

# Tornado

## Low Light Monochrome Camera



The Trittech family of underwater video products offers a complete range of high specification and performance cameras, from cost effective monochrome inspection cameras to broadcast quality colour zoom cameras.

The Tornado camera from Trittech is a high quality low light system using the latest CCD technology. A half inch Interline CCD sensor provides a high resolution 570 horizontal line monochrome picture. It is contained within a compact stainless steel or titanium alloy housing.

The Tornado is supplied with a switchable high frequency boost amplifier making it suitable for use with either a long or short umbilical.

### A high quality low light camera using the latest CCD technology

The Trittech Tornado is a robust, low light, high resolution, monochrome CCD camera. The camera offers a near SIT performance and high quality images at a competitive price. The Tornado can be supplied with an integral over-voltage protected Video Line Driver, which with selectable gain, this can compensate for video signal attenuation through long cables.

#### Benefits

- Low light monochrome performance
- Close inspection work

#### Features

- High resolution monochrome 570TVL
- Compact housing
- 4000m depth rating
- Low light sensitivity  $3 \times 10^{-4}$  lux
- PAL or NTSC format
- Long line high frequency boost

#### Applications

- Underwater surveillance
- High resolution pipeline inspection
- Inspection class ROVs

# Specification

Camera Module	
Minimum illumination	0.0003 lux at faceplate
Gamma characteristic	$y=0.45, y=0.6, y=1$
Resolution	>570 TV lines
Video output	1V (peak to peak) 75 $\Omega$
Pick-up element	1/2" interline transfer CCD image sensor
Scanning system	2:1 interlace
Signal to noise ratio	>50dB (AGC off)
Power requirement	12 to 39V DC

Lens	
Focal length	4mm
Aperture	F1.2
Angle of view	D72°, H39°, V41°
Object distance	0.1m - infinity

Physical	
Weight in air	Stainless steel: 2.8kg, Titanium: 1.8kg
Weight in water	Stainless steel: 1.8kg, Titanium: 0.8kg
Diameter	78mm
Length	172mm
Depth rating	4000m
Materials	Stainless steel (titanium alloy optional)
Connector options	Tritech, Subconn BH/MCBH, Burton/Seaconn 5506, Schilling SeaNet
Shock	<i>DEF STAN 00-35 Part3, Chapter 2-03</i> 30g <sub>n</sub> for 6ms in each axis (while operating)
Vibration	<i>DEF STAN 00-35 Part 3, chapter 2-01</i> Sinusoidal sweep and dwell in each axis from 5 to 150Hz at 10g <sub>n</sub>
Operating temperature	-10 to 40°C
Storage temperature	-30 to 70°C