

Arraygate LB Series Solar Charge Controller

12, 24, 36, 48 VDC
100 - 500 Amps

ERAM
POWER ELECTRONICS



Industrial Loads
(Motors, CNC, PLC, DCS, Laser
Cutting Machine and Pumps)



Utilities
(Sub-Station, Generation Application)



Mining & Refineries
(Transmission & Distribution)



Oil & Gas
(Onshore & Offshore facilities)

- Charging high current capacity battery banks of voltages up to 125VDC / 0-500 A
- Hybrid solar system uses multiple energy sources to provide full time backup supply to other sources.
- Industrial systems use PV module for Constant DC distribution.
- Charger for UPS battery banks.
- EV charging solutions for single and charging bays.

Technology has taken its space to realise the disruptive innovation, Eram's energy efficient and reliable LB Series solar charge controller offers using Wide Band Gap semiconductor-based design for critical applications at harsh operating conditions.

LB Series charge controller has the capability to parallel seamlessly for higher capacity. The digital transformation ensures world's most reliable external communication that can be used to monitor and control the charge controllers remotely. A high-speed CAN / Modbus enhance the console operations while USB has been configured as host to retrieve the past events.

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KEY DESIGN FEATURES

LB Series solar charge controller power solutions are built with latest Wide Band Gap Silicon Carbide semiconductors, a highly desirable semiconductor material applied under the case of high-power, high-temperature, high-frequency, anti-radiation environment.

The system controller has an ability to operate at higher frequencies lowers ripple voltage and current, which equates to lower conduction and magnetic-core losses, and a potential reduction in the size of inductive and capacitive components.

A high-speed digital processor along with wide band semiconductors offers the most intelligent power conversion platform that can communicate with the external world using CAN, Modbus, Ethernet, RS-232. A user-friendly system interface enables the customer to track the real time processing data that can be stored and retrieved on the need basis.

The key highlights are high power density, lower electromagnetic emission, packaged for natural cooled and harsh operating environments. giving out the best industry performances.

Electrical Specification				
Parameters	Value			
Input - VDC PVoc (open circuit voltage)	40-100	80-150	80-150	160-240
Output Voltage - VDC	12	24	48	120
Battery Voltage- VDC	12	24	48	120
Over Voltage Disconnect	Max VDC +10%			
Rated Output Power	100A Can be parallel up to 5 modules			
Battery Current Setting	1-100A Range per module			
Type of Battery	Lead Acid, Ni-CD, Lithium			
Protections	Short Circuit, Reverse polarity, Overload, Low Battery, High DC, Over Temp			
Peak conversion efficiency	>98			
Enclosure	Indoor/Outdoor			
Operating Temperature	-40°to 65°			
E nvironmental Rating	IP21, IP65			
Parameters	Solar Panel	Battery	Load	
Reverse Polarity	Yes	Yes	NA	
S hort Circuit	Yes	Yes	Yes	
Over Current	Yes	Yes	Yes	
Over Voltage	Yes	Yes	Yes	
Under Voltage	Yes	Yes	Yes	
Over Temperature	NA	Yes	Yes	
Impedance Measurement	NA	Yes	NA	
Surge Protection	NA	NA	Yes	
Lightening	NA	Yes	Yes	
Boost Voltage / Output Load Voltage	NA			

USER INTERFACE

Display/ Indications/ External World Connectivity				External Connectivity & Communication Protocol	
Parameter	Display/ LED Status	Remarks	Remarks - 1	Connectivity Protocol: ▶ RS232 / RS485 ▶ Modbus ▶ CAN Communication ▶ USB	
Solar power up / charging /battery discharging	On	Status to understand the healthy availability of solar power			
Battery charging	On	Status to read battery is under charging		 	
Charge control faulty	On	Controller status			
Battery full charge	On	Battery charged status >95%			
Battery run time	Display at front panel				
Battery temp compensation	On	Temp compensation is active			
Display	Active / Optional	Scrolling display 16x2 or 16x4 character		Potential free Signals for Alarms & Indications	
Communication Protocol	RS232 / RS485 / Modbus / Ethernet / Mobile / CAN	Extended communication protocol to enhance UI also to the service engineer	Isolated CAN. UI interface for all trips to communicate, consolidated trip signal		
Data Storage	Available	To download past 100 days status	Real time	Front Panel Display	
Metering / Alarm / Potential-free contacts to external world				20*4 Character LCD Display	
Parameter	IO's/Alarms	Remarks	Remarks-1	Function Keys: Δ-Increment / -Decrement / M- Mode Change.	
Dry Contacts / Potential free contact	Yes	5 Dry contacts - Configurable	The list can be worked out based on the customer need / priorities		
External Signal- Analog / Digital inputs (Ios configurable)	Yes	Battery Disconnect breaker status, Load CB status, Electrolyte level etc.	5 number of IO's available to configure		
Cl.6.7 of SAESP128	Yes	Provided	As per the required standards		
Cl.6.9 of SAESP128	Yes	Provided			
Boost Charging / Low Battery Voltage / Load CB open	Yes	Status LED-on	Front panel indications		
Alarm List	Yes	1. Battery low voltage alarm 2. Battery CB open alarm 3. Load CB open alarm 4. Common alarm	Hooter on the panel / Extended consolidated alarm		
Mechanical					
Parameter	Charge Controller		Input PDU	Output PDU	
Dimension H*W*D (in mm)	800*600*350		800*600*350	800*600*350	
Weight (in Kg)	75		45	72	
Material Type (Classic)	Stainless Steel		Stainless Steel	Stainless Steel	
Material Class	S S 316		S S 316	S S 316	

