

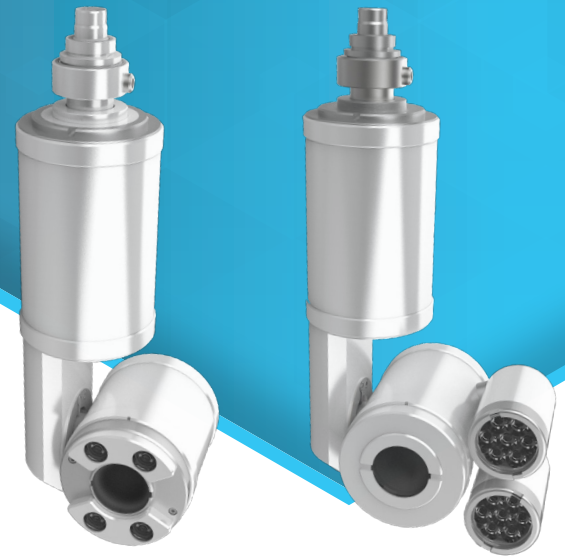


## NUCLEAR CAMERA

# HD-RAD™

*High Definition Camera System  
for Wide Ranging Applications*

The IST-Rees HD-RAD camera range combines high definition video performance with a robust pan/tilt/zoom platform that includes a unique clutch assembly to allow fail-safe retrieval. The integral HD camera provides users with the highest quality colour images during their inspection/surveillance process.



RC720CPC03A

RC720CPD03A



Camera Control Unit

## FEATURES

- Radiation tolerant to 1MGy ( $1 \times 10^8$  rad)\*
- Radiation dose rate at 100Gy per/h ( $1 \times 10^4$  rad/h)
- Resolution >750tvl (HD mode)
- Unique slip clutch for fail-safe retrieval
- Compact housing
- Easy replacement of HD module
- 10:1 optical zoom with 4x digital
- Variable speed pan and tilt
- High-intensity white LED lighting
- Stainless steel construction
- Standard rack-mount controller with remote control input
- Rugged, radiation tolerant cable
- In-air or underwater
- HD-SDI output for recordings

\* excludes replaceable HD/LED modules

## DESCRIPTION

Two models are offered with one having four integrated high-intensity white LED lighting and a small operating envelope, which is ideal for underwater inspection applications where space is at a premium. The other has two high powered LED lights to provide a greater viewing distance underwater or in air for inspection/surveillance applications.

