

# Sentinel 150P

## Automatic switch mode battery chargers



### Features

- Switch mode power supply technology: light and compact, power efficient with low heat dissipation
- Multi-stage, low ripple charging: 12V/5A or 24V/5A
- Versatile: OEM-configuration gives optimized output for different battery types, plus programmable I/O functions
- AutoBoost and temperature compensation
- Open-frame with protective cover, for surface mounting inside a panel
- For stationary engine, genset and standby power applications

The Sentinel 150P is a range of 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. Each charger's output can be OEM-configured for optimal charging of different cell types: vented/wet lead acid, Calcium-Calcium, sealed VRLA (AGM or Gel), NiCd or custom requirements. The very smooth output (< 1% ripple) allows charging of sealed or vented batteries, or use as a stand-alone power supply.

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, and reverts to float mode automatically at the end of the boost cycle, preventing battery over-charge and gassing.

### Alarm output and control input ('A' option)

'A' option models include a control input and alarm output, both with configurable functions. The input can be configured for use with panel relay circuits or operator switches, giving additional control over the output, e.g. AutoBoost initiation and termination. The alarm relay output can be configured to operate during a one or more (up to 7) fault conditions: mains fail, DC connection error, battery missing, temp sensor short, low battery volts, high battery volts, charge fail

### 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.

### Versatile

Sentinel 150P can be configured and monitored using a PC-based software tool, model SNTL150P-PCSUITE. The tool offers a number of standard 'profiles' for different battery types, but also allows OEM-customization of all parameters for fine control in any application. The tool also enables real time monitoring and metrics for both charger and battery.

### Installation and connection

The Sentinel 150P uses an open circuit board construction with an aluminium protective cover, for surface mounting in an existing control panel. Electrical connection is by quick-connect, two-part type terminal blocks.

**Warranty:** a two year limited warranty on materials and workmanship is given with this product, details available on request.

## Specifications

### Power supply

**Operating voltage:** 95 to 265 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

**Voltage ripple:** <1%

**Line regulation:** <2%

**Load regulation:** <2%

### Input/Output

#### Control input

digital (switch) input, close to –DC to activate, programmable function

#### Alarm output:

relay switched +DC, 1A max @ 30 VDC, programmable function

### Physical

**Protective cover:** 1050 aluminium, 1.2mm

**Operating temperature:** –30 to +60°C/ –22 to +140°F

**Storage temperature:** –40 to +60°C/ –40 to +140°F

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

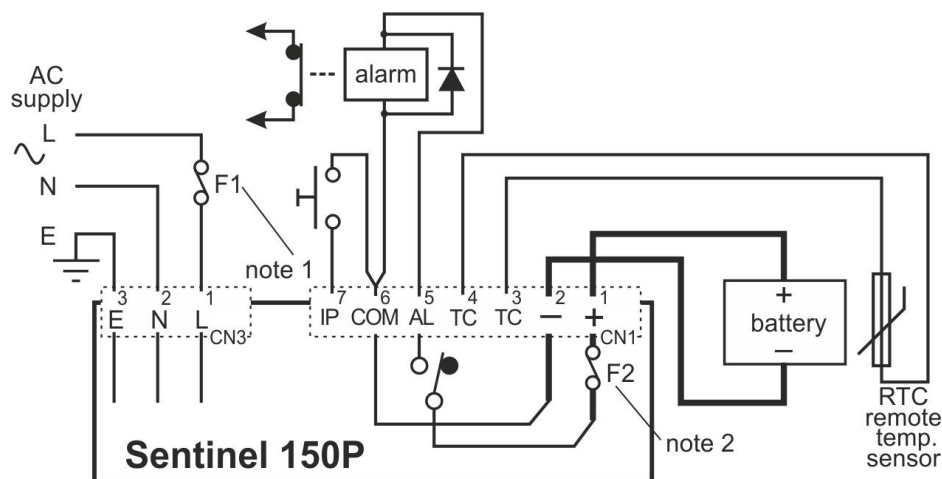
**Dimensions:** see Dimensions section

**Weights:** see Dimensions section

**Electrical safety:** 2006/95/EC (EN 60065)

**Electromagnetic compatibility:**  
2004/108/EC (EN 61000-6-2, EN 61000-6-4)

## Electrical connection



Notes:

- 1) External AC fuse (F1) required: see AC Input (power supply) section
- 2) Internal, self-resetting DC fuse (F2): see DC Output section
- 3) Battery output is isolated from chassis.
- 4) Alarm output (pin 5) relay shown in de-energized state. Output function is software configurable.
- 5) Control input (pin 7) shown with momentary-action operator panel switch. Input function is software configurable.

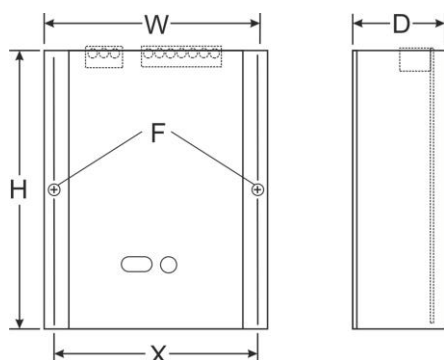
## Output calibration

Standard and custom output calibrations are selected using the SNTL150P-PCSUITE software tool. Calibration figures shown below 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.

Standard calibrations / battery types		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
	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
	Power supply	12.0	n/a
24V	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
	Power supply	24.0	n/a

## Dimensions

### SNTL150P



	12V models	24V models
Overall:		
<b>W</b>	108.6 mm / 4.28 in.	
<b>H</b>	135 mm / 5.31 in.	
<b>D</b>	45 mm / 1.77 in.	55 mm / 2.17 in.
Fixing holes:		
<b>X</b>	99 mm / 3.90 in.	
<b>F</b>	Ø 5.65 mm / 0.22 in.	
Weight:		
	0.65 kg / 1.43 lb.	0.75 kg / 1.65 lb.

*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
42.70.3810	SNTL150P1205CDLA	Sentinel 150P, 12V/5A nominal output
42.70.3811	SNTL150P2405CDLA	Sentinel 150P, 24V/5A nominal output
42.70.3820	SNTL150P1205CDALA	As 42.70.3810, plus alarm output and control input (programmable functions)
42.70.3821	SNTL150P2405CDALA	As 42.70.3811, plus alarm output and control input (programmable functions)

Note: all part numbers above are supplied with output calibrated for vented lead-acid cells. Output calibration can be optimized for different battery types by using the SNTL150P-PCSUITE software tool.

### Accessories:

Stock code	Description
42.70.3619	RTC sensor for remote temperature compensation feature, complete with 3m/9.8ft lead assembly. Non standard lengths available to special order.
42.70.3825	SNTL150P-PCCONN programming kit. Includes SNTL150P-PCSUITE software tool (PC compatible), USB-TTL interface and power/data connection leads.

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