



Oqus

100, 300+, 400 and 500 series

Qualisys motion capture camera with high-speed video



The Oqus range of cameras is the platform for Qualisys motion capture systems. In addition to the precision and real time marker generation, the cameras are also capable of recording high-speed, high-resolution video and support active filtering for outdoor measurements. The Oqus cameras builds on the proven and unique concept of real-time marker calculation inside the camera.

Product Information

KEY FEATURES

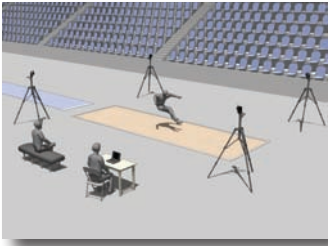
- High-speed motion capture
- High-speed video *
- Sensor resolution: 0.3, 1.3, 3 and 4 Mpixel
- Real-time with network architecture for low latency
- Active filtering for outdoor measurements
- Wireless communication *
- Support both active and passive markers
- Water resistant IP67 housing *
- MRI shielded housing *
- Silent operation, no fan
- Runs with portable or stationary computer
- No hub or workstation
- Single cable from cameras to computer or wireless, WiFi

OEM FEATURES

- Custom colors and labelling
- Other sensors
- Open Camera Architecture
- Custom applications such as web server

* Optional accessory/feature





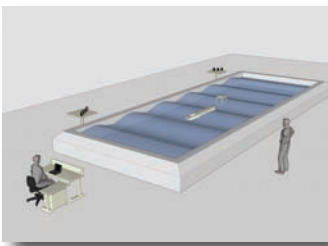
Motion capture is ideal for a wide range of sports applications in research, rehabilitation, physical education and training.



The system consists of a set of digital motion capture cameras, software, acquisition units, calibration equipment, markers and mounting devices. External equipment, such as force plates and EMG can be synchronized.



The versatility and flexibility of the system makes it suitable for many applications within psychology and facilitates the study of both simple and complex movements.



Tracking a model vessel's motions under different wave, current or wind conditions, is one of the fundamental tasks at a hydrodynamics lab or a naval test site.

HIGH-SPEED VIDEO

The Oqus camera has integrated, full-frame, high-speed video capability as an option. High-speed video can be captured at full resolution up to 500 fps or reduced resolution up to 10 000 fps. The 12.9 Gb/s bandwidth memory, can be expanded up to 1.1 GB. The capture mode, HSV or marker mode, can be set individually for each camera.

SENSOR HIGH-SPEED MODE

Oqus 300+ has a special sensor mode where you only use a fourth of the pixels but still keep the field of view. A camera then captures at 1764 Hz with the sensor resolution of 648*512 (VGA), slightly larger than the I-series, resolution both in marker mode and high speed video mode. It is possible to run the camera up to 10 000 fps with reduced field of view.

REAL-TIME

Oqus cameras have an on-board marker builder that calculates the center point of markers and by that reduces the original raw image of one or more megabytes to just a few kilobytes of centroid information. The data processing path from exposure to 3D / 6DOF has been optimized for the lowest possible latency. With a mere 4.2 ms delay from end of exposure to availability of data in third party software, Qualisys provides the lowest latency time in the industry today.

OUTDOOR MEASUREMENT



The Oqus 100, Oqus 300+ and Oqus 400 camera supports active filtering, in which the background is subtracted from each image. This dramatically increases the ability to capture passive markers in an outdoor environment.

Qualisys offers the only system on the market that can measure passive or active markers with the same camera.

WIFI

Communication with the cameras can be done wirelessly. The communication uses an internal WiFi at 54 Mbps. The configuration requires only one camera in the system to be equipped with WiFi, the other cameras are wired together.

IPHONE, IPAD AND IPOD SUPPORT

Qualisys apps for iOS devices – the Viewfinder and the QTM Remote lets you see what your Oqus cameras see, adjust exposure settings, easily start and stop captures without a dedicated trigger.



INTEGRATION

The Oqus cameras are easily synchronized with external systems such as EMG and force plates. Qualisys data acquisition software QTM, takes full advantage of all the new features and possibilities in the Oqus cameras.