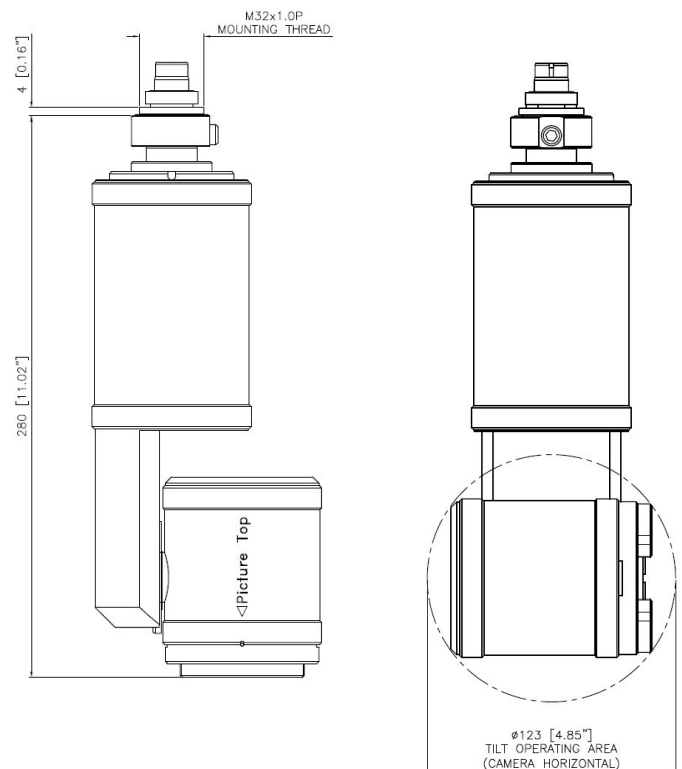
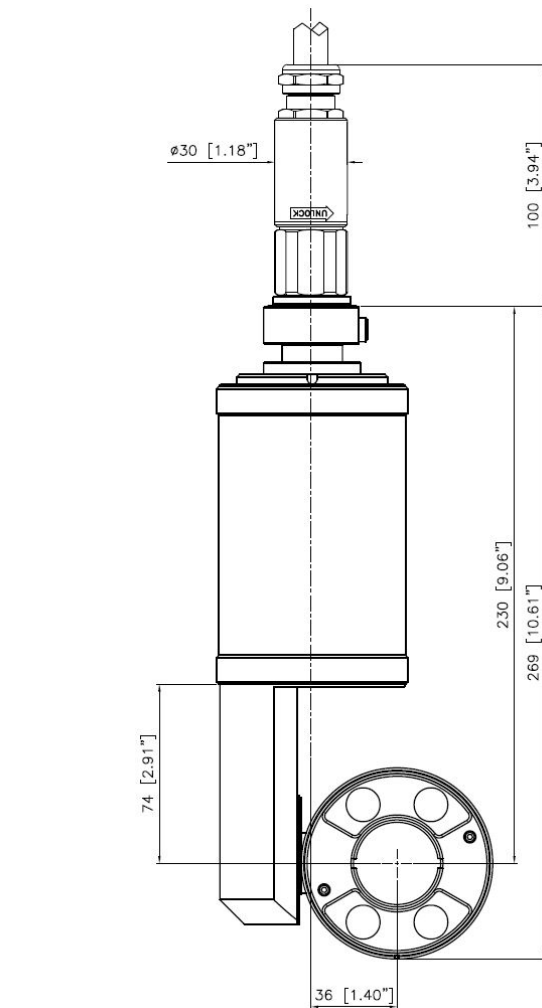
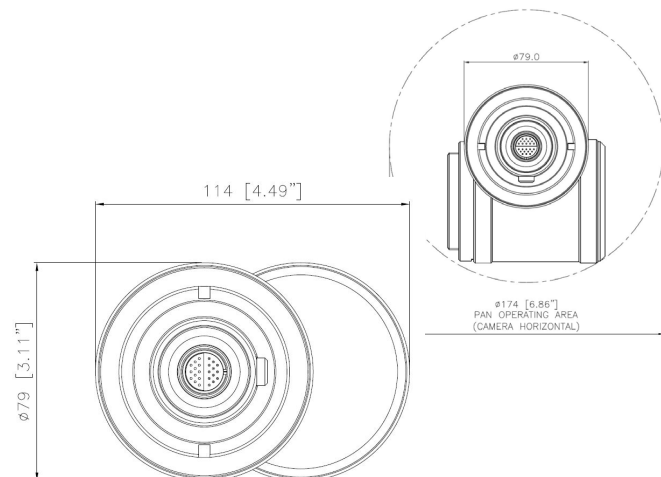
Both outstation models are rated to a total absorbed dose of 1MGy and designed to allow easy and cost effective field replacement of the more radiation sensitive HD module and LED lighting. All external surfaces are finished in stainless steel to allow easy decontamination.

The addition of the HD-RAD product range to the long established IST-REES products secures Mirion's position as a leader in the supply of imaging systems to the Nuclear Industry and emphasizes the Imaging System Division's commitment to the continuous development of our products and services.

