Daly UART Communication Protocol (extended)

Request

Start Flag	Address	Data ID	Data Length	Data	Checksum
uint8_t	uint8_t	uint8_t	uint8_t	uint8_t (x8)	uint8_t
0xA5	0x40	See below	0x08	See below	Sum of all previous data

Response

Start Flag	Address	Data ID	Data Length	Data	Checksum
uint8_t	uint8_t	uint8_t	uint8_t	uint8_t (x8)	uint8_t
0xA5	0x01	See below	0x08	See below	Sum of all previous data

Messages

№	Data ID	Type (R - Read, W - Write)	Description
1	0x50	R	Rated capacity and Rated cell voltage
2	0x51	R	Number of acquisition boards, Number of cell for each board, Number of NTC for each board
3	0x52	R	Cumulative charge and Cumulative discharge
4	0x53	R	Battery type, Battery mode, Production date, Current wave, Sleep time
5	0x54	R	Firmware index
6	0x57	R	Battery code
7	0x59	R	Cell voltage error level
8	0x5A	R	Sum voltage error level
9	0x5B	R	Charge and discharge current high error level
10	0x5C	R	Charge and discharge temperature error level
11	0x5D	R	SOC error level
12	0x5E	R	Voltage and temperature difference error level
13	0x5F	R	Balance start voltage and voltage difference
14	0x60	R	Short current and Sampling resistance
15	0x62	R	Software version
16	0x63	R	Hardware version
17	0x65	R	Address
18	0x66	R	Heat temperature on and Fan temperature on
19	0xD9	W	Discharge control
20	0xDA	W	Charge control

Rated capacity and Rated cell voltage (0x50) (R)

- Request

Data ID	Data	Description
0x50	0x00 (x8)	

- Response

Data ID	Data	Description
0x50	0-3 4-7	Rated capacity (mAh) Rated cell voltage (mV)

For example,

Rated capacity (mAh)	Rated cell voltage (mV)
0x00 0x01 0x5F 0x90	0x00 0x00 0x0C 0x80
90000	3200

Number of acquisition boards, Number of cell for each board, Number of NTC for each board (0x51) (R)

- Request

Data ID	Data	Description
0x51	0x00 (x8)	

- Response

Data ID	Data	Description
0x51	0 1 2 3 4 5 6 7	Number of acquisition boards Number of cell for board 1 Number of cell for board 2 Number of cell for board 3 Number of NTC for board 1 Number of NTC for board 2 Number of NTC for board 3 Reserved

For example,

Number of acquisition boards	Number of cell for board 1	Number of cell for board 2	Number of cell for board 3	Number of NTC for board 1	Number of NTC for board 2	Number of NTC for board 3	Reserved
0x02	0x0e	0x0a	0x00	0x01	0x00	0x00	0x44
2	14	10	0	1	0	0	

Cumulative charge and Cumulative discharge (0x52) (R)

- Request

Data ID	Data	Description
0x52	0x00 (x8)	

- Response

Data ID	Data	Description
0x52	0-3 4-7	Cumulative charge (Ah) Cumulative discharge (Ah)

For example,

Cumulative charge (Ah)	Cumulative discharge (Ah)
0x00 0x00 0x00 0x5F	0x00 0x00 0x00 0x14
95	20

Battery type, Battery mode, Production date, Current wave, Sleep time (0x53) (R)

- Request

Data ID	Data	Description
0x52	0x00 (x8)	

- Response

Data ID	Data	Description
0x52	0 1 2 3 4 5-6 7	Battery type (0 - Lithium Iron, ...) Battery mode (1 - Long press power on/off, 2 - Short press power on/off) Year Month Day Sleep time (s) Current wave (0.1A)

For example,

Battery type	Battery mode	Year	Month	Day	Sleep time (s)	Current wave (0.1A)
0x00	0x01	0x16	0x08	0x0a	0x27 0x10	0x1e
0 (Lithium Iron)	1 (Long press power on/off)	22 (2022)	8	10	10000	30

Firmware index (0x54) (R)

- Request

Data ID	Data	Description
0x54	0x00 (x8)	

- Response

Data ID	Data	Description
0x54	0-7	Firmware index

For example,

Firmware index
0x32 0x30 0x32 0x32 0x30 0x38 0x31 0x30
20220810

Battery code (0x57) (R)

- Request

Data ID	Data	Description
0x57	0x00 (x8)	

