CCL

Industrial battery chargers, power supplies and controls

Enclosed Sentinel UL 70/140

Automatic switch mode battery chargers

- CE cULus Approvals
- High rate float charging:
  5 or 10A @ 12 VDC, 5A @ 24VDC
- Stainless steel, wall mounted enclosure with ammeter
- Short circuit and reverse polarity protection
- Temperature compensation
- Auto Boost
- Alarm output

Description

The Enclosed Sentinel 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 Enclosed Sentinel UL range is available in two variants: ESNSUL models provide basic charging; ESNLUL models provide higher specification features.

Auto Boost

ESNLUL 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

	ESNSUL70 ESNLUL70 (12V)	ESNSUL140 ESNLUL140 (24V)	ESNLUL140 (12V)
power supply:			
supply voltage, 120 V units:	85 – 135 V ac		
240 V units:	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	1.6 Kg / 3.5 lb		
EMC emission / immunity	EN50081-2 / EN50082-2		

Alarm output

All Sentinel chargers include an alarm relay output. On ESNS 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 ESNL 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.

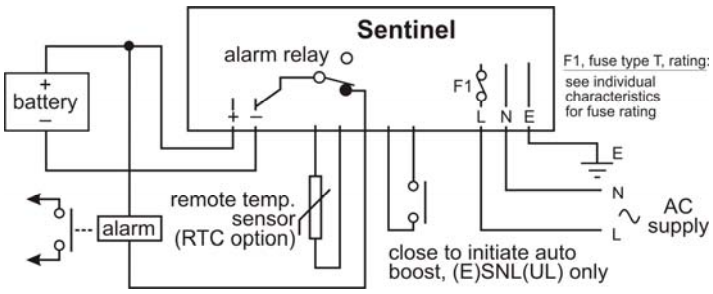
Installation and connection

Circuit board connection is via screw terminal blocks. The circuit board and baseplate/heatsink are mounted in a stainless steel, wall-mounted enclosure with charge ammeter.

Warranty

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

Electrical connection



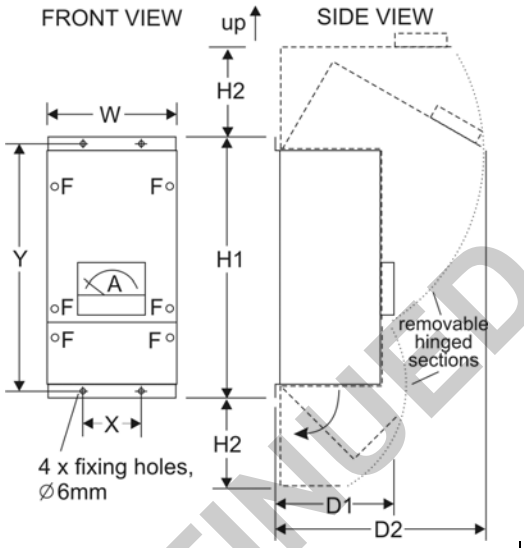
Note: battery output is isolated from chassis.

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



Overall:-	
W	142mm / 5.59”
H1	268mm / 10.55”
H2	85mm / 3.35”
D1	130mm / 5.12”
D2	222mm / 8.74”
Fixing holes:-	
X	64mm / 2.52”
Y	274mm / 10.79”

How to order

When ordering, please specify:-

Product	Nominal Output Voltage, V DC: 12	24	Maximum Output Current, A DC: 5	10
ESNSUL701205	●		●	
ESNSUL1401210	●			●
ESNSUL1402405		●	●	
ESNLUL701205	●		●	
ESNLUL1401210	●			●
ESNLUL1402405		●	●	

Options	
Code	Remote Temp. Compensation
RTC	●

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							●

product / output rating | **input volts** | **battery type** | **option**

The above 3 part number codes must be used

Insert option if required

e.g. ESNLUL1402405 D LA

The above example shows the order code for a 24V/5A ESNLUL charger, 240VAC input, with output calibration for standard vented lead acid batteries

Sentinel chargers for mounting in pre-existing enclosures are also available: see datasheets cd0013 (UL) and cd0008 (non-UL)

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