



A **VANTAGE** Company

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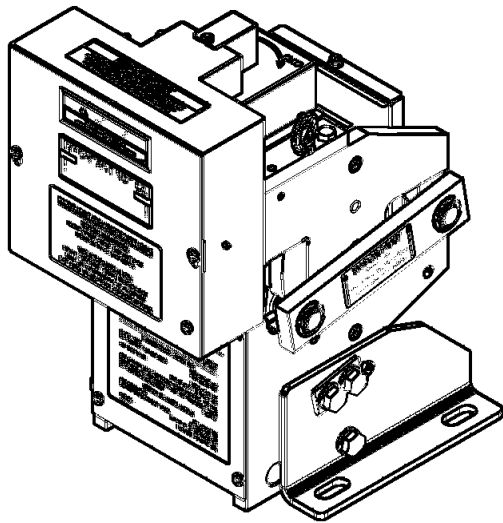
# Bulletin #1182S Linear Rope Gripper® Installation & User Guide Supplement

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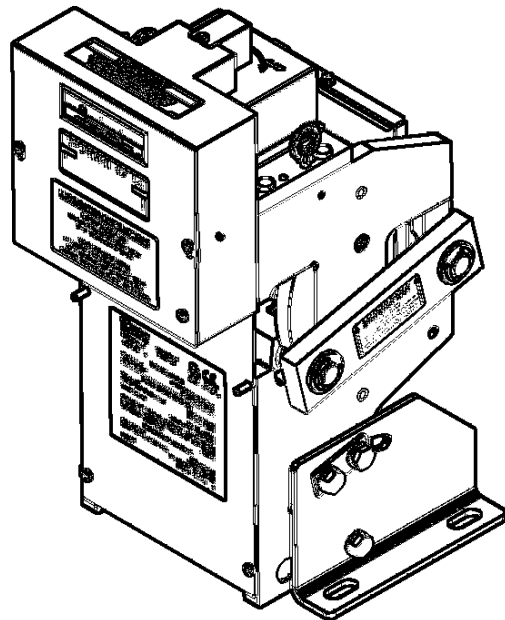
# Bulletin #1182S

## Linear Rope Gripper Installation & User Guide Supplement

**MODEL  
620L/620L-EPU  
LINEAR ROPE  
GRIPPER®**



**MODEL  
622L/622L-EPU  
LINEAR ROPE  
GRIPPER®**



© Hollister-Whitney Elevator Co. LLC  
#1 Hollister-Whitney Parkway  
Quincy, IL 62305  
Phone 217.222.0466 • Fax 217.222.0493  
8/12/2025

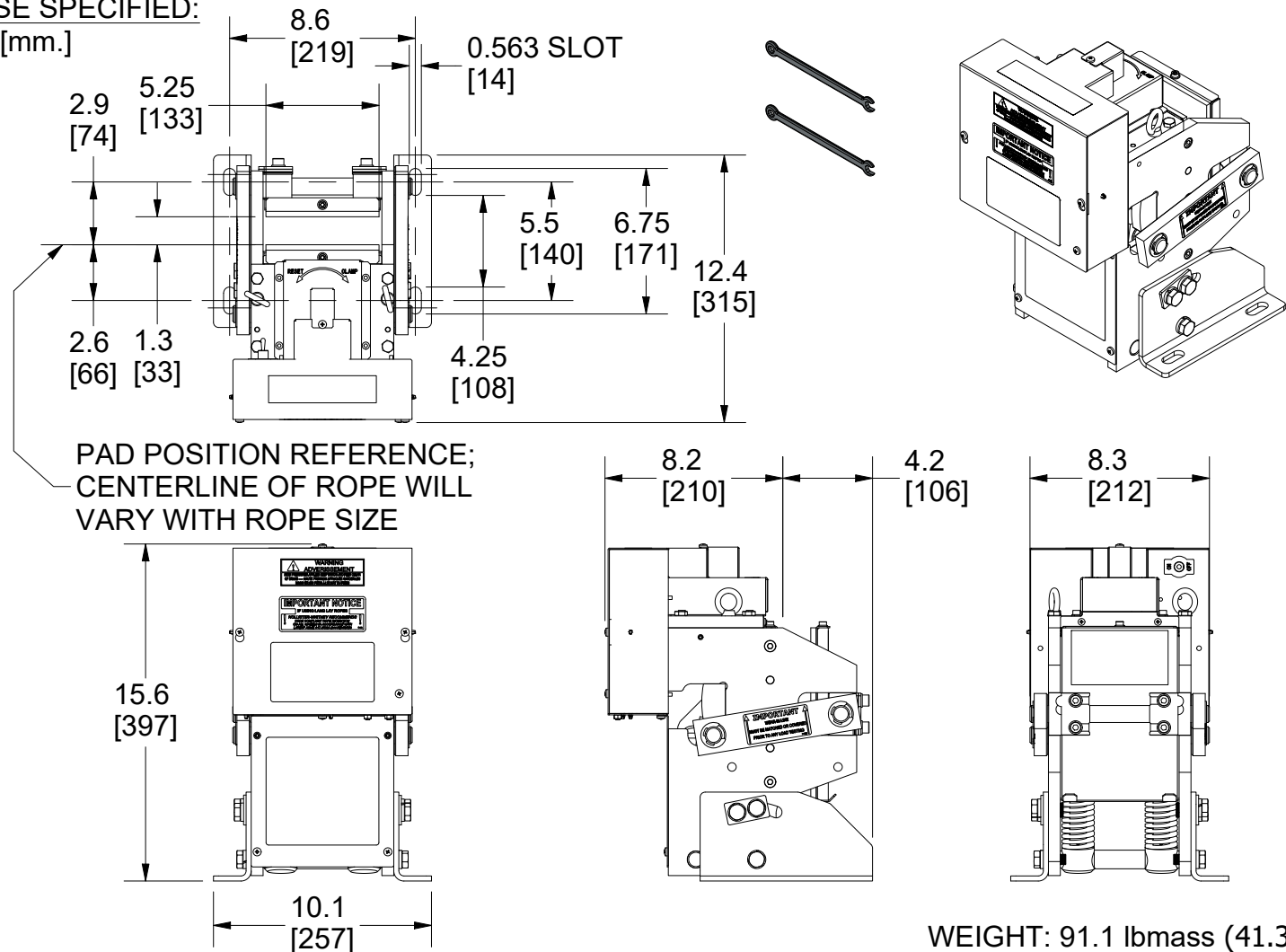
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NOTES UNLESS OTHERWISE SPECIFIED:

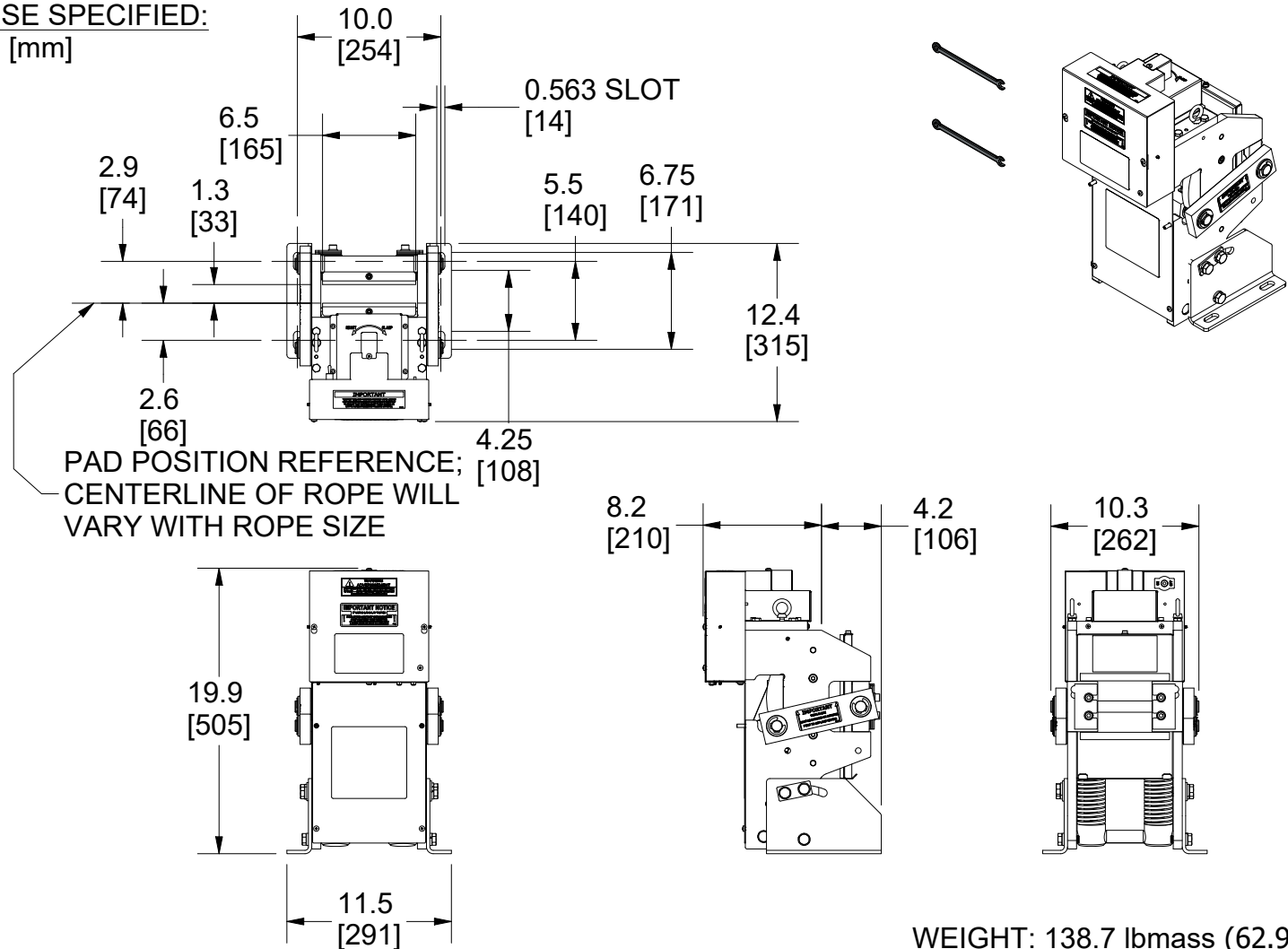
1. DIMENSION UNITS: in. [mm.]

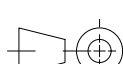


G	ADDED DUAL DIMENSIONS, PUR#2015	TRM 06/27/25	D	REMOVED MD1 / MD2 / P-237 & UPDATED SOFTWARE / LABELING FOR 4 WIRE SYSTEM, UPDATED NAMEPLATE, PUR #1773	DRO 05/23/23	HOLLISTER-WHITNEY ELEVATOR CO. LLC				
F	PCBA UPDATE, PUR #1991	DRO 04/30/25				TITLE				
E	REVISED CONDUIT KNOCKOUT, PUR #1939	DRO 04/14/25				620L - LINEAR ROPE GRIPPER ASSEMBLY				
<p>THIS DRAWING IS SUPPLIED AS A REPRESENTATION OF THE EQUIPMENT HOLLISTER-WHITNEY ELEVATOR CO. LLC ("MANUFACTURER") HAS AGREED TO SUPPLY. SLIGHT ADJUSTMENTS MAY OCCUR DURING MANUFACTURING AND INSTALLATION. ANY MODIFICATIONS NOT APPROVED IN WRITING BY MANUFACTURER MAY AFFECT OPERATION, VOIDS ANY WARRANTY AND RELEASES MANUFACTURER OF ALL LIABILITY.</p> <p>THIS DOCUMENT CONTAINS CONFIDENTIAL AND PROPRIETARY INFORMATION THAT CANNOT BE REPRODUCED OR DIVULGED, IN WHOLE OR IN PART, WITHOUT WRITTEN AUTHORIZATION FROM THE MANUFACTURER.</p>				THIRD ANGLE PROJECTION		DRAWN BY	SCALE	MATERIAL	REFERENCE TOL.	
						DRO	1:8	N/A	ALL DIMENSIONS REFERENCE UNLESS OTHERWISE SPECIFIED	
						SHEET SIZE		DATE		620L
						A		6/14/2019		SHEET 1 OF 1

**NOTES UNLESS OTHERWISE SPECIFIED:**

1. DIMENSION UNITS: in. [mm]



G	ADDED DUAL DIMENSIONS, PUR#2015	TRM 06/27/25	D	REMOVED MD1 / MD2 / P-237 & UPDATED SOFTWARE / LABELING FOR 4 WIRE SYSTEM, UPDATED NAMEPLATE, PUR #1773	DRO 05/23/23	HOLLISTER-WHITNEY ELEVATOR CO. LLC				
F	PCBA UPDATE, PUR #1991	DRO 04/30/25				TITLE				
E	REVISED CONDUIT KNOCKOUT, PUR #1939	DRO 04/14/25				622L - LINEAR ROPE GRIPPER ASSEMBLY				
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						DRO	1:12	N/A	ALL DIMENSIONS REFERENCE UNLESS OTHERWISE SPECIFIED	
SHEET SIZE			DATE			622L				
A			6/14/2019		SHEET 1 OF 1					

#1 GLENAYRE WAY  
QUINCY IL, 62305 USA

ROPE GRIPPER®  
EMERGENCY  
POWER UNIT  
MODEL: 620L-100

CSA B44.1  
ASME-A17.5  
FILE #88181

EN81-50:2020  
NL20-400-1002-  
020-05 Rev. 1

ELECTRICAL RATINGS

INPUT: 6A, 120V ac, 1PH, 50/60Hz  
OUTPUT: 6A, 120V ac; 3A, 24V dc  
DRY CONTACT: 5A, 250V ac; 5A, 30V dc

P-246 US PATENT Patent Pending

#1 GLENAYRE WAY  
QUINCY IL, 62305 USA

ROPE GRIPPER®  
(ACOP & UCMP)  
MODEL: 620L-EPU

CSA B44.1  
ASME-A17.5  
FILE #88181

EN81-20:2020  
EN81-50:2020  
NL20-400-1002-  
020-05 Rev. 1

ELECTRICAL RATINGS

INPUT: 6A, 120V ac; 3A, 24V dc  
DRY CONTACT: 5A, 250V ac; 5A, 30V dc

MAXIMUM MECHANICAL RATINGS

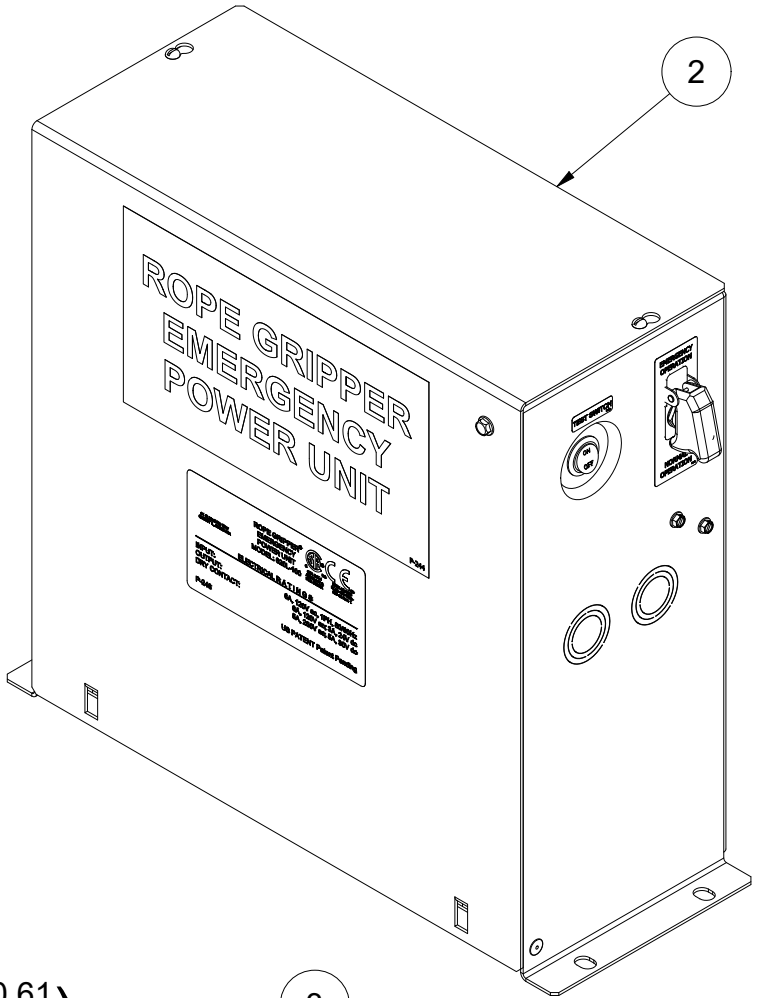
RATED SPEED: 350 fpm (1.78 m/s)  
ROPE GRIPPER TRIPPING SPEED: 402 fpm (2.04 m/s)  
CAR RATED LOAD: 2560 lbs. (1161 kg)  
(with 40 to 50% Counterweights)  
CAR, CAR LOAD, AND COUNTERWEIGHT MASS: 12070 lbs. (5475 kg)  
DOOR ZONE: ± 3 inches [6 inches Total] (±76.2 mm [152.4 mm Total])  
ROPE GRIPPER CLOSING TIME: 0.300 Sec.

MINIMUM MECHANICAL RATINGS

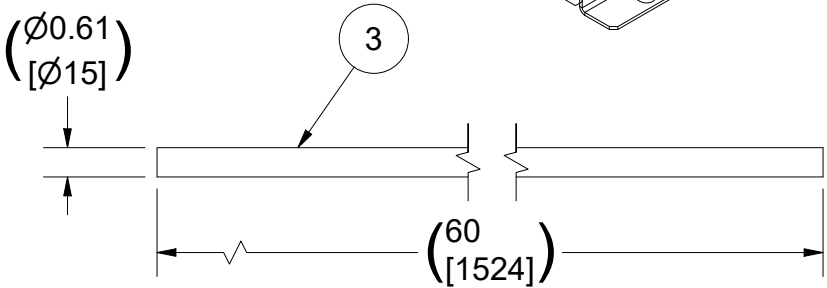
CAR RATED LOAD: 600 lbs. (272 kg)  
CAR AND COUNTERWEIGHT MASS: 2280 lbs. (1034 kg)  
(with 40 to 50% Counterweights)  
P-252 US PATENT Patent Pending

- NOTES UNLESS OTHERWISE SPECIFIED:
- LONGER CABLE LENGTHS AVAILABLE UPON REQUEST.
  - CONDUIT, CONDUIT FITTINGS, AND MOUNTING HARDWARE ARE NOT PROVIDED.
  - P-246 AND P-252 SHOWN FOR REFERENCE.
  - DIMENSION UNITS: in. [mm.]