- Response

Data ID	Data	Description
0x57	0 1-7	Frame number Battery code

For example,

Frame number	Battery code
0x01	0x32 0x30 0x32 0x32 0x30 0x38 0x31
1	2022081

Frame number	Battery code
0x02	0x30 0x20 0x20 0x20 0x20 0x20 0x20
1	0

Frame number	Battery code
0x03	0x20 0x20 0x20 0x20 0x20 0x20 0x20
1	*empty*

Frame number	Battery code
0x04	0x20 0x20 0x20 0x20 0x20 0x20 0x20
1	*empty*

Frame number	Battery code
0x05	0x20 0x20 0x20 0x20 0x20 0x20 0x20
1	*empty*

Cell voltage error level (0x59) (R)

- Request

Data ID	Data	Description
0x59	0x00 (x8)	

- Response

Data ID	Data	Description
0x59	0-1 2-3 4-5 6-7	Cell voltage high level 1 (mV) Cell voltage high level 2 (mV) Cell voltage low level 1 (mV) Cell voltage low level 2 (mV)

For example,

Cell voltage high level 1 (mV)	Cell voltage high level 2 (mV)	Cell voltage low level 1 (mV)	Cell voltage low level 2 (mV)
0x0E 0x42	0x0E 0xA6	0x08 0xFC	0x08 0x98
3650	3750	2300	2200

Sum voltage error level (0x5A) (R)

- Request

Data ID	Data	Description
0x5A	0x00 (x8)	

- Response

Data ID	Data	Description
0x5A	0-1 2-3 4-5 6-7	Sum voltage high level 1 (0.1V) Sum voltage high level 2 (0.1V) Sum voltage low level 1 (0.1V) Sum voltage low level 2 (0.1V)

For example,

Sum voltage high level 1 (0.1V)	Sum voltage high level 2 (0.1V)	Sum voltage low level 1 (0.1V)	Sum voltage low level 2 (0.1V)
0x03 0x6C	0x03 0x84	0x02 0x28	0x02 0x58
876	900	552	600

Charge and discharge current high error level (0x5B) (R)

- Request

Data ID	Data	Description
0x5B	0x00 (x8)	

- Response

Data ID	Data	Description
0x5B	0-1 2-3 4-5 6-7	Discharge current high level 1 (0.1A, 30000 offset) Discharge current high level 2 (0.1A, 30000 offset) Charge current high level 1 (0.1A, 30000 offset) Charge current high level 2 (0.1A, 30000 offset)

For example,

Discharge current high level 1 (0.1A, 30000 offset)	Discharge current high level 2 (0.1A, 30000 offset)	Charge current high level 1 (0.1A, 30000 offset)	Charge current high level 2 (0.1A, 30000 offset)
0x74 0xCC	0x73 0x3C	0x75 0x94	0x77 0x24
29900	29500	30100	30500

Charge and discharge temperature error level (0x5C) (R)

- Request

Data ID	Data	Description
0x5C	0x00 (x8)	

- Response

Data ID	Data	Description
0x5C	0 1 2 3 4 5 6 7	Charge temperature high level 1 (°C, 40 offset) Charge temperature high level 2 (°C, 40 offset) Charge temperature low level 1 (°C, 40 offset) Charge temperature low level 2 (°C, 40 offset) Discharge temperature high level 1 (°C, 40 offset) Discharge temperature high level 2 (°C, 40 offset) Discharge temperature low level 1 (°C, 40 offset) Discharge temperature low level 2 (°C, 40 offset)

For example,

Charge temperature high level 1 (°C, 40 offset)	Charge temperature high level 2 (°C, 40 offset)	Charge temperature low level 1 (°C, 40 offset)	Charge temperature low level 2 (°C, 40 offset)	Discharge temperature high level 1 (°C, 40 offset)	Discharge temperature high level 2 (°C, 40 offset)	Discharge temperature low level 1 (°C, 40 offset)	Discharge temperature low level 2 (°C, 40 offset)
0x5F	0x69	0x05	0x00	0x69	0x6E	0x05	0x00
95	105	5	0	105	110	5	0

SOC error level (0x5D) (R)

- Request

Data ID	Data	Description
0x5D	0x00 (x8)	

- Response

Data ID	Data	Description
0x5D	0-1 2-3 4-5 6-7	SOC high level 1 (0.1%) SOC high level 2 (0.1%) SOC low level 1 (0.1%) SOC low level 2 (0.1%)

For example,

SOC high level 1 (0.1%)	SOC high level 2 (0.1%)	SOC low level 1 (0.1%)	SOC low level 2 (0.1%)
0x03 0xE8	0x03 0xFC	0x00 0xC8	0x00 0x64
1000	1020	200	100

