



# Operator's Manual

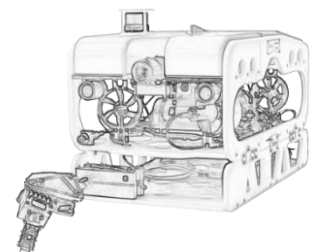
*Sea Bright LED - 150W*

**DWTEK Co., Ltd**

No.22, Dong Ying Rd., East District, Taichung City 401, TAIWAN

T: +886-4-3502-4890 | E: [info@dwtek.com.tw](mailto:info@dwtek.com.tw)

F: +886-4-2211-2890 | W: [www.dwtekmarine.com](http://www.dwtekmarine.com)





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# 1 Introduction








## 1.1 General

The lamp housing is constructed from hard anodized Aluminum-6061 T6 and is designed to operate at depth of 6000M. The front port is manufactured from optical quality high strength Acrylic.

The 150W LED is designed for in-water operation. Running the lamp in air for long period of time is not recommended and will reduce lamp lifetime. If the internal temperature exceeds 60°C, thermal protection would automatically activate and the output power will reduce below 10% of normal output until the internal temperature returns to 60°C.

When the 150W LED lamp is operated in the air, the housing may reach temperature of 60°C that may cause burns if the housing is handled without protective glove.

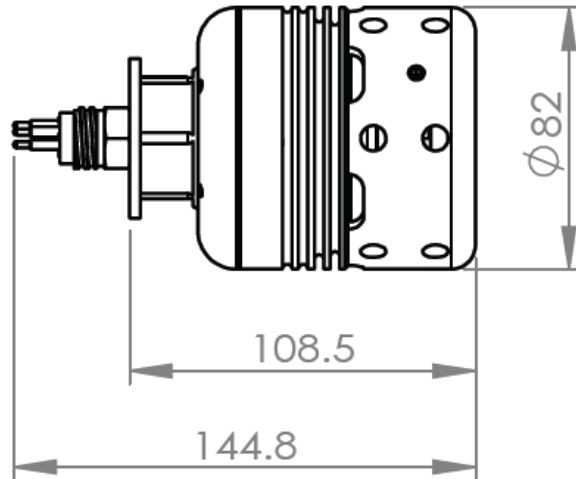
## 1.2 Precautions

	<p>The “DANGER” symbol indicates a hazardous situation which, if not avoided, will result in death or serious injury. Carefully read the message that follows to prevent serious injury or death.</p>
	<p>The “WARNING” symbol indicates a hazardous situation which, if not avoided, could result in death or serious injury. Carefully read the message that follows to prevent serious injury or death.</p>
	<p>The “CAUTION” symbol indicates a hazardous situation which, if not avoided, could result in minor or moderate injury, or equipment damage. Carefully read the message that follows to prevent minor or moderate injury.</p>
	<p>The “NOTICE” symbol alerts to a situation that is not related to personal injury but may cause equipment damage</p>
	<p>Do not put hands near it when machine operating.</p>
	<p>Do not wear electrically conductive jewelry, clothing, or other items while working on the electrical system.</p>
	<p>An electric shock could be fatal. Ensure power to the Thruster is OFF” before opening electrical panels.</p>

