 13.2V. This mode offers an automatic charging process in three steps:

- **Boost:** A fast charge to quickly bring a good, drained battery back up to full voltage.

- **Normal:** A standard charge to fully charge the battery at a safe rate, which prolongs the battery life and provides power to run 12V lighting and appliances in the vehicle/device.
- **Storage:** A trickle charge to keep the battery fresh during periods of load inactivity. The charger automatically switches modes to accommodate changes in conditions. Please note that the voltages provided are for reference only and may vary.



DISCLAIMER

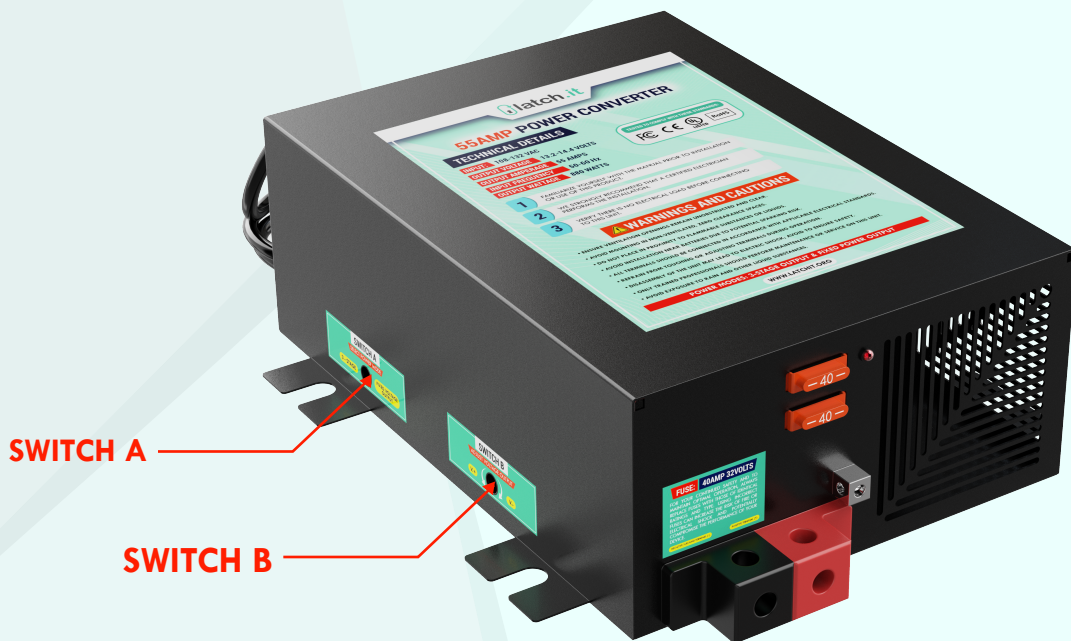
THIS CHART DOES NOT PROVIDE EXACT VALUES AND VOLTAGE BEHAVIOR MAY CHANGE BASED ON EXTERNAL PARAMETERS.

10. Fixed Voltage Mode: This mode is useful for powering 12 Volt equipment directly or maintaining the battery at a specific voltage.

- **Setting:** To set the fixed mode, first, ensure the unit is off. Then, move switch A to the right to "Fixed Voltage" and plug the unit into 110V power.

Use switch B to adjust the voltage between 13~16.5V until you reach your desired output. Note: The output voltage you set will remain constant every time the unit is powered ON.

- **Returning to Factory Settings:** To revert to the factory settings, power down the unit and move switch A to the left to "3 - Stage". Power up the unit and with a voltage meter attached to the output terminals, use switch B to gently adjust the voltage up or down until you reach 14.6V. The unit will now return to the standard "3 Stage Charging" factory setting.



11. Testing Procedure:

- **Preparation:** First, ensure all loads and the battery are disconnected from the Converter/Charger by removing all 12 VDC connections from the + or POS terminal.
- **Measurement:** Connect a multimeter between the positive and negative terminals of the Converter/Charger. Energize the 120 VAC converter circuit and use the multimeter to measure the output power. The voltage measured at the output terminals should read 14.6 +/- 0.2 VDC. Voltage measured may vary if it has been adjusted.

- **Load Testing:** Connect a 12 VDC load to about two thirds of the rated capacity of the converter. The voltage should remain approximately the same as at no load. Note: If the charger's output voltage is set below the battery voltage, the charger will not charge, and the LED will not turn on

12. Battery Setup and Care:

- **Setup:** Ensure the 120 VAC is disconnected before reconnecting the positive terminal (+ or POS) to a reliable battery. After energizing the converter 120 VAC, take voltage readings at both the converter and the battery. The voltage should be nearly identical in both places.
- **Care:** Regular inspection of the battery fluid level is essential. Prolonged connection to any charging source can cause batteries to lose fluid. Be aware that maintaining a constant connection to a charging source may result in fluid depletion in batteries.

13. Hi-Pot Testing:

Hi-Pot testing should only be performed at manufacturing facilities.

- **Context:** Hi-Pot testing is a non-destructive test method applied to electrical devices to evaluate the adequacy of electrical insulation. It involves applying a significantly higher voltage than normal operating voltage to the device under test. This test helps to find any current leakage, insulation resistance issues, or dielectric breakdown problems.
- **Warning:** Hi-Pot testing should only be performed in manufacturing facilities. It is crucial not to conduct Hi-Pot testing on DC wiring with the Converter/Charger connected to the vehicle/device wiring. This precaution is necessary to prevent serious injury and/or damage.

