

HIGH PERFORMANCE REMOTE-HEAD MONOCHROME CCD CAMERA

4980 SERIES

**Cable Length to 100 Feet
On-Chip-Microlens Imager**

Cohu's 4980 Series High Performance Monochrome Remote-Head CCD cameras are the perfect solution for video applications requiring high performance in a compact package. The lightweight mini-remote head is easily incorporated into microscopes, medical instruments, and machine vision systems, and is ideal for specialized security/surveillance applications.

Available in RS-170 and CCIR models, these high resolution cameras employ a half-inch format interline transfer imager with on-chip microlenses for unparalleled sensitivity and minimal blooming. For additional sensitivity in low-light conditions, they provide 26 dB AGC and variable field/frame integration capabilities.

For video applications prone to streaking problems, the sensor provides a 1000:1 overload capability, which allows transmission of clear video signals even when bright incidental light is present in the scene.

4980 Series cameras are backed by a two-year warranty. They're rugged, yet lightweight and compact — ideal for fast system integration. For easy access to camera controls, they have a removable trim plate on the camera control unit.

This camera is available in color models. Please request literature on Cohu's 8280 Series. We welcome requests for special products and complete CCTV systems.

APPLICATIONS

- Image Processing
- Machine Vision
- Microscopy
- Endoscopy
- Process Control
- Quality Control
- Image Analysis
- Security/Surveillance



The mini-remote head can be separated from the CCU by up to 100 feet of cable.

FEATURES AND BENEFITS

- **Compact, Lightweight Mini-Remote Head** - only 1.125" diameter means maximum flexibility for end users or OEMs
- **Variable length cable** up to 100 feet between head and CCU
- **Camera Head Connector** for complete interchangeability
- **High Resolution** - for better definition, error-free results
- **On-Chip-Microlens Interline Transfer Imager** dramatically increases sensitivity and virtually eliminates streaking and blooming
- **Eight-Speed Electronic Shutter** reduces blurred images of fast-moving objects
- **Choice of Synchronization Options** - Asynchronous reset, genlock, H & V drive, line lock, or crystal
- **High Signal-to-Noise Ratio** for clear, noise-free video
- **Optional Electronic Iris** automatically controls exposure
- **Asynchronous Reset** provides random vertical reset capability for production line applications
- **Made In U.S.A.** - direct factory support
- **1000:1 Overload Capability** permits incidental light overloads up to ten times that of other CCD cameras
- **No Lag or Image Retention** - provides fast, clean images
- **Zero Geometric Distortion** for consistent corner-to-corner linearity
- **26 dB AGC** for increased sensitivity at low light levels
- **Optional IR Filter**
- **Field or Frame Integration** - for added sensitivity in low-light-level imaging applications
- **Choice of RS-170 & CCIR Models**
- **Two Year Warranty**
- **Special Configurations** for OEMs and end users

4980 SERIES HIGH PERFORMANCE REMOTE-HEAD CCD CAMERA

SPECIFICATIONS

ELECTRICAL

Image Area

6.4 x 4.8 mm (corresponding to 1/2" image tube)

Active Picture Elements

RS-170: 768 H x 494 V
CCIR: 752 H x 582 V

Imager Type

Interline transfer CCD with on-chip microlenses

Cell Size

RS-170: 8.4 x 9.8 microns
CCIR: 8.6 x 8.3 microns

Resolution

RS-170: 580 horizontal TVL, 350 vertical TVL
CCIR: 560 horizontal TVL, 450 vertical TVL

Sensitivity (faceplate) @ 2850 K

0.65 lux at full video, AGC off
0.02 lux at 80% video, AGC on
0.016 lux at 30% video, AGC on

Electronic Shutter

Eight steps from 1/50 or 1/60 to 1/10,000 second (1/50 or 1/60, 1/125, 1/500, 1/1,000, 1/2,000, 1/4,000, 1/10,000 second)

Integration

Integration period controllable through external input pulse
Grab pulse output
Field (1/60 or 1/50 second) or Frame (1/30 or 1/25 second) integration selected by internal jumper

Video Output

1.0 V p-p @75 ohms, unbalanced

AGC

26 dB, variable gain

Signal-to-Noise Ratio

50 dB at gamma 1, gain 0 dB

Auto Lens

Separate lens video signal tracks AGC peak/average adjustment to eliminate AGC/auto lens interaction
Power: +15V, 35 mA maximum

