

### 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  $\pm 1$  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.

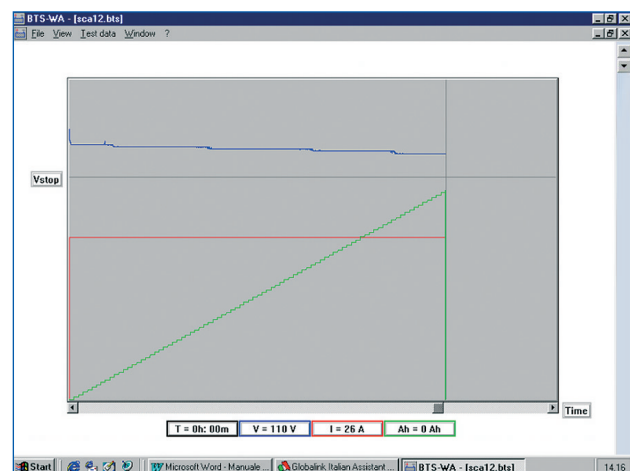
The software performs the following features:

- . 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 Vdc          | 260 A   | 390 A | 520 A | 650 A | 780 A | 910 A | 1040 A | 1170 A | 1300 A |
| 48 Vdc          | 260 A   | 390 A | 520 A | 650 A | 780 A | 910 A | 1040 A | 1170 A | 1300 A |
| 110 Vdc         | 260 A   | 390 A | 520 A | 650 A | 780 A | 910 A | 1040 A | 1170 A | 1300 A |
| 120 Vdc         | 260 A   | 390 A | 520 A | 650 A | 780 A | 910 A | 1040 A | 1170 A | 1300 A |
| 220 Vdc         | 140 A   | 210 A | 280 A | 350 A | 420 A | 490 A | 560 A  | 630 A  | 700 A  |
| 240 Vdc         | 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

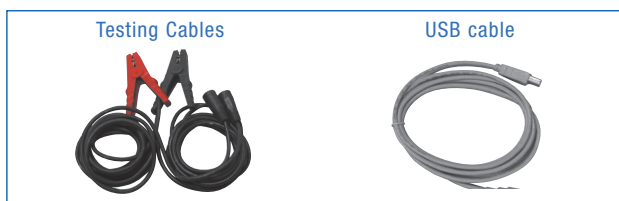
Dimensions: 283x 803 x 420 mm;  
 Weight: 30 kg (without heavy duty transport case).

### ELU/200 (optional)

Dimensions: 283x 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 25mm, 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 VDC 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 |



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