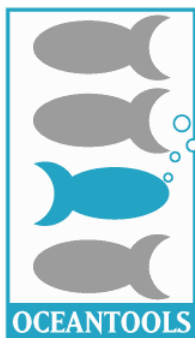


OceanLED

UNDERWATER LED LAMP

USER'S MANUAL

REVISION 2. MARCH 2008.



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1 Introduction

The OceanLED is a versatile underwater lamp using advanced Light Emitting Diode (LED) technology.

Four high output LED's are controlled by versatile electronic circuit design allowing the user the option of analogue digital control or serial control.

RS232 is also available as a control option.

The product has the following additional features

- ?? Available in narrow-beam spotlight and floodlight versions
- ?? Low power consumption. 13.2 watts at 24 volts dc
- ?? Several operating modes implemented by single control wire
- ?? 3000 msw depth rated
- ?? Optional RS232 option allowing control of up to 16 lamps over a single control line.
- ?? Continuous lamp intensity control allowing the use of fast response auto iris cameras without loss of picture quality
- ?? LED Lifetime in excess of 100000 hours

2 Installation

2.1 Connector

Connection is made by way of a Subconn 5 way subsea tail (part number IL5F)

2.2 Connections

Connections are 5-way Subconn BH5M connector on the lamp housing

The pin connections are as follows

Pin 1	+24 volts dc (Nominal)
Pin 2	0 volts
Pin 3	RS232 Rx (Data to the control software) / Control Line
Pin 4	RS232 Tx (Data from the control software)
Pin 5	RS232 Ground

2.3 Overheating

The unit is designed for underwater operation. The lamp housing has been designed to form an integral part of the heat sink assembly. If the lamp is left switched on for long periods in ambient temperatures of more than 40 deg C the lifetime of the unit will reduce significantly.

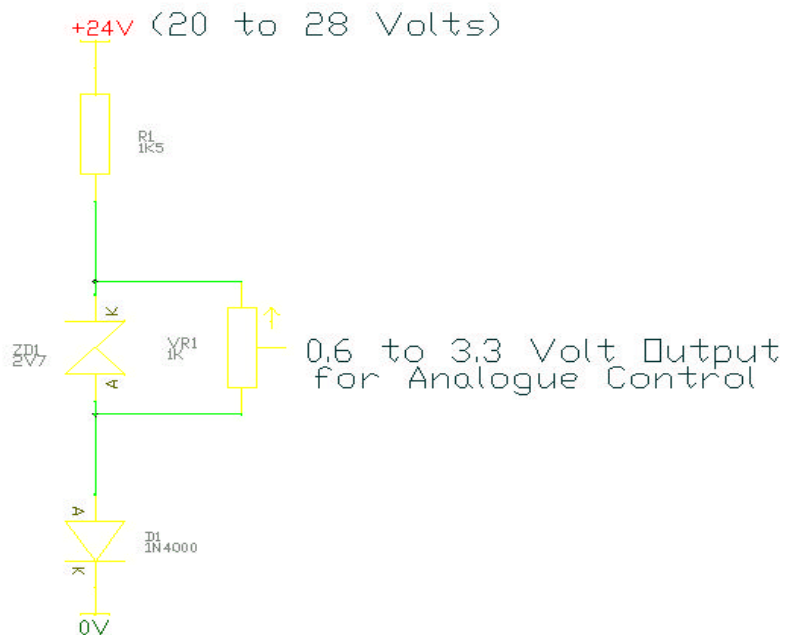
3 Operation

3.1 Analogue Control

Set Up

The control line should be set to receive a voltage in the range of 0.5 to 4.5 volts.

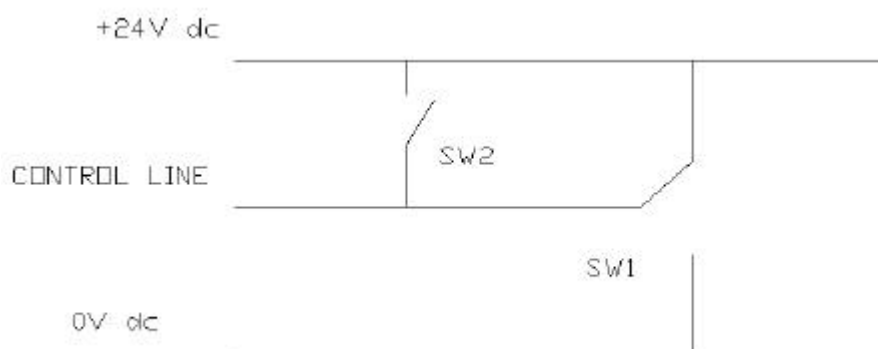
The diagram below may be followed when setting up the lamp in analogue mode.



