Smart Battery Tray Catalog

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Introduction to the Arbin Smart Battery Tray

Arbin SBTR-OTO Series: Battery Test Fixture with Closed-Loop TEC Cooling per Cell

Each cell features an independently regulated thermoelectric module with closed-loop control, enabling precise thermal stability during high-current testing.

Figure 1: Arbin SBTR with Thermal Chamber

Description

Arbin's SBTR-OTO battery tray features advanced thermal management with integrated thermoelectric cooling (TEC) modules to provide precise, independent temperature control for each cell. Designed for high-performance testing environments, each cell is seated within a machined aluminum housing that ensures direct thermal contact with the TEC module. The opposite side of the TEC is exposed to ambient conditions—typically an environmental chamber—allowing for passive or chamber-assisted heat rejection.

Features

- **Individual TEC Control**: Each cell has its own dedicated TEC for closed-loop temperature regulation
- **Machined Aluminum Interface**: Maximizes thermal conductivity and mechanical stability
- **Active Cooling Support:** Designed to maintain ±2°C surface temperature control under typical load conditions. Performance may vary based on cell type, charge/discharge profile, and chamber airflow
- **Tool-Free Access**: Pull-out tray with thermal insulation cover allows easy cell replacement
- **Flexible Integration**: Compatible with multi-opening environmental chambers and isolation racks

Arbin SBTR-Parallel/Series (PS) Testing Architecture

Figure 2: Arbin SBTR Rack

Description

Arbin's SBTR-PS battery tray boosts throughput while keeping per-cell insight. Cells are paralleled when needed for current sharing, then connected in series and driven by a single IV channel. A dedicated active equalization network keeps inter-cell voltage differences minimal during operation, while per-cell measurement captures individual voltage and current with up to 0.02% FSR accuracy. By exercising all cells under the same profile and environment, SBTR-PS delivers consistent comparisons that make cell-to-cell differences easy to see—all while reducing channels and cabling to lower overall test-equipment cost.

Features

- **Single-Channel PS Architecture:** During battery testing, cells are first connected in parallel (in some high-current cases, parallelizing may not be required), then connected in series and controlled by a single IV channel.
- **Active Equalization Circuitry:** Dedicated circuitry keeps the voltage differences among series-connected cells very small (effectively equalizing cell voltages) during the test.
- **Per-Cell Measurement:** Each cell's current and voltage are measured independently, with accuracy up to 0.02% FSR (full-scale range).
- **Consistent Comparisons:** The difference of cell characteristics can be clearly compared since all cells are tested under the same operating conditions.
- **Reduced Channels & Cabling**: This approach significantly reduces the number of IV channels and cables required, lowering overall test-equipment cost.

SBTR Illustrations

Description

Arbin Instruments offers a Smart Battery Tray (SBTR). SBTR system uses racks or environmental chambers to house battery trays; each tray holds removable battery holders, and cells are mounted in these holders for testing.

- The SBTR can be installed inside a chamber, allowing the chamber's environmental temperature to be set for the SBTR.
- It can also be installed in a rack and operated in open ambient (room-temperature) conditions.
- The SBTR slides in and out of the chamber/rack on rails; once the tray is pulled out, battery clamps can be replaced.
- Electrical connections are made via connectors on both sides of the front panel, so operators do not need to handle cables—improving safety and reducing the risk of operator error.
- SBTRs are available in multiple specifications along with a wide variety of battery clamp types and sizes.

Figure 3: SBTR Thermal Chamber Storage Illustration

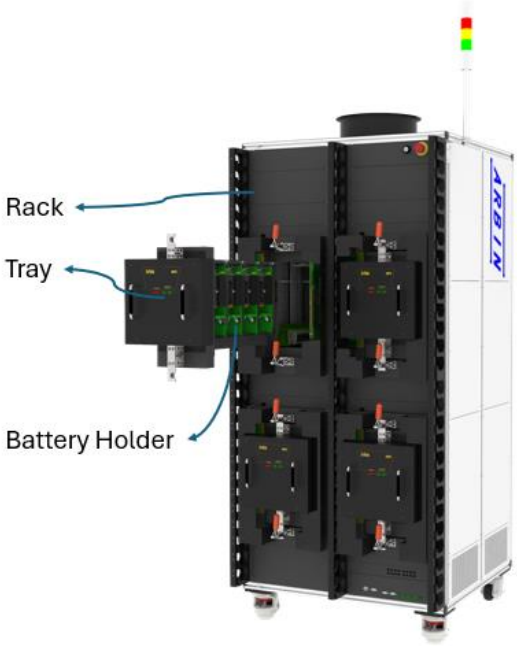


Figure 4: SBTR Rack Storage Illustration

SBTR Illustrations

Figure 5: SBTR Battery Tray – Inside View

Figure 6: SBTR Battery Tray with Battery Holders Removed

Figure 7: SBTR Rack – Side View

Figure 8: SBTR Rack – Front View

Figure 9: SBTR Thermal Chamber – Side View

SBTR Battery Trays - OTO

400-A, 2-Channel Pouch/Prismatic cell-tabs on same side Battery Tray, Part Number 475670

Specifications

Name	Specification
Part Number	475670
Maximum Number of Battery Holders	2
Maximum Number of Cells	2
Maximum Current per Cell	400 A
Voltage Range	-5V to 5V
Maximum Output Current for Parallel Self-Discharge Current Measurement(SDCM)	±1 ±0.02
Current Accuracy for Parallel SDCM	+0.02% full scale
Exterior Dimensions	12”W x 32.5”D x 20”H

Battery Holder Trays

The following battery holder trays (sold separately) are compatible with this unit

Part Number	Description
475700	400A, 1-Channel Pouch cell-tabs on same side
475702	400A, 1-Channel Prismatic cell-tabs on same side

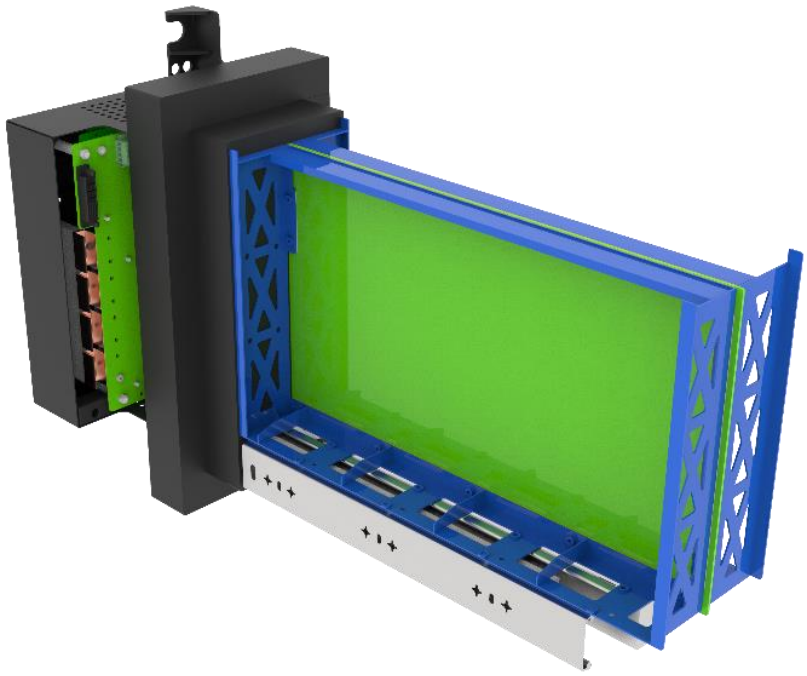


Figure 10: 400-A, 2-Channel Pouch/Prismatic cell-tabs on same side Battery Tray

400-A, 2-Channel Pouch/Prismatic cell-tabs on opposite side Battery Tray, Part Number 475672

Specifications

Name	Specification
Part Number	475672
Maximum Number of Battery Holders	2
Maximum Number of Cells	2
Maximum Current per Cell	400 A
Voltage Range	-5V to 5V
Maximum Output Current for Parallel Self-Discharge Current Measurement(SDCM)	±1 ±0.02
Current Accuracy for Parallel SDCM	+0.02% full scale
Exterior Dimensions	12”W x 32.5”D x 20”H

Battery Holder Trays

The following battery holder trays (sold separately) are compatible with this unit

Part Number	Description
475704	400A, 1-Channel Pouch cell-tabs on opposite side
475706	400A, 1-Channel Prismatic cell-tabs on opposite side

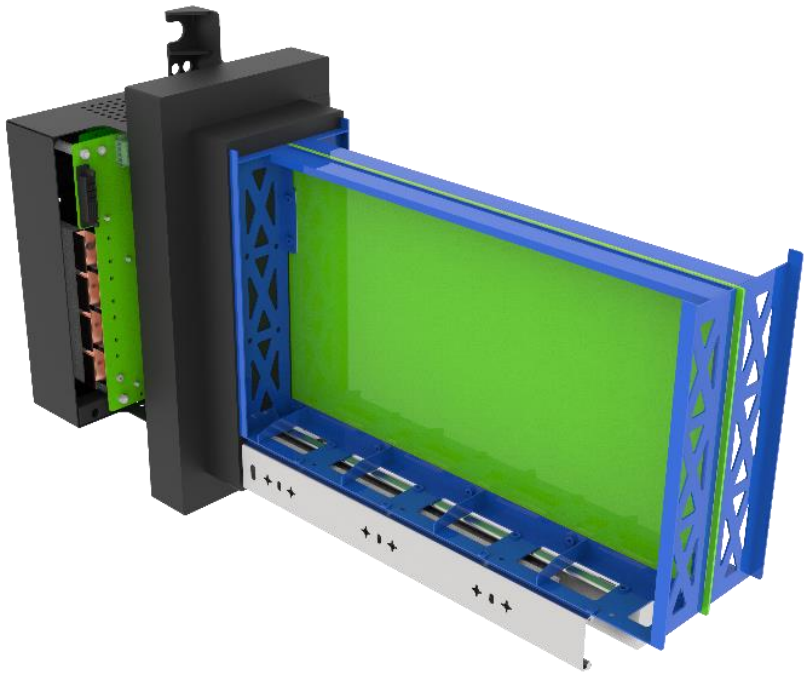


Figure 11: 400-A, 2-Channel Pouch/Prismatic cell-tabs on opposite side Battery Tray

200-A, 4-Channel Pouch/Prismatic cell-tabs on same side Battery Tray, Part Number 475666

Specifications

Name	Specification
Part Number	475666
Maximum Number of Battery Holders	2
Maximum Number of Cells	4
Maximum Current per Cell	200 A
Voltage Range	-5V to 5V
Maximum Output Current for Parallel Self-Discharge Current Measurement(SDCM)	±1 ±0.02
Current Accuracy for Parallel SDCM	+0.02% full scale
Exterior Dimensions	12”W x 32.5”D x 20”H

Battery Holder Trays

The following battery holder trays (sold separately) are compatible with this unit

Part Number	Description
475692	200A, 2-Channel Pouch cell-tabs on same side
475694	200A, 2-Channel Prismatic cell-tabs on same side

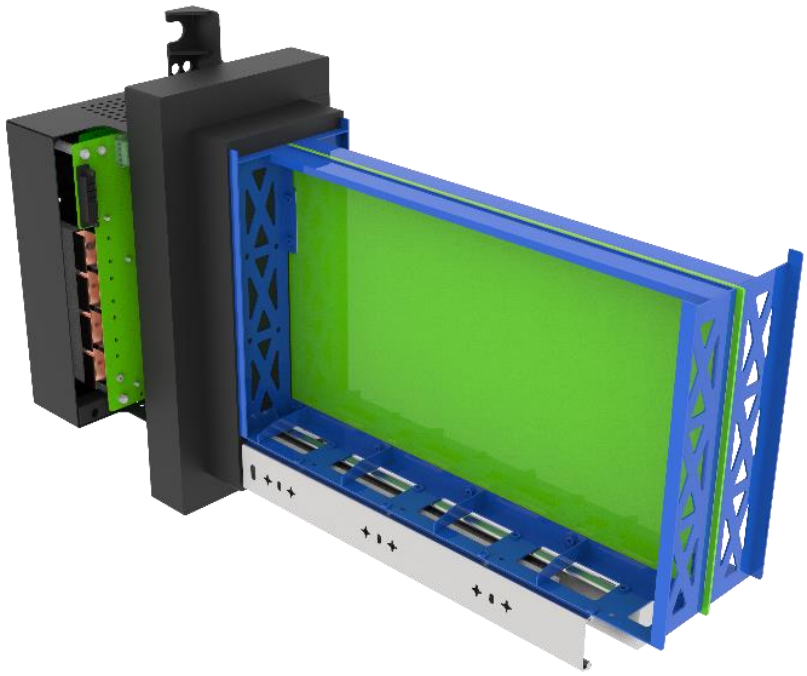


Figure 12: 200-A, 4-Channel Pouch/Prismatic cell-tabs on same side Battery Tray

200-A, 4-Channel Pouch/Prismatic cell-tabs on opposite side Battery Tray, Part Number 475668

Specifications

Name	Specification
Part Number	475668
Maximum Number of Battery Holders	2
Maximum Number of Cells	4
Maximum Current per Cell	200 A
Voltage Range	-5V to 5V
Maximum Output Current for Parallel Self-Discharge Current Measurement(SDCM)	±1 ±0.02
Current Accuracy for Parallel SDCM	+0.02% full scale
Exterior Dimensions	12”W x 32.5”D x 20”H

Battery Holder Trays

The following battery holder trays (sold separately) are compatible with this unit

Part Number	Description
475696	200A, 2-Channel Pouch cell-tabs on opposite side
475698	200A, 2-Channel Prismatic cell-tabs on opposite side

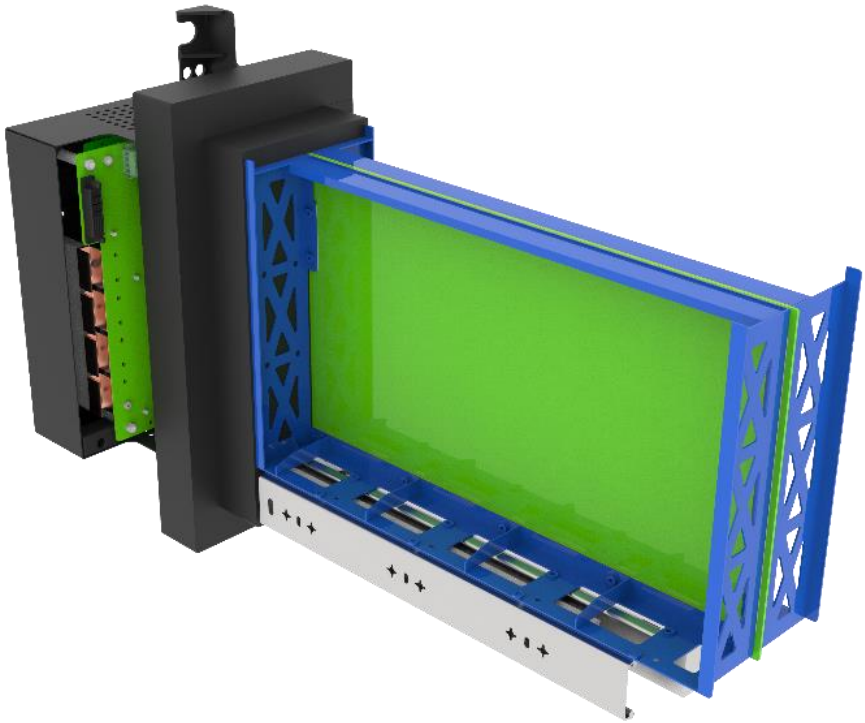


Figure 13: 200-A, 4-Channel Pouch/Prismatic cell-tabs on opposite side Battery Tray

