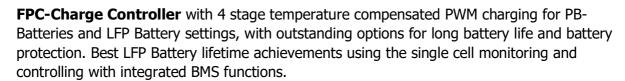
FPC-Charge Controller

for Lead Acid Battery/LFP Battery/LFP with cell sensing wire with Pay as you Go options



- PWM charge controller for PB (Lead Acid)
 Battery and LFP (LI-FE-PO4) Battery
- BMS for LFP integrated
- Clear and easy to read LCD display for System Status
- Load output control by MosFet with freewheeling diode for inductive load protection
- 12 Months Datalogger integrated
- Front Panel assembly for optimized project design
- Programmable overcharge and over discharge parameter via PC Interface adapter (option)
- USB Interface (option) for reading data logger Values and transfer customized settings
- Software update via Interface on demand
- USB charger
- 4 stage charging, with temperature compensation (PB-Battery)
- PCBA with conformal coating



The clear and easy to read system status LCD-display informs the user about the latest system status.

The various deep discharge protection options can allow to adjust the settings according to system and battery requirements. Via computer Interface most system parameters can be adjusted according the demand.

The integrated one-year datalogger can support analyzing the systems in the field applications. Monitor consumptions, harvests and help to detect System application problems.

The front panel case allows easy installation into battery boxes without user access to wiring, for safe and reliable system operation. Integrated PAYG functionality with open PAYG protocol opens various applications for this controller.

FPC-PAYG Option provides a PAYG controlled Load Switch. The integrated keypad in combination with big LCD display allows easy Token application for the end-user and the LCD provide clear information about Payment status and Error massages if anything happens wrong.

Datasheet: DATASHEET-FPC-KP-PB-LFP-2021-02-18B.DOCX Subject to change without notice, misprints excluded

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FPC-Charge Controller





Controller Type: FPC-xx/yy-KP-PB-LFP: (Factory configuration on request)

