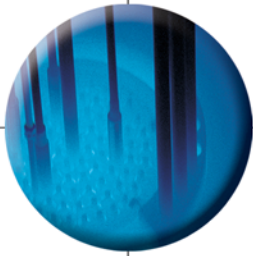


REES R981/C981compact



Compact System Camera



Features

- Class leading radiation tolerance
- Pan, tilt, zoom, video and power over three twisted pairs
- Radiation Tolerant Telemetry
- 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

The **R981/C981compact** camera range builds on the success of the standard R981/C981 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've combined the camera and pan and tilt into an integral unit and provided three positions for additional lights and microphone. The black and white or color CCD compact can be configured into multi camera configurations, or a single camera system can be supplied.

IST is the world's most experienced supplier of large turnkey television surveillance systems to the nuclear industry. Come to the experts for your inspection and surveillance tools!

R981^{compact} Specifications and Performance

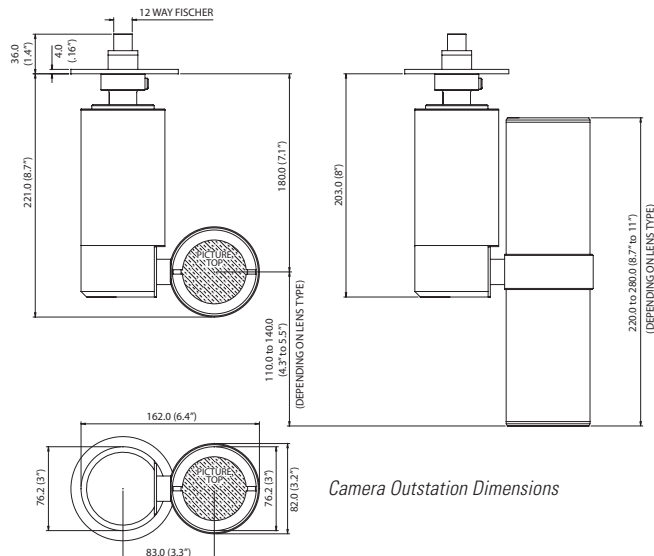
Camera Outstation

Housing Material	Stainless steel
Operating Temperature In Air	0°C to 55°C (35°F to 131°F) (Chalicon tube) 0°C to 40°C (32°F to 104°F) (Vidicon tube)
Operating Temperature in Water	0°C to 70°C (32°F to 158°F)
Operating Dose Rate	1kGy/hour (Chalicon tube) 30kGy/hour (Vidicon tube)
Radiation Tolerance	1MGy [⁶⁰ Co] (H ₂ O); 10 ⁸ Rad [⁶⁰ Co] (H ₂ O)
Sealing	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)
Maximum Operating Depth	20 meters (66 ft)
Maximum Submersion Depth	60 meters (197 ft)
Camera Midpoint Connector	24-way
Cable Connection	18-way remote handling LEMO or 12-way Fischer
Pan and Tilt	Speed: 6° per second Travel: ±180° (adjustable)
Size with Pan and Tilt	221mm (H) x 162mm (W) x varying 220 to 280 (D) (8.8" x 6.5" x varying 8.8" to 11.2")
Weight	4.7kg (10.4 lbs) without lights or microphone

R981 Non-browning Lens Options

Lens	Viewing Angle: In Air
6:1 12mm-72mm zoom	40°W; 7°N
6:1 24mm-144mm zoom	21°W; 3.5°N
3:1 8mm-24mm zoom	58°W; 21°N

W=Wide; N=Narrow



Camera Outstation Dimensions

8 Channel Camera System Sub-rack

Nominal Power Supply Input	100-120/200-240V (auto-ranging); 50/60 Hz
Operation Range	85-132/170-264V (auto-ranging); 47-440 Hz
Power Requirement	150VA for a fully populated 8-channel CCU
Outstation Cable Length	200m (656') maximum CCU to camera (consult IST)
Operating Ambient Temperatures ...	Fully populated, convection cooling: 0°C to 40°C (32°F to 104°F) Up to 6 channels, convection cooling: 0°C to 50°C (32°F to 122°F) Fully populated, forced air cooling at 500 liters (132 gallons)/minute: 0°C to 50°C (32°F to 122°F)
Relative Humidity	20%-75% non-condensing
Size	134mm (H) x 483mm (W) x 300mm (D) (5.3" x 19" x 11.8") (excluding handles and connectors)
Weight	7kg (15.4lbs)