3.2 Digital Control

Set Up

The OceanLED Lamp will under normal circumstances be delivered with the lamp set at maximum intensity. The user may wish to vary the level of lamp intensity by connecting a single pole double throw switch (SW1) and a single pole double throw 'momentary on' switch (SW2) across the high and low voltage rails supplying the lamp.



This will allow the user to select one of six basic modes of operation

SW1 (Hi/Low)	SW2 (Pulse)	Function
Hi at Power Up		Lamp switched on at maximum intensity
Low at Power Up		Lamp switched on at last controlled intensity
Normally Low	Pulse (<1sec)	Switch on/off
Normally Low	Pulse (>1 sec)	Intensity ramp up
Normally Low	Pulse again (>1 sec)	Intensity ramp down
Normally Low	Pulse again (>1 sec)	Intensity ramp up

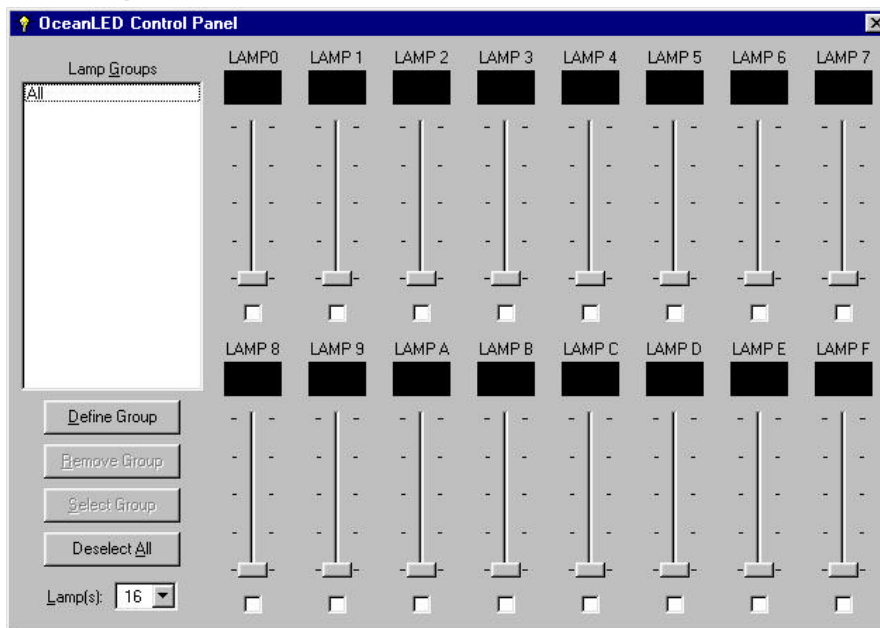
3.3 RS 232 Control

When this option is specified the surface control software will be supplied on a disk included with the package. A folder should be created and the software downloaded to it. The files to be unzipped using the appropriate software. To open the program, double click on the OceanLED.exe file with the mouse. The lamp control screen will now be displayed.

The OceanLED software lets you control the intensity of up to 16 lamps via the RS232 serial interface. Connected lamps are identified by a numerical address ranging from 0 to 15. Each connected lamp should be assigned a unique number using the rotary switch on the PCB of the lamp concerned starting at 0.

The default setting for each lamp is 0 which will be set up by OceanTools Ltd prior to despatch to the customer. Multiple lamp users should contact OceanTools support staff when setting up RS232 control for more than one lamp.

3.3.1 Operation of Surface Control Software



When the OceanLED software is executed for the first time, or when the number of connected lamps is changed, the dropdown list at the bottom of the software window should be used to indicate how many lights are being controlled. **It is advisable not to select more lamps than are actually connected as this would impair performance.**

A vertical slider is provided on screen for each lamp to be controlled. The lamp is off when the slider is positioned at the bottom of the scale, and full intensity when the slider is at the top of the scale. The intensity indicator above the slider changes from black to white as the lamp intensity is increased. The sliders can be dragged up and down using the mouse.

3.3.1.1 Grouping of Lamps Together

Lamps can be grouped together and controlled as one. To do this tick the boxes beneath the sliders of all the lamps you want to group together. If you move any slider in a selected group, all the other sliders in the group will automatically change to match the moved slider. Consequently, the intensity of all lamps in the group will match.

3.3.1.2 To Group Together Frequently Used Lamps

Frequently used lamp groups can be saved so that they can be selected easily again at a later time.

