

Sentinel 300P Series

Programmable Switch Mode 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 and NiCd cells, essential for VRLA, and configurable for use as a standalone 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 V or 24 V 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 and outputs: for remote charger control and signaling 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, analog metering and CAN 2.0B / SAE J1939 data communication; all models include RS485 communication for 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 analog 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.



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

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° F to 140° F / –40° C to 60° C

Display view-ability (LCD models): 32° F to 122° F / 0° C to 50° C

Humidity: 20% to 90% RH

Electrical safety: 2006/95/EC

Electromagnetic compatibility:

2004/108/EC, EN 55022 class B

(EN 61000-6-1, EN 61000-6-3)

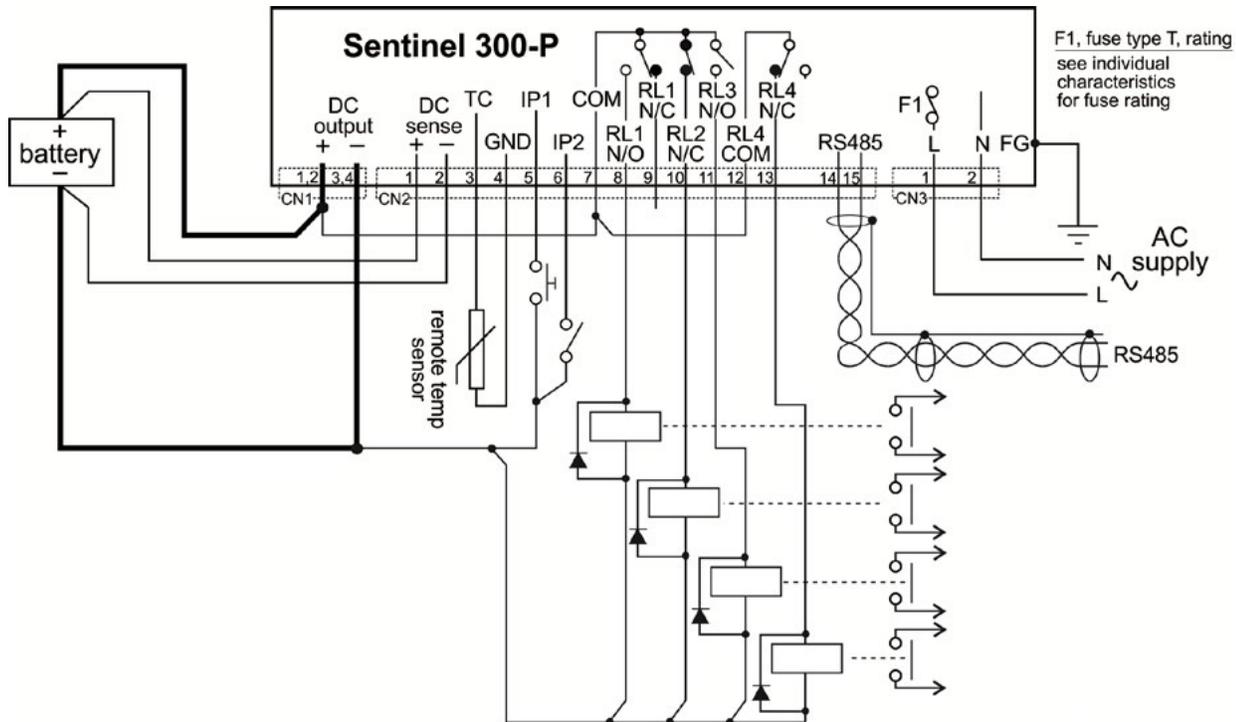
UL approvals

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

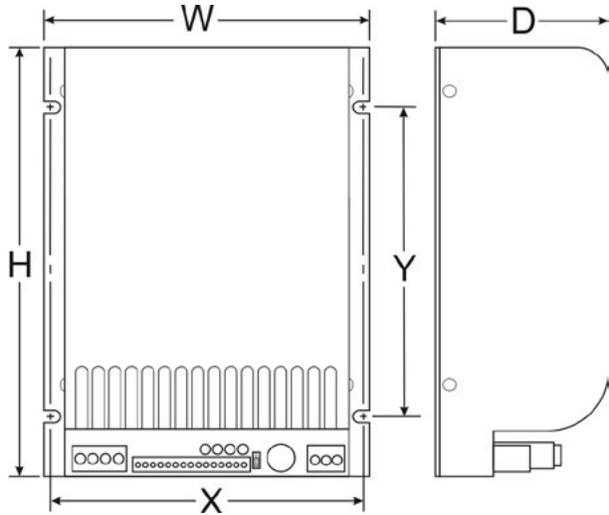
Battery type is selected by circuit board DIP switches or SNTL300P-PCSUITE configuration software.

