



Guardian FP series, open frame Automatic Battery Chargers for Fire Pumps



- Complies with  NFPA20 fire pump requirements
-  Approvals
- For vented lead acid batteries
- Heavy duty float charging: 10A or 20A @ 12 VDC or 24VDC
- Temperature compensation
- Alarm outputs: charge fail, under volts & over volts
- Open-frame construction

Description

The Guardian series provides automatic, voltage controlled and current limited charging of heavy duty batteries. Guardian FP models are specially configured for optimal charging of vented lead-acid starter batteries on engine-driven fire pump systems.

Float charge operation

Each charger consists of a transformer, rectifier and control circuit, in an open frame assembly for easy panel mounting. High impedance transformer technology gives a low ripple output (<1%). 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 FP 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 momentary push-to-make switch.

Temperature compensation & RTC option

The optimum charge voltage for lead acid 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

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

Alarm outputs

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

Installation and connection

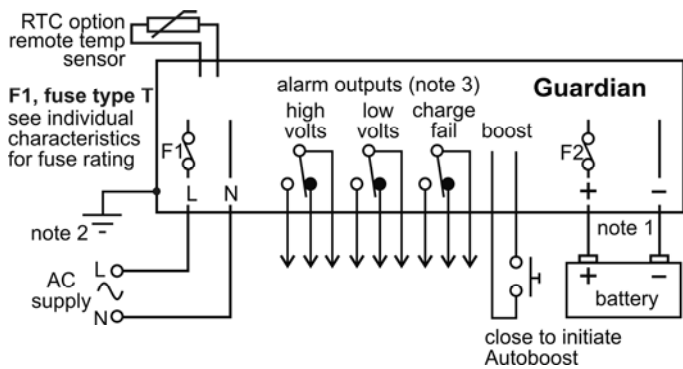
Mounting is via slots in the transformer frame. Spring clamp terminals provide secure electrical connection to panel wiring. AC supply input and DC charge output are protected with circuit-board mounted fusing.

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



Notes:

- 1) DC charge (battery) output is isolated from the Guardian chassis.
- 2) Chassis must be connected to AC supply ground.
- 3) Alarm relay outputs shown in de-energised (powered down) state. High (battery) volts relay energises 120 secs after fault condition. Low (battery) volts relay de-energises 120 secs after fault condition. Charge fail relay de-energises immediately on fault condition.

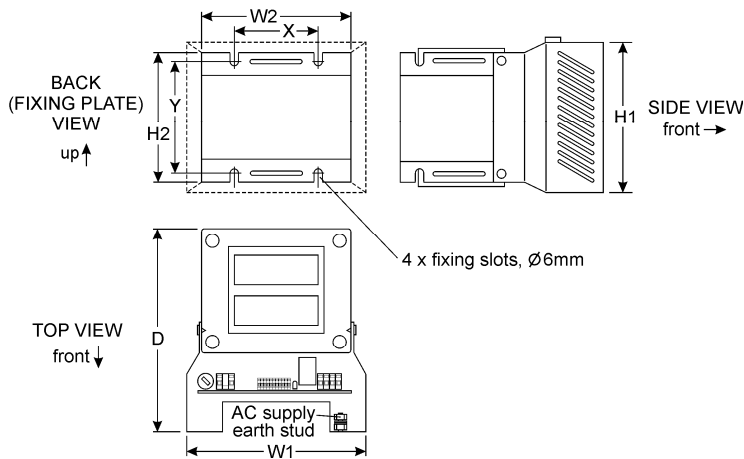
Output calibration

Calibration figures at 20°C / 68°F. Temperature compensation, if enabled, causes output voltage to automatically fall (or rise) with increasing (decreasing) temperature, at a rate of 3mV per °C per cell.

IMPORTANT: Guardian FP models are calibrated specifically for use with vented lead acid batteries in fire pump applications. These chargers **must not** be used in non-fire pump applications.

Battery type		float volts (V DC)	boost volts (V DC)
12V	Vented lead acid (6 cells)	13.7	15.6
24V	Vented Lead acid (12 cells)	27.4	31.2

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

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 above/below and 25mm at sides.

How to order

When ordering, please specify:-

Product	Nominal Output Voltage, V DC		Max. Output Current, A DC	
	12	24	10	20
GFP1501210	●		●	
GFP3002410		●	●	
GFP3001220	●			●
GFP6002420		●		●

Input voltage		
Code	120 VAC	240 VAC
C	●	
D		●

Input frequency ⁽¹⁾		
Code	50 Hz	60 Hz
5	●	
6		●

(1) Some models (code "56") allow 50 or 60Hz operation

Options	
Code	Remote temp. compensation (incl. sensor + 3 metre lead)
RTC	●

product input volts input frequency

The above 3 part number codes must be used

e.g. **GFP3002410 C 6 LA**

The above example shows the order code for a 24V/10A charger, with 120VAC/60Hz input and output calibrated for vented lead acid batteries (fire pump applications), plus remote temperature compensation

option

Insert option code if required

RTC

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