200-A, 4-Channel Cylindrical Cell Battery Tray, Part Number 471270

Specifications

Name	Specification
Part Number	471270
Maximum Number of Battery Holders	4
Maximum Number of Cells	4
Maximum Current per Cell	200 A
Voltage Range	-5V to 5V
Maximum Output Current for Parallel Self-Discharge Current Measurement(SDCM)	±1 ±0.02
Current Accuracy for Parallel SDCM	+0.02% full scale
Exterior Dimensions	12”W x 32.5”D x 20”H

Battery Holder Trays

The following battery holder trays (sold separately) are compatible with this unit

Part Number	Description
471276	200A, 1-Channel 4695-tabs on same side-TEC
471278	200A, 1-Channel 4680-tabs on opposite side-TEC
475688	200A, 1-Channel 46XX-tabs on same side
475690	200A, 1-Channel Cylindrical cell-tabs on opposite side

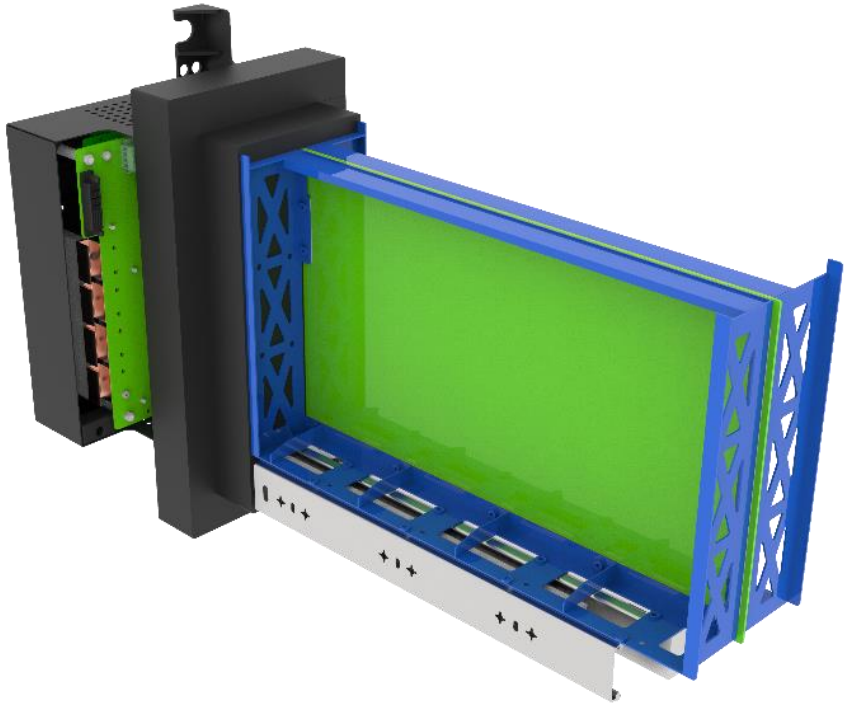


Figure 14: 200-A, 4-Channel Cylindrical Cell Battery Tray

100-A, 8-Channel Battery Tray, Part Number 475674

Specifications

Name	Specification
Part Number	475674
Maximum Number of Battery Holders	8
Maximum Number of Cells	8
Maximum Current per Cell	100 A
Voltage Range	-5V to 5V
Maximum Output Current for Parallel Self-Discharge Current Measurement(SDCM)	±1 ±0.01
Current Accuracy for Parallel SDCM	+0.02% full scale
Exterior Dimensions	12”W x 32.5”D x 20”H

Battery Holder Trays

The following battery holder trays (sold separately) are compatible with this unit

Part Number	Description
475684	100A, 1-Channel Cylindrical cell
475686	100A, 1-Channel Pouch cell

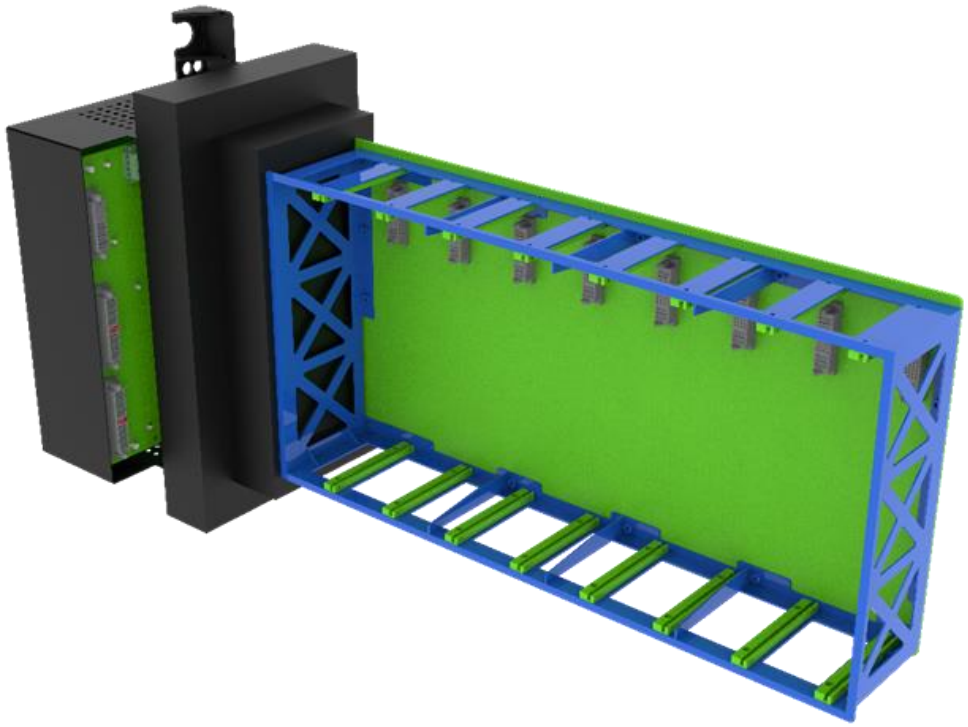


Figure 15: 100-A, 8-Channel Battery Tray

50-A, 12-Channel Battery Tray, Part Number 471272

Specifications

Name	Specification
Part Number	471272
Maximum Number of Battery Holders	6
Maximum Number of Cells	12
Maximum Current per Cell	50 A
Voltage Range	-5V to 5V
Maximum Output Current for Parallel Self-Discharge Current Measurement (SDCM)	±1 ±0.01
Current Accuracy for Parallel SDCM	+0.02% full scale
Exterior Dimensions	12”W x 32.5”D x 20”H

Battery Holder Trays

The following battery holder trays (sold separately) are compatible with this unit

Part Number	Description
471280	50A, 2-Channel 18650-TEC
471282	50A, 2-Channel 21700-TEC
475680	50A, 2-Channel Cylindrical cell
475682	50A, 2-Channel Pouch cell

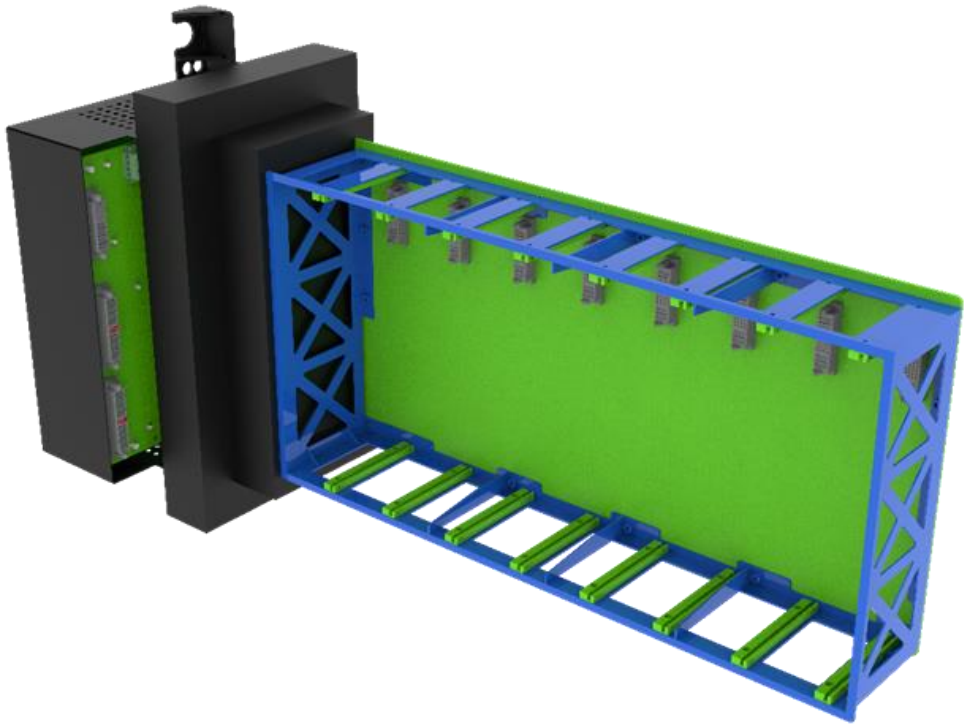


Figure 16: 50-A, 12-Channel Battery Tray

30-A, 16-Channel Battery Tray, Part Number 471274

Specifications

Name	Specification
Part Number	471274
Maximum Number of Battery Holders	8
Maximum Number of Cells	16
Maximum Current per Cell	30 A
Voltage Range	-5V to 5V
Maximum Output Current for Parallel Self-Discharge Current Measurement (SDCM)	±1 ±0.01
Current Accuracy for Parallel SDCM	+0.02% full scale
Exterior Dimensions	12”W x 32.5”D x 20”H

Battery Holder Trays

The following battery holder trays (sold separately) are compatible with this unit

Part Number	Description
475680	50A, 2-Channel Cylindrical cell
475682	50A, 2-Channel Pouch cell

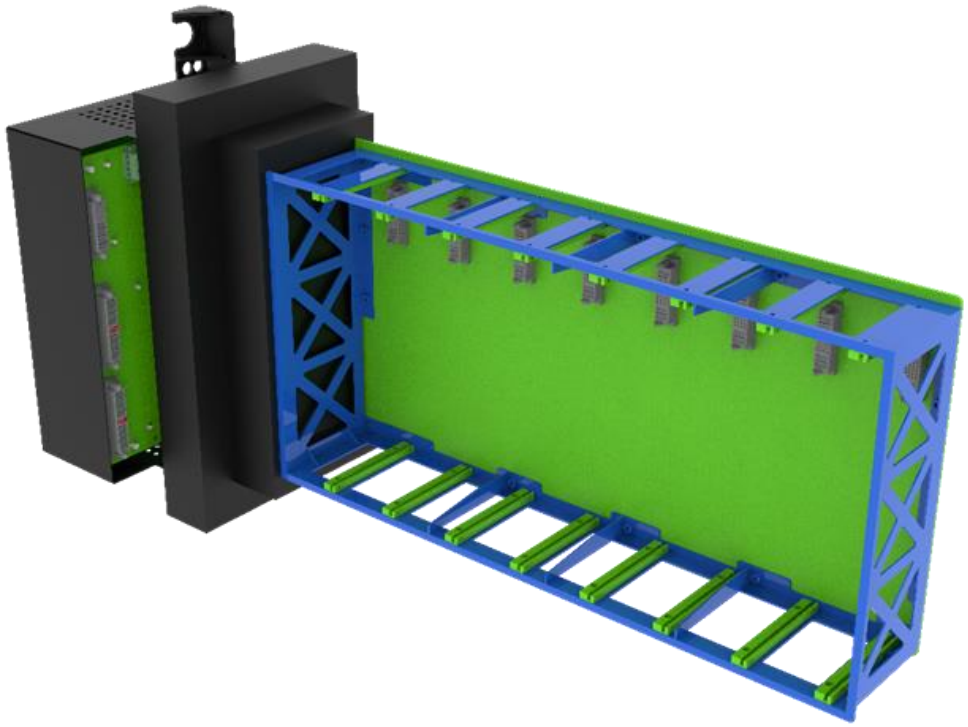


Figure 17: 30-A, 16-Channel Battery Tray

10-A, 32-Channel Battery Tray, Part Number 475664

Specifications

Name	Specification
Part Number	475664
Maximum Number of Battery Holders	8
Maximum Number of Cells	32
Maximum Current per Cell	10 A
Voltage Range	-5V to 5V
Maximum Output Current for Parallel Self-Discharge Current Measurement(SDCM)	±1 ±0.01
Current Accuracy for Parallel SDCM	+0.02% full scale
Exterior Dimensions	12”W x 32.5”D x 20”H

Battery Holder Trays

The following battery holder trays (sold separately) are compatible with this unit

Part Number	Description
475678	10A, 4-Channel Cylindrical cell

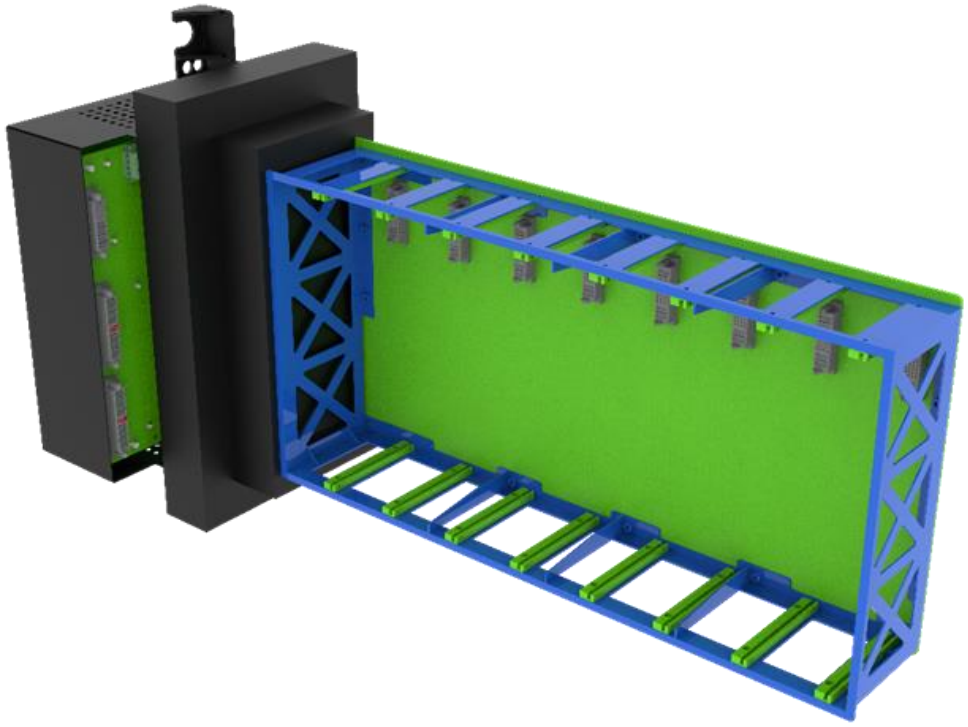


Figure 18: 10-A, 32-Channel Battery Tray

2-A, 64-Channel Battery Tray, Part Number 475662

Specifications

Name	Specification
Part Number	475662
Maximum Number of Battery Holders	8
Maximum Number of Cells	64
Maximum Current per Cell	2 A
Voltage Range	-5V to 5V
Maximum Output Current for Parallel Self-Discharge Current Measurement(SDCM)	-
Current Accuracy for Parallel SDCM	-
Exterior Dimensions	12”W x 32.5”D x 20”H