## 2 Specifications

### 2.1 Sea Bright Searchlight ( 150W LED )

#### 2.1.1 Standard

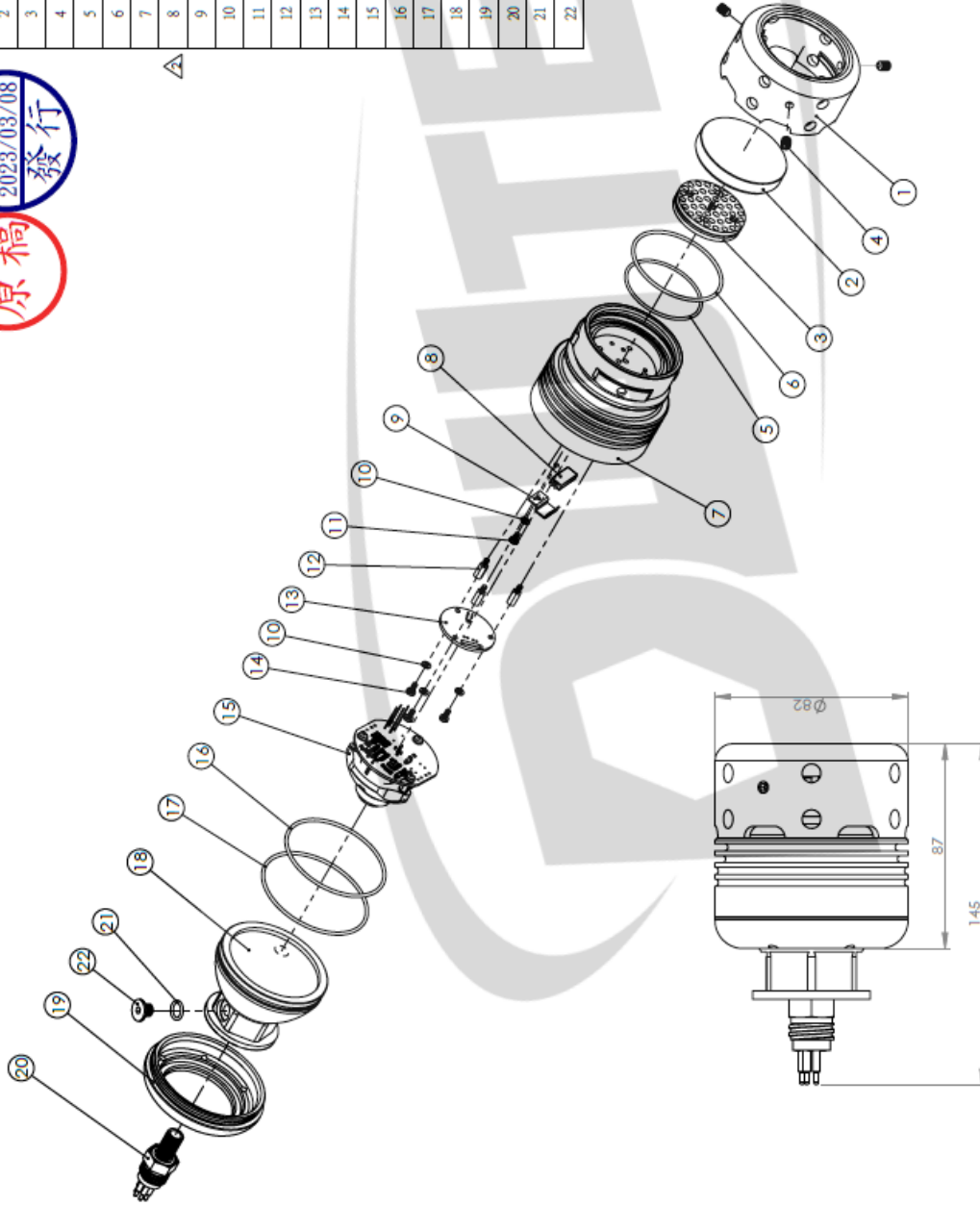


<b>DWTEK-150W</b>	
<b>Input</b>	<b>150~380 VDC ; 150W</b>
<b>Lumens in Integrating Sphere</b>	<b>6957 Lumens @ 150W</b>
<b>Luminous Efficacy</b>	<b>46 lm/W</b>
<b>Current Draw</b>	<b>1.07 A @ 300 VDC</b>
<b>Dimming</b>	<b>0-5V analog / 0-100% PWM (Isolation Inside for Opt.)</b>
<b>Color Temp.</b>	<b>6,000~6,500°K</b>
<b>Beam Pattern</b>	<b>72°</b>
<b>Body Material</b>	<b>Hard Anodized 6061-T6 Aluminum</b>
<b>Window Material</b>	<b>Acrylic</b>
<b>Depth Rating</b>	<b>6,000 m</b>
<b>Testing Rating</b>	<b>600 Bar</b>
<b>Operation Temp.</b>	<b>-10°C ~ 40°C</b>
<b>LED Lifespan</b>	<b>50,000 hrs</b>
<b>Weight</b>	<b>820 g (in Air) ; 400 g (in Water)</b>
<b>Connector</b>	<b>MCBH 5M / Pigtail(Optional)</b>

