

# Sentinel 150 series


## UL Approved\* Automatic Battery Chargers



ESNTL150 enclosed

SNTL150 open frame

### Features

- Switch mode power supply technology: light and compact, power efficient with low heat dissipation
- High rate, low ripple float charging: 5 or 10A @ 12 VDC, 5A @ 24 VDC
- AutoBoost and temperature compensation
- For stationary engine, genset and standby power applications
-  compliant
- NFPA model with alarms for AC failure, charge fail, high battery volts, low battery volts

\* UL tested (listed or recognised) to:  
UL1236 – Battery chargers for charging engine-starting batteries, and  
CSA22.2 No. 107.2 – Battery chargers. See specifications for details.

The Sentinel 150 line are highly efficient, high performance battery chargers, designed 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 efficiency and 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.

All models features an intelligent, multi-stage 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, equalising the charge between cells and maximising 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 AutoBoost cycle, Sentinel automatically reverts to normal float charge mode, preventing battery over-charge 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 SNTL150 model use an open-frame circuit board and base/heatsink with protective cover, for surface or DIN rail mounting in an existing control panel. UL-listed ESNTL150 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.

**Warranty** – A limited warranty on materials and workmanship is given with this FW Murphy product. A copy of the warranty may be viewed or printed by going to [www.fwmurphy.com/warranty](http://www.fwmurphy.com/warranty)

## Specifications

### Power supply

**Operating voltage:** 95 to 250 V AC

**Operating frequency:** 47 – 63 Hz.

### DC Charge Output

**Nominal voltage:** 12 or 24 V DC

**Float/boost voltage:** see 'output calibration' table

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

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

### Physical

**Operating temperature:** –4 to +140°F / –20 to +60°C

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

**Dimensions:** see separate diagram/table

**Weight:** see separate diagram/table

**Electrical safety:** 2006/95/EC

**Electromagnetic compatibility:**

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

### UL approvals

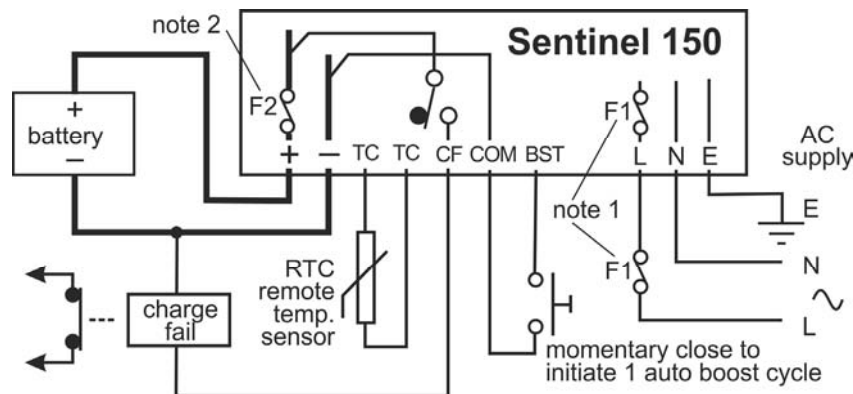
**All (E)SNTLUL150 models:**

BBGQ: UL1236, CSA22.2 no. 107.2

**ESNTLUL1501210xxNFPA models only:**

BBHH: UL1236 SE

## Electrical connection



### Notes:

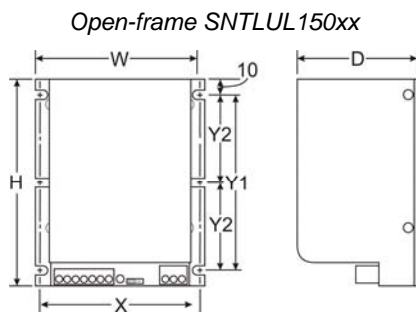
- 1) AC input fusing (F1). All UL-approved 150 models include a replaceable, circuit-board mount TR5 fuse package. See charger label for fuse rating.
- 2) DC fusing (F2): all UL 150 models include an internal, electronic (self-resetting) output fuse.
- 3) battery output is isolated from chassis.
- 4) 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) on all UL 150 models, AC supply input ground/earth connection is by M4 chassis stud marked FG (frame ground).