Battery Holder Trays

The following battery holder trays (sold separately) are compatible with this unit

Part Number	Description
475676	2A, 8-Channel Coin cell

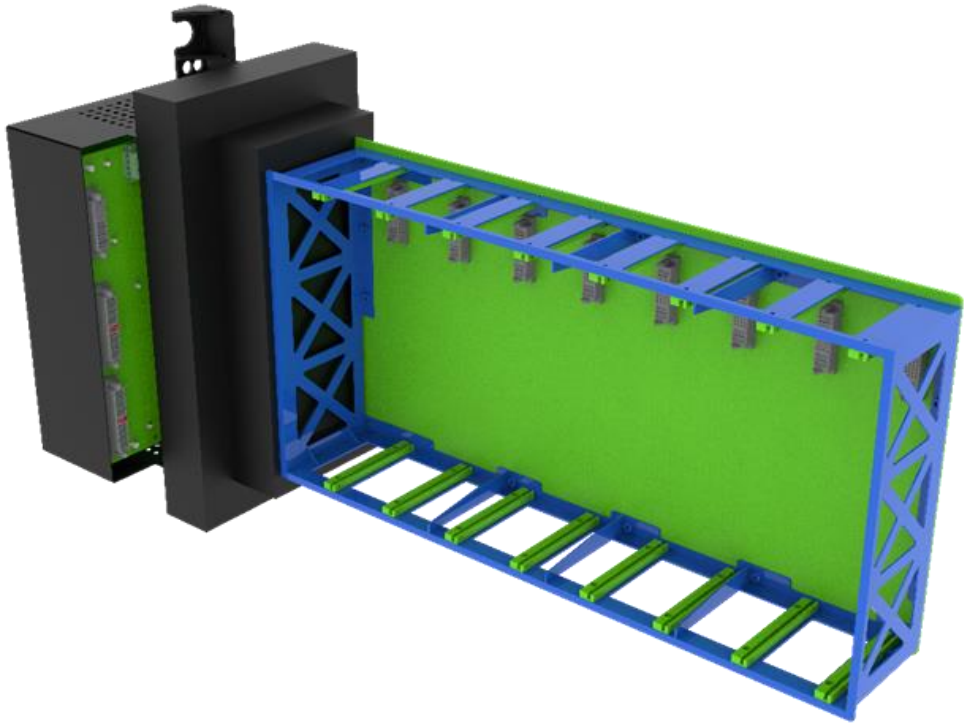


Figure 19: 2-A, 64-Channel Battery Tray

SBTR Battery Trays - PS

200-A, 4-Channel, P1S4 Pouch/Prismatic cell-tabs on same side Battery Tray, Part Number 475748

Specifications

Name	Specification
Part Number	475748
Maximum Number of Battery Holders	2
Maximum Number of Cells	4
Maximum Current per Cell	2 A
Voltage Range	-5V to 5V
Maximum Output Current for Parallel Self-Discharge Current Measurement(SDCM)	±1 ±0.02
Current Accuracy for Parallel SDCM	+0.02% full scale
Exterior Dimensions	12”W x 32.5”D x 20”H

Battery Holder Trays

The following battery holder trays (sold separately) are compatible with this unit

Part Number	Description
475692	200A, 2-Channel Pouch cell-tabs on same side
475694	200A, 2-Channel Prismatic cell-tabs on same side

200-A, 4-Channel, P1S4 Pouch/Prismatic cell-tabs on opposite side Battery Tray, Part Number 475750

Specifications

Name	Specification
Part Number	475750
Maximum Number of Battery Holders	2
Maximum Number of Cells	4
Maximum Current per Cell	200 A
Voltage Range	-5V to 5V
Maximum Output Current for Parallel Self-Discharge Current Measurement(SDCM)	±1 ±0.02
Current Accuracy for Parallel SDCM	+0.02% full scale
Exterior Dimensions	12”W x 32.5”D x 20”H

Battery Holder Trays

The following battery holder trays (sold separately) are compatible with this unit

Part Number	Description
475696	200A, 2-Channel Pouch cell-tabs on opposite side
475698	200A, 2-Channel Prismatic cell-tabs on opposite side

100-A, 8-Channel, P2S4 Battery Tray, Part Number 475744

Specifications

Name	Specification
Part Number	475744
Maximum Number of Battery Holders	8
Maximum Number of Cells	8
Maximum Current per Cell	100 A
Voltage Range	-5V to 5V
Maximum Output Current for Parallel Self-Discharge Current Measurement(SDCM)	±1 ±0.01
Current Accuracy for Parallel SDCM	+0.02% full scale
Exterior Dimensions	12”W x 32.5”D x 20”H

Battery Holder Trays

The following battery holder trays (sold separately) are compatible with this unit

Part Number	Description
475684	100A, 1-Channel Cylindrical cell
475686	100A, 1-Channel Pouch cell

50-A, 12-Channel, P3S4 Battery Tray, Part Number 475742

Specifications

Name	Specification
Part Number	475742
Maximum Number of Battery Holders	6
Maximum Number of Cells	12
Maximum Current per Cell	50 A
Voltage Range	-5V to 5V
Maximum Output Current for Parallel Self-Discharge Current Measurement(SDCM)	±1 ±0.01
Current Accuracy for Parallel SDCM	+0.02% full scale
Exterior Dimensions	12”W x 32.5”D x 20”H

Battery Holder Trays

The following battery holder trays (sold separately) are compatible with this unit

Part Number	Description
471280	50A, 2-Channel 18650-TEC
471282	50A, 2-Channel 21700-TEC
475680	50A, 2-Channel Cylindrical cell
475682	50A, 2-Channel Pouch cell

30-A, 16-Channel, P4S4 Battery Tray, Part Number 475740

Specifications

Name	Specification
Part Number	475740
Maximum Number of Battery Holders	8
Maximum Number of Cells	16
Maximum Current per Cell	30 A
Voltage Range	-5V to 5V
Maximum Output Current for Parallel Self-Discharge Current Measurement(SDCM)	±1 ±0.01
Current Accuracy for Parallel SDCM	+0.02% full scale
Exterior Dimensions	12”W x 32.5”D x 20”H

Battery Holder Trays

The following battery holder trays (sold separately) are compatible with this unit

Part Number	Description
475680	50A, 2-Channel Cylindrical cell
475682	50A, 2-Channel Pouch cell

10-A, 32-Channel, P8S4 Battery Tray, Part Number 475738

Specifications

Name	Specification
Part Number	475738
Maximum Number of Battery Holders	8
Maximum Number of Cells	32
Maximum Current per Cell	10 A
Voltage Range	-5V to 5V
Maximum Output Current for Parallel Self-Discharge Current Measurement(SDCM)	±1 ±0.01
Current Accuracy for Parallel SDCM	+0.02% full scale
Exterior Dimensions	12”W x 32.5”D x 20”H

Battery Holder Trays

The following battery holder trays (sold separately) are compatible with this unit

Part Number	Description
475678	10A, 4-Channel Cylindrical cell

SBTR Battery Holders Without TEC

400-A, 1-Channel Prismatic cell-tabs on same side Battery Holder, Part Number 475702

Specifications

Name		Specification
Part Number		475702
Battery Type		Prismatic cell-tabs on same side
Maximum Current Per Cell		400 A
Number of Cells		1
Battery size		L≤400mm W≤50mm H≤135mm A≤300mm B≥40mm E≥5mm
Maximum Output Current for Parallel Self-Discharge Current Measurement (SDCM)		-
Current Accuracy for Parallel SDCM		-
Thermistor(PT100) port # per cell		2
Clamp Specifications	Contact Resistance	≤0.5 mΩ
	Clamp Force	16 kg
Exterior Dimensions		18.5”W x 2.8”D x 10”H

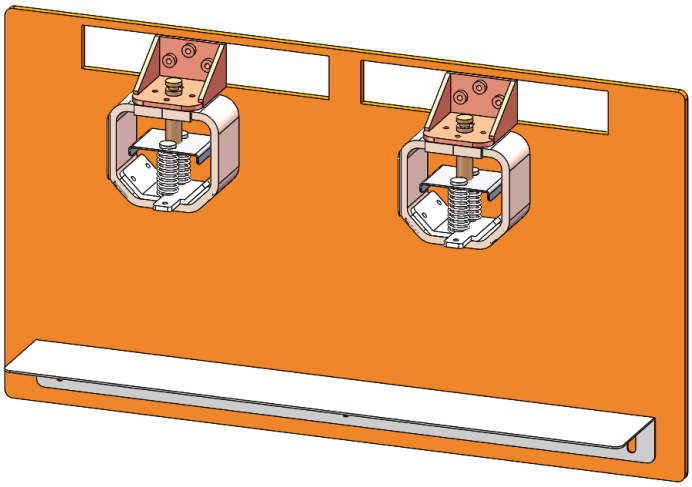


Figure 20: 400-A, 1-Channel Prismatic cell-tabs on same side Battery Holder

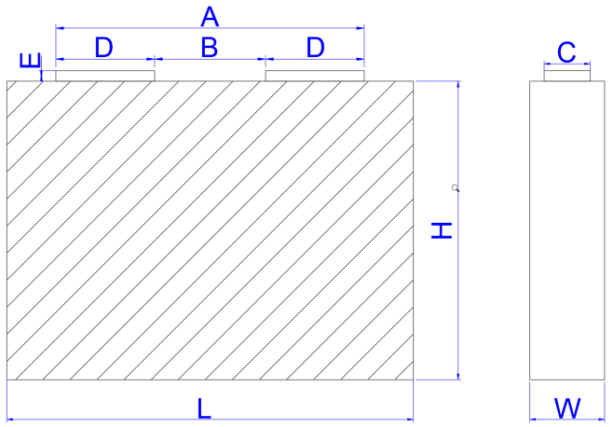


Figure 21: Battery Cell Size Specification

400-A, 1-Channel Prismatic cell-tabs on opposite side Battery Holder, Part Number 475706

Specifications

Name		Specification
Part Number		475706
Battery Type		Prismatic cell-tabs on opposite side
Maximum Current Per Cell		400 A
Number of Cells		1
Battery size		L≤280mm, H≤250mm (When the label is in the middle)
Maximum Output Current for Parallel Self-Discharge Current Measurement (SDCM)		-
Current Accuracy for Parallel SDCM		-
Thermistor(PT100) port # per cell		2
Clamp Specifications	Contact Resistance	Clamp Specifications
	Clamp Force	16 kg
Exterior Dimensions		18.5”W x 2.8”D x 10”H

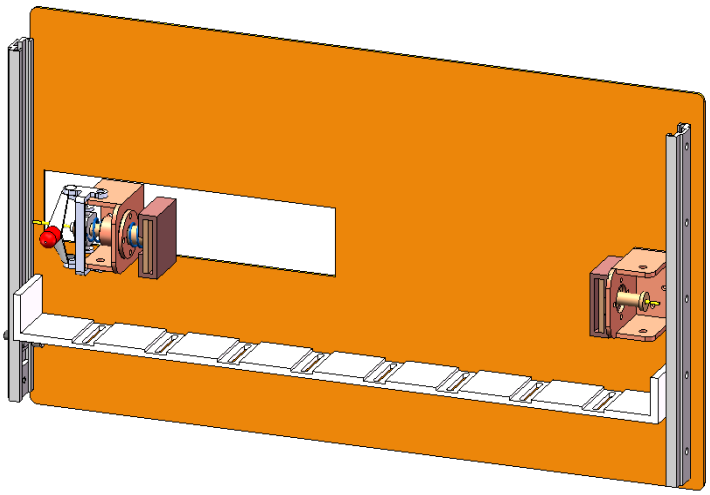


Figure 22: 400-A, 1-Channel Prismatic cell-tabs on opposite side Battery Holder

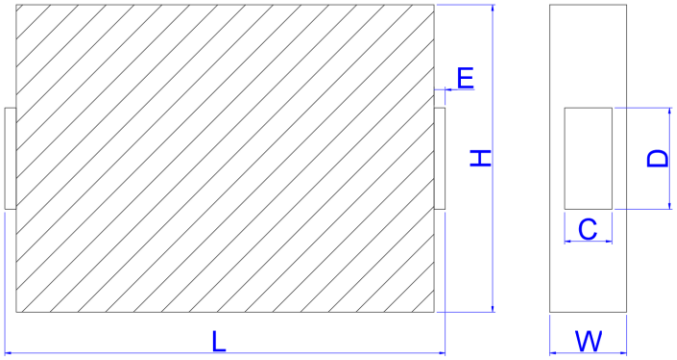


Figure 23: Battery Cell Size Specification

400-A, 1-Channel Prismatic cell-tabs on opposite side Battery Holder, Part Number 475700

Specifications

Name		Specification
Part Number		475700
Battery Type		Pouch cell-tabs on same side
Maximum Current Per Cell		400 A
Number of Cells		1
Battery size		L≤400mm H≤190mm A≤325mm B≥40mm
Maximum Output Current for Parallel Self-Discharge Current Measurement (SDCM)		-
Current Accuracy for Parallel SDCM		-
Thermistor(PT100) port # per cell		2
Clamp Specifications	Contact Resistance	Clamp Specifications
	Clamp Force	16 kg
Exterior Dimensions		18.5”W x 2.8”D x 10”H

