

# Rebling Datasheet: 250 amp Snap-Into-Panel Lithium Battery Terminal

Our Snap Into Panel (SIP) Terminal represents a quantum leap forward in terminal technology by eliminating all panel-attachment hardware which reduces cost, minimizes assembly labor and improves installation consistency and quality. The SIP is designed to be installed with a manual or pneumatic arbor press on panels from 0.057" to 0.255" thick. The patented SIP is designed for high vibration applications, has the same nickel-plated brass core as our other 250 amp terminals, accepts the same snap-on rigid or flexible covers and stays cool at extreme charge or discharge rates. Equipping your design with these watertight terminals will enable system integrators to easily incorporate your battery modules into the MicroGrid, Reserve Power, Vehicle Electrification or APU systems the end-user requires, regardless of battery chemistry. Whether you are coupling battery modules in series for a stationary power application, a genset SLI module, a datacenter reserve power system or simply bringing DC power from the inside to the outside of a metal panel, our SIP Terminal, Covers and Accessories were designed with your application in mind.

## Electrical

**Current** each current profile causes a max 30° C temperature rise when tested per IEC 61984

Current Profile #1	Continuous Rated Current (CRC)	-----	250 amps
Current Profile #2	50% CRC for 60min + 1 sec peak + 50% CRC for 60 min		1,500 amps
Current Profile #3	50% CRC for 60min + 10 sec peak + 50% CRC for 60 min	-----	1,000 amps
Current Profile #4	50% CRC for 60min + 30 sec peak + 50% CRC for 60 min		750 amps
Current Profile #5	50% CRC for 60min + 60 sec peak + 50% CRC for 60 min	-----	500 amps

## Voltage & Resistance

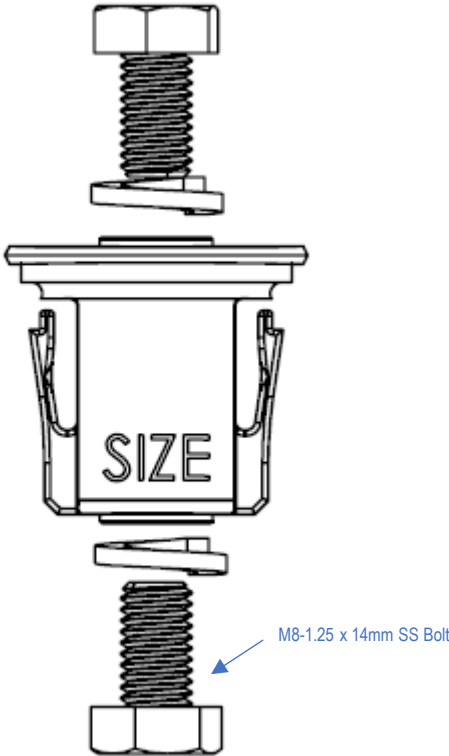
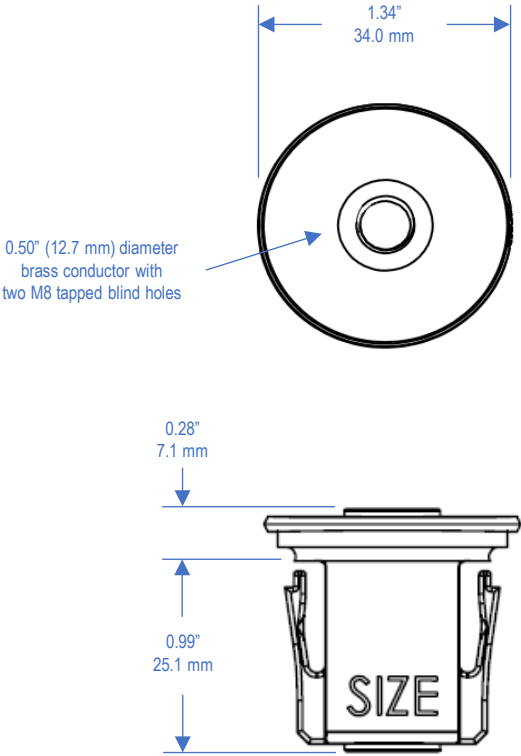
Continuous Rated Voltage	UL1977 Section 17	2,000 volts
Minimum Dielectric Withstanding Voltage	UL1977 Section 17	5,000 volts
Insulation Resistance	MIL-PRF-18148D Section 3.12.6	500 mega-ohms
Maximum Contact Resistance	MIL-STD-202H Method 307	70 micro-ohms

