

Overview

The IT-NC G3 series is a new generation of high-current MPPT charge and discharge controller. It features load output capability and delivers superior MPPT tracking and conversion efficiency. The series is compatible with various lithium battery types and supports three-stage charging management to extend battery lifespan. Its exceptional low-power design significantly reduces static consumption, prolonging system standby time.

Comprehensive electronic protection and flexible communication options (WiFi, Bluetooth, 4G, etc.) further enhance system reliability and monitoring capabilities. It is widely used in RVs, boats, industrial monitoring, and small to medium-sized solar power systems.

Features

- Supports 12V/24V/36V/48V systems; Charge/Discharge current: 50A-100A
- All metal die-casting shell, IP43⁽¹⁾
- Supports two PV inputs⁽²⁾
- Max. MPPT tracking efficiency: 99.9%; Max. Conversion efficiency: 98.5%
- Compatible with AGM, Gel, Flooded, LiFePO4 batteries, etc.
- No battery mode: Enables direct load supply with sufficient PV energy
- Communication interface with electrical isolation
 - CAN: Parallel operation of up to 6 devices(with or without batteries)
 - BMS: Ensures reliable lithium battery charge/discharge management⁽³⁾
 - RS485: Optional Bluetooth, WiFi, or 4G modules⁽⁴⁾
- Real-time data recording, event logging, and power statistics function
- EMC compliant (CLASS B)

(1)IP32 without terminal cover

(2)IT10415NC G3, IT10415NC G3 BLE, IT10420NC G3 and IT8420NC G3 support two PV inputs

(3)Directly communicates with EPEVER batteries; Requires BMS-LINK module for others (refer to manual)

(4)BLE-suffixed models feature integrated Bluetooth



Technical Specifications

Model	IT5420 NC G3	IT6415 NC G3 IT6415 NC G3 BLE	IT6420 NC G3	IT7415 NC G3	IT7420 NC G3	IT8420 NC G3	IT10415 NC G3 IT10415 NC G3 BLE	IT10420 NC G3
Electrical Parameters								
Battery Rated Voltage	12/24/48VDC or Auto							
Controller Operating Voltage Range	8-62V							
Battery Type	AGM(Default) / Gel / Flooded / User							
Lithium Battery Type	LiFePO ₄ / Li(NiCoMn)O ₂ / User							
Rated Charging / Discharging Current	50A	60A		75A		80A		100A
Rated Charging Power	650W/12V; 1,300W/24V; 2,600W/48V	780W/12V; 1,560W/24V; 3,120W/48V		975W/12V; 1,950W/24V; 3,900W/48V		1,040W/12V; 2,080W/24V; 4,160W/48V		1,300W/12V; 2,600W/24V; 5,200W/48V
Max. Charging Power	650W/12V; 1,300W/24V; 2,600W/48V	780W/12V; 1,560W/24V; 3,120W/48V		975W/12V; 1,950W/24V; 3,900W/48V		1,040W/12V; 2,080W/24V; 4,160W/48V		1,300W/12V; 2,600W/24V; 5,200W/48V
Rated Load Current	50A	60A		75A		80A		100A
Max. Load Current	50A	60A		75A		80A		100A
PV Max. Open-circuit Voltage	200V (@ lowest temperature); 180V (@ 25°C)	150V (@ lowest temperature); 138V (@ 25°C)	200V (@ lowest temperature); 180V (@ 25°C)	150V (@ lowest temperature); 138V (@ 25°C)	200V (@ lowest temperature); 180V (@ 25°C)	200V (@ lowest temperature); 180V (@ 25°C)	150V (@ lowest temperature); 138V (@ 25°C)	200V (@ lowest temperature); 180V (@ 25°C)
MPPT Operating Voltage Range	(Battery voltage plus 2V, and > 28V) to 144V (@ 25 °C)	(Battery voltage plus 2V, and > 28V) to 108V (@ 25°C)	(Battery voltage plus 2V, and > 28V) to 144V (@ 25 °C)	(Battery voltage plus 2V, and > 28V) to 108V (@ 25 °C)	(Battery voltage plus 2V, and > 28V) to 144V (@ 25 °C)		(Battery voltage plus 2V, and > 28V) to 108V (@ 25 °C)	(Battery voltage plus 2V, and > 28V) to 144V (@ 25 °C)
Tracking Efficiency	≥ 99.5%							
Max. Conversion Efficiency	98.3%	98.6%	98.1%	98.6%	98.1%	98.5%	98.6%	98.5%
Full Load Efficiency	97.1%	98.0%	98.0%	98.0%	97.5%	97.5%	98.0%	97.6%
Temperature Compensation Coefficient	-3mV/°C/2V (Default)							
Self-consumption (Enabled Communication)	98mA/12V; 60mA/24V; 46mA/48V	98mA/12V; 60mA/24V; 46mA/48V						
Self-consumption (Disabled Communication)	48mA/12V; 25mA/24V; 14mA/48V	48mA/12V; 25mA/24V; 14mA/48V						
Grounding Type	Common negative grounding							
Dry Contact (Oil Generator / Utility)	Rated value: 5A/30VDC; Maximum value: 0.5A/60VDC							
RS485 Communication Port	5VDC/200mA (RJ45)							
Mechanical Parameters								
Dimension (L×W×H) (mm) IP43 (Controller & White Terminal Cover)	307 × 253 ×143	320 × 263 ×143		320 × 263 ×158		352 × 263 ×158	352 × 263 ×158	
Dimension (L×W×H) (mm) IP32 (Controller Only)	307 × 202 ×134	320 × 212 ×134		320 × 212 ×149		352 × 212 ×149	352 × 212 ×149	
Mounting Dimension (L×W) (mm)	295 × 130	308 × 140				340 × 140		
Mounting Hole Size (mm)	φ7							
Wiring Terminal	6AWG/16mm ²	2AWG/35mm ²						
Recommended Cable	6AWG/16mm ²			4AWG/25mm ²			2AWG/35mm ²	
Net Weight (kg) IP43 (Controller & White Terminal Cover)	5.07	5.88	5.93	6.56	6.62	7.79	7.87	7.87
Net Weight (kg) IP32 (Controller Only)	4.86	5.66	5.71	6.34	6.40	7.55	7.63	7.63
Environmental Parameters								
Operating Temperature Range	-25°C to 60°C (Derating when temperature is higher than 40°C)							
Lcd Temperature Range	-20°C to 70°C							
Storage Temperature Range	-30°C to 70°C							
Relative Humidity	5%-95% (N.C.)							
Altitude	5,000m (> 2,000m Derating)							
Enclosure	IP43 (Controller & White Terminal Cover); IP32 (Controller Only)							
Pollution Degree	PD2							
Certifications								
Safety	EN/IEC62109-1							
EMC	EN61000-6-1/EN61000-6-3							
FCC	47 CFR Part 15, Subpart B							
ROHS	IEC62321-3-1							