



FEATURES

- **Unattended:** PV auto-start and auto-charging, no need of manual operation
- **High efficient MPPT:** Multiple Power Point Trackers (MPPTs) enable the output power of solar panel array to be at maximum state, improving the energy conversion 20% ~ 30%
- **High reliability:** Adopt advanced microprocessor to achieve "MPPT + SOC" dual intelligent optimized charging control to ensure the product to be stable and reliable
- **Intelligent charging management:** Adopt charging mode combined constant current and constant voltage to ensure effective battery charging and battery life
- **Battery protections:** Automatically test the battery running condition. The system will automatically shut down in the event of overdischarge to avoid consuming the battery energy
- **High efficiency:** Adopt low power consumption MOSFET and PWM soft switch and synchronous rectifier technology, effectively improving the system operating efficiency
- **Intelligent:** Auto-start by Illumination recognition (optional) – the system can configure auto start the load in the event of insufficient sunshine, such as fog, rain, night etc.
- **Protections:** Overcharge / overdischarge, short circuit, overload, reverse connection, TVS lightning protection etc.
- **Strong adaptability (optional):** Charging voltage is settable to adapt to lithium battery and lead-acid battery
- **Communications (optional):** RS232 and dry contacts port for communication and real-time monitoring
- **Temperature compensation (optional):** The test interface of ambient temperature of the external battery group is available. The battery charging voltage is adjustable in real time according to the ambient temperature of the battery

SPECIFICATIONS

MODEL	F12-05/10/M	F12-20	F24-05/10/M	F24-20	F1224-10/20/30/40/50/60 M F2448-10/20/30/40/50/60 M
Display	LED				LCD + LED
Rated voltage	12 V		24 V		12 V / 24 V; 24 V / 48 V
Max. charging current	5 / 10 A	20 A	5 / 10 A	20 A	10/20/30/40/50/60 A
Max. load current	5 / 10 A	20 A	5 / 10 A	20 A	10/20/30/40/50/60 A
Max. PV power	12 V – 05 A 60 W 12 V – 10 A 120 W	240 W	24 V – 05 A 120 W 24 V – 10 A 240 W	480 W	12V-120/240/360/480/600/720W 24V-240/480/720/960/1200/1440W 48V-480/960/1440/1920/2400/2880W
Battery capacity (lead-acid)	17 Ah ~ 400 Ah				38 Ah ~ 800 Ah
Max. efficiency	≥ 98%				
Max. PV input voltage	F1224 (12 V: 0 ~ 30 V; 24 V: 0 ~ 60 V); F2448 (24 V: 0 ~ 48 V; 48 V: 0 ~ 96 V)				
Optimum operating voltage of PV (Vmp)	12 V: 15 ~ 22 V; 24 V: 29 ~ 38 V; 48 V: 58 ~ 72 V				
Equalizing charge voltage	12 V: 14.6 V ± 1%; 24 V: 29.2 V ± 1%; 48 V: 58.4 V ± 1%				
Floating charge voltage	12 V: 14.4 V ± 1%; 24 V: 28.8 V ± 1%; 48 V: 57.6 V ± 1%				
Overcharge protections	12 V: 14.7 V ± 1%; 24 V: 29.4 V ± 1%; 48 V: 58.8 V ± 1%				
Charging fold-back voltage	12 V: 13.2 V ± 1%; 24 V: 26.4 V ± 1%; 48 V: 52.8 V ± 1%				
Undervoltage alarm	12 V: 11.2 V ± 1%; 24 V: 22.4 V ± 1%; 48 V: 44.8 V ± 1%				
Overdischarge protections	12 V: 10.8 V ± 0.3 V; 24 V: 21.6 V ± 0.3 V; 48 V: 43.2 V ± 0.4 V				
Overdischarge restoring start voltage	12 V: 13.2 V ± 0.3 V; 24 V: 26.4 V ± 0.3 V; 48 V: 52.8 V ± 0.4 V				
Overload / short circuit protections	110% for 255 s; 125% for 60 s; 150% for 10 s / Auto shutdown if short circuit				
PV reverse polarity protection	Available				
Communications (optional)	RS232 / dry contacts				
Operating temperature	-20℃ ~ +45℃				
Storage temperature	-25℃ ~ +85℃				
Max. altitude	1000 m at rated power (derating 1% for each additional 100 m); Max. 4000 m				
Relative humidity	0 ~ 95% (non-condensing)				
Storage humidity	≤ 85%				
Installation	Vertical wall mounting				
Dimensions (W × D × H) (mm)	136 × 100 × 35				164 × 168 × 55 (F1224-10/20/30 M & F2448-10/20 M) 164 × 168 × 100 (F1224-40/50/60 M & F2448-30/40/50/60 M)
Packaged dimensions (W × D × H) (mm)	145 × 110 × 45				215 × 208 × 145
Net weight (kg)	0.23				0.85 (F1224-10/20/30 M & F2448-10/20 M) 2.05 (F1224-40/50/60 M & F2448-30/40/50/60 M)
Gross weight (kg)	0.28				1.05 (F1224-10/20/30 M & F2448-10/20 M) 2.25 (F1224-40/50/60 M & F2448-30/40/50/60 M)

● All specifications subject to change without notice.