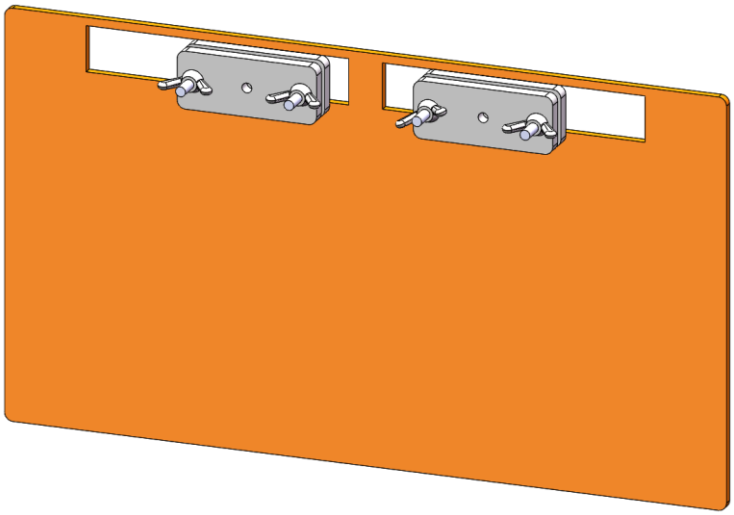


Figure 24: 400-A, 1-Channel Pouch cell-tabs on same side Battery Holder

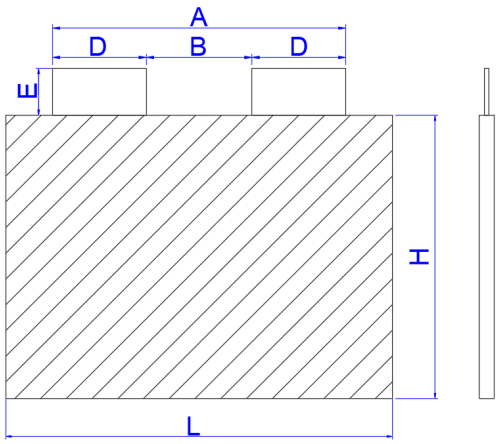


Figure 25: Battery Cell Size Specification

400-A, 1-Channel Pouch cell-tabs on opposite side Battery Holder, Part Number 475704

Specifications

Name		Specification
Part Number		475704
Battery Type		Pouch cell-tabs on opposite side
Maximum Current Per Cell		400 A
Number of Cells		1
Battery size		L≤400mm H≤250mm (When the label is in the middle)
Maximum Output Current for Parallel Self-Discharge Current Measurement (SDCM)		-
Current Accuracy for Parallel SDCM		-
Thermistor(PT100) port # per cell		2
Clamp Specifications	Contact Resistance	Clamp Specifications
	Clamp Force	16 kg
Exterior Dimensions		18.5”W x 2.8”D x 10”H

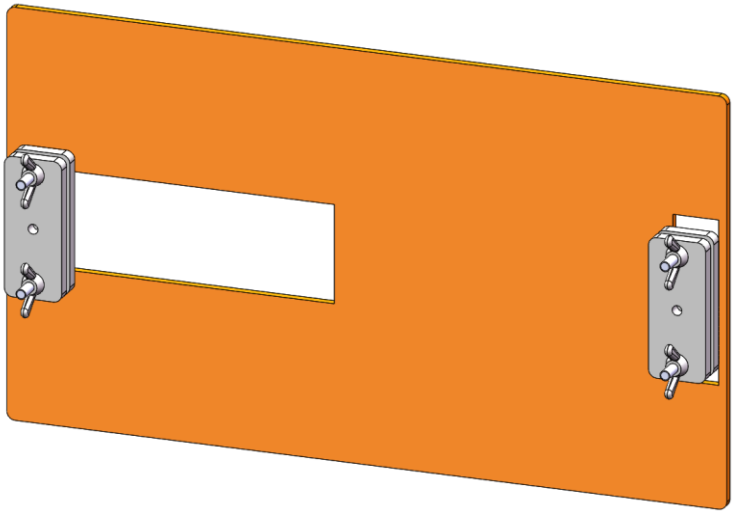


Figure 26: 400-A, 1-Channel Pouch cell-tabs on opposite side Battery Holder

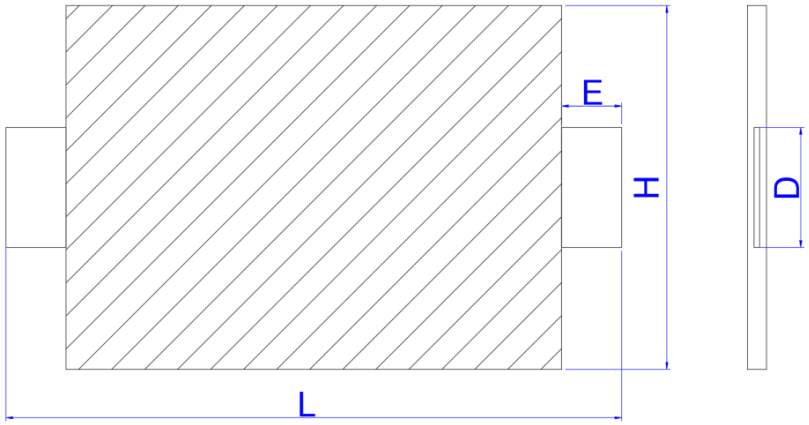


Figure 27: Battery Cell Size Specification

200-A, 2-Channel Prismatic cell-tabs on same side Battery Holder, Part Number 475694

Specifications

Name		Specification
Part Number		475694
Battery Type		Prismatic cell-tabs on same side
Maximum Current Per Cell		200 A
Number of Cells		2
Battery size		L≤220mm W≤50mm H≤135mm A≤180mm B≥40mm E≥5mm
Maximum Output Current for Parallel Self-Discharge Current Measurement (SDCM)		-
Current Accuracy for Parallel SDCM		-
Thermistor(PT100) port # per cell		2
Clamp Specifications	Contact Resistance	Clamp Specifications
	Clamp Force	16 kg
Exterior Dimensions		18.5”W x 2.8”D x 10”H

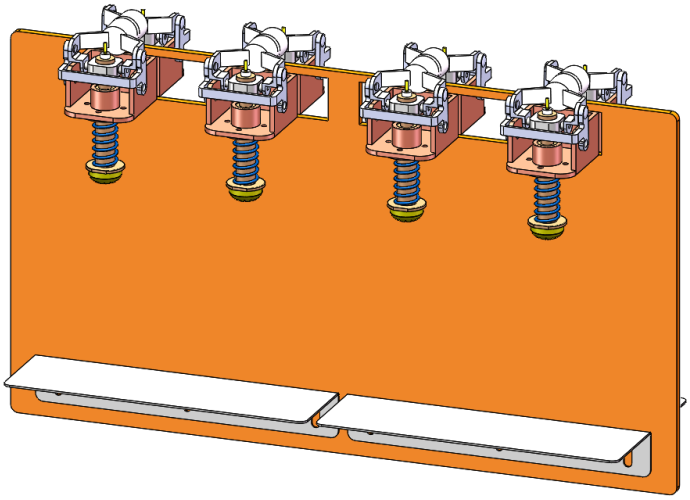


Figure 28: 200-A, 2-Channel Prismatic cell-tabs on same side Battery Holder Tray

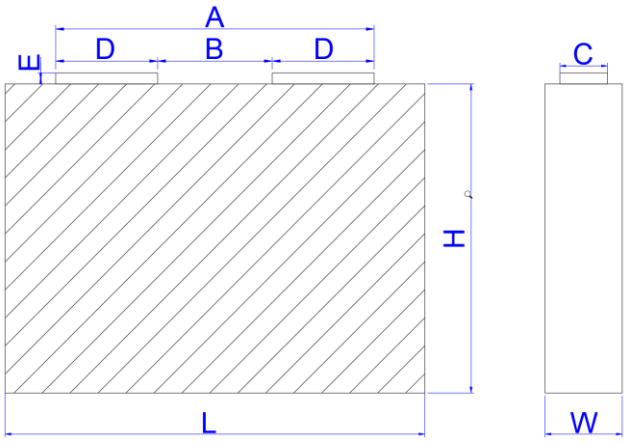


Figure 29: Battery Cell Size Specification

200-A, 2-Channel Prismatic cell-tabs on opposite side Battery Holder, Part Number 475698

Specifications

Name		Specification
Part Number		475698
Battery Type		Prismatic cell-tabs on opposite side
Maximum Current Per Cell		200 A
Number of Cells		2
Battery size		L≤350mm H≤120mm (When the label is in the middle)
Maximum Output Current for Parallel Self-Discharge Current Measurement (SDCM)		±1 ±0.01
Current Accuracy for Parallel SDCM		0.02% full scale
Thermistor(PT100) port # per cell		2
Clamp Specifications	Contact Resistance	≤0.5 mΩ
	Clamp Force	16 kg
Exterior Dimensions		18.5”W x 2.8”D x 10”H

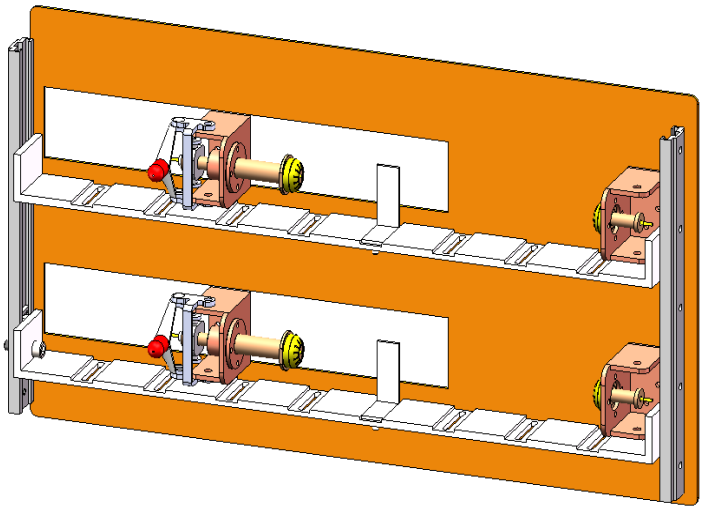


Figure 30: 200-A, 2-Channel Prismatic cell-tabs on opposite side Battery Holder

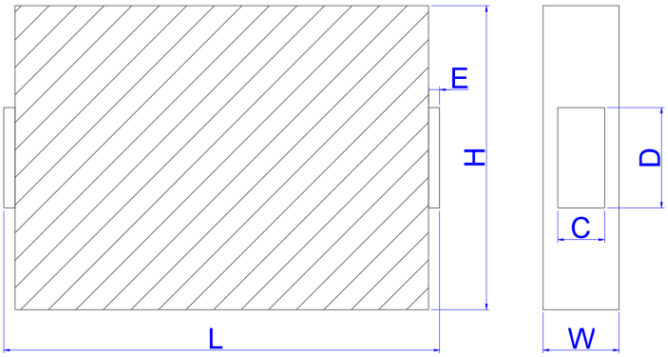


Figure 31: Battery Cell Size Specification

200-A, 2-Channel Pouch cell-tabs on same side Battery Holder, Part Number 475692

Specifications

Name		Specification
Part Number		475692
Battery Type		Pouch cell-tabs on same side
Maximum Current Per Cell		200 A
Number of Cells		2
Battery size		L≤220mm H≤180mm A≤180mm B≥40mm
Maximum Output Current for Parallel Self-Discharge Current Measurement (SDCM)		±1 ±0.01
Current Accuracy for Parallel SDCM		0.02% full scale
Thermistor(PT100) port # per cell		2
Clamp Specifications	Contact Resistance	Clamp Specifications
	Clamp Force	16 kg
Exterior Dimensions		10”W x 4”D x 4”H

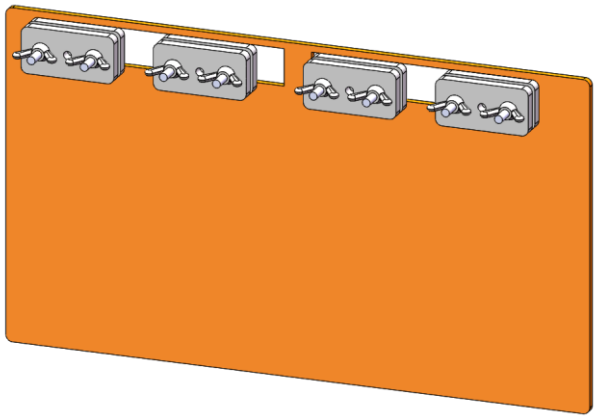


Figure 32: 200-A, 2-Channel Pouch cell-tabs on same side Battery Holder

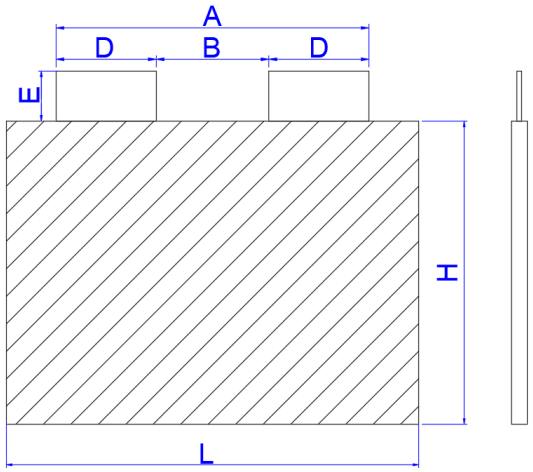


Figure 33: Battery Cell Size Specification

200-A, 2-Channel Pouch cell-tabs on opposite side Battery Holder, Part Number 475696

Specifications

Name		Specification
Part Number		475696
Battery Type		Pouch cell-tabs on opposite side
Maximum Current Per Cell		200 A
Number of Cells		2
Battery size		L≤400mm H≤120mm (When the label is in the middle)
Maximum Output Current for Parallel Self-Discharge Current Measurement (SDCM)		±1 ±0.01
Current Accuracy for Parallel SDCM		0.02% full scale
Thermistor(PT100) port # per cell		2
Clamp Specifications	Contact Resistance	Clamp Specifications
	Clamp Force	16 kg
Exterior Dimensions		18.5”W x 2.8”D x 10”H

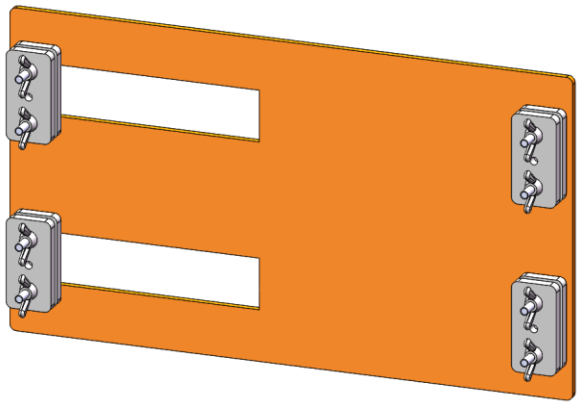


Figure 34: 200-A, 2-Channel Pouch cell-tabs on opposite side Battery Holder Tray

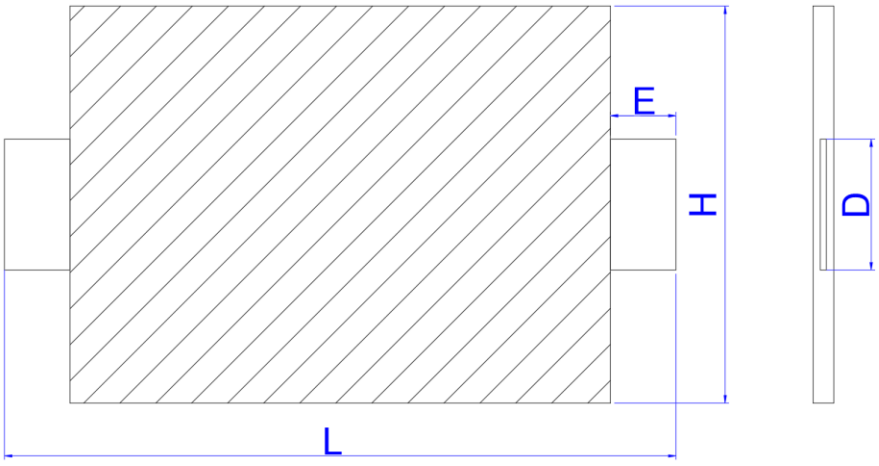


Figure 35: Battery Cell Size Specification

200-A, 1-Channel 46XX on same side Battery Holder, Part Number 475688

Specifications

Name		Specification
Part Number		475688
Battery Type		Cylindrical cell-same side-Without TEC
Maximum Current Per Cell		200 A
Number of Cells		1
Battery size		ØD=46mm 80mm≤ L ≤120mm
Maximum Output Current for Parallel Self-Discharge Current Measurement (SDCM)		±1 ±0.01
Current Accuracy for Parallel SDCM		0.02% full scale
Thermistor(PT100) port # per cell		2
Clamp Specifications	≤0.5 mΩ	Clamp Specifications
	16 kg	16 kg
Exterior Dimensions		10”W x 4”D x 4”H