SPECIFICATIONS AND PERFORMANCE

Camera Outstation RC720CPC03A (underwater only)	
Outstation Radiation Tolerance	1MGy (1 x 10 <sup>8</sup> rad)* [ <sup>60</sup> Co]*
HD/LED Module Radiation Tolerance	500Gy (5 x 10 <sup>4</sup> rads) [ <sup>60</sup> Co]
Radiation Dose Rate	100Gy/hour (1 x 10 <sup>4</sup> rad/h)
Housing	Stainless Steel
Seal	IP68
Depth Rating	60m (197')
Horizontal Resolution (HD mode)	>750tvl
Horizontal Resolution (SD mode)	550tvl NTSC/PAL
Operating Temperature	0° to 40°C (32° to 104°F)
Pan and Tilt Range	+/- 180 degrees
Iris	Auto and manual
Focus	Auto and manual
Min Object Distance (in water)	13mm wide angle (0.5°) 1060mm narrow angle (42°)
Zoom range (in water)	10x optical, 4x digital
Angle of View (H) (HD/SD squeeze mode)	50° (Wide) to 5.4° (Narrow)
Minimum Scene Illumination	12 lux (f/1.8) with 50 IRE
AGC Range	Auto: -3db to +18db
Electronic Shutter - Auto Exposure Mode	1/60 sec (59.94/NTSC), 1/10000 sec (50/PAL)
Weight (in air)	3.4kg (7.5lbs)
Supports HD (analog component)	1080i/59.94, 1080i/50 720p/59.94, 720p/50
Supports SD (composite)	NTSC (CROP), NTSC (SQUEEZE) PAL (CROP), PAL (SQUEEZE)
Video Outputs - HD	Y Pb Pr
Video Outputs - SD	Composite & Y/C
Light Output	680 lux @ 0.5m
Beam Angle (in water)	26° approximately

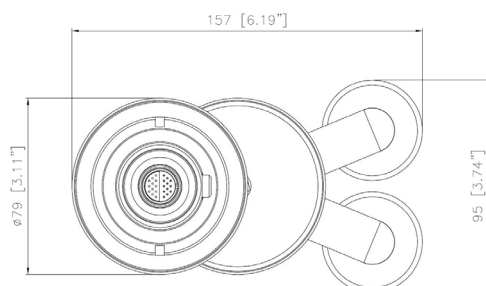
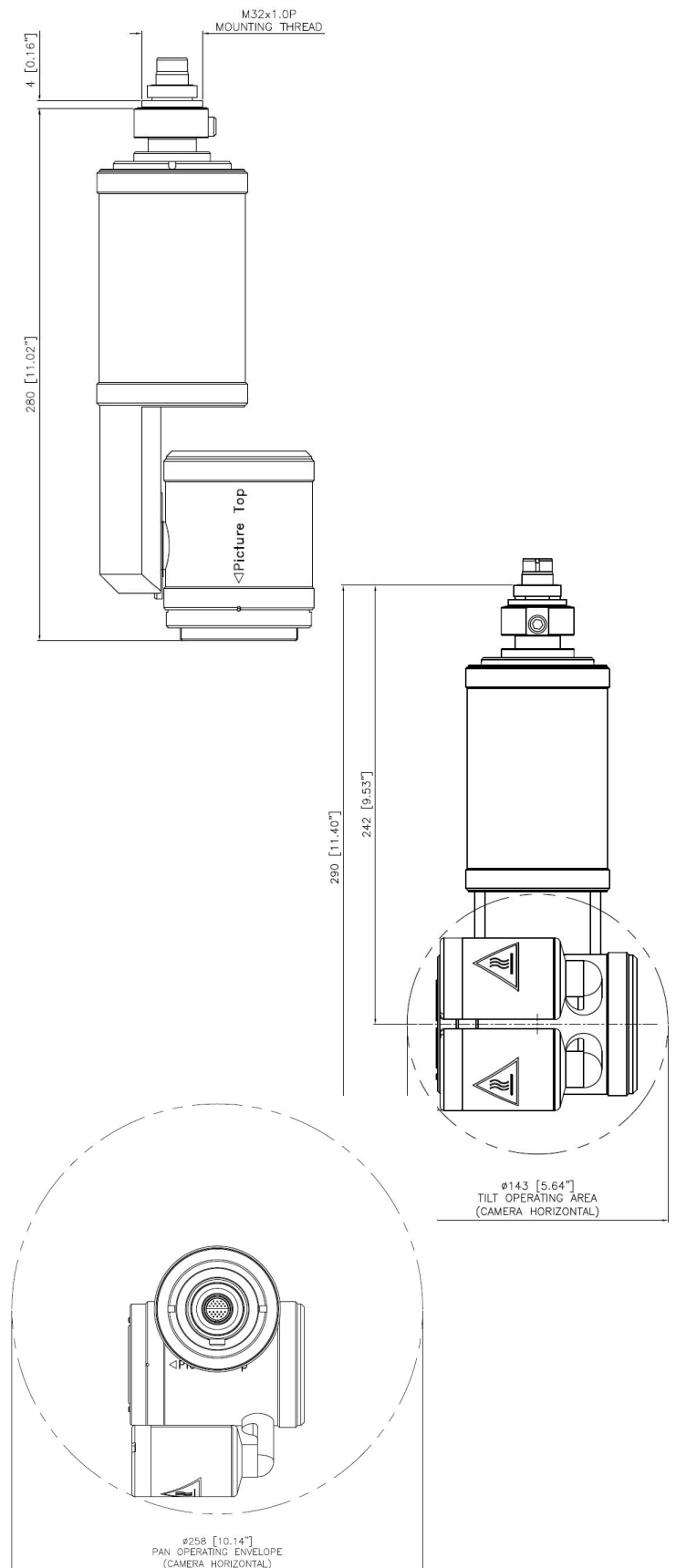
\*excludes replaceable HD/LED modules



