

# M346-1 Battery Tester/Charger

## General Description

The M346-1 is a Battery Tester/Charger that allows the charging and testing of all of Milpower Source UPS Battery Packs (M350510, M350380, M356380, M357380, M359380 and M333-3.)

It was designed by Milpower specifically for the purpose of periodical maintenance of spare Battery Packs in storage condition (external to the UPS).

The M346-1 is powered from a standard 115VAC/60Hz, domestic power and consumes less than 5Amp.

The M346-1 has two Operational Modes:

- **Charge Only:** In this mode the M346-1 will fully charge the Battery Pack and then will pause, indicating a full-charge (or a bad battery, as applicable) until turned off, or a new battery pack is connected to it.
- **Automatic Charger-Tester:** In this mode, the M346-1 will start by fully charging the Battery Pack, then it will discharge it, verifying proper capacity and will finish by re-charging it without any need for human intercession.

The user can select the desired Mode by simply toggling a “TASK SELECTION” switch on the front panel of the M346-1.

The M346-1 displays its operational status and test-result on a clear LED display on its front panel (see Figure 1 on Page 3).

**Operation Description**

After turning the POWER switch ON and with all the charging conditions exists, the M346-1 starts to charge the battery. The display will show the type of the battery and the “CHARGING” LED on the battery status section will blink.

If the M346-1 works as a charger (the task selection switch is on “CHARGE ONLY”) and the battery is fully charged the “CHARGING” LED will be ON.

***Note: leaving the battery connected to the M346-1 after the charging process is over or without charging it can increase the self discharge current of the battery by more than 35%!***

If the M346-1 works as a tester, it will first fully charge the battery and when the charging cycle had finished successfully, the M346-1 will automatically start to discharge the battery. The “DISCHARGING” LED will blink and the display will show a timer counting the time of discharging. After a successful discharging cycle the “BATTERY’S OK” LED will be ON and the display will show “PASS”. The M346-1 will again fully charge the battery. At the end of the second charging cycle the “CHARGING” LED will be ON.

Pushing the “PUSH TO START” button will initiate the selected task.

In case of an empty or bad battery, the “BAD/EMPY BATTERY” LED will be on.

In case of input power loss the system will recover automatically when the power returns. If the system was in a discharging cycle it will begin the first charging cycle.

In any case of failure the red “FAIL” LED will be ON.

In case of discharging failure, the display will also show “FAIL”.

If the system will fail, the display will show an error code according to Table 1:

Error Code	Description
01	AC Input Fail
02	Internal Supply Fail*
03	For future use
04	Charger Over Voltage
05	Wrong Battery Type
06	No Battery Type selected
07	Battery Is Not Connected

Error Code	Description
08	Battery ID Fail
09	Battery Temperature Fail
10	Charge Current present*
11	Discharge Current Present*
12	Wrong Discharge Current*
13	Battery is Over Charged

**Table 1: Error Codes Description**

\*) An Internal error, if system won’t recover after restart contact manufacturer.

