

# Sentinel 300P series

## Programmable Switch Mode Battery Chargers



### Features

- Microprocessor controlled, programmable battery charger
- High rate, low ripple float charging: 10A @ 12/24 VDC
- AutoBoost and temperature compensation
- Options for RS485/CAN connectivity, backlit display and analog meters
- Panel mount module or wall mounted, stainless steel enclosure
- For stationary engine, genset and standby power applications

-  and NFPA 110 compliant

\* Tested and approved by UL to:  
UL1236 – Battery chargers for charging engine-starting batteries, and  
CSA22.2 No. 107.2 – Battery chargers

Sentinel 300P battery chargers provide new levels of DC power control, monitoring and protection for stationary engine starting and standby battery applications.

Advanced Sentinel charging features included as standard:

- **Switch mode charging technology:** high power efficiency and low heat dissipation, plus wide supply voltage tolerance, in a compact and lightweight package.
- **Multistage charging:** float, bulk, absorption and AutoBoost stages ensure no compromise between rapid charge recovery and long term battery capacity and life.
- **Low output ripple:** <1% ripple, beneficial for vented lead acid & NiCd cells, essential for VRLA, and configurable for use as a stand-alone DC power supply.
- **AutoBoost:** triggered automatically on low charge levels, or manually by remote switch, AutoBoost temporarily increases the charge voltage before returning to float mode. Equalizing battery cell charge without overcharge and gassing, AutoBoost maximizes cell capacity and life.
- **Temperature compensation:** ensures batteries are charged at the optimal voltage, which varies significantly with ambient temperature. Sentinel can measure temperature with a battery mounted sensor, and adjusts output voltage to prevent under or over charging.

In addition, the Sentinel 300P includes:

- **Flexible configuration:** microprocessor programmability for automatic or manual configuration of charge output voltages (12 or 24V nominal), cell types/numbers and application – all in one standard model. Programming is by circuit board links or PC-based software configuration and monitoring tool.
- **Inputs & outputs:** for remote charger control, and signalling of charge fail, high/low battery volts and mains fail faults. Standard output functions are NFPA 110 compliant. Non-standard input/output functions available to special order.
- **Display, instrumentation and communication:** options for backlit LCD readout, analogue metering, plus RS485 and CAN 2.0B / SAE J1939 data communication, configuration and control.

The Sentinel 300P is available either as an open-frame, UL-recognized module for mounting in existing control panels, or as a UL-listed, wall-mounted stainless steel enclosure with LCD and analogue metering options.

Electrical connection is by screw terminal blocks. On enclosed models, wiring harness access is by knock-out cable gland holes in the case 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 – 250 V AC  
**Operating frequency:** 47 – 63 Hz.

## DC Charge Output

**Nominal voltage:** programmable 12 or 24 V DC  
**Float/boost voltage:** programmable, see 'output calibration' table  
**Maximum current limit:** 10 A  
**Voltage ripple:** <1%  
**Line regulation:** <2%  
**Load regulation:** <2%

## Outputs x3 (x4 for non-CAN configurations):

**All models:**  
 1 x SPCO (RL1), 1 x SPNC (RL2), 1 x SPNO (RL3),  
 dry/volt-free contacts (common feed for RL1, RL2 & RL3)

## Standard models (non-CAN configurations):

1 x SPNC (RL4), dry/volt-free contacts  
 standard output functions (charge fail, AC fail, low battery volts, high battery volts) are NFPA 110 compliant.

