

CELL TEST & FORMATION

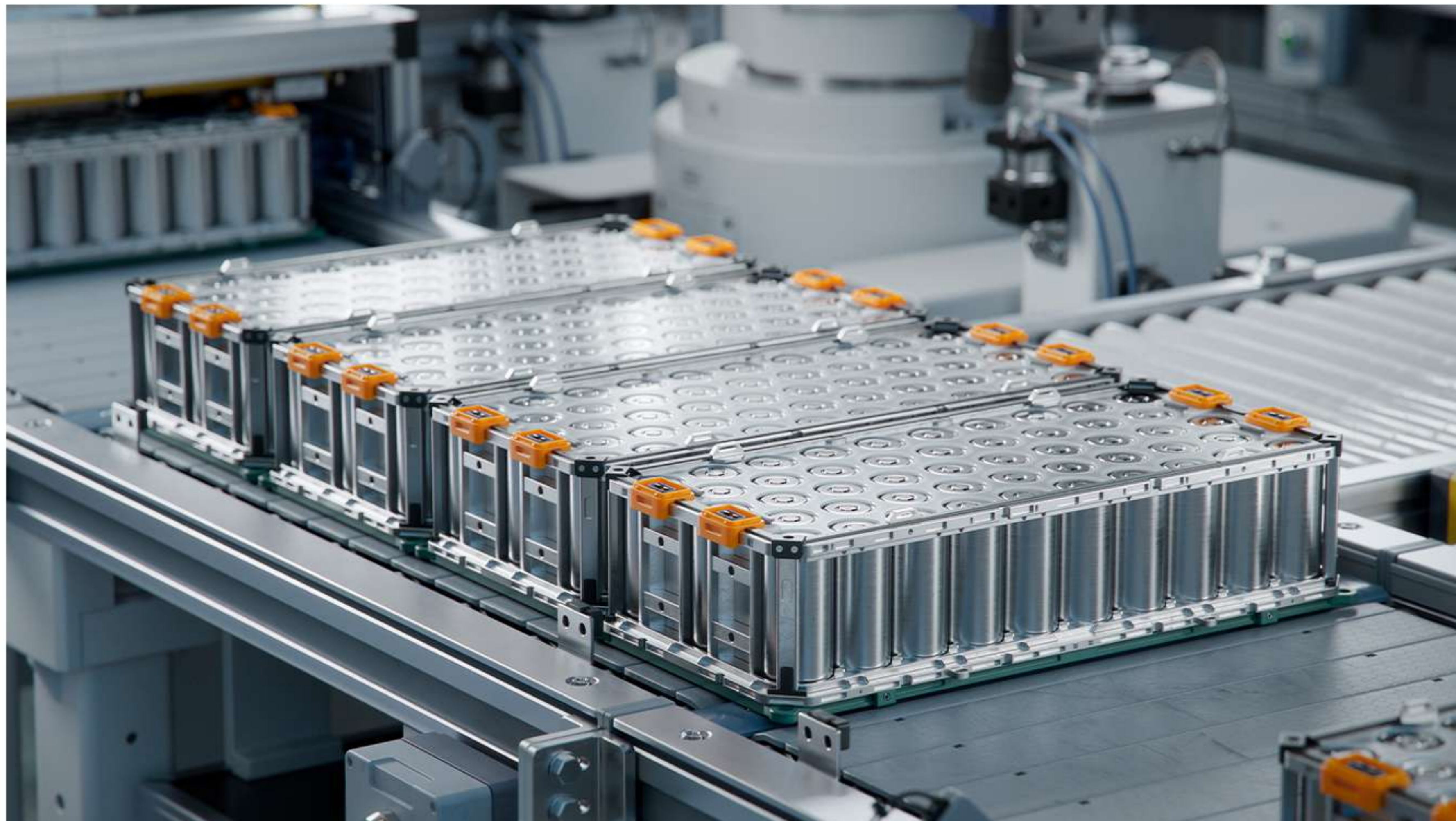
BAT300 SERIES

Compact, Flexible, and Efficient Power Channels



UNICO's new IDAC Power Platform stands to revolutionize power conversion across the electric propulsion and energy storage industries. Its single stage power conversion, isolation, and DC output control topology provide class leading energy efficiency and a compact footprint which benefits every electrification application. UNICO's Cell Channel, using IDAC, offers unprecedented power and efficiency in an extremely small package allowing for incredible flexibility.