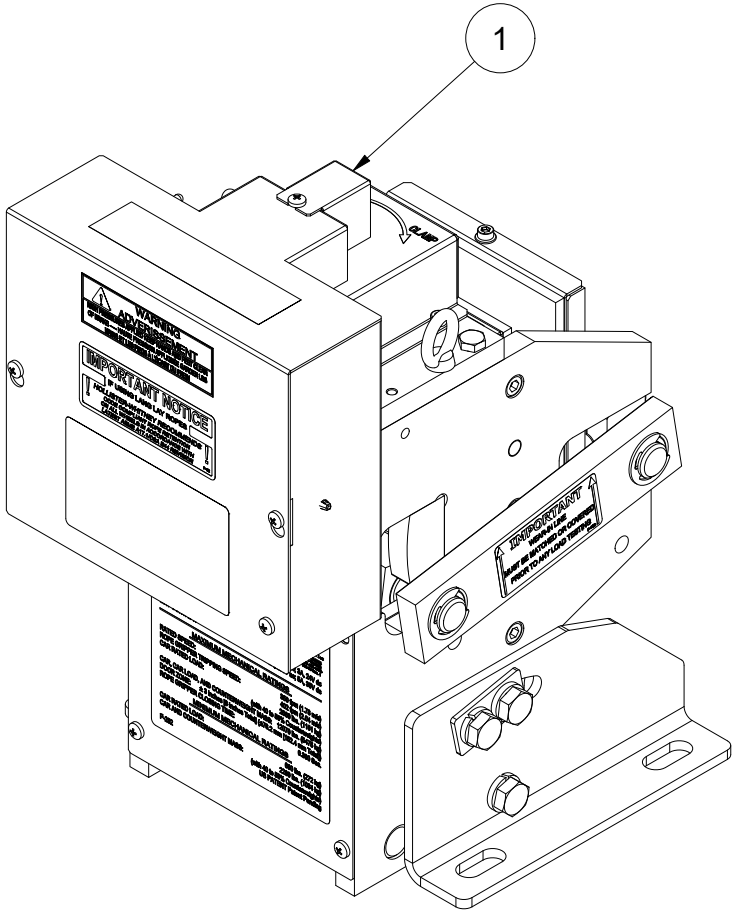
P-246  
SCALE 1:1



P-252  
SCALE 1:1

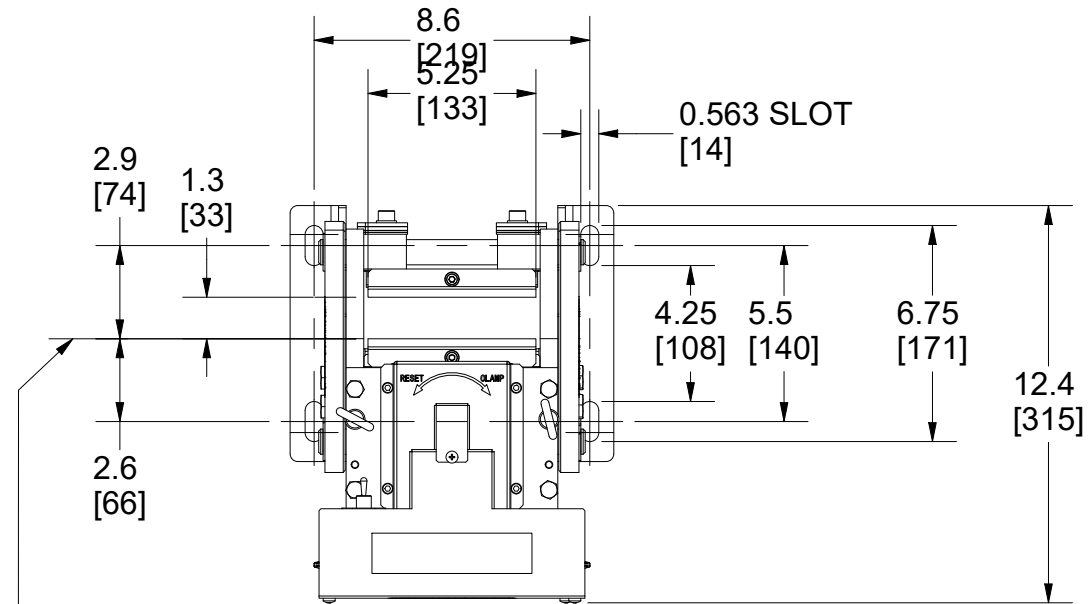
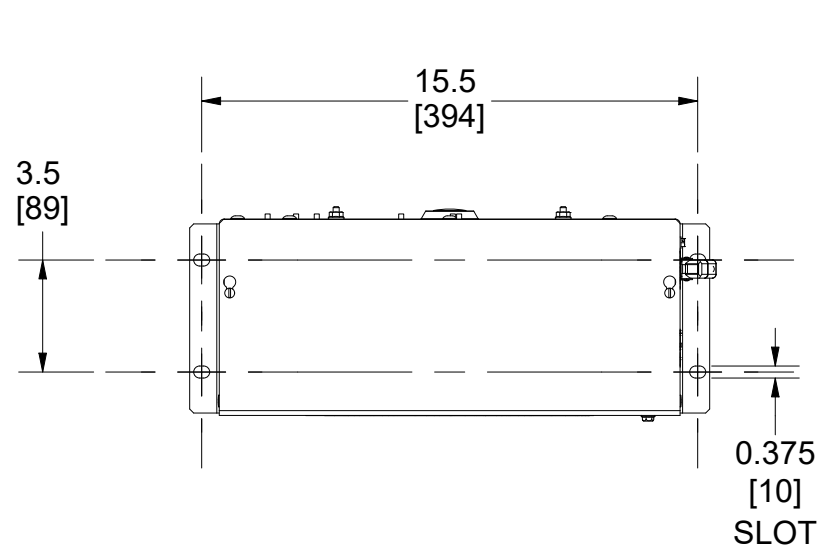


PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	620L-EPU-R	620L-EPU - LINEAR ROPE GRIPPER ASSEMBLY
2	1	620L-100	LINEAR ROPE GRIPPER EMERGENCY POWER UNIT
3	1	620L-606-005	CABLE, 14GA, 12 CONDUCTOR, 5 FT

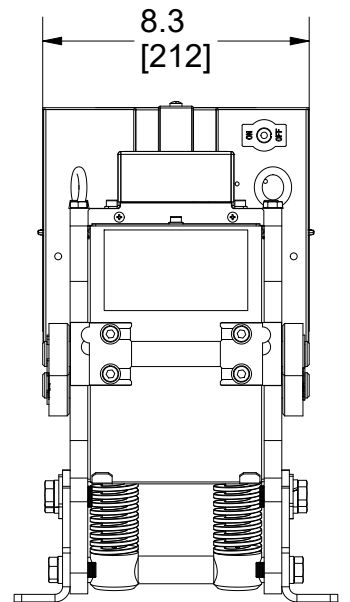
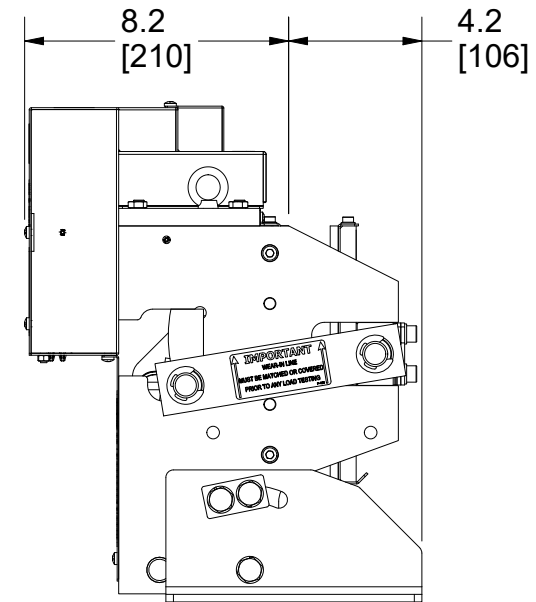
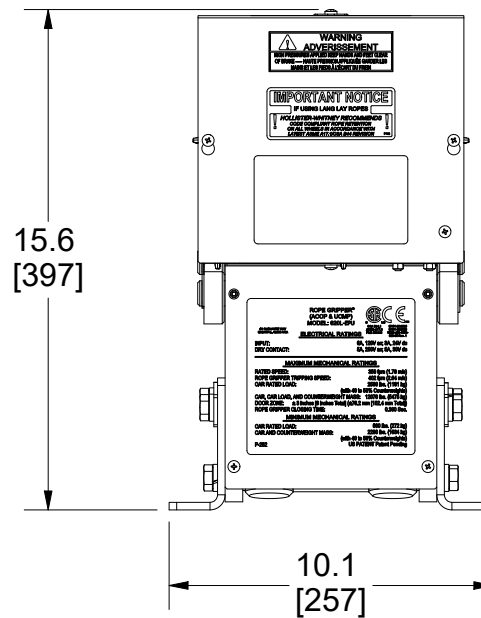
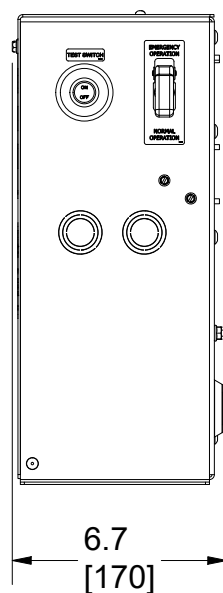
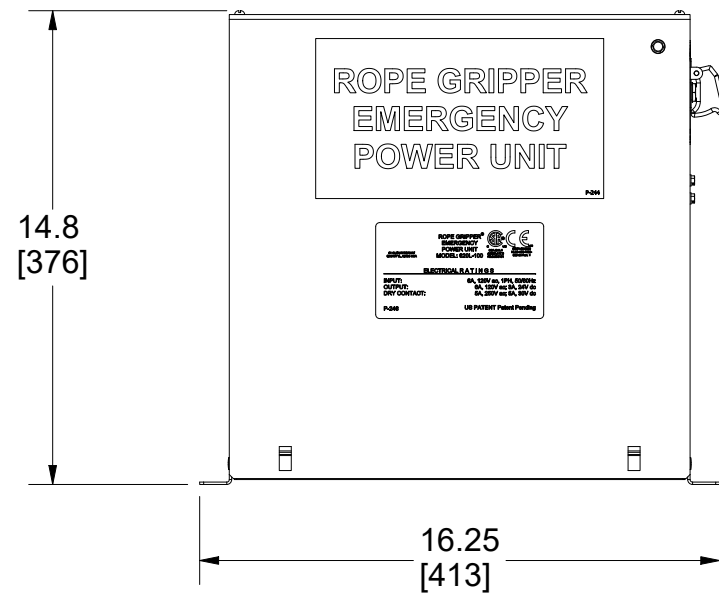


WEIGHT: 111.3 lbmass (50.5 kg)

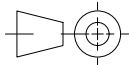
	C	CE CERTIFICATION UPDATE, PUR#2015	TRM 08/12/25	<b>HOLLISTER-WHITNEY</b> ELEVATOR CO. LLC			
	B	PCBA UPDATE, PUR #1991	DRO 04/30/25				
	A	PRODUCTION RELEASE, PUR #1780	DRO 08/21/24	TITLE 620L LINEAR ROPE GRIPPER & EMERGENCY POWER UNIT ASSEMBLY			
THIS DRAWING IS SUPPLIED AS A REPRESENTATION OF THE EQUIPMENT HOLLISTER-WHITNEY ELEVATOR CO. LLC ("MANUFACTURER") HAS AGREED TO SUPPLY. SLIGHT ADJUSTMENTS MAY OCCUR DURING MANUFACTURING AND INSTALLATION. ANY MODIFICATIONS NOT APPROVED IN WRITING BY MANUFACTURER MAY AFFECT OPERATION, VOIDS ANY WARRANTY AND RELEASES MANUFACTURER OF ALL LIABILITY. THIS DOCUMENT CONTAINS CONFIDENTIAL AND PROPRIETARY INFORMATION THAT CANNOT BE REPRODUCED OR DIVULGED, IN WHOLE OR IN PART, WITHOUT WRITTEN AUTHORIZATION FROM THE MANUFACTURER.		THIRD ANGLE PROJECTION 		DRAWN BY DRO	SCALE 1:4	MATERIAL SEE PARTS LIST	REFERENCE TOL. ALL DIMENSIONS REFERENCE UNLESS OTHERWISE SPECIFIED
				SHEET SIZE B		DATE 8/15/2024	620L-EPU SHEET 1 OF 2



PAD POSITION REFERENCE;  
CENTERLINE OF ROPE WILL  
VARY WITH ROPE SIZE



WEIGHT: 80.0 lbmass (36.3 kg)

	C	CE CERTIFICATION UPDATE, PUR#2015	TRM 08/12/25	HOLLISTER-WHITNEY ELEVATOR CO. LLC			
	B	PCBA UPDATE, PUR #1991	DRO 04/30/25	TITLE 620L LINEAR ROPE GRIPPER & EMERGENCY POWER UNIT ASSEMBLY			
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				SHEET SIZE B		DATE 8/15/2024	620L-EPU SHEET 2 OF 2

PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	622L-EPU-R	622L-EPU - LINEAR ROPE GRIPPER ASSEMBLY
2	1	620L-100	LINEAR ROPE GRIPPER EMERGENCY POWER UNIT
3	1	620L-606-005	CABLE, 14GA, 12 CONDUCTOR, 5 FT

#1 GLENAYRE WAY  
QUINCY IL, 62305 USA

ROPE GRIPPER®  
EMERGENCY  
POWER UNIT  
MODEL: 620L-100

C

US

CSA B44.1  
ASME-A17.5  
FILE #88181

C

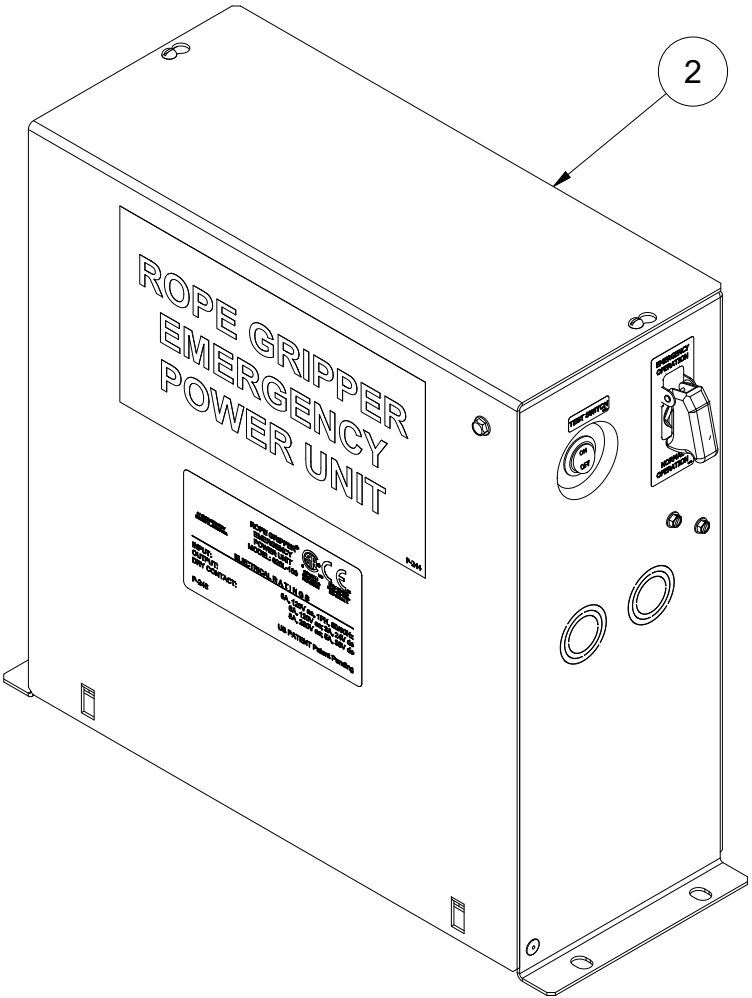
EN81-50:2020  
NL20-400-1002-  
020-05 Rev. 1

ELECTRICAL RATINGS

INPUT:6A, 120V ac, 1PH, 50/60Hz  
OUTPUT:6A, 120V ac; 3A, 24V dc  
DRY CONTACT:5A, 250V ac; 5A, 30V dc

P-246US PATENT Patent Pending

P-246  
SCALE 1:1



#1 GLENAYRE WAY  
QUINCY IL, 62305 USA

ROPE GRIPPER®  
(ACOP & UCMP)  
MODEL: 622L-EPU

C

US

CSA B44.1  
ASME-A17.5  
FILE #88181

C

EN81-20:2020  
EN81-50:2020  
NL20-400-1002-  
020-05 Rev. 1

ELECTRICAL RATINGS

INPUT:6A, 120V ac; 3A, 24V dc  
DRY CONTACT:5A, 250V ac; 5A, 30V dc

MAXIMUM MECHANICAL RATINGS

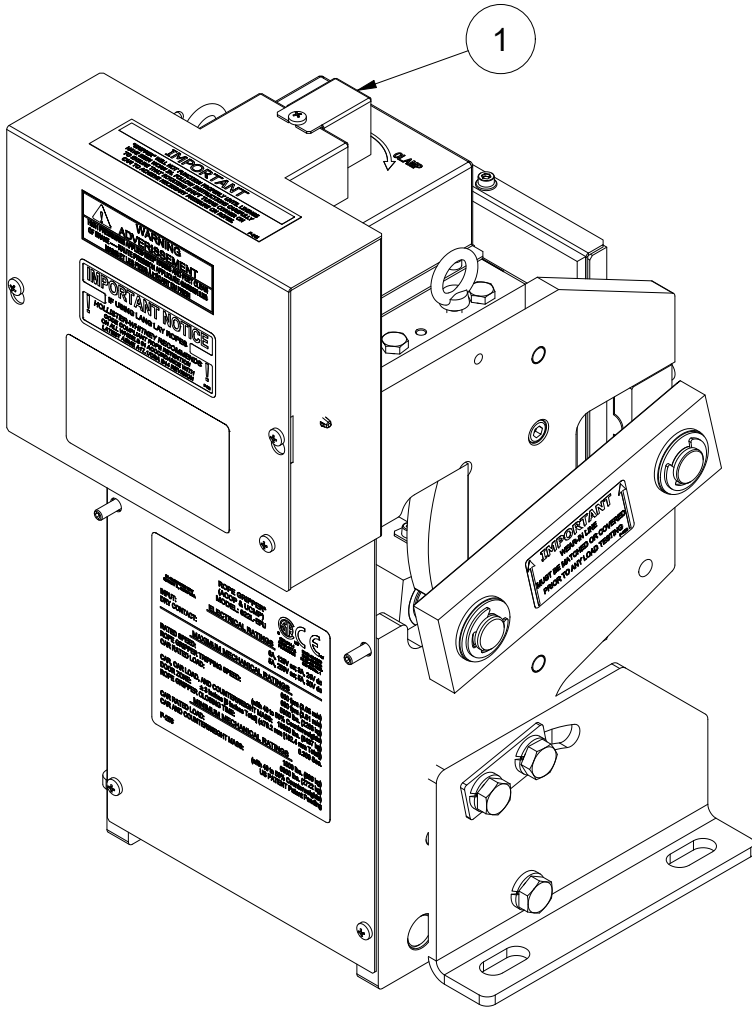
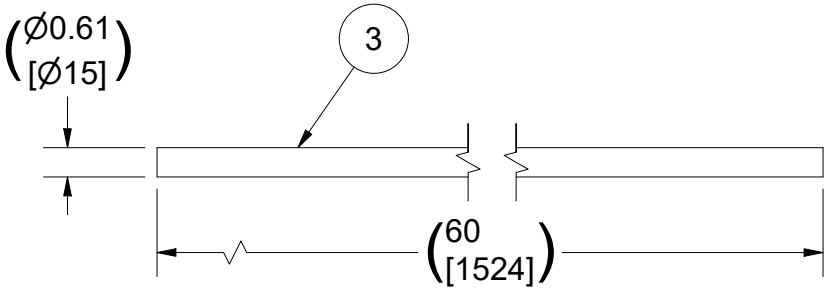
RATED SPEED:600 fpm (3.05 m/s)  
ROPE GRIPPER TRIPPING SPEED:690 fpm (3.51 m/s)  
CAR RATED LOAD:5000 lbs. (2268 kg)  
(with 40 to 50% Counterweights)  
CAR, CAR LOAD, AND COUNTERWEIGHT MASS:18600 lbs. (8437 kg)  
DOOR ZONE:± 3 inches [6 inches Total] (±76.2 mm [152.4 mm Total])  
ROPE GRIPPER CLOSING TIME:0.300 Sec.

