

Multi-functional lithium-ion battery tester

General information

The 18650 cell is the most common type of lithium-ion rechargeable battery. It is used in e-bikes, electric vehicles, tools, portable electronic devices, etc.

The battery tester makes it possible to conduct a variety of tests and measurements without any additional hard or software requirements. It can be used as a single meter tester, as well as in remote operation.

Design

A standard 12 V power adapter is used as the supply device for the battery tester. The user menu enables entries via 4 buttons. The display shows recent measurement values and settings.

A buck converter is used as the power electronic converter for charging. The discharge circuit is based on an adjustable linear regulator and load resistance. The compact design is achieved through the use of forced refrigeration.

Functions

Charge:

- CC/CV Processes
- Selectable charging end voltage

Discharge:

- CC or CP discharge
- Freely programmable duty cycle
- Selectable discharge end voltage

Measurements:

- Open-circuit voltage and internal resistance
- Charge status
- Total capacity and energy content
- Temperatures

Cycle tests:

- Cycle test runs automatically and has a selectable number of load cycles
- Measurement log



Figure 1: Lithium-ion battery tester

Technical Specifications

Charge/discharge voltage:	5 A / 10 A (max.)
Cell voltage range:	2 V – 4.5 V
Power supply:	12 V / 2 A
Dimensions:	125x102x60mm
Safety features:	Current, voltage, temp.
Micro-controller:	48 MHz, 32 bit
Interfaces:	RS422

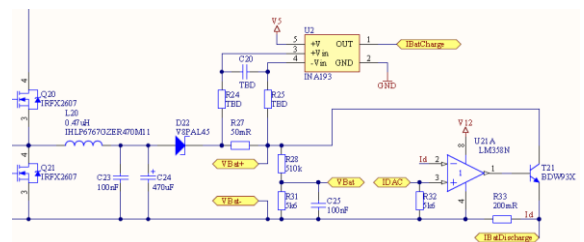


Figure 2: Power unit diagram

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