**Rating (all relays):** 1A max @ 30 VDC (resistive load), UL class 2

## Inputs x2:

Closed to negative DC to activate, configurable function

## Physical

**Operating temperature:** –40 to +140°F / –40 to +60°C  
 Display viewability (LCD models): 32 to 122°F / 0 to 50°C

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

**Dimensions:** see separate diagram/table

**Weight:** see separate diagram/table

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

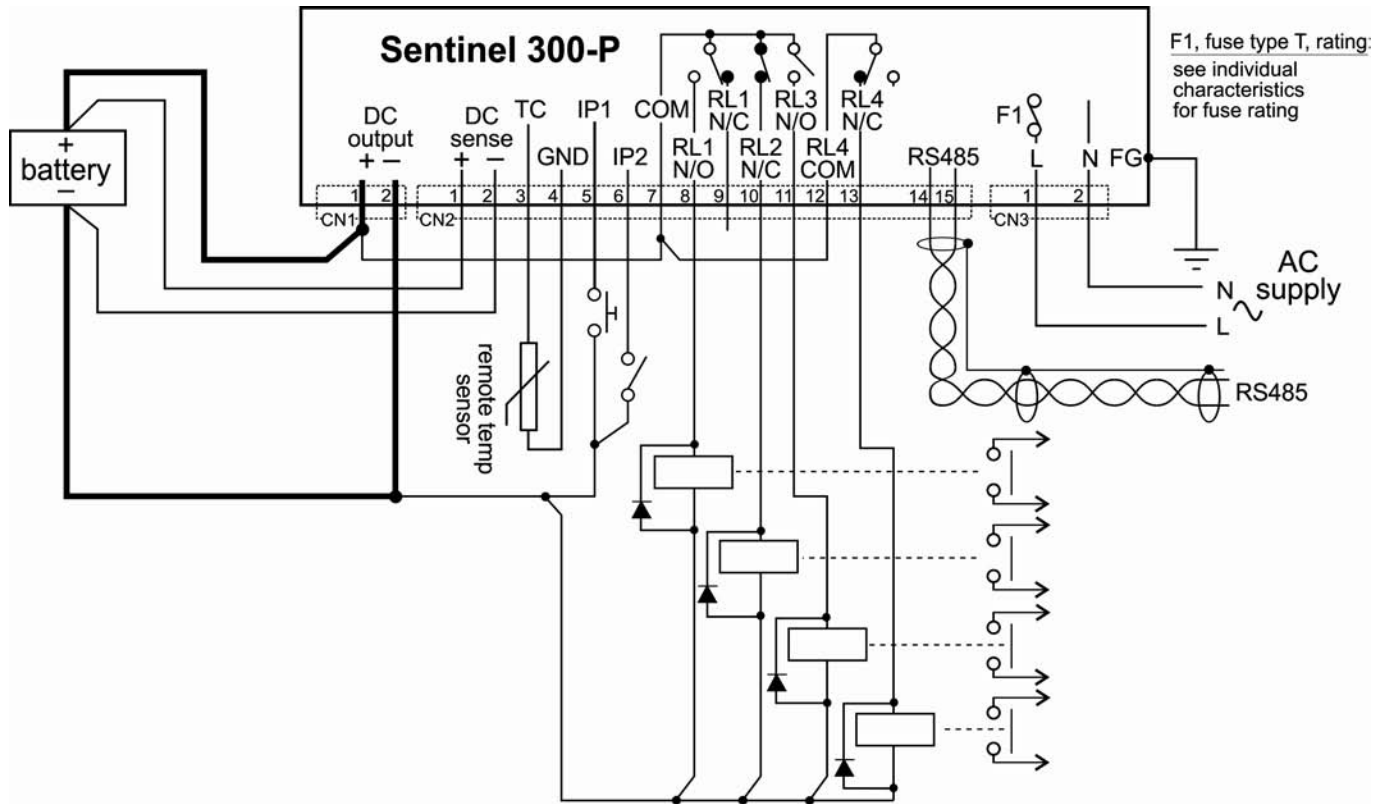
**Electromagnetic compatibility:**  
 2004/108/EC, EN 55022 class B  
 (EN 61000-6-1, EN 61000-6-3)

## UL approvals

### All standard (E)SNTL300P models:

BBGQ: UL1236, CSA22.2 no. 107.2  
 BBHH: UL1236 SE

# Electrical connection



## Notes:

- 1) AC input fusing (F1): replaceable, circuit board mounted fuse, rating as shown on the product label.
- 2) DC output fusing: all models include a self-resetting electronic output fuse.
- 3) DC output is isolated from chassis.
- 4) connection shown for standard configurations with output RL4. (RL4 is not available on units configured for CAN communication.)

## Output calibration

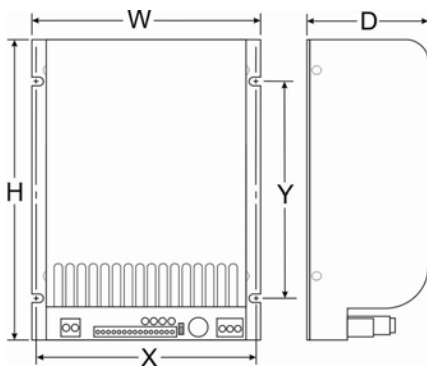
Battery type is selected by circuit board DIP switches or SNTL-PCSUITE configuration software.

