DBM-DZ220 DC Power System Comprehensive Tester

Product overview

Automated testing of DC power systems and chargers, comprising a main unit and an AC voltage-adjustment unit. Supports voltage/current regulation, ripple, efficiency, voltage/current limiting, three-phase imbalance and battery discharge/capacity tests.

Automatic testing • Data recording • Report analysis



Technical specifications

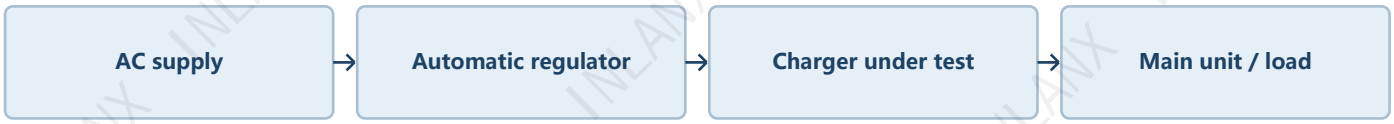
Item	Specification
Auxiliary supply	AC 220 V ±15%, 50 Hz
DC voltage classes	220 V / 110 V
Current range	0-50 A
Voltage accuracy	0.5%
Current accuracy	1.0%
Regulated AC voltage	AC 380 V ±15%
Regulator rated power	≥15 kVA
Ambient temperature	-10 to +40°C
Relative humidity	5-90%
Cooling	Forced-air cooling
Portability / operation	Portable; continuous operation
Record memory	>256 M (source notation; unit unspecified)
Interfaces	USB + RS232
Display	7.5-inch color LCD; 5½-digit readout; Chinese interface
Dimensions / mass	No numerical values in supplied manual, website archive or attachments

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Core functions

No.	Description
1	Automatic tests: menu-driven voltage regulation, ripple, current regulation and charger efficiency tests, with load-current and DC-voltage acquisition.
2	Processing: high-speed industrial PC and CPLD, dynamic response <100 μs; PC104 platform for real-time sampling, load adjustment and ripple waveform display/recording.
3	Voltage and load control: automatic three-phase numerical regulation; contactless adjustment, 8421-coded load-resistor combinations and high-power dissipation without an open flame.
4	Discharge and capacity: full-process recording and curves; configurable capacity, voltage, cutoff voltage, current and time. Manual specifies batteries up to 500 Ah.
5	Discharge protection: audible/on-screen low-voltage alarm; automatic stop below cutoff voltage, with manual termination available.
6	Time and capacity: clock display/synchronization and constant-current discharge, with time, current and ampere-hour records.
7	Operation and records: three-key numerical setup, direct number entry and on-site printing; both RS232 and USB interfaces.
8	PC data management: electronic archiving, report printing, history search, analysis, saving and comparison to aid fault diagnosis.
9	Charger compatibility: high-frequency switching and phase-controlled types; current-limit, voltage-limit, efficiency and three-phase imbalance tests.
10	Voltage selection: user entry of actual AC voltage; source describes a selectable range of 90%-110% of nominal input.

System composition and test relationship



Redrawn from the manual functional description; not a field wiring diagram.

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Test modes and methods

Item	Specification
Voltage regulation and ripple	AC voltage varies within +15%/-10% of rated value, with load current at 0-100% of rated value. Automatic test after setting current, voltage and criteria.
Current regulation	AC voltage varies within +15%/-10% of rated value; charging voltage varies within its adjustment range, with current at 20-100% of rated value.
Other modes	Current/voltage limiting, efficiency at rated AC voltage, three-phase imbalance, and full discharge recording/curve review.

Test criteria from supplied source

Item	Magnetic amplifier	Phase control I	Phase control II	HF switching
Voltage regulation	≤±5%	≤±0.5%	≤±1%	≤±0.5%
Current regulation	≤±2%	≤±1%	≤±2%	≤±1%
Ripple coefficient	≤1%	≤1%	≤1%	≤0.5%

Supplied source cites DL/T 459-2000; I and II are phase-controlled equipment accuracy classes. These are charger test criteria, separate from the tester measurement accuracy.

Calculation relationships

Formula	Variables
$\delta u = \lvert UM - UZ \rvert / UZ \times 100\%$	UM: output-voltage fluctuation limit; UZ: output-voltage setpoint.
$Xpp = Upp / Udc \times 100\%$	Upp: AC ripple peak of output voltage; Udc: mean DC output voltage.
$\delta I = \lvert IM - Iz \rvert / Iz \times 100\%$	IM: output-current fluctuation limit; Iz: current at rated AC input and midpoint of the charging-voltage adjustment range.