This document describes the TTL / Dosimeter pinout and command syntax via RS-232 for the AURA II OEM Light Engine.

1.1 TTL / Dosimeter Pinout and Signals.

1.2 RS-232.
Default COM port parameters are 9600,8,N,1.

1.3 Command Strings and Bit Definitions.
The following section defines the command strings and bit assignments. Bytes #s and bit #s are LSB=0. Bytes are expresses as hexadecimal. Bits not specifically defined here should remain as shown in the examples.

Initialization Command Strings:

These two commands MUST be issued after every power cycle to properly configure controls for further commands.

57 02 AA 50- Setup GPIO0-3
57 03 AA 50- Setup GPIO5-7

Channel Enable/Disable Command Strings:

Byte 1, Bit 0, controls CH 5. 0 enables, 1 disables.
Byte 1, Bit 1, controls CH 3. 0 enables, 1 disables.
Byte 1, Bit 2, controls CH 2. 0 enables, 1 disables.
Byte 1, Bit 4, controls CH 4. 0 enables, 1 disables.
Byte 1, Bit 5, controls CH 1. 0 enables, 1 disables.

Examples:

4F FF 50- Enables CH 5, disables all others.
4F FD 50- Enables CH 3, disables all others.
4F DF 50- Enables CH 1, disables all others.
4F F8 50- Enables CH 3, CH 2, CH 5, disables all others.
4F FF 50- Disables All.

IIC DAC Intensity Control Command Strings:

Byte 5 is the DAC IIC Address. Addr = 18 for CH 2, CH 3, CH 5.
Addr = 1A for CH 1, CH 4.
If Addr = 18:
Byte 3, Bit 1, selects CH 2 DAC. 1 selects.
Byte 3, Bit 2, selects CH 3 DAC. 1 selects.
Byte 3, Bit 3, selects CH 5 DAC. 1 selects.

If Addr = 1A:
Byte 3, Bit 0, selects CH 1 DAC. 1 selects.
Byte 3, Bit 2, selects CH 4 DAC. 1 selects.
Byte 2, Bits 3..0, Contain the high nibble of 12-bit DAC data.
Byte 1, Bits 7..0, Contain the low byte of 12-bit DAC data.
Note- this 12-bit data is inverted. 0xFF is full off, 0X00 is full on.

Examples:
53 18 03 0E FF FF 50- Sets CH 5, CH 3, CH 2 DACS to 0xFFF (Min)
53 18 03 0E F0 00 50- Sets CH 5, CH 3, CH 2 DACS to 0x000 (Max)
53 18 03 04 F5 55 50- Sets CH 3 DAC to 0x555
53 18 03 08 F8 00 50- Sets CH 5 DAC to 0x800
53 1A 03 01 F2 FF 50- Sets CH 1 DAC to 0x2FF
53 1A 03 0F F7 77 50- Sets all 0x1A DACS to 0x777

Get Firmware Model / Rev Control Command String:
53 47 02 50- Reads the Model / Rev register.

Examples:
[TX] 53 47 02 50- Read HW Config reg.
[RX] 70 F6- Two bytes are returned. For F/W revision, only the first byte returned is pertinent.

IIC Temp Sensor Command String:
53 91 02 50- Reads the IIC Temp Sensor

Returns two bytes. The most significant 11 bits of the two bytes are used with a resolution of 0.125 deg C.

Examples:
[TX] 53 91 02 50- Command String to the IIC Temp Sensor.
[RX] 26 A0- Two bytes returned from Temp Sensor.

26 A0 (hex) = 0010 0110 1010 0000 (binary).
1st 11 MSb = 001 0011 0101 (binary)
001 0011 0101(b) = 135(h) = 309(decimal)
309 * 0.125 = 38.625 deg C.

1.4 TTL Port Command Strings.
For safety against unintended light on power up, the TTL port is disabled and must be enabled through RS-232 commands. For OEMs or for backwards compatibility, there is an unpublished command string to defeat this safety mechanism. The polarity of the TTL port is programmable and stored in non-volatile memory.

TTL Port Command Strings:
53 46 02 03 01 50- Enables TTL Port
53 46 02 02 00 50- Sets TTL Enables as Active Low
53 46 02 02 FF 50- Sets TTL Enables as Active Hi