Underwater Drop Video Camera

Operator's manual

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1. Description

DCAM is a high-resolution, color or B/W underwater camera with LED lights, cable, reel. The depth gauge can be istaled additionaly.

1.1. Purpose

Drop Cam is intended for video surveys and inspections of underwater objects such as ship hulls, underwater constructions, etc. It can be used for underwater pipeline inspection, searching and rescue, sport fishing, treasure hunting or marine biology research. The drop camera can be installed on the diver's helmet.

1.2. Design

Basic set

1. Underwater camera with lights
2. Control/power module
3. Cable reel

Underwater camera module [1]
contains aluminum waterproof cylindrical hull with holes for mounting clamp for horizontal position of the camera. The glass dome with a CCD 1/3" color camera and ring of ultra-bright LEDs locates at the front part of the module. The electronic board is installed into main cylindrical hull. Hermetic waterproof connector is at the back roof of the hull together with hole for vertical cam position mounting clam.

Surface control/power module [2]
provides powering of underwater module and transmission of video, contains the LEDs brightness controller.

Cable [3]
Basic length of the cable is 50 m, max 300m. It is used for power and video transmission.

Additional equipment (can be installed upon request)
- Cable (up to 300 m)
- Cable reel with no slip ring
- Cable reel with slip ring connector
- Converter 12VDC/230VAC
- 12V battery

- Connector cable set
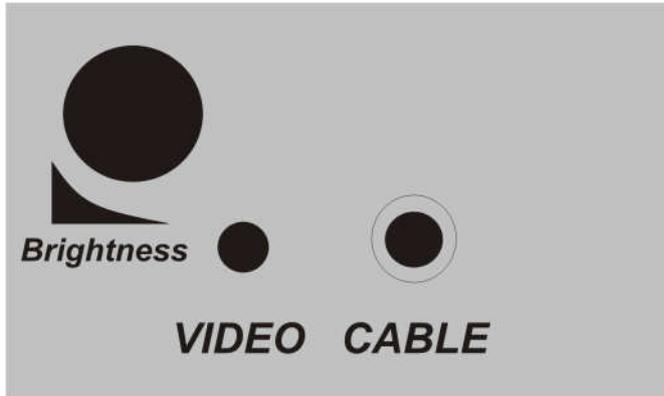- LCD/TV
- Video recorder

1.3. Technical specifications

1. Operation depth – up to 300 m.
2. Cable length – 50 - 300 m.
3. Cable is strengthened by the Kevlar threads and the additional polyethylene shield, negatively buoyant.
4. Cable diameter – 3-8 mm depends on length, breaking force – 100 kg
5. Lights -15-45 ultra-bright LEDs.
6. Color camera PAL CCD 1/3", 480 (600 b/w) TV Lines, 0.5 lux.

The video camera together with lights provides 15-20 m in the daylight in the transparent water. Maximum 3-4 m visibility can be in the dark water.

7. Power supply and control module 230VAC.
8. Maximum power consumption +100Watt.
9. Operating environment humidity – up to 100%.
10. Operating temperature range – -20 …+ 45º. C.
11. Full system is packed in a high-performance waterproof case.
12. Underwater module weight – 0.3 kg, full weight of system (with cable 50 m) – 4 kg
13. Module dimensions 115x52x52 mm

2. User's manual for operation with Drop Camera

2.1. Before using, please, check up all parts of module dome.

2.2. Plug in 3-sockets connector to reel and video cable to monitor video input. Connect AC power cable.

WARNING!
Be very careful with the cable, do not:
- **Stand on it**
- **Press on it**
- **Twist it**

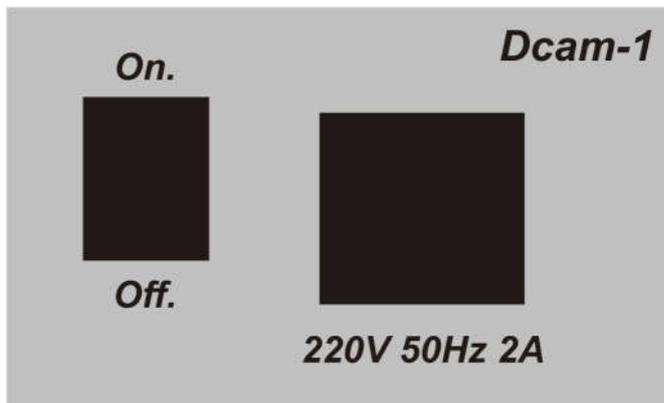**If any damages happened you must repair or change the cable**

Only for reels with no slip ring connector

- Before connect the reel, please, pull out the cable the length you need
- Connect black cable from control module to the connector on the reel
- To pull out more cable during the operation you <u>must </u>switch power OFF then disconnect black cable from the reel, then pull out the cable

2.3. If use any additional display or audio/video recorder, please, connect video cable to RCA jack of additional video device

2.4. Power supply from 230V

Set switch 230V **"I"** (UP position). LED indicator is on during the operation.
To finish operation set switch 230V **"O"** (DOWN position)

2.5. **To adjust brightness of LEDs use handle "brightness"**
Do not switch lights on a full power on air!