SPECIFICATIONS AND PERFORMANCE

Camera Outstation RC720CPD03A (underwater & in-air)	
Outstation Radiation Tolerance	1MGy (1 x 10 <sup>8</sup> rad)* [ <sup>60</sup> Co] *
HD/LED Module Radiation Tolerance	500Gy (5 x 10 <sup>4</sup> rads) [ <sup>60</sup> Co]
Radiation Dose Rate	100Gy/hour (1 x 10 <sup>4</sup> rad/h)
Housing	Stainless Steel
Seal	IP68
Depth Rating	60m (197')
Horizontal Resolution (HD mode)	>750tvl
Horizontal Resolution (SD mode)	550tvl NTSC/PAL
Operating Temperature	0° to 45°C (32° to 113°F) (in air) 0° to 50°C (32° to 122°F) (underwater)
Pan and Tilt Range	+/- 180 degrees
Iris	Auto and manual
Focus	Auto and manual
Min Object Distance in water	13mm wide angle (0.5") 1060mm narrow angle (42")
Min Object Distance in air	10mm wide angle (0.4") 800mm narrow angle (31.5")
Zoom range	10x optical, 4x digital
Horizontal Angle of View in Water	37° (Wide) to 4.1° (Narrow)
Horizontal Angle of View in Air	50° (Wide) to 5.4° (Narrow)
Minimum Scene Illumination	12 lux (f/1.8) with 50 IRE
AGC Range	Auto: -3db to +18db
Electronic Shutter - Auto Exposure Mode	1/60 sec (59.94/NTSC), 1/10000 sec (50/PAL)
Weight (In Air)	4.75kg (10.47lbs)
Supports HD (Analog Component)	1080i/59.94, 1080i/50 720p/59.94, 720p/50
Supports SD (Composite)	NTSC (CROP), NTSC (SQUEEZE) PAL (CROP), PAL (SQUEEZE)
Video Outputs - HD	Y Pb Pr
Video Outputs - SD	Composite & Y/C
Light Output	2500 lux @ 1m
Beam Angle in Water	26° approximately
Beam Angle in Air	35° approximately