Calibration figures 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	Wet (vented) lead acid, 6 cells	13.5	14.1
	Calcium-Calcium, 6 cells	13.8	15.6
	Lead acid Antimony, 6 cells	13.5	14.7
	VRLA, AGM, 6 cells	13.5	14.4
	VRLA, Gel, 6 cells	13.5	13.8
	NiCd, 10 cells	14.1	14.5
24V	Wet (vented) lead acid, 12 cells	27.0	28.2
	Calcium-Calcium, 12 cells	27.6	31.2
	Lead acid Antimony, 12 cells	27.0	29.4
	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

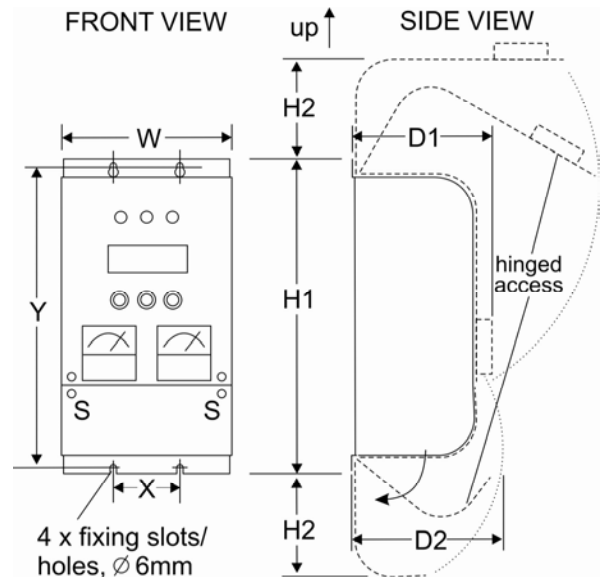
Open-frame SNTL300P



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

Overall:	
<b>W</b>	6.22 in. / 158 mm
<b>H</b>	8.19 in. / 208 mm
<b>D</b>	3.31 in. / 84 mm
Fixing holes:	
<b>X</b>	5.91 in. / 150 mm
<b>Y</b>	5.91 in. / 150 mm
Weight:	
	2.5 lb. / 1.1 kg

Enclosed ESNTL300P



Overall:	
<b>W</b>	6.50 in. / 165mm
<b>H1</b>	11.81 in. / 300 mm
<b>H2</b>	3.15 in. / 80 mm
<b>D1</b>	4.72 in. / 120 mm
<b>D2</b>	5.12 in. / 130 mm
Fixing holes:	
<b>X</b>	2.50 in. / 63.5 mm
<b>Y</b>	11.25 in. / 285.5 mm
Weight:	
	22.0 lb / 10.0 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 1.5 in./40mm above/below and 1.0 in./25mm at each side.

## How to order

	Stock code	Model	Description
	42.70.3850	SNTL300P	Open-frame (protective cover) Sentinel 300P Input supply 110/120/220/240VAC (50Hz/60Hz) Output 10A @ 12/24V
	42.70.3852	SNTL300PC	As above, plus CAN/J1939 communication.
	42.70.3879	ESNTL300PM	Enclosed Sentinel 300P Input supply 110/120/220/240VAC (50Hz/60Hz) Output 10A @ 12/24V Analog ammeter and voltmeter
	42.70.3877	ESNTL300PCL	Enclosed Sentinel 300P Input supply 110/120/220/240VAC (50Hz/60Hz) Output 10A @ 12/24V LCD readout, control/program buttons and CAN communications
	42.70.3875	ESNTL300PCLM	As above, plus analog ammeter and voltmeter.
	42.70.3619	SNTL-RTC	Remote temperature sensor with 9.8 feet / 3.0 meter lead assembly, for automatic charge output temperature compensation.
	42.70.3898	SNTL-PCSUITE	Windows-based software suite for all (E)SNTL300P models. Request by email with company name, details and valid email address.
	42.70.3899	SNTL-PCCONN	PC connection suite for all (E)SNTL300P models. Includes SNTL-PCSUITE software on CD-ROM, charger RS485 lead (6.5 feet / 2 meter), RS485/USB converter and USB lead (3.2 feet / 1 meter).

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