

REDSEE RED housing

by Hugo Fairs

Filmways Ltd have produced the new REDSEE underwater housing for the revolutionary RED ONE High Definition camera system.

Working with experienced underwater housing engineers, Greenaway Marine, award winning underwater cameraman Hugh Fairs has designed a housing for the RED ONE camera system. Built primarily with feature films, commercials, pop promos and dramas in mind, Hugh set out to build a housing for the RED ONE that he felt the camera deserved.

The REDSEE housing is pressure tested to a depth of 150ft and has been designed for use with the excellent 10mm Zeiss and the 14, 16, 18, 21, 25, 27, 32, 35mm Cooke S4 prime lenses. Also the 18mm to 50mm RED Zoom lens. These lenses are available from Movietech Ltd at Pinewood.

Underwater 'wide works best' as it allows the camera to get close and reduce the number of particles in the water column between the lens and the subject ensuring outstanding clarity.

Having used many housings for a variety of cameras over the years, Hugh recognises that control of the camera in the housing, ease of use,

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both setting up and underwater, and optical integrity are paramount.

Special optical ports are used with the lenses to bring distortion-free full field of view, compensating for the different refractive indices of air and water. With a flat front port the field of view is reduced by about 25% due to refraction.

Working with the superwide 10mm Zeiss, a large 8" dome port is used to keep the full 100° angle of view. Due to the optical qualities of the port, true 'half and half' shots can be achieved, something impossible with a flat port or 6" dome port.

The dome port gears have been modified to accept the full range of Cooke S4 prime lenses 14mm through to 35mm.

For total reliability, all camera and lens controls are manual, a tried and trusted system much less prone to failure than electronic switches, that are actuated by fingertip controls from the handgrips. Iris, zoom and focus are all controlled via stainless steel rods running through interlocking brass gears to engage flawlessly with the lens gear rings.

Control over colour balance and other picture attributes are



unnecessary underwater as the RED camera uses the RAW file system, so any changes made to the colour balance change the viewfinder image only. What the camera sees, the camera records. All changes to the quality of the image are done in post production. This is because, unlike the Sony and Panasonic HD cameras there is no compression of the video signal.

The 25mm thick Perspex end plate gives clear view of the RED HD 7" colour monitor, which also carries camera information. The housing also has a 2.5" monitor on an adjustable

arm, mounted on the top to aid framing in all positions.

To maintain cool running temperatures, the REDSEE housing is anodised black and then black powder coated externally for further protection. Aluminium has excellent heat dissipating properties and water helps to carry away the heat. The housing is constructed from 10 inch diameter aluminium tube. As such it is 1 inch wider than some of its competitors. This allows extra room around the camera and drive for better convection of heat away from the heat generating areas. A special dedicated



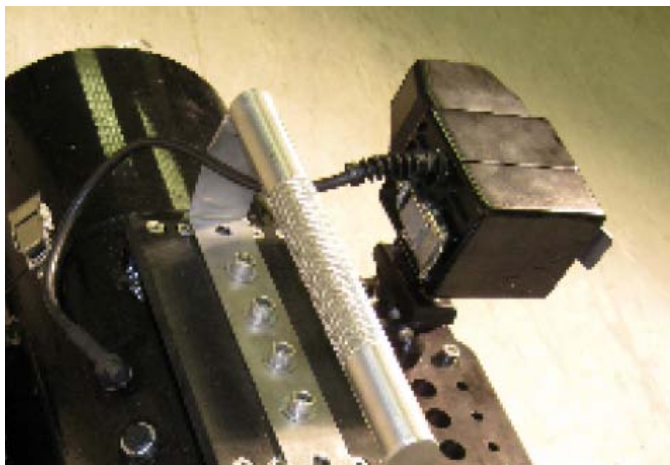
12V fan for the hard drive is incorporated into the design. It is powered directly off the battery and will significantly reduce heat build up in the RED drive

The REDSEE housing has three parts, the interchangeable front ports for the Cooke primes or zoom lenses. The middle section houses the camera body and all controls, and the rear section houses the rear monitor and can be removed and replaced in seconds to change the battery or RED drive without upsetting the camera or lens.

The REDSEE housing assembly is simple and the double O ring construction at each join insures the housing's integrity against water ingress. There are also visual and audible safety moisture alarms integrated into the housing.

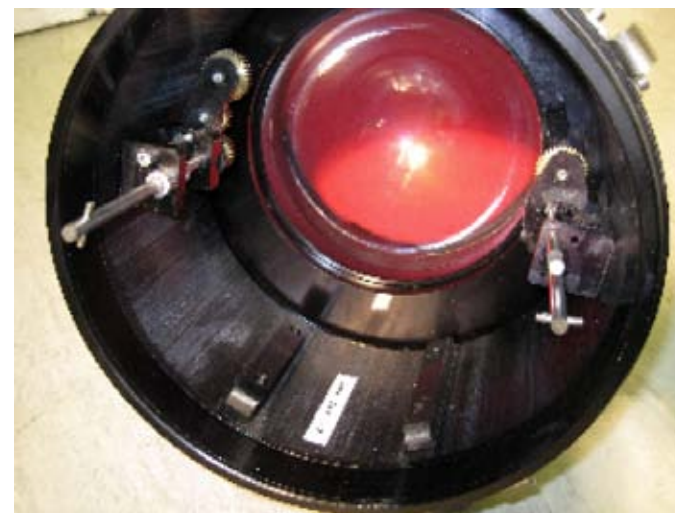
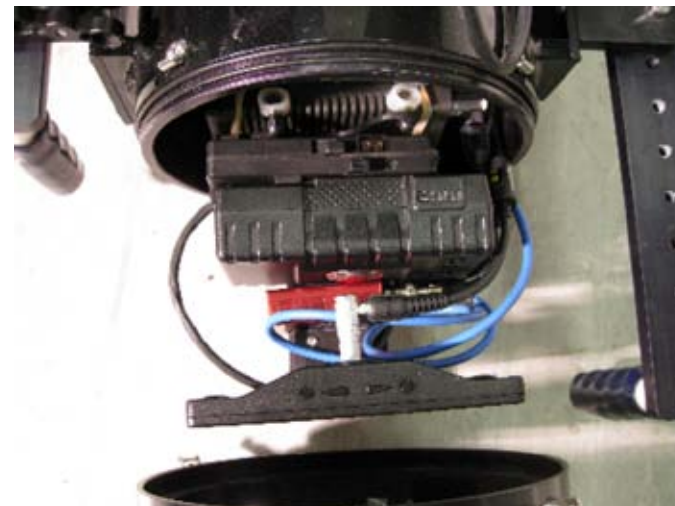
The REDSEE housing also incorporates heavy duty aluminium plates on top, sides and bottom, drilled to accept accessories such as lamps or attachment to remote hotheads, underwater scooters or tripods.

Video-out sockets allow HD-SDI pictures to be sent to the surface via the waterproof BNC cable for the director to see all the underwater action. A further underwater connector aperture is currently blanked off and is available for future development.



Underwater, the housing is weightless and easy to manoeuvre, having a low frontal area for use in strong currents. It can also be attached to an underwater scooter for added mobility. The hand grips are adjustable fore and aft for ease of use and to allow for more leverage when operating.

Because it is modular in construction the housing is easy to modify to accept different lenses, Haydn lens control systems, and can be revised for different shooting environments and allows limitless adaptation to suit any production requirements.



The REDSEE underwater housing is currently available for hire with or without its owner and designer underwater cameraman Hugh Fairs. However we recommend a trained technician accompany the housing as mistakes in assembly leading to a leak could be costly.

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