Voltage and temperature difference error level (0x5E) (R)

- Request

Data ID	Data	Description
0x5E	0x00 (x8)	

- Response

Data ID	Data	Description
0x5E	0-1 2-3 4 5 6-7	Voltage difference level 1 (mV) Voltage difference level 2 (mV) Temperature difference level 1 (°C) Temperature difference level 2 (°C) Reserved

For example,

Voltage difference level 1 (mV)	Voltage difference level 2 (mV)	Temperature difference level 1 (°C)	Temperature difference level 2 (°C)	Reserved
0x01 0xF4	0x00 0x64	0x0A	0x0F	0x01 0x44
500	100	10	15	

Balance start voltage and voltage difference (0x5F) (R)

- Request

Data ID	Data	Description
0x5F	0x00 (x8)	

- Response

Data ID	Data	Description
0x5F	0-1 2-3 4-7	Balance start voltage (mV) Balance start voltage difference (mV) Reserved

For example,

Balance start voltage (mV)	Balance start voltage difference (mV)	Reserved
0x0C 0x80	0x00 0x32	0x00 0x00 0x00 0x00
3200	50	

Short current and Sampling resistance (0x60) (R)

- Request

Data ID	Data	Description
0x60	0x00 (x8)	

- Response

Data ID	Data	Description
0x60	0-1 2-3 4-7	Short current (A) Sampling resistance (μOhm) Reserved

For example,

Short current (A)	Sampling resistance (μOhm)	Reserved
0x13 0x88	0x00 0x32	0x00 0x00 0x00 0x00
5000	50	

Software version (0x62) (R)

- Request

Data ID	Data	Description
0x62	0x00 (x8)	

- Response

Data ID	Data	Description
0x62	0 1-7	Frame number Software version

For example,

Frame number	Software version
0x01	0x31 0x31 0x5F 0x32 0x32 0x30 0x37
1	11_2207

Frame number	Software version
0x02	0x32 0x32 0x5F 0x31 0x30 0x30 0x54
2	22_100T

Hardware version (0x63) (R)

- Request

Data ID	Data	Description
0x63	0x00 (x8)	

- Response

Data ID	Data	Description
0x63	0 1-7	Frame number Hardware version

For example,

Frame number	Hardware version
0x01	0x42 0x4D 0x53 0x2D 0x53 0x54 0x31
1	BMS-ST1

Frame number	Hardware version
0x02	0x30 0x33 0x2D 0x33 0x30 0x39 0x45
1	03-309E

Address (0x65) (R)

- Request

Data ID	Data	Description
0x65	0x00 (x8)	

- Response

Data ID	Data	Description
0x65	0 1 2-7	Board number Slave number Reserved

For example,

Board number	Slave number	Reserved
0x01	0x01	0x00 0x00 0x00 0x00 0x00 0x00
1	1	

Heat temperature on and Fan temperature on (0x66) (R)

- Request

Data ID	Data	Description
0x66	0x00 (x8)	

- Response

Data ID	Data	Description
0x66	0 1 2 3-7	Heat temperature on (°C, 40 offset) Reserved Fan temperature on (°C, 40 offset) Reserved

For example,

Heat temperature on (°C, 40 offset)	Reserved	Fan temperature on (°C, 40 offset)	Reserved
0x28	0x01	0x57	0x3B 0x55 0x01 0x53 0xF6
40		87	

Discharge control (0xD9) (W)

- Request

Data ID	Data	Description
0xD9	0 1-7	Status (0 - Off, 1 - On) Reserved

For example,

Status	Reserved
0x01	0x00 0x00 0x00 0x00 0x00 0x00 0x00
1 (On)	

- Response

Data ID	Data	Description
0xD9	0 1-7	Status (0 - Off, 1 - On) Reserved

For example,

Status	Reserved
0x01	0x0C 0x48 0x0C 0x67 0x0C 0x66 0x47
1 (On)	

Charge control (0xDA) (W)

- Request

Data ID	Data	Description
0xDA	0 1-7	Status (0 - Off, 1 - On) Reserved

For example,

Status	Reserved
0x01	0x00 0x00 0x00 0x00 0x00 0x00 0x00
1 (On)	⊓⊓

- Response

Data ID	Data	Description
0xDA	0 1-7	Status (0 - Off, 1 - On) Reserved

For example,

Status	Reserved
0x01	0x00 0x00 0x00 0x00 0x00 0x00 0x00
1 (On)	