COHU

i dome

Cohu Electronics

High performance day/night DSP color camera, high speed positioner, sealed and pressurized enclosure, RS422 control

Analog or MPEG4 output options

Ruggedized IP67 enclosure technology with TS-2 environmental/shock/power standards compliance

Embedded multi-protocol camera control support with optional NTCIP 1205 for easy integration

Unique polygon masking (MPEG4 version only) allows precisely defined privacy zones

Image stabilization option for installations subject to extraordinary movement

Programmable presets, video tours, sector zones, and privacy zones

Comprehensive on-screen display features including camera ID, preset ID, compass direction, sector and privacy zone titles, absolute AZ/EL position indications, alarm status and maintenance displays provide concise operator information for efficient operation

Video motion detection (MPEG4 version only)

APPLICATIONS

- *General Surveillance & Monitoring*
- *Traffic Management*
- *Access Control*

The 3920 Series from Cohu is perhaps the most flexible outdoor surveillance cameras system available today. The small, unobtrusive package begins with a high performance day/night camera with integrated zoom lens. But comparisons to other cameras end there. MPEG4 compression with variable frame rate, bit rate and resolutions of up to 4 CIF quality is available. For installations subject to wind or vibration movement, the image stabilization option assures a steady, clear image. This comprehensive range of features, options, and configurations makes it the professional's choice for infrastructure security, traffic management, access control, high value asset surveillance, and process monitoring.

3920 Series
i-dome High Performance Dome Cameras

The i-dome is available in three models:

- *Day/night camera with 23x lens*
- *Day/night camera with 23x lens and image stabilization*
- *Day/night camera with 35x lens and image stabilization*

Extended Zoom Range

The *i-dome* camera features a 23x or 35x optical zoom range (3.6 mm to 82.8 mm or 3.4 mm to 119 mm), with selectable automatic or manual focus. With its high resolution (520 HTVL for 35x) the *i-dome* is ready to produce clear images of just about anything within its field of view.

Day/Night Camera Technology

Automatic Day/Night switching technology, coupled with the camera's progressive scan sensor and internal scan converter, assures vivid color images during daylight, and high sensitivity monochrome images after dark. This greatly extends the nighttime or low-light capability of the camera.

Fast Positioning

A high-speed positioner, with up to 0.1° accuracy, provides 360° continuous rotation and up to 64 user-defined preset positions, each with a two-line, 24-character title.

Image Stabilization

With this option, *i-dome* uses real time computer algorithms to correct for shaking and waving images caused by wind and vibration. The two modes of stabilization settings, 5 Hz and 16 Hz, allow a wide range of vibration compensation. In addition to the clear image, this option also allows the system designer to potentially specify lighter and less-rigid poles, or utilize existing bridge signs and traffic lights.

Multi-manufacturer protocol is standard

Cohu i-Series cameras (*i-dome* and *i-view II*) feature the exclusive Cohu multi-protocol control firmware. This means you can incorporate this Cohu camera into an existing control system from other major manufacturers. For traffic management video systems, *i-dome* can also be ordered with NTCIP control language. All camera and positioner functions are controlled by the integrated receiver/driver, operable via RS-232/422 serial communications with digital position feedback. WinMPC sets up camera and positioner functions.

Touring, Sector IDs and Privacy Zones

Up to eight tours, each with up to 32 preset positions and dwell time, can be stored in memory. Set up to sixteen sectors in a horizontal plane, each with its own identification title. In addition, eight programmable privacy zones can be set to prevent the viewing of selected scenes. The MPEG4 version offers precision video masking allowing up to 64 polygons (0.8 degree per side, with 0.1° resolution) varied opacity to be defined, with scalable masking based on zoom lens position (rubber banding).

Built for the Not-So-Great Outdoors

The *i-dome* housing provides a low profile installation that looks similar to a luminaire and creates very low wind loading. The dome is sealed and pressurized to provide maximum protection against grime and insects. It is rated IP67 and NEMA 4X and, additionally, meets NEMA power and operating temperature standards for TS-2 traffic control systems.

The i-Series Cameras are ideally suited to a wide variety of critical monitoring and surveillance applications.

3920 Series Specifications

SYSTEM SPECIFICATIONS

Pan/Tilt Drive

Angular Travel
360° continuous pan range, -90° to +5° tilt range

Pan Speed (preset)
250°/sec

Pan Speed (manual)
0.1° to >80°/sec

Tilt Speed (preset)
80°/sec

Tilt Speed (manual)
0.1° to >40°/sec

Preset Accuracy
>0.1°

Presets
64 preset positions (each preset includes pan, tilt, zoom and focus coordinates and 24 character ID label)

Video Tours
8 tours, each consisting of 32 presets with dwell time per preset per tour

Sector Zones
Up to 16 programmable zones in the horizontal plane

Privacy Zones (analog version only)
8 programmable zones can be set for video blanking

