

HID VIDEO LIGHT TEST COMPARISON 12-2005

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Brand Name

Measured Data

Color Temperature

True Color Chart

HiDef Video Capture

Beam angle

Keldan



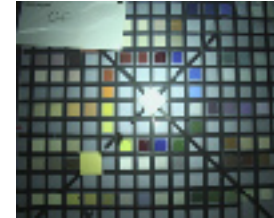
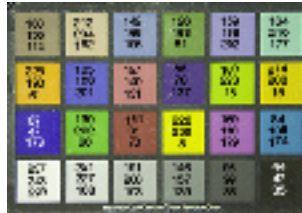
Dry weight 2 lbs 7oz
Wet weight 1 lb 2oz
Color temp 4800K
Beam angle Variable
Power High/Low settings



Green Force Squid 100



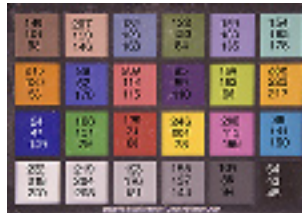
Lamp head Dry weight 2 lbs 9 oz
Wet weight floats +3oz
Battery Dry weight 2 lbs 7 oz
Wet weight 1 lb 4 oz
Color temp 5400K +20G
Beam angle fixed



Patima 35W



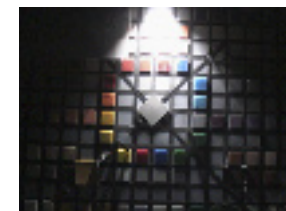
Lamp head Dry weight 3 lbs 4oz
Wet weight 8 oz
Battery Dry weight 5 lbs 1 oz
Wet weight 1 lb 12 oz
Color temp 4600K
Beam angle* variable



Light and Motion



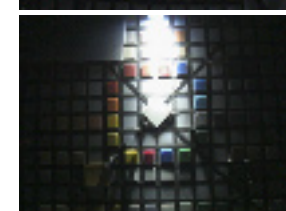
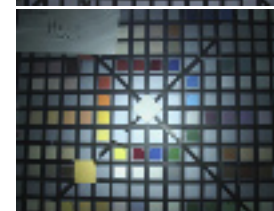
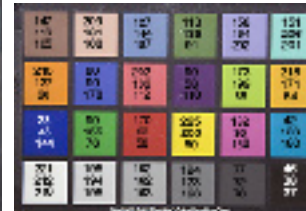
Lamp head Dry weight 15.5oz
Wet weight floats+1.5oz
Battery Dry weight 1 lb 10 oz
Wet weight 9 oz
Color temp 4750K
Beam angle fixed



Nocturnal HID



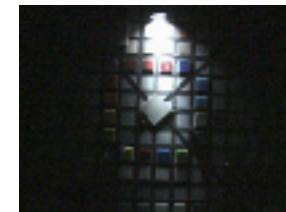
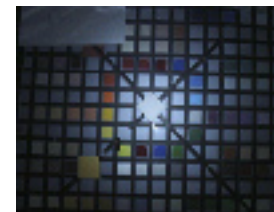
Lamp head Dry weight 1 lb 8 oz
Wet weight 8 oz
Battery Dry weight 7 lbs 4 oz
Wet weight 2 lbs 8 oz
Color Temp 5250K
Beam angle variable



UK 100 HID



Dry weight 2 lbs 12 oz
Wet weight 10 oz
Color temp 5500K
Beam angle* variable



NiteRider 40



Single head	Dry weight	13 oz
	Wet weight	3 oz
Battery	Dry weight	2 lbs 6 oz
	Wet weight	13 oz
	Color Temp	5700K +7G
	Beam angle	fixed

This light testing was to determine the variations of color output by the HID light systems from several manufacturers of underwater HID video lights.

The standard was to match 5000 kelvin degrees. I used a Canon Rebel with a Canon strobe flash as a control image on the Macbeth chart. The numbers in the color patches are direct readout in Photoshop for each color sample. All files were processed as Raw and uncorrected in photoshop into Adobe RGB files for measurement.

The camera was set to daylight color preference at ISO 800 with the lens set to f5.6 at 4 feet from the color chart. Only the shutter speed was adjusted to obtain the proper exposure for each image. The light sources were mounted directly above the lens at 4 feet distance from the target.

The results show that there are large color shifts from the daylight standard. Light intensity for each light varies according to the beam spread. The test does not show the beam spread or evenness of light coverage.

My observation is that Light and Motion, Patima and Keldan HID light output have a drop in the green spectrum. This may be a benefit underwater where warmer light is needed to off set the loss of red as light is passed through water.

The Green Force 100 light lamp head has a very high green color spike and is not as favorable even though its coverage is very wide.

The Patima 35W has the widest coverage but not shown in this test. It also has add-on beam widener accessories.

