



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 color images during their inspection/surveillance process.

Two models are offered. One features four integrated high-intensity white LED lights and a small operating envelope, which is ideal for underwater inspection applications where space comes 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 1 MGy 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.



FEATURES

- ✓ Radiation tolerant to 1 MGy (1×10^8 rad)*
- ✓ Radiation dose rate at 100 Gy per/h (1×10^4 rad/h)
- ✓ Resolution >750 tvl (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

HD-RAD HIGH DEFINITION CAMERA SYSTEM FOR WIDE RANGING APPLICATIONS

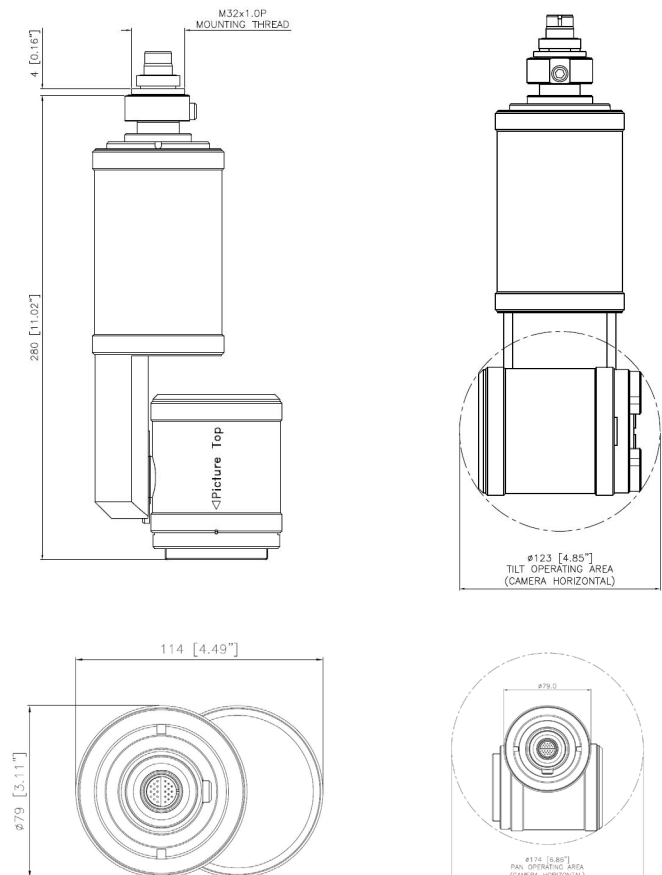
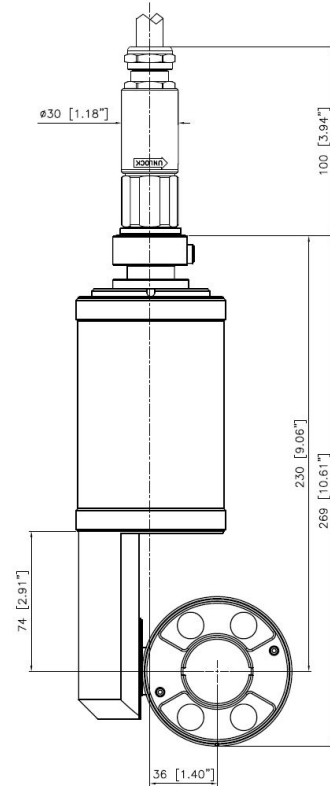
The addition of the HD-RAD product range to the longestablished IST-Rees products secures Mirion's position as a leader in the supply of imaging systems to the Nuclear Industry and emphasizes our commitment to the continuous development of our products and services.