APPLICATIONS



- ▶ Formation
- ▶ Aging
- ▶ End of Line Inspection
- ▶ Incoming Inspection
- ▶ Durability
- ▶ Basic R&D



Performance



Reliability



Efficiency



Flexibility



Value



Compact

BENEFITS



FLEXIBLE OUTPUT AND CONTROL

Flexible, Isolated DC Outputs (1 or 4 per device):

- 0-10VDC
- Built-in charge and discharge profile storage
- $\pm 300A$ per channel
- 4 Channel device can be paralleled internally up to 1200A



FLEXIBLE POWER INPUT

AC or High Voltage DC:

- 480VAC
- 400VDC
- 800VDC



EXTREME EFFICIENCY

- Better than 98% efficiency
- Fully bi-directional for energy efficient battery testing and formation



ULTRA COMPACT PERFORMANCE

- Up to 12kW/L power density
- High performance SiC power switching up to 1MHz or more
- Air or water cooled with same design

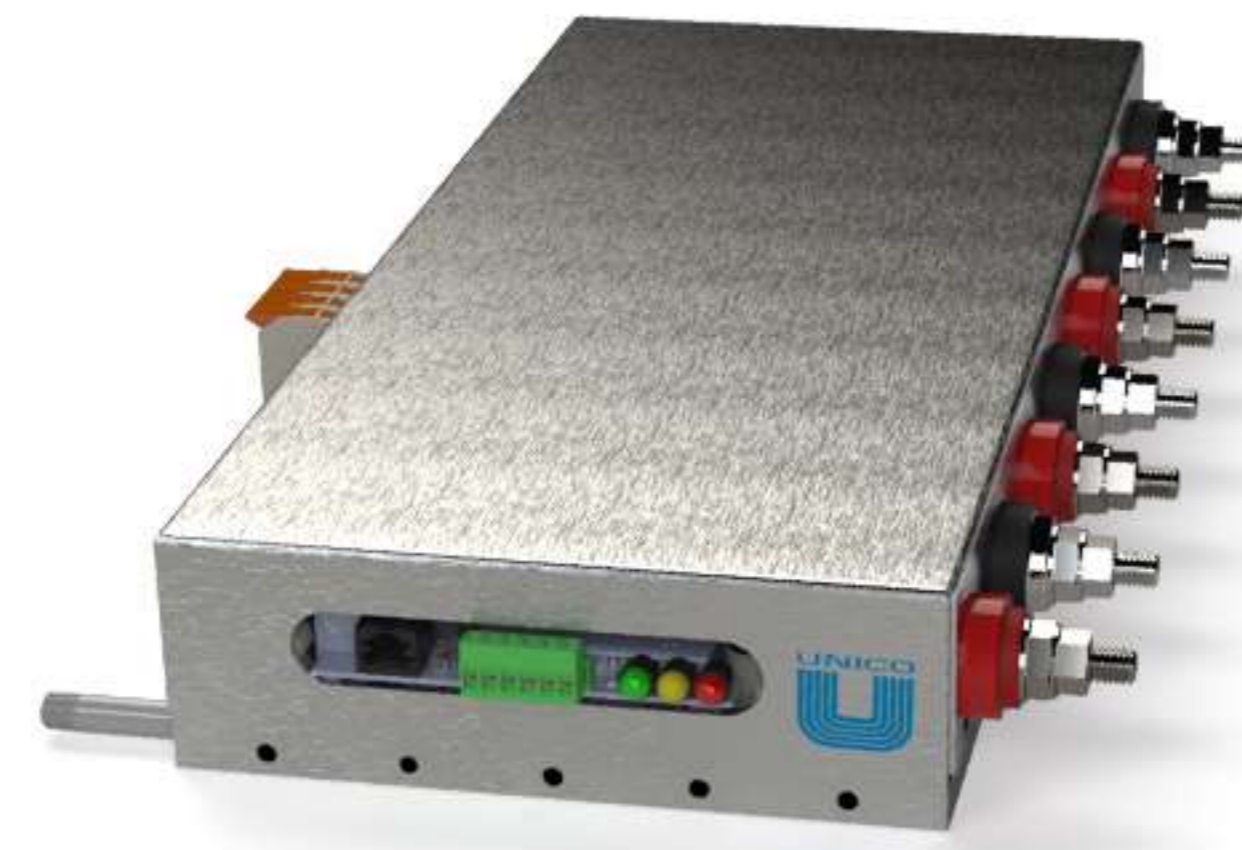
CELL CHANNELS WITH IDAC - BAT300 SERIES

The BAT300 Series of IDAC cell channels based on UNICO IDAC technology bring a new level of performance, compactness, flexibility, and value to the cell test and formation market. The universal power board can be either air or water cooled and utilizes high performance SiC technology switching up to 1MHz utilizing FPGA control. One or four channel versions will be available at launch utilizing a simple REST API control architecture for running test or formation processes which are stored in the device.

480VAC Input, 300A 0-10VDC Output



One Channel Water Cooled



Four Channels Water Cooled



One Channel Air Cooled

UNICO IDAC - COMPACT HIGH PERFORMANCE POWER CONVERSION

Wide range of input options (Examples):

- 120VAC
- 240VAC
- 480VAC
- 400VDC
- 800VDC



Full Isolation

High Frequency Transformer allows for flexible output

