



Innovative Industrial Solutions

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N35HR

Black and White Underwater TV-Camera



Application:

- Special inspection in high radiation areas and spaces
- Core grid verification
- Monitoring offload and refueling of fuel assemblies and control rods
- Inspecting fuel assemblies and nozzles

N35HR is a high radiation tolerant black and white tube TV camera. The camera is fitted with a special high radiation tolerant non-browning Chalnicon or Vidicon camera tube, which combines high sensitivity and high temperature tolerance. It is equipped with non-browning lens and front-glass that withstands high radiation without decreasing its optical performance.

N35HR is a reliable solution for both single-camera application and for multi-camera CCTV networks. No separate adjustment of the camera is needed during or before operating.

It is, compared to conventional black and white cameras, a high-resolution camera designed for excellent image reproduction as well as high radiation tolerance.

Innovative Industrial Solutions, Inc.
2830 Skyline Dr. Russellville, AR 72802
479-968-4266

www.i-i-s.net



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Benefits

- Ideal for inspections of high radiation parts of reactor vessels and internal parts in reactors of any type
- Special inspection of areas with high radiation and spaces with difficulties of access
- Core grid verification
- Surveillance during fuel assembly examinations



Features

- High image quality
- Modular design for easy maintenance
- Internal lightings
- Genlock facility standard
- 3x zoom lens available 8-24 mm (58°- 19°)
- Standard lenses 9 mm (54°) or 25mm (20°)
- High sensitivity, only 20 lux with AGC
- Minimum object-to-lens distance 50 mm
- Close-range focusing, high resolution
- Resolution more than 700 TV lines
- Remote control of focus and iris
- Radiation tolerance (total dose) $>1 \times 10^6$ Gy ($>1 \times 10^8$ rads), with vidicone tube 2×10^6 Gy
- Radiation tolerance (dose rate) $>10^4$ Gy/hour ($>10^6$ rads)/hour

Electrical data

Tube	2/3" high radiation non-browning Chalnicon or Vidicon
Video signal	1V composite to CCIR standard; peak white limit at +0.9V; sync pulses -0.3V. Black level clamp, variable gamma correction, aperture correction
Scanning system	625 lines, 50 fields/sec, 2:1 interlace (CCIR) or 525 lines, 60 fields/sec, 2:1 int. (EIA RS170)
Resolution	>700 TV-lines
Video out	1 V p-p, 75 Ω , unbalanced
Signal-to-noise ratio	>40 dB
Minimum illumination	20 lux
Sensitivity	1.5 lux on faceplate for full image quality 0.15 lux at max. video gain (reduced quality)

Technical data

Diameter	35 mm, 40mm with zoom lens or internal lightings
Length	270 mm (including internal focus)
Length with zoom lens	290 mm
Weight	1 kg (1.2 kg with the zoom lens)
Housing material	Stainless steel SS2333. or Aluminum
Front window	Non browning glass
Connector	C32M-19P or C30M-24
Maximum temperature in air	50°C
	in water 60°C
Watertight to	5 bar (73 lbs ²)

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