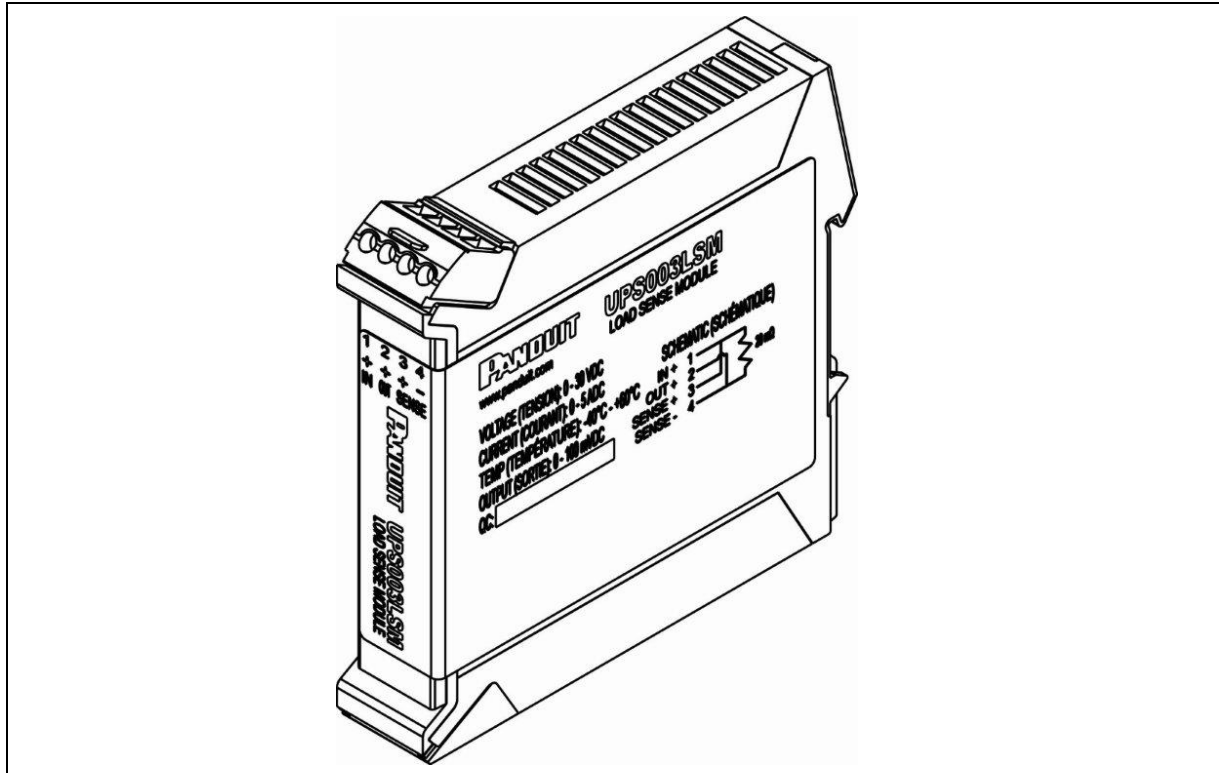


UNINTERRUPTIBLE POWER SUPPLY LOAD SENSE MODULE OPERATION MANUAL

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Original Instructions



**TO REDUCE THE RISK OF INJURY, USER
MUST READ INSTRUCTION MANUAL**

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NOTE: Throughout this document the UPS003LSM (Uninterruptible Power Supply Load Sense Module) may also be referred to as “UPS LSM”.

UPS LSM GENERAL SPECIFICATIONS

Model Number

UPS003LSM

Input Power

Voltage: 30.0 VDC MAX

Current: 5 A MAX

Output Power

Voltage: 30.0 VDC MAX

Sense: 100 mV MAX

Current: 5 A MAX

Environmental

Operating Temperature: -40 to +60°C.

Storage (non-operational) Temperature: -40 to +70°C.

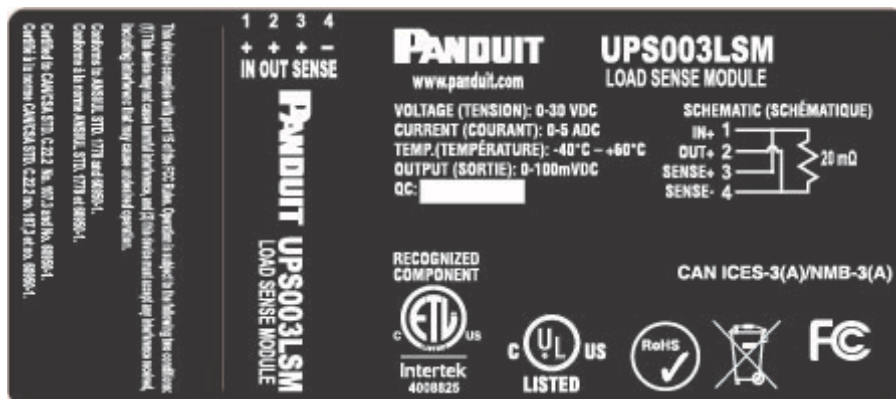
Humidity: 0 to 95% RH, noncondensing

Operational Vibration: 2G at 10 to 500 Hz

Operational Shock: 20G (11ms 3 bumps / direction, 18 bumps in total)