2.6. To fix the operating position of the module use mounting clamps. The cable can be fixed on a clamp using special ring.
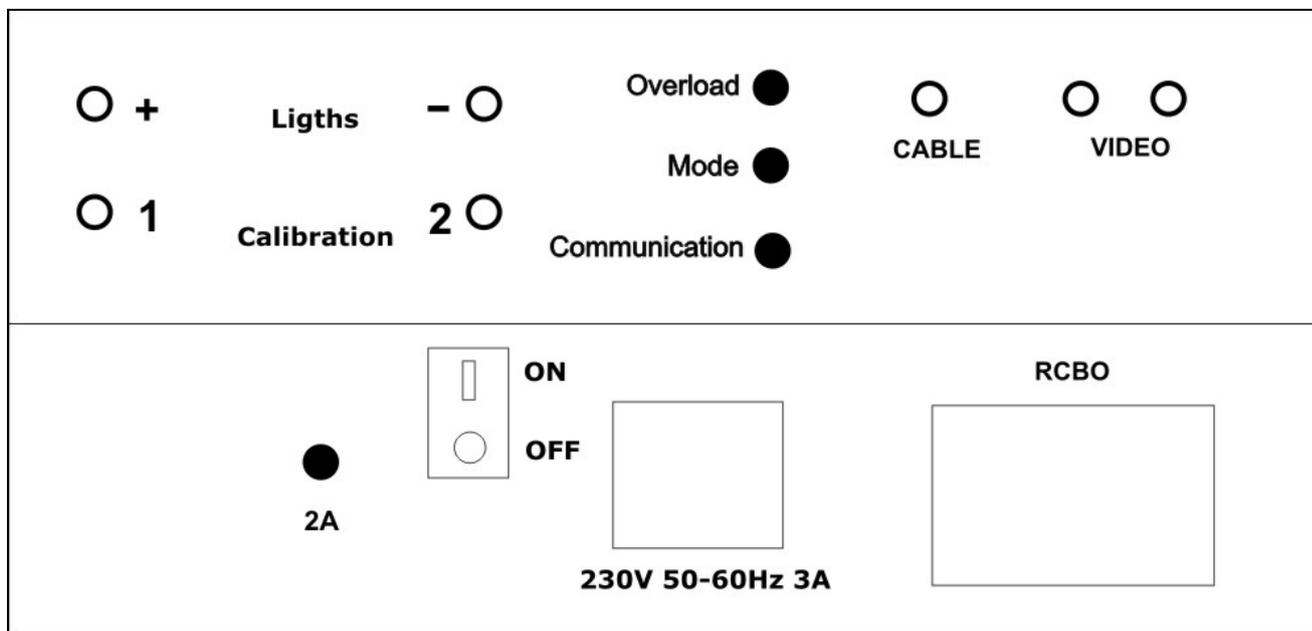
WARNING!!!!

1. Rinse the camera in the fresh water after using in the sea.
2. Inspect the cable after the operation. In a case of any damages the cable must be repaired or changed.
3. Keep the module and the cable reel dry.

3. User's manual for operation with Drop Camera with depthmeter.

3.1. Before using, please, check up all parts of module dome.

3.2. Plug in 3-sockets connector to reel and video cable to monitor video input. Connect AC power cable.

WARNING!

Be very careful with the cable, do not:

- **Stand on it**
- **Press on it**
- **Twist it**

If any damages happened you must repair or change the cable

Only for reels with no slip ring connector

- Before connect the reel, please, pull out the cable the length you need
- Connect black cable from control module to the connector on the reel
- To pull out more cable during the operation you <u>must</u> switch power OFF then disconnect black cable from the reel, then pull out the cable

3.3. If use any additional display or audio/video recorder, please, connect video cable to RCA jack of additional video device

3.4. Power supply from 230V

Set switch 230V "**|**" (UP position). LED indicator is on during the operation.

To finish operation set switch 230V **"O"** (DOWN position).

3.5. **To adjust brightness of LEDs use keys "+\\- Lights". For max lights press both keys together.**
Do not switch lights on a full power on air!

3.6. To fix the operating position of the module use mounting clamps. The cable can be fixed on a clamp using special ring.