Wide range of output options (Examples):

- 0-10VDC
- 0-100VDC
- 0-400VDC
- 0-1000VDC

Multiple outputs also available
(1) 0-1000VDC + (1) 0-60VDC
(800V OBC + 48VDC DC/DC)



IDAC Cell Channel
for testing and formation

The BAT300 has an incredibly small size which allows integrators to mount the complete power electronics - input power conversion, isolation, DC output control - extremely close to the cell. It's ultra-high efficiency of better than 98% and complete bi-directional charging and discharging provide a new level of energy efficiency in the lab or Gigafactory.



Target Specifications	
Input Voltage:	380-480VAC $\pm 10\%$, 50/60Hz or 400-800 High Voltage DC
Separate Control Voltage:	24VDC or PoE
Output Voltage:	0-10VDC
Output Current:	-300A to +300A
Output Power:	2.5kW
# of Output Channels:	1 or 4
Efficiency:	Better than 98% Fully Regenerative
Minimum Current Accuracy:	Better than 1% FS ($\pm 3A$)
Target Current Accuracy:	Better than 0.1% FS ($\pm 0.3A$ or $\pm 300mA$)
Minimum Voltage Accuracy:	Better than 0.1% FS ($\pm 0.01V$ or $\pm 10mV$)
Target Voltage Accuracy:	Better than 0.01% FS ($\pm 0.001V$ or $\pm 1mV$)
Control Modes:	CC, CV, CP + Limits & Safeties
Cooling:	Air or Water
Remote Voltage Sense:	Yes
Battery "Soft Start":	Yes (tentative)
Charge/Discharge Profile Storage:	Yes
Pulse Charging/Discharging Capable:	Yes
External Contactor Control:	Yes, 1 contactor per channel
Internal Temperature Measurement:	Power Circuits & Power Terminals
External Temperature Measurement:	Yes, 1 thermistor per channel
Control Protocol:	REST API over Ethernet
Visual Feedback:	Basic LED Status Feedback



These preliminary specifications are subject to change without notice

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