## Mechanical & Environmental

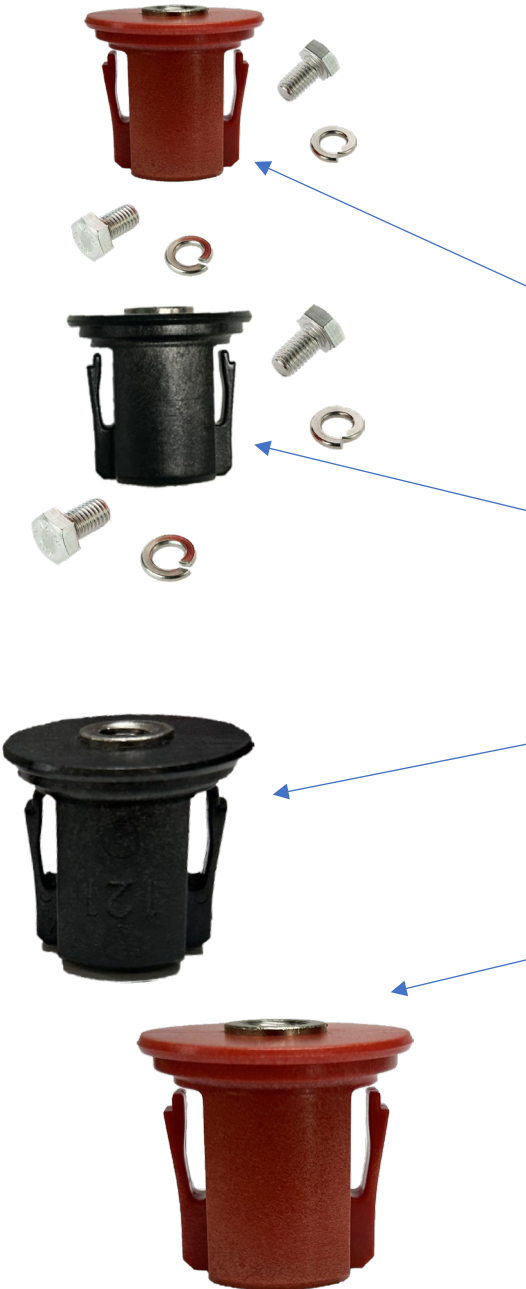
Flammability Rating:	Terminal and Rigid Covers -----	UL 94	V-0
	Flexible Cover	UL 94	V-0
Environmental Sealing:	with Optional O-Ring -----	IEC 60529	IP68+ watertight
	without Optional O-Ring	IEC 60529	IP55
Operating Temperature:	Terminal and Rigid Covers -----		-40 to +125 C
	Flexible Cover		-40 to +90 C
Mechanical Shock	MIL-STD-202H Method 213 Condition A		50 Gs – 3 axes
Vibration	MIL-STD-202H Method 204 Condition A		10 Gs – 3 axes
Metal Panel Thickness Required for Mounting			0.057" (1.4 mm) minimum 0.255" (6.5 mm) maximum
Maximum Wire Size:	Terminal only or with Flexible Cover -----		4/0 (110 mm²)
	with Rigid Short Snap-On Cover		3/0 (80 mm²)
	with Rigid Long Snap-On Cover		2 AWG (35 mm²)

## Compliance & Conformance

RoHS, REACH, CMRT/3TG	All parts listed on this datasheet are RoHS, REACH and CMRT/3TG Compliant
UL and CE Conformance	Declarations of UL and CE Conformity can be downloaded from <a href="https://rebling.com">Rebling.com</a>