Battery Type:	Technical Data	Application1:	Application2:	Application3:
Nominal Voltage: 12V	Battery Type:	Lead Acid (GEL, AGM, flooded)		LFP
Nominal Voltage:			Battery + and - connection	Battery + and -
Nominal Voltage: 12V			(Lead Acid battery	and single cell sensing wire
Max Charging Current: FPC-10/10-KP-PB-LPP: 10A FPC-10/10-KP-PB-LPP: 20A FPC-20/20-KP-PB-LPP: 2			replacement)	connection
FPC-20/20-KP-PB-LFP: 10A FPC-20/20-KP-PB-LFP: 12A FPC-20/20-KP-PB-LFP: 10A FPC-20/20-KP-PB-LFP: 12A FPC-20/20-KP-PB-LFP	Nominal Voltage:		12.8V	I .
Max Load Current: FPC-10/10-KP-PB-LFP: 10A FPC-20/20-KP-PB-LFP: 20A	Max Charging Current:	FPC-10/10-KP-PB-LFP: 10A	FPC-10/10-KP-PB-LFP: 10A	FPC-10/10-KP-PB-LFP: 10A
Charge voltage Settings: PFC-20/20-KP-PB-LFP: 20A End Act Battery 12V Float Charge: 13.5V Main Charge: 14.4V (2hn, activation @ battery voltage <12.3V) Equalization Charge: 15.0 (2h, activation @ battery voltage <12.3V) Equalization Charge: 15.0 (2h, activation @ battery voltage <12.1V) Temperature compensation: -18mV/k (All values @ 25°C for 12V System) Load Control Based on battery status a. Fix Voltage: 11.5V b. Fix Voltage: 11.5V c. SOC (11.5 V to 11.75V) d. SOC (11.5 V to 11.75V) e. Load reconnect level: 12.8V f. PAYG USB Charger USB-A socket, 5V/1.5A USB-A socket, 5V/1.5A ILFP-BMS Battery Management System Connections: Battery: two pin Power Plug Panel, Load +/-: Screw terminal for Ring lug Protections: Load overcurrent, load short circuit, Burst/Surge (Varistor), Overtemperature, Panel reverse polarity, Panel reverse current, Inductive load protection Further Protections: Battery undervoltage: 10.5V Battery volveroltage: 15.5V Datalogger 1-year datalogger: 28-day data sets + 12-Month datasets Footing PAYG PAYG PAYG PAYG PAYG PAYG PAYG PAYG		FPC-20/20-KP-PB-LFP: 20A	FPC-20/20-KP-PB-LFP: 20A	FPC-20/20-KP-PB-LFP: 20A
Charge voltage settings: Ploat Charge: 13.5V	Max Load Current:	FPC-10/10-KP-PB-LFP: 10A	FPC-10/10-KP-PB-LFP: 10A	FPC-10/10-KP-PB-LFP: 10A
Float Charge: 13.5V		FPC-20/20-KP-PB-LFP: 20A	FPC-20/20-KP-PB-LFP: 20A	FPC-20/20-KP-PB-LFP: 20A
Main Charge: 14.4V (30min. daily) Boost Charge: 14.4V (2h, activation ⊕ battery voltage < 13.55V/cell battery voltage < 12.3V) Equalization Charge: 15.0 (2h, activation ⊕ battery voltage < 12.1V) Temperature compensation: -18mV/K (All values ⊕ 25°C for 12V System) Load Control Load Control Dased on battery status a. Fix Voltage: 11.5V b. Fix Voltage: 11.5V c. SOC (111 vol 11.75V) d. SOC (11.15 vol 11.75V) e. Load reconnect level: 12.8V f. PAYG USB Charger USB Charger USB-A socket, 5V/1.5A LFP-BMS Battery Management System Connections: Battery: two pin Power Plug Panel, Load +f:: Screw terminal for Ring lug Protections: Load overcurrent, load short circuit, Burst/Surge (Varistor), Overtemperature, Panel revers polarity, Panel reverse current, Inductive load protection Further Protections: Battery overvoltage: 1.5.V Cell undervoltage: 10.5V Cell undervoltage: 10.5V Cell undervolta	Charge voltage	Lead Acid Battery 12V	, , ,	LFP (LI-FE-PO4) Battery
Boost Charge: 14.4V (2h, activation @ battery voltage: 12.3V) Equalization Charge: 15.0 (2h, activation @ battery voltage < 12.1V) Temperature compensation: -18mV/K (All values @ 25°C for 12V System) Bosed on battery status a. Fix Voltage: 111V b. Fix Voltage: 11.5V c. SOC (11.5 Vo 11.75V) d. SOC (11.5 Vo 11.75V) e. Load reconnect level: 12.8V f. PAYG USB Charger USB-A socket, 5V/1.5A Battery Management System Connections: Battery: two pin Power Plug Panel, Load +/-: Screw terminal for Ring lug Protections: Load overcurrent, load short circuit, Burst/Surge (Varistor), Overtemperature, Panel revers polarity, Panel reverse current, Inductive load protection Further Protections: Battery undervoltage: 15.5V Datalogger 1-year datalogger: 28-day data sets + 12-Month datasets Grounding: Positive grounding Positive grounding Positive grounding Positive grounding PAYG PAYG SHORT SOC, Battery Voltage PAYG PAYG Symbol, number of days to use, Error codes, warnings SCC 4 battery bar, SOC, Battery Voltage 4 battery bar, SOC, Battery lotage 4 battery bar, SOC, Battery Voltage 4 battery bar, SOC, Battery lotage 4 battery bar, SOC, Battery ovlotage 4 battery bar, SOC, Battery lotage 4 battery bar, SOC, Battery lotage 4 battery bar, SOC, Battery Voltage 4 battery bar, SOC, Battery oltage 4 battery bar, SOC, Battery Voltage 4 battery bar, SOC, Battery Voltage 4 battery bar, SOC, Battery Voltage 4 battery bar, SOC, Battery Voltage 4 battery bar, SOC, Battery Voltage 4 battery bar, SOC, Battery Voltage 4 battery bar, SOC, Battery Voltage 4 battery bar, SOC, Battery Voltage	settings:	_		12.8V:
battery voltage <12.3V) • Equalization Charge: 15.0 (2h, activation © battery voltage <12.1V) • Temperature compensation: 18mV/K (All values @ 25°C for 12V System) Load Control based on battery status a. Fix Voltage: 11.5V b. Fix Voltage: 11.5V c. SOC (111.5V to 11.75V) e. Load reconnect level: 12.8V f. PAYG USB-A socket, 5V/1.5A LFP-BMS Battery Management System Connections: Battery: two pin Power Plug Panel, Load +/-: Screw terminal for Ring lug Connections: Battery: two pin Power Plug Panel, Load +/-: Screw terminal for Ring lug Protections: Load overcurrent, load short circuit, Burst/Surge (Varistor), Overtemperature, Panel revers polarity, Panel reverse current, Inductive load protection Further Protections: Battery undervoltage: 10.5V Battery overvoltage: 15.5V Datalogger 1-year datalogger: 28-day data sets + 12-Month datasets Grounding: Positive grounding Ambient Temperature: PAYG PAYG PAYG PAYG PAYG PAYG PAYG PAYG PAYG PAYG Symbol, number of days to use, Error codes, warnings Furror destages, and number of days to use, Error codes, warnings Voca not >4 battery bar, SOC, Battery Voltage 4 battery bar, SOC, Battery condended to the code on battery status a. Fix Voltage: 11V b. Load oreconnect level: 1.2.8V c. PAYG Dased on battery status a. Fix Voltage: 11V b. Load reconnect level: 1.2.8V c. PAYG c. PAYG Dased on battery status a. Fix Voltage: 11V b. Load reconnect level: 1.2.8V c. PAYG c. PAYG c. PAYG Dased on battery status a. Fix Voltage: 11V b. Load oreconnect level: 1.2.8V c. PAYG c. PAYG Dased on battery status a. Fix Voltage: 11V b. Load ocennect level: 1.2.8V c. PAYG c. PAYG Dased on battery status a. Fix Voltage: 11V b. Load ocennect level: 1.2.8V c. PAYG c. PAYG Dased on battery status a. Fix Voltage: 11V b. Load overcurent, load short circuit, gurstyle very scent failure conditions disappea Battery: two pin Power Pl			End of Charge Voltage: 14.0V	End of Charge Voltage:
■ Equalization Charge: 15.0 (2h, activation @ battery voltage < 12.1V) ■ Temperature compensation: -18mV/K (All values @ 25°C for 12V System) □ Dased on battery status a. Fix Voltage: 11V b. Fix Voltage: 11V b. Fix Voltage: 11V b. Fix Voltage: 11SV c. SOC (11V to 11.75V) d. SOC (11V to 11.75V) d. SOC (11V to 11.9V) e. Load reconnect level: 12.8V f. PAYG USB Charger USB-A Socket, 5V/1.5A USB-A socket, 5V/1.5A USB-A socket, 5V/1.5A USB-A socket, 5V/1.5A LIFP-BMS n. a. Battery Management System Connections: Battery: two pin Power Plug Panel, Load +/-: Screw terminal for Ring lug Current, Inductive load protection Usure, Panel revers polarity, Panel revers current, Inductive load protection Further Protections: Battery undervoltage: 15.5V Battery overvoltage: 15.5V Cell overvoltage: 15.5V Battery overvoltage: 15.5V Battery overvoltage: 15.5V Cell overvoltag				3.55V/cell
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LFP-BMS Battery Management System Connections: Battery: two pin Power Plug Panel, Load +/-: Screw terminal for Ring lug Protections: Load overcurrent, load short circuit, Burst/Surge (Varistor), Overtemperature, Panel revers polarity, Panel reverse current, Inductive load protection Further Protections: Battery undervoltage: 10.5V Battery overvoltage: 15.5V Datalogger 1-year datalogger: 28-day data sets + 12-Month datasets Grounding: Ambient Temperature: Pasing: Protections: Load overcurrent, load short circuit, Burst/Surge (Varistor), Overtemperature, Panel reverse current, Inductive load protection Battery undervoltage: 10.5V Battery overvoltage: 15.5V Datalogger 1-year datalogger: 28-day data sets + 12-Month datasets Positive grounding Ambient Temperature: -25 to +50°C 1P Rating: 1P22 Self-consumption: Single cell monitoring, sing controlling, Sattery temper controlling, Charge and disprotect switch, auto restarfallure conditions disappea Battery: two pin Power Plug and Panel, Load +/-: Screw terminal for Ring lug Controlling, Charge and disprotect switch, auto restarfallure conditions disappea Battery: two pin Power Plug and Panel, Load +/-: Screw terminal for Ring lug Controlling Battery: two pin Power Plug and Panel, Load +/-: Screw terminal for Ring lug Controlling Battery: two pin Power Plug and Panel, Load +/-: Screw terminal for Ring lug Circuit, Burst/Surge (Varistor), Overtemperature, Panel reverse current, Inductive load short circuit, Burst/Surge (Varistor), Overtemperature, Panel reverse current, Inductive load protection Battery undervoltage: 10.5V Battery overvoltage: 15.5V Battery overvoltage: 15.5V Cell overvoltage: 15.5V Cell overvoltage: 15.5V Cell overvoltage: 15.5V Sets + 12-Month datasets Sets + 12-Month		f. PAYG		