Gamma

Variable 0.45 to 1.0

Synchronization

Genlock, revert to variable phase line lock with zero crossing detector
Genlock, revert to crystal
Crystal Lock
H & V Drive
Asynchronous Reset
Internal Clock Speeds
RS-170: 28.6363 MHz
CCIR: 28.375 MHz

Power Requirements

12V ac or dc (standard)
115V ac (optional on RS-170 models, includes wall transformer and connector)
230V ac (optional on CCIR models, includes wall transformer and connector)
4.2 watts dc power consumption
LED Power Indicator, Green

MECHANICAL

Dimensions (less lens/cable)

Camera Head: 1.125" dia. x 2.00" length (28.57 x 50.8 mm)
CCU: 1.7" (H) x 5.0" (W) x 6.9" (D) (43.2 x 127 x 175.3 mm)

Weight

Camera Head: 4 ounces (113 grams)
CCU: 27.5 ounces (780 grams)
Cable: 1/2 ounce/ft. (45 grams/m)

Lens Mount

Adjustable "C" mount

CCU Controls

Electronic Shutter
AGC peak/average
AGC On/Off
Manual Gain
Gamma
Sharpness

CCU Connectors

Video (BNC)
Camera Head (15 pin "D" subminiature)
Power (2 circuit screw terminal)
Lens (3 pin Mini-DIN)
External Sync (8 pin DIN)
Pin 1. External Vertical Trigger In
Pin 2. External Sync/Horizontal Trigger In
Pin 3. Grab Pulse Out (-)
Pin 4. Ground
Pin 5. Ground
Pin 6. Vertical Reset In
Pin 7. Grab Pulse Out (+)
Pin 8. Integrate Input

ORDERING INFORMATION

498X - X

X

X

X

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Power Options

2 12V ac or dc
3 230V ac, 50 Hz, with ac wall adapter (CCIR models)
4 24VAC/VDC
5 115 V ac, 60 Hz, with ac wall adapter (RS 170 models)

Sync Options

2 Genlock (revert to crystal)
RS-170
3 Genlock (revert to line lock)
RS-170*
4 Asynchronous Reset RS-170
5 Genlock (revert to crystal CCIR)
6 Genlock (revert to linelock CCIR)*
7 Asynchronous Reset (CCIR)
*Line-lock or variable phase adjustable.

Optical Filters

0 None
1 IR Filter (Non-removable)

Options

0 Field Mode
1 Frame Integration Mode
3 Electronic Iris*

**Electronic Iris option is designed for use with manual iris lenses only. With this option, the camera operates in the field integration mode. Use of the electronic iris defeats electronic shutter positions.*

Cable Length

1 10 Feet
2 25 Feet
3 50 Feet
4 100 Feet

Lens Options

Manual Iris, C Mount
*AL04 4.5mm, f/2.0, 2/3"
*AL08 8mm, f/1.4, 2/3"
AL16 16mm, f/1.4, 2/3"
AL25 25mm, f/1.4, 1"
AL50 50mm, f/1.4, 1"
*Wide Angle

Auto Iris, C Mount
ES04 4.2mm, f/1.6, 1/2"
ES05 4.8mm, f/1.8, 2/3"
ES08 8mm, f/1.4, 2/3"
ES12 12.5mm, f/1.4, 1"
ES16 16mm, f/1.4, 2/3"
ES25 25mm, f/1.4, 1"
ES35 35mm, f/1.4, 2/3"
ES50 50mm, f/1.4, 1"
ES75 75mm, f/1.8, 1"
Other lenses are available. Please consult factory.

COHU RESERVES THE RIGHT TO CHANGE SPECIFICATIONS WITHOUT NOTICE.

ENVIRONMENTAL

Ambient Temperature Limits

Operating: -20 to 60°C (-4 to 140°F)
Storage: -30 to 70°C (-22 to 157°F)

Humidity

Up to 95% relative humidity

Vibration (less lens)

Sine vibration from 5 to 2,000 Hz, 5G peak, all 3-axis, 1/2 hour per axis per MIL-E-5400T, para. 3.2.24.5.1.2, fig. 2, curve IIIa.
Random vibration from 10 to 2,000 Hz, 11G RMS all 3-axis, 1/2 hour per axis, meets MIL-E 5400T, para. 3.2.24.5.1.2, category 6.

Shock

Up to 15G in any axis under nonoperating conditions



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Cohu, Inc., Electronics Division