

# Sentinel 150 Series Automatic Battery Chargers

The Sentinel 150 line provides high performance battery charging for continuous float charge and standby power applications. Switch mode technology provides major advances in power supply and battery charger design, giving a compact and lightweight construction, improved power efficiency, low heat dissipation, wide supply voltage tolerance and low output ripple.

The chargers are configured for fast, accurate charging to give optimum battery life and reliability. The very smooth output (<1% ripple) allows charging of sealed or vented batteries – e.g., Nickel Cadmium (NiCd), Lead Acid Sealed (VRLA), vented and Planté cells – or use as a stand-alone power supply. Factory calibration is optimized for each specific battery type.



SNTL150 Open Frame



ESNTL150 Enclosed



\*UL Tested (listed or recognized) to: UL1236 - Battery chargers for charging engine-starting batteries, and CSA22.2 No. 107.2 - Battery chargers. See Specifications for details.

## Features

All models feature an intelligent, multistage charge regime. During charge recovery mode, the Sentinel gives a constant (maximum) current output. As the battery approaches peak charge, the output reverts to float charge mode, maintaining an optimum cell voltage and supplying additional standing load current up to the rated maximum. Output current is always limited to the rated maximum, even during high load (e.g., engine cranking), short circuit or reverse polarity connection.

### AutoBoost

AutoBoost provides a temporary increase in output voltage, equalizing the charge between cells and maximizing battery life and capacity. AutoBoost is triggered automatically when the battery falls below a preset voltage or can be initiated manually through a momentary switch input. At the end of the Auto-Boost cycle, Sentinel automatically reverts to normal float charge mode, preventing battery overcharge and gassing.

### Alarm Outputs

Sentinel UL150 models include a self-diagnostic circuit for monitoring charge fail fault conditions (AC supply/fuse failure, DC fuse failure or low/no charge current), with a solid-state relay output for driving a remote alarm or fault annunciator. Enclosed NFPA models have NFPA 110 compliant alarms for AC failure, charge fail, high battery volts and low battery volts.

### Temperature Compensation

The optimum charge voltage for lead acid and NiCd batteries varies with ambient temperature. Sentinel can be configured to sense battery temperature from a remote sensor and automatically compensate the output charge voltage.

### Installation and Connection

UL-recognized SNTLUL150 model uses an open frame circuit board and base/heatsink with protected cover for surface or DIN rail mounting in an existing control panel. UL-listed ESNTLUL150 models use a stainless steel, wall-mounted case.

Electrical connection is by screw terminal blocks. Connection and cable access on ESNTL models is by a hinged front plate and knock-out sections in the enclosure side.

# Specifications

## Power Supply

**Operating Voltage:** 95 to 250 VAC

**Operating Frequency:** 47 - 63 Hz

## DC Charge Output

**Nominal voltage:** 12 or 24 VDC

**Float/boost voltage:** see Output Calibration table

**Maximum current limit:** 5A (12 and 24 V models) or 10A (12 V models)

**Voltage ripple:** <1%

**Line regulation:** <2%

**Load regulation:** <2%

## Alarm Outputs

### Charge fail, mains AC fail:

1 x solid-state relay, + DC during normal charge, open circuit during fault

### High and low battery voltage (ESNTLUL1501210xxNFPA only):

2 x solid-state relays, dry/volt-free contacts, closed on fault

### Current rating (all relay outputs):

250 mA max @ 30 VDC (resistive load), UL class 2

## Physical

**Operating Temperature:** -4° F to 140° F (-20° C to 60° C)

**Humidity:** 20% to 90% RH

**Electrical Safety:** 2006/95/EC

## Electromagnetic compatibility:

2004/108/EC (EN 61000-6-2, EN 61000-6-4)

## UL Approvals

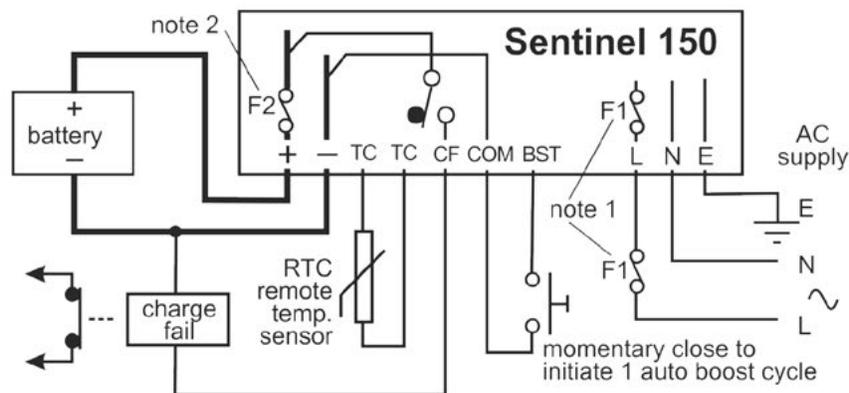
### All (E)SNTLUL150 Models:

BBGQ: UL1236, CSA22.2 no. 107.2

### ESNTLUL1501210xxNFPA models only:

BBHH: UL1236 SE

# Electrical Connections



## Notes:

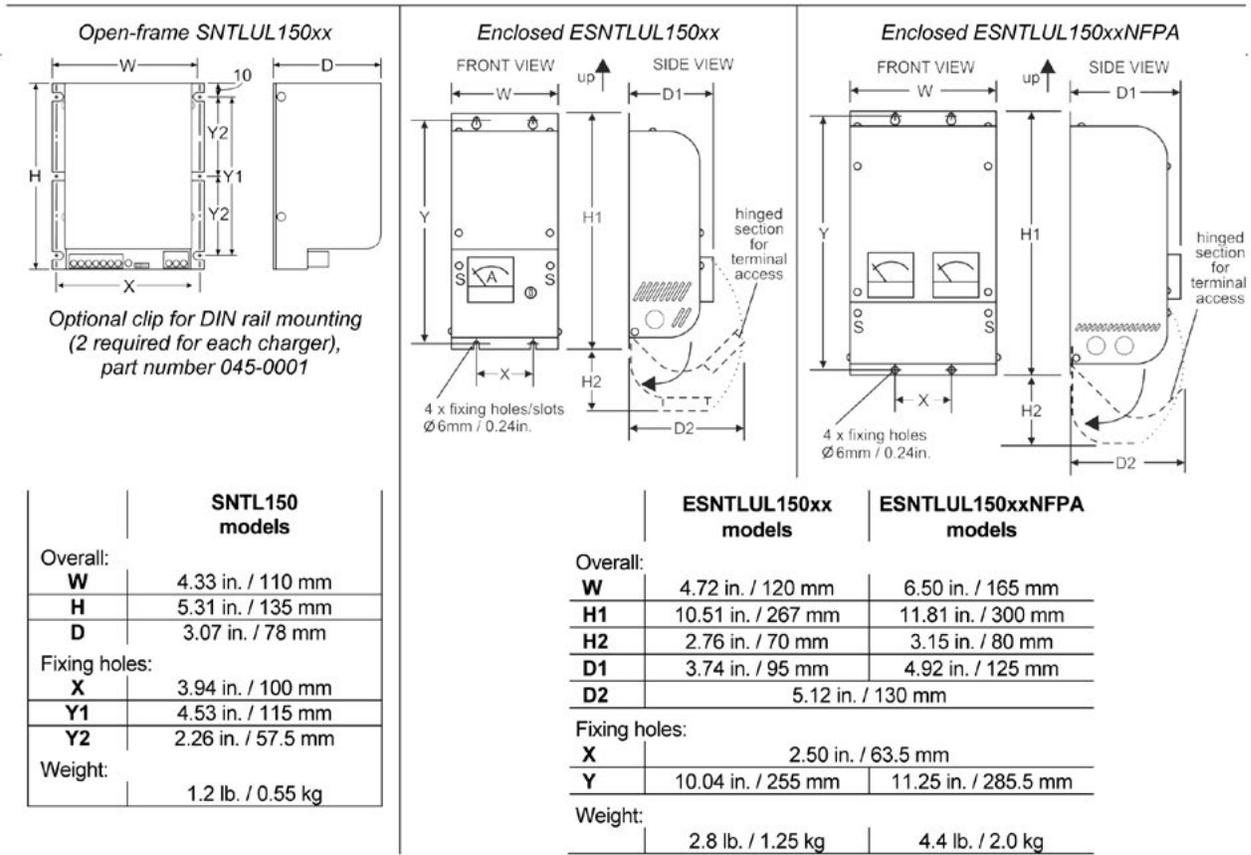
- 1) AC input fusing (F1): All UL-approved 150 models include a replaceable circuit-board mount TR5 fuse package. See charger label for fuse rating.
- 2) DC fusing (F2): all UL 150 models include an internal, electronic (self-resetting) output fuse.
- 3) Battery output is isolated from chassis.
- 4) Charge fail / mains AC fail alarm relay shown in de-energized (powered down) state.
- 5) High and low battery voltage alarm outputs (enclosed NFPA version only) not shown.
- 6) For all UL 150 models, AC supply input ground/earth connection is by M4 chassis stud marked FG (frame ground).

# Output Calibration

Calibration figures shown are at 20° C. If temperature compensation is enabled and remote SNTL-RTC temperature sensor is connected, output voltage automatically varies by 3 mV per cell per 1° C deviation from 20° C, within the range -10° C to 50° C. Increasing temperatures give decreasing outputs; decreasing temperatures give increasing outputs.

Battery Type		Float Volts (V DC)	Boost Volts (V DC)
12V	Vented lead acid (6 cells)	13.5	14.1
	Calcium - Calcium (6 cells)	13.8	15.6
	VRLA, AGM (6 cells)	13.5	14.4
	VRLA, Gel (6 cells)	13.5	13.8
	NiCd (10 cells)	14.1	14.5
24V	Vented lead acid (12 cells)	27.0	28.2
	Calcium - Calcium (12 cells)	27.6	31.2
	VRLA, AGM (12 cells)	27.0	28.8
	VRLA, Gel (12 cells)	27.0	27.6
	NiCd (18 cells)	25.6	26.1
	NiCd (20 cells)	28.2	29.0

# Dimensions



Dimensions for reference only. Use actual product for mounting template. For safe heat dissipation, mount product in orientation shown, with minimum air-gap clearance of 40mm / 1.5 in. above/below and 25mm / 1.0 in. at each side.

