

# BMS-Link Communication Address V1.6

## Note:

1. Lithium battery (BMS) is connected to BMS-Link module communication configuration

(1)Modbus ID: 1 by default (read and write the ID number used in the following tables)

(2)Communication baud rate: 9600 bps by default (baud rate used to read and write the following tables)

(3)Communication data format: 1 bit start bit, 8 bit data bits, no check bit, 1 stop bit

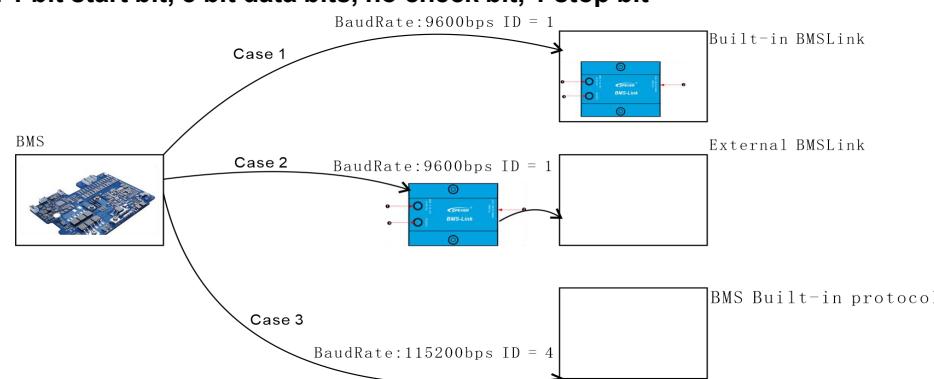
## 2. BMS-Link connection header communication configuration

(1) Modbus ID: 4 by default (read and write the ID number used in the following table)

(2)Communication baud rate: 115200 bps by default (baud rate used to read and write the following tables)

(3)Communication data format: 1 bit start bit, 8 bit data bits, no check bit, 1 stop bit

**Fig. 2 Wiring diagram:**



No.	Variable name	Address	Read/ Write	Description	Unit	Times	Type	Command code	Note
<b>Real-time parameter (Read only) 0x3100-3130</b>									
A0	Cell number	3100	RO	The number of cells in a battery	pcs	1	U16	0x04	
A1	Battery voltage	3101	RO	Lithium battery voltage	V	100	U16	0x04	
A2	Battery current	3102	RO	Total lithium battery current (Charge is positive and discharge is negative)	A	100	int16	0x04	
A3	Battery power L	3103	RO	Battery power=(Battery power H<<16)+Battery power L	W	100	U16	0x04	The power is only positive
A4	Battery power H	3104	RO		W	100	U16	0x04	
A5	Battery full capacity	3105	RO	Battery Full battery When of capacity Value	AH	1	U16	0x04	
A6	Percentage of surplus battery capacity	3106	RO	Percentage of surplus battery capacity	%	1	U16	0x04	