The entire system can be controlled by a single laptop or desktop PC. This means that no heavy workstation is needed for data acquisition.

MOBILITY

A motion capture system based on the Oqus cameras, is uniquely mobile. The Oqus cameras were developed with mobility, robustness and trouble-free operation as key parameters.

Communication with the host computer is normally done through a Ethernet cable. The cameras are daisy-chained and no additional hub is needed to link them together. Alternatively, wireless communication can be used via an internal WiFi at 54 Mbps.

FLEXIBILITY

A range of different size, light-weight, passive retro-reflective markers, as well as battery powered active LED markers, makes reliable data capture possible in almost any condition, indoors as well as outdoors.

In order to match the different application needs, the Oqus cameras are available in four different series, the Oqus 1, 3, 4 and 5 series. The four series are distinguished by the choice of the optical sensor. The user can then optimize the price/performance for his particular application.

The high resolution series, enables the use of a large number of small markers, without sacrificing accuracy. It is even possible to mix the different series within the same system.

USABILITY

Oqus cameras are versatile and easy to use. They have a large, high-contrast OLED display showing information such as, the number of markers in view and their intensity.

The new Qualisys MMO-technology minimize the problem with merging and partially occluded markers. Oqus is convection cooled and is therefore, completely noiseless during measurements.



The large OLED display has good visibility at long distances. It shows information that simplifies set-up and usage of the cameras.



The two data ports are used for the Ethernet communication. The two power ports are used to supply the cameras with 48 VDC and the battery port is used to supply the camera with 12 VDC. The control port is used to externally control and synchronize the camera.



Easy to adjust aperture and focus by rotating the strobe. Rotate and unmount the strobe to change lens or strobe.

SPECIFICATIONS

Camera output modes	Marker coordinates and high speed video*
Built-in camera display	128 x 64 graphical high contrast OLED
Marker support	Both passive and active
Camera body	Convection cooled, custom die-cast aluminum
Camera protection level*	Water resistant IP67 housing available*
Synchronization options	Internal 1ppm clock/ext. freq. output/ext. word clock input/smppte input
Lens types*	SLR optics for Oqus 3+/4/5, c-mount for Oqus 1
Standard field-of-view	Options include 56°, 47°, 40° and 20°
Strobe	Invisible infrared light
Measurement distances	Up to 25m with 19mm markers / up to 9m with 4mm markers
Cabeling	Hybrid cable with Ethernet and power
Wired communication	Hub-less daisy-chained Ethernet 802.3 @ 100Mbps
Wireless communication*	WiFi 802.11b/g @ 54Mbps
Position data noise level	+/- 1 subpixels
Maximum frame buffer size	1152 Mbyte
Power	Daisy-chained, 36-72 VDC @ 30 W maximum
Operating temperature	0-35 °C
Camera body, Oqus 1	185 × 110 × 124 mm (7.3 × 4.3 × 4.9 inches) Weight: 1.9 kg (4.2 lbs)
Camera body, Oqus 3+/4/5	200 × 145 × 155 mm (7.9 × 5.7 × 6.1 inches) Weight: 2.1 kg (4.6 lbs)
Available camera housing	Standard / FX / IP67 / MRI / Underwater



1- SERIES



3+ -SERIES



4- SERIES



5- SERIES

Sensor resolution (pixels)	640×480, 0.3MP	1280×1024, 1.3MP	1696×1710, 3MP	2352×1728, 4MP
Marker position resolution (subpixels)	41000×31000	82000×65000	110000×110000	150000×110000
Max fps at full resolution and field-of-view	247 fps	500 fps	480 fps	180 fps
Max fps at full resolution and reduced FOV	1000 fps	10000 fps	10000 fps	10000 fps
High-speed mode(1/4th subsampled image) full FOV	No	Yes, 640x512@1764 fps	No	No
Active filtering for outdoor measurements	Yes	Yes	Yes	No
High speed video support	Yes	Yes	No	Yes

* Optional accessory/feature

Qualisys reserves the right to change specifications without notice

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