CCU Connector Types

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

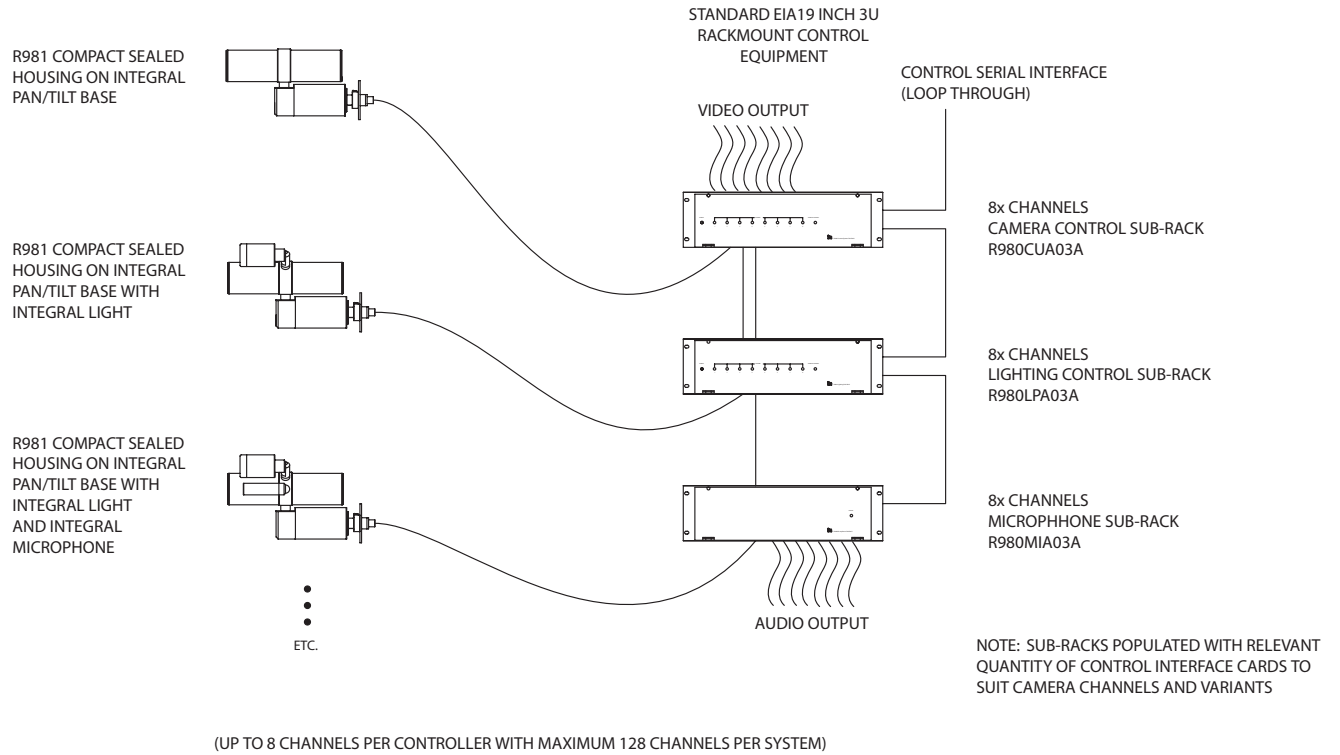
Camera Channel Performance (Camera and CCU Combined)

Horizontal Resolution	550 HTV lines
Sensitivity (faceplate)	1 lux (Chalicon tube) 10 lux (Vidicon tube)
AGC Range	-6db to 20db
Signal to Noise Ratio	43db (CCIR weighted, AGC at 0db)
Geometric Distortion	2% maximum

