ENS-3805DC Intelligent Battery Charger/Discharger

Product overview

For battery-group charge/discharge, activation and maintenance testing. Records group/cell voltages, charge/discharge current, elapsed time and capacity to assess energy-storage performance and load capacity. Suitable for battery and UPS power-system maintenance.

Internal load • Touchscreen • Analysis and reports

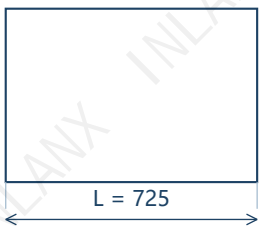


Operating ratings

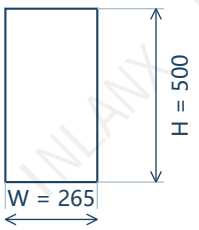
Item	Specification
Discharge voltage	90-450 VDC; for 110 V, 220 V and 380 V battery groups
Discharge current	0-50 A, continuously adjustable
Charge voltage	90-450 VDC; for 110 V, 220 V and 380 V battery groups
Charge current	0-50 A
Power limits	Maximum charge power 20 kW
Dimensions (L × W × H)	725 × 265 × 500 mm
Main-unit mass	≤37.3 kg

Overall dimensions • mm

Side envelope



Front envelope



Overall envelope only; not an installation/manufacturing drawing. Dimensions from the model manual.

Select operating points within the stated voltage, current and specified power limits. Optional functions require the corresponding accessories.

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Technical specifications

Item	Specification
AC supply	AC 380 V (ABCN+PE), 40-60 Hz
Discharge voltage	90-450 VDC; for 110 V, 220 V and 380 V battery groups
Discharge current	0-50 A, continuously adjustable
Charge voltage	90-450 VDC; for 110 V, 220 V and 380 V battery groups
Charge current	0-50 A
Power limits	Maximum charge power 20 kW
Operation	Touchscreen
Display	7-inch TFT LCD, resistive touchscreen, 1024×600
Data communication	1×RS485 (disabled by default)
Internal storage	8 Gbit FLASH
Voltage measurement accuracy	±0.5%FS + 0.1 V
Current measurement accuracy	±1%FS + 0.1 A
Group voltage display accuracy	0.01 V
Group current display accuracy	0.01 A
Discharge current control accuracy	±1%FS

Protection and safety tests

Item	Specification
Main-unit protection	Shutdown on overtemperature, overcurrent or loss of current control
Shutdown device	High-voltage DC switch
Reverse-polarity protection	Supported
Abnormal-condition protection	Mains-cable power loss and main-cable disconnection/power loss
Overtemperature thresholds	Resistor enclosure 85°C; heatsink 100°C
Alarm	LCD indication and buzzer
Dielectric withstand test	2200 VDC, 1 min. AC input-to-chassis; the source lists both DC input-to-output and DC input-to-chassis, pending confirmation.

Operating and storage environment

Item	Specification
Cooling	Forced-air cooling
Operating temperature	-5 to +50°C
Storage temperature	-40 to +70°C
Relative humidity	0-90% RH (40±2°C)
Rated altitude	2000 m

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Core functions

No.	Description
1	Load source: custom nickel-chromium alloy resistors with low resistance and high power density. Resistance accuracy can be controlled within ±0.001 Ω; low temperature coefficient and high-current surge capability.
2	Intelligent control: adjusts the load as battery voltage changes to maintain constant-current discharge. Acquires individual-cell voltages in real time, displays curves and evaluates voltage status against configurable thresholds.
3	Discharge testing: supports constant-current or constant-power discharge with the battery group disconnected from its system, or constant-current discharge in parallel with user equipment. Voltage, current, time and capacity thresholds are configurable; discharge parameters can be changed during a test.
4	Discharge termination: stops at the configured battery-group voltage, capacity or time limit, when any cell drops below its cutoff voltage, or on manual stop. Records group and cell voltages, current, elapsed time and discharged capacity.
5	Automatic charging: follows a three-stage sequence of constant current, constant voltage with tapering current (equalization), and automatic transition to trickle/float charging for battery recovery and maintenance.
6	Touch operation: 7-inch high-brightness TFT display with resistive touch input and 1024×600 resolution for direct on-screen operation.
7	Wireless cell monitoring (optional): LoRa modules support 2 V, 4 V, 6 V and 12 V cells, monitoring six cells simultaneously per module. The source example uses four modules for a 48 V battery group.
8	Cell-data analysis: displays cell voltages during charge/discharge as bar charts and data tables, identifies the highest- and lowest-voltage cells, and supports trend analysis.
9	Curves and reports: reviews recorded battery-group voltage/current curves. Supports USB-drive data export, PC analysis and report generation.