\*excludes replaceable HD/LED modules



# HD-RAD™ | HIGH DEFINITION CAMERA SYSTEM FOR WIDE RANGING APPLICATIONS

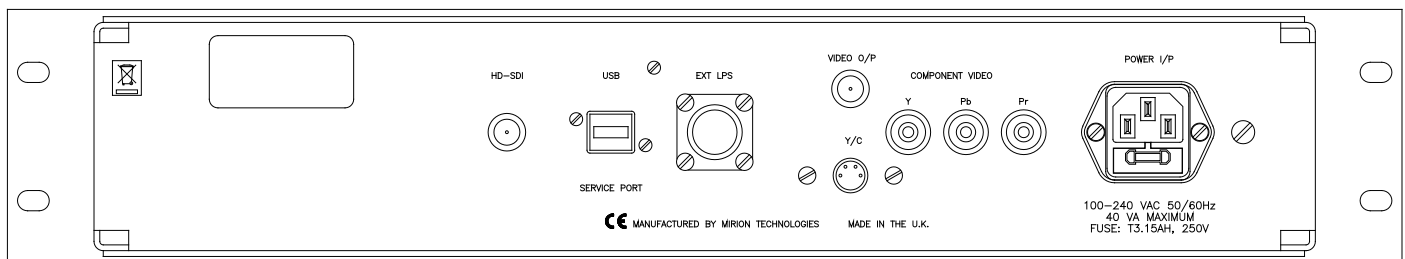
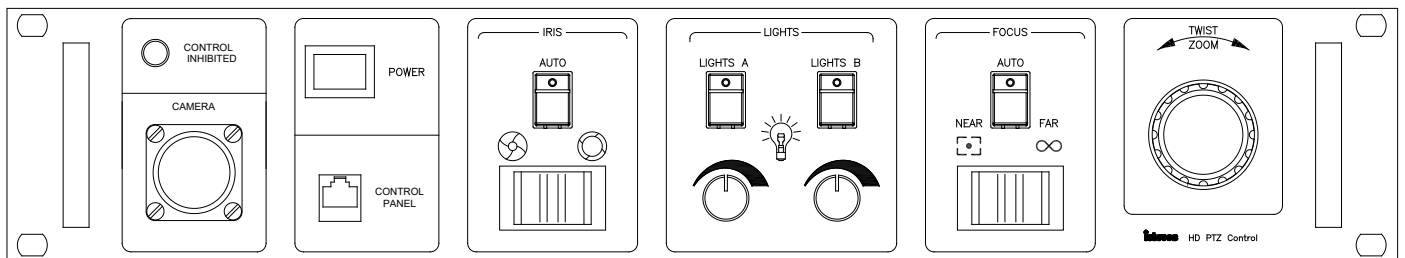
Camera Control Unit - RC720MCE03A & RC720MCF03A	
Case	19" Aluminum 2U (rack mount)
Weight	3.8kg (8.4lbs)
Dimensions	88mm H x 483mm W x 356mm D (3.5" x 19" x 14") Depth does not include handles or connections
Power Requirements	100 to 240V AC, 50/60 Hz - 40VA maximum
Outstation Cable Length	38m (125') maximum length to controller. Consult Mirion for longer cables
Operating Temperature	0°C to 40°C (32°F to 104°F)
Storage Temperature	-20°C to 60°C (-4°F to 140°F)
Relative Humidity	80% for temperatures up to 31°C (88°F), decreasing linearly to 50% at 40°C (104°F)
Video Output	HD-SDi, Y/C, Composite. component

HD-RAD Part Numbers	
RC720CPA	Outstation assembly
RC720CPB03A	Outstation assembly
RC720MCE03A	50Hz Camera Controller
RC720MCF03A	60Hz Camera Controller
RC720CAB04A/10M	Standard cable 10.0m (33ft)
RC720CAB04A/38M	Standard cable 38.0m (125ft)
040-90051	Pole Mount Adapter

Camera Control: Features and Benefits	
Dedicated Controls	Pan (Joystick)
	Tilt (Joystick)
	Zoom (By Joystick Twist)
	Iris
	Focus
	Lights

Optional remote keyboard - plugs into front control panel.

## CAMERA CONTROL UNIT - FRONT & REAR PANELS



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