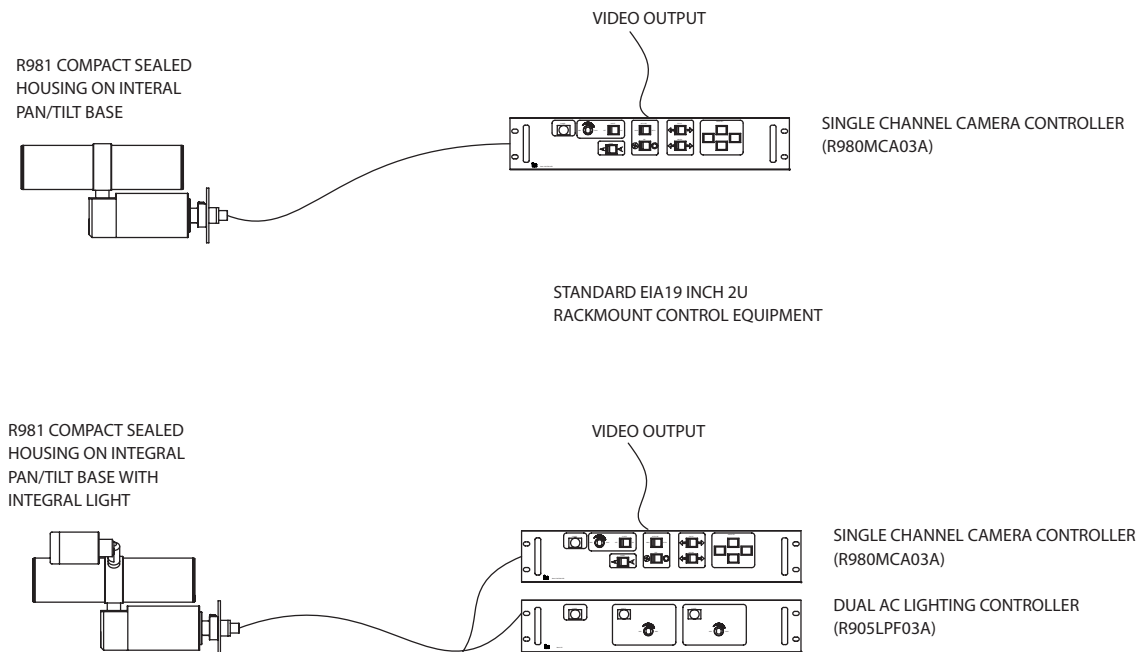
Optional Accessories

Camera Attachments	Camera allows for up to 3 attachment positions for a combination of microphone and lights
Lights for Underwater	Up to 200W using 100W lamps
Light In Air	Up to 150W using sealed 50W lamps or 75W vented lamps
Lighting Sub-rack	8 Channel
Microphone	For in-air use only
Microphone Sub-rack	8 Channel

Typical R981compact Multi-Camera Configuration



Typical R981compact Single Unit Camera Configuration



C981^{compact} High Resolution CCD Color Camera System*

Camera Outstation

Housing Material	Stainless steel
Operating Temperature In Air	0°C to 40°C (32°F to 104°F)
Operating Temperature in Water	0°C to 50°C (32°F to 122°F)
Radiation Tolerance	100Gy [⁶⁰ Co] (H ₂ O) 10 ⁴ Rad [⁶⁰ Co] (H ₂ O)
Operating Dose Rate	100 Gy/hour (10 ⁴ Rad/hr)
Sealing	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)
Maximum Operating Depth	20 meters (66 ft)
Maximum Submersion Depth	60 meters (197 ft)
Camera Midpoint Connector	24-way
Cable Connection	18-way remote handling LEMO or 12-way Fischer
Pan and Tilt	Speed: 6° per second Travel: ±180° (adjustable)
Size with Pan and Tilt	221mm (H) x 162mm (W) x varying 220 to 280 (D) (8.8" x 6.5" x varying 8.8" to 11.2")
Weight	3.2kg (7 lbs) without lights or microphone)

Camera Channel Performance

Horizontal Resolution	460 tvl per picture height (optical)
Illumination	1 lux
Signal to Noise Ratio	48dB (weighted)

Optics

Zoom Lens	18x optical (4.1-73.8mm) 4x digital
Iris	Auto F1.4
Electronic Shutter	Auto 1/60 to 1/10,000 sec NTSC 1/50 to 1/10,000 PAL

*C981 System Configuration generally the same as R981 (shown on previous page).

8 Channel Camera System Sub-rack

Nominal Power Supply Input	100-120/200-240V (auto-ranging); 50/60 Hz
Operation Range	85-132/170-264V (auto-ranging); 47-440 Hz
Power Requirement	150VA for a fully populated 8-channel CCU
Outstation Cable Length	200m (656') maximum CCU to camera (consult IST)
Operating Ambient Temperatures ...	Fully populated, convection cooling: 0°C to 40°C (32°F to 104°F) Up to 6 channels, convection cooling: 0°C to 50°C (32°F to 122°F) Fully populated, forced air cooling at 500 liters (132 gallons)/minute: 0°C to 50°C (32°F to 122°F)
Relative Humidity	20%-75% non-condensing
Size	134mm (H) x 483mm (W) x 300mm (D) (5.3" x 19" x 11.8") (excluding handles and connectors)
Weight	7kg (15.4lbs)

CCU Connector Types

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

Optional Accessories

Camera Attachments	Camera allows for up to 3 attachment positions for a combination of microphone and lights
Lights for Underwater	Up to 200W using 100W lamps
Light In Air	Up to 150W using sealed 50W lamps or 75W vented lamps
Lighting Sub-rack	8 Channel
Microphone	For in-air use only
Microphone Sub-rack	8 Channel

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