MINIMUM MECHANICAL RATINGS

CAR RATED LOAD:1500 lbs. (680 kg)  
CAR AND COUNTERWEIGHT MASS:6000 lbs. (2722 kg)  
(with 40 to 50% Counterweights)  
US PATENT Patent Pending

P-253

P-253  
SCALE 1:1



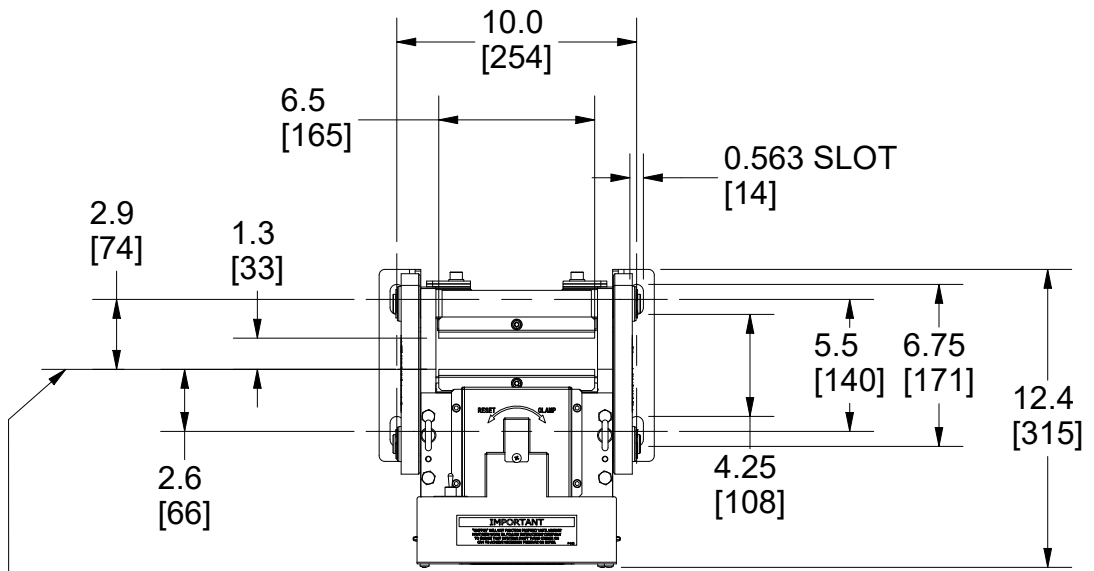
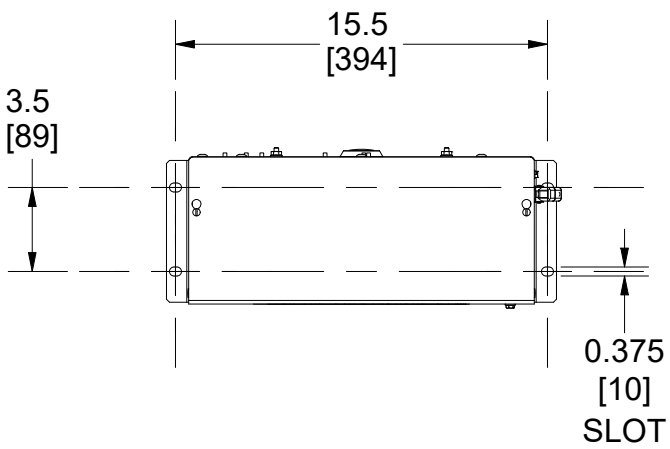
WEIGHT: 151.3 lbmass (68.7 kg)

NOTES UNLESS OTHERWISE SPECIFIED:

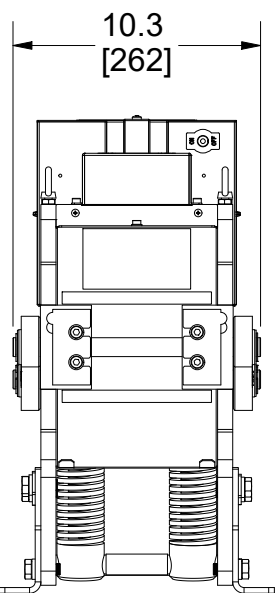
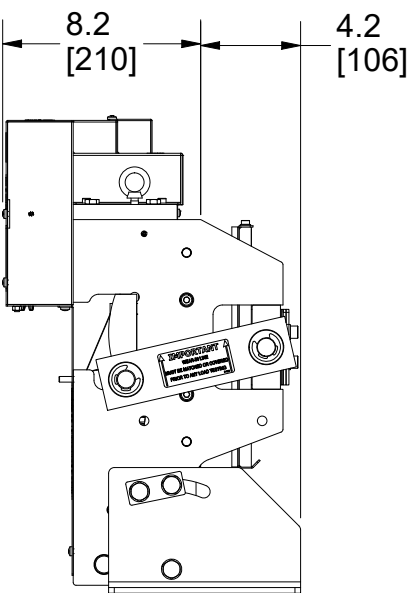
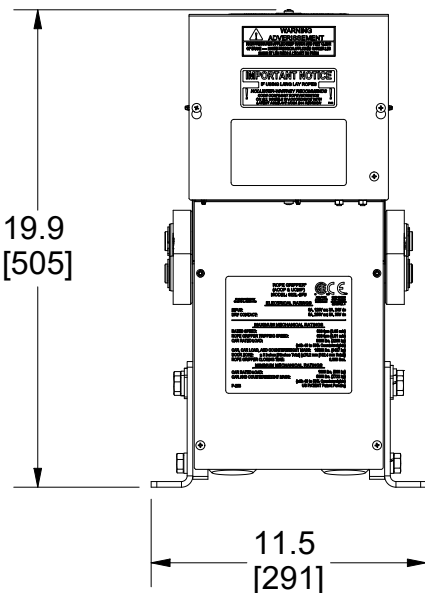
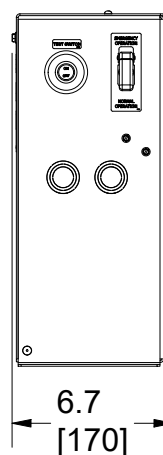
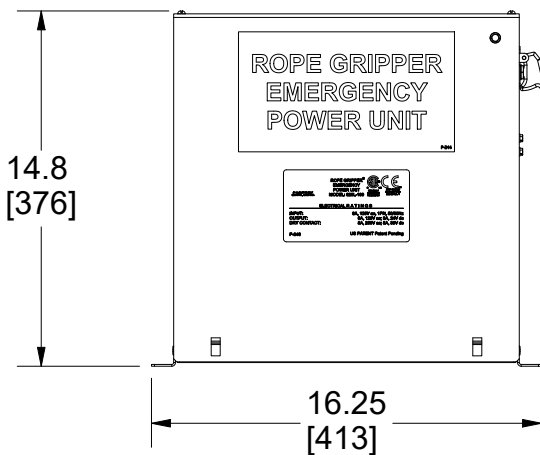
- LONGER CABLE LENGTHS AVAILABLE UPON REQUEST.
- CONDUIT, CONDUIT FITTINGS, AND MOUNTING HARDWARE ARE NOT PROVIDED.
- P-246 AND P-253 SHOWN FOR REFERENCE.
- DIMENSION UNITS: in. [mm.]

	C	CE CERTIFICATION UPDATE, PUR#2015	TRM 08/12/25	HOLLISTER-WHITNEY ELEVATOR CO. LLC			
	B	PCBA UPDATE, PUR #1991	DRO 04/30/25				
	A	PRODUCTION RELEASE, PUR #1780	DRO 08/21/24	TITLE 622L LINEAR ROPE GRIPPER & EMERGENCY POWER UNIT ASSEMBLY			
THIS DRAWING IS SUPPLIED AS A REPRESENTATION OF THE EQUIPMENT HOLLISTER-WHITNEY ELEVATOR CO. LLC ("MANUFACTURER") HAS AGREED TO SUPPLY. SLIGHT ADJUSTMENTS MAY OCCUR DURING MANUFACTURING AND INSTALLATION. ANY MODIFICATIONS NOT APPROVED IN WRITING BY MANUFACTURER MAY AFFECT OPERATION, VOIDS ANY WARRANTY AND RELEASES MANUFACTURER OF ALL LIABILITY. THIS DOCUMENT CONTAINS CONFIDENTIAL AND PROPRIETARY INFORMATION THAT CANNOT BE REPRODUCED OR DIVULGED, IN WHOLE OR IN PART, WITHOUT WRITTEN AUTHORIZATION FROM THE MANUFACTURER.		THIRD ANGLE PROJECTION 		DRAWN BY DRO	SCALE 1:4	MATERIAL SEE PARTS LIST	REFERENCE TOL. ALL DIMENSIONS REFERENCE UNLESS OTHERWISE SPECIFIED
				SHEET SIZE B		DATE 8/15/2024	622L-EPU SHEET 1 OF 2




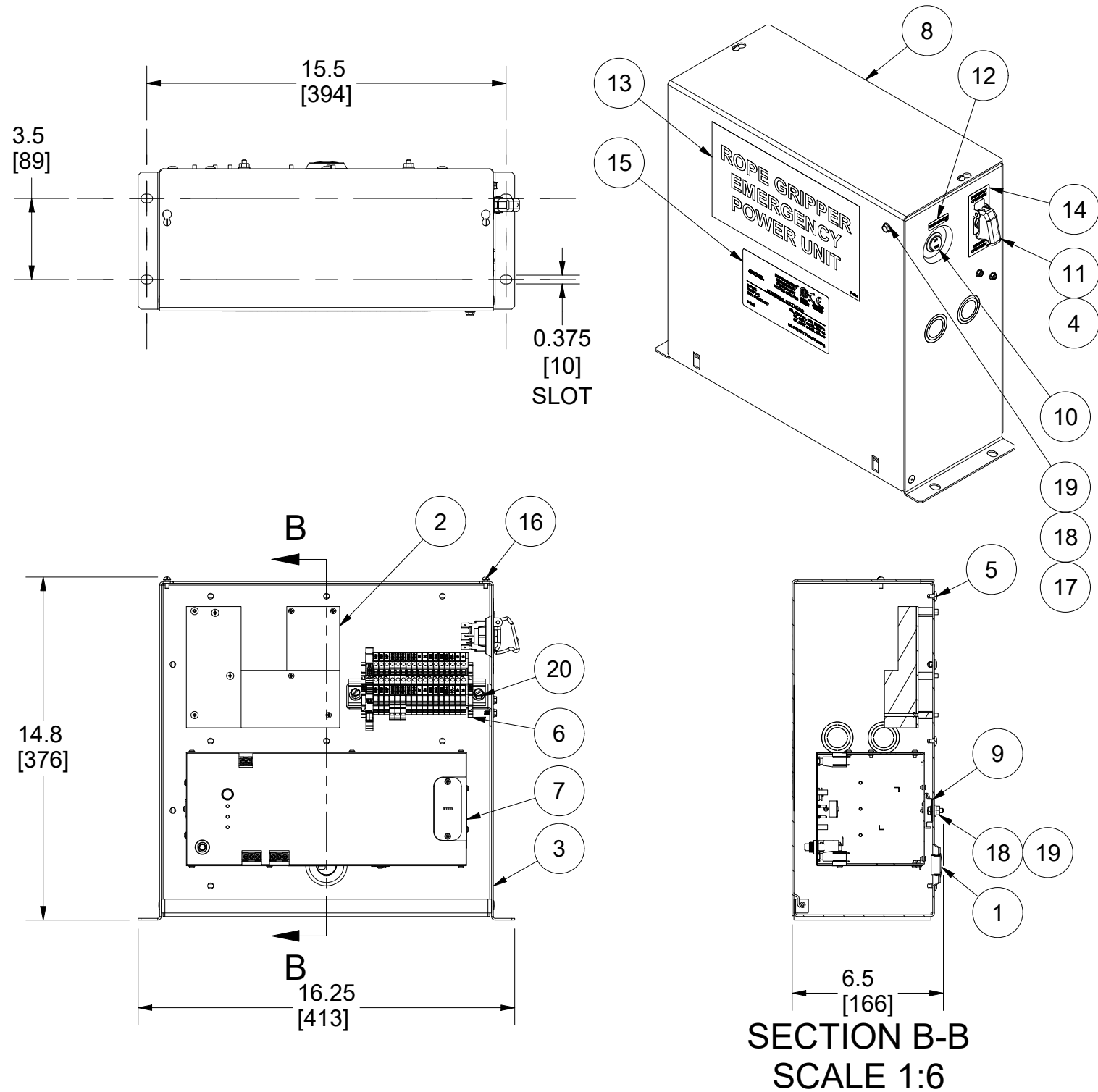


PAD POSITION REFERENCE;  
CENTERLINE OF ROPE WILL  
VARY WITH ROPE SIZE



WEIGHT: 120.0 lbmass (54.4 kg)

		C	CE CERTIFICATION UPDATE, PUR#2015	TRM 08/12/25	HOLLISTER-WHITNEY ELEVATOR CO. LLC			
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					SHEET SIZE B		DATE 8/15/2024	622L-EPU SHEET 2 OF 2



- NOTES UNLESS OTHERWISE SPECIFIED:
- COVER REMOVED FOR CLARITY IN SOME VIEWS.
  - P-246 SHOWN FOR REFERENCE.
  - DIMENSION UNITS: in. [mm.]

PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	201-032	LOCKING HOLE PLUG
2	1	620L-304	PCBA
3	1	620L-600	BOX ASSEMBLY, LINEAR ROPE GRIPPER EMERGENCY POWER UNIT
4	1	620L-626	3PDT SWITCH (ON - NONE - ON)
5	9	620L-642	CABLE TIE MOUNT
6	1	620L-647	TERMINAL BLOCK ASS'Y, LINEAR ROPE GRIPPER EMERGENCY POWER UNIT
7	1	620L-648	DIN RAIL AC UPS
8	1	620L-649	COVER, LINEAR ROPE GRIPPER EMERGENCY POWER UNIT
9	1	620L-672-300	DIN RAIL
10	1	620-680	ON-OFF SWITCH, SPST 10A 125V
11	1	620L-685	COVER, TOGGLE SWITCH
12	1	P-235	LABEL - TEST SWITCH
13	1	P-244	LABEL - EMERGENCY POWER UNIT
14	1	P-245	LABEL - EMERGENCY/NORMAL OPERATION
15	1	P-246	LABEL, 620L-100 ROPE GRIPPER EMERGENCY POWER UNIT
16	2	#8 - 32 UNC x 3/8"	SCREW, MACHINE, ROUND HEAD
17	1	#10	WASHER, LOCKING, EXTERNAL TOOTH
18	3	#10-24 UNC	NUT, SERRATED FLAGE, ZINC
19	3	#10-24 UNC x 0.5	SCREW, SERRATED FLAGE, ZINC
20	2	#10-24 UNC X 0.5	SCREW, THREAD FORMING - HEX WASHER, TYPE F

ROPE GRIPPER®  
EMERGENCY  
POWER UNIT  
MODEL: 620L-100

CSA B44.1  
ASME-A17.5  
FILE #88181

US  
EN81-50:2020  
NL20-000-1002-  
020-05 Rev. 1

#1 GLENAYRE WAY  
QUINCY IL, 62305 USA

ELECTRICAL RATINGS

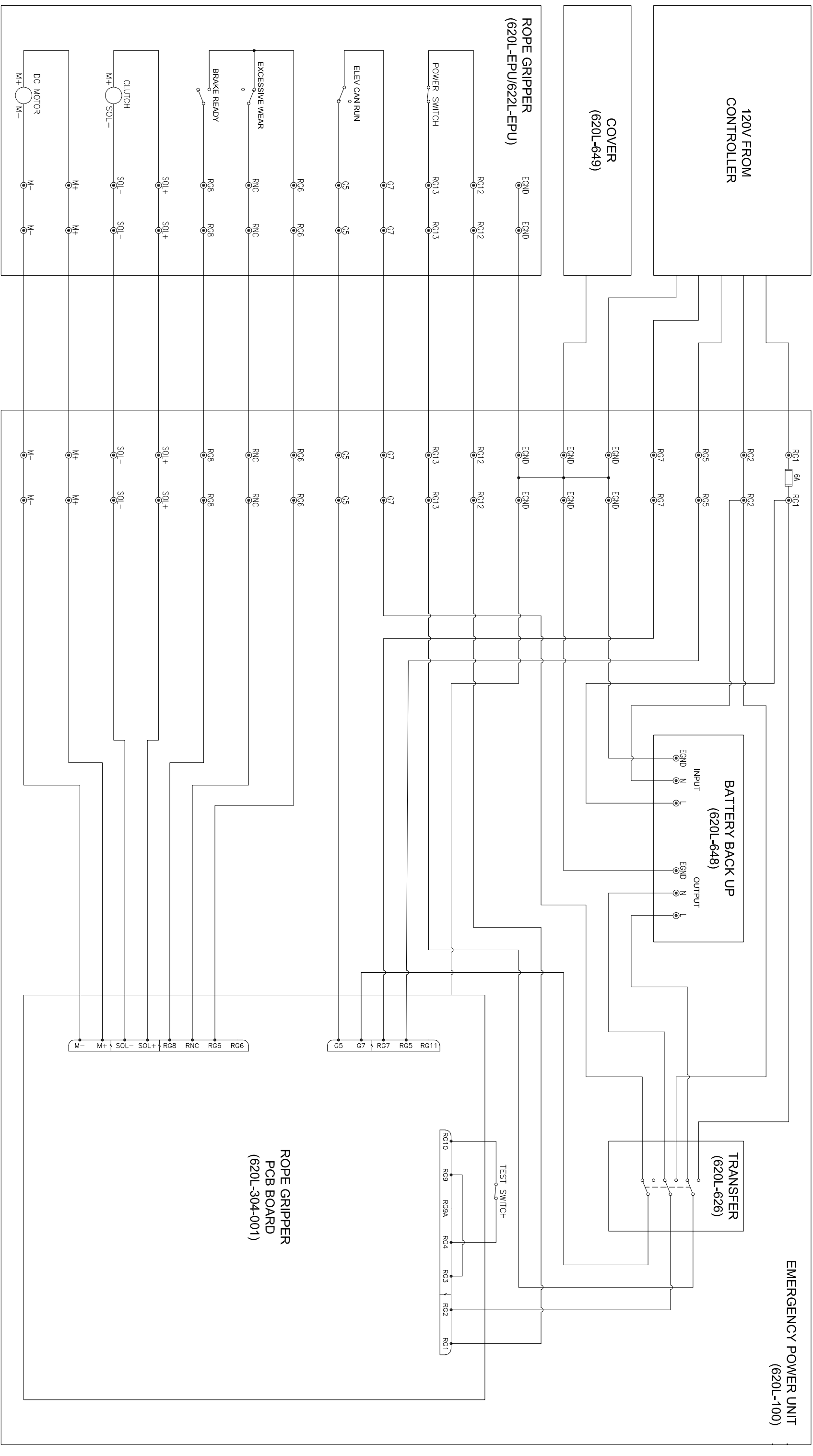
INPUT: 6A, 120V ac, 1PH, 50/60Hz  
OUTPUT: 6A, 120V ac; 3A, 24V dc  
DRY CONTACT: 5A, 250V ac; 5A, 30V dc