A7	Battery surplus working time	3107	RO	Battery surplus working time, unit: minute	Min	1	U16	0x04	
A8	Maximum cell temperature	3108	RO	The highest temperature of all cells in the battery pack (positive above 0°C, negative below 0°C)	°C	100	int16	0x04	
A9	Minimum cell temperature	3109	RO	The lowest temperature of all cells in the battery pack (positive above 0°C, negative below 0°C)	°C	100	int16	0x04	
A10	Equilibrium temperature	310A	RO	Battery Equilibrium temperature	°C	100	int16	0x04	
A11	Environment temperature	310B	RO	Battery Environment temperature	°C	100	int16	0x04	
A12	MOS temperature	310C	RO	MOS temperature	°C	100	int16	0x04	
A13	Cycle index	310D	RO	Number of battery charging and discharging		1	U16	0x04	
A14	Equilibrium flag	310E	RO	0 Equilibrium disable; 1 Equilibrium enable		1	U16	0x04	
A15	Voltage status	310F	RO	0 Normal; 1 Under Voltage Warning Voltage; 2 Over Voltage Warning Voltage; 0xF1 Under Voltage Protection Voltage; 0xF2 Over Voltage Protection Voltage (The device is discharged after reading the BMS under voltage alarm or protection; the device is turned off for charging after reading the BMS over voltage alarm or protection)		1	U16	0x04	
A16	Current status	3110	RO	0 Normal; 1 Over Discharge Warning Current; 2 Over Charging Warning Current; 0xF1 Over Discharge Protection Current; 0xF2 Over Charging Protection Current (The device is discharged after reading the BMS under voltage alarm or protection; the device is turned off for charging after reading the BMS over voltage alarm or protection)		1	U16	0x04	
A17	MOS status	3111	RO	D0 :1MOSchargingstatus,D1		1	U16	0x04	
A18	Cell temperature status	3112	RO	0 Normal; 1 Low Temperature Warning; 2 Over Temperature Warning; 0xF0 NTF error; 0xF1 Low Temperature Protection; 0xF2 Over Temperature Protection		1	U16	0x04	
A19	Equilibrium temperature	3113	RO			1	U16	0x04	
A20	Environment temperature	3114	RO			1	U16	0x04	
A21	MOS temperature status	3115	RO	(The device is turned off for charge + discharge protection action.)		1	U16	0x04	
A22	Cell 1 status	3116	RO	Value= 0x00 :Cell normal;		1	U16	0x04	
A23	Cell 2 status	3117	RO			1	U16	0x04	
A24	Cell 3 status	3118	RO			1	U16	0x04	
A25	Cell 4 status	3119	RO			1	U16	0x04	

A26	Cell 5 status	311A	RO	Value= 0x01 :Under voltage warning; Value= 0x02 :Over voltage warning; Value= 0xF0 :Cell detection; Value= 0xF1 :Under voltage protection; Value= 0xF2 :Over voltage protection (The device reads the under voltage alarm or protection of the BMS cell and turns off the device for discharge; the device reads the over voltage alarm or protection of the BMS cell and turns off the device for charging;)	1	U16	0x04	
A27	Cell 6 status	311B	RO		1	U16	0x04	
A28	Cell 7 status	311C	RO		1	U16	0x04	
A29	Cell 8 status	311D	RO		1	U16	0x04	
A30	Cell 9 status	311E	RO		1	U16	0x04	
A31	Cell 10 status	311F	RO		1	U16	0x04	
A32	Cell 11 status	3120	RO		1	U16	0x04	
A33	Cell 12 status	3121	RO		1	U16	0x04	
A34	Cell 13 status	3122	RO		1	U16	0x04	
A35	Cell 14 status	3123	RO		1	U16	0x04	
A36	Cell 15 status	3124	RO		1	U16	0x04	
A37	Cell 16 status	3125	RO		1	U16	0x04	
A38	Lithium battery protocol	3126	RO	Lithium battery protocol	1	U16	0x04	
A39	Lithium battery BMS status	3127	RO	D0 :1= Charging protection; D1 :1= Discharging protection. D2 : 1= The communication between BMS Link and the lithium battery BMS is faulty or the communication is not established (such as wrong protocol selection, mismatched communication cable, etc.); D3 :1= (Other protection stop charging and discharging) D4 :1= Charging over temperature, D5 :1= Discharging over temperature, D12:1= Full charge mark bit D13:1= Force charge mark bit D14:0= Enable discharge(1 stop discharge) D15:0= Enable charge1 stop charge)	1	U16	0x04	Note: The "Enable discharge/enable charge"=1 means forbidding discharge/charge.
A40	Added function tags to th	3128	RO	Value = 0 indicates that the battery pack paralleling function is not supported. value = 0xACF1 indicates that the function is supported: Battery pack parallel marking, please consult technical support to use this function	1	U16	0x04	2023.09.05 added
A41	Real-time voltage value of the battery pack	3129	RO	Battery pack voltage, valid range 0~6500.0V	10	U16	0x04	
A42	The real-time current value of the battery pack	312A	RO	Total lithium battery current (Charge is positive and discharge is negative) Range: ± 3276.7 A	10	int16	0x04	