Compliance

- o UL 1778 and CSA C22.2 No. 107.3-05 "Uninterruptible Power Supply Equipment"
- o UL 508 and CSA-C22.2 No. 14 "Industrial Control Equipment"
- o UL 60950-1, 2nd ed, 2011-12-19, CSA C22.2 No. 60950-1-07, 2nd ed, 2011-12 "Information Technology Equipment - Safety - Part 1: General Requirements"
- o (Low-Voltage Directive*) IEC 60950-1:2005+AM 2009, EN 60950-1:2006+A1:2010+A11:2009+A12:2011 "Information Technology Equipment - Safety - Part 1: General Requirements"
- o ISA 12.12.01:2013, CSA C22.2 No. 213-1987M (R2013) "Standard For Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations"
- o FCC Title 47 CFR 15 Subpart B Emissions Class A
- o RoHS All materials and components used must meet the material restrictions of European Directive 2002/95/EC on the Restriction of Hazardous Substances
- o CAN ICES-3(A)/NMB-3(A), ICES-003 Issue 5
- o IP20 per IEC 60529
- o IEC Ex (*pending*)



Model No. / QC #

Voltage / Current / Temp / Output

Conformances

Approvals

Installation

Top hat (DIN) rail EN 50022

Width: 22.6mm (0.89 in)

Depth: 113.3mm (4.46 in)

Height: 111.5mm (4.39 in)
 Weight: 105.7g max (0.233 lbs, max.)
 Terminals: screw type, accepts #12 to #18 AWG, stranded/solid/terminated
 The device shall have control wiring along the top edge.

Performance

Voltage Drop: 100 mV maximum at 5 A

PRECAUTIONS AND GENERAL GUIDELINES

The basic condition for safe use and proper operation of the UPS LSM is the knowledge and attention to the safety information provided in this manual.

The following safety information must be observed by all persons who will work with the UPS LSM.


All rules and instructions for the work place must be observed, especially those for prevention of accidents.


	This symbol is used to call your attention to hazards or unsafe practices which could result in an injury or property damage. The signal word, defined below, indicates the severity of the hazard. The message after the signal word provides information for preventing or avoiding the hazard.	
	WARNING	Hazards which, if not avoided, COULD result in severe injury or death.
	CAUTION	Hazards or unsafe practices which, if not avoided, MAY result in injury or property damage.



Safety Warnings




	WARNING
<ul style="list-style-type: none"> • Read all safety warning and all instructions. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury. • Save all warnings and instructions for future reference. 	

	<p>Panduit Corp. recommends the UPS LSM be used with all installed safety features. Customer assumes all liability for injury that could result from improper use of this UPS LSM and responsibility for all necessary training to ensure safe operation of this UPS LSM.</p>
<ul style="list-style-type: none"> • FOR INSTALLATION AND USE BY TRAINED PERSONNEL ONLY. 	
<ul style="list-style-type: none"> • IF ANY DAMAGE TO THE PRODUCT IS APPARENT OR SUSPECTED, DO NOT USE THE PRODUCT. REFER PRODUCT TO QUALIFIED SERVICE PERSONNEL. 	
<ul style="list-style-type: none"> • FCC WARNING: CHANGES OR MODIFICATIONS TO THE PRODUCT COULD VOID THE USER'S AUTHORITY TO OPERATE THE PRODUCT. 	
<ul style="list-style-type: none"> • USE RECOMMENDED ACCESSORIES. CONSULT THE OWNER'S MANUAL FOR RECOMMENDED ACCESSORIES. THE USE OF IMPROPER ACCESSORIES MAY CAUSE RISK OF INJURY TO PERSONS. 	



