

LS-B Series Protocol

ModBus Register Address List

V1.1



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Notes :

- (1)The ID of the controller is 1 by default and can be modified by PC software(*Solar Station Monitor*) or remote meter MT50.
- (2)The serial communication parameters: 115200bps baudrate, 8 data bits, 1 stop bit and no parity,no handshaking.
- (3)The register address below is in hexadecimal format.
- (4)For the data with the length of 32 bits, such as power, using the L and H registers represent the low and high 16 bits value,respectively. e.g.The charging input rated power is actually 3000W, multiples of 100 times, then the value of 0x3002 register is 0x93E0 and value of 0x3003 is 0x0004.

Variable name	Address	Description	Unit	Times
Rated data (read only) input register				
Charging equipment rated input voltage	3000	PV array rated voltage	V	100
Charging equipment rated input current	3001	PV array rated current	A	100
Charging equipment rated input power L	3002	PV array rated power (low 16 bits)	W	100
Charging equipment rated input power H	3003	PV array rated power (high 16 bits)	W	100
Charging equipment rated output voltage	3004	Battery's voltage	V	100
Charging equipment rated output current	3005	Rated charging current to battery	A	100
Charging equipment rated output power	3006	Rated charging power to battery	W	100
Charging equipment rated output power	3007		W	100
Charging mode	3008	0001H-PWM		
Rated output current of load	300E		A	100

Variable name	Address	Description	Unit	Times
Real-time data (read only) input register				
Charging equipment input voltage	3100	Solar charge controller--PV array voltage	V	100
Charging equipment input current	3101	Solar charge controller--PV array current	A	100
Charging equipment input power L	3102	Solar charge controller--PV array power	W	100
Charging equipment input power H	3103		W	100
Charging equipment output voltage	3104	Battery voltage	V	100
Charging equipment output current	3105	Battery charging current	A	100

Variable name	Address	Description	Unit	Times
Charging equipment output power L	3106	Battery charging power	W	100
Charging equipment output power H	3107		W	100
Discharging equipment output voltage	310C	Load voltage	V	100
Discharging equipment output current	310D	Load current	A	100
Discharging equipment output power	310E	Load power	W	100
Discharging equipment output power	310F		W	100
Battery Temperature	3110	Battery Temperature	degree Celsius	100
Temperature inside equipment	3111	Temperature inside case	degree Celsius	100
Power components temperature	3112	Heat sink surface temperature of equipments' power components	degree Celsius	100
Battery SOC	311A	The percentage of battery's remaining capacity		100
Remote battery temperature	311B	The battery tempeture measured by remote temperature sensor	degree Celsius	100
Battery's real rated power	311D	Current system rated votlage. 1200, 2400 represent 12V, 24V	V	100

Variable name	Address	Description	Unit	Times
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Real-time status (read-only) input register

Battery status	3200	D3-D0: 01H Overvolt , 00H Normal , 02H Under Volt, 03H Low Volt Disconnect, 04H Fault D7-D4: 00H Normal, 01H Over Temp.(Higher than the warning settings), 02H Low Temp.(Lower than the warning settings), D8: Battery inerternal resistance abnormal 1, normal 0 D15: 1-Wrong identification for rated voltage		
Charing equipment status	3201	D15-D14: Input volt status. 00 normal, 01 no power connected, 02H Higher volt input, 03H Input volt error. D13: Charging MOSFET is short. D12: Charging or Anti-reverse MOSFET is short. D11: Anti-reverse MOSFET is short. D10: Input is over current. D9: The load is Over current. D8: The load is short. D7: Load MOSFET is short. D4: PV Input is short. D3-2: Charging status. 00 No charging,01 Float,02 Boost,03 Equulization. D1: 0 Normal, 1 Fault. D0: 1 Running, 0 Standby.		

Variable name	Address	Description	Unit	Times
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Statistical parameter (read only) input register

Variable name	Address	Description	Unit	Times
Maximum input volt (PV) today	3300	00: 00 Refresh every day	V	100
Minimum input volt (PV) today	3301	00: 00 Refresh every day	V	100
Maximum battery volt today	3302	00: 00 Refresh every day	V	100
Minimum battery volt today	3303	00: 00 Refresh every day	V	100
Consumed energy today L	3304	00: 00 Clear every day	KWH	100
Consumed energy today H	3305			100
Consumed energy this month L	3306	00: 00 Clear on the first day of month		100
Consumed energy this month H	3307		KWH	100
Consumed energy this year L	3308	00: 00 Clear on 1, Jan.		100
Consumed energy this year H	3309			100
Total consumed energy L	330A			100
Total consumed energy H	330B		KWH	100
Generated energy today L	330C	00: 00 Clear every day.		100
Generated energy today H	330D			100
Generated energy this month L	330E	00: 00 Clear on the first day of month.		100
Generated energy this month H	330F		KWH	100
Generated energy this year L	3310	00: 00 Clear on 1, Jan.		100
Generated energy this year H	3311		KWH	100
Total generated energy L	3312		KWH	100
Total Generated energy H	3313			100
Carbon dioxide reduction L	3314	Saving 1 Kilowatt=Reduction 0.997KG"Carbon dioxide "=Reduction 0.272KG"Carton"	Ton	100
Carbon dioxide reduction H	3315			100
Battery Current L	331B	The net battery current,charging current minus the discharging one. The positive value represents charging and negative, discharging.	A	100
Battery Current H	331C			100
Battery Temp.	331D	Battery Temp.	degree Celsius	100
Ambient Temp.	331E	Ambient Temp.	degree Celsius	100