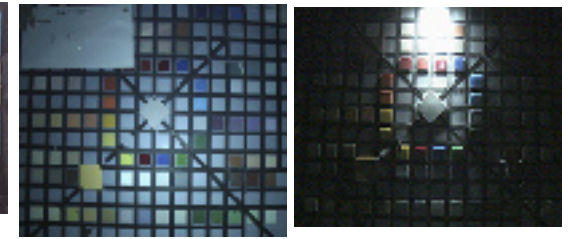
Keldan has the option to widen its coverage with an optical lens. It is the brightest of the lenses tested.

The Night rider has the greatest blue spike and was very difficult to light the target evenly even though it was 4 feet from the light. The same with the UK Light Canon 100 which also has a blue color spike. Both these lights will give an over blue cast underwater.

None of the lights tested matched the daylight control color of 5000 Kelvin. The one light that was nearest to the control chart was the Keldan unit and it was also the brightest. Light and Motion and Patima were second.

Testing performed by Lee Peterson at the San Diego Photodistrict.

www.photodistrict.com/lee



Canon strobe flash shows the most accurate color balance for the Macbeth Color Chart

Keldan has some Red output with good light intensity with its wide lens attachment installed. It is bright enough to work with Hi Def video. The wide beam angle is evenly distributed.

Green Force 100 has high Green and low Red output and low light intensity compared to the other lights. The beam has a hot spot in the center even though it has a wide coverage. We have been notified they are changing the bulb.

Patima 35W has warm output with very even beam distribution without the use of a beam widener. It is very bright and will work well with Hi-Def video.

Light & Motion has warm output. The beam distribution is even with good color. The heads do not need beam wideners and the Sun Ray light has enough power to work with Hi-Def video.

The Nocturnal HID light has good color but needs a beam widener to control the hot center. Even with the beam widener there is a hot center and the wide coverage is not great.

The UK Canon 100 has a Blue color cast and is difficult to get even distribution of light over the target at 4 feet distant. The beam widener is a diffuser that is installed inside the port. The light output is too low to be useful for Hi-Def video.

The NiteRider 40 (single head with 2 lamps) has a strong blue color cast and was difficult to get even lighting on the color target. The light intensity is not quite suitable for Hi-Def video. Using two light heads would improve this short fall.

This test was to show the variations of intensity and beam angle for several of the HID lights available to underwater videographers. Differences in color temperature is also noticeable. Center hot spots are also detected. Another major concern is that Hi-Definition video cameras do not operate at low light levels. Most have a lower limit of 7 Lux.

The current offering of HID lights are sufficient for most single chip VHS video cameras. With the new introduction of Hi-Def video cameras requiring the need for more light some of the HID lighting systems do not supply sufficient light for these Hi-Def cameras. If you are planning on using a Hi-Def camera you need to choose a lighting system that is powerful enough to meet the needs of the camera. Our test was performed underwater at a distance of 4 feet from the target. The Sony camera's exposure was set to 1/60 @ f1.8. Several of the lights tested could not meet this standard and the exposures were filled with digital noise.

HID lamps produce 5% of its output when first ignited, and requires a few seconds (usually 15-20) to come up to full output. If power to the lamp is lost or turned off, the arc tube must cool to a given temperature before the arc can be re-struck and light produced. So be careful to not turn off the light until it has fully charged to its maximum power. HID bulbs require a (15-30 second) cooling period before they can be re-lit.

The color temperature of HID lighting more closely approximates the color temperature of natural daylight at 5000 Kelvin. Closely is the key word. None of the lights we tested hit the 5000K mark. Typical color temperatures are 2800K (incandescent), 3000K (halogen), 4100K (cool white or SP41 fluorescent), and 5000K (daylight-simulating fluorescent colors).

A HID lamp will last, on the average, 3 to 5 times as long as a halogen bulb. In normal use, the HID bulb should last beyond one thousand operations.

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Video exposure record for the video camera test in water.

Still images were captured and processed in Photoshop CS2

Patima HID 35W

Sony HDR-HC1 • camera still capture
1/60th @ f1.8 • sRGB • Daylight
Auto Exposure 4 feet from target.

Keldan Wide

Sony HDR-HC1 • camera still capture
1/60th @ f1.8 • sRGB • Daylight
Auto Exposure 4 feet from target.

Sun Ray HID

Sony HDR-HC1 • camera still capture
1/60th @ f1.8 • sRGB • Daylight
Auto Exposure 4 feet from target.

Green Force Squid HID 100

Sony HDR-HC1 • camera still capture
1/60th @ f1.8 • sRGB • Daylight
Auto Exposure 4 feet from target.

NiteRider 40

Sony HDR-HC1 • camera still capture
1/60th @ f1.8 • sRGB • Daylight
Auto Exposure 4 feet from target.

Nocturnal HID

Sony HDR-HC1 • camera still capture
1/60th @ f1.8 • sRGB • Daylight
Auto Exposure 4 feet from target.

