



■ Features

- Smart charger for lithium batteries (Li-ion, LiFePO) and Lead-Acid batteries, max. output power up to 168W.
- GaN chip solution, compact and lightweight, high efficiency
- Built-in 4 stage charging curve (For Lithium batteries) and 3 stage charging curve (For Lead-Acid batteries)
- Universal AC input / (100~240Vac) with active PFC circuits
- Protection: Output Short Circuit / Output Over Voltage / Over Current / Battery Reverse Polarity Protection
- 1 years warranty

■ Applications

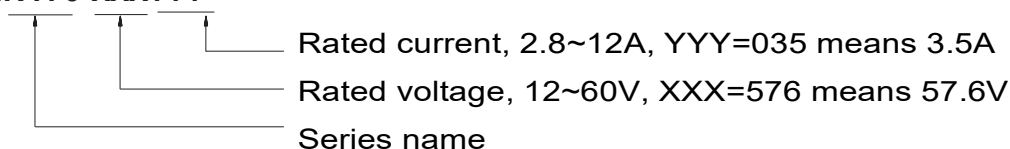
- Power tool solution
- Electric scooter charger
- Portable power devices
- Electric motorcycle / Electric sweeper

■ Description

The GaN170 series is a single output, desktop AC to DC charger with a maximum power of 168W. It is compact, lightweight, and highly efficient. It features 4 stage and 3 stage charging modes suitable for Lithium batteries (Li-ion, LiFePO₄, Lithium Manganese) and Lead-Acid batteries (Gel, Liquid, AGM) respectively.

■ Model Encoding

GaN170-XXXYYY





168W GaN Battery Charger

G170 series

For Li-ion battery (Only the adopted models are listed in table, for other output please reach our sales)

MODEL		GaN170-126120	GaN170-168090	GaN170-294057	GaN170-420040	GaN170-546030	GaN170-588028	
OUTPUT	Charge voltage	12.6V±1%	16.8V±1%	29.4V±1%	42.0V±1%	54.6V±1%	58.8V±1%	
	Charge voltage range	7.5-12.6V	10.0-16.8V	17.5-29.4V	25.0-42.0V	32.5-54.6V	35-58.8V	
	Charge current	200-240VAC	12.0A±10%	9A±10%	5.7A±10%	4.0A±10%	3.0A±10%	2.8A±10%
		100-120VAC	9.5A±10%	7.1A±10%	4.9A±10%	3.5A±10%	2.7A±10%	2.5A±10%
	Pre-charge current	2.4A±10%	1.8A±10%	1.14A±10%	0.8A±10%	0.6A±10%	0.56A±10%	
	Charge-end current	≤1.2A ±20%	≤0.9A ±20%	≤0.57A ±20%	≤0.4A ±20%	≤0.3A ±20%	≤0.28A ±20%	
	Rated power@AC220V	151.2W	151.2W	167.58W	168W	163.8W	164.64W	
	Recommended battery capacity (Note.3)	30 - 100Ah	20 - 100Ah	10 - 50Ah	8 - 40Ah	6 - 30Ah	5 - 30Ah	
Leakage current from battery (Typ.)		≤2mA						
Charging Indication	LED indication	Red: Charging. Green: Full or Idle						
INPUT	Rated input voltage	110 / 240VAC 50 / 60Hz						
	Input voltage range(Note.4)	100-120VAC / 200-240VAC						
	Power factor (Typ.)	PF>0.98@AC100Vfull load						
	Input current (Typ.)	100-120VAC / 200-240VAC						
	Inrush current (Typ.)	Cold start <75A @230VAC						
	Standby input power	<1W						
	Efficiency (Note.2)	93%	93%	93%	94%	94%	94%	
PROTECTION	Short circuit (Note.5)	Yes						
	Over voltage	105% of the rated output voltage						
	Reverse polarity	Yes						
	Over temperature	Yes						
ENVIRONMENT	Working temperature	-10 - +40℃ (Refer to " Derating Curve")						
	Working humidity	0 - 90% RH						
	Storage temperature, humidity	-40 - +70℃, 0 - 95% RH						
	Cooling	Natural convection						
	Vibration resistance	10 - 50Hz, 2G 10min. 1cycle, 60min. each along X, Y, Z axes						
SAFETY&EMC (Note.6)	Max. temperature rise	< 40℃ on casing						
	Hi-Pot Insulation	i/p to o/p: 3000V (1 min)						
	Safety approval	IEC62368-1						
	EMC Emission	Parameter	Standard				Test Level I Note	
		Conducted	EN55032FCCPART15				Class B	
		Radiated	EN55032FCCPART15				Class B	
		Harmonic Current	EN61000-3-2					
		Voltage Flicker	EN61000-3-3					
	EMC IMMUNITY	EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11						
OTHERS	MTBF	30000H						
	Dimension	114*68.4*29mm(L*W*H)						
	Weight	350g						
NOTE	1.Modification for charger specification may be required for different battery specification. Please contact battery vendor and Green digital power for details. 2.All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature. 3.This is Green suggested range. Please consult your battery manufacturer for their suggestions about maximum charging current limitation. 4.Derating may be needed under low input voltages. Please check the derating curve for more details. 5.This protection mechanism is specified for the case the short circuit occurs after the charger is turned on. 6.The battery charger is considered as an independent unit, but the final equipment still need to re-confirm that the whole system complies with the EMC directives.							