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System System Connections: Battery: two pin Power Plug Panel, Load +/-: Screw terminal for Ring lug Protections: Load overcurrent, load short circuit, Burst/Surge (Varistor), Overtemperature, Panel revers polarity, Panel reverse current, Inductive load protection Further Protections: Battery undervoltage: 10.5V Battery undervoltage: 10.5V Battery overvoltage: 15.5V Datalogger 1-year datalogger: 28-day data sets + 12-Month datasets Grounding: Positive grounding Positive grounding Positive grounding Ambient Temperature: -25 to +50°C 1P Rating: 1P22 1P22 1P22 1P22 1P22 1P22 1P22 1P2	LFP-BMS	n.a.	n.a.	Single cell monitoring, single cell
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Panel, Load +/-: Screw terminal for Ring lug Protections: Load overcurrent, load short circuit, Burst/Surge (Varistor), Overtemperature, Panel revers polarity, Panel reverse current, Inductive load protection Further Protections: Battery undervoltage: 10.5V Battery overvoltage: 15.5V Datalogger 1-year datalogger: 28-day data sets + 12-Month datasets Grounding: Ambient Temperature: 1P22 Screw terminal for Ring lug Toud overcurrent, load short circuit, Burst/Surge (Varistor), Overtemperature, Panel reverse current, Inductive load protection Battery undervoltage: 10.5V Battery overvoltage: 15.5V Datalogger 1-year datalogger: 28-day data sets + 12-Month datasets Grounding: Positive grounding Positive grounding Positive grounding Ambient Temperature: 1P22 Self-consumption: Formal Panel, Load +/-: Screw terminal for Ring lug Code vervetrent, load short circuit, Burst/Surge (Varistor), Overtemperature, Panel reverse current, Inductive load protection Inductive load protection Display: Cell undervoltage: 10.5V Battery overvoltage: 15.5V Cell ove	Connections:	Battery: two pin Power Plug	Battery: two pin Power Plug and	Battery: two pin Power Plug and
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Further Protections: Battery undervoltage: 10.5V Battery overvoltage: 15.5V Battery overvoltage: 15.5V Battery overvoltage: 15.5V Datalogger 1-year datalogger: 28-day data sets + 12-Month datasets Grounding: Positive grounding Ambient Temperature: 1-year datalogger: 25 to +50°C 1P Rating: IP22 Self-consumption: Formal Description Solution of days to use, Error codes, warnings PAYG symbol, number of days to use, Error codes, warnings Battery undervoltage: 10.5V Cell undervoltage: 10.5V Cell undervoltage: 15.5V Cell undervoltage: 15.5V Cell undervoltage: 15.5V Cell undervoltage: 10.5V Cell overvoltage: 15.5V Cell overvoltage: 15.5				polarity, Panel reverse current,
Battery overvoltage: 15.5V Datalogger 1-year datalogger: 28-day data sets + 12-Month datasets Grounding: Positive grounding Ambient Temperature: Pating: Peff-consumption: Paring:		· · · · · · · · · · · · · · · · · · ·		Inductive load protection
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Load output Lamp symbol Lamp symbol Lamp symbol	Load outnut	Lamn symbol	Lamp symbol	
Charging: Sun Symbol Sun Symbol Sun Symbol	·		· · · · · · · · · · · · · · · · · · ·	· · ·
		*	· ·	Overcurrent, Overtemperature,
codes Error codes Error codes	Little indusages	·	1	1
Dimensions (WxHxD) 188*188*35mm 188*188*35mm 188*188*35mm	Dimensions (WxHvD)		I .	I .
Assembly type: Front panel Front panel Front panel	, ,			
		· · · · · · · · · · · · · · · · · · ·		UART Interface: USB/UART
	Incorace.			converter (option) for PC
				communication (configuration,
data read out) data read out)				· ·
Pay as you Go yes yes yes	Pay as you Go	yes	yes	yes

Datasheet: DATASHEET-FPC-KP-PB-LFP-2021-02-18B.DOCX Subject to change without notice, misprints excluded

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