UK 100 HID

Sony HDR-HC1 • camera still capture
1/60th @ f1.8 • sRGB • Daylight
Auto Exposure 4 feet from target.

Overview for this test.

There is a wide selection of HID lights to choose from. Most were sufficient to work with Hi-Def video cameras that need more light than the standard video camcorders. Most have a minimum recording ability of only 7 Lux.

The quality of the light output varies from each manufacturer according to their choice of bulb, reflector, front port configuration and battery supply. This comparison test shows all the variations you will encounter when you try to decide what is the right HID system for your needs.

We hope this information gathered in these tests will help you decide which system meets your needs.

Options to consider:

We did not test the burn time or battery capacity for these lights since the manufacturer has tested them and the data is offered in their spec sheets.

These are the areas we tested or made reference to.

- Intensity
- Beam angle coverage
- Even distribution of light
- Color temperature
- Buoyancy
- Dry weight (for travel concerns)
- Self contained or separate power supply
- Beam angle control
(Only one light offered variable power output and that was Keldan with two power choices.)
- Power supply choices for charging and battery replacement.

We have talked to several professional underwater photographers who have used both the Quartz halogen and tungsten lights along with the HID lights. It is split 50/50 for what they will rely on to do their job. The reasons for their choices are ones that fit their pocket book and imaging styles. Lights that have a color temperature closer to daylight are easier to color balance to match ambient light. For max power and intensity, HMI lights do the best but are really difficult to make portable for underwater and are very costly.

When you choose to use a Hi-Definition video camera you will soon discover the need for lighting power. It will be expensive. If you don't have power your imaging will be limited to close-up photography with your lights.

If you have been taking standard video and using lights and want to make the leap into Hi-Definition video you may find your existing light insufficient for the job.

Our testing of the HID lighting systems was done so you will have the option of evaluating what is offered and what will fit your budget and videoing needs.

We certainly learned a lot from performing the tests. We think this will be useful information for you also. Read it carefully. Send us your comments and questions. We will do our best to help you. Look over the data on page four.

The Crew at Marine Camera.
mcd2000@marinecamera.com

Keldan

Intensity 1/125 sec@f5.6 4 feet distance
 Beam angle coverage 80 degrees
 Even distribution of light good
 Color temperature 4800 Kelvin
 Buoyancy Negative 1 lb 2 oz
 Dry weight 2 lbs 7 oz total
 Power supply removable/ self contained /no cord
 Beam angle control Yes. Removable optical lens
 Power supply Removable for charging
Power settings
Battery status
 Test and 2 out put settings
 LED read out

Green Force Squid 100

Intensity 1/80 sec @ f5.6 4 feet distance
 Beam angle coverage 75 degrees (hard edge)
 Even distribution of light Center hot spot
 Color temperature 5400 Kelvin +20G
 Buoyancy Negaative 1 lb 1 oz
 Dry weight 5 lbs
 Power supply supply Contained no access
 Beam angle control None
 Power supply External battery

Patima 35W HID

Intensity 1/100@ f5.6 4 feet distance
 Beam angle coverage 89 degrees
 Even distribution of light very good
 Color temperature 4600 Kelvin
 Buoyancy Negative 2 lbs 4 oz
 Dry weight 8 lbs 5 oz
 Power supply supply Contained no access
 Beam angle control Add on diffusers
 Power supply External battery

Sun Ray- Light and Motion

Intensity 1/80@f5.6 4 feet distance
 Beam angle coverage 80 degrees
 Even distribution of light good
 Color temperature 4750 Kelvin
 Buoyancy Negative 10.5 oz
 Dry weight 2 lbs 9.5 oz
 Power supply supply Removable
 Beam angle control None
 Power supply Removable for charging

Nocturnal HID

Intensity 1/200@f5.6 4 feet distance
 Beam angle coverage 70 degrees
 Even distribution of light Hot spot in center/ with diffuser on
 Color temperature 5200 kelvin
 Buoyancy Negative 3 lbs 8 oz
 Dry weight 8 lbs 12 oz
 Power supply supply Removable
 Beam angle control Diffuser
 Power supply External battery

UK 100 HID

Intensity 1/60@f5.6 4 feet distance
 Beam angle coverage 69 degrees
 Even distribution of light Hot spot in center with diffuser on
 Color temperature 5500 kelvin
 Buoyancy Negative 10 oz
 Dry weight 2 lbs 12 oz
 Power supply supply Removable/self contained/no cord
 Beam angle control Internal diffuser
 Power supply Removable

NiteRider 40 (single head) HID

Intensity 1/80@f5.6 4 feet distance
 Beam angle coverage 65 degrees
 Even distribution of light Hot spot in center diffusion built in
 Color temperature 5700 kelvin
 Buoyancy Negative 1 lb
 Dry weight 3 lbs 3 oz
 Power supply supply Removable/self contained
 Beam angle control Non removeable diffuser
 Power supply External

RED: Good features BLUE: Problem features