



RADIATION TOLERANT CAMERA

R985™

*Radiation Tolerant Single Unit
Camera Module*



FEATURES

- True Single Unit Camera (power in/video out)
- Compact and lightweight
- Radiation tolerant to 100 k Gy total dose (10^7 rads)
- Compensation circuitry to provide extended life
- 550 TV lines horizontal resolution
- Auto-iris motor drive output
- AGC control
- Unbalanced or balanced video output for coaxial or twisted pair cable
- “C” or “D” lens mount
- Motorized focus (tube racking)
- Internal iris drive for D mount lens
- Power-down video option available to minimize wiring

DESCRIPTION

The IST-Rees™ R985 camera module from Mirion has been specifically developed for single unit camera applications in the nuclear industry. By incorporating radiation tolerant video circuitry and the image sensor, the module provides high quality pictures over an extended life in medium to high radiation environments. Numerous custom units have been developed (i.e., shorter versions, sealed versions, a “power-down video” version, etc.), as well as a range of non-browning custom lenses.

APPLICATIONS

- General area or in-cell surveillance
- Remotely operated vehicles
- Cranes
- Robots
- Manipulators
- Radiation tolerant video microscopes wiring

DESCRIPTION

General	
Sensor Tube	2/3 in. electrostatic focus, magnetic deflection (including Chalnicon and Vidicon)
Horizontal Resolution	550 tvl per picture height (center)
Sensitivity (maximum)	100 mlx faceplate illumination (Chalnicon tube, tungsten lighting 2856 K, AGC at maximum gain, o/p >350 mV b-w)
Sensitivity (minimum)	2 lux faceplate illumination (Chalnicon tube, tungsten lighting 2856 K, AGC at minimum gain)
Geometric Distortion	<2% (excluding lens)
Video Output	1 V p-p into 75 ohms or 2 V p-p differential into 150 ohms
Signal to Noise Ratio	43 dB (CCIR weighted, AGC at minimum gain)
Power	11.5 V to 15 V dc, 400 mA

Environment	
Accumulated Dose	100 kGy (H ₂ O) [⁶⁰ Co] (1 x 10 ⁷ rads)
Maximum dose rate	1 kGy per hour (1 x 10 ⁵ rads per hour)
Operating Temperature	0 °C to 50 °C (32 °F to 122 °F)
Internal Temperature	0 °C to 65 °C (32 °F to 149 °F)
Storage Temperature	-25 °C to 65 °C (-13 °F to 149 °F)
Humidity	95%, non-condensing

Dimensions	
Length (excluding connector and lens)	160 mm (6.3 in.)
Diameter	72 mm (2.8 in.)
Lens Mount	“C” or “D”
Weight	960 g (2.1 lb)
“Tube Racking” Versions	
R985CMB03A	PAL unit with D mount lens
R985CMH03A	NTSC unit with D mount lens
R985CMD03A	PAL unit with C mount lens
R985CMJ03A	NTSC unit with a C mount lens
Camera module connector	15 way subminiature D type plug

ACCESSORIES

- A range of “C” and “D” mount non-browning lenses
- Stainless steel underwater housings
- Stainless steel underwater pan and tilt heads
- Stainless steel underwater lights
- Pressurized and stainless steel housings
- Power-down video

R985 | RADIATION TOLERANT SINGLE UNIT CAMERA MODULE

Non-Browning Lenses					
Non-browning Lenses	Focus Range(in air)	Horizontal FOV	Focus Range (in water)	Horizontal FOV	Motorized Functions
6 mm, f/2.0, D mount	10 mm (0.4 in.) to infinity	73°	13 mm (0.5 in.) to infinity	53°	—
9 mm, f/2.0, D mount	25 mm (1 in.) to infinity	50°	33 mm (1.3 in.) to infinity	37°	—
25 mm, f/2.5, D mount	100 mm (4 in.) to infinity	20°	133 mm (5 in.) to infinity	15°	—
8 mm-24 mm, f/2.8 zoom, D mount	50 mm (2 in.) to infinity	56° to 20°	70 mm (2.6 in.) to infinity	41° to 16°	focus, zoom, iris
12 mm-72 mm, f/1.8 zoom, C mount	800 mm (32 in.) to infinity	40° to 7°	1.1 m (42 in.) to infinity	30° to 5.2°	focus, zoom, iris
24 mm-144 mm, f/3.6 zoom, C mount	800 mm (32 in.) to infinity	21° to 3.5°	1.1 m (42 in.) to infinity	16° to 2.6°	focus, zoom, iris

Non-Browning Lens				
Non-browning Lens	Focus Range (in air, wide)	Focus Range (in air, narrow)	Focus Range (in water, wide)	Focus Range (in water, narrow)
12 mm–72 mm, f/1.8 zoom, C mount combined with tube racking (macro)	10 mm (0.4 in.) to infinity	330 mm (13 in.) to infinity	13 mm (0.5 in.) to infinity	440 mm (17 in.) to infinity

Note: The figures specified for underwater applications assume that the underwater housing has a plain window.

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