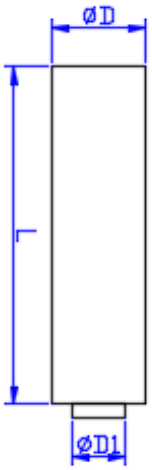


Figure 36: Battery Cell Size Specification

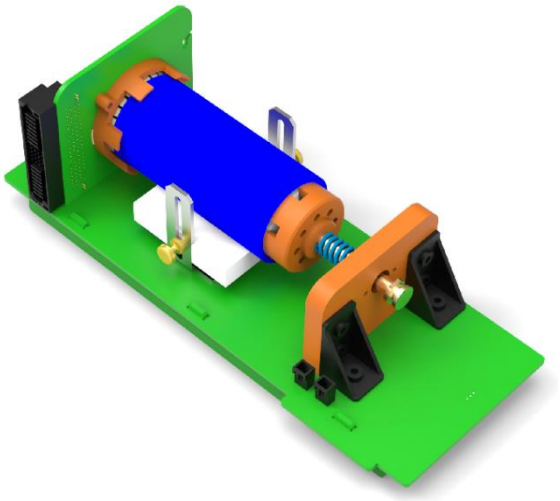


Figure 37: 200-A, 1-Channel 46XX on same side Battery Holder

200-A, 1-Channel Cylindrical cell-tabs on opposite side Battery Holder, Part Number 475690

Specifications

Name		Specification
Part Number		475690
Battery Type		Cylindrical cell-opposite side-Without TEC
Maximum Current Per Cell		200 A
Number of Cells		1
Battery size		18mm≤ ØD ≤60mm 40mm≤ L ≤120mm
Maximum Output Current for Parallel Self-Discharge Current Measurement (SDCM)		±1 ±0.01
Current Accuracy for Parallel SDCM		0.02% full scale
Thermistor(PT100) port # per cell		2
Clamp Specifications	Contact Resistance	Clamp Specifications
	Clamp Force	16 kg
Exterior Dimensions		10”W x 4”D x 4”H

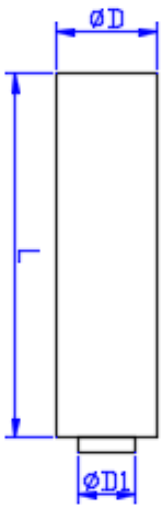


Figure 38: Battery Cell Size Specification

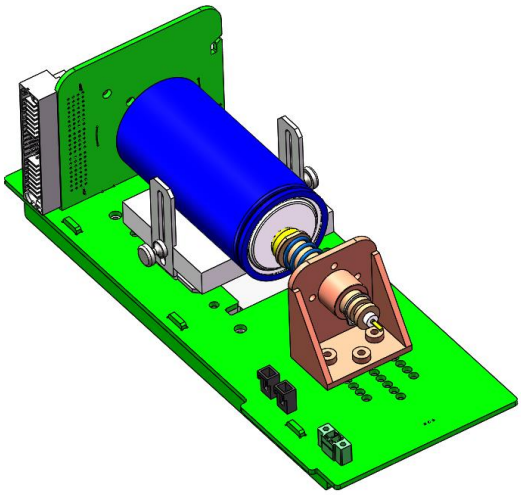


Figure 39: 200-A, 1-Channel Cylindrical cell-tabs on opposite side Battery Holder

100-A, 1-Channel Cylindrical Cell Battery Holder, Part Number 475684

Specifications

Name		Specification
Part Number		475684
Battery Type		Cylindrical cell
Maximum Current Per Cell		100 A
Number of Cells		1
Battery size		10mm≤ ØD ≤46mm 40mm≤ L ≤120mm
Maximum Output Current for Parallel Self-Discharge Current Measurement (SDCM)		±1 ±0.01
Current Accuracy for Parallel SDCM		0.02% full scale
Thermistor(PT100) port # per cell		2
Clamp Specifications	Contact Resistance	≤1 mΩ
	Clamp Force	12 kg
Exterior Dimensions		10”W x 4”D x 2”H

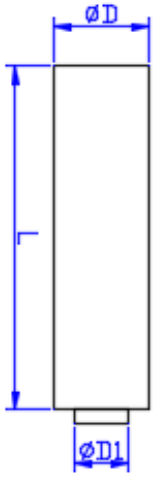


Figure 40: Battery Cell Size Specification

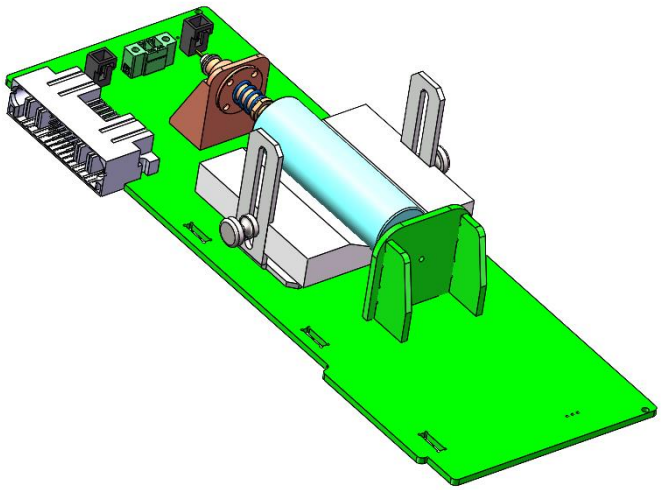


Figure 41: 100-A, 1-Channel Cylindrical Cell Battery Holder Tray

100-A, 1-Channel Pouch Cell Battery Holder, Part Number 475686

Specifications

Name		Specification
Part Number		475686
Battery Type		Pouch cell
Maximum Current Per Cell		100 A
Number of Cells		1
Battery size		A≤40mm B≥8mm L≤65mm H≤150mm
Maximum Output Current for Parallel Self-Discharge Current Measurement (SDCM)		±1 ±0.01
Current Accuracy for Parallel SDCM		0.02% full scale
Thermistor(PT100) port # per cell		2
Clamp Specifications	Contact Resistance	≤1 mΩ
	Clamp Force	12 kg
Exterior Dimensions		10”W x 4”D x 2”H

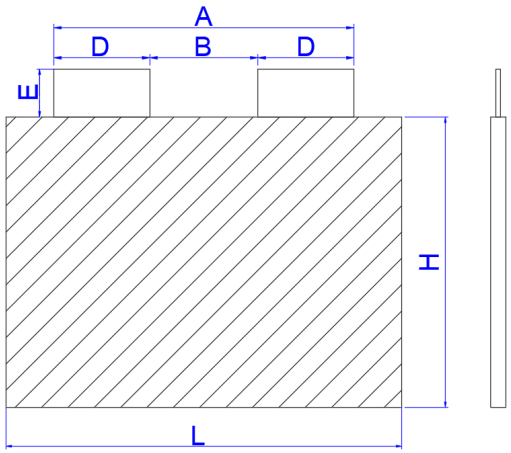


Figure 42: Battery Cell Size Specification

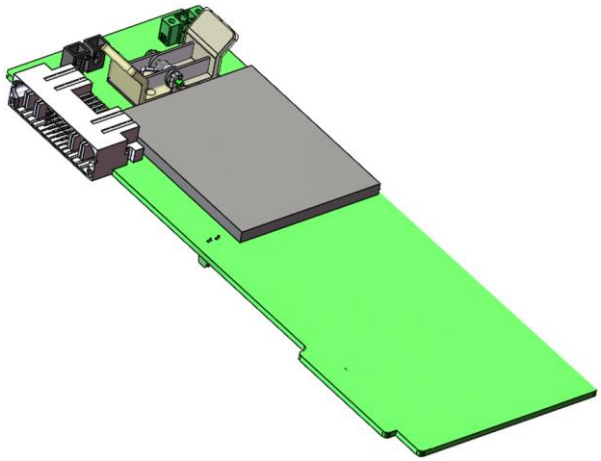


Figure 43: 100-A, 1-Channel Pouch Cell Battery Holder

50-A, 2-Channel Cylindrical Cell Battery Holder, Part Number 475680

Specifications

Name		Specification
Part Number		475680
Battery Type		Cylindrical
Maximum Current Per Cell		50 A
Number of Cells		2
Battery size		10mm≤ØD≤46mm 40mm≤L≤80mm
Maximum Output Current for Parallel Self-Discharge Current Measurement (SDCM)		±1 ±0.01
Current Accuracy for Parallel SDCM		0.02% full scale
Thermistor(PT100) port # per cell		2
Clamp Specifications	Contact Resistance	≤2 mΩ
	Clamp Force	6 kg
Exterior Dimensions		10”W x 4”D x 2”H

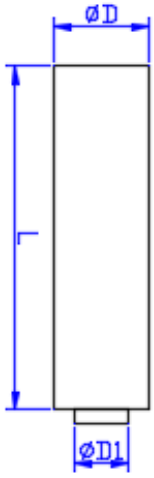


Figure 44: Battery Cell Size Specification

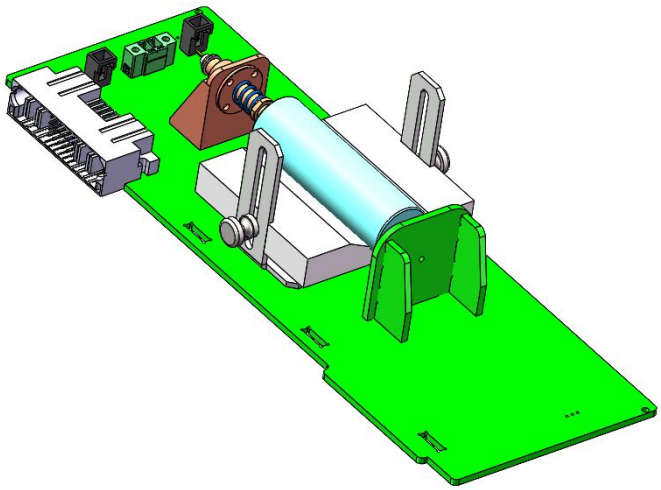


Figure 45: 50-A, 2-Channel Cylindrical Cell Battery Holder

50-A, 2-Channel Pouch Cell Battery Holder, Part Number 475682

Specifications

Name		Specification
Part Number		475682
Battery Type		Pouch
Maximum Current Per Cell		50 A
Number of Cells		2
Battery size		A≤40mm B≥8mm L≤60mm 75≤H≤150mm (1 cell per holder) H≤75mm (2 cell per holder)
Maximum Output Current for Parallel Self-Discharge Current Measurement (SDCM)		±1 ±0.01
Current Accuracy for Parallel SDCM		0.02% full scale
Thermistor(PT100) port # per cell		2
Clamp Specifications	≤2 mΩ	≤2 mΩ
	6 kg	6 kg
Exterior Dimensions		10”W x 4”D x 2”H

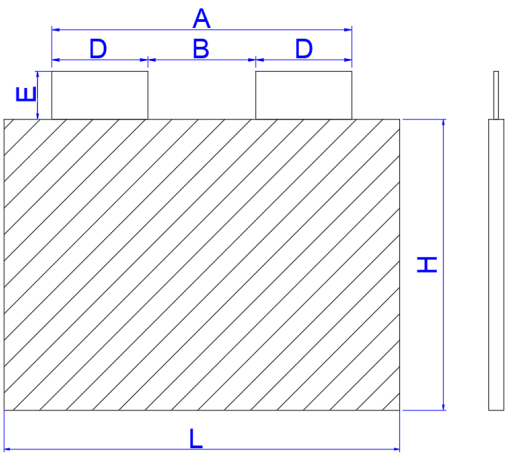


Figure 46: Battery Cell Size Specification

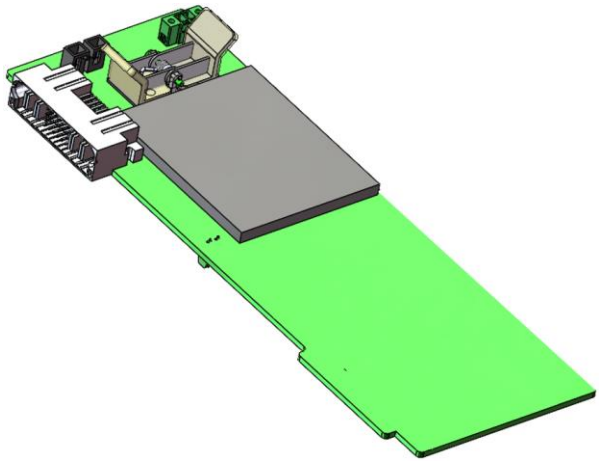


Figure 47: 50-A, 2-Channel Pouch Cell Battery Holder

10-A, 4-Channel Cylindrical Cell Battery Holder, Part Number 475678

Specifications

Name		Specification
Part Number		475678
Battery Type		Cylindrical
Maximum Current Per Cell		10 A
Number of Cells		4
Battery size		10mm≤ ØD ≤26mm 40mm≤ L ≤80mm
Maximum Output Current for Parallel Self-Discharge Current Measurement (SDCM)		±1 ±0.01
Current Accuracy for Parallel SDCM		0.02% full scale
Thermistor(PT100) port # per cell		1
Clamp Specifications	Contact Resistance	≤3 mΩ
	Clamp Force	2 kg
Exterior Dimensions		10”W x 4”D x 2”H

