

## Guardian series, open frame UL/CSA Approved Automatic Battery Chargers



- **CE** **UL** Approvals
- **Heavy duty float charging: 10A or 20A @ 12 VDC or 24VDC**
- **Lead acid or NiCd batteries**
- **Auto boost operation**
- **Temperature compensation**
- **NFPA 110 alarm outputs: charge fail, under volts & over volts**
- **Short circuit and reverse polarity protection**

### Description

The Guardian is a highly efficient, high performance battery charger. The output is configured for accurate fast charging, optimum battery life and reliability. High impedance transformer technology gives a low ripple output (<1%) suitable for charging either sealed or vented batteries, e.g. Nickel Cadmium (NiCd), sealed lead acid (VRLA), vented and Plante cells. The Guardian range can be used in a wide range of industrial charging applications, including standby engines, pumps and generators.

Each charger consists of a transformer, rectifier and control circuit, in an open frame assembly for easy panel mounting. The control circuit ensures that the charger maintains the battery voltage at the pre-calibrated float level, while supplying any additional load current up to the specified maximum.

### Auto Boost (equalising) operation

Auto boost operation 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. Once the batteries have reached the boost voltage level, Guardian reverts to its normal float charge mode, preventing battery over-charge and gassing.

Autoboost can also be initiated manually (regardless of battery voltage) by linking two 'boost' terminals, e.g. via a panel switch or push-button.

### Temperature compensation & RTC option

The optimum charge voltage for lead acid and NiCd batteries varies with ambient temperature. All Guardian chargers can be configured (using circuit board links) with automatic output temperature compensation, either by on-board sensor, or by RTC option remote sensor with 3m lead. When temperature compensation is enabled, output voltage decreases as ambient temperature increases at a rate of 3mV/°C/cell (see calibration table overleaf).

### Product specifications

<b>power supply:</b>	
operating voltages	110 – 120 VAC ±6% or 230 VAC ±10% (specify)
operating frequency	50 or 60 Hz (specify)
<b>DC charge output:</b>	
output current	10 or 20 A DC
nominal voltage	12 or 24 V DC
voltage ripple	< 1%
float / boost voltages	see table overleaf
<b>alarm outputs:</b>	
charge fail, low volts & high volts relays	SPDT volt free contacts
contact rating	1A @ 30 V DC (resistive load)
<b>general:</b>	
operating temperature	-10 to +55°C (14 to 131°F)
dimensions	see table overleaf
weight	see table overleaf
EMC emission / immunity	EN61000-6-4 / EN61000-6-2

### Alarm outputs

The Guardian provides 3 x NFPA110 compliant alarm relay outputs: battery high volts and battery low volts (both with 120 sec delay) and charge fail.

### Installation and connection

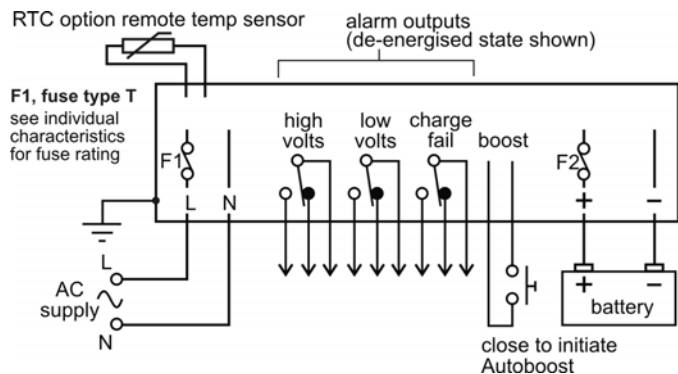
Mounting is via slots in the transformer frame. Spring clamp terminals provide secure electrical connection to panel wiring. AC supply input and DC charge output are protected with circuit-board mounted fusing.

Please see installation and operation instructions for full details.

### Warranty

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

## Electrical connection



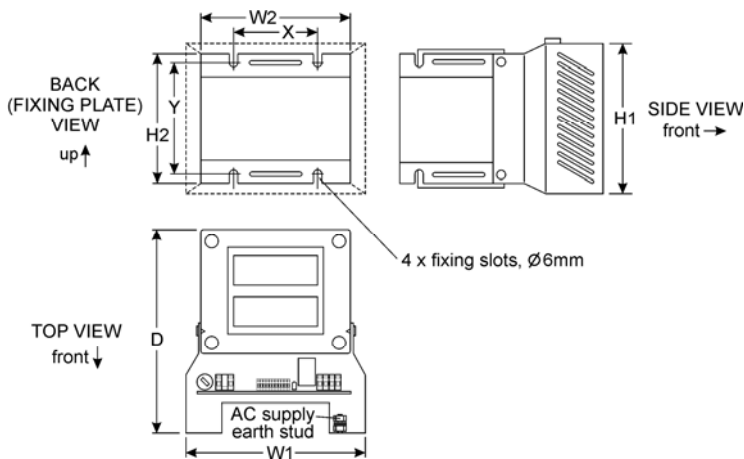
Note: battery output is isolated from chassis.

## Output calibration

Calibration figures at 20 deg C. Temperature compensation, if enabled, 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



	G150, G300 series	G600 series
Overall:-		
W1	152mm / 5.98"	152mm / 5.98"
H1	125mm / 4.92"	142mm / 5.59"
D	170mm / 6.69"	220mm / 8.66"
Fixing plate:-		
W2	125mm / 4.92"	130mm / 5.12"
H2	110mm / 4.33"	130mm / 5.12"
X	70mm / 2.76"	95mm / 3.74"
Y	92mm / 3.62"	110mm / 4.33"
Weight	7.0 Kg / 15.4 lb	12.5 Kg / 27.5 lb

For safe heat dissipation, mount product in orientation shown, with minimum air-gap clearance of 40mm above/below and 25mm at sides.

## How to order

When ordering, please specify:-

Product	Nominal Output Voltage, V DC		Max. Output Current, A DC		Options	
	12	24	10	20	Code	Remote temp. compensation (incl. sensor + 3 metre lead)
G1501210	●		●		RTC	●
G3002410		●	●			
G3001220	●			●		
G6002420		●		●		

Code	Input voltage		Input frequency <sup>(1)</sup>	
	120 VAC	240 VAC	50 Hz	60 Hz
C	●		●	
D		●		●

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

product	input volts	input frequency	battery type	option
e.g. G3002410	D	5	LA	RTC

The above 4 part number codes must be used

e.g. G3002410 D 5 LA

The above example shows the order code for a 24V/10A charger, with 240VAC/50Hz input and output calibrated for vented lead acid batteries, plus remote temperature compensation

Insert option code if required

RTC

Guardian is also available in a wall-mounted enclosure version – see separate datasheet for details.