## Output calibration

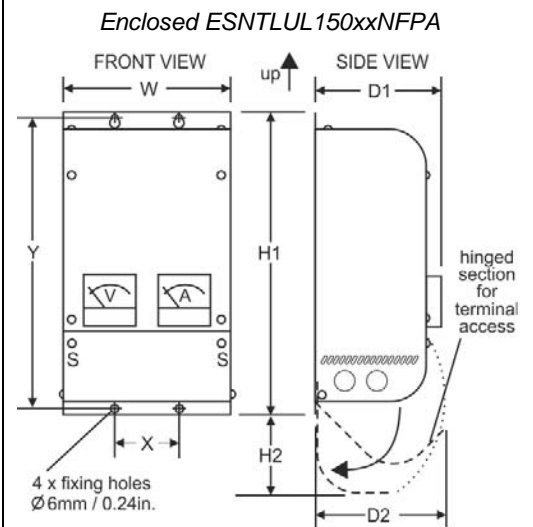
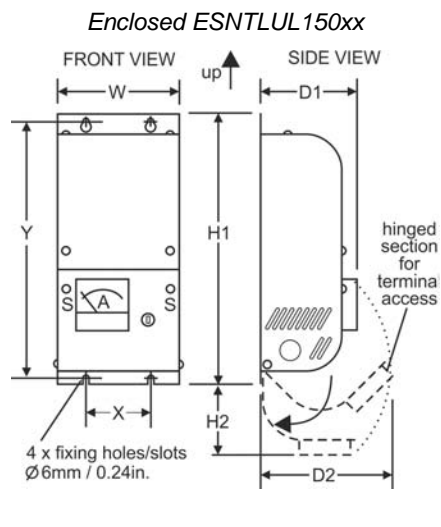
Calibration figures shown are at 20 deg C. If temperature compensation is enabled, and remote SNTL-RTC temperature sensor connected, output voltage automatically varies by 3mV per cell per 1°C deviation from 20°C, within the range -10 to +50°C. Increasing temperatures give decreasing outputs; decreasing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



Optional clip for DIN rail mounting  
(2 required for each charger),  
part number 045-0001



SNTL150 models	
Overall:	
<b>W</b>	4.33 in. / 110 mm
<b>H</b>	5.31 in. / 135 mm
<b>D</b>	3.07 in. / 78 mm
Fixing holes:	
<b>X</b>	3.94 in. / 100 mm
<b>Y1</b>	4.53 in. / 115 mm
<b>Y2</b>	2.26 in. / 57.5 mm
Weight:	1.2 lb. / 0.55 kg

	ESNTLUL150xx models	ESNTLUL150xxNFPA models
Overall:		
<b>W</b>	4.72 in. / 120 mm	6.50 in. / 165 mm
<b>H1</b>	10.51 in. / 267 mm	11.81 in. / 300 mm
<b>H2</b>	2.76 in. / 70 mm	3.15 in. / 80 mm
<b>D1</b>	3.74 in. / 95 mm	4.92 in. / 125 mm
<b>D2</b>	5.12 in. / 130 mm	
Fixing holes:		
<b>X</b>	2.50 in. / 63.5 mm	
<b>Y</b>	10.04 in. / 255 mm	11.25 in. / 285.5 mm
Weight:	2.8 lb. / 1.25 kg	5.0 lb. / 2.25 kg

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.

## How to order

	Stock code	Model	Description
 	42.70.3600	SNTLUL1501205CDLA	Open-frame (protective cover) Sentinel UL150, 5A/12V vented lead acid output, 110/120/220/240VAC (50Hz/60Hz) input
	42.70.3601	SNTLUL1502405CDLA	Open-frame (protective cover) Sentinel UL150, 5A/24V vented lead acid output, 110/120/220/240VAC (50Hz/60Hz) input
	42.70.3602	SNTLUL1501210CDLA	Open-frame (protective cover) Sentinel UL150, 10A/12V vented lead acid output, 110/120/220/240VAC (50Hz/60Hz) input
 	42.70.3603	ESNTLUL1501205CDLA	Enclosed Sentinel UL150, 5A/12V vented lead acid output, 110/120/220/240VAC (50Hz/60Hz) input
	42.70.3604	ESNTLUL1502405CDLA	Enclosed Sentinel UL150, 5A/24V vented lead acid output, 110/120/220/240VAC (50Hz/60Hz) input
	42.70.3605	ESNTLUL1501210CDLA	Enclosed Sentinel UL150, 10A/12V vented lead acid output, 110/120/220/240VAC (50Hz/60Hz) input
 	42.70.3650	ESNTLUL1501210CDLANFPA	Enclosed Sentinel UL150 (NFFA 110 compliant alarm outputs and metering), 10A/12V vented lead acid output, 110/120/220/240VAC (50Hz/60Hz) input
	42.70.3619	SNTL-RTC	Remote temperature sensor with 9.8 feet / 3.0 meter lead assembly, for automatic charge output temperature compensation.

For sealed lead-acid (VRLA, AGM, Gel or Calcium) and NiCd batteries, please consult your Murphy representative.

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