



Motion capture for advanced underwater measurements

Qualisys Underwater camera is designed to operate underwater. It consists of a Qualisys camera enclosed in waterproof housing. The housing is equipped with a strobe built specifically for underwater use.

The Underwater camera is suitable for a wide range of applications, such as ship design, naval research, fishing industry and sports science.

Example of studies

- Human movements, sport, rehabilitation, robotics, animation
- Movement of underwater vessels
- Indoor simulations of extreme sea & weather conditions
- Scale models of oil platforms, attachment chains or gas/oil pipelines emerging out of the water, and other engineering measurements

FEATURES

- High speed motion capture
- Protected camera, IP68 / IP69K / NEMA 6P
- Pressure tested to 40 m depth
- High power LEDs with royal blue visible strobe
- Sensor resolution: 4, 6, and 12 MP
- Up to 20 meters range
- Relative accuracy up to +/- 2mm at 10 m distance
- Easily synchronized with external systems

DESIGNED FOR TROUBLE-FREE OPERATIONS

The Underwater camera is designed to be the world's most accurate optical motion capture camera for underwater use. It is also designed for mobility, robustness and trouble-free operation. In order to match the needs of different applications; the camera is available in the 5, 6, and 7 series.

INTEGRATION

Communication with the host computer is done over Ethernet controlled by a single laptop or desktop PC. Unlike a land-based system that connect via daisy chaining, the underwater cameras are connected to a connection unit that acts as a network switch. The cameras are controlled through the Qualisys Track Manager software (QTM) and can be synchronized with external hardware just like any other Qualisys motion capture system. Naturally, QTM takes full advantage of the all the features of the camera, such as active filtering and the ability to stream 6DOF data to 3rd-party applications in real-time.

HIGH-SPEED VIDEO

The Underwater cameras can be equipped with high-speed video. Since it can be calibrated with the motion capture system, it also features video with 3D overlay. Combining under- and over-water captures Qualisys Track Manager makes it possible to merge together data from a land-based and an underwater system. This means that objects can be tracked on both sides of the water surface in a single capture.

MEASUREMENT VOLUME

An Underwater camera is typically able to measure markers up to a distance of 15-20 meters depending on the water quality and the type of marker used. Measurement volume is also directly dependent on the number of cameras used.

CAMERA HOUSING

Camera body	Hard anodized aluminum
Camera size:	280×225×275mm (11.0×8.8×10.9 inches)
Weight	8.4 kg (18.5 lbs)
Camera protection level:	IP68
Standard lens:	40° FOV (options available)
Operating temperature:	0–35 °C
Pressure tested to	5 bar (40m depth)



12 high power deep blue LEDs, thermally connected to the water for efficient cooling.



Custom IP68 classified cable that carries data, power and control signals in a single cable.