P-246 US PATENT Patent Pending

P-246  
SCALE 3:4

WEIGHT: 30 lbmass

C	DUAL DIMENSIONS, PUR#2015	TRM 08/12/25	HOLLISTER-WHITNEY ELEVATOR CO. LLC			
	PCBA UPDATE, PUR #1991	DRO 04/30/25				
	PRODUCTION RELEASE, PUR #1780	DRO 08/21/24	TITLE LINEAR ROPE GRIPPER EMERGENCY POWER UNIT			
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					MATERIAL SEE PARTS LIST	REFERENCE TOL. ALL DIMENSIONS REFERENCE UNLESS OTHERWISE SPECIFIED
			SHEET SIZE B		DATE 5/31/2023	620L-100 SHEET 1 OF 1



**NOTES UNLESS OTHERWISE SPECIFIED:**

1. USE 4.4 lb-in TORQUE WHEN CONNECTING TO TERMINAL BLOCKS ON BATTERY BACKUP MODEL 620L-648-DE.
2. USE 9 lb-in TORQUE WHEN CONNECTING TO TERMINAL BLOCKS ON BATTERY BACKUP MODEL 620L-648-EM.
3. INTERNAL WIRING IN EMERGENCY POWER UNIT 620L-100 TO BE 18AWG WIRE PER CSA REPORT.

[illegible]



# Certificate of Compliance

**Certificate:** 80000312 **Master Contract:** 155941  
**Project:** 80188681 **Date Issued:** 2024-10-01  
**Issued to:** Hollister-Whitney Elevator Co., LLC  
2603 North 24th St  
Quincy, Illinois 62305  
United States  
**Attention:** Dustin Petersen

*The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.*



**Issued by:** Rowell Manipula  
Rowell Manipula

CSA B44.1/ASME A17.5

## PRODUCTS

Class 2411 01 ELEVATOR EQUIPMENT - Elevator Electrical Equipment

Class 2411 81 ELEVATOR EQUIPMENT - Open and Enclosed Elevator - Electrical Equipment - Certified to US Standards

### **Part A Rope Gripper**

Model(s)	Electrical Rating
620L, 621L, 622L	Power Supply 1A, 100-240Vac, 1 phase, 50/60Hz
	Contact Ratings: 250Vac, 5A, 5A/30Vdc
620L-EPU, 622L-EPU	Input: 6A, 120V; 3A, 24V dc
	Dry Contact: 5A, 250V ac; 5A, 30V dc

### **Part B Rope Gripper Emergency Power Unit**



**Certificate:** 80000312

**Master Contract:** 155941

**Project:** 80188681

**Date Issued:** 2024-10-01

Model(s)	Electrical Rating
620L-100	Input: 6A, 120V ac, 1Ph, 50/60Hz
	Output: 6A, 120V ac; 3A, 24V dc
	Dry Contact: 5A, 250V ac, 5A, 30V dc

**APPLICABLE REQUIREMENTS**

CSA B44.1:19/ASME A17.5-2019 - Elevator and escalator electrical equipment



**Certificate:** 80000312

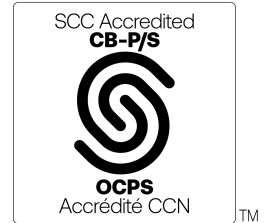
**Project:** 80188681

**Master Contract:** 155941

**Date Issued:** 2024-10-01

Notes:

Products certified under Class(es) C241101 have been certified under CSA's ISO/IEC 17065 accreditation with the Standards Council of Canada (SCC). [www.scc.ca](http://www.scc.ca)





## *Supplement to Certificate of Compliance*

**Certificate:** 80000312

**Master Contract:** 155941

*The products listed, including the latest revision described below,  
are eligible to be marked in accordance with the referenced Certificate.*

### **Product Certification History**

---

<b>Project</b>	<b>Date</b>	<b>Description</b>
80188681	2024-10-01	Update to report 80000312 to add Model - 620L-100, 620L-EPU, and 622L-EPU, and add alternate components.
80000312	2020-03-04	Original certification of 620L rope gripper





liftinstituut  
SINCE 1933



# EU-TYPE EXAMINATION CERTIFICATE

Issued by Liftinstituut B.V.  
identification number Notified Body 0400,  
commissioned by Decision no. 2023-0000172941

Certificate no.	: NL20-400-1002-020-05	Revision no.:	1
Description of the product	: Rope Gripper, certified as stopping element of ascending car overspeed protection and/or unintended car movement protection		
Trademark	: Linear Rope Gripper Assembly		
Type no.	: 620L, 621L, 622L, 620L-EPU, 622L-EPU		
Name and address of the manufacturer	: Ensota (Guangzhou) Technologies Ltd. No.271, Hongming Road, Guangzhou Economic & Technological Development District, Guangzhou, Guangdong, P.R.China		
Name and address of the certificate holder	: Hollister-Whitney Elevator Co., LCC P.O. Box 4025 2603 North 24th Street Quincy, Illinois 62305, USA		
Certificate issued on the following requirements	: Lifts Directive 2014/33/EU		
Certificate based on the following standard	: Parts of: EN 81-20/50:2020		
Test laboratory	: Shenzhen Institute of Special Equipment Inspection and Test (SISE) 1032 Honggang Road, Luohu District, Shenzhen, China		
Date and number of the laboratory report	: June 15, 2020; 2020AF0416, 2020AF0417, 2020AF0436, 2020AF0437, 2020AF0438, 2020AF0439		
Date of EU-type examination	: August 2025		
Additional document with this certificate	: Report belonging to the EU-type examination certificate no.: NL20-400-1002-020-05 Rev.1		
Additional remarks	: This revision replaces certificate NL20-400-1002-020-05 rev.- of 26-08-2025		
Conclusion	: The safety component meets the requirements of the Lifts Directive 2014/33/EU considering any additional remarks mentioned above		

Authorised by

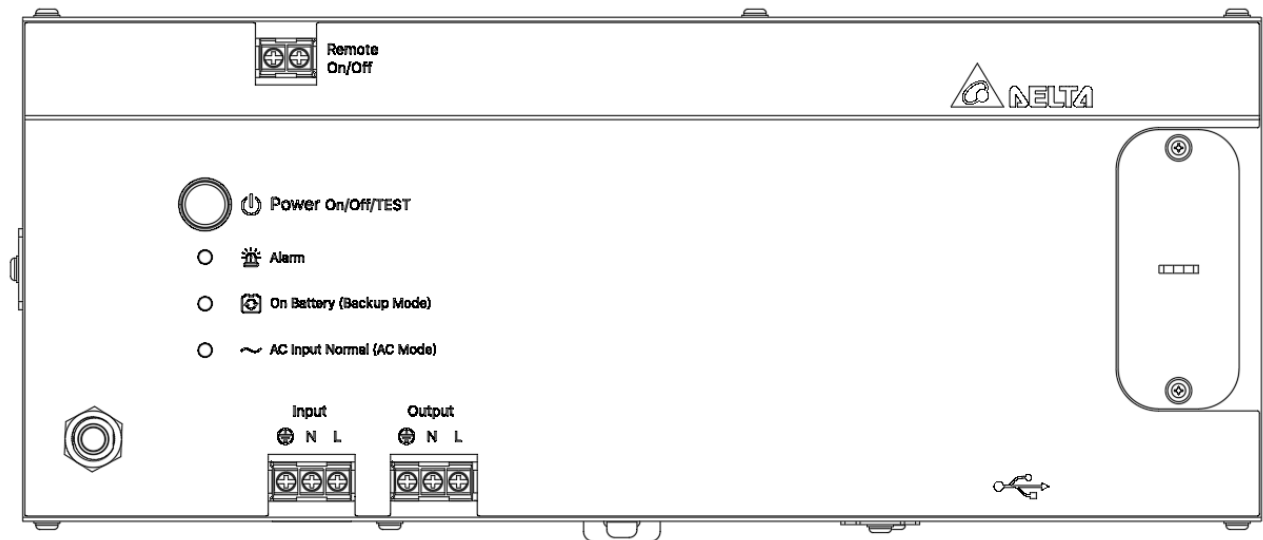
W.G. Kasteleijn  
Product Manager Certification

Amsterdam

Date : 13-08-2025  
Valid until : 13-08-2030



# Uninterruptible Power Supply



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# 1.0 Introduction

Thank you for selecting the Uninterruptible Power System. This manual contains important safety instructions that should be followed during the installation and operation of your UPS.

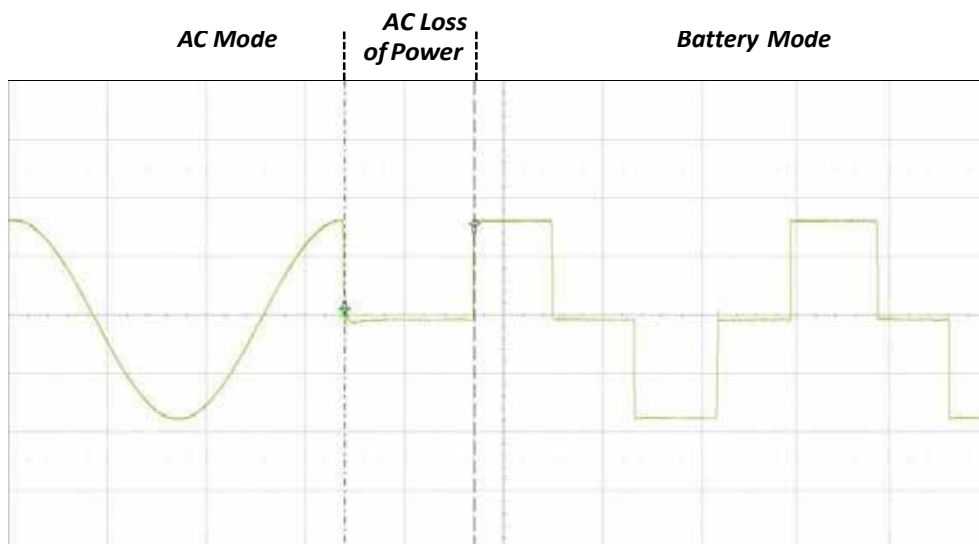
- Please read all safety, installation and operating instructions before attempting to install or operate the UPS.
- Please adhere to all warnings on the unit and in this manual during installation and operation.

This UPS is designed for industrial use. The UPS features a compact design that fits into a limited-space working environment.

This product features the following:

- User-replaceable battery
- Auto restart during AC recovery
- AC overload protection
- Over temperature thermal protection
- Battery overcharge protection
- Input voltage out-of-range protection
- Power lock feature, ensuring the UPS must be connected to utility on initial startup after unboxing.
- Pass through feature, where the UPS can power the load with AC in event of battery failure.
- Input and output reverse protection feature
- Enable / disable UPS remotely via REMOTE ON/OFF terminal
- Battery life monitoring and routine test for preventive maintenance
- Long design life battery with up to 12 years at 25C standby

The Uninterruptible Power System. is a compact, “Off-Line” DIN rail mountable UPS, which provides conditioned power to sensitive electronic equipment in an industrial environment. It supplies connected equipment with stepped approximation to sinewave input during power outage to simulate the power generated by the utility.



Input voltage range is 75% to 120% (ideal protection for the critical connected loads). Battery charging occurs automatically when AC power is applied, no need to switch ON the UPS. The AC DIN RAIL UPS also includes an automatic self-test feature to test the UPS function and battery. UPS immediately switches to AC Mode to provide load power if AC is available from utility.

---

## 2.0 Important Safety Instructions

### 2.1 Safety Precautions—SAVE THESE INSTRUCTIONS

**This manual contains important safety instructions that should be followed during the installation of the Uninterruptible Power Supply (UPS). Please read all safety, installation, and operating instructions before attempting to install or operate the UPS. Follow all warnings on the unit and in this manual during installation and operation.**

- To prevent the risk of fire or electric shock, install the UPS in a temperature and humidity controlled ventilated enclosure, free of conductive contaminants, moisture, flammable liquids, gases, and corrosive substances.
- To reduce the risk of electric shock, do not remove the cover, as it has no user-serviceable parts inside. Some components are live, even when ac power is disconnected. For service, contact a qualified technician.

Although your UPS has been designed and manufactured to assure personal safety, improper use can result in electrical shock or fire. To ensure safety, please observe the following rules:

- Turn OFF UPS and disconnect the AC supply before cleaning. Do not use liquid or aerosol cleaners. A dry cloth is recommended to remove dust from the surface of your UPS.
- Do not install or operate the UPS in or near water.
- Do not place the UPS on an unstable cart, stand, or table.
- Do not place the UPS under direct sunlight or close to heat-emitting sources.
- To allow proper ventilation of the UPS, do not block or cover the top and bottom sides of the unit. Do not insert any objects into the ventilation holes or other openings of the UPS. Keep all vents free of dust accumulation that could restrict airflow.
- Do not dispose of batteries in a fire; they may explode. Do not open or damage the battery. Released electrolyte is harmful to the skin and eyes and may be toxic.

**Warning — Explosion Hazard —** Do not disconnect the equipment while the circuit is live or unless the area is known to be free of ignitable concentrations.

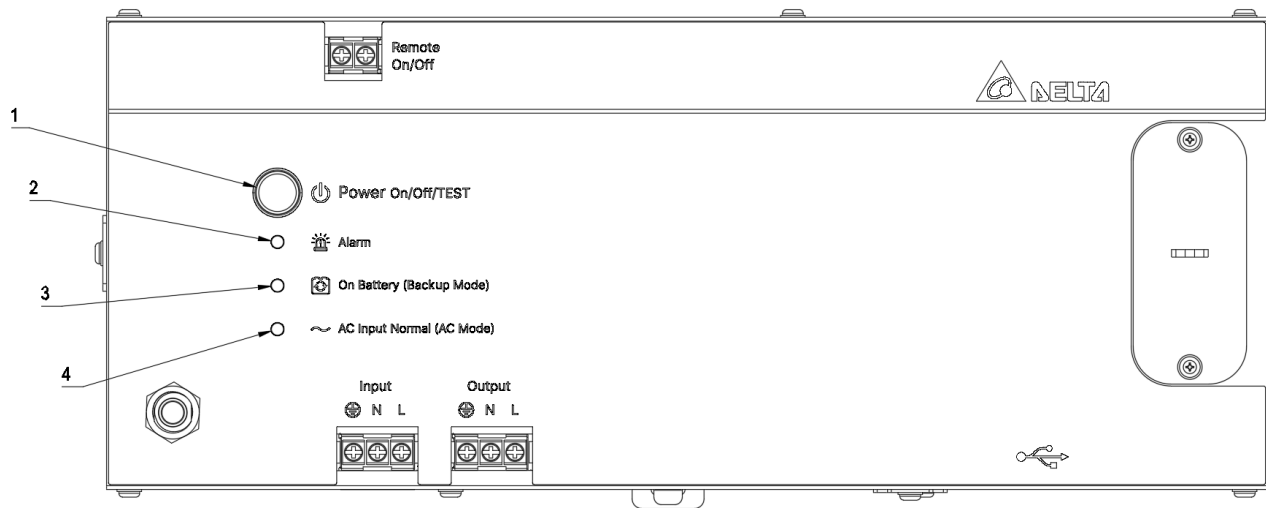
**Warning — Explosion Hazard —** Do not connect or disconnect the battery unless the area is known to be free of ignitable concentrations.

**Warning — Explosion Hazard —** Do not open the unit. Do not substitute components.

**Warning —** Exposure to some chemicals may degrade the sealing properties of materials used in the sealed relay device.

---

## 3.0 General Description



**Figure 2: Front Panel**

**1. POWER ON/OFF/TEST:**

- ON - To turn the UPS ON, press and release the button for more than 2 seconds, UPS turns on and the LEDs light.
- OFF - Press button until the Beep turn OFF, UPS turns off.
- SELF-TEST - Press the button for less than one second to activate the self-testing.

**2. Discuss the Power Lock feature here and on another section Battery Warning/Overload Indicator (Red LED):**

The LED flashes when the battery needs to be recharged and tested.

The LED will illuminate when the unit is subjected to an overload condition.

If the unit shuts down due to overload, the LED will continue for ten minutes.

