

# miniMasterCharger

## Microprocessor Controlled Battery Charger-Analyzer



### HIGHLIGHTS:

The miniMasterCharger is a precision instrument designed to charge and analyze (discharge) Nickel-Cadmium, Sealed Lead-Acid and other types of rechargeable batteries (up to 10A-Hr).

With its multiple modes of operation of Constant Current, Constant Voltage and Peak Charge and Analysis and Deep Cycle discharge modes, the miniMasterCharger can satisfy the requirements of most small rechargeable battery systems.

A special Constant Resistance discharge mode is now provided for those battery packs that specify capacity testing with a resistive load.

Two large digital meters permit the simultaneous monitoring of voltage and current, while eight indicator lights inform of the status of the operation.

An integral, four digit LED digital timer provides time interval programming in HOURS-MINUTES and optionally in MINUTES-SECONDS. A rechargeable battery provides backup for short power interruptions.

Internal control and programming of Battery Test Functions is achieved through a keypad and an LCD readout. Multiple Battery Test Profiles can be stored in a non volatile memory to facilitate programming for often tested batteries .

The miniMasterCharger can be interfaced to the BTAS16 Battery Test System and achieve remote monitoring, programming of test parameters and control of the operation.

- ◆ **Three Charge Modes (0 to 2A):**
  - Constant Current (single and dual rate)
  - Constant Voltage (float)
  - Peak
- ◆ **Three Discharge Modes (0 to 10A):**
  - Analysis (Capacity Test)
  - Deep Cycle
  - Constant Resistance
- ◆ **Battery Temperature Monitoring**
- ◆ **Interfacing to the BTAS16 Computerized Battery Test System for monitoring, programming and control**
- ◆ **Fully Protected**

### CHARACTERISTICS:

In the Constant Current Charge mode, the current is programmed via the keypad and it is independent of the battery voltage, from 0 volts (short circuit) up to 40V. The charge current is also independent of the line voltage, within the specified line voltage limits.

In the Constant Voltage Charge mode, the current starts constant (as per the CC mode) and remains constant until the battery voltage is within a fraction of the selected value (0.25V to 0.5V approximately). At this point, the current is automatically reduced and regulated to maintain the programmed battery voltage.

In the Peak Stop Charge mode, the current starts constant (as per the CC mode) and it is terminated automatically when the battery reaches the programmed peak voltage.

In the Analysis Discharge mode, the current starts constant and it is terminated automatically when the battery drops below the programmed voltage.

In the Full Discharge mode, the current starts constant but gradually drops to zero as the battery voltage reaches the 3V to 2V level.

A temperature controlled fan turns on only as required thus providing for a quiet operation.

A monitor circuit provides the following safety features:

**REVERSE POLARITY:** If the charger is connected in reverse to a battery (or single cell) having at least 0.25V, the instrument will signal a fault and inhibit further operation.

**OPEN CIRCUIT:** If the charger is started without a battery connected to it, or if the battery is open, or if the battery voltage rises abnormally (overvoltage), the instrument will signal a fault and inhibit further operation.

**SHORT CIRCUIT:** The miniMasterCharger is current limited, therefore, a short circuit will not result in any more current than the programmed level.

**OVER/UNDERCURRENT:** The microprocessor monitors the current and returns a fault if the output current differs from the programmed current.

**OVERTEMPERATURE:** The microprocessor monitors the internal temperature and returns a fault if the internal temperature exceeds the preset limits.

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## SPECIFICATIONS

1. CURRENT
  - Charge: constant current, programmable: 0 to 2A
  - Discharge: constant current, programmable, 0 to 10A.
2. VOLTAGE:
  - Charge: 0 to 40V
  - Discharge: 3 to 28V at full current, up to 44V at reduced currents (240W max power dissipation).
3. MODES:
  - Constant Current Charge (single and dual rate)
  - Constant Voltage Charge
  - Peak Voltage Charge
  - Capacity Test (constant current and constant resistance)
  - Full Discharge
4. VOLTAGE CONTROL:
  - Programmable: From 00.0 to 44.0V on charge and from 3.0V to 28.0V (up to 44V at reduced currents) on discharge, with an accuracy of 2%  $\pm 0.1V$
5. CONTROLS:
  - Keypad for the programming of Battery Test Parameters
6. METERS:
  - Voltage: 3-1/2 digit LED digital panel meter, 0 to 19.99V and 0 to 199.9V scales. Accuracy: 0.5%  $\pm 0.1V$
  - Current: 3-1/2 digit LED digital panel meter, 0 to 1.999A scale for charge and 0 to 19.99A for discharge. Accuracy: 1%  $\pm 0.002A/\pm 0.02A$
6. STATUS INDICATORS:
  - Power ON, Output ON, Cycle End, End Voltage, Capacity Failure, System Warning, System Fault
7. TIMER:
  - Four digit LED. Two speeds: Hours-Minutes and Minutes-Seconds. Battery backed-up.
8. LINE VOLTAGE:
  - 115/230VAC,  $\pm 10\%$ , 50-60Hz
9. AMBIENT:
  - $+5^{\circ}C$  to  $+35^{\circ}C$  (check with factory for extended temperature operation).
10. WARRANTY:
  - One year parts and labor.
11. PART NUMBER:
  - 9891601102

Specifications subject to change without notice

Jan 4, 2018



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