

BTS 200 MKII

Battery
Test System



Battery Test System

Electrical power plants are normally equipped with batteries of different types and regular test according to international standard are requested in order to assure the standby power for relays, circuit breakers, measuring equipment and telephone exchanges.

- High power battery capacity test system
- Discharging current up to 1300A with external loads (up to 9)
- Graphical display showing test parameters, curves and results
- Internal memory
- Light and easy to carry, with handles and wheels
- Shunt or clamp metering of an additional current
- Suitable for all battery types

Application

The most reliable method for the determination of battery capacity is to perform a discharging cycle periodically. BTS 200 MKII allows to perform such test combining efficiency with portability. It can test any type of battery with a discharging current up to 1300A with external loads.

Specification

Maximum discharging current with BTS 200 MKII.

| BATTERY NOMINAL VOLTAGE | MAX CURRENT DISCHARGED |
|-------------------------|------------------------|
| 240 V | 70 A |
| 220 V | 70 A |
| 140 V | 130 A |
| 110 V | 130 A |
| 48 V | 130 A |
| 24 V | 130 A |

- It is possible to parallel up to 9 external loads ELU 200 MKII
- The test set shows on the large back-lighted LCD display the following parameters:
 - Battery voltage
 - Minimum voltage threshold (adjustable), with automatic stop
 - Discharging current, power or profile
 - Ah (ampere-hour) discharged
 - Test time duration with automatic stop at time out
 - Test conditions are all displayed
 - Discharging curve is displayed
 - Test parameters are entered via the functional push button and the graphical display on the front panel

Load patterns

- Constant discharge current
- Constant power
- Current profile (up to 20 steps)
- Power profile
- Manual control

Measurement of the Discharging Current

- Range: 0 - 130 A
 - Display: 0 - 130 A (0 - 1300 A with external loads)
 - Accuracy: $\pm 1\%$ of the value, $\pm 0.2\%$ of the range
- The discharging activity can be stopped and started again later from the same level

External Current Measurements

Testing can be carried out without disconnecting the battery. Using the optional current clamp, BTS 200 MKII measures the total current while regulating it at a constant level. The external current measurement can be performed also by shunt connection.

External Current Measurement with Clamp or Shunt

1V - 100mV (100 mOhm - 0.1 mOhm) with 10A - 1000A

Setting of the Minimum Voltage Threshold

From 20V to 270V with step of: ± 1 V

Maximum Float Voltage

Up to 270V

Measurement of the Battery Voltage

- Range: 0 - 300 V
- Display: 0 - 99.9 or 0 - 999 V; auto ranging
- Accuracy: $\pm 1\%$ of the range, $\pm 0.2\%$ of the range

Setting of the Maximum Testing Time

From 0 to 15 hours or infinite (without recording)

Internal Memory

8 discharging sequences; non volatile internal memory

Automatic Stop Functions

- Minimum voltage threshold
- Maximum capacity
- Time out (Max. 9h.59')
- System alarm

Interfaces

USB and CAN - BUS for external loads control

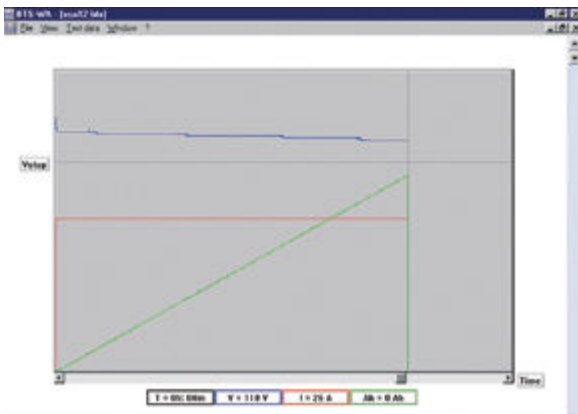
Software for BTS 200 MKII

The software for BTS 200 MKII runs with Windows XP or 7 and allows to control the BTS 200 MKII with a Lap Top PC.

The software performs the following features:

- Set the BTS 200 MKII testing parameters;
- Display on the PC screen the following parameters in graphic and tabular form:
 - Battery voltage
 - Current discharged
 - Ampere-hour discharged
 - Time - Test duration
- It manages the BTS alarms
- Possibility to define a discharge current profile with max. 20 steps
- When the test is completed, it is possible to save the results and to print it both in graphic and tabular form

Software and firmware can be downloaded and updated directly from www.isatest.com web site.



External Load ELU 200 MKII (Optional)

When higher load current is necessary, it is possible to use the BTS 200 MKII in connection with external load ELU 200 MKII. ELU 200 MKII is an active programmable burden as BTS 200 MKII. BTS 200 MKII allows the connection up to 9 external loads ELU 200 MKII.

Interfaces to PC

Available interface: USB.

