



# FLEXmax™

Continuous Maximum Power Point Tracking Charge Controllers

- Increases PV Array Output by up to 30%
- Advanced Continuous Maximum Power Point Tracking
- Full Power Output in Ambient Temperatures up to 104°F (40°C)
- Battery Voltages from 12 VDC to 60 VDC
- Fully OutBack Network Integrated and Programmable
- Programmable Auxiliary Control Output
- Built-in 128 days of Data Logging
- Standard 5 Year Warranty



The FLEXmax family of charge controllers is the latest innovation in Maximum Power Point Tracking (MPPT) charge controllers from OutBack Power. The innovative FLEXmax MPPT software algorithm is both continuous and active, increasing your photovoltaic array power yield up to 30% compared to non-MPPT controllers. Thanks to active cooling and intelligent thermal management cooling, both FLEXmax charge controllers can operate at their full maximum current rating, 60 Amps or 80 Amps respectively, in ambient temperatures as high as 104°F (40°C).

Included in all of the FLEXmax Charge Controllers are the revolutionary features first developed by OutBack Power, including support for a wide range of nominal battery

voltages and the ability to step-down a higher voltage solar array to recharge a lower voltage battery bank. A built-in, backlit 80 character display shows the current status and logged system performance data for the last 128 days at the touch of a button. The integrated OutBack Power network communications allows FLEXmax series Charge Controllers to be remotely programmed and monitored via a MATE system display and provides unrivaled complete system integration.

FLEXmax MPPT Charge Controllers are the only choice when you demand a high performance, efficient and versatile charge controller for your advanced power system.

**OutBack**  
**POWER™**  
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## FLEXmax™ Specifications

	FLEXmax 80 - FM80-150VDC		FLEXmax 60 - FM60-150VDC	
Nominal Battery Voltages	12, 24, 36, 48, or 60 VDC (Single model - selectable via field programming at start-up)		12, 24, 36, 48, or 60 VDC (Single model - selectable via field programming at start-up)	
Maximum Output Current	80 amps @ 104° F (40°C) with adjustable current limit		60 amps @ 104° F (40°C) with adjustable current limit	
Maximum Solar Array STC Nameplate	12 VDC systems 1250 Watts / 24 VDC systems 2500 Watts / 48 VDC systems 5000 Watts / 60 VDC Systems 6250 Watts		12 VDC systems 900 Watts / 24 VDC systems 1800 Watts / 48 VDC systems 3600 Watts / 60 VDC Systems 4500 Watts	
NEC Recommended Solar Array STC Nameplate	12 VDC systems 1000 Watts / 24 VDC systems 2000 Watts / 48 VDC systems 4000 Watts / 60 VDC Systems 5000 Watts		12 VDC systems 750 Watts / 24 VDC systems 1500 Watts / 48 VDC systems 3000 Watts / 60 VDC Systems 3750 Watts	
PV Open Circuit Voltage (VOC)	150 VDC absolute maximum coldest conditions / 145 VDC start-up and operating maximum		150 VDC absolute maximum coldest conditions / 145 VDC start-up and operating maximum	
Standby Power Consumption	Less than 1 Watt typical		Less than 1 Watt typical	
Power Conversion Efficiency	97.5% @ 80 Amps in a 48 VDC System - Typical		98.1% @ 60 Amps in at 48 VDC System voltage - Typical	
Charging Regulation	Five Stages: Bulk, Absorption, Float, Silent and Equalization		Five Stages: Bulk, Absorption, Float, Silent and Equalization	
Voltage Regulation Set points	10 to 60 VDC user adjustable with password protection		10 to 60 VDC user adjustable with password protection	
Equalization Charging	Programmable Voltage Setpoint and Duration - Automatic Termination when completed		Programmable Voltage Setpoint and Duration - Automatic Termination when completed	
Battery Temperature Compensation	Automatic with optional RTS installed / 5.0 mV per °C per 2V battery cell		Automatic with optional RTS installed / 5.0 mV per °C per 2V battery cell	
Voltage Step-Down Capability	Can charge a lower voltage battery from a higher voltage PV array - Max 150 VDC input		Can charge a lower voltage battery from a higher voltage PV array - Max 150 VDC input	
Programmable Auxiliary Control Output	12 VDC output signal which can be programmed for different control applications (Maximum of 0.2 amps DC)		12 VDC output signal which can be programmed for different control applications (Maximum of 0.2 amps DC)	
Status Display	3.1" (8 cm) backlit LCD screen - 4 lines with 80 alphanumeric characters total		3.1" (8 cm) backlit LCD screen - 4 lines with 80 alphanumeric characters total	
Remote Display and Controller	Optional Mate or Mate2 with RS232 Serial Communications Port		Optional Mate or Mate2 with RS232 Serial Communications Port	
Network Cabeling	Proprietary network system using RJ 45 Modular Connectors with CAT 5e Cable (8 wires)		Proprietary network system using RJ 45 Modular Connectors with CAT 5e Cable (8 wires)	
Data Logging	Last 128 days of Operation - Amp Hours, Watt Hours, Time in Float, Peak Watts, Amps, Solar Array Voltage, Max Battery Voltage Min Battery Voltage and Absorb for each day along with total Accumulated Amp Hours, and kW Hours of production		Last 128 days of Operation - Amp Hours, Watt Hours, Time in Float, Peak Watts, Amps, Solar Array Voltage, Max Battery Voltage Min Battery Voltage and Absorb for each day along with total Accumulated Amp Hours, and kW Hours of production	
Hydro Turbine Applications	Consult factory for approved Turbines		Consult factory for approved Turbines	
Positive Ground Applications	Requires two Pole Breakers for switching both positive and Negative Conductors on both Solar Array and Battery Connections (HUB 4 and HUB 10 can not be used in positive ground applications)		Requires two Pole Breakers for switching both positive and Negative Conductors on both Solar Array and Battery Connections (HUB 4 and HUB 10 can not be used in positive ground applications)	
Operating Temperature Range	Minimum -40° to maximum 60° C (Power capacity of the controller is automatically derated when operated above 40° C)		Minimum -40° to maximum 60° C (Power capacity of the controller is automatically derated when operated above 40° C)	
Environmental Rating	Indoor Type 1		Indoor Type 1	
Conduit Knockouts	One 1" (35mm) on the back; One 1" (35mm) on the left side; Two 1" (35mm) on the bottom		One 1" (35mm) on the back; One 1" (35mm) on the left side; Two 1" (35mm) on the bottom	
Warranty	Standard 5 year / Available 10 Year		Standard 5 year / Available 10 Year	
Weight	Unit	12.20 lbs (5.56 kg)	11.65 lbs (5.3 kg)	
	Shipping	15.50 lbs (7.03 kg)	14.90 lbs (6.7 kg)	
Dimensions (H x W x D)	Unit	16.25" x 5.75" x 4.5" (41.3 x 14 x 10 cm)	13.75 x 5.75 x 4.5" (40 x 14 x 10 cm)	
	Shipping	21" x 10.5" x 10.5" (53 x 27 x 27 cm)	18 x 11 x 8" (46 x 30 x 20 cm)	
Options	Remote Temperature Sensor (RTS), HUB 4, HUB 10, MATE, MATE 2		Remote Temperature Sensor (RTS), HUB 4, HUB 10, MATE, MATE 2	
Menu Languages	English & Spanish		English & Spanish	
Certifications	ETL Listed to UL1741, CSA C22.2 No. 107.1		ETL Listed to UL1741, CSA C22.2 No. 107.1	