Automatic charging sequence



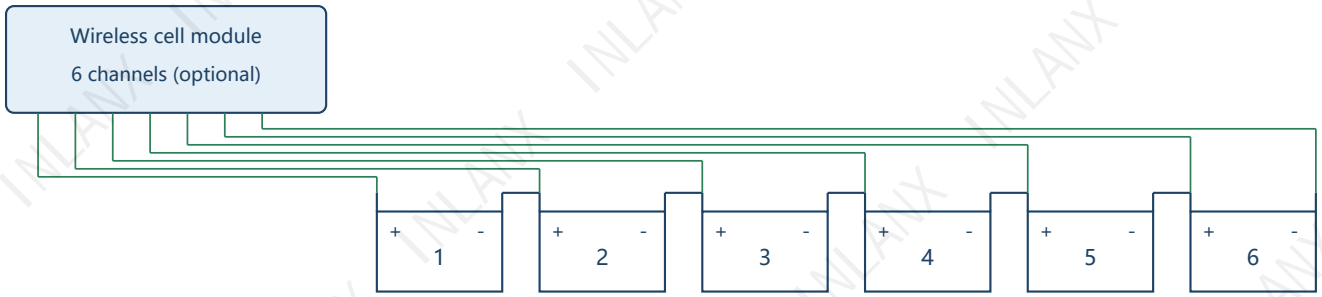
Charging sequence redrawn from the source description; not a measured curve.

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Cycle activation, extensions and options

No.	Description
1	Cycle activation: automatically transitions an offline battery group from completed discharge to charging without manual switching.
2	Charge termination: automatically stops when group/cell voltage reaches its upper limit, the charge-time limit is reached, or the charge-capacity limit is reached; records process data.
3	Wireless-band configuration: receives and changes wireless cell-monitoring module band settings, supporting settings 1-10 for multiple instruments in the same equipment room.
4	Test templates: six built-in charge/discharge templates can be edited and recalled. Test-data names can be edited on the instrument for record management.
5	Discharge modes: constant-current, constant-power and constant-voltage modes are supported as standard.
6	Compensated discharge (optional): requires an external current clamp. Adjusts the internal load using Hall-sensor current feedback to maintain constant battery-group discharge current. Displayed current = battery-group current = internal discharge current + external load current.
7	Parallel testing (optional): supports master/slave operation of multiple instruments; requires a master/slave communication cable.
8	Power-loss recovery: enabled by default. After mains interruption during discharge, charge or cycle activation, resumes the preceding test state when power returns to maintain test and record continuity.
9	PC control: host software supports parameter configuration and start/stop control.
10	Internal-resistance testing: with wireless cell-monitoring modules, measures individual-cell internal resistance and supports coefficient adjustment. Results are for reference.
11	Online monitoring (optional): requires cell-monitoring modules and a current clamp. Monitors and records battery-group voltage, current, capacity and time and generates reports.
12	Reserved communication interfaces: RS485 master interface for cell-voltage acquisition; RS485 slave interface for remote control; reserved CAN interface for signal input/readout. Actual interface enablement is specified in the parameter table.

Wireless cell sensing (optional)



Cell-voltage sensing redrawn from the manual; follow module labels and manual for wiring.