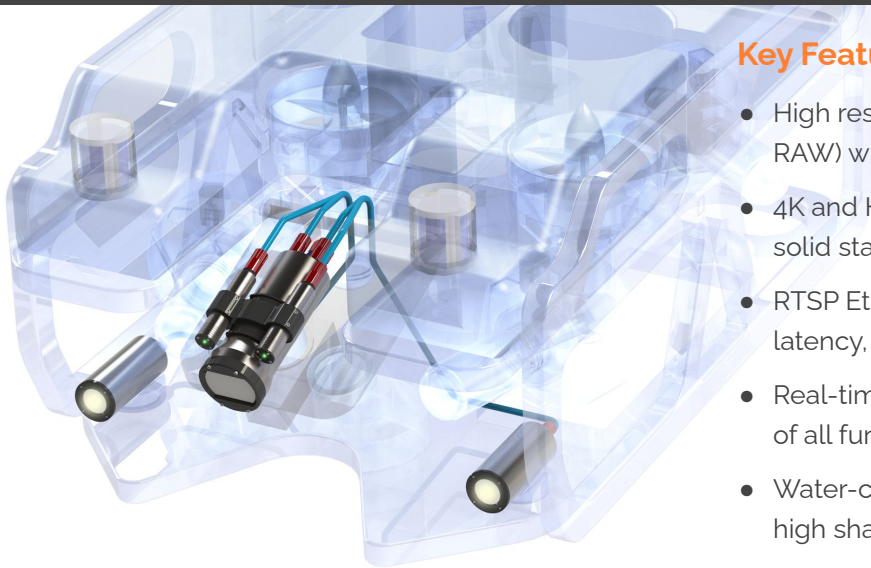


# Digital Stills & 4K/HD Solution

For anomaly identification, clip generation and photogrammetry



## Key Features

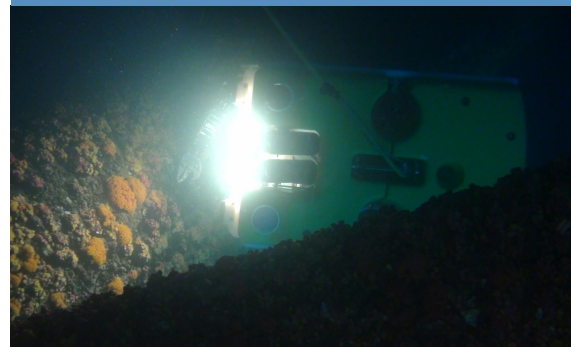
- High resolution digital stills (JPEG and RAW) with LED strobe synchronization
- 4K and HD video clips stored to 512GB solid state memory
- RTSP Ethernet, 1080p@30fps, low latency, full HD video streaming
- Real-time media download and control of all functions (Exposure, focus, etc.)
- Water-corrected Ivanoff optics design - high sharpness and low distortion
- Aux ports control LED strobe/lamp(s) and lasers (line and parallel)

Rayfin camera is available in [LiquidOptics](#) or [UltraOptics](#)  
LED strobe/lamp(s) and parallel lasers are plug and play

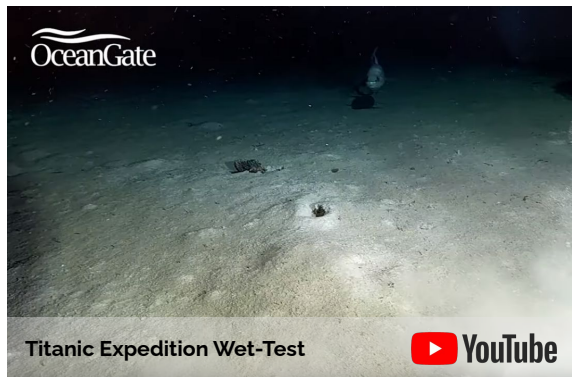


## Harshest Conditions. Clearest Images.

The ROV *Odysseus* is equipped with a SubC camera as the primary video payload. In 2018, in the eastern Gulf of Mexico, the NOAA ship *Nancy Foster* with the *Odysseus* on board, completed an expedition filming deep-sea corals between 400-700m depth.