A43	Reserved	312B	RO			1	U16	0x04	
A44	Reserved	312C	RO			1	U16	0x04	
A45	Reserved	312D	RO			1	U16	0x04	
A46	Reserved	312E	RO			1	U16	0x04	
A47	Reserved	312F	RO			1	U16	0x04	
A48	Reserved	3130	RO			1	U16	0x04	

### Setting Parameter (Read&Write) 0x9000-90FF

C0	Under Voltage Warning Voltage	9000	RW	When the battery (group) voltage is lower than the VCtrl_UVW value, it means that the battery power is low and is close to the low voltage disconnect voltage. This voltage(VCtrl_UVW) is called under voltage warning voltage.	V	100	U16	Read0x03Write0x10	
C1	Low Voltage Protection Voltage	9001	RW	To prevent the battery (group) from over-discharging and ensure that it has a certain remaining capacity (usually 10-40%), you should take the 20% of the battery (group) remaining capacity as the low voltage disconnect voltage. When the battery (group) voltage drops to the set value, the controller cuts off the load output. Low voltage disconnect voltage (Battery BMS delay 2S protection, requiring inverter equipment to delay 1S off load)	V	100	U16	Read0x03Write0x10	
C2	Over Voltage Warning Voltage	9002	RW	This voltage is the highest full-charge voltage under any circumstances. At this point, the controller takes the charge limit voltage as the highest target charge voltage. ( controller Charge voltage limit voltage)	V	100	U16	Read0x03Write0x10	
C3	Over Voltage Protection Voltage	9003	RW	When the battery voltage exceeds this value, it will shut down the system charge.	V	100	U16	Read0x03Write0x10	
C4	charging current rated Value	9004	RW	Battery pack allowable discharging rating	A	100	U16	Read0x03Write0x10	
C5	Charging Current Current Limit Current	9005	RW	The allowable charging current limit value of the battery pack is adjusted in real time according to its own charging state	A	100	U16	Read0x03Write0x10	
C6	Discharging Current Rated Current	9006	RW	Battery pack allowable charging rating	A	100	U16	Read0x03Write0x10	

C7	discharging limit current	9007	RW	The allowable discharging current limit value of the battery pack is adjusted in real time according to its own charging state	A	100	U16	Read0x03Write0x10
C8	Charging High Temperature Protection	9008	RW	When the charging temperature is higher than this temperature value, the device will turn off charging	C	100	int16	Read0x03Write0x10
C9	Charging Low Temperature Protection	9009	RW	When the charging temperature is lower than this temperature value, the device will turn off charging	C	100	int16	Read0x03Write0x10
C10	Discharging High Temperature Protection	900A	RW	When the discharging temperature is higher than this temperature value, the device will turn off discharging	C	100	int16	Read0x03Write0x10
C11	Discharging Low Temperature Protection	900B	RW	When the discharging temperature is lower than this temperature value, the device will turn off discharging	C	100	int16	Read0x03Write0x10
C12	Cell High Temperature Protection	900C	RW	When the cell temperature is higher than this value, the device will turn off charging & discharging.	C	100	int16	Read0x03Write0x10
C13	Cell Low Temperature Protection	900D	RW	When the cell temperature is lower than this value, the device will turn off charging & discharging.	C	100	int16	Read0x03Write0x10
C14	Equilibrium High Temperature Protection	900E	RW	When the equilibrium temperature is higher than this value, the device will turn off charge & discharge.	C	100	int16	Read0x03Write0x10
C15	Equilibrium Low Temperature Protection	900F	RW	When the equilibrium temperature is lower than this value, the device will turn off charge & discharge.	C	100	int16	Read0x03Write0x10
C16	Environment High Temperature Protection	9010	RW	When the environment temperature is higher than this value, the device will turn off Charge & Discharge.	C	100	int16	Read0x03Write0x10
C17	Environment Low Temperature Protection	9011	RW	When the environment temperature is lower than this value, the device will turn off Charge & Discharge.	C	100	int16	Read0x03Write0x10

