

# 24V/12A/350W Switch Mode Battery Charger



## PRIME™

By: *Lester*  
ELECTRICAL  
50 YEARS



## High Efficiency ▪ Compact Design ▪ External DC & Other Connections

### Compact On-Board or Off-Board Charger

The Lester Electrical PRIME 24V/12A/350W switch mode battery charger (SMBC) is designed for both on-board (built-in) and off-board (shelf) use. The charger is compact, measuring only 8.50 x 6.04 x 1.82 inches (LxWxH), enabling it to fit in most applications. It features intelligent natural convection cooling (no fan) and high energy efficiency, which enables it to be used in thermally demanding applications.

### High Efficiency: > 92% Peak, > 90% Average

The PRIME switch mode battery charger features high AC-to-DC conversion efficiency of > 92% peak and > 90% average across a full charge cycle, including all losses from AC plug to DC connector. The charger, when paired with batteries, exceeds the requirements of the California Energy Commission (CEC) Appliance Efficiency Regulations for Battery Charger Systems. It also features a high AC power factor near unity.

### Sealed and High Reliability: IP66

The heavy-duty enclosure is sealed with an IP66 rating to protect the charger from water, dust, and other elements. This rugged/durable charger has been designed and tested for the shock and vibration conditions that occur with on-board use. It has also been designed to provide the high reliability expected of a Lester Electrical product under the demanding conditions of use in industrial and commercial applications.

### External DC & Other Connections

The DC output connections, as well as all other charger connections, are external to the unit. External connections enable vehicle/equipment manufacturers to stock a single SKU and install the required cordsets and wire assemblies for their various machines. With external connections, cordsets and wire assemblies can also be easily replaced in the field.

### Optimum Battery Capacity and Life

An advanced microprocessor controller is featured in the PRIME charger. Precise charging and termination algorithms prevent both undercharging and overcharging, optimizing both daily battery capacity and overall battery life.

### Flexible Battery Types: Wet, AGM, Gel, Lithium-Ion

The PRIME charger includes industry-leading wet/flooded, AGM, and gel deep-cycle lead-acid battery charge profiles. It can also be configured with battery specific or custom charge profiles, including lithium-ion chemistries. Using the externally accessible communication port, a laptop/PC can be used to update the charge profile and download charge cycle history records in the field.

### Universal AC Input

The PRIME charger includes universal AC input capability and operates at 85-265 Vac and 45-65 Hz for use anywhere in the world. The IEC AC inlet enables the charger to be paired with an AC cord with the appropriate localized plug.

### Lockout, Remote LED, & Battery Temperature Sensing

For on-board applications, the available lockout relay can be used to prevent vehicle/equipment operation when the charger has AC power available. The PRIME charger also features a remote tri-color LED output to provide installation flexibility. The battery temperature sensor input enables temperature compensation for applications that require it.

### Safety and Regulatory Approvals

The PRIME charger is UL recognized/listed, cUL/CSA certified, and will be CE certified (pending). It includes applicable FCC and EN approvals. The charger will also be certified compliant with the CEC Appliance Efficiency Regulations for Battery Charger Systems using the in-house Lester Electrical CEC efficiency regulations test system (pending).