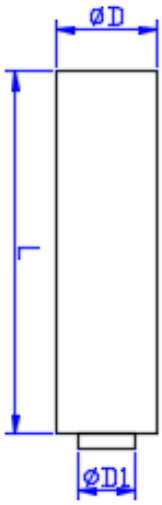


Figure 48: Battery Cell Size Specification

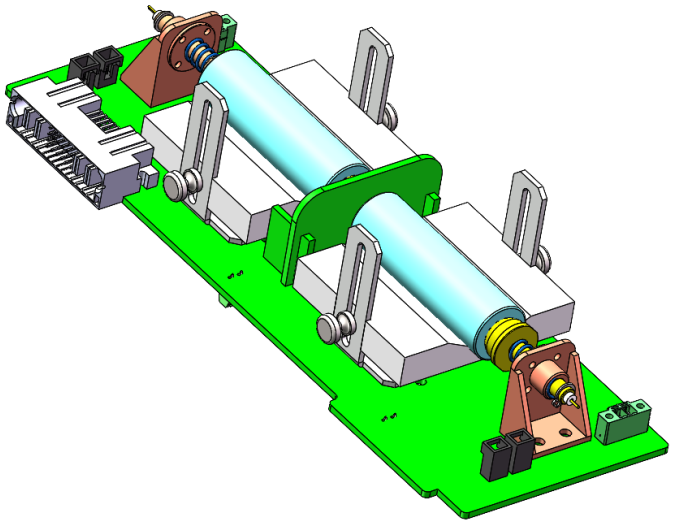


Figure 49: 10-A, 4-Channel Cylindrical Cell Battery Holder

2-A, 8-Channel Coin Cell Battery Holder, Part Number 475676

Specifications

Name		Specification
Part Number		475676
Battery Type		Coin cell
Maximum Current Per Cell		2 A
Number of Cells		8
Battery size		10mm≤ØD≤30mm H≤7mm
Maximum Output Current for Parallel Self-Discharge Current Measurement (SDCM)		±1 ±0.01
Current Accuracy for Parallel SDCM		0.02% full scale
Thermistor(PT100) port # per cell		4 per holder
Clamp Specifications	Contact Resistance	≤5 mΩ
	Clamp Force	1.0 kg
Exterior Dimensions		10”W x 4”D x 2”H

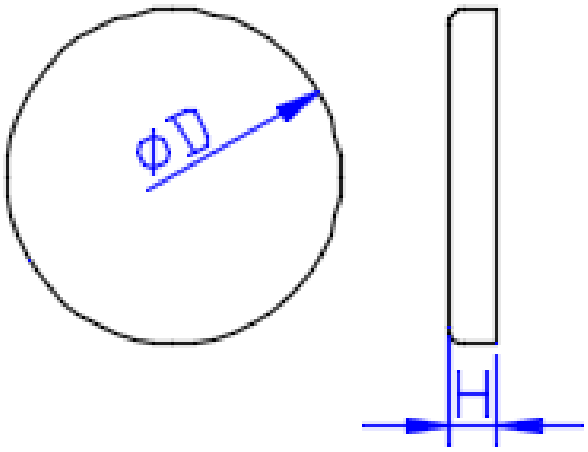


Figure 50: Battery Cell Size Specification

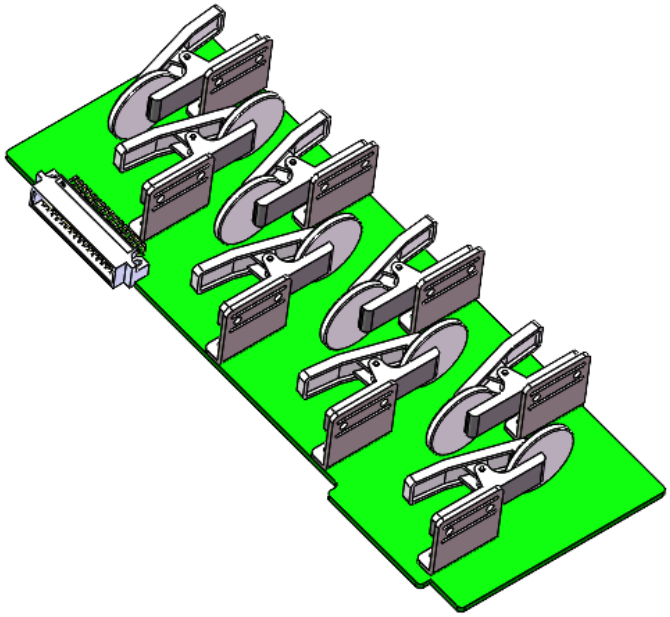


Figure 51: 2-A, 8-Channel Coin Cell Battery Holder

SBTR Battery Holder With TEC

200-A, 1-Channel 4695-tabs on same side-TEC Battery Holder, Part Number 471276

Specifications

Name		Specification
Part Number		471276
Battery Type		Cylindrical cell-same side-With TEC
Battery Size		4695
Maximum Current Per Cell		200 A
Number of Cells		1
Thermistor (PT100) Ports per Cell		2
Temperature Specifications	range per cell (℃)	(Ambient T-10)~(Ambient T+40) & (-40~80)
	control accuracy (℃)	±2
	measurement accuracy (℃)	±1
Clamp Specifications	Contact Resistance	≤0.5 mΩ
	Clamp Force	16 kg
Exterior Dimensions		10”W x 4”D x 4”H

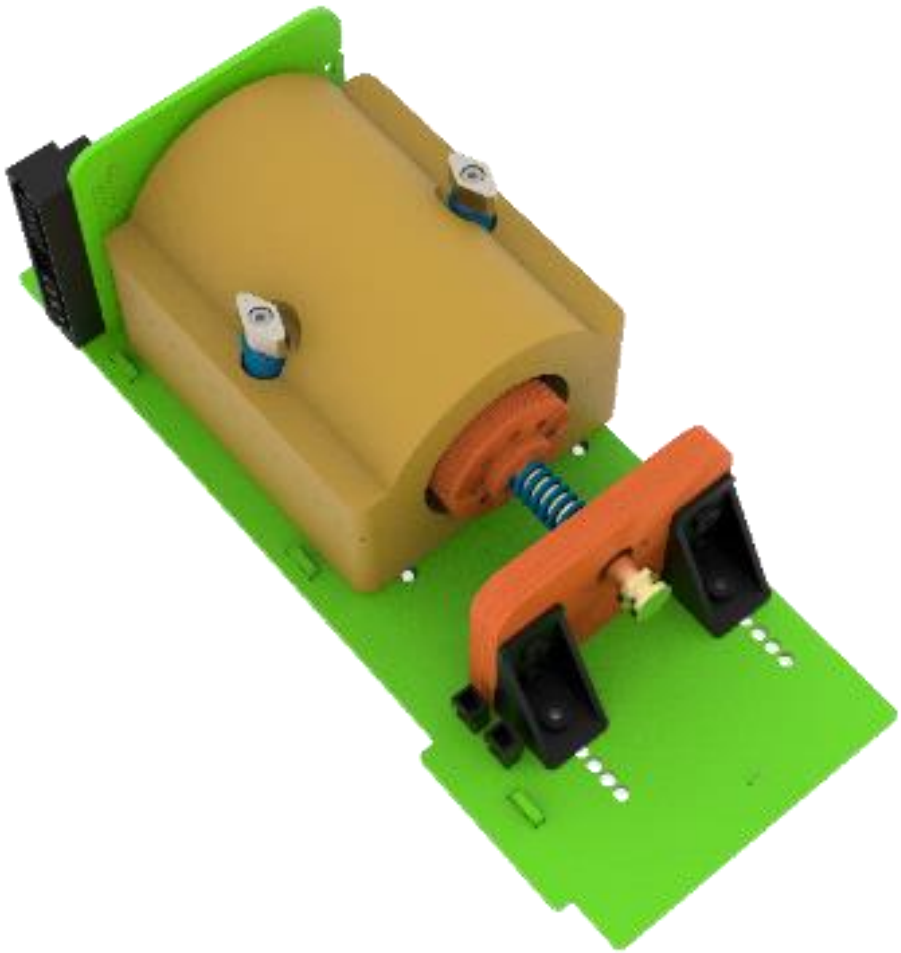


Figure 52: Cell Fixture (1 Cell)

200-A, 1-Channel 4680-tabs on opposite side-TEC Battery Holder, Part Number 471278

Specifications

Name		Specification
Part Number		471278
Battery Type		Cylindrical cell-opposite side-With TEC
Battery Size		4680
Maximum Current Per Cell		200 A
Number of Cells		1
Thermistor (PT100) Ports per Cell		2
Temperature Specifications	range per cell (℃)	(Ambient T-10)~(Ambient T+40) & (-40~80)
	control accuracy (℃)	±2
	measurement accuracy (℃)	±1
Clamp Specifications	Contact Resistance	≤0.5 mΩ
	Clamp Force	16 kg
Exterior Dimensions		10”W x 4”D x 4”H

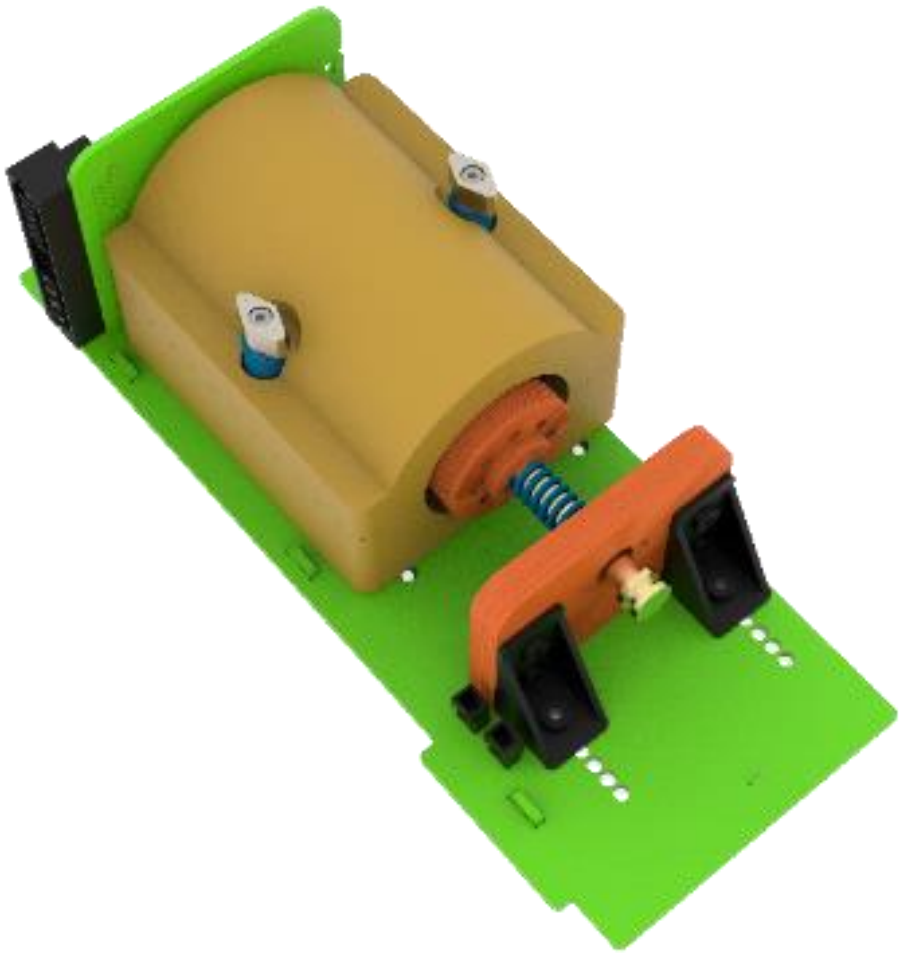


Figure 53: Cell Fixture (1 Cell)

50-A, 2-Channel 18650-TEC Battery Holder, Part Number 471280

Specifications

Name		Specification
Part Number		471280
Battery Type		Cylindrical cell
Battery Size		18650
Maximum Current Per Cell		50 A
Number of Cells		2
Thermistor (PT100) Ports per Cell		2
Temperature Specifications	range per cell (℃)	(Ambient T-10)~(Ambient T+40) & (-40~80)
	control accuracy (℃)	±2
	measurement accuracy (℃)	±1
Clamp Specifications	Contact Resistance	≤2 mΩ
	Clamp Force	6 kg
Exterior Dimensions		10”W x 4”D x 4”H

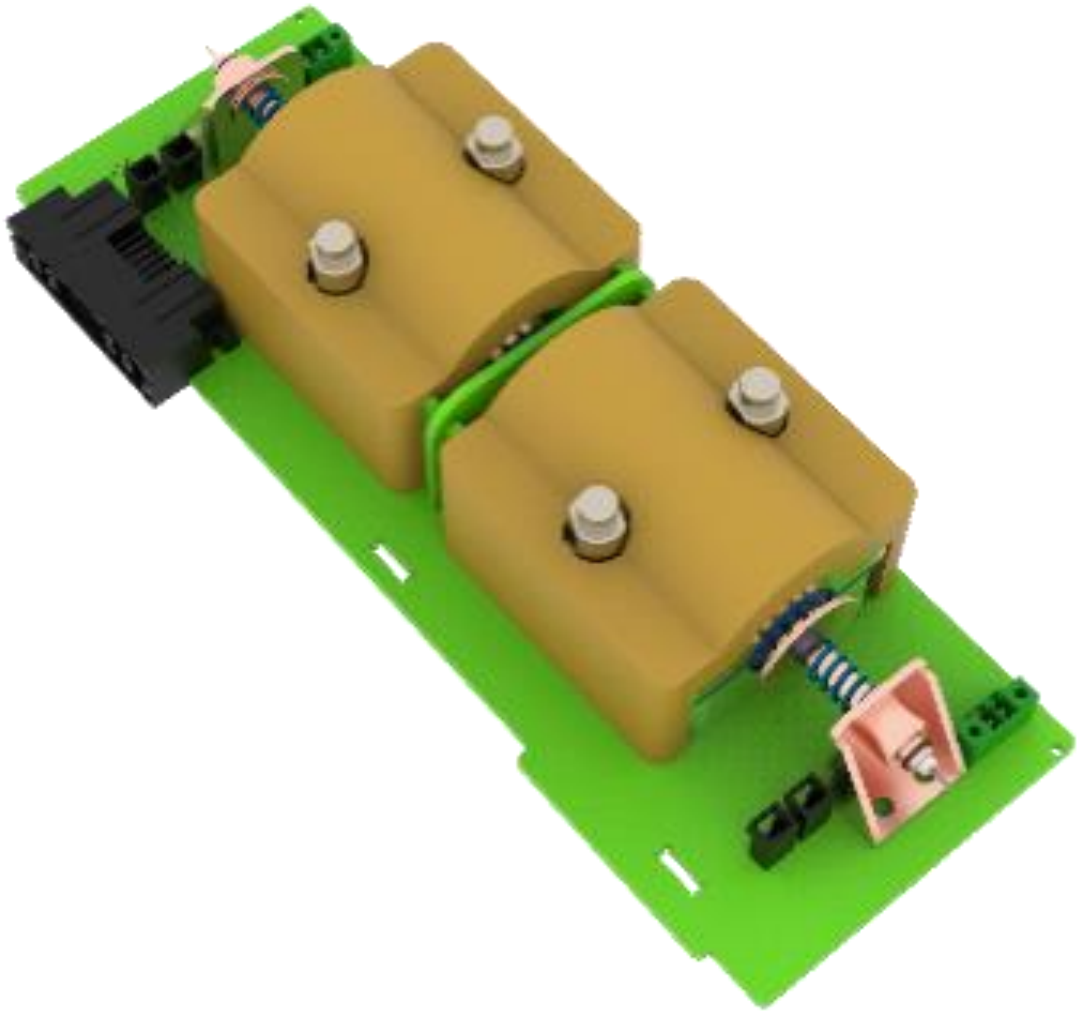


Figure 54: Cell Fixture (2 Cells)