**3. ON Battery Indicator (Yellow LED):** The LED illuminates when the UPS is supplying battery power to the loads.

**4. AC Input Normal Indicator (Green LED):** The LED illuminates when the line input voltage is normal.

**5. Input:** IP20-rated Input Screw Terminals.

**6. Output:** IP20-rated Output Screw Terminals.

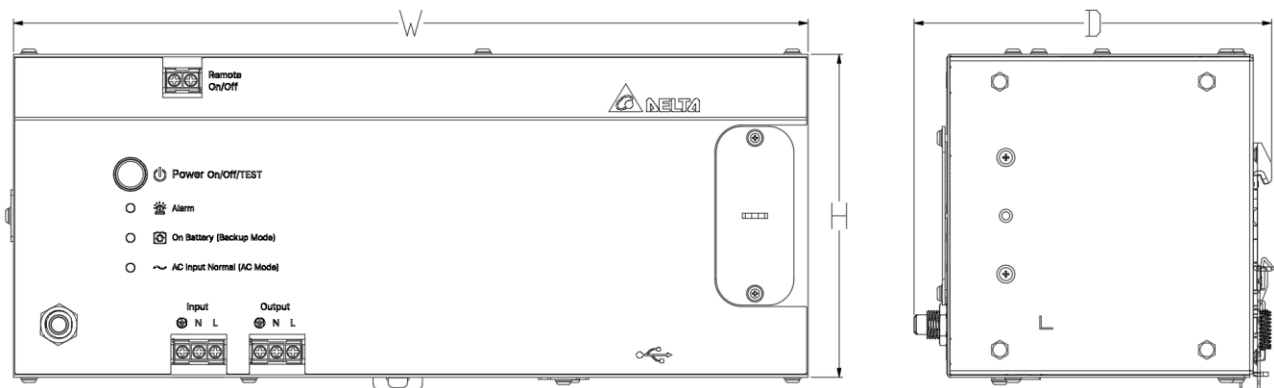
7. **USB Port:** High speed 2.0 Standard USB Type B Peripheral Communication Port used to establish control and monitoring with software.
8. **REMOTE ON/OFF TERMINALS:** Use a switch to remotely toggle ON/OFF state. Non-Polarized terminals. **No external voltage is required.** We recommend using stranded UTP (Unshielded Twisted Pair) wire for connections.

## ⚠ WARNING

Remote ON/OFF is grounded to the UPS internal signal ground so it should be isolated from the chassis ground to prevent any ground potentials that may cause a unit malfunction or damage. In addition, isolate the Remote ON/OFF wiring away from high current, high voltage, and high frequency components to prevent any magnetically coupled noise on the Remote On/Off connections.

<b>Screw</b>	M3.0; Current rating = 35 A, AC 600 V
<b>Insulation Withstands Volts</b>	A2000V min.
<b>Preferred AWG</b>	8-18 AWG
<b>Screw Torque</b>	9 lb-in (101.68 N-cm)

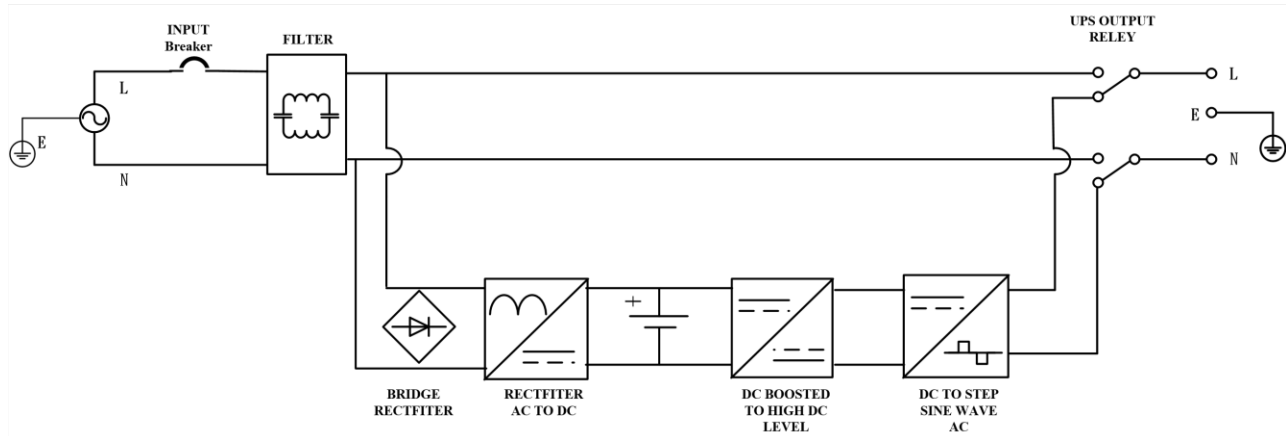
**Screw Terminals Description**



Dimensions in Millimeters		
H	W	D
124.6	307	136.9

**Figure 3: Product Dimensions**

## 4.0 System Block Diagram

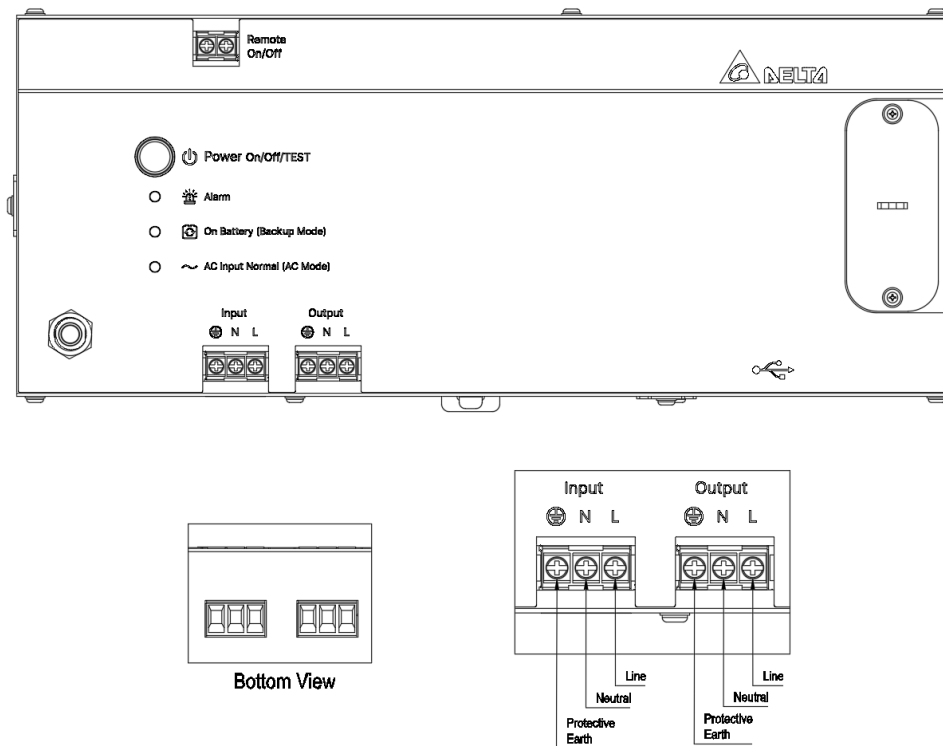


**Figure 4: UPS System Block Diagram**

## 5.0 Installation Instructions

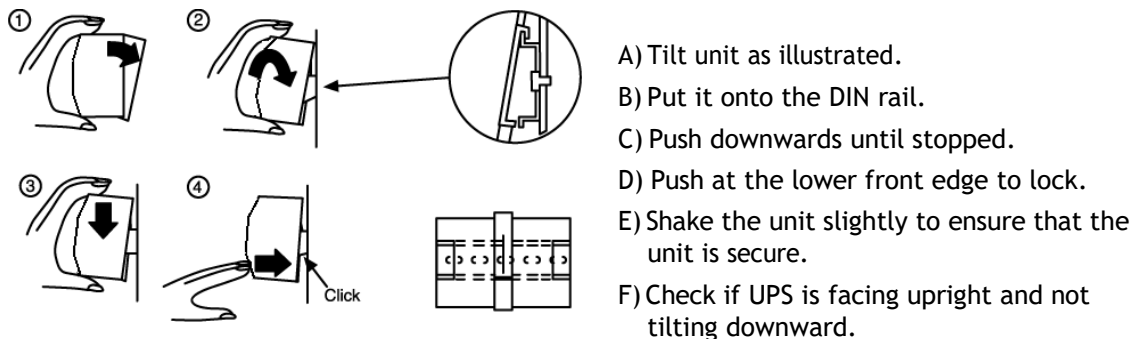
### WARNING

To reduce risk of fire, connect only to a circuit provided with 20A maximum branch circuit overcurrent protection in accordance with the NEC, ANSI/NFPA 70, and the CEC Part 1, C22.



**Figure 5: Input/Output Terminals**

1. **Placement:** Install the UPS in a protected area with adequate airflow and free of excessive dust. Do not operate the UPS outdoors. It is required that an input breaker is added in front of the UPS. The UPS is suitable in a Pollution Degree 3 environment.
2. **DIN Rail Mounting:** Follow instructions below.



**Figure 6 : Mounting the UPS DIN Rail**



---

## **WARNING**

**Risk of electric shock, disconnect AC main power source before wiring. Ensure proper grounding**

---

3. **I/O Wiring:** Check that the UPS and the AC Supply is OFF (disconnected) before installation. Wire the UPS terminals with 90 °C rated copper wire according to the table below. Connect the AC input ground terminal to the main supply ground. Connect line in neutral supply conductors. Connect the loads to the output hardwire connector. Verify proper wiring connections then apply power to the UPS.

Reference *Figure 2*.

Wire Gauge	8-18 AWG
Screw Torque	9lb-in. (101.7N-cm)

4. **Internal Battery:** Charge the UPS battery for a minimum of 8 hours before initial use. The UPS charges its battery whether the UPS is on or off, when it is connected to AC power.
5. **Do not** connect Ground to Neutral on either input or output terminals of the UPS unit.

---

## 6.0 Operating Instructions

### 6.1 TURNING ON THE UPS

- Press the POWER ON/OFF/TEST button for more than 2 seconds and the LEDs will turn ON.

Note: If utility power is not present, the UPS will be in back-up mode. The load will be powered from the internal batteries until the discharge point is reached.

Add details about Power Lock feature - how to enable and disable it

### 6.2 TURNING OFF THE UPS

- Hold the POWER ON/OFF/TEST button until the alarm is silenced.

### 6.3 ALARM

- Factory default setting is alarm enabled.
- To enable/disable Alarm:
- When the UPS is in back-up mode, press the POWER ON/OFF/TEST button for at least 1 second to silence the alarm (this function is disabled when the UPS status is either LOW BATTERY or OVERLOAD MODE). To re-enable the alarm, press the POWER ON/OFF/TEST button for at least 1 second. Additionally, you can enable/disable the alarm via Software.

### 6.4 SELF TEST

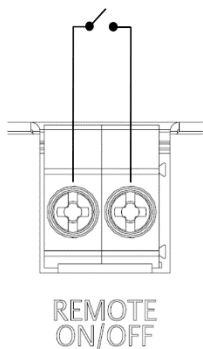
- This UPS has a self-diagnostic feature that verifies both the operation of the UPS and the condition of the battery.
- In AC mode, press and release the POWER ON/OFF/TEST button for 1 second to perform a self- test. During the self-test, the UPS momentarily operates in back-up mode (YELLOW LED will illuminate for 10 seconds then will change back to GREEN). If the UPS passes the self-test, it returns to AC mode.
- In AC mode for 30 Days, the UPS will auto perform a self- test. During the self-test, the UPS momentarily operates in back-up mode (YELLOW LED will illuminate for 10 seconds then will change back to GREEN). If the UPS passes the self-test, it returns to AC mode.
- Additionally, a self-test can be initiated via software.

Note: The UPS needs to be continuously charged for more than 24 hours, otherwise the battery test will not be done.

If the self-test results in a failure, the UPS will change to AC mode. The UPS will pass through the input to the load. The red and yellow led will start flashing in an alternating pattern to inform user the battery needs to be replaced.

## 6.5 REMOTE ON/OFF

- Allows the user to perform remote power ON/OFF functions using a switch on terminals (non-polarized) to toggle ON/OFF state.
- To Enable the UPS, close the switch that is connected to the terminals.
- To Disable the UPS, open the switch that is connected to the terminals.



**Remote Enable/Disable of UPS**

AC DIN RAIL UPS Remote ON/OFF	UPS Condition/State	Switch or Terminal Condition
UPS	ON	
UPS	OFF	

Remote ON/OFF Terminals: Shorted (closed) for ON, Open for OFF Non-Polarized terminals.  
**No external voltage is required. We recommend using stranded UTP (Unshielded Twisted Pair) wire for connections.**

## 7.0 LED Diagnostics

Condition	Description	LED Diagnostics	Alarm
<b>BACK-UPMODE</b>	UPS is in back-up mode due to AC Loss	YELLOW	2 beep every 10 second. UPS sounds until AC utility power
<b>ACMODE</b>	Normal condition source supplied by AC Mains	GREEN	No Alarm
<b>ACMODE OVERLOAD</b>	Load around 110% of rated capacity	GREEN/RED	Alarm is ON during overload (if overload exceeds 110% of nominal at 5mins, 120% at 10s, and 130% at 3s) and enters retry mode every 10mins, until load is removed. UPS will not shut down.
	Load > 120% of rated capacity	GREEN/RED	
	Load > 130% of rated capacity	GREEN/RED	
<b>BACK-UPMODE OVERLOAD</b>	Load around 110% of rated capacity	YELLOW/RED	Alarm is ON during overload (if overload exceeds 110% of nominal at 20s, 120% at 10s, and 130% at 3s) and enters retry mode every 10mins, until load is removed. UPS will not shut down.
	Load > 120% of rated capacity	YELLOW/RED	
	Load > 130% of rated capacity	YELLOW/RED	
<b>LOW BATTERY</b>	Battery voltage	YELLOW	During back-up mode when the battery charge runs low, the UPS beeps rapidly (2 beep per second) until the UPS shuts down or returns to AC Mode.

**Table 1 Diagnostics LED/Alarms**

## 8.0 Battery Replacement

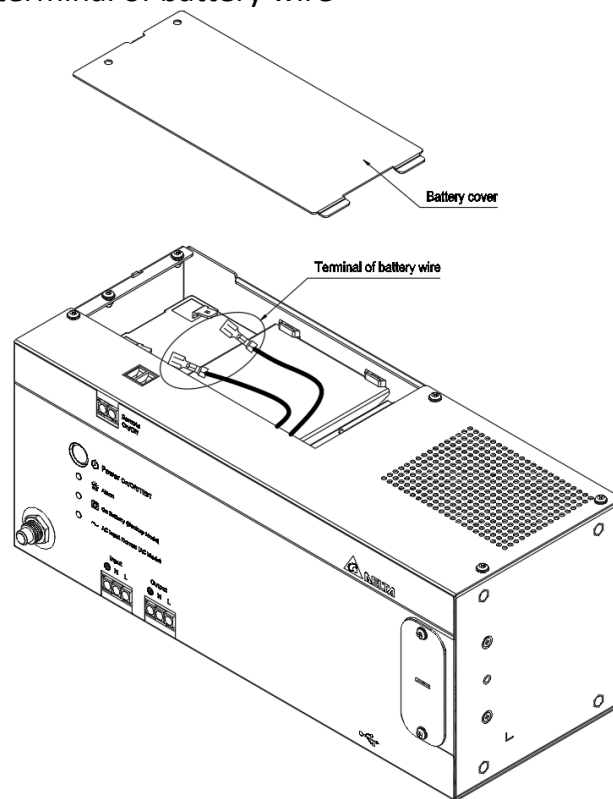
### WARNING

When the UPS is installed in a Class I, Division 2 Groups A B C D or Class I Zone 2 II C hazardous location, adhere to the following:

**Warning — Explosion Hazard** – Do not connect or disconnect the battery unless the area is known to be free of ignitable concentrations.