Protections

- Fuse on the power supply
- Thermal protection. It stops the current discharge of the batteries and displays the message “STOP OVER-TEMPERATURE” on the LCD display
- Protection against the wrong battery polarity, with message on the display “WRONG POLARITY”

| BTS 200 MKII: DISCHARGING EXAMPLES | | | |
|------------------------------------|---------------------|--------------------|-------------------|
| NOMINAL BATTERY VOLTAGE V | NOMINAL CAPACITY Ah | CONSTANT CURRENT A | CONSTANT POWER kW |
| 24 | 500 | 50 | 1 |
| 48 | 500 | 50 | 2 |
| 110 | 500 | 50 | 4.7 |
| 120 | 500 | 50 | 5.1 |
| 220 | 500 | 50 | 9.4 |
| 240 | 500 | 50 | 10.2 |

| BTS 200 MKII: DISCHARGING EXAMPLES | | |
|------------------------------------|-------------------------|-----------------------|
| TEST DURATION H | DISCHARGING CAPACITY AH | END OF TEST VOLTAGE V |
| 10 | 500 | 20 |
| 10 | 500 | 40 |
| 10 | 500 | 94 |
| 10 | 500 | 102 |
| 10 | 500 | 188 |
| 10 | 500 | 204 |

Maximum discharging of BTS 200 MKII with ELU 200 MKII External Loads

| BATTERY | NUMBER OF ELU 200 MKII | | | |
|----------|------------------------|-------|-------|-------|
| | 1 | 2 | 3 | 4 |
| 24 V DC | 260 A | 390 A | 520 A | 650 A |
| 48 V DC | 260 A | 390 A | 520 A | 650 A |
| 110 V DC | 260 A | 390 A | 520 A | 650 A |
| 120 V DC | 260 A | 390 A | 520 A | 650 A |
| 220 V DC | 140 A | 210 A | 280 A | 350 A |
| 240 V DC | 140 A | 210 A | 280 A | 350 A |

| BATTERY VOLTAGE | NUMBER OF ELU 200 MKII | | | | |
|-----------------|------------------------|-------|--------|--------|--------|
| | 5 | 6 | 7 | 8 | 9 |
| 24 V DC | 780 A | 910 A | 1040 A | 1170 A | 1300 A |
| 48 V DC | 780 A | 910 A | 1040 A | 1170 A | 1300 A |
| 110 V DC | 780 A | 910 A | 1040 A | 1170 A | 1300 A |
| 120 V DC | 780 A | 910 A | 1040 A | 1170 A | 1300 A |
| 220 V DC | 420 A | 490 A | 560 A | 630 A | 700 A |
| 240 V DC | 420 A | 490 A | 530 A | 630 A | 700 A |

Optional Transit Case

Aluminium case for BTS 200 MKII or ELU 200 MKII with carrying handle and wheels.

Dimensions: 330x820x610mm. Weight: 14 kg.



Power Supply: Three Options

- 100 V - 240 V AC, 50 / 60 Hz
- 100 V - 270 V DC

From the Battery Under Test

110 V - 240 V DC.

Weight and Dimensions

BTS 200 MKII with handles and wheels
Dimensions: 283 x 700 x 420 mm;
Weight: 32 kg (without the optional case).
ELU 200 MKII (optional)
Dimensions: 283 x 700 x 420 mm;
Weight: 30 kg (without the optional case).

Accessories Supplied with the Unit

Power supply cable and earth cable.
No. 2 battery cables, terminated with crocodile clamps.
Software for BTS 200 MKII.
USB interface cable.
Operating Manual.

Optional Current Clamp

Ranges: 40 A DC (10 mV/A) and 400 A DC (1 mV/A).
Accuracy: 1.5% up to 40 A; 2% up to 400 A.
Maximum conductor diameter: 30 mm.



Testing cables and current clamp

Applicable Standards

Electromagnetic compatibility
Directive no. 2004/108/EC.
Applicable Standard : EN61326-1 + A1 + A2.

Low voltage directive
Directive n. 2006/95/EC.

Applicable standards, for a class I instrument, pollution degree 2,
Installation category II: CEI EN 61010-1. In particular:

- Operating temperature: 0 - 40°C; storage: -25°C to 70°C
- Relative humidity : 5 - 95%, not condensing

Ordering Information

| CODE | MODULE |
|-------|--|
| 20167 | BTS 200 MKII for battery: 24 - 48 -110 - 220 V DC suitable for external load, with software and testing cables |
| 21167 | ELU 200 MKII EXTERNAL LOAD 130A with testing cable |

Options for BTS 200 MKII and ELU 200 MKII

| CODE | MODULE |
|-------|---------------------------------|
| 12167 | Current clamp for BTS 200 MKII |
| 28167 | Transport case for BTS 200 MKII |
| 28167 | Transport case for ELU 200 MKII |