50-A, 2-Channel 21700-TEC Battery Holder, Part Number 471282

Specifications

Name		Specification
Part Number		471282
Battery Type		Cylindrical cell
Battery Size		21700
Maximum Current Per Cell		50 A
Number of Cells		2
Thermistor (PT100) Ports per Cell		2
Temperature Specifications	range per cell (℃)	(Ambient T-10)~(Ambient T+40) & (-40~80)
	control accuracy (℃)	±2
	measurement accuracy (℃)	±1
Clamp Specifications	Contact Resistance	≤2 mΩ
	Clamp Force	6 kg
Exterior Dimensions		10”W x 4”D x 4”H

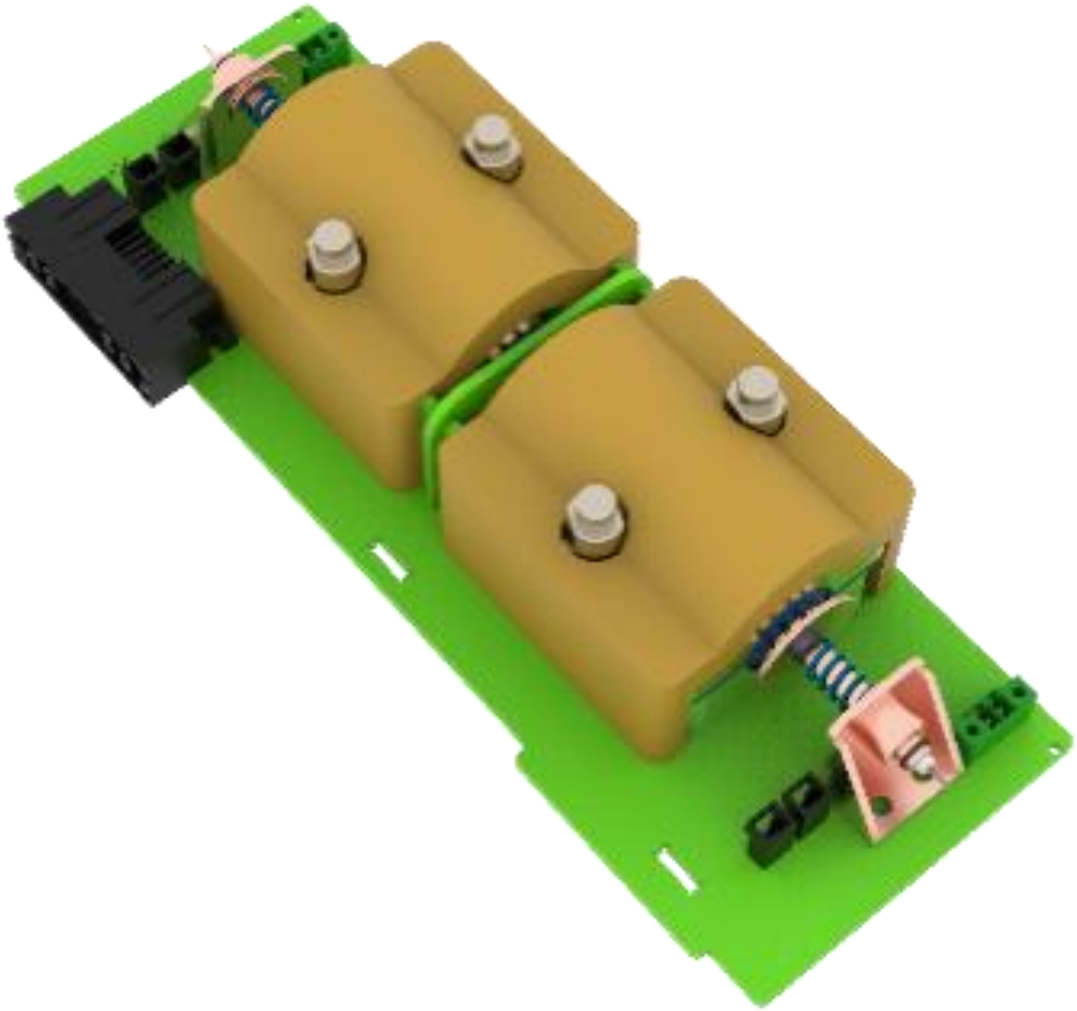


Figure 55: Cell Fixture (2 Cells)

SBTR Rack Introduction

Illustrations

Multiple Opening Environment Chamber

This is an environmental chamber which features pre-manufactured slots in the door to allow Arbin's SBTR to slide into the front, contacting the charge/discharge channels.

Figure 56: Multiple Opening Environment Chamber

Multiple Opening Isolation Rack

This is a rack solution without additional thermal control capabilities

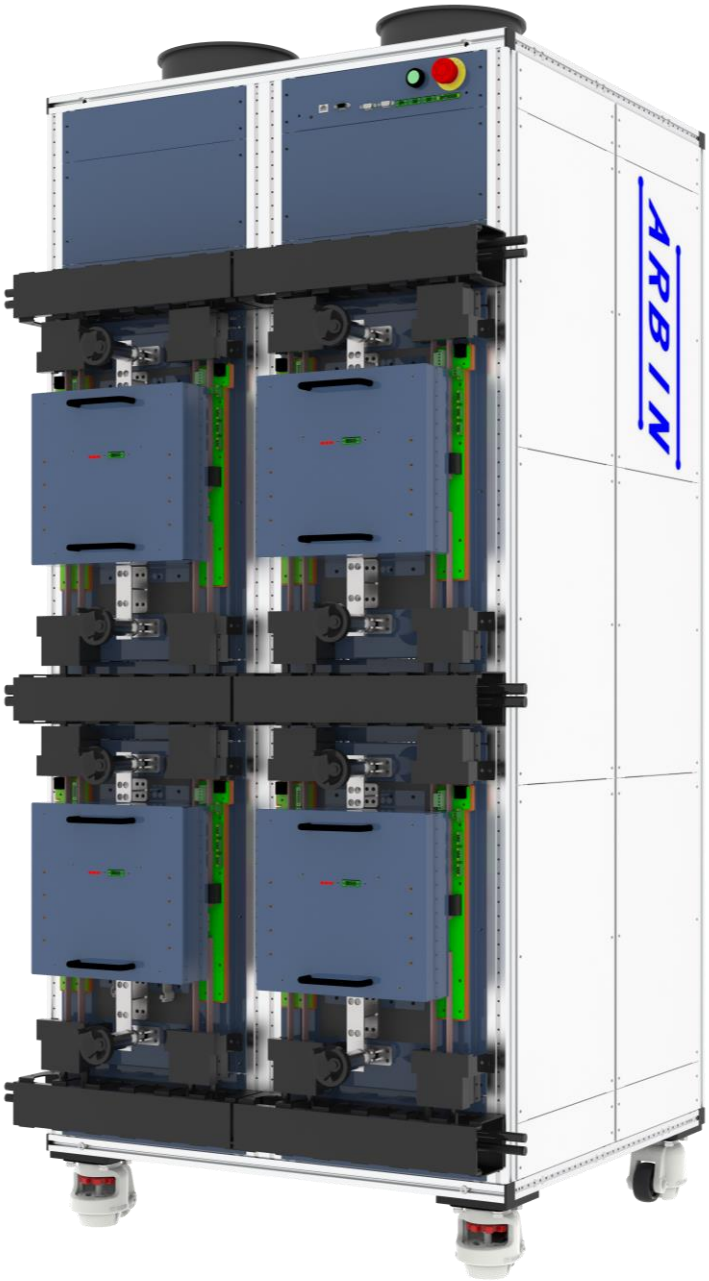
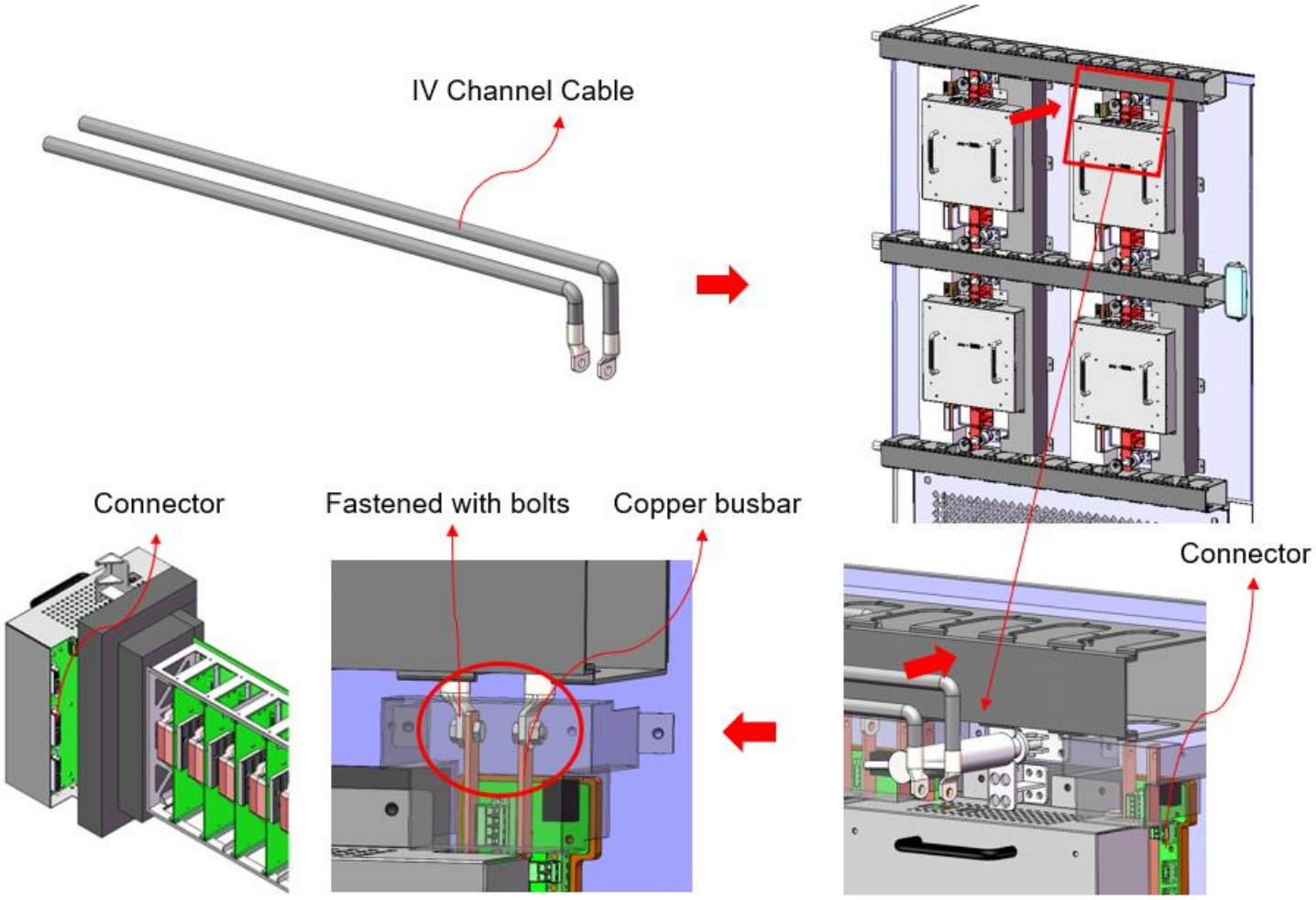


Figure 57: Multiple Opening Isolation Rack

Diagrams and Installation

Wiring and Connection Diagram

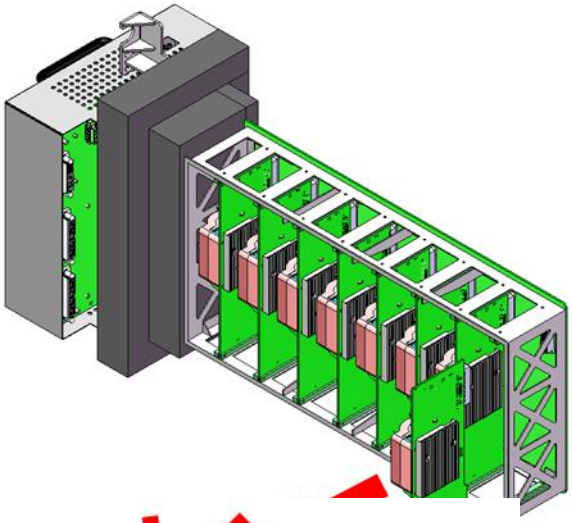


Cell

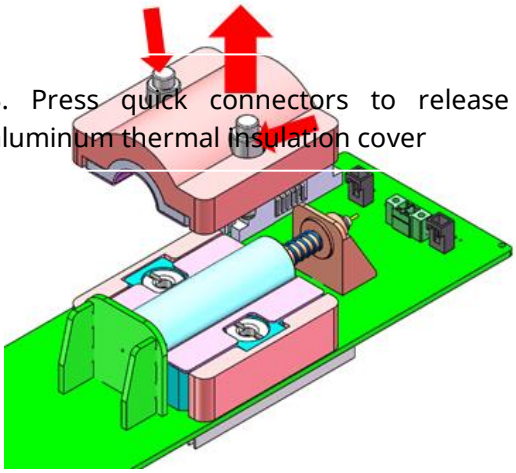
1. Remove SBTR from environmental chamber or isolation rack