To do this, ensure all sliders in the desired group are ticked, then tick the Define Group button at the top left of the software window. Then enter a short name when prompted. The newly defined group will be included in the list at the left of the software window. By double clicking on the required group name the saved group can be selected.

3.3.1.3 To Change COM Port Settings

The lamp control messages are sent by default to serial port COM1. It is only possible to change the COM port settings by editing the OceanLED.ini file. Please contact OceanTools support for full instructions.

4 OceanLED PCB

4.1 Power

Connector 1: Pin 1 +24 volts dc (nominal)
Pin 2 0 volts

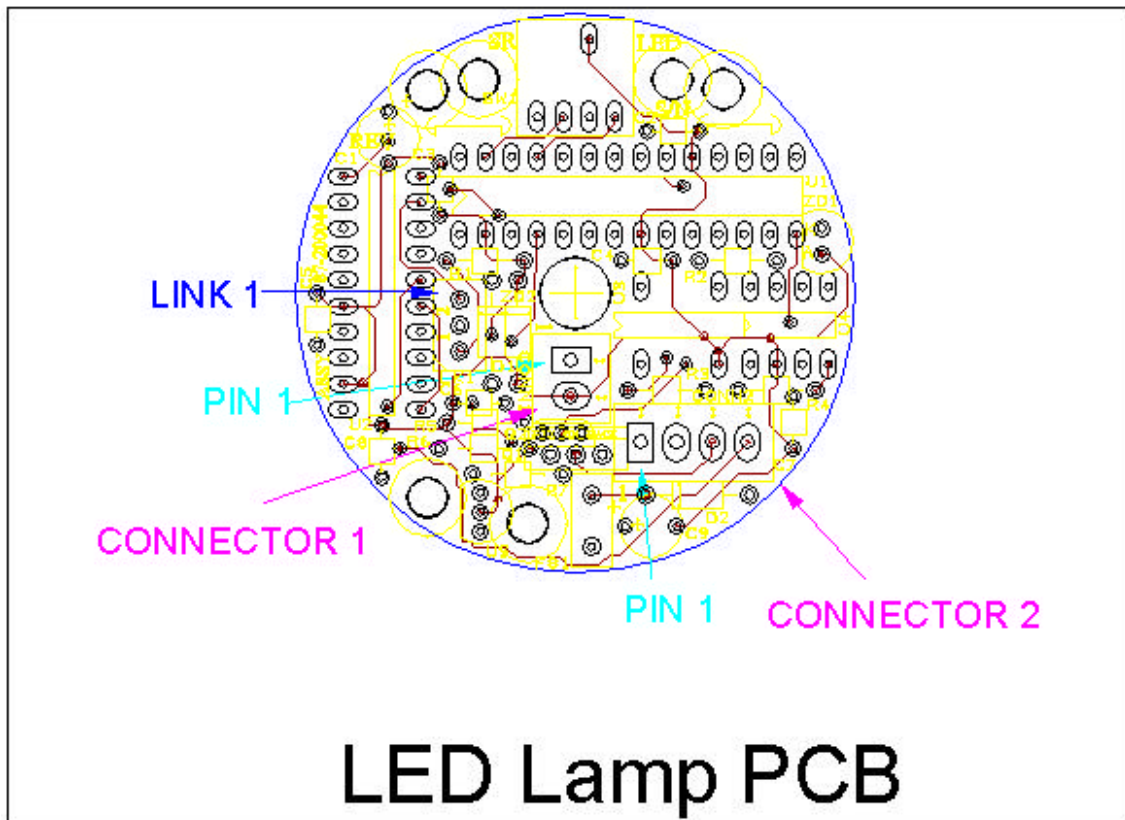
4.2 Control

Connector 2: Pin 1 Control (RS232 Rx)
Pin 2 Internal
Pin 3 Internal
Pin 4 RS232 TX

Link 1 : 1 Digital / Analogue Control

Link 1 : 2 RS232 Control

Note: Connector 1: Pin1 (24 volts dc) and Connector 2: Pin1 can be linked internally if no control is required



5 Specification

Supply voltage range spotlight	22-30Vdc
Supply voltage range floodlight	18-30Vdc
Power consumption (at 24vVdc)	13.2 watts
Depth Rating	3000msw
Overall length	82.5mm
Maximum Diameter	85mm
Weight in air	0.3 kg
Weight in water	0.1 kg
Housing Material	Hard Anodised Aluminium body, lexan view port
Light Output Spotlight	720 candela
Light Output Floodlight	900 candela
LED Light Expectancy	100000 hours +
Intensity control function	Analogue/Digital/RS232
Connector type	Subconn BH5M, various others