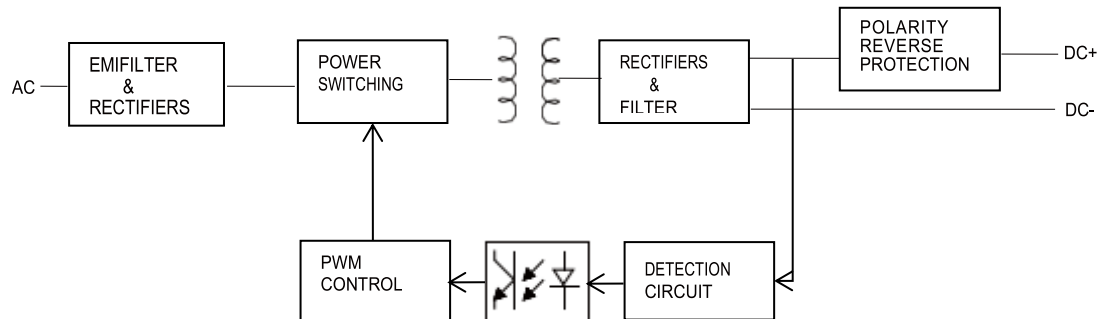
For LFP battery (Only the adopted models are listed in table, for other output please reach our sales)

MODEL		GaN170-144100	GaN170-288057	GaN170-360045	GaN170-432038	GaN170-576029	
OUTPUT	Charge voltage	14.4V±1%	28.8V±1%	36.0V±1%	43.2V±1%	57.6V±1%	
	Charge voltage range	10.0-14.4V	20.0-28.8V	25-36.0V	30-43.2V	40-57.6V	
	Charge current	200-240VAC	10.0A±10%	5.7A±10%	4.5A±10%	3.8A±10%	2.9A±10%
		100-120VAC	8.3A±10%	4.9A±10%	4.0A±10%	3.4A±10%	2.6A±10%
	Pre-charge current	2.0A±10%	1.14A±10%	0.9A±10%	0.76A±10%	0.58A±10%	
	Charge-end current	≤1.1A ±20%	≤0.57A ±20%	≤0.45A ±20%	≤0.38A ±20%	≤0.29A ±20%	
	Rated power@AC220V	144W	164.16W	162W	164.16W	167.04W	
	Recommended battery capacity Note.3	30 - 100Ah	20 - 100Ah	10 - 50Ah	8 - 40Ah	6 - 30Ah	
Leakage current from battery (Typ.)		≤2mA					
Charging Indication	LED indication	Red: Charging. Green: Full or Idle					
INPUT	Rated input voltage	110 / 240VAC 50 / 60Hz					
	Input voltage range Note.4	100-120VAC / 200-240VAC					
	Power factor (Typ.)	PF>0.98@AC100Vfull load					
	Input current (Typ.)	2.2A@100VAC					
	Inrush current (Typ.)	Cold start <75A @230VAC					
	Standby input power	<1W					
	Efficiency (Typ.)	93%	93%	93%	94%	94%	
PROTECTION	Short circuit Note.5	Yes					
	Over voltage	105% of the rated output voltage					
	Reverse polarity	Yes					
	Over temperature	Yes					
ENVIRONMENT	Working temperature	-10 - +40℃ (Refer to " Derating Curve")					
	Working humidity	0 - 90% RH					
	Storage temperature, humidity	-40 - +70℃, 0 - 95% RH					
	Cooling	Natural convection					
	Vibration resistance	10 - 50Hz, 2G 10min. 1cycle, 60min. each along X, Y, Z axes					
SAFETY&EMC (Note.6)	Max. temperature rise	< 40℃ on casing					
	Hi-Pot Insulation	i/p to o/p: 3000V (1 min)					
	Safety approval	IEC62368-1					
	EMC Emission	Parameter	Standard			Test Level I Note	
		Conducted	EN55032FCCPART15			Class B	
		Radiated	EN55032FCCPART15			Class B	
		Harmonic Current	EN61000-3-2				
		Voltage Flicker	EN61000-3-3				
EMC IMMUNITY	EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11						
OTHERS	MTBF	30000H					
	Dimension	114*68.4*29mm(L*W*H)					
	Weight	350g					
NOTE	1.Modification for charger specification may be required for different battery specification. Please contact battery vendor and Green digital power for details. 2.All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature. 3.This is Green suggested range. Please consult your battery manufacturer for their suggestions about maximum charging current limitation. 4.Derating may be needed under low input voltages. Please check the derating curve for more details. 5.This protection mechanism is specified for the case the short circuit occurs after the charger is turned on. 6.The battery charger is considered as an independent unit, but the final equipment still need to re-confirm that the whole system complies with the EMC directives.						

