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High-Power M511 ASE UART Protocol V1

UART Protocol

1. Port Setting

Baud rate: 115200 bps
Data size: 8 bits
Parity: none
Stop Bits: 1 bit

2. Command (CMD) Packet Format

2.1 Packet sent to device

Description	Frame Head	Frame ID	CMD ID	Data length	data	Checksum
Length (byte)	2	4	1	1	n	1

Frame head 1st byte is 55, 2nd byte is AA, fixed
Frame ID xx xx xx xx, 4 bytes HEX data, device ID/SN
CMD ID 1 byte
Data length 1 byte, max length is 255(DEC). If Data length is zero then it's followed directly by checksum
Data Data to send
Checksum Add all data (except the frame head), subtract it from 0xFF and add 0x01

2.2 Response packet from device

Description	Frame Head	Frame ID	CMD ID	Data length	data	Checksum
Length (byte)	2	4	1	1	n	1

Frame head 1st byte is AA, 2nd byte is 55, fixed
Frame ID xx xx xx xx, 4 bytes HEX data, MSB first
CMD ID 1 byte
Data length 1 byte, max length is 255(DEC).
Data Data to send
Checksum Add all data (except the frame head), subtract it from 0xFF and add 0x01

2.3 Checksum Example

Command	55 AA 24 FF 6F 15 0C 00 (not include checksum)
Checksum	0x24+0xFF+0x6F+0x15+0x0C+0x00=0xB3 (use single-byte to add) Subtract it from 0xFF, 0xFF – 0xB3=0x4C, then add 0x01, and the result Checksum is 0x4D.
Complete CMD	55 AA 24 FF 6F 15 0C 00 4D

3. Communication Notes

a) ASE sends data only when command from master is received with correct device address.

b) No response from device to incorrect command.

c) When command is correct, then proceed with one of the following:

For 'Set' commands, execute command, then send out response

For 'Get' commands, send out required data.

d) A command can be sent out only when previous one is completed.

4. Command List

Command	Packet to device	Response packet from device
Get device status	55 AA 00 00 00 6F 2F 00 62	AA 55 00 00 00 6F 2F 18 00 00 01 00 00 4A 00 00 00 00 00 00 00 00 E8 90 E8 90 E8 90 E8 90 00 70 AF
Get settings	55 AA 00 00 00 6F 2E 00 63	AA 55 00 00 00 6F 2E 18 00 01 00 01 00 01 00 00 00 00 00 00 1F 40 1F 40 00 21 00 21 00 00 00 00 48
Get PN	55 AA 00 00 00 6F 1E 00 73	AA 55 00 00 00 6F 1F 20 48 33 30 31 32 39 30 31 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 AA
Get SN	55 AA 00 00 00 6F 1F 00 72	
Get thresholds	55 AA 00 00 00 6F 5F 00 32	AA 55 00 00 00 6F 5F 28 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 0A
Set pump ON	55 AA 00 00 00 6F 20 02 00 00 6F	AA 55 00 00 00 6F 20 02 00 00 6F
Set pump OFF	55 AA 00 00 00 6F 20 02 00 01 6E	AA 55 00 00 00 6F 20 02 00 01 6E
Set 940-1 control mode 00-APC, 01-ACC	55 AA 00 00 00 6F 21 02 00 01 6D	AA 55 00 00 00 6F 21 02 00 01 6D

Set 940-2 control mode 00-APC, 01-ACC	55 AA 00 00 00 6F 29 02 00 01 65	AA 55 00 00 00 6F 29 02 00 01 65
Set 940-1 current in ACC, Max 8000mA	55 AA 00 00 00 6F 23 02 1F 40 0D	AA 55 00 00 00 6F 23 04 1F 40 0D 00 FE
Set 940-2 current in ACC, Max 8000mA	55 AA 00 00 00 6F 24 02 1F 40 0C	AA 55 00 00 00 6F 24 04 1F 40 0C 00 FE
Set 940-1 power in APC, max 33dBm	55 AA 00 00 00 6F 25 02 00 21 49	AA 55 00 00 00 6F 25 02 00 21 49
Set 940-2 power in APC, max 33dBm	55 AA 00 00 00 6F 28 02 00 21 46	AA 55 00 00 00 6F 28 02 00 21 46