If you encounter issues with your Converter/Charger, follow these steps before attempting to remove or replace the unit:

1. Cut off the AC power supply to your device.
2. Detach the Battery and the wiring from the Positive (+) output terminal of the Converter.
3. Re-establish the AC power connection to activate the Converter.
4. Use a voltmeter to check the voltage at the - and + Output terminals of the Converter. If the reading is between 13 VDC and 14 VDC, the Converter is operating as expected.

If the problem persists, consult the following list of potential causes and solutions:

- **No 12 VDC output:** This could be due to a lack of 120 VAC connection to the device, the device's AC circuit breaker being switched off, blown fuses due to reversed battery wiring connections, a significant overload or short circuit, or an internal malfunction in the Converter/Charger.
- **Converter cycles On & Off:** This could be due to insufficient or obstructed fan airflow (a minimum of 1" free air space at each end is necessary) or an internal malfunction in the Converter/Charger.
- **Reversed Battery fuses blown:** This could be due to incorrect battery wiring connections or a faulty battery with potential bad cells.
- **12 VDC output is too low:** This could be due to an attached load that exceeds the Converter/Charger's capacity, a faulty battery with potential bad cells, or an internal malfunction in the Converter/Charger.

When charging a battery, it's best to start with the unit's factory setting of 14.6V, unless the Battery Manufacturer suggests otherwise. It could also be due to an internal malfunction in the charger.

- **Battery not charging:** This could be due to a faulty or old battery that can no longer hold a charge. In this case, the battery may need to be replaced. Alternatively, the issue could be with the charging cables - ensure they are properly connected and not damaged.
- **Overheating:** If the Converter/Charger is overheating, it could be due to being placed in an area with poor ventilation or near a heat source. Ensure the Converter/Charger is in a well-ventilated area and away from heat sources. Ensure vents are free of dust build-up.
- **Unusual noise:** If the Converter/Charger is making an unusual noise, it could be due to a malfunctioning fan or internal component. In this case, it's best to consult with a professional or the manufacturer.
- **Fluctuating output:** If the output is fluctuating, it could be due to a problem with the power source or an internal issue with the Converter/Charger. Check the power source for any issues and consider consulting with a professional if the problem persists.

REMEMBER 

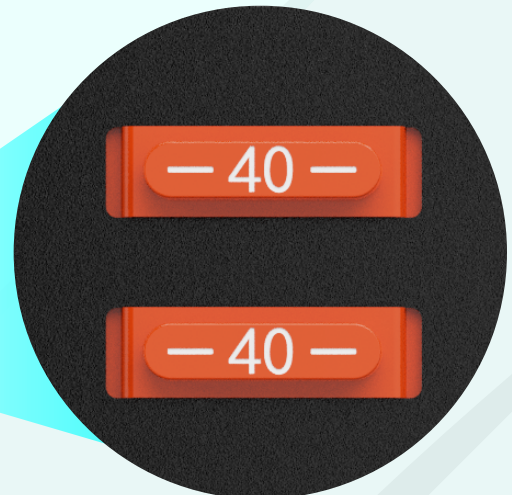
THIS PRODUCT SHOULD BE INSTALLED AND MAINTAINED BY A CERTIFIED ELECTRICIAN.

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FUSE REPLACEMENT

FUSE REPLACEMENT

1. If the fuse blows, it's crucial to replace it with a new one to ensure the proper functioning of the device. The replacement fuse should be a 40amp 32v fuse.
2. Before replacing the fuse, disconnect all power sources to prevent any accidental electrical discharge.
3. Do any protective electrical equipment to protect yourself from harm.
4. Locate the fuse holder and carefully remove the blown fuse. Insert the new 40amp 32v fuse into the holder.
5. After replacing the fuse, reconnect the power sources. Always ensure the 120 VAC power source is connected last.
6. Regularly inspect the fuse to ensure it remains in good condition. If the fuse continues to blow, consult a professional as this may indicate a more serious issue with the device.



LIFETIME LIMITED WARRANTY:

This product comes with a Lifetime Limited Warranty. This warranty covers any defects in workmanship or materials and ensures that the product will conform to the published specifications, drawings, and descriptions.

This Lifetime Limited Warranty is the sole warranty provided and replaces all other warranties, either expressed or implied. It can only be amended by a written document signed by an authorized representative.

Under this warranty, our obligation is limited to replacing, repairing, or at our discretion, issuing credit for any products returned by the customer during the lifetime of the product. This is subject to the following conditions:

1. We must be promptly notified in writing upon discovery of any defect, with a detailed explanation of the alleged deficiencies.
2. The defective product must be returned to us, with transportation charges prepaid by the customer.
3. Our examination of the product must confirm that the defect was not caused by misuse, neglect, improper installation, repair, alteration, or accident.

In no event shall we be liable for loss of profits, loss of use, or damages of any kind based on a claim for breach of warranty. All products must be installed by a certified electrician.

Please note that this warranty does not cover any changes or improvements made to the products and specifications at any time without prior notice.

DISCLAIMER:

We're committed to constant product enhancement, so specifications, designs, and prices may change without prior notice. While we strive for accuracy in our technical literature, we can't guarantee it's free from errors or subsequent changes. We're not responsible for how this information is used, and any use is entirely at the user's risk. We don't grant any third-party rights or licenses to our products' intellectual property.

USAGE LIMITATIONS

Our products aren't intended for use in life-support systems, nuclear facilities, aircraft control systems, or any other scenarios where failure could result in harm to life, property, or the environment.

Scan with your smart phone camera to contact
LATCH.IT Support via the Official Website

www.latchit.org



Email us at info@latchit.org with any questions
or concerns, our support team is always available!