 **Electrical Safety Practices**

	<p>GROUNDING: In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current which reduces the risk of electrical shock.</p> <p>Improper connection of the equipment grounding conductor can result in a risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor.</p> <p>Check with a qualified electrician, or service personnel if the grounding instructions are not completely understood; or if in doubt as to whether the UPS LSM is properly grounded.</p> <p>Avoid body contact with earthed or grounded surfaces, such as pipes, radiators, ranges and refrigerators. <i>There is an increased risk of electric shock if your body is earthed or grounded.</i></p>
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	<p> WARNING</p> <p>ONLY OPERATE THE UPS LSM IN A CLEAN, DRY, INDOOR ENVIRONMENT.</p> <p>DO NOT EXPOSE THE UPS LSM TO RAIN OR WET CONDITIONS. <i>Water entering a UPS LSM will increase the risk of electric shock.</i></p>
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	<p> KEEP AWAY FROM LIVE CIRCUITS:</p> <ul style="list-style-type: none"> • Operating personnel must not remove covers. • Replacement of components and internal adjustments must be made by qualified maintenance personnel. • Disconnect power when replacing components. • Dangerous voltages may exist even with the power removed. • To avoid injuries, always disconnect power and turn power switch to OFF. • Input connection to the product must remain accessible as a disconnect device. • DO NOT work on the product; connect or disconnect cables during periods of lightning. • Provide wiring per national and local electrical codes. <p> Warning: A disconnect switch shall be provided by others for DC input circuit and shall be in accordance with the National Electric Code, ANSI/NFPA 70.</p>
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 **Personal Safety**

	<p> WARNING</p> <p>Use personal protective equipment. Safety glasses must be worn at all times by all persons installing the UPS LSM.</p>
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Service

- **Have your UPS LSM serviced by a qualified repair person using only identical replacement parts.**

Contact Panduit Tool Service at the following locations:

<p>Panduit Tool Solutions Division (USA) 16530 W. 163rd Street Lockport, IL 60441</p> <p>Tel.: 1-888-506-5400, ext. 83255</p>	<p>Panduit EMEA Service Center (EUR) EMEA Tool Service Center Bedrijvenpark Twente 360 7602 KL Almelo</p> <p>tel + 31 546 580 451</p>
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The information contained in this manual is based on our experience to date and is believed to be reliable. It is intended as a Web Interface for use by persons having technical skill at their own discretion and risk. We do not guarantee favorable results or assume any liability in connection with its use. Dimensions contained herein are for reference purposes only. For specific dimensional requirements consult the factory. This publication is not to be taken as a license to operate under, or a recommendation to infringe any existing patents.

1. INTRODUCTION

1.1. BACKGROUND

The UPS003LSM is designed for redundant power back-up systems. The UPS003LSM is intended to function only with the Panduit UPS003024024015 (UPS) unit. The UPS is rated for a 24 VDC maximum output rating. The UPS LSM is connected to the main power supply line of 24 VDC. The UPS is connected along the secondary power supply line and is connected to the UPS LSM, which allows the UPS to measure the current power consumption of the system. This increases the accuracy of the estimated UPS potential hold time in the event the UPS is required to supply power.

1.2. PURPOSE

The purpose of this document is to provide the user with the information necessary to connect the UPS LSM.

1.3. TERMS AND ABBREVIATIONS

- A..... Ampere
- DC Direct Current
- PCB Printed Circuit Board
- UPS Uninterruptible Power Supply
- UPS LSM..... UPS Load Sense Module
- V Volts
- W Watts

1.4. INSTALLATION

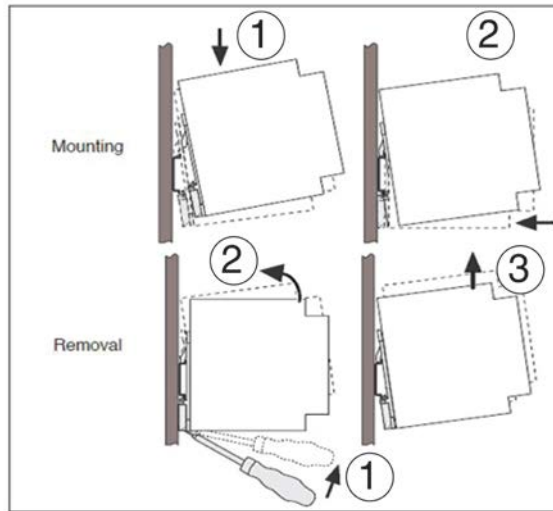


Figure 1: DIN Rail Installation

No minimum spacing to other modules is required for proper operation of the device.

To install the UPS LSM, place the module with the DIN rail guideway on the top edge of the DIN rail and then snap it downwards and shown in Figure 1.

To remove, release the snap-on catch using a screwdriver and then detach the module from the bottom edge of the DIN rail as shown in Figure 1.

NOTE: A 5A external overcurrent protection device is required to protect the UPS LSM.