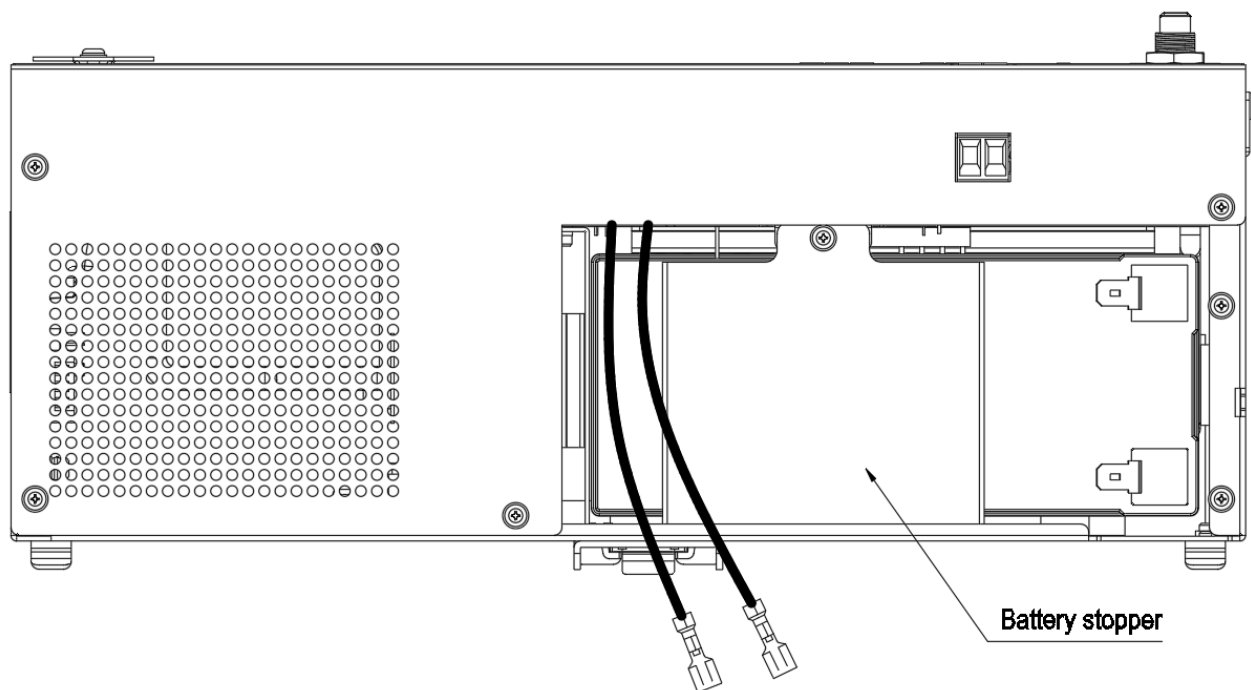
Step.1: Remove battery cover

Step.2: Disconnect the terminal of battery wire

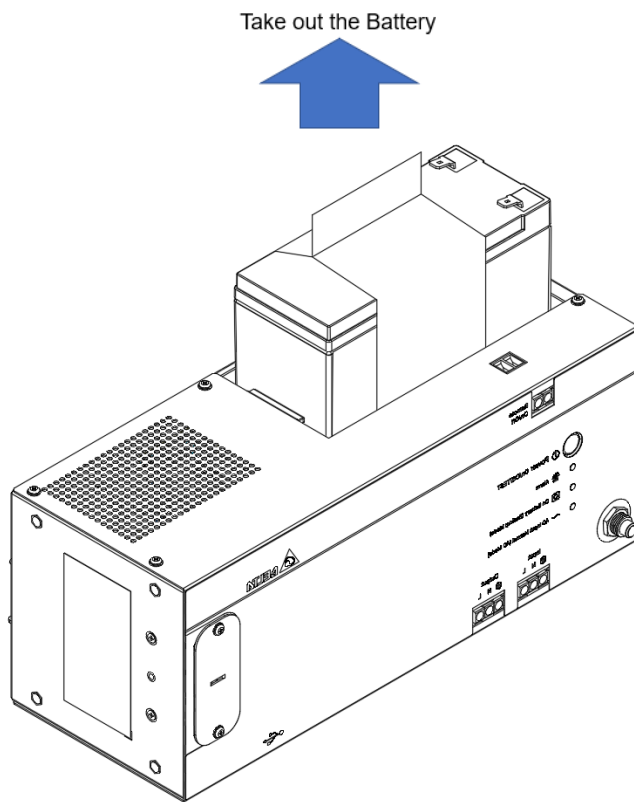


**Figure 7: Disconnect the Battery Wire and Remove Cove**

Step.3: Remove the battery stopper



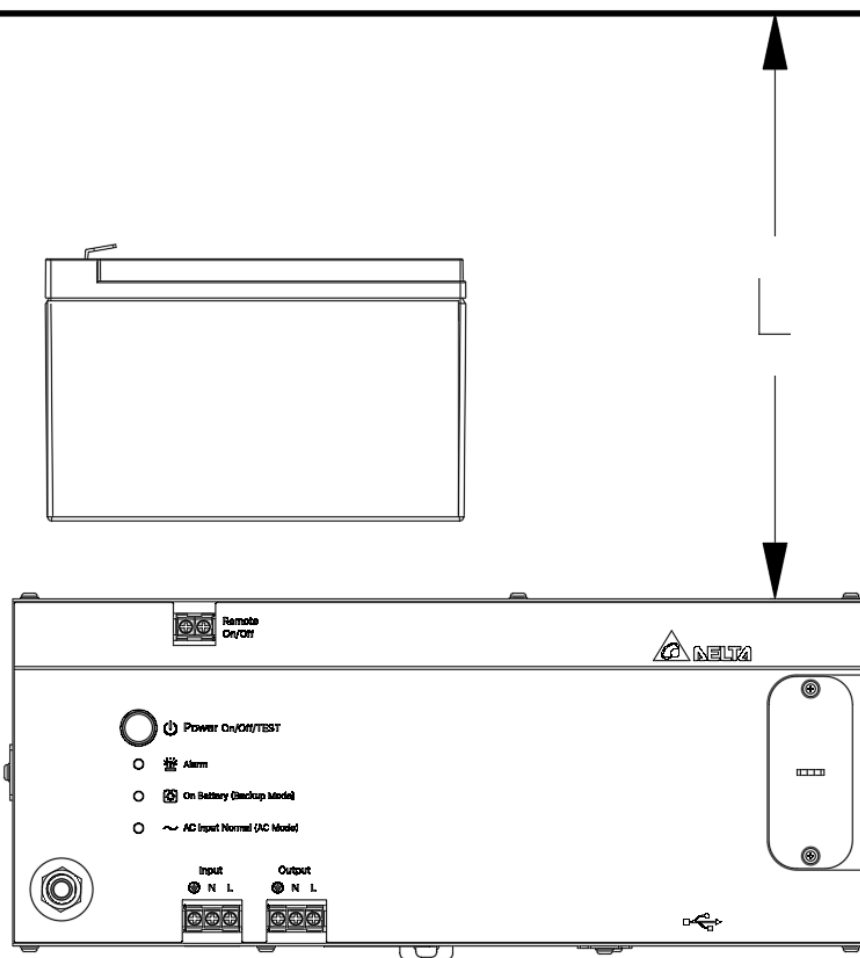
Step.4: Take out the battery



**Figure 8: Take out the Battery**

---

Notice: Battery replacement distance required:  $L \geq 250\text{mm}$



**Figure 9 : Battery replacement space**

## 9.0 Troubleshooting

### WARNING

**When the UPS is installed in a Class I, Division 2 Groups A B C D or Class I Zone 2 II C hazardous location, adhere to the following:**

**Warning — Explosion Hazard —** Do not disconnect the equipment while the circuit is live or unless the area is known to be free of ignitable concentrations.

**Warning — Explosion Hazard —** Do not connect or disconnect the battery unless the area is known to be free of ignitable concentrations.

**Warning — Explosion Hazard —** Do not open the unit. Do not substitute components.

Trouble	Possible Cause	Solution
UPS nonresponsive (No alarm and no light)	UPS is powered off	Press ON/OFF button for Three (3) seconds.
	Battery is defective	Replace the battery.
	UPS fault	Contact Tech support.
The UPS is always on battery mode	Input may not be properly connected.	Check the input connection.
	UPS Breaker is Tripped	Before reconnecting equipment, please verify that the load matches the UPS capability specified and output has short circuit protection. Contact Tech support.
Actual backup time cannot be achieved	Battery voltage is too low	Charge the battery at least eight (8) hours.
	Overload	Remove some unnecessary loads. Before reconnecting equipment, please verify that the load matches the UPS capability specified in spec.
	Battery defect	Replace the battery.
	UPS fault or charger failure	Contact Tech support.
Fault code displayed	Overload	Remove some unnecessary loads. Before reconnecting equipment, please verify that the load matches the UPS capability specified in spec.
	UPS short-circuit	Contact Tech support.
	UPS over temperature	Remove some unnecessary loads. Before reconnecting equipment, please verify that the load matches the UPS capability specified in spec. Make sure the UPS is installed in a pretested area that is free of excessive dust and has adequate air flow. Place the UPS away from other units at least 20 cm to avoid interference. For best performance, keep the indoor temperature between 0°C to 50°C.



---

Add the power lock feature in case end user cannot power up the unit upon opening the box



# 10.0 Technical Specifications

Description	Catalog Number			
	AC DIN RAIL UPS UPO-500BDD	AC DIN RAIL UPS UPO-850BDD	AC DIN RAIL UPS UPO-500BDF	AC DIN RAIL UPS UPO-851BDF
INPUT				
Capacity VA/Watts	500/300	850/510	500/300	850/510
Voltage Vac	120 V + 20%, -25%		230 V +/- -20%	
Frequency	50 or 60 Hz, +/- 10% (auto-sensing)			
OUTPUT (Back-Up Mode)				
Voltage Vac	Simulated sine wave			
	120 V +/- -5%		230 V +/- -5%	
Frequency	50 or 60 Hz, +/- 0.5% auto-sensing			
Transfer Time	Typical 8 ms , 10ms Max			
PROTECTION				
Unit Input (internal)	10A		7A	
Overload Protection	UPS shutdown if overload exceeds 110% of nominal at 5min( Line mode ) or 20s( Line mode ), 120% at 10s, 130% at 3s; auto-recovery			
Short Circuit (utility mode)	In the event of dead short on the outputs of the UPS, input fuse will break. Once the breaker opens, UPS goes to battery Mode and goes on Battery Mode Short Circuit protection until OSCP is removed.			
Short Circuit (battery mode)	Retry until the short Circuit is removed or battery defect.			
BATTERY				
Type	Sealed, maintenance-free, lead acid batteries			
Typical Recharge Time (Ambient 25°C)	8 hours 90% capacity			
Back-Up Time (at full CR load, Ambient 25°C)	4 min.	1.5 min.	4 min.	1.5 min.
ALARM				
ON Battery	Rapid 2 beeping every 10 seconds			
Battery Low	Rapid 2 beeping every second			
Overload	Continuous beeping sound			
ENVIRONMENT				
Ambient Operation	0-95% humidity, non-condensing. 50 °C up to 6,600 ft. (2000m)			
Audible Noise	<40 dBA (1 m from surface , without buzzer)			
Vibration	Operating - IEC60068-2-6, Sine Wave: 10Hz to 60 Hz displacement of 0.35mm, 60Hz to 500Hz@5G; 60 min per axis for Y direction.			
	Non-operating - IEC60068-2-6, Random : 5Hz to 500Hz@2Grms; 20 min per axis for all X,Y,Z			
Shock	Operating - IEC60068-2-27, Half Sine Wave: 10G for a duration of 11ms, shock for 1 direction (X axis)			
	Non-operating - IEC60068-2-27, Half Sine Wave : 30G for duration of 11ms, 3 shocks for all 3 axes			
WEIGHT & DIMENSIONS				
Net Weight, kg	5.4			
H x W x D, mm	124.6 x 307.0 x 140.4			
CERTIFICATIONS				
Safety	UL US - UL 1778, 5th Ed. /CSA 107.3. UPS evaluated for use in UL 508 industrial control applications overvoltage category 3, pollution degree 3 with no output derating  UL US - UL 121201/CSA 213 Class I, Division 2 Groups A B C D T4			

	 LVD EN 62040-1 ODVA Compliant
EMC	 FCC Part 15, Subpart B, Class A Level 4 - EMC Directive - EN62040-2; EN55032; EN 55011, EN 55024, EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61326-1, EN61000-3-2, EN 61000-3-3, IEC/EN 61000-4 Series (Level 4, Criterion A)

## 10.1 Battery

The UPS has an internal 12V sealed Valve Regulated Lead Acid (VRLA) rechargeable battery.

Models	UPO-500BDD	UPO-850BDD
VA/Watts	500/300	850/510
Battery	12V 7Ah	12V 9Ah

**Table 2. Battery Back-Up Time Chart**

*Note: Run times in this table are approximate. They are based upon new, fully charged standard battery modules at a temperature of 25°C (77°F) with 100% resistive UPS loading. Run times listed above can vary due to manufacturing variances of the individual batteries.*

### **WARNING**

- Do not mount the UPS in upside down orientation.

## 10.2 Storage

Ambient temperature range is -15 °C to 50 °C (5 °F to 122 °F). It is recommended to charge the UPS for at least 8 hours then store the UPS covered and upright in a cool, dry location. Remove accessories and disconnect cables connected to the UPS to avoid unnecessary draining of the battery.

### Extended Storage

During extended storage in environments where the ambient temperature is: -15 °C to +30 °C (+5 °F to +86 °F), charge the UPS battery every six months.

During extended storage in environments where the ambient temperature is: +30 °C to +45 °C (+86 °F to +113 °F), charge the UPS battery every three months.

# Warranty

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Please see the “Terms & Conditions of Sale”.

# Uninterruptible Power Supply User Manual



## SDU AC B-Series

SOLAHD™



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---

# What's Included

The SDU AC B-Series UPS is shipped with the following items:

- High speed 2.0 Standard Type A-B USB cable, 6 ft. (1.8 m)
- One SDUCOMMCVR communication port cover.

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## Optional Accessories

- **SDU-PMBRK:** Mounting brackets to secure the UPS to the wall, back of the panel or enclosure. Please contact Tech Support for details.



- **SDUCFRELAYCARD:** Dry contact relay status with LED diagnostics and standby Mode capability (Please refer to SDU B-Series COMM Cards Manual)



- **Active – (Industrial Ethernet) Cards:** Network communication module is a high-performance communication solution for industrial field devices. It is designed for use with high performance networks such as real time Ethernet and synchronized applications such as servo drive systems (Please refer to SDU AC B-Series COMM Cards Manual)



### Comm Card Accessories

Catalog Number	Description	Approx. Ship Weight - kg (lbs)
<b>Active - (Industrial Ethernet)</b>		
<b>SDUNETIPCARD</b>	2 Port EtherNet/IP™ COMM CARD	1.0 (28.4)
<b>SDUECATCARD</b>	2 Port EtherCAT COMM CARD	1.0 (28.4)
<b>SDUMBUSCARD</b>	2 Port Modbus® - COMM CARD	1.0 (28.4)
<b>SDUPNETCARD</b>	2 Port Profinet Industrial Protocol COMM CARD	1.0 (28.4)

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# 1.0 Introduction

Thank you for selecting the SDU AC B-Series Uninterruptible Power System. This manual contains important safety instructions that should be followed during the installation and operation of your UPS.

- Please read all safety, installation and operating instructions before attempting to install or operate the UPS.
- Please adhere to all warnings on the unit and in this manual during installation and operation.
- This UPS is designed for industrial use. The UPS features a compact design that fits into a limited-space working environment.

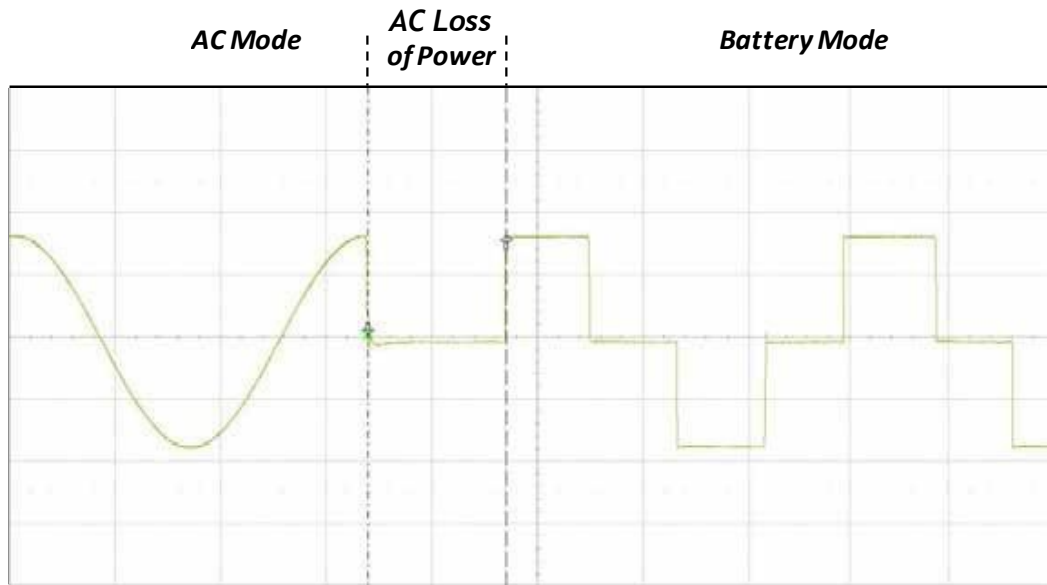
This product features the following:

- User-replaceable battery
- Auto restart during AC recovery
- AC overload protection
- Over temperature thermal protection
- Battery overcharge protection
- Input voltage out-of-range protection
- Remote monitoring and control software via UPSwatch
- Power lock feature, ensuring the UPS must be connected to utility on initial startup after unboxing.
- Pass through feature, where the UPS can power the load with AC in event of battery failure.
- Input and output reverse protection feature
- Network communications capability via Active Comm Cards (EtherNet/IP, EtherCAT, MODBUS, ProfiNET)
- Dry Contact relay I/O communication capability via SDUCFRELAY CARD
- Enable / disable UPS remotely via REMOTE ON/OFF terminal
- Battery life monitoring and routine test for preventive maintenance
- Long design life battery with up to 12 years at 25°C operation
- Hazardous Location T4 temperature code rating



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The SDU AC B-Series is a compact, “Off-Line” DIN rail mountable UPS, which provides conditioned power to sensitive electronic equipment in an industrial environment. It supplies connected equipment with stepped approximation to sinewave input during power outage to simulate the power generated by the utility.



**Figure 1: SDU-B Output Waveform**

Input voltage range is 75% to 120% (ideal protection for the critical connected loads). Battery charging occurs automatically when AC power is applied, no need to switch ON the UPS. The SDU also includes an automatic self-test feature to test the UPS function and battery. UPSwatch will record the event on EVENT LOG. UPS immediately switches to AC Mode to provide load power if AC is available from utility.

This SDU AC B-Series has a communication port that can accommodate an optional communication card.

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## 2.0 Important Safety Instructions

### 2.1 Safety Precautions—SAVE THESE INSTRUCTIONS

#### **WARNING**

**Warning — Explosion Hazard — Do not disconnect the equipment while the circuit is live or unless the area is known to be free of ignitable concentrations.**

**Warning — Explosion Hazard — Do not connect or disconnect the battery unless the area is known to be free of ignitable concentrations.**

**Warning — Explosion Hazard — Do not open the unit. Do not substitute components. Do not replace fuse.**

**Warning — Exposure to some chemicals may degrade the sealing properties of materials used in the sealed relay device.**

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This manual contains important safety instructions that should be followed during the installation of the Uninterruptible Power Supply (UPS). Please read all safety, installation, and operating instructions before attempting to install or operate the UPS. Follow all warnings on the unit and in this manual during installation and operation.

- To prevent the risk of fire or electric shock, install the UPS in a temperature and humidity controlled ventilated enclosure, free of conductive contaminants, moisture, flammable liquids, gases, and corrosive substances.
- To reduce the risk of electric shock, do not remove the cover, as it has no user-serviceable parts inside. Some components are live, even when ac power is disconnected. The enclosure must only be accessible by use of a tool (incorporated into the IP54 enclosure condition) Although your UPS has been designed and manufactured to assure personal safety, improper use can result in electrical shock or fire.
- The battery may be replaced by service personnel only.

To ensure safety, please observe the following rules:

- Turn OFF UPS and disconnect the AC supply before cleaning. Do not use liquid or aerosol cleaners. A dry cloth is recommended to remove dust from the surface of your UPS.
- Do not install or operate the UPS in or near water.
- Do not place the UPS on an unstable cart, stand, or table.
- Do not place the UPS under direct sunlight or close to heat-emitting sources.
- To allow proper ventilation of the UPS, do not block or cover the top and bottom sides of the unit. Do not insert any objects into the ventilation holes or other openings of the UPS. Keep all vents free of dust accumulation that could restrict airflow.
- Do not dispose of batteries in a fire; they may explode. Do not open or damage the battery. Released electrolyte is harmful to the skin and eyes and may be toxic.

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The power supplies should meet the following conditions for safe use when installed in a Class I, Division 2 Groups A B C D and Class I, Zone 2, Groups IIC Hazardous Location:

- (1) The equipment shall only be used in an area of not more than pollution degree 2, as defined in IEC 60664-1. Install in a controlled environment.
- (2) The equipment shall be installed in an enclosure that provides a degree of protection not less than IP54 in accordance with IEC 60079-0 and may only be accessible by use of a tool.
- (3) The operating temperature class (T-code) of this device was determined to be T4.