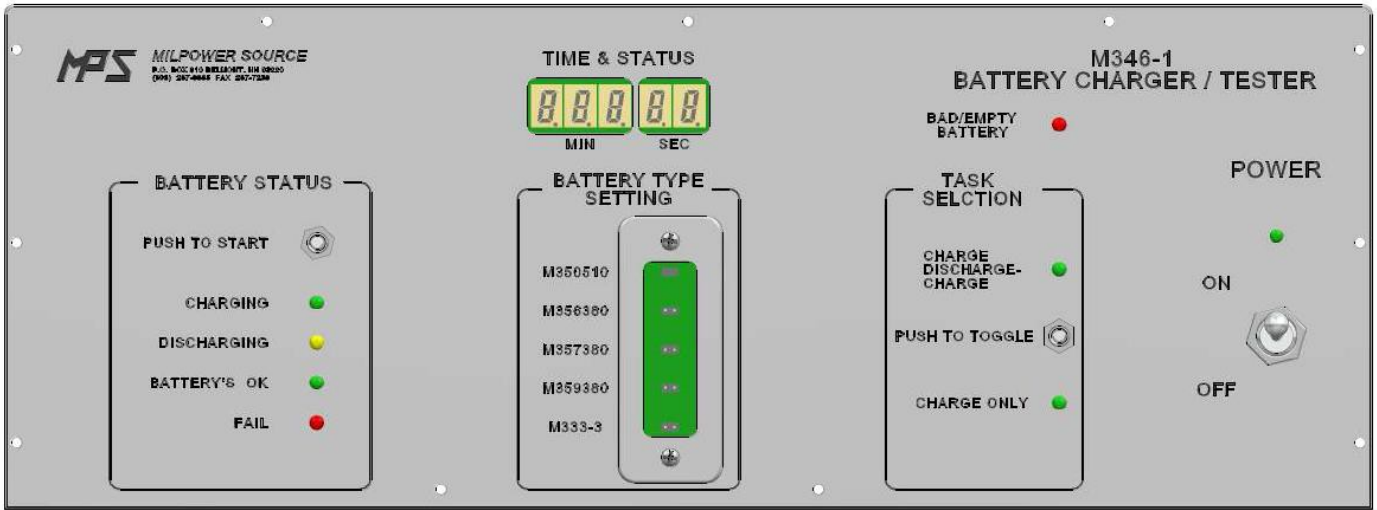


Figure 1: Front Panel View

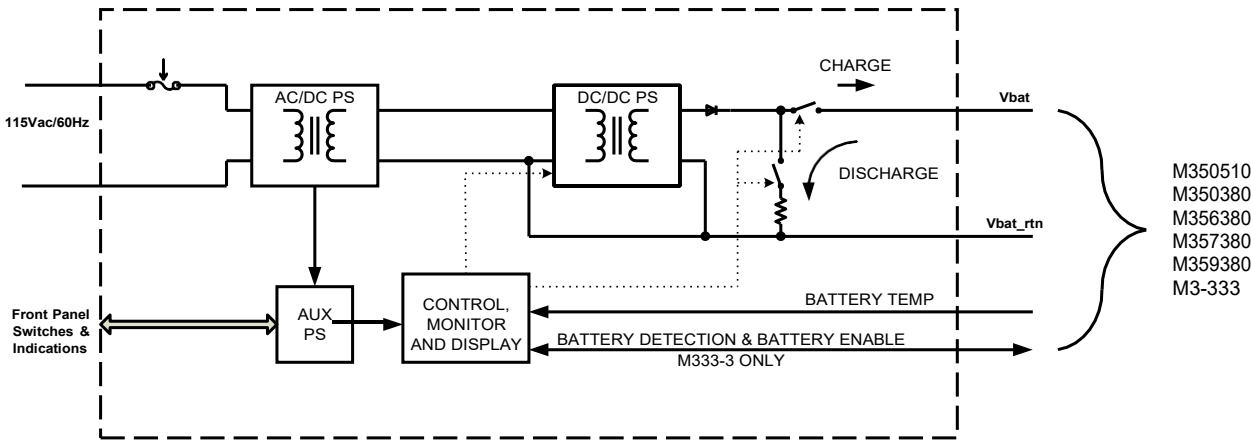


Figure 2: M346-1 Block Diagram

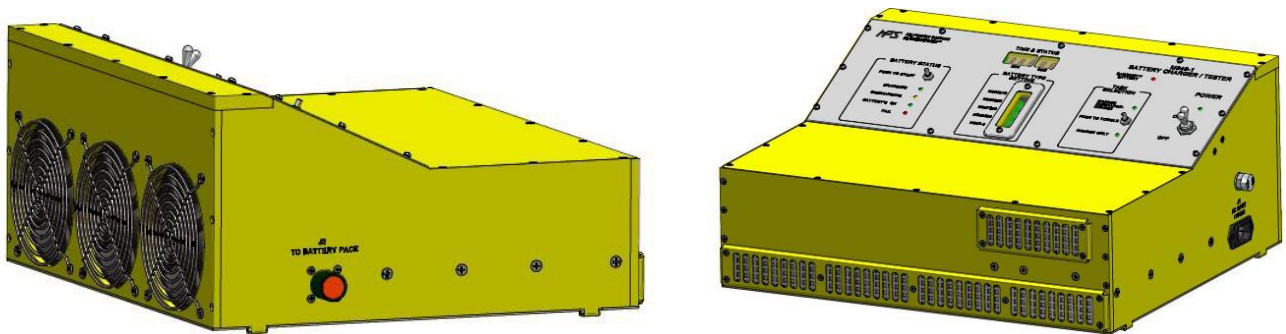


Figure 3: M346-1

**Specification:**

AC Input	115Vac/60Hz
Typical Input Current	Stand by – 1.1Arms Charging – 3.4Arms
Input Fuse	10A/250Vac (COPPER-BUSSMAN BK/AGC-10-R or similar)
Charging power	230W-270W
Maximum charging time before reporting ERROR	M350510 – 7 hours
	M350380 – 7 hours
	M356380 – 7 hours
	M357380 – 4 hours
	M359380 – 4 hours
	M333-3 – 8 hours
Battery Discharging current	2.75A – 3.25A
Maximum discharging time to report “BATTERY’S OK”	M350510 – 80 minutes
	M350380 – 80 minutes
	M356380 – 80 minutes
	M357380 – 40 minutes
	M359380 – 40 minutes
	M333-3 – 120 minutes
Typical discharging + charging time cycle	M350510 – 5 hours
	M350380 – 5 hours
	M356380 – 5 hours
	M357380 – 3 hours
	M359380 – 3 hours
	M333-3 – 6.5 hours
Size and Weight	17.8”x7.8”x14.8” less than 32 pounds
Optional Accessories	M3461312-1 Connection cable for M333-3/4 Battery Pack M3461312-2 Connection cable for M359380 M3461312-3 Connection cable for M350510 and M350380 M3461312-4 Connection cable for M356380 and M357380