原稿

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 2023/03/08  
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ITEM No.	PART No.	TITLE	DESCRIPTION	QTY.
1	2D003-00005	Protection shield	—	1
2	2D003-00011	Acrylic window	60x10x for 150W	1
3	2C003-00001	Lamp Module	M6x8	3
4	D4N0M6-1008	Socket Set Screw	ID9.52 x W1.78	1
5	2P002-SOR-AS032N70	AS-033	ID99.5 x W2	1
6	2P002-SOR-S60N70	S-60	Ø83x73	1
7	2D003-00002	LED Holder	BW-DOP -60°C	1
8	2E013-00018	Temp Switch	16.79x14.5x4.3(T=0.8)	1
9	2D003-00023	H.S Mounting Plate	SUS304 M3	4
10	2P001-W122M3	Spring Washer	SUS304 M3xP0.5x5	1
11	2P001-PB22M3-0905	SS Cross Recess Pin Head Screw	Brass M3xP0.5x10	3
12	2P001-M572M3-06010	Copper column	FOR LED, TEMP	1
13	2P003-00003	PCBA	SUS304 M3xP0.5x6	3
14	2P001-PB22M3-0906	SS Cross Recess Pin Head Screw	for 150W	1
15	2C003-00002	Driver Module for 150W	ID66.5 x W2	1
16	2P002-SOR-S67N70	S-67	ID70.5 x W2	1
17	2P002-SOR-S71N70	S-71	Ø76.2x66	1
18	2D003-00003	Pressure Cup	—	1
19	2D003-00007	Filter	Male 5 Pin	1
20	2GW100608M-00001	Mini Bulkhead Connector	ID9.25 x W1.78	1
21	2P002-SOR-AS012N70	O-Ring	5/16" x T24	1
22	2D003-00016	Pressure relief valve	—	1

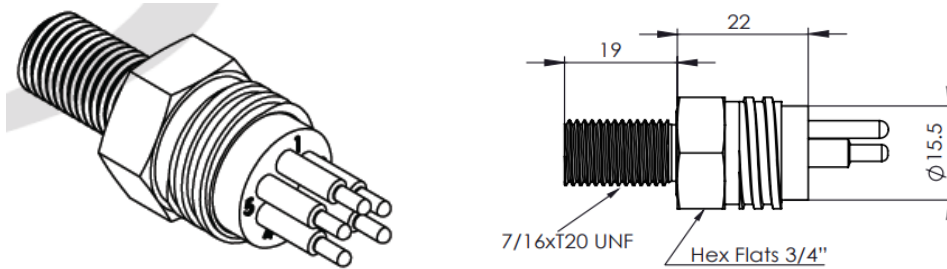


立體視圖

<b>REVISIONS</b> 210801 新增溫度感測器。 200212 (1)修改溫度感測器款式為V3.0 (2)增加溫度感測器，增加溫度感測器材料以符合品質要求		Issue 2022/7/16 2023/2/14	Date 2022/7/16 2023/2/14
DWTEK CO., LTD No. 22 Dong Yang Rd., Taichung City Taiwan, R.O.C Phone: 886 4 2502-4890 Fax: 886 4 2211-2890 E-mail: info@dwtek.com.tw		Issue 2023/2/14	Date 2023/2/14
CATEGORY: 150W-LED TITLE: Sea Bright Searchlight PART No.: 280030001-00001 DWG No.: B00003 SIZE: A3 ISSUE: 2 PAGE 1 OF 1		Issue 2023/2/14	Date 2023/2/14