Adopted per the actual situation

C18	MOS High Temperature Protection	9012	RW	When the MOS temperature is higher than this value, the device will turn off charge & discharge.	C	100	int16	Read0x03Write0x10	
C19	MOS Low Temperature Protection	9013	RW	When the MOS temperature is lower than this value, the device will turn off charge & discharge.	C	100	int16	Read0x03Write0x10	
C20	Protocol Type	9014	RW	Default: 10, refer to the “Battery protocol types”	N	1	U16	Read0x03Write0x10	Adopt the default value
C21	reserved	9015	RW	reserved	N	1	U16	Read0x03Write0x10	
C22	Low Voltage Protection Voltage	9016	RW	To prevent the battery (group) from over-discharging and ensure that it has a certain remaining capacity (usually 10-40%), you should take the 20% of the battery (group) remaining capacity as the low voltage disconnect voltage. When the battery (group) voltage drops to the set value, the controller cuts off the load output. Low voltage disconnect voltage (Battery BMS delay 2S)	V	10	U16	Read0x03Write0x10	2023.09.05 added
C23	Over Voltage Warning Voltage	9017	RW	This voltage is the highest full-charge voltage under any circumstances. At this point, the controller takes the charge limit voltage as the highest target charge voltage. (controller Charge	V	10	U16	Read0x03Write0x10	
C24	the battery Charging Current Protection Current	9018	RW	The allowable charging current limit adjusted in real time by the battery pack according to its own charging status	A	10	U16	Read0x03Write0x10	
C25	the battery Discharging Current Protection Current	9019	RW	The allowable discharging current limit adjusted in real time by the battery pack according to its own charging status	A	10	U16	Read0x03Write0x10	

Editor:

Verifier:

Approved by:

Revise record		
Date	Revise content	Upgrade Version
9/19/2022	<p>1.Modify the unit identifier of battery pack voltage, from "A"to "V";      2.Modify the times of battery pack main circuit current, from 10times to 100times;      3.Add corresponding values to the "BMS_Status"      4.Modify the access to the read-only information, from customer available to unavailable, which will be gradually abandoned.      5.Delete "Device Info. (Read only)" section      6.Delete "Lithium battery protocol" sheet      7.Modify the default baud rate, from 9600bps to 115200bps)</p>	V1.4
10/10/2022	<p>1. Added red font description      Description: Lithium battery communication configuration      Modbus ID: 4 by default (read and write the ID number used in the following tables)      Communication baud rate: 115200 bps by default (baud rate used for reading and writing the following tables)</p>	V1.4.1
9/5/2023	<p>1. Use the address 0x3128 to represent a supplementary function register, which reads a value of 0xACF1, indicating that a class of functions has been added, which is as follows:      2. Use the 0x3129 address to represent the real-time voltage value of the battery pack      3. Use the 0x312A address to represent the real-time charging and discharging current value of the battery pack      4. Use the 0x9016 address to indicate the under-voltage protection value of the battery pack      5. Use the 0x9017 address to represent the battery pack overvoltage alarm value      6. Add the address 0x9018 and 0x9019, and 0x9018 represent the battery pack charge current protection value, and 0x9019 represent the battery pack discharge current protection value      7. Added baud rate configuration description      "Description: Lithium battery communication configuration      Modbus ID: 4 by default (read and write the ID number used in the following tables)      Communication baud rate: 115200 bps by default (baud rate used to read and write the following tables)"</p>	V1.5

4/1/2024	<ol style="list-style-type: none"><li>1. Improved communication configuration description (see red font)</li><li>2. Improved the description of address 0x3218 data use: "value = 0 means that the battery pack parallel function is not supported" and "technical support needs to be consulted to use this function" (see red font)</li><li>3. Cancel the switch read and write reservation "switch (read and write) read 0x01 write 0x05", address D0-D8</li><li>4. Add BMS communication line connection and configuration diagram</li><li>5. Corrected the address range of the read-only data header from "Real-time Data (Communication Read-only) 0x3100-31FF" to "Real-Time Data (Communication Read-only) 0x3100-3130"</li><li>6. Corrected the setting data header address range, from "Set Parameters (Communication Read/Write) 0x9000-90FF" to "Set Parameters (Communication Read/Write) 0x9000-9019"</li></ol>	V1.6
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