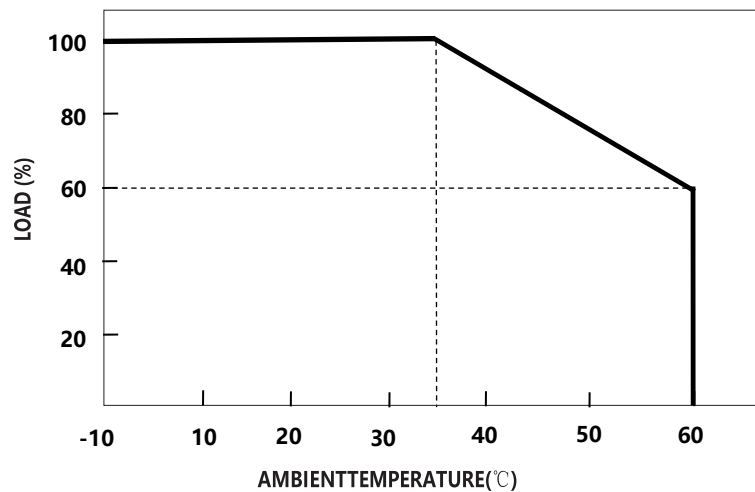
For Lead-Acid battery (Only the adopted models are listed in table, for other output please reach our sales)

MODEL		GaN170-148100	GaN170-296056	GaN170-444037	GaN170-592028		
OUTPUT	Charge voltage	14.8V±1%	29.6V±1%	44.4V±1%	59.2V±1%		
	Charge voltage range	10.0-14.8V	20.0-29.6V	30.0-44.4V	40.0-59.2V		
	Float charge	13.8V±1%	27.6V±1%	41.4V±1%	55.2V±1%		
	Charge current	200-240VAC	10.0A±10%	5.6A±10%	3.7A±10%	2.8A±10%	
		100-220VAC	8.0A±10%	4.9A±10%	3.3A±10%	2.5A±10%	
	Charge-end current	≤2.0A ±20%		≤1.12A ±20%		≤0.74A ±20%	≤0.56A ±20%
	Rated power@AC220V	148W	165.76W	164.28W	165.76W		
	Recommended battery capacity Note.3	60 - 100Ah	30- 60Ah	20 - 40Ah	15 - 30Ah		
Leakage current from battery (Typ.)		≤2mA					
Charging Indication	LED indication	Red: Charging. Green: Full or Idle					
INPUT	Rated input voltage	110 / 240VAC 50 / 60Hz					
	Input voltage range Note.4	100-120VAC / 200-240VAC					
	Power factor (Typ.)	PF>0.98@AC100Vfull load					
	Input current (Typ.)	2.2A@100VAC					
	Inrush current (Typ.)	Cold start <75A @230VAC					
	Standby input power	<1W					
	Efficiency (Typ.)	93%	93%	94%	94%		
PROTECTION	Short circuit Note.5	Yes					
	Over voltage	105% of the rated output voltage					
	Reverse polarity	Yes					
	Over temperature	Yes					
ENVIRONMENT	Working temperature	-10 - +40℃ (Refer to " Derating Curve")					
	Working humidity	0 - 90% RH					
	Storage temperature, humidity	-40 - +70℃, 0 - 95% RH					
	Cooling	Natural convection					
	Vibration resistance	10 - 50Hz, 2G 10min. 1cycle, 60min. each along X, Y, Z axes					
SAFETY&EMC (Note.6)	Max. temperature rise	< 40℃ on casing					
	Hi-Pot Insulation	i/p to o/p: 3000V (1 min)					
	Safety approval	IEC62368-1					
	EMC Emission	Parameter	Standard		Test Level I Note		
		Conducted	EN55032FCCPART15		Class B		
		Radiated	EN55032FCCPART15		Class B		
		Harmonic Current	EN61000-3-2				
		Voltage Flicker	EN61000-3-3				
EMC IMMUNITY	EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11						
OTHERS	MTBF	30000H					
	Dimension	114*68.4*29mm(L*W*H)					
	Weight	350g					
NOTE	1.Modification for charger specification may be required for different battery specification. Please contact battery vendor and Green digital power for details. 2.All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature. 3.This is Green suggested range. Please consult your battery manufacturer for their suggestions about maximum charging current limitation. 4.Derating may be needed under low input voltages. Please check the derating curve for more details. 5.This protection mechanism is specified for the case the short circuit occurs after the charger is turned on. 6.The battery charger is considered as an independent unit, but the final equipment still need to re-confirm that the whole system complies with the EMC directives.						