## 2.2 Connector

### 2.2.1 Micro Circular



<b>2GW100605M-00001 (MCBH05MBR)</b>	
<b>Operation Specification</b>	
<b>Max. voltage</b>	300 VDC
<b>Current rating @contact</b>	Contact 2,3,4: 10A
	Contact 5,6,8: 5A
	Contact 10,12,16: 5A
<b>Max. current @connector</b>	Contact 2,3,4,5,6,8: 20A
	Contact 10,12,16: 30A
<b>Insulation resistance</b>	> 200 Mohm
<b>Contact resistance</b>	< 0.01 ohm
<b>Wet matings</b>	> 500 times
<b>Depth rating</b>	600 bar (300 bar for peek)
<b>Temperature rating</b>	- 40 to 60°C
<b>Material Specification</b>	
<b>Connector body</b>	Chloroprene rubber
<b>Bulkhead body</b>	Brass (BR), stainless steel 316 (SS), anodized aluminum (AL), titanium (TI)
<b>Contact</b>	Gold plated brass
<b>Socket</b>	Beryllium copper
<b>Location pin</b>	Stainless steel 316
<b>Bulkhead leads</b>	Contact 2,3,4: AWG 18 PTFE, 30cm (AWG 20 PTFE optional)
	Contact 5,6,8: AWG 20 PTFE, 30cm (AWG 22 PTFE optional)
	Contact 10,12,16: AWG 20 PTFE, 30cm
<b>O - rings</b>	NBR 2-014

## 2.3 General

Part No.	2GW100605M-00001
Title	Micro Circular Bulkhead
Service Check	Regularly
Tool	None

80W LED function with MCBH5MBR connector.

## 2.4 Indications for Replacement

Replace if connector is damaged, deformed or no longer watertight.

## 2.5 Installation Procedures

### For greasing and mating above water (dry mate)

1. Connectors must be greased with Molykote 44 Medium before each mating.
2. A layer of grease corresponding to minimum 1/10 of socket depth should be applied to the female connector.
3. The inner edge of all sockets should be completely covered, and a thin transparent layer of grease should be left visible on the face of the connector.
4. After greasing, fully mate the male and female connector in order to secure optimal distribution of grease on pins and in sockets.
5. To confirm that grease has been sufficiently applied, de-mate and check for grease on each male pin, then re-mate the connector.

### For Cleaning

1. General cleaning and removal of any accumulated sand or mud on a connector should be performed with spray based contact cleaner, Isopropyl Alcohol.
2. New grease must be applied again before mating.

### **Caution!!**



**It always recommends applying dummy plug for watertight protection when storage and operation.**

### **Warning!!**



**Only the qualified specialist is allowed to proceed the connector replacement.**

## 3 Installation



### 3.1 Installation Guide


LED Electrical and Control Signal

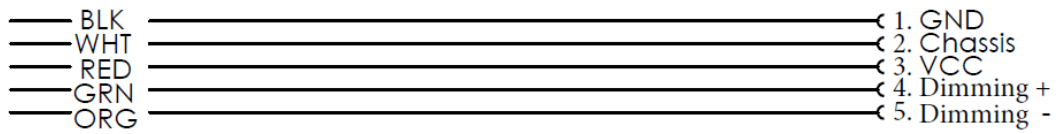
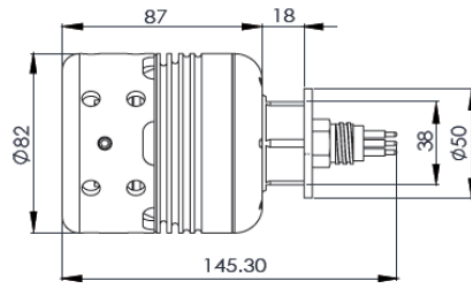
	Nominal	Max	Min
Input Voltage	300 VDC	150 VDC	380 VDC
Input Current	0.52A	0.94A	0.41A
No Dimming	-	-	-
Dimming 0-5V	-	5V	0V
Dimming PWM (Option)	50%	100%	0%


Procedure of electronic Connection:

1. Cable Black/Pin1 to GND
2. Cable White/Pin2 to Chassis
3. Cable RED /Pin3 to +300 VDC
4. Cable Green/Pin4 to Dimming +
5. Cable Orang/Pin5 to Dimming -

### 3.2 Pin Assignment

Num of Pin	Cable Code	Assignment	Bulkhead Top View (Male)
1	Black	GND	
2	White	Chassis	
3	Red	VCC	
4	Green	Dimming +	
5	Orang	Dimming -	



 <b>DWTEK CO., LTD</b> No. 22 Dong Ying Rd., Taichung City Taiwan R.O.C Phone: 886 4 35024890 Fax: 886 4 22112890 E-mail: info@dwtek.com.tw	CATEGORY :
	150W- LED
	PART No. :
	2B0030001-00001

V1.0

Make sure all the connection is correct, and then follow the instruction listed as below to power the 80W LED.

1. Deliver GND to BLACK
2. Deliver +300 VDC to RED
3. Deliver Chassis to WHITE
4. Adjust 0-5V control signal to GREEN and ORANG



### 3.3 Maintenance and Removal

1. The lamp has been designed from the outset with a view towards simple straight forward operation and maintenance. All the lamp main parts are replaceable with instruction. Please contact DWTEK for details. If the connector requires for replacement, it is suggested that a thread lock compound be used to hold the connector firm.
2. If any parts of the lamp are removed for maintenance, the O-ring seals should have damage check and be lightly greased and cleaned before the lamp is reassembled.
3. Care should be taken not to scratch the front window when cleaning it with soft cloth and soapy water.

To remove the LED, please follow below steps.

1. Disconnect the cable.
2. Install the protection dummy on the bulkhead connector

LED FIELD & DEPOT REPAIR PROCEDURES LISTED BELOW SHALL BE CARED.



**Warning!!**

**Make sure to switch off LED power the system is on the surface.**



**Caution!!**

**The LED is designed as a simple maintenance unit. After each dive, please always wash with fresh water.**



## 4 Trouble shooting

### 4.1 LED Trouble shooting

If 150W LED performed:

I. No light up.

please proceed the initial detection procedure which mainly caused by one type of case as below:

I. Power output.

### 4.2 Detection Procedure

1. Use a multimeter to confirm that the voltage has a normal output, and the cable BLACK is connected to GND, and RED is connected to VCC.
2. Make sure that the LED is unobserved and in safe and well-protected condition.
3. It is recommended to use a power supply with a current consumption display to check the power consumption. If there is no power consumption, please contact the original factory and send it back for testing.



**Caution!!**

**If the current goes higher with short circuit, the PCB need to be examined and replaced.**



## 5 Maintenance

### 5.1 Acrylic

#### 5.1.1 General

Part No.	2D003-00011
Title	Acrylic window
Service Check	Dirty
Tool	Alcohol 、 Clean Paper

1. When cleaning the acrylic, use a soft cloth dampened with water to wipe it. Do not use pickle cloth or coarse cloth to avoid scratching the acrylic. Acrylic can be cleaned with rubbing alcohol and cleaning paper.
2. It is recommended to spray it on a soft cloth before wiping.
3. Do not use high-concentration alcohol to avoid fogging or cracking of the acrylic

## 6 Appendix

### 6.1 Vacuum and Pressure Relief

All electronic components could generate heat and prohibit system operation with a vacuum. Pressure relief port can be used as a vacuum port for testing purpose.

Recommended vacuum test on the pod is -80kPa for a period of 30 to 60 minutes after disassemble and re-assembly. It should be released once the testing is complete. Filling in Nitrogen gas from the Nitrogen bottle with an adaptor would take out the moisture to prevent concentration

#### **Warning!!**



- 1. Make sure that this process was carried out in a well-organized place.**
- 2. Check and clean the O-rings on pressure relief valve before installation. If they are damaged, please replace it with new one.**
- 3. Improper installation or skipping installation in secure fasteners and pressure relief valve after re-assembly could bring catastrophic system failure.**