SPECIFICATIONS AND PERFORMANCE

CAMERA OUTSTATION RC720CPC03A (UNDERWATER ONLY)

- Outstation Radiation Tolerance: 1 MGy (1 x 10⁸ rad)* [⁶⁰Co]*
- HD/LED Module Radiation Tolerance: 500 Gy (5 x 10⁴ rads) [⁶⁰Co]
- Radiation Dose Rate: 100 Gy/hour (1 x 10⁴ rad/h)
- Housing: Stainless Steel
- Seal: IP68
- Depth Rating: 60 m (197')
- Horizontal Resolution (HD mode): >750 TVL
- Horizontal Resolution (SD mode): 550 TVL 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
- Minimum Object Distance (in water):
13 mm wide angle (0.5")
1060 mm 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): 3.4 kg (7.5 lb)
- 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 and Y/C
- Light Output: 680 lux @ 0.5m
- Beam Angle (in water): 26° approximately

* Excludes replaceable HD/LED modules

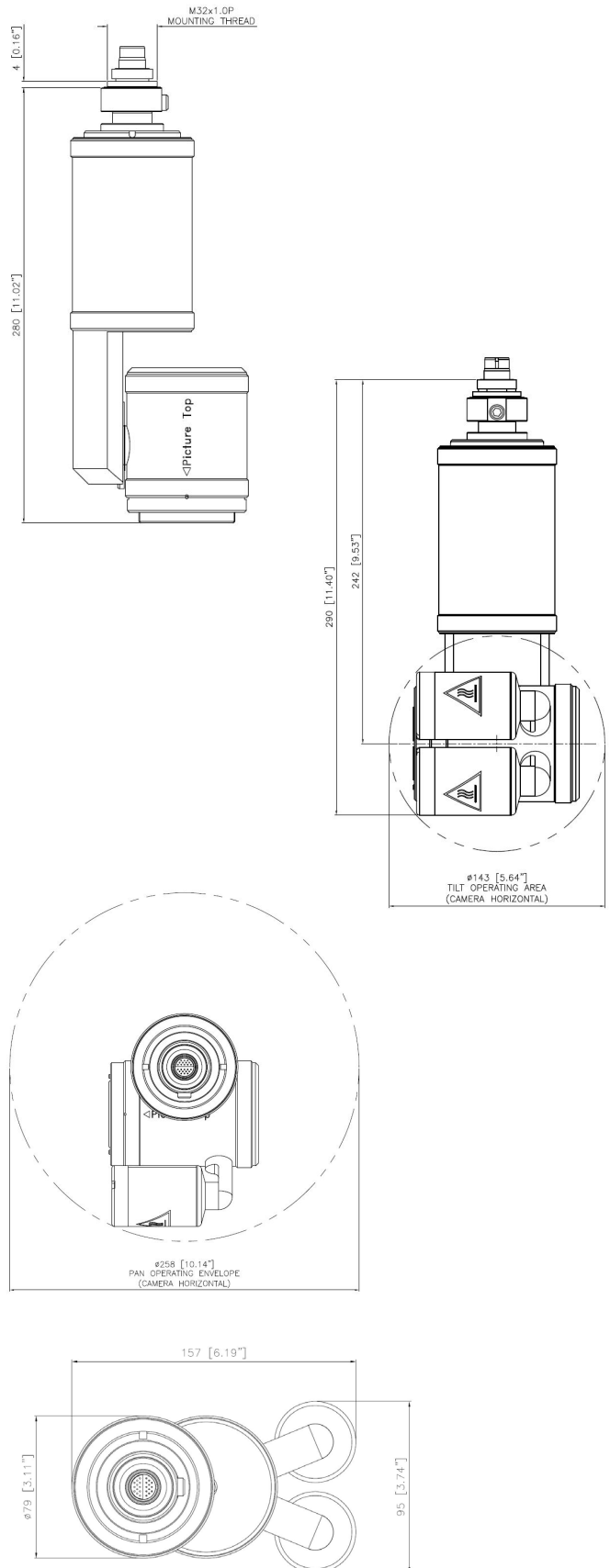


HD-RAD HIGH DEFINITION CAMERA SYSTEM FOR WIDE RANGING APPLICATIONS

CAMERA OUTSTATION RC720CPD03A (UNDERWATER & IN-AIR)