**If your UPS does not operate properly, turn OFF the UPS, disconnect the AC supply and contact your local distributor, SolaHD representative or SolaHD Technical Support at 1-800-377-4384.**

## 3.0 General Description

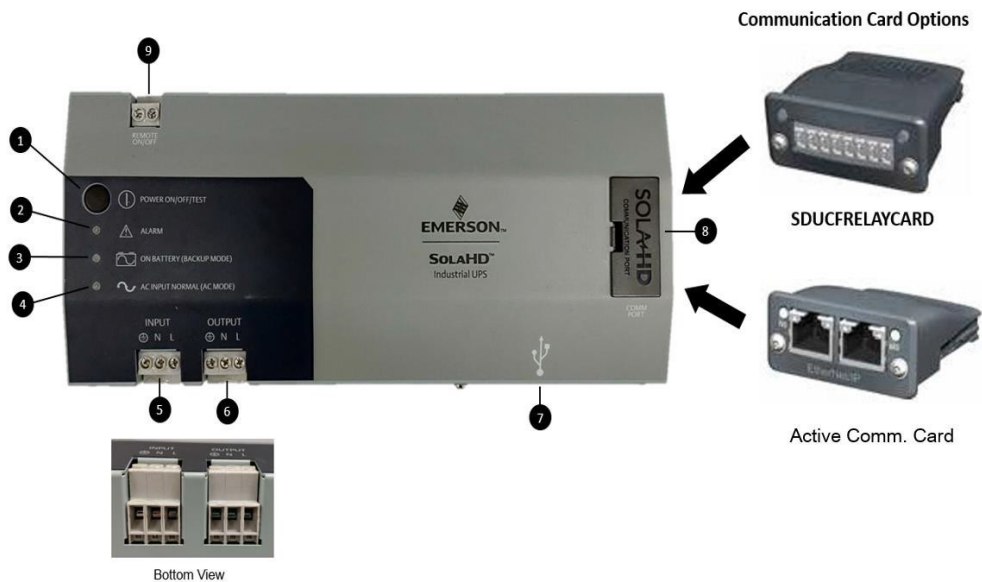


Figure 2: Front Panel

### 1. POWER ON/OFF/TEST:

**NOTE:** The factory ships unit with Power Lock Feature enabled. This is to avoid accidental startup of the UPS during shipping via the push button.

- To DISABLE – end user needs to apply desired AC input on the UPS Input AC connector then press the On/OFF Power button for >3 secs and release to turn on the unit.
- To ENABLE - apply AC input then press the On/OFF Power button for >10secs and release. ON - To turn the UPS ON, press and release the button for more than 3 seconds, UPS turns on and the LEDs light.

OFF - Press button until the audible alarm silences, UPS turns off.

SELF-TEST - Press the button for less than one second to activate the self-testing. After self-test 24 hours is needed before another self-test can be performed to avoid battery degradation. Monthly automated self-test programmed by default.

### 2. Battery Warning/Overload Indicator (Red LED):

The LED flashes when the battery needs to be recharged and tested.

The LED will illuminate when the unit is subjected to an overload condition.

If the unit shuts down due to overload, the LED and alarm will continue for two minutes.

**3. ON Battery Indicator (Yellow LED):** The LED illuminates when the UPS is supplying battery power to the loads.

**4. AC Input Normal Indicator (Green LED):** The LED illuminates when the line input voltage is normal.

**5. Input:** IP20-rated Input Screw Terminals.

**6. Output:** IP20-rated Output Screw Terminals.

**7. USB Port:** High speed 2.0 Standard USB Type B Peripheral Communication Port used to establish control and monitoring with UPSwitch software.

**8. COMM PORT:** Communication card slot.

**COMM CARDS:** SDUCFRELAYCARD and Active communication cards can be purchased separately.

The UPS can detect the presence of a COMM CARD and identify what kind of COMM CARD is inserted. USB communication will have precedence over COMM CARDS.

For more details, please reference documents within the SDU AC B-Series webpage within [www.SolaHD.com](http://www.SolaHD.com).

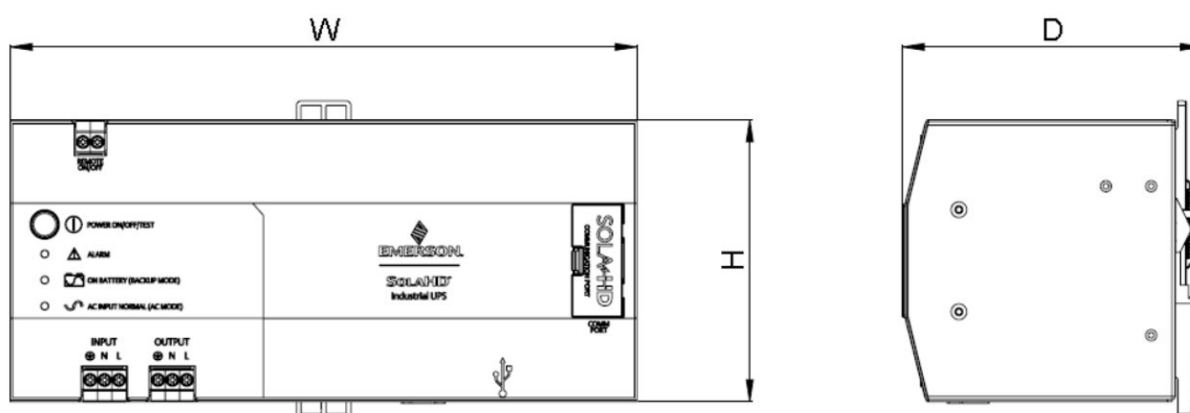
**9. REMOTE ON/OFF TERMINALS:** Use a switch to remotely toggle ON/OFF state. Non-Polarized terminals. No external voltage is required. We recommend using stranded UTP (Unshielded Twisted Pair) wire for connections.

## WARNING

Remote ON/OFF is grounded to the UPS internal signal ground so it should be isolated from the chassis ground to prevent any ground potentials that may cause a unit malfunction or damage. In addition, isolate the Remote ON/OFF wiring away from high current, high voltage, and high frequency components to prevent any magnetically coupled noise on the Remote On/Off connections.

Screw	M3.0; Current rating = 35 A, AC 600 V
Insulation Withstands Volts	A 2000 V min.
Preferred AWG	8–18 AWG
Screw Torque	9 lb-in (101.68 N-cm)

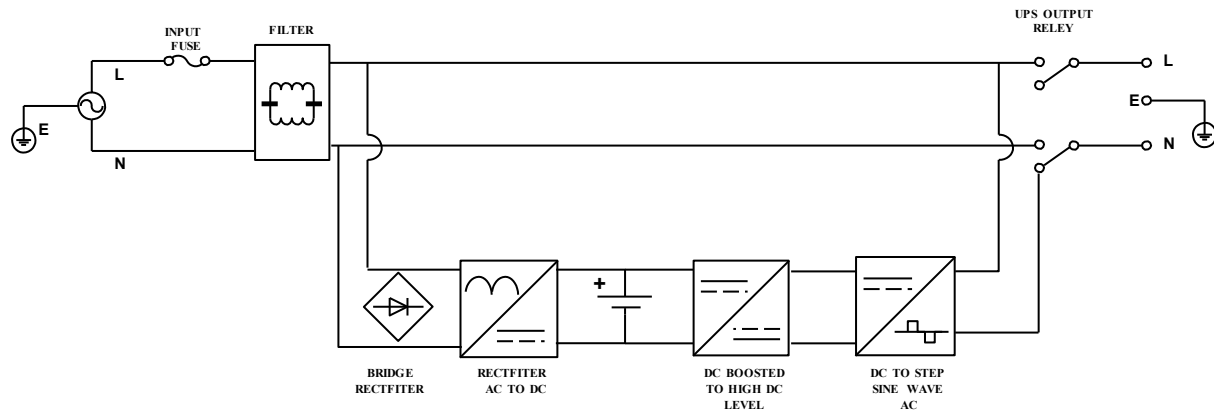
**Screw Terminals Description**



**Figure 3: Product Dimensions**

Catalog Number	Dimensions in Inches (Millimeters)		
	H	W	D
SDU AC B-Series	5.0 (126.7)	11.0 (279.5)	5.3 (135.2)

## 4.0 System Block Diagram



**Figure 4: SDU AC B-Series UPS System Block Diagram**

## 5.0 Installation Instructions

### WARNING

To reduce risk of fire, connect only to a circuit provided with 20A maximum branch circuit overcurrent protection in accordance with the National Electrical Code® (NEC®) and CEC.

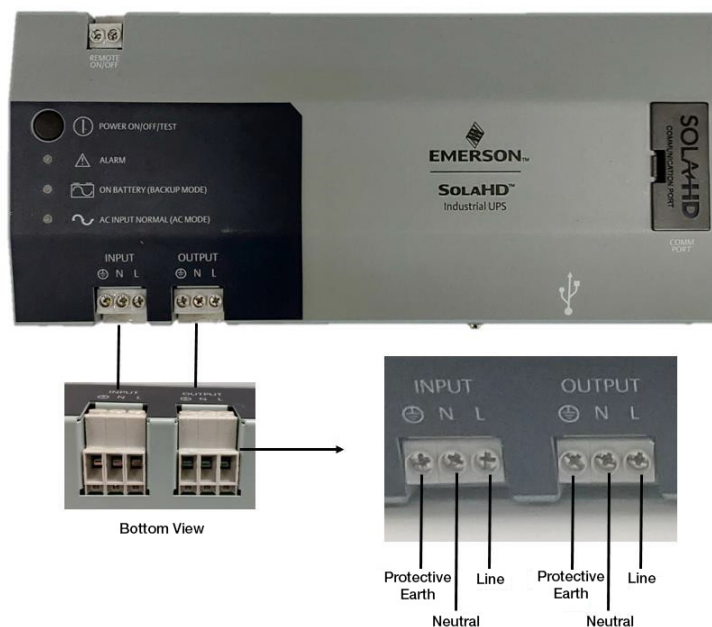


Figure 5: Input/Output Terminals

## INSTALLATION NOTICE

### TO AVOID CRITICAL DAMAGE TO UPS:

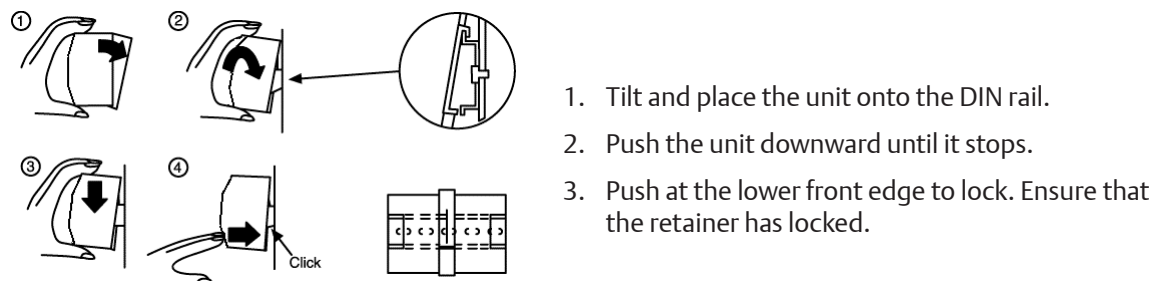
- DO NOT BOND THE INPUT AND OUTPUT NEUTRALS TOGETHER.
- DO NOT CONNECT THE OUTPUT NEUTRAL TO GROUND

- **Placement:** Install the UPS horizontally in a protected area with adequate airflow: 20mm above and below the unit, 10mm in front of the unit. Do not operate the UPS outdoors. It is required that an input breaker is added in front of the UPS.
- **COMM CARD Installation:** To install the optional card, remove the COMM PORT cover and insert the card. Refer to the SDU COMM CARD Manual for more details. (Refer to inside cover for COMM CARD options or contact your SolaHD representative).
- **DIN Rail Mounting:** Follow instructions below.

### Location

Install the power module and battery module in a protected area with adequate airflow and free of excessive dust. Do not operate the UPS outdoors.

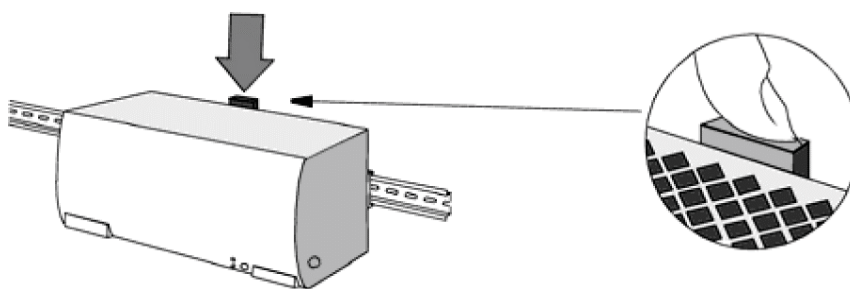
## DIN Rail Mounting



**Figure 6: Mounting the UPS DIN Rail**

## Removing the Unit from the DIN Rail

Push the button and swing the bottom out and up.



**Figure 7: Removing the UPS**

## WARNING

Risk of electric shock, disconnect AC main power source before wiring. Battery Circuit is not isolated from ac input, hazardous voltage may exist between battery terminals and ground - Test before touching.

Ensure proper grounding.

## INSTALLATION NOTICE

Before applying AC power, check impedance between the output neutral terminal on UPS and ground with a multimeter (load connection made, UPS in off state).

The meter must read high impedance (>100 KOhms).



- 
- **I/O Wiring:** Check that the UPS and the AC Supply is OFF (disconnected) before installation. Wire the UPS terminals with 90°C rated copper wire according to the table below. Connect the AC input ground terminal to the main supply ground. Connect line in neutral supply conductors. Connect the loads to the output hardwire connector. Verify proper wiring connections then apply power to the UPS.

Reference Figure 2.

<b>Wire Gauge</b>	8-18 AWG
<b>Screw Torque</b>	9lb-in. (101.7N-cm)

- **Internal Battery:** Charge the UPS battery for a minimum of 8 hours before initial use. The UPS charges its battery whether the UPS is on or off, when it is connected to AC power.
- **Do not** connect output Neutral to Ground.

---

## 6.0 Operating Instructions

### TURNING ON THE UPS

#### Initial Power On

The UPS is shipped with PowerLock enabled. PowerLock is a feature designed to prevent accidental turn on of the UPS when in transit. To turn off PowerLock and get the unit ready for first use, Follow the steps below (note: turn the UPS off and press the power button for 11-12 seconds until audible alarm sounds to enable PowerLock feature if needed).

1. Connect the UPS input to AC (120 or 230 Vac depending on model) with no load connected
2. Press the power ON/OFF button until audible alarm sounds (typically between 3 to 4 seconds) to disable the power lock feature, Unit is now ON and power lock feature is OFF(unit does a self check and then Green LED will illuminate and remains lit)
3. Turn the UPS unit OFF by pressing the ON/OFF button again until audible alarm silences and then release the button
4. Leave the unit connected to AC for 4 hours min (8 hours recommended) to re-charge the battery (UPS will charge weather output is ON or OFF)
5. Unit is ready for use.
  - Press the POWER ON/OFF/TEST button for more than 2 seconds and the LEDs will turn ON.

**NOTE:** If utility power is not present, the UPS will be in back-up mode. The load will be powered from the internal batteries until the discharge point is reached.

**NOTE:** The factory ships unit with Power Lock Feature enabled. This is to avoid accidental startup of the UPS during shipping via the push button.

- To DISABLE – end user needs to apply desired AC input on the UPS Input AC connector then press the On/OFF Power button for >10secs and release to turn on the unit.
- To ENABLE - apply AC input then press the On/OFF Power button for >10secs and release.

### TURNING OFF THE UPS

- Hold the POWER ON/OFF/TEST button until the alarm is silenced.

### ALARM

- Factory default setting is alarm enabled.
- To enable/disable Alarm:
- When the UPS is in back-up mode, press the POWER ON/OFF/TEST button for at least 1 second to silence the alarm (this function is disabled when the UPS status is either LOW BATTERY or OVERLOAD MODE). To re-enable the alarm, press the POWER ON/OFF/TEST button for at least 1 second. Additionally, you can enable/disable the alarm via UPSwatch Software.

### SELF TEST

- This UPS has a self-diagnostic feature that verifies both the operation of the UPS and the condition of the battery.

- 
- In AC mode, press and release the POWER ON/OFF/TEST button for 1 second to perform a self- test. During the self-test, the UPS momentarily operates in back-up mode (YELLOW LED will illuminate for 10 seconds then will change back to GREEN). If the UPS passes the self-test, it returns to AC mode.
  - In AC mode for 30 Days, the UPS will auto perform a self- test. During the self-test, the UPS momentarily operates in back-up mode (YELLOW LED will illuminate for 10 seconds then will change back to GREEN). If the UPS passes the self-test, it returns to AC mode.
  - Additionally, a self-test can be initiated via UPSwatch software or Active Comm Card. Contact Tech Support for details.

**NOTE:** The UPS needs to be continuously charged for more than 24 hours, otherwise the battery test will not be done.

If the self-test results in a failure, the UPS will change to AC mode. The UPS will pass through the input to the load. The red and yellow led will start flashing in an alternating pattern to inform user the battery needs to be replaced.

### STANDBY MODE

This feature is only available during back-up mode. Standby mode can be executed remotely using the COMM CARDS. This feature puts the UPS on standby after a maximum of 3 minutes (unless runtime is less than 3 minutes) and auto-recovers once AC power returns. This 3-minute window (or maximum run time depending on loading) allows the user to shut down their load or place equipment into safe mode.

### GREEN MODE

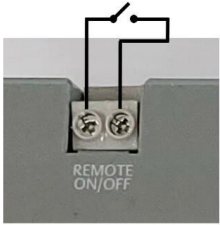
The Green mode is only for 230V models only. By default, Green Mode Enabled. If the load level is less than approximately 8% ~ 12%, the UPS will shut down to save battery in 3 minutes. If power is restored within 3 minutes the UPS will return to AC mode. Green Mode can be ENABLED or DISABLED by pressing the POWER ON/OFF at start-up shown on below table.

Green Mode	Alarm Signal
Enabled	Press Power ON/OFF button and release until "3 beeps"
Disabled	Press Power ON/OFF button and release until "2 beeps"

### REMOTE ON/OFF

- Allows the user to perform remote power ON/OFF functions using a switch on terminals (non-polarized) to toggle ON/OFF state.
- To Enable the UPS, close the switch that is connected to the terminals.
- To Disable the UPS, open the switch that is connected to the terminals.

REMOTE ENABLE/DISABLE OF UPS



SDU-B Remote ON/OFF Switch Wired	UPS Condition/State	Switch or Terminal Condition
UPS-B	ON	
UPS-B	OFF	

Remote ON/OFF Terminals: Shorted (closed) for ON, Open for OFF Non-Polarized terminals.  
No external voltage is required. We recommend using stranded UTP (Unshielded Twisted Pair) wire for connections.

## 7.0 LED Diagnostics

Condition	Description	LED	Alarm
<b>BACK-UP MODE</b>	UPS is in back-up mode due to AC Loss	YELLOW	Slow beeping. UPS sounds until AC utility power recovers.
<b>AC MODE</b>	Normal condition source supplied by AC Mains	GREEN	No Alarm
<b>AC MODE OVERLOAD</b>	Load around 105% of rated capacity	GREEN/RED	Alarm is ON during overload (if overload exceeds 105% of nominal at 5 mins, 120% at 10s, and 130% at 3s) and enters retry mode every 10 mins, until load is removed. UPS will not shut down.
	Load > 120% of rated capacity	GREEN/RED	
	Load > 130% of rated capacity	GREEN/RED	
<b>BACK-UP MODE OVERLOAD</b>	Load around 105% of rated capacity	YELLOW/RED	Alarm is ON during overload (if overload exceeds 105% of nominal at 20s, 120% at 10s, and 130% at 3s) and enters retry mode every 10 mins, until load is removed. UPS will not shut down.
	Load > 120% of rated capacity	YELLOW/RED	
	Load > 130% of rated capacity	YELLOW/RED	
<b>LOW BATTERY</b>	Low Battery Charge	YELLOW	During back-up mode when the battery charge runs low, the UPS beeps rapidly (ON 0.5 seconds, OFF 0.5 seconds) until the UPS shuts down or returns to AC Mode.