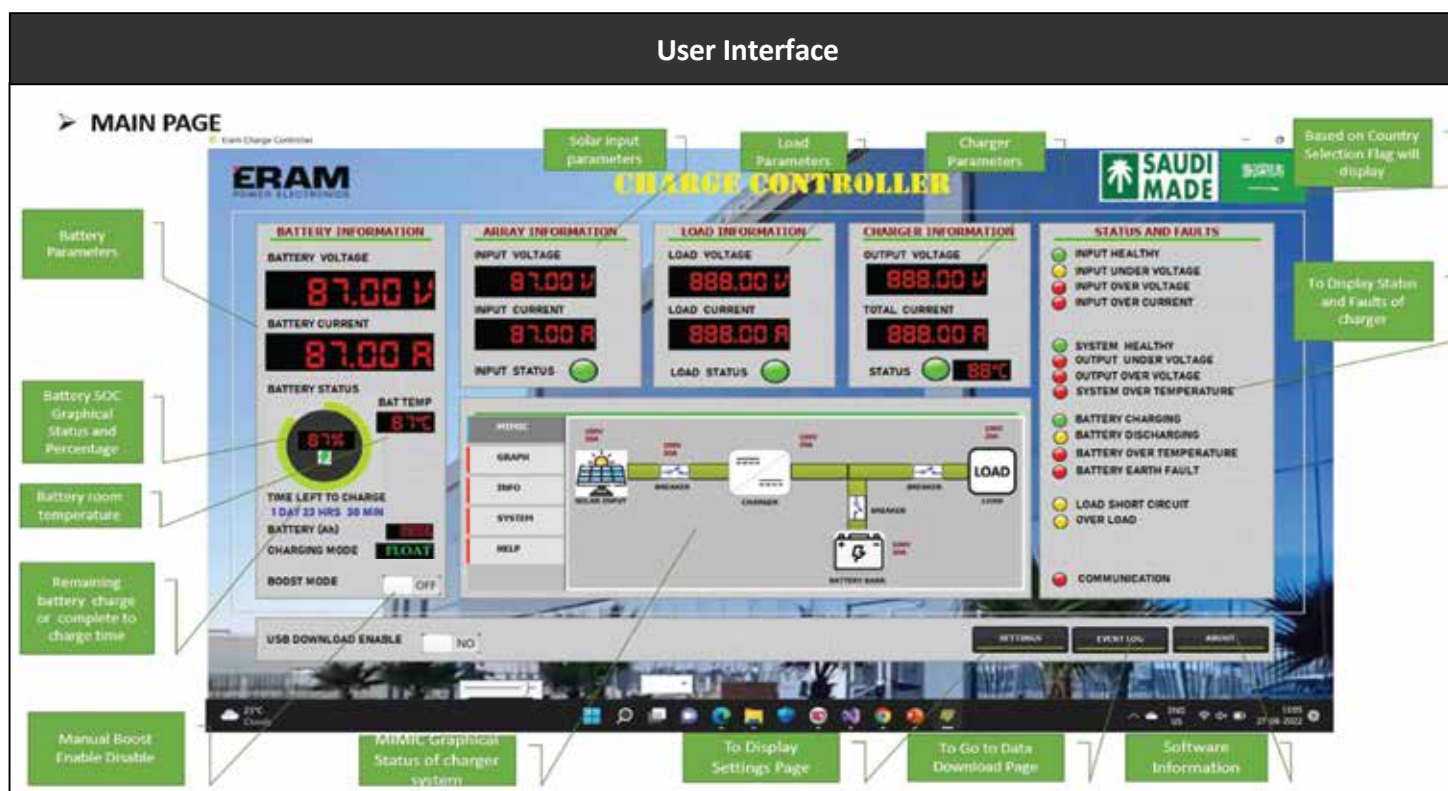
KEY DESIGN FEATURES

LB Series active charge controllers are built with Silicon Carbide (SiC) semiconductors to have greater efficiency and reliability for the rugged environments. It delivers power from the PV arrays to the system loads and the battery bank. When the battery bank is charged its full capable voltage, the controller will taper off the charging current to maintain the required voltage to fully charge the battery and keep it topped off. It regulates the voltage irrespective of solar panel's voltage variation to keep the battery bank voltage as required for all varieties of chemical combination and compositions. Eram's charger is capable of charging LI-ion, NI-cd, Lead acid and VRLA's.

