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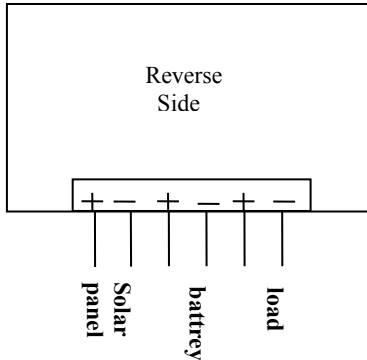
**LC-E /EU series Solar Intelligent Charging Controller
Operation instruction manual**

I. Main features

1. Identify 12V/24V system voltage automatically.
2. LED indicates the working status of battery and load.
3. Double USB output charging for various electronic products. Max load current reach up to 1.2A.
4. Adopting advanced ternary form charging algorithm, equalizing charge for battery once a week to prevent battery from imbalance and vulcanization effectively so that the battery service life will be extended.
5. Manual control for the load.
6. External temperature sensor can realize high-precision temperature compensation
7. Various protections: Over charging protection, over discharging protection, over load, short circuit protection, reverse polarity protection, TVS lightning protection

II. Installation and wiring

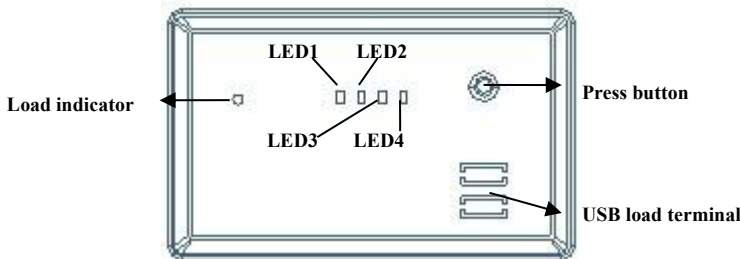
1. 12V or 24V voltage worked, the storage battery connected first, controller will work after recognize the battery volt automatically. If 12 V system, "12" showed on LCD screen. If 24V system, "24." showed on LCD screen
2. Connecting the solar panel: if connection is right, indicator of solar panel will twinkle. If no, please check the connection.
3. Connecting the load: connect the load wire to the controller's load output terminal. Ensure the load current no exceed rate current.
Wiring diagram is as follows:



III. Suggestions for use

1. When the battery over discharged, red LED1 indicator will lighten, please cut off the USB load. Otherwise the USB only supply the emergency charging and it is bad for the battery.
2. Controller will fever during working. Therefore, it is suggested to install it in a ventilated environment.
3. Temperature compensation function needs to test the ambient temperature. Therefore, please place the storage battery and the controller in the same environment.
4. Choosing the cable with enough capacities for connection to avoid excessive loss on circuit which may cause the controller wrong judgment.
5. Common anode designed. If grounding, please use the anode.

IV. Status indications



LED indicator	Indications	Status	Functions
	battery indication (four pcs LED light)	Green indicator light	Green LED1 lighten means battery capacity ≤25%
		Long-term Ont (Indicate the battery working normally)	Green LED1 and LED2 lighten means battery capacity ≤50%
			Green LED1 ,LED2,LED3 lighten means battery capacity ≤75%
			Green LED1,LED2,LED3,LED4 lighten means battery capacity ≤100%

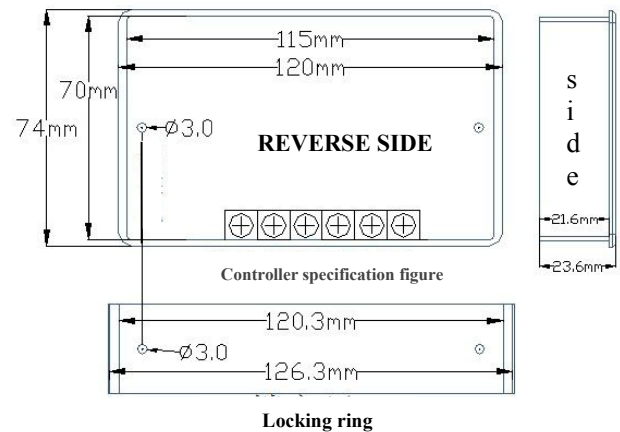
		Green indicator long-term on and twinkling	Twinkling means be in charging. long-term on indicate the battery balance energy.
		Only LED4 indicator twinkling, others off	Battery over voltage
		Red LED1 indicator long-term on then twinkling	Battery over-discharged , cut-off the load automatically
	load indication	Long-term On	Load open
		Long-term Off	Load close
		Slow twinkling	Over-load protection
		Fast twinkling	Short circuit protection

V. Instructions for parameters

System voltage	12V/24V Auto
System current	10A;20A
No-load loss	< 12mA
Solar energy input voltage	< 55V
Overvoltage protection	17.0V; ×2/24V
Equal charging voltage	14.6V; ×2/24V (25°C) , duration:1h
Ascending charging voltage	14.4V; ×2/24V (25°C) , duration:2h
Float charging voltage	13.8V; ×2/24V (25°C)
Charging recovery voltage	13.2V; ×2/24V (25°C)
over-discharging recovery voltage	12.5V; ×2/24V
Under voltage	12.0V; ×2/24V
Over-discharging voltage	11.1V; ×2/24V
USB load cut-off voltage	10.6V; ×2/24V
Total USB load rated current	1.2A
Temperature compensation	-4.0mv/°C/2V;
Overload and short circuit protection	1.25 times of rated current: 30s; ≥1.5 times of rated current: short circuit protection
Working temperature	-20°Cto +50°C
Protection level	IP30
Weight	140g(10A);170g(20A)
Dimensions	120×74×23.6(mm); (L×W×H)

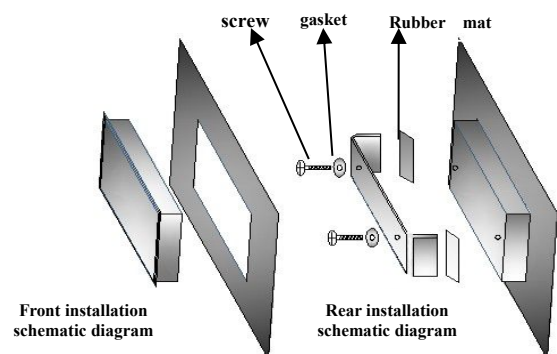
VI. Installation size

1. Installation of controller should be stable and dimensions are as follows:
Overall dimension: 120×74×23.6(mm)
Installation dimension: 115×70(mm)
Installation hole diameter: 3.0(mm)



2. Installation method:

First put the controller into the panel then fix the controller with the locking ring by screw:



VII. Methods for setting

1. After installation, short press the button to turn on or off the load
2. When over load or short circuit, please cut off the load and ensure the load power satisfy the requirement before connecting again. Long press for 2 seconds to remove the load protection.
3. When over voltage or over discharge, load will be cut-off. It will be recovered after the system voltage return to normal.