

DC UPS 24 V_{DC} / 15 A
DC UPS 48 V_{DC} / 10 A
DC UPS 48 V_{DC} / 25 A

Models:

FR-2400-15-ST / FR-2400-15-SNMP / FR-2400-15-SNMP-X
FN-4800-10-ST / FN-4800-10-SNMP / FN-4800-10-SNMP-X
FN-4800-25-ST / FN-4800-25-SNMP / FN-4800-25-SNMP-X



Introduction

The FR and FN DC UPS families receive AC power from the utility grid and provide stabilized DC power at their output. In the absence of AC power, the battery bank supplies power to the loads. The battery bank operates continuously and in a floating mode, supplying DC power without interruptions.

The Rectifier ensures uninterrupted power supply even under adverse conditions. Through its PFC controller circuit, it operates with high energy conversion efficiency, guaranteeing stable and high-quality power at its output. The product is equipped with protective circuits at its input and outputs, making it suitable for application in harsh environments with high operational criticality or where the utility's power supply quality is unstable.

The models in the SNMP version features advanced remote management and monitoring capabilities via SNMP-V2 protocol, combined with its ease of use and flexibility in configuring the battery bank. The output circuit is monitored and managed by a microprocessor, which continuously assesses the battery charge status. During a recharge situation, the recharging circuit operates intelligently, aiming to charge the batteries according to their best current condition. This procedure ensures the extended durability of the entire battery bank and is performed through 03 stages of recharge.

Applications

- Critical Power Loads;
- Telecommunication Networks;
- Alarm Systems.

Features and Highlights

ST/SNMP/SNMP-X

- Floating Output Voltage;
- Dual-stage Energy Conversion;
- Active Power Factor Correction (PFC);
- Intelligent charging system operating through 3 stages of battery recharge;
- Smart Fan technology;
- Includes 19" mounting brackets and a sensor cable for PoP temperature measurement.

SNMP/SNMP-X

- Ethernet for remote or local monitoring via SNMP-V2 and control through a Web page;
- Compatible with Zabbix, Grafana, LibreNMS and The Dude monitoring systems;
- System for measuring input AC voltage, output voltage and current, battery voltage and current, and external and internal temperature;
- Monitoring of alerts through Web page (Overtemperature, Overload, Battery charging and discharging, and Ventilation failure);
- Allows battery voltage compensation based on temperature variation;
- Remote testing of battery bank autonomy;
- Compatible with Lithium batteries;
- Suitable for hybrid connection with solar power.

SNMP-X

- Programmable Multi-Purpose Digital Inputs;
- Programmable Digital Relay Output.