For complete dimensions, download 3D Step files of Terminal and Accessories at [Rebling.com](https://rebling.com)







P/N	Description	Plastic Color	Weight (Grams)	Min Thick (mm)	UL 94 Rating	UL Material Yellow Card # **
SIP-250-062-B	Terminal Kit*, Brass, Nickel Plated, for .062" Panel, Black	Black	62	1.6	V-0	E121562-220886
SIP-250-077-B	Terminal Kit*, Brass, Nickel Plated, for .077" Panel, Black	Black	62	1.6	V-0	E121562-220886
SIP-250-121-B	Terminal Kit*, Brass, Nickel Plated, for .121" Panel, Black	Black	62	1.6	V-0	E121562-220886
SIP-250-250-B	Terminal Kit*, Brass, Nickel Plated, for .250" Panel, Black	Black	62	1.6	V-0	E121562-220886
SIP-250-062-R	Terminal Kit*, Brass, Nickel Plated, for .062" Panel, Red	Red	62	1.6	V-0	E121562-220886
SIP-250-077-R	Terminal Kit*, Brass, Nickel Plated, for .077" Panel, Red	Red	62	1.6	V-0	E121562-220886
SIP-250-121-R	Terminal Kit*, Brass, Nickel Plated, for .121" Panel, Red	Red	62	1.6	V-0	E121562-220886
SIP-250-250-R	Terminal Kit*, Brass, Nickel Plated, for .250" Panel, Red	Red	62	1.6	V-0	E121562-220886
857A2002-062-B	Terminal Only, Brass, Nickel Plated, for .062" Panel, Black	Black	39	1.6	V-0	E121562-220886
857A2002-077-B	Terminal Only, Brass, Nickel Plated, for .077" Panel, Black	Black	39	1.6	V-0	E121562-220886
857A2002-121-B	Terminal Only, Brass, Nickel Plated, for .121" Panel, Black	Black	39	1.6	V-0	E121562-220886
857A2002-250-B	Terminal Only, Brass, Nickel Plated, for .250" Panel, Black	Black	39	1.6	V-0	E121562-220886
857A2002-062-R	Terminal Only, Brass, Nickel Plated, for .062" Panel, Red	Red	39	1.6	V-0	E121562-220886
857A2002-077-R	Terminal Only, Brass, Nickel Plated, for .077" Panel, Red	Red	39	1.6	V-0	E121562-220886
857A2002-121-R	Terminal Only, Brass, Nickel Plated, for .121" Panel, Red	Red	39	1.6	V-0	E121562-220886
857A2002-250-R	Terminal Only, Brass, Nickel Plated, for .250" Panel, Red	Red	39	1.6	V-0	E121562-220886






\*Terminal Kit = one Terminal + two Bolts + two Split Washers, all parts in a small poly bag

\*\*UL Material Yellow Cards can be downloaded from [ULprospector.com](https://ulprospector.com)

Each terminal can be mounted through a panel 0.005" thinner or thicker than the nominal panel thickness shown above



P/N	Description	Plastic Color	Weight (Grams)	Min Thick (mm)	UL 94 Rating	UL Material Yellow Card # **
713A1806-B	Flexible Snap-On Cover (3.75" OAL, 0.82" ID)	Black	26	2.0	V-0	E80017-250533
698A1789-S-B	Rigid Snap-On Cover, Short (1.44" OAL)	Black	9	2.0	5VA	E121562-101513781
698A1789-L-B	Rigid Snap-On Cover, Long (2.23" OAL)	Black	12	2.0	5VA	E121562-101513781
850A1991-B	Angled Cover for Two Cables, Black	Black	20	1.5	V-0	E121562-220886
850A1992-B	Straight Cover for Two Cables, Black	Black	20	1.5	V-0	E121562-220886
713A1806-R	Flexible Snap-On Cover (3.75" OAL, 0.82" ID)	Red	26	2.0	V-0	E80017-250533
698A1789-S-R	Rigid Snap-On Cover, Short (1.44" OAL)	Red	9	2.0	5VA	E121562-101513781
698A1789-L-R	Rigid Snap-On Cover, Long (2.23" OAL)	Red	12	2.0	5VA	E121562-101513781
850A1991-R	Angled Cover for Two Cables, Red	Red	20	1.5	V-0	E121562-220886
850A1992-R	Straight Cover for Two Cables, Red	Red	20	1.5	V-0	E121562-220886
857A2014	O-Ring for SIP Terminal	Black	0.5	2.5	V-0	Material = EPDM