5. Command details

5.1 Get device status

Send

55 AA 00 00 00 6F 2F 00 62

Response

AA 55 00 00 00 6F 2F 18 00 00 01 1A 00 B5 17 6C 03 C0 00 00 10 B6 FF CB 08 34 E8 90 0C E2 00 70 92

-- AA 55 Frame head

-- 00 00 00 6F Frame ID: device serial number in HEX

-- 2F CMD ID

-- 18 Data length

-- 00 00 Spare

-- 01 1A Module temperature（28.2℃）

-- 00 B5 Pre-amp temperature（18.1℃）

-- 17 6C Pre-amp current（599.6mA）

-- 03 C0 TEC current（9.60mA）

-- 00 00 Pump-1 current（0.00mA）

-- 10 B6 Pump-2 current 4278mA）

-- FF CB Input optical power（-0.53dBm）

-- 08 34 Pre-amp output power（21.00dBm）

-- E8 90 Output-1 power（-60.00dBm）

-- 0C E2 Output-2 power（32.97dBm）

-- 00 70 Warning 70

-- 92 Checksum

Warning code 00 70

Example 70:

Bit	Value	Meaning	Warning	Normal
7	0	Overall warning status	1	0
6	1	Pump ON/OFF	0 - OFF	1 - ON
5	1	TEC current	0	1
4	1	Pump temperature	0	1
3	0	Pump current	1	0
2	0	Device temperature	1	0
1	0	Input LOS	1	0
0	0	Output LOS	1	0

5.2 Get Setting

Send

55 AA 00 00 00 6F 2E 00 63

Response

AA 55 00 00 00 6F 2E 18 00 00 00 01 00 01 00 00 00 00 00 D2 00 00 10 B8 01 4A 01 4A 00 00 00 00 19

-- AA 55 Frame head

-- 00 00 00 6F Frame ID: device serial number in HEX

-- 2E CMD ID

-- 18 Data length

-- 00 00 Pump ON

-- 00 01 Pump-1 mode (ACC)

-- 00 01 Pump-1 mode (ACC)

-- 00 00 Pre-amp mode (AP)

-- 00 00 Pre-amp current (0mA)

-- 00 D2 Pre-amp output power (21.0dBm)

-- 00 00 Pump-1 current (0mA)

-- 10 B8 Pump-2 current (4280mA)

-- 01 4A Pump-1 power (33dBm)

-- 01 4A Pump-2 power (33dBm)

-- 00 00 spare

-- 00 00 Spare

-- 19 Checksum

5.3 Get Threshold

Command

55 AA 00 00 00 6F 5F 00 32

Response

AA 55 00 00 00 6F 5F 28 00 00 03 E8 00 00 05 14 00 00 03 E8 00 00 05 28 00 00 25 1C 00 00 0F A0 00 00 25 1C 00 00 0F A0 FF FF FF 38 00 00 02 8A 4D

-- AA 55 Frame head

-- 00 00 00 6F Frame ID: device serial number in HEX

--5F CMD ID

- 28 Data length

-- 00 00 03 E8 Max pre-pump current (1000mA)

-- 00 00 05 14 Max pre-pump DAC (1300)

-- 00 00 03 E8 Max pre-pump TEC current (1000mA)

-- 00 00 05 28 Max pre-pump TEC DAC (1320)

-- 00 00 25 1C Max pump-1 current (9500rnA)

-- 00 00 0F A0 Max pump-1 DAC (4000)

-- 00 00 25 1C Max pump-2 current (9500mA)

-- 00 00 0F A0 Max pump-2 DAC (4000)

-- FF FF FF 38 Input threshold (-20dBm)

-- 00 00 02 8A Highest temperature pump is allowed to turn on (65°C)

--4D CRC checksum