Input Characteristics		FR-2400-15 ST/SNMP/SNMP-X	FN-4800-10 ST/SNMP/SNMP-X	FN-4800-25 ST/SNMP/SNMP-X
Nominal Input Voltage		100 – 240 V _{AC}	100 – 240 V _{AC}	100 – 240 V _{AC}
Input Voltage Range		100 – 270 V _{AC}	100 – 270 V _{AC}	100 – 270 V _{AC}
Frequency		50/60 Hz	50/60 Hz	50/60 Hz
Input Current		4.70 A _{RMS} / 1.96 A _{RMS} (100/240 V _{AC})	5.86 A _{RMS} / 2.44 A _{RMS} (100/240 V _{AC})	14.67 A _{RMS} / 6.11 A _{RMS} (100/240 V _{AC})
Protections		Input Fuse (Line): 6.3 A fuse for short-circuit and overload protection		Two 15 A circuit breakers for short-circuit and overload protection, one for the Line and another for the Neutral
		Varistor: 300 V _{AC} , 170 J varistor for protection against lightning and electrical surges		
		Undervoltage: Disconnects the AC-DC converter if voltage <100 V _{AC}		
		Overvoltage: Disconnects the AC-DC converter if voltage >270 V _{AC}		
Output Characteristics		FR-2400-15 ST/SNMP/SNMP-X	FN-4800-10 ST/SNMP/SNMP-X	FN-4800-25 ST/SNMP/SNMP-X
Nominal Output Voltage		27.5 V _{DC}	54 V _{DC}	54 V _{DC}
Output Voltage Range		20.5 - 28.8 V _{DC}	42 - 58 V _{DC}	42 - 58 V _{DC}
Maximum Output Current		15 A	10 A	25 A
Maximum Output Power		432 W	540 W	1450 W
Adjustable Battery Charging Current		1/3/5/10 A Via Selector Switch; 1 - 10 A Via Web Page (SNMP)	1/3/5 A Via Selector Switch; 1 - 5 A Via Web Page (SNMP)	1/5/10/15 A Via Selector Switch; 1 - 15 A Via Web Page (SNMP)
Output Protections	Battery Fuse for short-circuit and overload protection	15 A	10 A	25 A
	Short Circuit	Short-circuit current <16 A with automatic rearming	Short-circuit current <15 A with automatic rearming	Short-circuit current <5 A with automatic rearming
	Overcurrent	Limits the output current to the nominal value of 15.5 A	Limits the output current to the nominal value of 11 A	Limits the output current to the nominal value of 26.5 A
	Derating	Limits the output current to 10 A in case of ventilation failure	Limits the output current to 5 A in case of ventilation failure	Limits the output current to 15 A in case of ventilation failure
		Limits the output current to 10 A if the internal temperature of the heat exchangers is above 75°C	Limits the output current to 7 A if the internal temperature of the heat exchangers is above 75°C	Limits the output current to 15 A if the internal temperature of the heat exchangers is above 75°C Limits the output current to 20 A if the input voltage is below 110 V _{AC}
	Overvoltage	Disconnects the AC-DC converter if the output voltage is >30 V _{DC}	Disconnects the AC-DC converter if the output voltage is >60 V _{DC}	
	Battery Undervoltage	Disconnects the battery bank if the voltage is lower than the configured voltage (Default voltage 20.5 V _{DC})	Disconnects the battery bank if the voltage is lower than the configured voltage (Default voltage 42 V _{DC})	
Overtemperature	Disconnects the AC-DC converter if the temperature > 80°C and reconnects at 70°C			
General Specifications		FR-2400-15 ST/SNMP/SNMP-X	FN-4800-10 ST/SNMP/SNMP-X	FN-4800-25 ST/SNMP/SNMP-X
Power Factor (Rated Load)		0.95 / 0.90 (127/ 220 V _{AC})	0.98 / 0.92 (127/ 220 V _{AC})	0.98 / 0.98 (127/ 220 V _{AC})
Efficiency		>92 % (full load)		
Line+Neutral Isolation for Output		3000 V _{AC}		
Line+Neutral Isolation for Ground		2500 V _{AC}		
Output Isolation for Ground		1000 V _{AC}		
Operating Temperature		-10 °C até 60 °C		
Operating Humidity		20 a 90 % (non-condensing)		
Alarm Red LED		Overtemperature, Overload, Ventilation Failure (Blinking)		
Alarm Green LED		Battery Charging, Battery Discharging, and AC Power		
Alarms Web Page (SNMP)		Minimum AC Input Voltage, Maximum AC Input Voltage, Overload, Overtemperature, Output Overvoltage, Ventilation Failure, Temperature Sensor Failure, Battery Charging, and Battery Discharging		
Digital Inputs (SNMP-X)		0 - 60 V _{DC} (voltage greater than 5 V _{DC} , logic level 1)		
Digital Relay Output (SNMP-X)		60 V _{DC} 1 A		
Installation Mode		1 U height for 19" racks		
Dimensions (H x W x D) / Weight		45 x 190 x 240 mm / 1.90 kg (ST) 45 x 225 x 240 mm / 2.35 kg (SNMP/SNMP-X)		45 x 440 x 250 mm / 3.80 kg

Standards Complied Electromagnetic Immunity				
Procedure	Standard	Type	Value	Criteria
Electrostatic Discharge (ESD)	IEC 61000-4-2	Contact Discharge	8 kV	Criterion C
		Air Discharge	15 kV	
Fast Transients (Burst)	IEC 61000-4-4	Power Input	4 kV	Criterion A
		Power Output	1 kV	
Input Voltage Surge (Surge)	IEC 61000-4-5	Line -> Neutral	4 kV	Criterion A
		Line -> Ground; Neutral -> Ground	4 kV	
Output Voltage Surge (Surge)	IEC 61000-4-5	+ - -	1 kV	Criterion A
		+ - > Ground; - - > Ground	1 kV	
Voltage Sag (Dips)	IEC 61000-4-11	0% - 100 V _{AC}	0 V _{AC} , 20 ms	Criterion A
		40% - 100 V _{AC}	40 V _{AC} , 200 ms	
		70% - 100 V _{AC}	70 V _{AC} , 500 ms	
		0% - 220 V _{AC}	0 V _{AC} , 20 ms	
		40% - 220 V _{AC}	88 V _{AC} , 200 ms	
Voltage Interruption	IEC 6100-4-11	70% - 220 V _{AC}	154 V _{AC} , 500 ms	Criterion C
		0% - 220 V _{AC}	5000 ms	