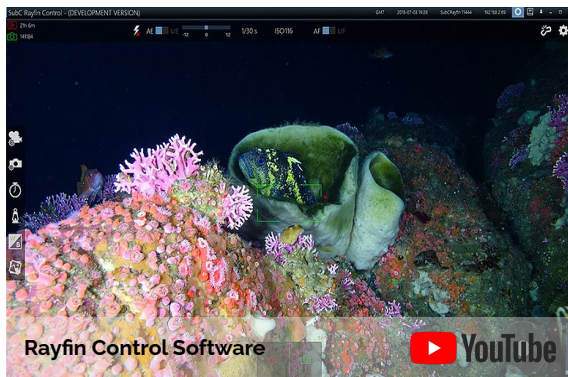


# Real Clients. Real Projects. Real Results.



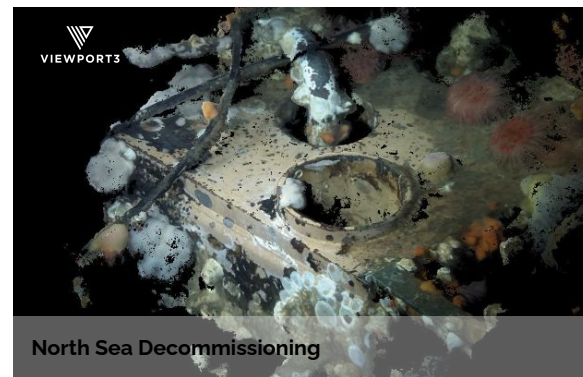
## SubC Partners with OceanGate

In April, 2019, equipped with Rayfin smart cameras, Titan completed a record-setting dive of 3,760 meters below sea surface with four people inside. This dive marks the first time that a non-military manned submersible has taken more than three people to nearly 2.34 miles below the sea surface.



## Rayfin Control Software Tutorial Series

The Rayfin is a smart camera with proprietary integrated software that is continuously enhanced thanks to client feedback and external advancements in technology components.

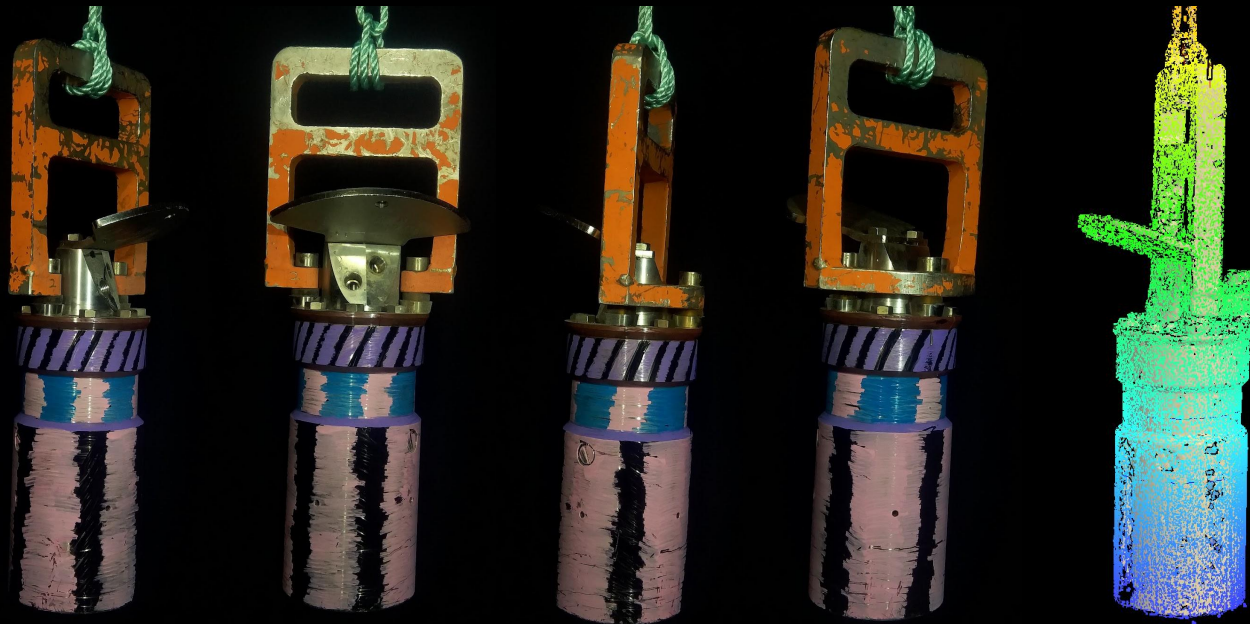


## Photogrammetry with Viewport3

While carrying out decommissioning operations on a North Sea field, Viewport3 generated 3D footage using SubC's Rayfin and LEDs, scanning 16 separate targets. The project delivered high-quality data that eliminated ambiguity and reduced any risk posed by delays to the removal of the components during future decomposition operations.

