

Sentinel UL 70/140

Automatic switch mode battery chargers



- CE, UL Approvals
- High rate float charging: 5 or 10A @ 12 VDC, 5A @ 24VDC
- Light, compact design
- Short circuit and reverse polarity protection
- Temperature compensation
- Auto Boost
- Alarm output

Description

The Sentinel UL is a highly efficient, high performance charger, designed for continuous float charging and standby battery 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.

Sentinel 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 Plante cells – or use as a stand-alone power supply.

Sentinel features an intelligent, multi-stage charge regime: during charge recovery mode, the charger 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 specified maximum.

The Sentinel range is available in two variants: SNSUL models provide basic charging; SNLUL models provide higher specification features.

Auto Boost

SNLUL models include an Auto Boost feature. Auto Boost provides a temporary increase in output voltage, equalising the battery charge between cells and maximising battery life and capacity.

Auto Boost is triggered automatically when the battery falls below a preset voltage, or can be initiated manually by linking two 'boost' terminals, e.g. via a panel switch or momentary push button. Once the batteries have reached the boost voltage level, Sentinel reverts to its normal float charge mode, preventing battery over-charge and gassing.

Temperature compensation

The optimum charge voltage for lead acid and NiCd batteries varies with ambient temperature. All Sentinel chargers include on-board temperature sensing and output compensation (3mV/cell decrease for each °C increase). For even greater temperature accuracy, 'RTC' option units include a remote temperature sensor with 3 metre lead assembly (other lengths available to special order).

Product specifications

	SNSUL70 SNLUL70 (12V)	SNSUL140 SNLUL140 (24V)	SNLUL140 (12V)
power supply:			
supply voltage,	120 V units: 240 V units:	85 – 135 V ac 185 – 250 V ac	
operating frequency		47 – 63 Hz	
DC charge output:			
maximum current limit	5	5	10
nominal voltage	12	24	12
line regulation		+/- 1%	
load regulation		+/- 1%	
output ripple		< 1%	
float / boost voltages		see table overleaf	
alarm output:			
output polarity	negative DC during fault (switched SPNC relay contact, de-energising on fault),		
current rating	1A max. @ 30 VDC (resistive load)		
general:			
operating temperature	-20 to +55°C		
humidity	20% to 90% RH		
dimensions	see table overleaf		
weight: SNS, SNL	0.55 Kg / 1.2lb, 0.6 Kg / 1.3lb		
EMC emission / immunity	EN50081-2 / EN50082-2		

Alarm output

All Sentinel chargers include an alarm relay output. On SNS models, the relay de-activates immediately during a charge fail condition (e.g. AC supply/fuse failure, DC fuse failure or low/no charge current). On SNL models, the relay also de-activates on high or low battery voltage faults, but only after a 120 second delay that allows for normal battery voltage variations, e.g. engine cranking.

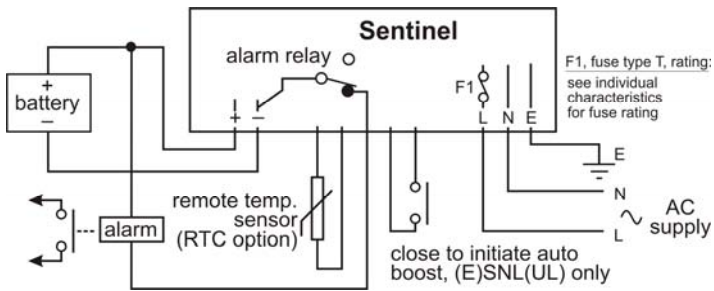
Installation and connection

Circuit board connection is via screw terminal blocks. The circuit board and protective cover are mounted on a baseplate/heatsink, designed for surface mounting in an enclosed control panel.

Warranty

A two year limited warranty on materials and workmanship is given with this product. Details are available on request.

Electrical connection



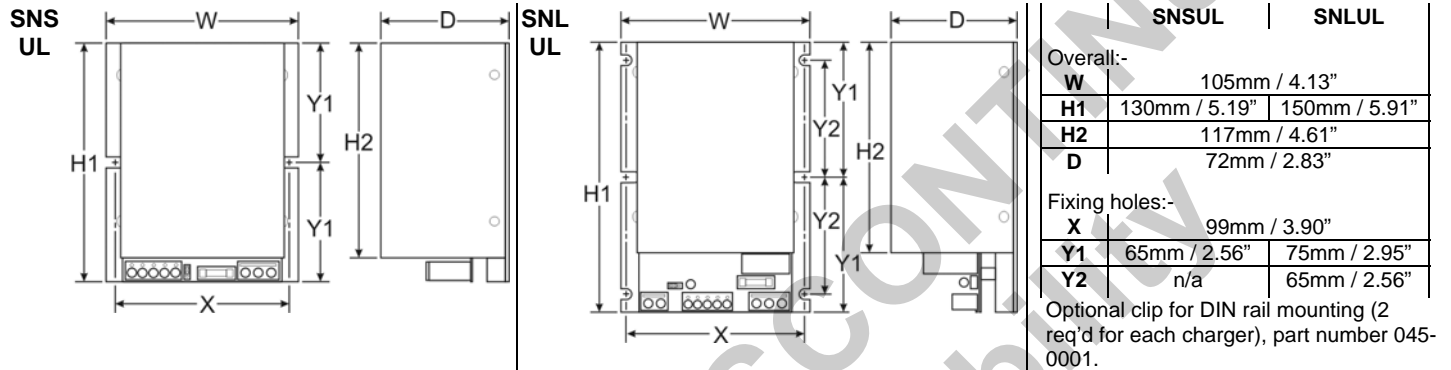
Note: battery output is isolated from chassis.

Output calibration

Calibration figures at 20 deg C. Temperature compensation causes output voltage to automatically decrease (or increase) at a rate of 3mV per cell, per °C increase (or decrease) in temperature.

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



How to order

When ordering, please specify:-

Product	Nominal Output Voltage, V DC		Maximum Output Current, A DC	
	12	24	5	10
SNSUL701205	●		●	
SNSUL1401210	●			●
SNSUL1402405		●	●	
SNLUL701205	●		●	
SNLUL1401210	●			●
SNLUL1402405		●	●	

Code	Nominal input voltage	
	120 VAC	240 VAC
C	●	
D		●

Code	Battery type						
	Vented L/Acid	Vented L/Acid (Ca/Ca)	VRLA AGM	VRLA Gel	10 cell NiCd	18 cell NiCd	20 cell NiCd
LA	●						
CA		●					
AGM			●				
GEL				●			
10NC					●		
18NC						●	
20NC							●

Options	
Code	Remote Temp. Compensation
RTC	●

product / output rating	input volts	battery type	option
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The above 3 part number codes must be used

Insert option if required

e.g. **SNLUL1401210 C NC10**

The above example shows the order code for a 12V/10A SNLUL charger, 120VAC input, with output calibration for 10 cell NiCd batteries (no RTC option)

Stainless steel, wall-mounted enclosure versions of the Sentinel are also available: see datasheet cd0014