Calibration figures at 20° C. If temperature compensation is enabled and remote SNTL-RTC temperature sensor 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	Wet (vented) lead acid, 6 cells	13.5	14.1
	Calcium-Calcium, 6 cells	13.8	15.6
	Lead acid hybrid Sb-Ca (Antimony-Calcium), 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 hybrid Sb-Ca (Antimony-Calcium), 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

W	6.22 in. / 158 mm
H	8.19 in. / 208 mm
D	3.31 in. / 84 mm

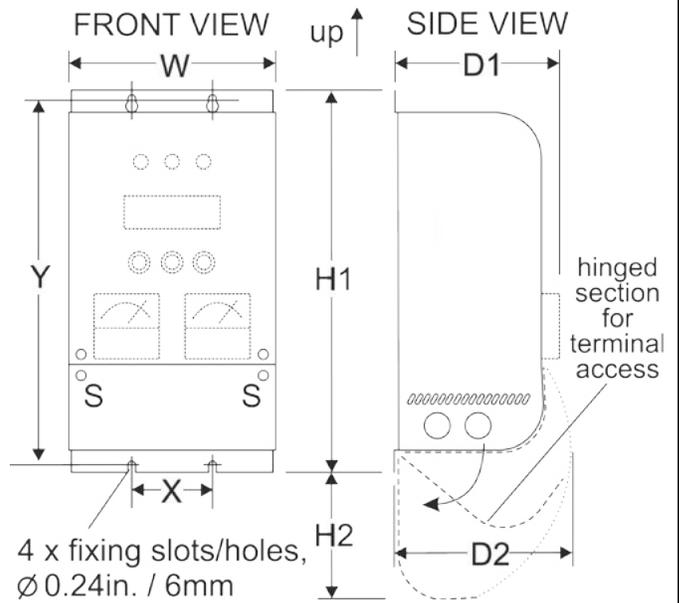
Fixing holes

X	5.91 in. / 150 mm
Y	5.91 in. / 150 mm

Weight

	2.5 lb. / 1.1 kg
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Enclosed ESNTL300P



Overall

W	6.50 in. / 165mm
H1	11.81 in. / 300 mm
H2	3.15 in. / 80 mm
D1	4.92 in. / 125 mm
D2	5.12 in. / 130 mm

Fixing holes:

X	2.50 in. / 63.5 mm
Y	11.25 in. / 285.5 mm

Weight:

	4.4 – 4.6 lb. / 2.0 – 2.1 kg
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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. / 40 mm above/below and 1.0 in. / 25 mm at each side.

How to Order

Part Number	Model and Description	Notes
42703850	SNTL300P: Open-frame (protective cover) Sentinel 300P Input supply 110/120/220/240 VAC (50 Hz / 60 Hz) Output 10 A @ 12/24 V	 
42703852	SNTL300PC: As above, plus CAN/J1939 communication	
42703879	ESNTL300PM: Enclosed Sentinel 300P Input supply 110/120/220/240 VAC (50 Hz / 60 Hz) Output 10 A @ 12/24 V Analog ammeter and voltmeter	 
42703875	ESNTL300PCLM: As above, plus LCD for readout and configuration	 
42703900	42703900 SNTL-RTC: Remote temperature sensor with 9.8 feet / 3.0 meter lead assembly, for automatic charge output temperature compensation	
42703898	SNTL300P-PCSUITE: Windows®-based software suite for all (E)SNTL300P models. Request by email with company name, details and valid email address	
42703899	SNTL300P-PCCONN: PC connection suite for all (E)SNTL300P models. Includes SNTL300P-PCSUITE software on CD-ROM, charger RS485 lead (6.5 feet / 2 meter), RS485/USB converter and USB lead (3.2 feet / 1 meter)	

ENOVATION CONTROLS CORPORATE HEADQUARTERS
5311 S 122ND EAST AVENUE
TULSA, OK 74146

ENOVATION CONTROLS LTD. – UNITED KINGDOM
CHURCH ROAD LAVERSTOCK
SALISBURY SP1 1QZ UK

MURPHY INTERNATIONAL TRADING – CHINA
SUITE 1704, ANTAI BUILDING, 107 ZUNYI RD
SHANGHAI, 2000 S1 CHINA

ENOVATION CONTROLS INDIA PVT. LTD.
301, 3RD FLOOR, KRSNA CHAMBERS,
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KOREGAON PARK, PUNE 411001,
MAHARASHTRA, INDIA

U.S. SALES & SUPPORT

MURPHY PRODUCTS
PHONE: 918 317 4100
EMAIL: SALES@ENOVATIONCONTROLS.COM
WWW.ENOVATIONCONTROLS.COM

MURPHY INDUSTRIAL PANEL DIVISION
PHONE: 918 317 4100
EMAIL: IPDSALES@ENOVATIONCONTROLS.COM

INTERNATIONAL SALES & SUPPORT

EUROPE, MIDDLE EAST, AFRICA
PHONE: +44 1722 410055
EMAIL: SALES@ENOVATIONCONTROLS.EU

CHINA
PHONE: +86 21 6237 5885
EMAIL: APSALES@ENOVATIONCONTROLS.COM

LATIN AMERICA & CARIBBEAN
PHONE: +1 918 317 2500
EMAIL: LASALES@ENOVATIONCONTROLS.COM

INDIA
PHONE: +91 91581 37633
EMAIL: INDIALES@ENOVATIONCONTROLS.COM



FM 28221 (Tulsa, OK - USA)
FM 29422 (UK)