Applications: The process of generating an electricity from sunlight is having more popularity than other alternative sources

- ▶ Charging high current capacity battery banks of voltages up to 125VDC / 0-500 A
- ▶ Hybrid solar system uses multiple energy sources to provide full time backup supply to other sources.
- ▶ Industrial systems use PV module for Constant DC distribution.
- ▶ Charger for UPS battery banks.
- ▶ EV charging solutions for single and charging bays.

User Interface

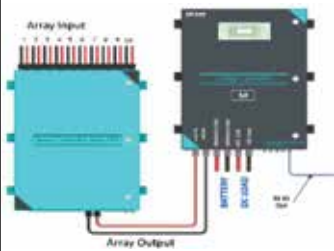


The User interface has loaded with innovative features that can be used to fruitage the real time data and the graphical representation of battery Charge- Discharge cycles, record of time stamped based critical information's such as input under voltage / output voltage / over current, output over voltage ,battery low voltage , output short circuit, state of charge, system over temperature input battery / load MCB (ON / OFF) status that enables the customer to utilise the Eram's digital platforms/Firmware's for the digital transformations of high-power wide band charge controllers.

Note* We do have options for customising communication protocol, Indications, alarms and display parameters based on customer's requirements

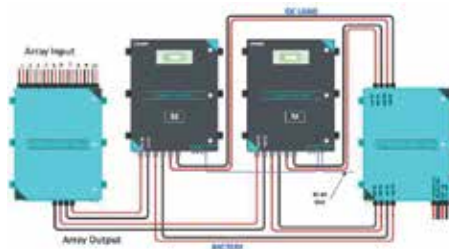
UNIT CONFIGURATIONS

Single unit Capacity: 100A



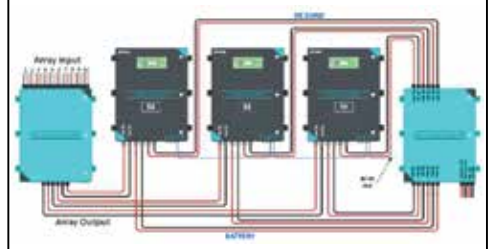
- ▶ PV panel input 50-200 DC
- ▶ Constant output voltage
- ▶ Settable output voltage
- ▶ Settable load / Battery currents
- ▶ 0-100 A (Battery + Load current)
- ▶ Indoor and outdoor installations
- ▶ Operating temperature (-40° to 65°) Deg C

Two units in parallel, Capacity :100x2 A



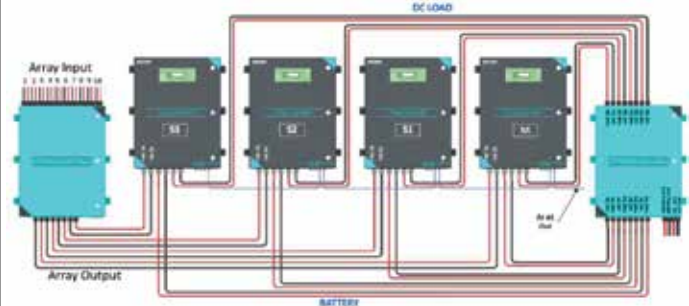
- ▶ PV panel input 50-200 DC
- ▶ Constant output voltage
- ▶ Settable output voltage
- ▶ Settable load / Battery currents
- ▶ 0-200 A (Battery + Load current)
- ▶ Indoor and outdoor installations
- ▶ Operating temperature (-40° to 65°) Deg C

Three units in parallel, Capacity :100x3 A



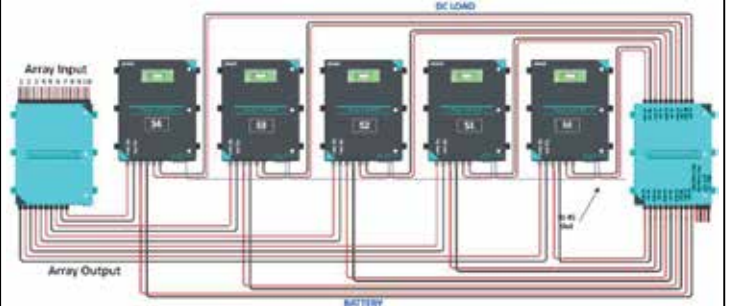
- ▶ PV panel input 50-200 DC
- ▶ Constant output voltage
- ▶ Settable output voltage
- ▶ Settable load / Battery currents
- ▶ 0-300 A (Battery + Load current)
- ▶ Indoor and outdoor installations
- ▶ Operating temperature (-40° to 65°) Deg C

Four units in parallel, Capacity :100x4 A



- ▶ PV Panel Input 50-200 DC
- ▶ Constant Output voltage
- ▶ Settable Output voltage
- ▶ Settable load / Battery currents
- ▶ 0-400 A (Battery + Load current)
- ▶ Indoor and outdoor installations
- ▶ Operating temperature (-40° to 65°) Deg C

Five units in parallel, Capacity :100x5 A



- ▶ PV panel input 50-200 DC
- ▶ Constant output voltage
- ▶ Settable output voltage
- ▶ Settable load / Battery currents
- ▶ 0-500 A (Battery + Load current)
- ▶ Indoor and outdoor installations
- ▶ Operating temperature (-40° to 65°) Deg C