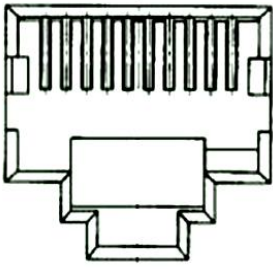
Variable name	Address	Description	Unit	Times
Setting Parameter (read-write) holding register				
Battery Type	9000	0001H- Sealed , 0002H- GEL, 0003H- Flooded 0000H- User defined		
Battery Capacity	9001	Rated capacity of the battery	AH	
Temperature compensation coefficient	9002	Range 0-9	mV/°C/2V	100
High Volt.disconnect	9003		V	100
Charging limit voltage	9004		V	100
Over voltage reconnect	9005		V	100
Equalization voltage	9006		V	100
Boost voltage	9007		V	100
Float voltage	9008		V	100
Boost reconnect voltage	9009		V	100

Variable name	Address	Description	Unit	Times
Low voltage reconnect	900A		V	100
Under voltage recover	900B		V	100
Under voltage warning	900C		V	100
Low voltage disconnect	900D		V	100
Discharging limit voltage	900E		V	100
Real time clock	9013	D7-0 Sec, D15-8 Min.(Year,Month,Day,Min,Sec.should be writed simultaneously)		
Real time clock	9014	D7-0 Hour, D15-8 Day		
Real time clock	9015	D7-0 Month, D15-8 Year		
Equalization charging cycle	9016	Interval days of auto equalization charging in cycle	Day	
Battery temperature warning upper limit	9017		degree Celsius	100
Battery temperature warning lower limit	9018		degree Celsius	100
Controller inner temperature upper limit	9019		degree Celsius	100
Controller inner temperature upper limit recover	901A	After Over Temperature, system recover once it drop to lower than this value	degree Celsius	100
Power component temperature upper limit	901B	Warning when surface temperature of power components higher than this value, and charging and discharging stop	degree Celsius	100
Power component temperature upper limit recover	901C	Recover once power components temperature lower than this value	degree Celsius	100
Line Impedance	901D	The resistance of the connectted wires.	milliohm	100
Night TimeThreshold Volt.(NTTV)	901E	PV lower lower than this value, controller would detect it as sundown	V	100
Light signal startup (night) delay time	901F	PV voltage lower than NTTV, and duration exceeds the Light signal startup (night) delay time, controller would detect it as night time.	Min.	
Day Time Threshold Volt.(DTTV)	9020	PV voltage higher than this value, controller would detect it as sunrise	V	100
Light signal turn off(day) delay time	9021	PV voltage higher than DTTV, and duration exceeds Light signal turn off(day) delay time delay time, controller would detect it as daytime.	Min.	
Load controlling modes	903D	0000H Manual Control 0001H Light ON/OFF 0002H Light ON+ Timer/ 0003H Time Control		
Working time length 1	903E	The length of load output timer1, D15-D8,hour, D7-D0, minute		
Working time length 2	903F	The length of load output timer2, D15-D8, hour, D7-D0, minute		
Turn on timing 1	9042	Turn on/off timing of load output.	second	
	9043		minute	
	9044		hour	
Trun off timing 1	9045		second	
	9046		minute	
	9047		hour	
Turn on timing 2	9048		second	

Variable name	Address	Description	Unit	Times
	9049		minute	
	904A		hour	
Turn off timing 2	904B		second	
	904C		minute	
	904D		hour	
Length of night	9065	Set default values of the whole night length of time. D15-D8, hour, D7-D0, minute		
Battery rated voltage code	9067	0, auto recognize. 1-12V, 2-24V		
Load timing control selection	9069	Selected timing period of the load. 0, using one timer, 1-using two timer, likewise.		
Default Load On/Off in manual mode	906A	0-off, 1-on		
Equalize duration	906B	Usually 60-120 minutes.	minute	
Boost duration	906C	Usually 60-120 minutes.	minute	
Discharging percentage	906D	Usually 20%-80%. The percentage of battery's remaining capacity when stop charging	%	100
Charging percentage	906E	Depth of charge, 20%-100%.	%	100
Management modes of battery charging and discharging	9070	Management modes of battery charge and discharge, voltage compensation : 0 and SOC : 1.		

Variable name	Address	Description		
Coils(read-write)				
Manual control the load	2	When the load is manual mode, 1-manual on 0 -manual off		
Enable load test mode	5	1 Enable 0 Disable(normal)		
Force the load on/off	6	1 Turn on 0 Turn off (used for temporary test of the load)		
Discrete input (read-only)				
Over temperature inside the device	2000	1 The temperature inside the controller is higher than the over-temperature protection point. 0 Normal		
Day/Night	200C	1-Night, 0-Day		

Variable name	Address	Description	Unit	Times
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1, 2, 3, 4, 5, 6, 7, 8

1, 2- No connected

3, 4- RS-485 A

5, 6- RS-485 B

7, 8- Ground

The pins define for the RJ-45 port of LS-B controller. Pin 3 and 4 is the A of RS-485, Pin 5 and 6 is B.

Note:

(1)To improve the communication quality, the ground pins 7 and 8 (connected with the negative terminal of the battery) could be used if necessary. However, the user must care the common ground problem of the connected devices.

(2)User is advised to do not use the pin 1 and pin 2 for the device's safety.