3.7. **To calibrate depth sensor** you should set **0**m when DCAM is on a surface.
Press and hold key "**2**" in order to set depth 0 and hold 3-4 sec.
Then dive cam into a water to depth you know value, for example 10m.
Press key 1 for 3-4 sec., then use keys "**+**" and "**-** " to set value 10m you see it on screen, then press 1 again to fix calibration.
We recommend to set depth 0 after 5 min.   power ON.
    Data/clock menu settings.
    Press key 1 and 2 together for 3-4 sec. to switch settings mode.
    "+" or "-" to set current time and date.
  Keys "1" and "2" select hour/min/sec or day/month/year
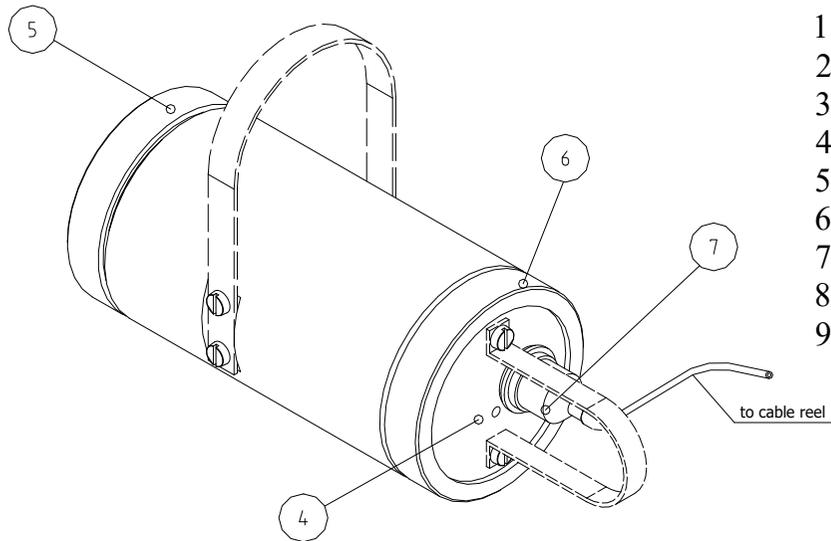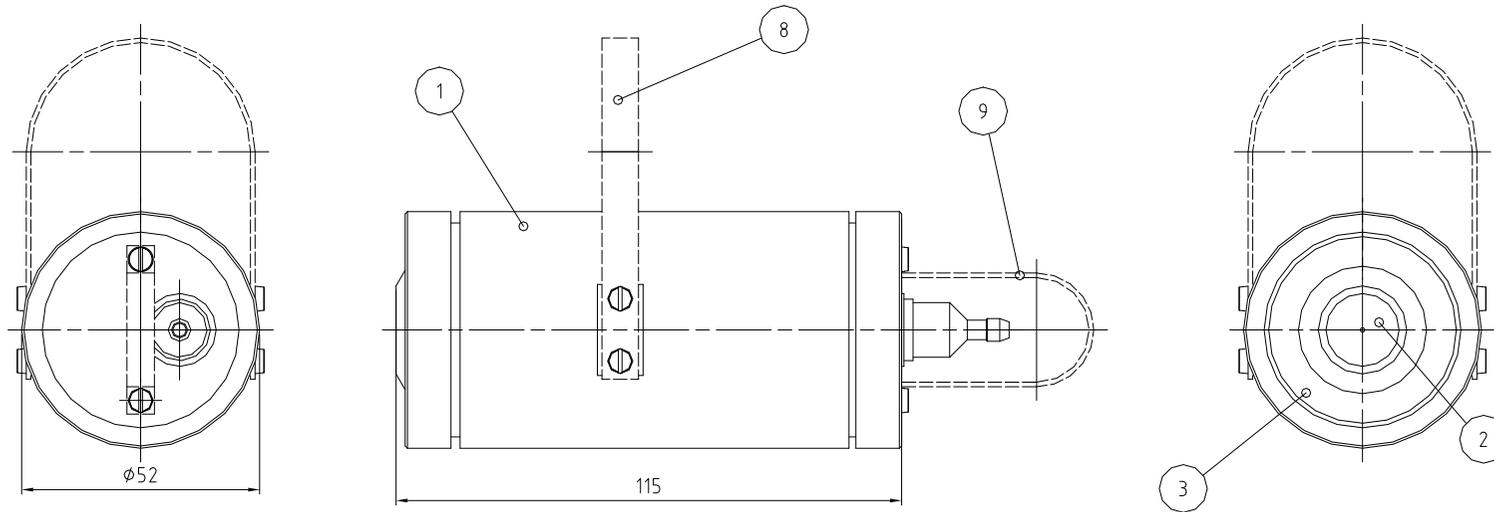 Press "+"and "-" to up/down value
Press "+" and "-" together to fix and exit .
Then "1" and "2" together to exit.

WARNING!!!!