- Outstation Radiation Tolerance: 1 MGy (1 x 10⁸ rad)* [⁶⁰Co] *
- HD/LED Module Radiation Tolerance: 500 Gy (5 x 10⁴ rads) [⁶⁰Co]
- Radiation Dose Rate: 100 Gy/hour (1 x 10⁴ rad/h)
- Housing: Stainless Steel
- Seal: IP68
- Depth Rating: 60 m (197')
- Horizontal Resolution (HD mode): >750 TVL
- Horizontal Resolution (SD mode): 550 TVL 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
- Minimum Object Distance in water:
13 mm wide angle (0.5")
1060 mm narrow angle (42")
- Minimum Object Distance in air:
10 mm wide angle (0.4")
800 mm 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): 4.75 kg (10.47 lb)
- 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 and Y/C
- Light Output: 2500 lux @ 1 m
- 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: 3.8 kg (8.4 lb)
- Dimensions: 88 mm H x 483 mm W x 356 mm D (3.5" x 19" x 14") Depth does not include handles or connections
- Power Requirements: 100 to 240 V AC, 50/60 Hz - 40 VA maximum
- Outstation Cable Length: 38 m (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

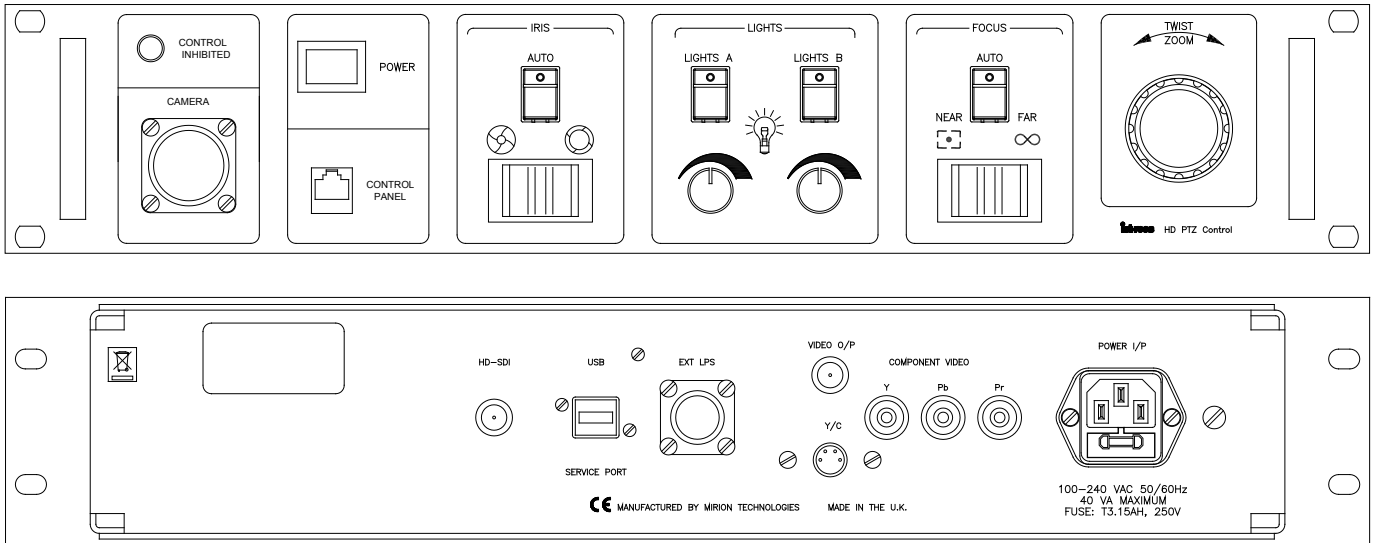
- RC720CPC03A: Underwater Outstation Assembly
- RC720CPD03A: In-Air or Underwater Outstation Assembly
- RC720MCE03A: 50Hz Camera Controller
- RC720MCF03A: 60Hz Camera Controller
- RC720CAB04A/10M: Standard cable 10.0m (33 ft)
- RC720CAB04A/38M: Standard cable 38.0m (125 ft)
- 040-90056: Pole Mount Adapter

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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