“Optimus mini three” protocol

Version 1.0a, 2006–2009, Art. Lebedev Studio

Optimus Mini Three is controlled via virtual serial port by sending out an equally sized commands of 197 bytes and reading a replies from it. Each time a command is sent to a device, it should reply to you with a two-byte response [00, XX], where XX is a checksum of the previously received command.

If the device fails to recognize a command, replies with a wrong check sum or it is just not responding – you need to send 0x00 several times to it until the device also responds with 0x00. You should also do that right after opening serial port to reset internal counters of the device.

In order to prevent OLED burn-in the device will automatically power off after 10 seconds. To keep ip it always on, you should constantly “ping” it with a 0x04 command. It’s also would be better if you will send the picture before powering on OLED displays, otherwise a random noise picture would appear on the OLEDs.

Table #1, Controlling Device

Command (1 byte)	Target (1 byte)	Context (2 bytes)	Data Bytes (192 bytes)	Check Sum (1 byte)
Upload one line of picture to the target OLED number	0x01	OLED Number 1, 2 or 3	192 * lineN (lineN = 0..96)	[rrrrrgggggbbbbb] x 96	Command + Target + Context + Data Bytes
Power ON	0x02	0x00	0x0000	0x00...	
Power OFF	0x03	0x00	0x0000	0x00...	
Update target OLED number	0x04	OLED Number 1, 2 or 3	0x0000	0x00...	
Write ID code	0x07	0x00	Any 2 bytes	0x00...	
Ask for ID code	0x08	0x00	0x0000	0x00...	
Adjust brightness (three levels)	0x09	20, 40 or 60	0x0000	0x00...	

Table #2, Device Responses

Response (1 byte)	Data Bytes (1 or 2 bytes)	
0x00	Command check sum	Sent every time after receiving a command
0x01	1, 2 or 3	Button # is pressed
0x02	ID code (Two bytes)	ID code of the device

Table #3, USB Specification

Vendor / Product IDs	1659 (Prolific Technology Inc.) / 8963
Default Port	COM4 /dev/cu.usbserial
Port Properites	Big Endian, Baud rate = 10^6