4. Rinse the camera in the fresh water after using in the sea
5. Inspect the cable after the operation. In a case of any damages the cable must be repaired or changed.
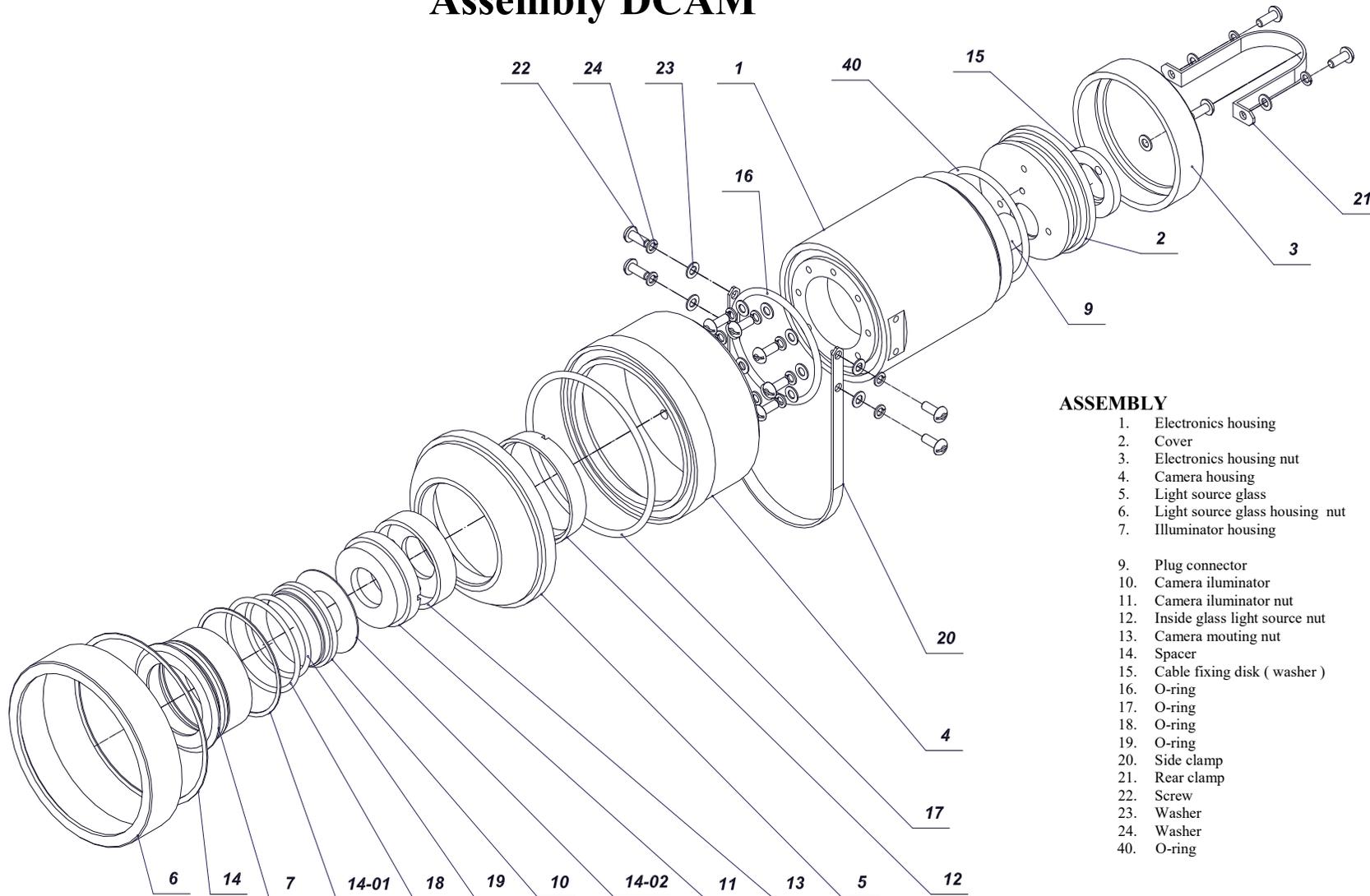6. Keep the module and the cable reel dry.

Appendix

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115

to cable reel

1. Main hull section
2. Foward-viewing window
3. Light port
4. Backwall
5. Nut
6. Nut
7. Cable pressure seal
8. Horizontal cable clip
9. Vertical cable clip

Appendix

Assembly DCAM

ASSEMBLY

1. Electronics housing
2. Cover
3. Electronics housing nut
4. Camera housing
5. Light source glass
6. Light source glass housing nut
7. Illuminator housing

9. Plug connector
10. Camera iluminator
11. Camera iluminator nut
12. Inside glass light source nut
13. Camera mouting nut
14. Spacer
15. Cable fixing disk (washer)
16. O-ring
17. O-ring
18. O-ring
19. O-ring
20. Side clamp
21. Rear clamp
22. Screw
23. Washer
24. Washer
40. O-ring