Wiring Diagram

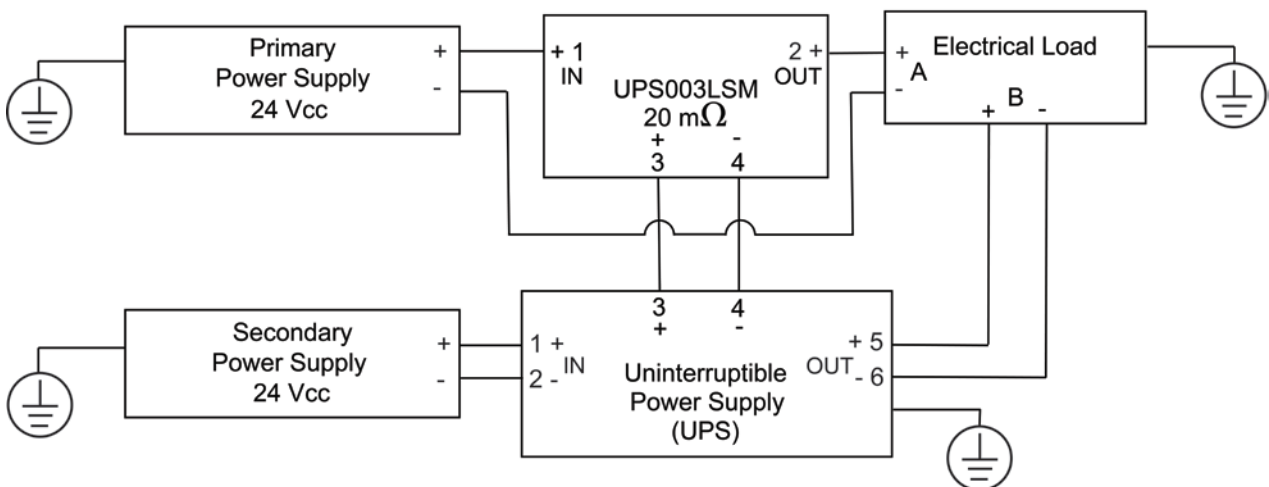


Figure 2: System Block Diagram

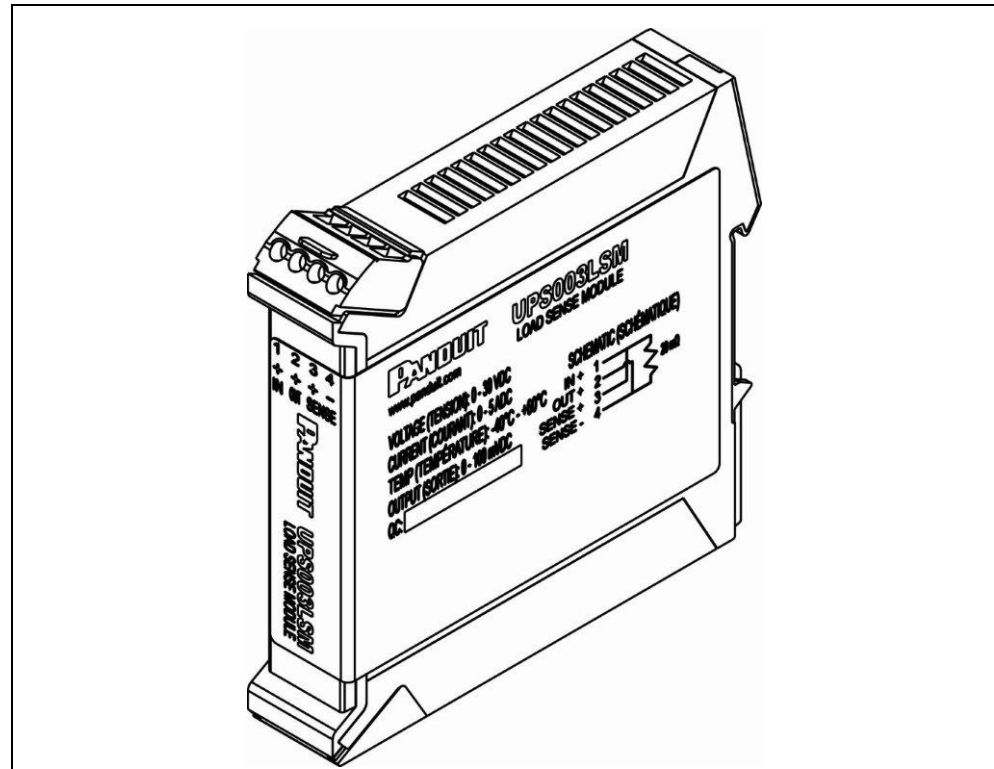


Figure 3: Load Sense Module

Pins 3 and 4 of the load sense module are connected to the sense input terminals of the UPS. Note that pin 3 of the current sense resistor must be connected to the “+” sense terminal and pin 4 of the current sense resistor must be connected to the “-” sense terminal. Note that these connections may not be reversed. These connections allow the UPS to measure the current flow to the load under normal operation so that it can predict the run time when backup power is being provided by the UPS.