**Table 1: Diagnostics LED/Alarms**

## 8.0 Battery Replacement

### WARNING

The battery may be replaced by service personnel only.

When the UPS is installed in a Class I, Division 2 Groups A B C D or Class I Zone 2 II C hazardous location, adhere to the following:

**Warning — Explosion Hazard — Do not connect or disconnect the battery unless the area is known to be free of ignitable concentrations.**

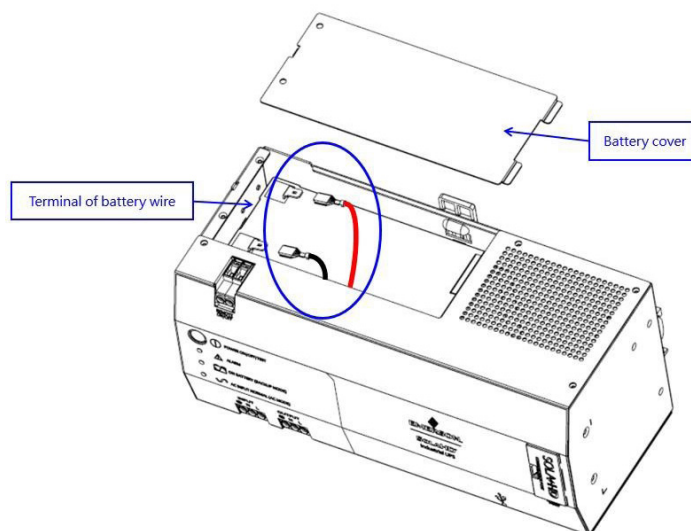
**NOTE:** Replace only with the battery manufacturer and type shown below.

Models	SDU 500B, SDU 500B-5		SDU 850B, SDU 850B-5	
VA/Watts	500/300		850/510	
Battery	CSB type XTV 1272F2FR	Yuasa type REW7-12FR	CSB type XTV1285F2FR	Yuasa REW45-12FR

### Steps to Replace Batteries

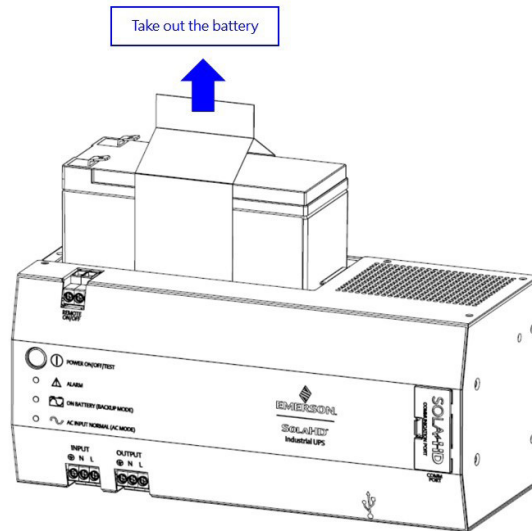
Step 1: Remove battery cover.

Step 2: Disconnect the terminal of battery wire.



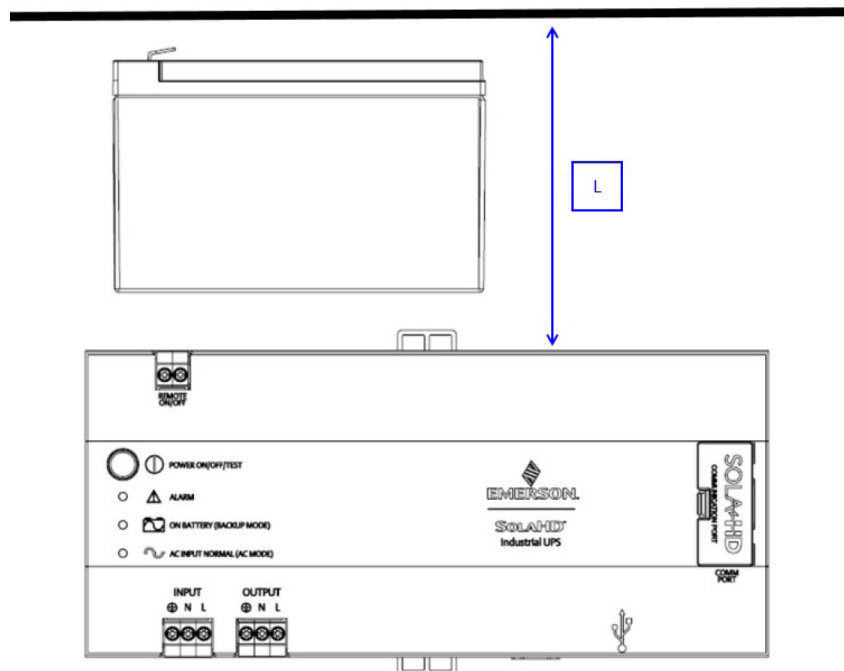
**Figure 8: Disconnect the Battery Wire and Remove Cover**

Step 3: Take out the battery



**Figure 9: Take Out the Battery**

**Notice:** Battery replacement distance required:  $L \geq 250\text{mm}$



**Figure 10: Battery Replacement Space**

## 9.0 Troubleshooting

### WARNING

When the UPS is installed in a Class I, Division 2 Groups A B C D or Class I Zone 2 II C hazardous location, adhere to the following:

**Warning — Explosion Hazard — Do not disconnect the equipment while the circuit is live or unless the area is known to be free of ignitable concentrations.**

**Warning — Explosion Hazard — Do not connect or disconnect the battery unless the area is known to be free of ignitable concentrations.**






**Warning — Explosion Hazard — Do not open the unit. Do not substitute components. Do not replace fuse.**

Trouble	Possible Cause	Solution
<b>UPS nonresponsive (No alarm and no light)</b>	UPS is powered off	Press ON/OFF button for TWO (2) seconds. Ensure the Power Lock feature is disabled.
	Battery is defective	Replace the battery.
	UPS fault	Contact Tech support.
<b>The UPS is always on battery mode</b>	Input may not be properly connected.	Check the input connection.
	Input fuse is open	Before reconnecting equipment, please verify that the load matches the UPS capability specified and output has short circuit protection. Contact Tech support.
<b>Actual backup time cannot be achieved</b>	Battery voltage is too low	Charge the battery at least eight (8) hours.
	Overload	Remove some unnecessary loads. Before reconnecting equipment, please verify that the load matches the UPS capability specified in spec.
	Battery defect	Replace the battery.
	UPS fault or charger failure	Contact Tech support.
<b>Fault code displayed</b>	Overload	Remove some unnecessary loads. Before reconnecting equipment, please verify that the load matches the UPS capability specified in spec.
	UPS short-circuit	Contact Tech support.



# 10.0 Technical Specifications

Description	Catalog Number			
	SDU 500B	SDU 850B	SDU 500B-5	SDU 850B-5
INPUT				
Capacity VA/Watts	500/300	850/510	500/300	850/510
Nominal Voltage	120 Vac		230 Vac	
Frequency	50 or 60 Hz			
Harmonic	Total Harmonic Distortion, value 38.1% Maximum Single Harmonic Distortion, value 31.3%			
Power Factor	0.6			
OUTPUT (Back-Up Mode)				
Voltage Vac	Simulated sinewave			
	120 V		230 V	
Frequency	50 or 60Hz			
Transfer Time	Typical<8ms			
PROTECTION				
Input (internal)	10A	8A	6.3A	
Overload Protection	UPS shutdown if overload exceeds 105% of nominal at 20s,120% at 10s,130% at 3s; auto-recovery			
Short Circuit (utility mode)	In the event of dead short on the outputs of the UPS, input fuse will break.  Once the fuse opens, UPS goes to battery Mode and goes on Battery Mode Short Circuit protection until OSCP is removed.			
Short Circuit (battery mode)	Retry until the short Circuit is removed or battery defect.			
BATTERY				
Type	Sealed, maintenance-free, lead acid batteries			
Typical Recharge Time	8 hours			
Typical Back-Up Time (at full load)	4:20min.	1:30min.	4:20min.	1:30min.
ALARM				
ON Battery	Slow beeping every 10 seconds			
Battery Low	Rapid beeping every second			
Overload	Continuous beeping sound			

Description	Catalog Number			
	SDU 500B	SDU 850B	SDU 500B-5	SDU 850B-5
ENVIRONMENT				
Ambient Operation	0–95% humidity,non-condensing. Ordinary Location: 0 - 50 °C up to 3000m/ Hazardous Location: 0 - 40 °C up to 2000m			
Audible Noise	<40 dBA (1 m from surface)			
Vibration	Operating - IEC60068-2-6, Sine Wave: 10Hz to 60 Hz displacement of 0.35mm, 60Hz to 500Hz@5G; 60 min per axis for all X, Y, Z direction.			
	Non-operating - IEC60068-2-6,Random :5Hz to 500Hz@2Grms; 20minperaxis for all X,Y,Z			
Shock	Operating - IEC60068-2-27, Half Sine Wave: 10G for a duration of 10g for a duration of 10ms, 3 shocks each in 3 axes in positive and negative direction.			
	Non-operating - IEC60068-2-27, Half Sine Wave: 20g for duration of 10ms, 3 shocks in 3 axes in positive and negative direction.			
WEIGHT & DIMENSIONS				
Net Weight	10.8 lb. (4.9kg)	11.5 lb. (5.2kg)	10.8 lb. (4.9kg)	11.5 lb. (5.2kg)
H x W x D	4.89 x 10.91x 5.22in(124.2 x 277.0 x132.7 mm)			
CERTIFICATIONS				
Safety	 UL 1778, 5th Ed./CSA 107.3 overvoltage category II, pollution degree 2, evaluated for use in UL 508 industrial control applications overvoltage category III, pollution degree 3 with no output derating			
	 UL121201/CSA 213 Class I, Division 2 Groups A B C D T4			
	 EN IEC 60079-0, EN IEC 60079-7, EN IEC 60079-15 II 3 G Ex ec nC IIC T4 Gc, UL 20 ATEX 2442X, UL21UKEX2170X			
	 LVD EN 62040-1 ODVA Compliant			
EMC	 FCC Part 15, Subpart B, Class A Level 4			
	EMCDirective – EN62040-2; EN55032; EN 55011, EN 55024, EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61326-1, EN61000-3-2, EN 61000-3-3, IEC/EN 61000-4 Series (Level 4, Criterion A), IEC/EN 61000-4-3 (Level 3, Criterion A)			

## 10.1 UPS Battery

The UPS has an internal 12V sealed Valve Regulated Lead Acid (VRLA) rechargeable battery.

Models	SDU 500B, SDU 500B-5		SDU 850B, SDU 850B-5	
VA/Watts	500/300		850/510	
Battery	CSB XTV 1272F2FR	Yuasa REW7-12FR	CSB XTV1285F2FR	Yuasa REW45-12FR
Load Level	Approximate Back-Up Time (Minutes)		Approximate Back-Up Time (Minutes)	
50%	14:30	14:30	7:00	7:00
100%	4:20	4:20	1:30	1:30

**Table 2: Battery Back-Up Time Chart**

**Note:** Run times in this table are approximate. They are based upon new, fully charged standard battery modules at a temperature of 25°C (77°F) with 100% resistive UPS loading. Run times listed above can vary due to manufacturing variances of the individual batteries.

### WARNING

- Call SolaHD Technical Support for further instructions.
- Do not mount the UPS in an upside-down orientation.

## 10.2 Storage

Ambient temperature range is -15 °C to +60 °C (5 °F to 140 °F). It is recommended to charge the UPS for at least 8 hours then store the UPS covered and upright in a cool, dry location. Remove accessories and disconnect cables connected to the UPS to avoid unnecessary draining of the battery.

### Recharging the Battery (When UPS is Not in Use)

- Locate the recharge label on the box containing the product. The label will indicate the last recharge date.
- Please refer to the label for the next recharge due date.
- If the product is due for recharge, please follow the wiring diagram (Figure 10) to recharge the SDU 24-BATB.
- Please allow 8 hours to fully recharge a battery.
- Once the battery is recharged, please create a LOG and track the due dates to properly maintain the charge.

### Extended Storage

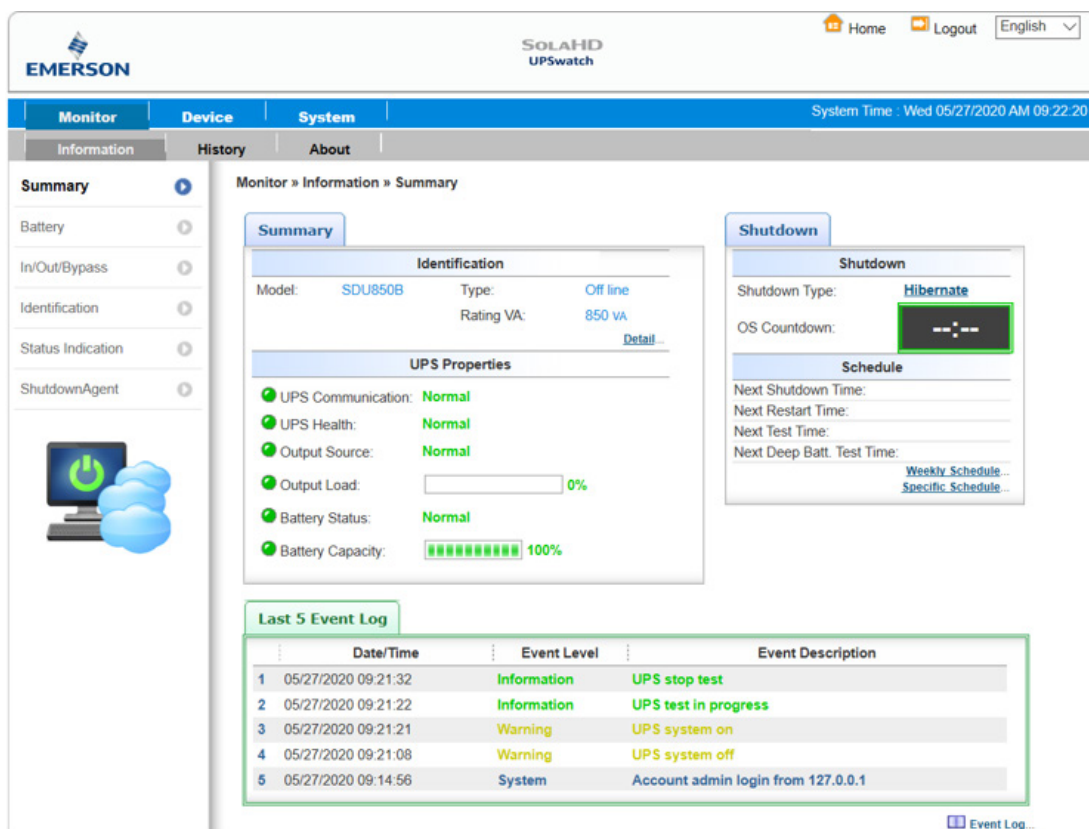
- During extended storage in environments where the ambient temperature is: -15 °C to +30 °C (+5 °F to +86 °F), charge the UPS battery every six months.
- During extended storage in environments where the ambient temperature is: +30 °C to +45 °C (+86 °F to +113 °F), charge the UPS battery every three months.

# 11.0 Software and Interface

## Power Monitoring Software (UPSwatch Software)

**Note:** UPSwatch - Monitoring/diagnostic Software is available by downloading at [www.solahd.com](http://www.solahd.com)

The software is compatible with: Windows 7, 8, 10, Windows 2003, 2008, 2012, 2016, Windows 2008/2012 Server Core, Hyper-V 2008/2012, Oracle Linux 7.1, Linux OpenSUSE 11.4, Linux Ubuntu 10.04, Linux Fedora 3.1.9, CentOS 5.8, Citrix XenServer 6.0.0, and Linux KVM.



**Figure 11: UPSwatch Control Panel Monitoring System**

With the UPSwatch software, users can perform monitoring functions and an orderly shutdown of protected equipment in the event of power failure. UPSwatch displays diagnostic information such as: voltage, frequency and battery levels. UPSwatch Software screen is shown in Figure 11.

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The information in this manual is provided as a guide for installation, operation, and maintenance. It does not affect or exceed our obligations under the Terms and Conditions of Sale.

Note that unit specifications are subject to change without notice.

## Technical Support

Website: [www.solahd.com](http://www.solahd.com)

Technical Support E-Mail: [solahd.technicalservices@emerson.com](mailto:solahd.technicalservices@emerson.com)

Toll-Free: (800) 377-4384

USA: (847) 268-6651

## Warranty

Please see the “Terms & Conditions of Sale” document within the UPS packaging.

While every precaution has been taken to ensure accuracy and completeness in this manual, Appleton Grp LLC d/b/a Appleton Group assumes no responsibility, and disclaims all liability for damages resulting from use of this information or for any errors or omissions.



## SDU AC B-Series

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### **United States (Headquarters)**

Appleton Grp LLC  
9377 W. Higgins Road  
Rosemont, IL 60018  
United States  
T +1 800 621 1506

### **Australia Sales Office**

Bayswater, Victoria  
T +61 3 9721 0387

### **Korea Sales Office**

Seoul  
T +82 2 3483 1555

### **Europe**

ATX SAS  
Espace Industriel Nord  
35, rue André Durouchez,  
CS 98017  
80084 Amiens Cedex 2  
France  
T +33 3 2254 1390

### **China Sales Office**

Shanghai  
T +86 21 3338 7000

### **Canada**

EGS Electrical Group Canada  
Ltd.  
99 Union Street  
Elmira ON, N3B 3L7  
Canada  
T +1 888 765 2226

### **Middle East Sales Office**

Dammam, Saudi Arabia  
T +966 13 510 3702

### **Asia Pacific**

EGS Private Ltd.  
Block 4008, Ang Mo Kio  
Ave 10,  
#04-16 TechPlace 1,  
Singapore 569625  
T +65 6556 1100

### **Chile Sales Office**

Las Condes  
T +56 2928 4819

### **Latin America**

EGS Comercializadora  
Mexico S de RL de CV  
Calle 10 N°145 Piso 3  
Col. San Pedro de los Pinos  
Del. Álvaro Obregon  
Ciudad de México. 01180  
T +52 55 5809 5049

### **India Sales Office**

Chennai  
T +91 44 3919 7300

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