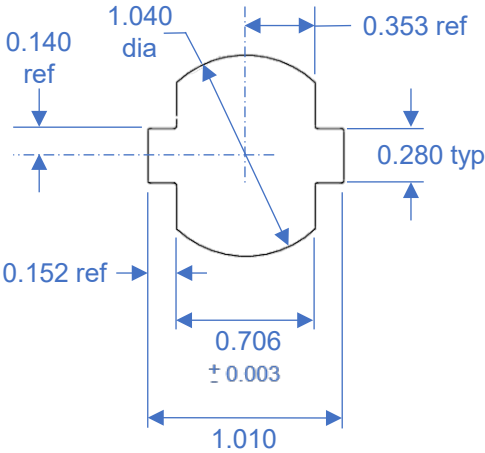
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Mounting and Assembly

Panel Thickness (aluminum or steel)	0.057" (1.4 mm) Minimum 0.255" (6.5 mm) Maximum	see Application Note #1 below for panel thickness tolerances
Mounting Hole Pattern	See Diagram Below	see Application Note #2 below for installation using an Arbor Press
Torque on M8 Bolts:		
Recommended	50 to 60 in-lbs (5.6-6.8 Nm)	electrical performance does not get better or worse above 50 in-lbs (5.6 Nm)
Maximum Recommended	240 in-lbs (27 Nm)	a Grade 4, M8 stainless bolt will snap at 330 in-lbs (37 Nm)
Maximum Crimp Lug Tongue Width:		
with Flexible Cover	1.10" (28 mm)	
with Short Rigid Snap-on Cover	0.91" (23 mm)	
with Long Rigid Snap-on Cover	0.70" (18 mm)	

Application Notes

- Panel Thickness: the SIP is available in 4 sizes for 4 nominal panel thicknesses (0.062", 0.077", 0.121" and 0.250"). The panel can be 0.005" thinner or thicker than nominal and still achieve a watertight (IP68+) rating when installed with its O-ring.
- Arbor Press Installation: the SIP is designed to be press-fit into a panel with 250 pounds (1100 N) of force. A manual, pneumatic or hydraulic press should be used to apply vertical force to the terminal's 1.34" diameter plastic face to partially compress the O-ring, allowing the terminal's snap-in-fingers to pop outwards and hook onto the underside of the panel with an audible click. For best results, the end of the press ram should not articulate, should have an outside diameter between 1.3" (33 mm) and 1.6" (40 mm) and a central counterbore 0.63" (16 mm) in diameter and 0.10" (2.5 mm) deep.
- Watertight is superior to IP68: Rebling terminals are completely watertight to a depth of 20 meters which is superior to any IP Rating. The definitions of IP67, IP68 and IP69k per IEC 60529 state that "water may penetrate the seal but shall do no harm", a condition that is unacceptable to lithium battery designers.
- Cable Pulling Lubricant: when using 4/0 (110 mm<sup>2</sup>) cable with the flexible cover, crimp the lug to the cable then push the lug into the cover using lubricant
- 5. Loctite (Thread Locking Fluid) Warning: some thread-locking fluids can cause a terminal's plastic body to crack.** Loctite's datasheets warn that its products should not be used near any thermoplastic because their fluid (or its vapor) can change the chemical structure of thermoplastic, causing stress cracks to appear weeks or months after the fluid was applied to metal bolts on or near a terminal.



Mounting Hole Pattern  
(dimensions in inches)