

# Typhoon

## Colour Zoom Camera



The Tritech Typhoon has an auto-focus zoom lens capable of maintaining focus throughout optical and digital zoom ranges. PAL and NTSC standards are supported.

Optical and digital functions can be controlled via a user-friendly GUI or integrated within an ROV control system via an RS232 command protocol. Alternatively, focus and zoom can be controlled by analogue signal inputs. The Typhoon can also be supplied with an integral over-voltage protected Video Line Driver fitted with selectable gain. This can compensate for video signal attenuation through longer cables.

Fitted with an Ivanoff Corrected lens system the Typhoon Colour Zoom Camera optimises picture quality by reducing radial distortion and chromatic aberration. In benchmark tests, the Typhoon delivered sharper definition and better colour rendering than similar cameras.

### Robust high resolution colour underwater video camera

The Typhoon combines the latest CCD technology with digital enhancements and a wide dynamic range, which compensates for bright backgrounds or low-light conditions to provide clear, low noise video with excellent contrast. The auto white balance maintains natural colours under wide ambient lighting conditions and also the Digital Slow Shutter (DSS) and IR Cut Filter options deliver higher sensitivity at low levels of illumination.

#### Benefits

- Digitally enhanced video capabilities
- User friendly Graphical Interface (GUI)
- Water corrected optics
- Optimised zoom function

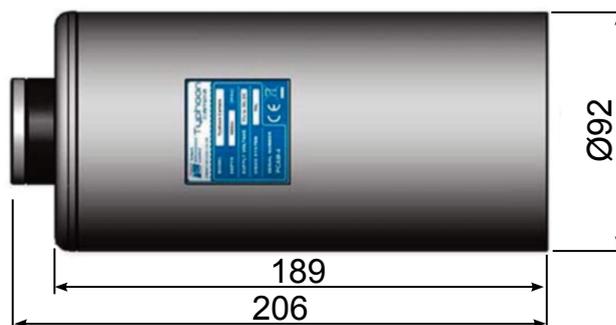
#### Features

- 4000m or 6000m depth rating available
- Comprehensive set of digital enhancements
- Digital or analogue control
- PAL and NTSC compatible
- x23 optical zoom
- x12 digital zoom
- Seamless transition between zoom ranges
- Amplified video for use with long umbilical

#### Applications

- Work & Inspection class ROVs
- Surveillance
- Search and inspection (civil or emergency)
- Marine research
- Marine life monitoring

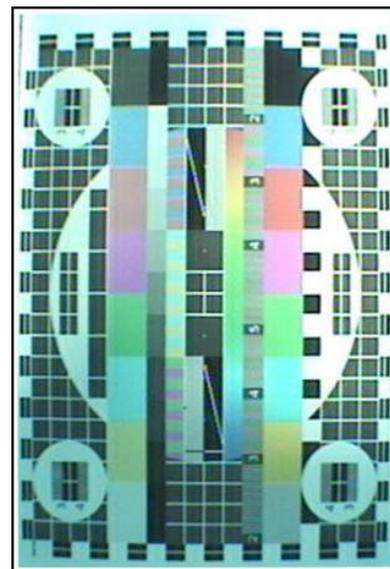
# Specification



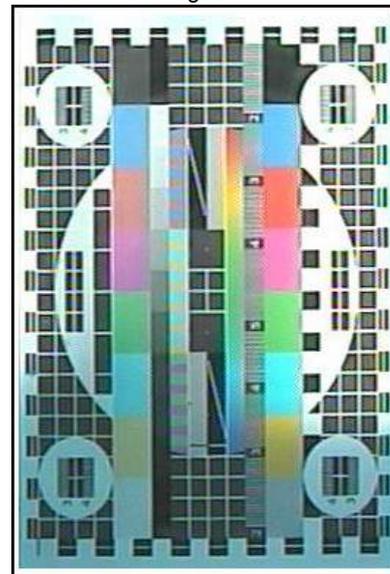
Shows standard aluminium alloy housing  
Not to scale, dimensions in mm.

Acoustic	PAL	NTSC
Sensitivity with IR cut filter on	1.0 lux at 1/60s shutter speed 0.1 lux at 1/4s shutter speed 0.05 lux at 1/2s shutter speed	1.0 lux at 1/50s shutter speed 0.1 lux at 1/3s shutter speed 0.05 lux at 1s shutter speed
Sensitivity with IR cut filter off	approx. 0.01 lux B&W, 1/4s shutter speed	approx. 0.01 lux B&W, 1/3s shutter speed
Vertical resolution	540 lines (1/4s shutter speed)	470 lines (1/3s shutter speed)
CCD module	1/4" progressive scan	
Viewing angle	66° in water (diagonal)	
Focus range	10mm to infinity	
Primary lens	3.6mm to 82.8mm (f/1.6 to f/3.6) Ivanoff water corrected optics	
Optical zoom	x23	
Digital magnification	x12	
Iris control	DSP controlled Auto Iris	
Video output	1V peak to peak composite, 75Ω unbalanced	
Signal to noise ratio	>50dB	
GUI functions	Save/load custom configurations, video preview, reset default settings.	
Other features	Digital Slow Shutter (DSS), Back light compensation, auto focus, Wide Dynamic Range (WDR), auto/manual white balance, video freeze, frame noise reduction, minimum focus length adjustment.	

Without Ivanoff corrected optics:



Using Ivanoff corrected optics removes the barrel distortion from underwater images:



Physical Properties	
Weights	1.9kg in air, 0.7kg in water (aluminium alloy housing)
Depth rating	4000m standard (6000m option)
Temperature range	Operating: -10 to 35°C, Storage: -20 to 50°C
Shock	DEF STAN 00-35 Part 3, chapter 2-03 30g <sub>n</sub> for 6ms in each axis (while operating)
Vibration	DEF STAN 00-35 Part 3, chapter 2-01 Sinusoidal sweep & dwell in each axis from 5 to 150Hz at 10g <sub>n</sub>
Standard connector	Tritech 6 pin
Housing material	Hard anodised aluminium alloy, stainless steel 316 or titanium alloy 6AL4V
Lens material	Acrylic

Electrical Properties		Options	
Voltage range	12 to 30V DC	Video line driver	Up to 1500m with quality RG59 coaxial cable
Zoom & focus control	Analog ±12 to 24V DC or RS232	Connector	Schilling 7 pin SeaNet, Burton/Seacon 5506, Subconn BH and MCBH series.
Power consumption	5W at 24V		

Specifications subject to change according to a policy of continual development.

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