

TESTING AND MAINTAINING BATTERY SYSTEMS

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**
- **Graphical display showing test parameters, curves and results**
- **Internal memory**
- **Suitable for all battery types**

A P P L I C A T I O N

The most reliable method for the determination of battery capacity is to perform a discharging cycle periodically.

BTS 200 allows to perform such test combining efficiency with portability.

BTS 200 can test any type of battery with a discharging current up to 1300A with external loads.

BTS 200 Specification

Maximum discharging current with BTS 200

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 load ELU 200
- . 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.

BTS 200



Load patterns

- . Constant discharge current.
- . Constant power.
- . Current profile.
- . 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.

External current measurements

Testing can be carried out without disconnecting the battery. Using the optional current clamp, BTS 200 measures the total current while regulating it at a constant level.

External current measurement with clamp

1V - 100mV 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

The software for BTS 200, that runs within Windows XP or VISTA and allows to control the BTS 200 with a Lap Top PC.

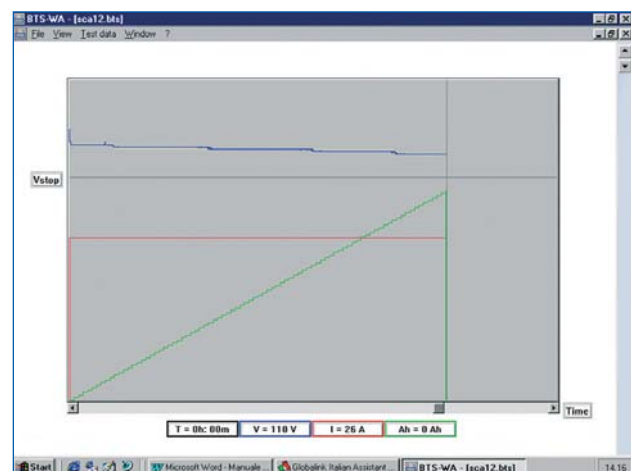
The software performs the following features:

- . Set the BTS 200 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 manage the BTS alarms;

- . When the test is completed it is possible to save the results and to print it both in graphic and tabular form.

EXTERNAL LOAD ELU 200 (OPTIONAL)



When higher load current is necessary, it is possible to use the BTS 200 in connection with external loads ELU 200.

ELU 200 is a resistive extra loads that allows different configurations, in order to set the discharging current at different voltage levels.

BTS 200 allows the connection up to 9 external loads ELU 200.

Maximum discharging current with BTS 200 with external loads ELU 200

BATTERY VOLTAGE	MAXIMUM DISCHARGING CURRENTS OF BTS 200 WITH ELU 200 EXTERNAL LOADS								
ELU 200 Q.TY	1	2	3	4	5	6	7	8	9
24 V DC	260 A	390 A	520 A	650 A	780 A	910 A	1040 A	1170 A	1300 A
48 V DC	260 A	390 A	520 A	650 A	780 A	910 A	1040 A	1170 A	1300 A
110 V DC	260 A	390 A	520 A	650 A	780 A	910 A	1040 A	1170 A	1300 A
120 V DC	260 A	390 A	520 A	650 A	780 A	910 A	1040 A	1170 A	1300 A
220 V DC	140 A	210 A	280 A	350 A	420 A	490 A	560 A	630 A	700 A
240 V DC	140 A	210 A	280 A	350 A	420 A	490 A	560 A	630 A	700 A

ELU 200



Interfaces to PC

2 available interfaces: USB and RS232.

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 DISCHARGING EXAMPLES

NOMINAL BATTERY VOLTAGE V	NOMINAL CAPACITY Ah	CONSTANT CURRENT A	CONSTANT POWER W	TEST DURATION h	DISCH. CAPACITY Ah	END OF TEST VOLTAGE V
24	500	50	1100	10	500	20
48	500	50	2200	10	500	40
110	500	50	5100	10	500	94
120	500	50	5500	10	500	102
220	500	50	10200	10	500	188
240	500	50	11000	10	500	204

Case

BTS 200 Aluminium case with carrying handle and wheels.
 ELU 200 External Load (Optional): Aluminium case with carrying handle and wheels.

Power supply: three options

- . 100V - 240V AC, 50 / 60 Hz.
- . 100V - 300V DC.

From the battery under test

110V - 240V DC.

Switch selectable

Weight and dimensions

BTS 200

Dimensions: 283 x 803 x 420 mm;
 Weight: 30 kg (without heavy duty transport case).

ELU 200 (optional)

Dimensions: 283 x 803 x 420 mm;
 Weight: 28 kg (without heavy duty transport case).

Accessories supplied with the unit

- Power supply cable.
- No. 2 x 5 m cables 25 mm, terminated with crocodile clamps.
- Software for BTS 200.
- USB interface cable.
- Operating Manual.



Optional

- . Transport case
- . Current clamp.

APPLICABLE STANDARDS

Electromagnetic compatibility

Directive no. 89/336/CEE dated May 3, 1989, modified by the directive 92/31/CEE dated May 5, 1992.

Applicable Standards:

- EN 50081-2; EN 50082-2; EN 55011; EN 61000-3-3;
- EN 50082-2; ENV 50140; ENV 50141; ENV 50204; IEC 1000-4-2;
- IEC1000-4-4; IEC 1000-4-6; IEC 1000-4-8.

Low voltage directive

Directive n. 73/23/CEE, modified by the directive 93/68/CEE.

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

In particular:

- Operating temperature: 0 - 45°C;
- Storage: -25°C to 70°C.
- Relative humidity: 10 - 80% without condensing.

Ordering Information:

CODE	MODULE
	BTS 200
10167	BTS 200 for battery: 24 - 48 - 110 - 220 V DC suitable for external load with software and test cable
11167	ELU 200 EXTERNAL LOAD 130A with test cable - Mains 115V ±15%

Option for BTS 200 & ELU 200:

CODE	MODULE
18167	Transport case for BTS 200
12167	Current clamp for BTS 200
18167	Transport case for ELU 200