



## RADIATION-TOLERANT CAMERA

# R981 COMPACT™

*System Camera*

The R981 Compact™ camera range builds on the success of the standard R981™ but offers a full radiation tolerant pan, tilt and zoom camera with a smaller sized envelope. Ideal for locating in areas where space is at a premium, we have combined the camera and pan and tilt into an integral unit and provided three positions for additional lights and microphone. The R981 Compact™ can be configured into multi camera configurations, or a single camera system can be supplied.

Mirion is the world's most experienced supplier of large turnkey television surveillance systems to the nuclear industry.

## FEATURES

- Class leading radiation tolerance
- Pan, tilt, zoom, video and power over three twisted pairs
- Radiation tolerant telemetry
- High resolution monochrome picture
- One 19" sub-rack to control up to 8 cameras
- 8 channel lighting and microphone sub-racks
- RS-485 control of sub-racks
- Change camera outstation without adjustment
- Software protocol and hardware can address up to 128 channels of cameras and lighting
- Simple cable

## APPLICATIONS

- Process monitoring
- Safe guard surveillance
- In-containment viewing
- Waste management
- Guidance and posting

# R981 Compact™ | SYSTEM CAMERA

## SPECIFICATIONS AND PERFORMANCE

CAMERA OUTSTATION			
<b>Housing Material</b>	Stainless steel	<b>Operating Dose Rate</b>	1k Gy/hour (Chalnicon tube)
<b>Operating Temperature in Air</b>	0 to 55 °C (35 to 131 °F) (Chalnicon tube)	<b>Radiation Tolerance</b>	1 MGy [ <sup>60</sup> Co] (H <sub>2</sub> O); 10 <sup>8</sup> Rad [ <sup>60</sup> Co] (H <sub>2</sub> O)
<b>Operating Temperature in Water</b>	0 to 70 °C (32 to 158 °F)	<b>Weight</b>	4.7 kg (10.4 lbs) without lights or microphone
<b>Maximum Operating Depth</b>	20 m (66 ft)	<b>Cable Connection</b>	18-way remote handling LEMO or 12-way Fischer
<b>Maximum Submersion Depth</b>	60 m (197 ft)	<b>Pan and Tilt</b>	Speed: 6° per second Travel: ±180° (adjustable)
<b>Size with Pan and Tilt</b>	221 mm (H) x 162 mm (W) x varying 220 mm to 280 mm (D) (8.8" x 6.5" x varying 8.8" to 11.2")	<b>Sealing</b>	IP68 (IEC529) 60m water depth (W.W. Fischer stainless steel connector type SE105Z069-27) IP66 (IEC529) fully washable (LEMO stainless steel remote handling cable connector type FZJ3N318TLMY)

CAMERA CHANNEL PERFORMANCE (CAMERA AND CCU COMBINED)	
<b>Horizontal Resolution</b>	550 HTV lines
<b>Sensitivity (faceplate)</b>	1 lux (Chalnicon tube)
<b>AGC Range</b>	-6 dB to 20 dB
<b>Signal to Noise Ratio</b>	43 dB (CCIR weighted, AGC at 0 dB)
<b>Geometric Distortion</b>	2% maximum

8 CHANNEL CAMERA SYSTEM SUB-RACK	
<b>Nominal Power Supply Input</b>	100-120/200–240 V (auto-ranging); 50/60 Hz
<b>Operation Range</b>	85-132/170–264 V (auto-ranging); 47–440 Hz
<b>Power Requirement</b>	150VA for a fully populated 8-channel CCU
<b>Outstation Cable Length</b>	300 m (984') maximum CCU to camera (consult Mirion)
<b>Operating Ambient Temperatures</b>	Fully populated, convection cooling: 0 to 40 °C (32 to 104 °F) Up to 6 channels, convection cooling: 0 to 50 °C (32 to 122 °F) Fully populated, forced air cooling at 500 litres (132 gallons)/minute: 0 to 50 °C (32 to 122 °F)
<b>Relative Humidity</b>	80% for temperatures up to 31°C decreasing linearly to 50% at 40°C
<b>Size</b>	134 mm (H) x 483 mm (W) x 300mm (D) (5.3" x 19" x 11.8") (excluding handles and connectors))
<b>Weight</b>	7 kg (15.4 lbs)

R981 NON-BROWING LENS OPTION	
<b>Lens</b>	Viewing Angle: In Air
<b>6:1 12 mm-72 mm zoom</b>	40° Wide; 7° Narrow
<b>6:1 24 mm-144 mm zoom</b>	21° Wide; 3.5° Narrow
<b>3:1 8 mm-24 mm zoom</b>	58° Wide; 21° Narrow

CCU CONNECTOR TYPES	
<b>AC Power</b>	IEC 320 plug (fitted with T4A fuse)
<b>Camera Inputs (8 off)</b>	15-way D type socket
<b>Video Outputs (8 off)</b>	75R BNC
<b>Genlock Input</b>	75R BNC (with 75R termination switch)
<b>Sync Pulse Output</b>	75R BNC
<b>Serial Control Input</b>	9-way D type plug
<b>Serial Control Loop Through</b>	9-way D type socket

OPTIONAL ACCESSORIES	
<b>Camera Attachments</b>	Camera allows for up to 4 attachment positions for a combination of microphone and lights
<b>Lights for Underwater</b>	Up to 200W using 100W lamps
<b>Lights for Air</b>	Up to 150W using sealed 50W lamps
<b>Lighting Sub-rack</b>	8 Channel
<b>Microphone</b>	For in-air use only
<b>Microphone Sub-rack</b>	8 Channel

OPS-623 – December/2018

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