Replacement Process

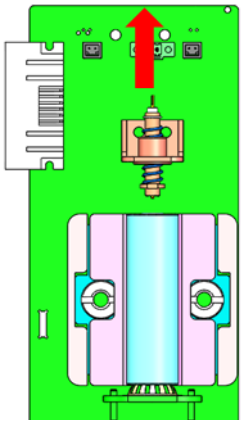
2. Detach the battery holder assembly

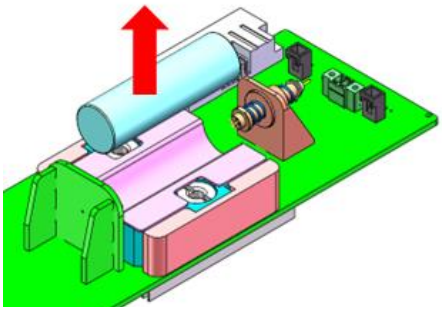


3. Press quick connectors to release the aluminum thermal insulation cover

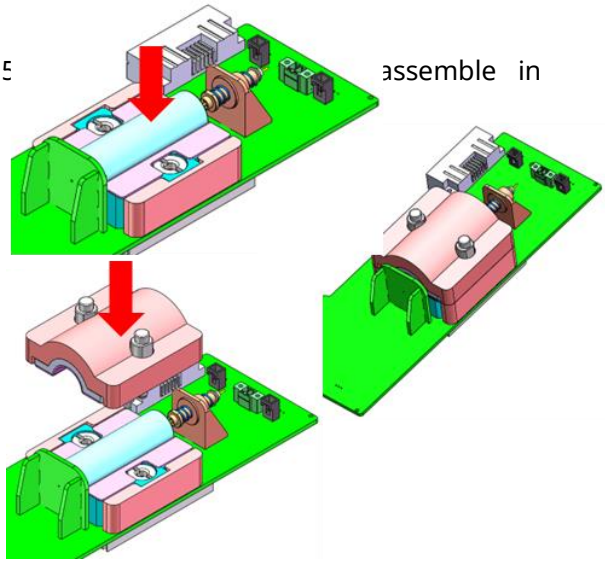


4. Remove the tested cell from the pogo pin interface





5 assemble in

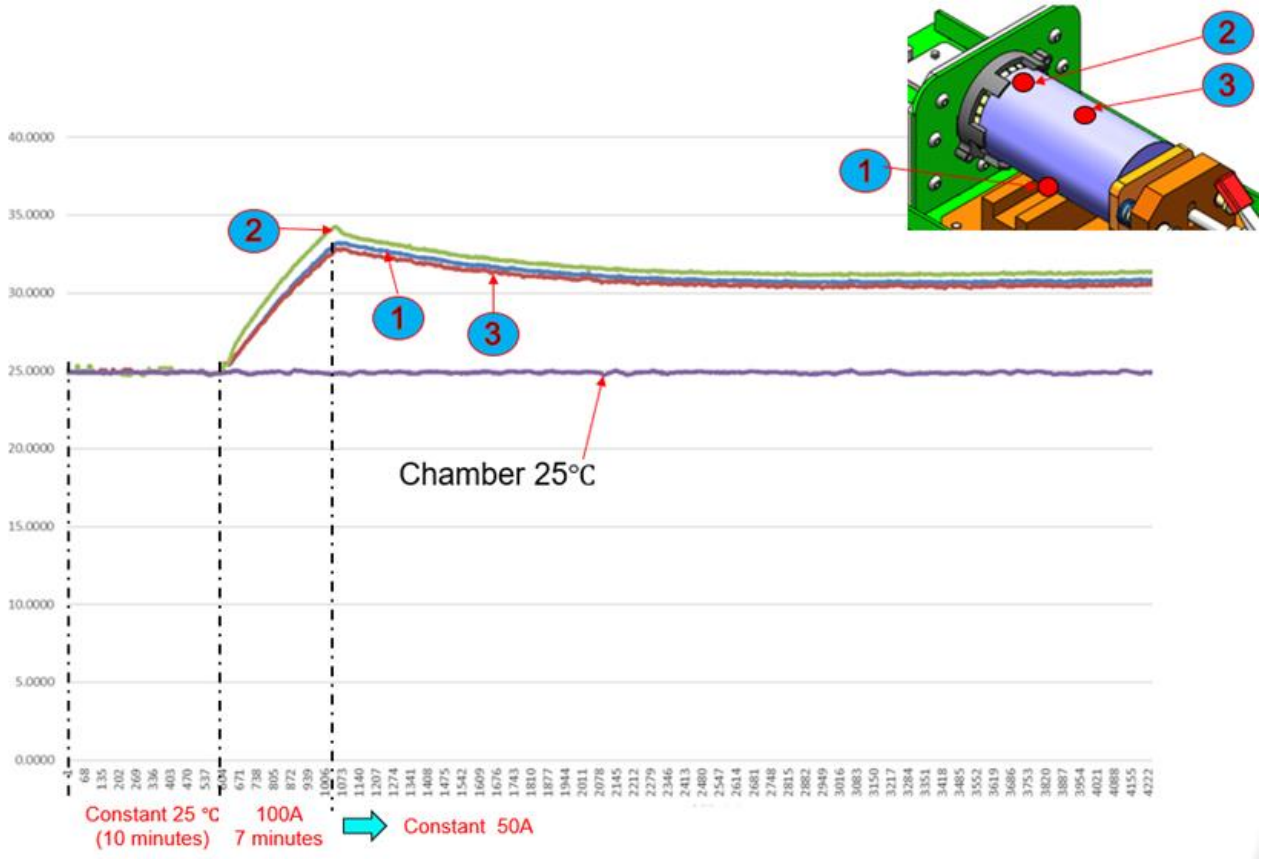


Test Results

Aluminum Blank Example Data

To characterize heat generation in the absence of active cooling, a 46mm diameter aluminum blank was subjected to 100A continuous current for 7 minutes.

Three temperature sensors (indicated by the red circles in the rendering below) were placed on the aluminum surface: two on opposite sides of the blank, and one near the contact terminals. All measurements began at an initial temperature of approximately 25°C.



Conclusion

During the 7-minute test at 100A:

- The sensors near the contact points showed an increase to 34°C (9°C increase) after 7 minutes.
- The center sensor recorded a rise to 33°C (8°C increase) over the same time period.

These results establish a thermal baseline for high-current operation without active cooling. The data illustrates the level of temperature rise expected from resistive heating alone and serves as a comparative reference for evaluating the SBTR's TEC performance.

Aluminum Blank Test Setup and Test Results

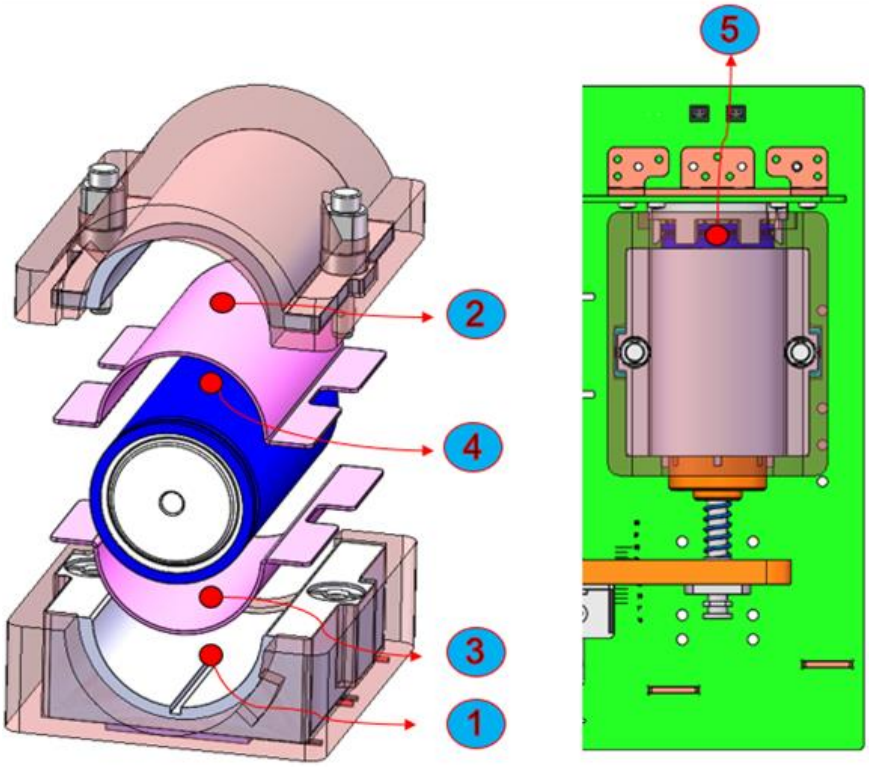
Test Fixture Setup

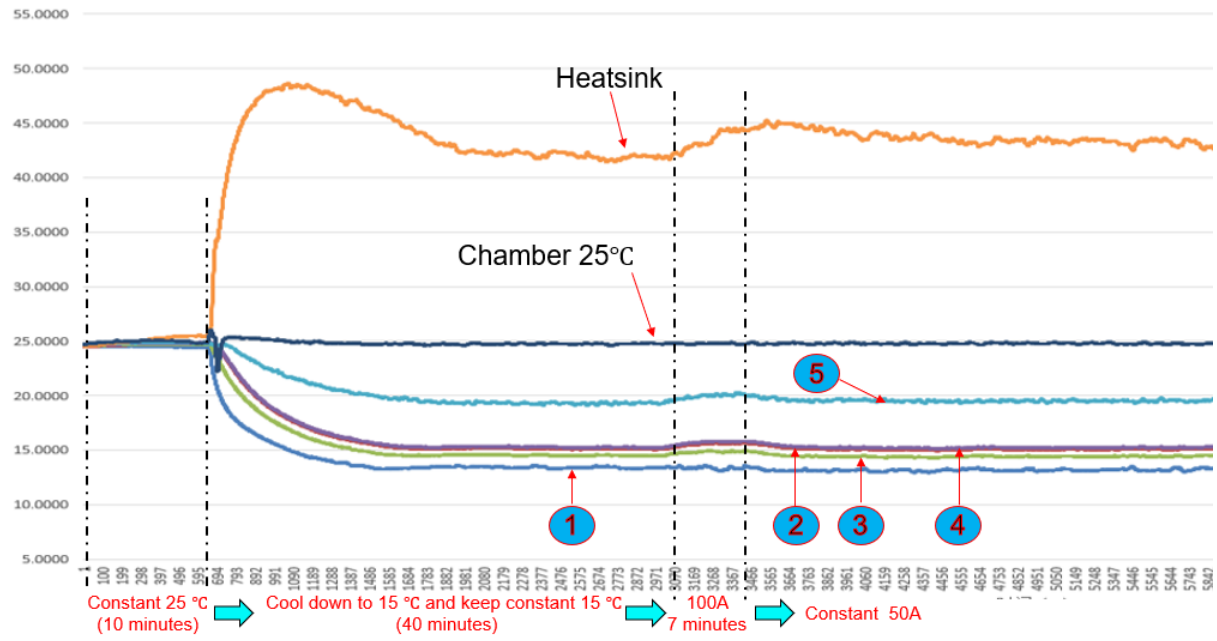
To evaluate the SBTR fixture's thermal management capabilities, a 46mm diameter aluminum blank was used to simulate a battery cell. Five temperature sensors were installed at critical points indicated by the red circles in the rendering below.

Test Set-up

Test Environment: High & Low Temperature Chamber; set to 25°C
Test Object: 46 mm diameter aluminum blank
Test Schedule:

- Set the chamber to 25°C; soak for 10 minutes.
- Set the fixture temperature to 15°C; soak for 40 minutes.
- Output 100 A for 7-minutes.
- Output 50 A for the remainder of the test.





Conclusion

During the 7-minute test at 100A:

- The temperature on the aluminum blank's surface increased by less than 1°C, demonstrating the fixture's effective active cooling.
- The TEC heat sink temperature rose from approximately 42°C to 45°C, confirming heat transfer through the TEC module.

These results indicate that the SBTR fixture successfully maintained a stable cell surface temperature significantly below ambient under a heavy electrical load, validating its ability to extract and reject heat efficiently.

SBTR Product Quick-Reference Tables

Product List

SBTR Tray OTO

Name	Imax	CH	Note
SBTR-OTO-2CH-400A-Pouch/Prismatic cell-tabs on same side	400A	2	Tray only, battery clamps not included
SBTR-OTO-2CH-400A-Pouch/Prismatic cell-tabs on opposite side	400A	2	Tray only, battery clamps not included
SBTR-OTO-4CH-200A-Pouch/Prismatic cell-tabs on same side	200A	4	Tray only, battery clamps not included
SBTR-OTO-4CH-200A-Pouch/Prismatic cell-tabs on opposite side	200A	4	Tray only, battery clamps not included
SBTR-OTO-4CH-200A-Cylindrical cell	200A	4	Tray only, battery clamps not included
SBTR-OTO-8CH-100A	100A	8	Tray only, battery clamps not included
SBTR-OTO-12CH-50A	50A	12	Tray only, battery clamps not included
SBTR-OTO-16CH-30A	30A	16	Tray only, battery clamps not included
SBTR-OTO-32CH-10A	10A	32	Tray only, battery clamps not included
SBTR-OTO-64CH-2A	2A	64	Tray only, battery clamps not included

SBTR Tray PS

Name	Imax	CH	Note
SBTR-P1S4-4CH-200A-Pouch/Prismatic cell-tabs on same side	200A	4	Tray only, battery clamps not included
SBTR-P1S4-4CH-200A-Pouch/Prismatic cell-tabs on opposite side	200A	4	Tray only, battery clamps not included
SBTR-P1S4-4CH-200A-Cylindrical cell	200A	4	Tray only, battery clamps not included
SBTR-P2S4-8CH-100A	100A	8	Tray only, battery clamps not included
SBTR-P3S4-12CH-50A	50A	12	Tray only, battery clamps not included
SBTR-P4S4-16CH-30A	30A	16	Tray only, battery clamps not included
SBTR-P8S4-32CH-10A	10A	32	Tray only, battery clamps not included

SBTR Battery Holder With TEC

Name	Imax	CH	Note
Battery Holder-1CH-200A-4695-tabs on same side-TEC	200A	1	1CH-200A-4695 (Same-side tabs)
Battery Holder-1CH-200A-4680-tabs on opposite side-TEC	200A	1	1CH-200A-4680 (Opposite-side tabs)
Battery Holder-2CH-50A-18650-TEC	50A	2	2CH-50A-18650
Battery Holder-2CH-50A-21700-TEC	50A	2	2CH-50A-21700

SBTR Battery Holder Without TEC

Name	Imax	CH	Note
Battery Holder-1CH-400A-Prismatic cell-tabs on same side	400A	1	
Battery Holder-1CH-400A-Prismatic cell-tabs on opposite side	400A	1	
Battery Holder-1CH-400A-Pouch cell-tabs on same side	400A	1	
Battery Holder-1CH-400A-Pouch cell-tabs on opposite side	400A	1	
Battery Holder-2CH-200A-Prismatic cell-tabs on same side	200A	2	
Battery Holder-2CH-200A-Prismatic cell-tabs on opposite side	200A	2	
Battery Holder-2CH-200A-Pouch cell-tabs on same side	200A	2	
Battery Holder-2CH-200A-Pouch cell-tabs on opposite side	200A	2	
Battery Holder-1CH-200A-46XX-tabs on same side	200A	1	
Battery Holder-1CH-200A-Cylindrical cell-tabs on opposite side	200A	1	
Battery Holder-1CH-100A-Pouch cell	100A	1	
Battery Holder-1CH-100A-Cylindrical cell	100A	1	
Battery Holder-2CH-50A-Pouch cell	50A	2	
Battery Holder-2CH-50A-Cylindrical cell	50A	2	
Battery Holder-4CH-10A-Cylindrical cell	10A	4	
Battery Holder-8CH-2A-coin cell	2A	8	

SBTR Rack

Name	Imax	CH	Note
SBTR Chassis Assembly-4xSBTR(OTO-4CH-200A-TEC)-2C40U	200A	16	Install 4 × SBTR-4CH-200A
SBTR Chassis Assembly-4xSBTR(OTO-8CH-50A-TEC)-2C40U	50A	32	Install 4 × SBTR-8CH-50A
SBTR Chassis Assembly-4xSBTR(OTO-16CH-30A-TEC)-2C40U	30A	64	Install 4 × SBTR-16CH-30A

Revision History

Revision	Description	Prepared By	Date
0.1	Initial creation	L. Tillman	5/23/2025
0.2	Test results section added	L. Tillman	6/4/2025
0.3	Edited title and subheading	L. Tillman	6/5/2025
0.4	Added new product info and edited figures	Y. Yang	7/21/2025
0.5	Modified product spec and reorganize catalog	Y. Yang	9/22/2025
0.6	Updated formatting	L. Tillman	10/2/2025
0.7	Updated SBTR figures	Y. Yang	1/5/2026

Important Notices / Disclaimers