# 24V/12A/350W Switch Mode Battery Charger

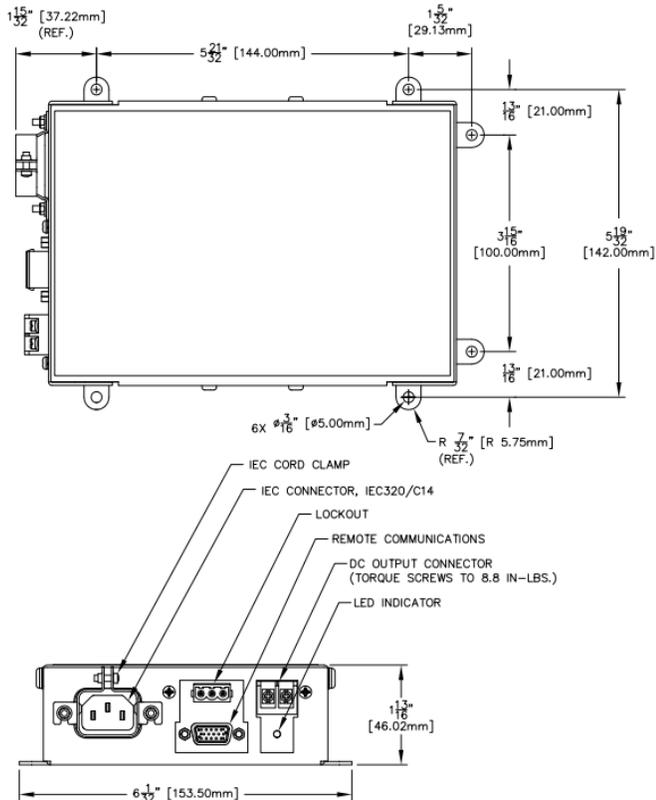
## SPECIFICATIONS

### AC Input

Voltage range, rated	100-230 Vac
Voltage range, operating	85-265 Vac ( < 100 Vac: reduced power)
Frequency, rated	50-60 Hz
Frequency, operating	45-65 Hz
Phase	Single-phase
Current, maximum	4 A
Efficiency	> 92% peak; > 90% average, full charge cycle; AC plug to DC connector
Power factor	> 0.98, 120 Vac; > 0.95, all AC input voltages
Protection	Current limit, surge, transient, under voltage, over voltage

### DC Output

Voltage, nominal	24 Vdc
Voltage, maximum	36 Vdc
Voltage, min start-up	3 Vdc
Power	350 W
Current, rated	12 A
Battery types	Wet/flooded, AGM, gel deep-cycle lead-acid; lithium-ion; custom
Protection	Current limit, short circuit, reverse polarity, under voltage, over voltage, wrong batt voltage



## LED

Local	Single, tri-color
Remote	Single, tri-color, connector standard, remote LED assembly optional

## Lockout

NC and NO relay contacts,  
10A cont, connector standard,  
lockout wiring optional

## Battery Temp Sensor

Connector standard,  
battery temperature  
sensor optional

## Communication

With optional cable

## Mechanical

Dimensions (LxWxH)	8.50 x 6.04 x 1.82 in (217 x 154 x 47 mm)
Cooling	Natural convection (no fan)
Mounting	On-board or off-board (shelf)
AC connector	IEC 60320 C14 inlet with cord clamp
DC connector	External screw terminals, strain relief standard for off- board and optional for on- board, variety of DC cordsets available as factory-installed options

## Environmental

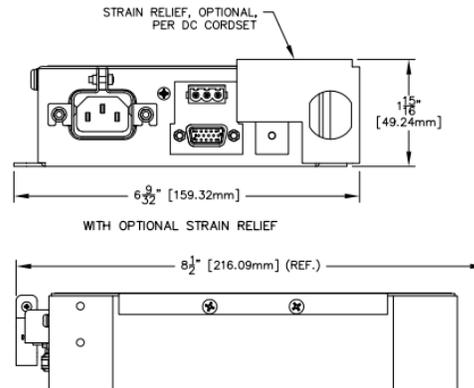
Enclosure rating	IP66
Operating temperature	-25 °C to 45 °C (-13 °F to 113 °F), > 35 °C: reduced power
Storage temperature	-40 °C to 80 °C (-40 °F to 176 °F)

## Reliability

> 80,000 hours MTBF at 75% load at 30 °C  
(Telcordia SR-332, MIL-STD-267)

## Safety/Regulatory

UL recognized/listed; cUL/CSA certified; CE certified (pending);  
EN safety, emissions, immunity; FCC Part 15, Class A;  
California Energy Commission (CEC) Appliance Efficiency  
Regulations, Title 20 (pending)



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