# High Resolution & High Image Sharpness

Take multiple overlapping digital stills (raw and JPEG) that can be processed into 3D models



## Rayfin Mk2 HDE Camera

### Sensor properties

**Image size:** 12.3MP (4056 x 3040)

**Video resolutions:** 4K UHD, 1080 HD, SD

**Max Continuous Still Rate:** 3Hz

**Recording codecs:** H.265(HEVC), H.264

**Streaming codec:** H.264

**Internal recording capacity:** 512 GB

**Zoom:** 12.3MP sensor zoom (5x optical equivalent)

**Live Video:** HD Ethernet and SD composite

### Electronics

**Protection:** Short circuit, UV-OV-RV, ESD, OT

**Control:** Ethernet, Serial RS232 and RS485

**Power(W):** 7.5(idle), 8.5(recording), 13.5(peak)

**Voltage:** 16.5 - 32.5 Vdc

### Mechanical

**Materials:** Sapphire, grade 5 Titanium

**Weight:** 1.6Kg in water, 3.2Kg in air

**Depth Rating:** 6000m

### LiquidOptics (LO)

Water corrected design inspired by Ivanoff

**Diagonal FOV:** 81° minimum

**Sharpness:** high MTF50

**Distortion:** low

**Chromatic Aberration:** low

## Aquorea LED Strobe/Lamp

### LED properties

**Lamp Output:** up to 8500 lumens w/ Rayfin

**Strobe Output:** 32000+ lumens

**Color:** 5000K

**Beam Angle:** 80° (circular)

### Electronics

**Protection:** Short circuit, UV-OV-RV, ESD, OT

**Thermal Protection:** Auto dim/shutoff

**Control:** Rayfin Aux port (TTL & RS485)

**Power:** 48W

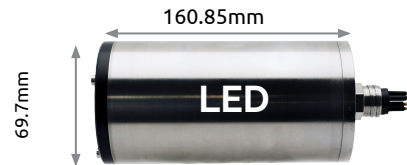
**Voltage:** 18 - 32.5 Vdc

### Mechanical

**Materials:** Sapphire, grade 5 Titanium

**Weight:** 0.9Kg in water, 1.5Kg in air

**Depth Rating:** 6000m



## MantaRay Parallel Lasers

### Laser properties

**Parallelism:** 100mm ±10mm @ 5m distance

**Output Power:** Class 3R <5mW

**Wavelength:** 520nm (green)

### Electronics

**Protection:** Short circuit, OV-RV, ESD

**Power:** 7.2W

**Voltage:** 7 - 32.5 Vdc

**Control:** Rayfin Aux port (TTL & RS485)

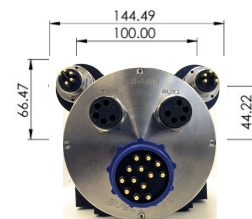
### Mechanical

**Materials:** Sapphire, grade 5 Titanium

**Weight:** 0.4Kg in water, 0.7Kg in air

**Depth Rating:** 6000m

## Lasers

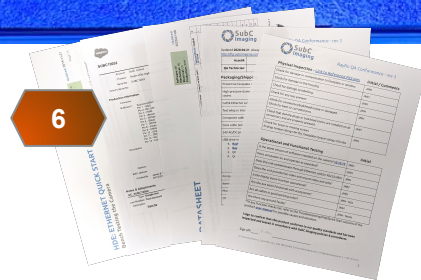


DBH13M



## Included with your Rayfin shipment:

1. Rayfin Benthic 6000m Titanium camera
2. Component compartment:
  - a. High-pressure dummy plugs for camera Aux0 & Aux1 bulkheads
  - b. DBH13F test whip bench testing the camera and downloading offline
  - c. AC cable (matching your region) and AC-DC power supply (24VDC)
  - d. Cat5e Ethernet cable
3. Optional Accessories:
  - a. Aquorea LED(s)
  - b. MantaRay or Skate Laser(s)
4. Accessory components:
  - a. (with LED or Skate laser) 3m MCIL5M to MCIL5F cable for Aux ports
  - b. (with MantaRay) 0.5m Y-splice laser cable to plug into camera
  - c. (with MantaRay) 2x Titanium clamps for attachment to the camera
5. USB stick with:
  - a. Windows 10 compatible Rayfin Control Software
  - b. Product manuals, datasheets and QC documentation
6. Documentation: complete QA checklist, pressure-test certificates, packing list datasheets, and quick start guide (located under the lid foam)
7. Impact resistant shipping case with designed foam insert



# > CONTACT SUBC IMAGING

As leaders in our field, our goal is to provide complete imaging solutions to subsea professionals. Our first step is always a simple conversation about the nature of your project and how our solutions can help you achieve success.

If you're interested in learning more about our products and services, please reach out to:

TAE KWANG ELECTRONICS CORPORATION

5TH FLR., K-BLDG., 3, SANGAM-RO 41GIL, GANGDONG-GU, SEOUL 05307, KOREA

PHONE: 02 479 2703 | FAX: 02 479 2705 | [taekwang@tkec.co.kr](mailto:taekwang@tkec.co.kr) | [www.tkec.co.kr](http://www.tkec.co.kr)