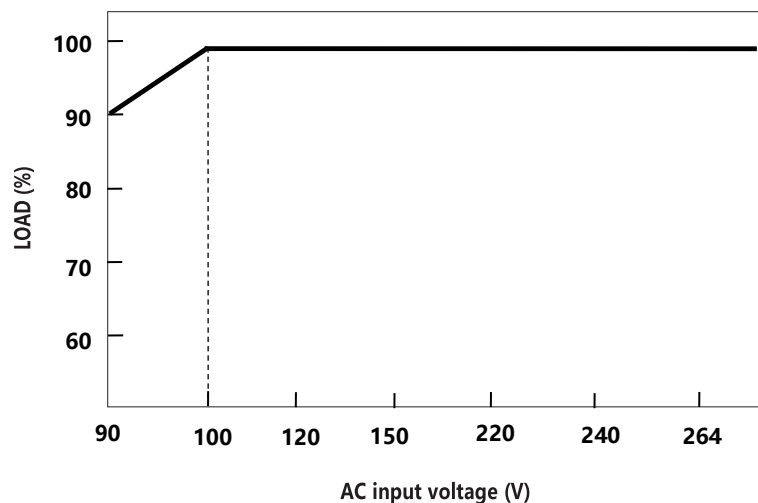
■ Block Diagram



■ Derting Curve

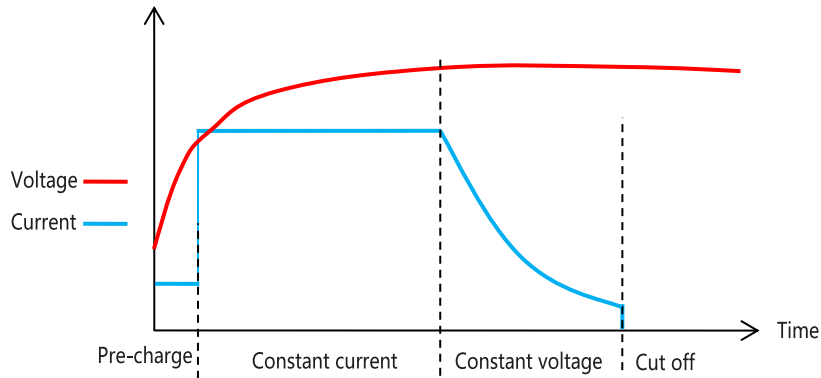


■ Static Characteristics

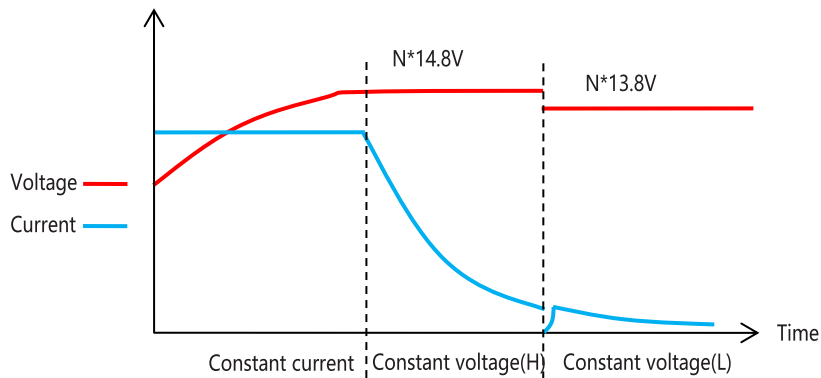


■ Charging Curve

◎ 4 stage charging curve(Li-ion battery charger)



◎ 3stage charging curve(Lead-Acid battery charger)



■ Mechanical specification