Compass Direction
8 or 16 direction points (i.e.: north, NE, east, SE, south, SW, west, and NW) can be displayed. Function can be on/off, 3-sec. time out or permanent

Absolute Position
Displayed in 0-359° AZ and +14° to -95° EL. Function can be on/off, 3-sec. time out or permanent

Cloning
Positioner settings (presets, title, etc.) can be stored to file for easy duplication

Alarm Inputs
2 inputs (optional)

Title Generation

Camera ID
2 lines of 24 characters

Preset ID
1 Line of 24 characters

Sector Zone
1 line of 24 characters per zone

Privacy Zone
1 line of 24 characters per zone

Alarm Label
2 lines of 24 characters

Compass/Position
1 line, includes compass direction and absolute position

CAMERA

Imager
1/4" color, NTSC, interline transfer CCD

Resolution
23X Lens: 470 horizontal TV lines
23X Lens & EIS: 470 horizontal TV lines
35X Lens & EIS: 520 horizontal TV lines

Pixels
23X Lens: 724 x 494
23X Lens & EIS: 711 x 485
35X Lens & EIS: 768 x 494

Progressive Scan
23X Lens: Yes
23X Lens & EIS: Not supported
35X Lens & EIS: Yes

Lens Zoom
23X Lens: 3.6 to 82.8 mm; f1.6 (w) f3.7 (t)
23X Lens & EIS: 3.6 to 82.8 mm; f1.6 (w) f3.7 (t)
35X Lens & EIS: 3.4 to 119 mm; f1.4 (w) f 4.2 (t)

Lens Horiz. Angle of view
23X Lens: 54º (w) 2.5º (t)
23X Lens & EIS: 41.5º (w) 1.9º (t)
35X Lens & EIS: 55.8º (w) 1.7º (t)

Iris/Focus/Shutter Operation
Auto/Manual

Wide Dynamic Range
23X Lens: On/off
23X Lens & EIS: Not supported
35X Lens & EIS: On/off

EIS @ 5 Hz Suppression
23X Lens: Not supported
23X Lens & EIS: 20dB suppression from 3-13 Hz
35X Lens & EIS: 20dB suppression from 3-13 Hz

EIS @ 16 Hz Suppression
23X Lens: Not supported
23X Lens & EIS: 20dB suppression from 7-17 Hz
35X Lens & EIS: 20dB suppression from 7-17 Hz

Digital Zoom
Auto/Manual (12X)

White Balance
Auto/Manual

Sync
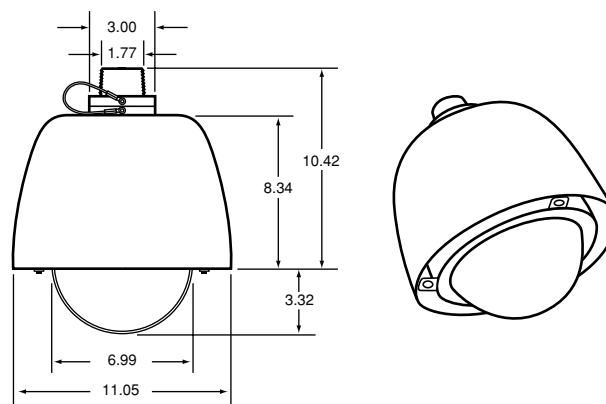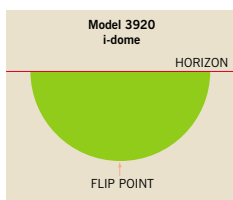Xtal/Phase adjust line lock

SNR
>50 dB

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DIMENSIONS *in inches*

3.00
1.77
10.42
8.34
3.32
6.99
11.05

Fast Positioning

A high-speed positioner with up to 0.1° accuracy provides 360° continuous rotation and up to 64 user-defined preset positions, each with a two-line, 24-character title. The Auto-Flip feature can track objects moving under the Model 3920 i-dome.

Model 3920 i-dome
HORIZON
FLIP POINT

CAMERA *(continued)*

Sensitivity (scene)
23X Lens: 3.0 lux @ 1/60 sec. (color day); 0.2 lux @ 1/4 sec. (color day); 0.02 lux @ 1/4 sec. (mono night)

23X Lens & EIS: 2.0 lux @ 1/60 sec. (color day); 0.2 lux @ 1/4 sec. (color day); 0.01 lux @ 1/4 sec. (mono night)

35X Lens & EIS: 1.0 lux @ 1/60 sec. (color day); 0.1 lux @ 1/4 sec. (color day); 0.01 lux @ 1/4 sec. (mono night)

VIDEO PROCESSING
(Model 392x-x9xx only)

VLIW/DSP
TI TMS320DM642-600

Video Encoding
MPEG 4 ISO/IEC 14496-2 ASP, RTP/UDP stack

Resolution
640 x 480 (VGA); 640 x 240 (2CIF); 320 x 240 (CIF)

Frame Rates
30/15/8/4/2/1

Bit rates
64 K to 3 MB

Data Encoding
RTSP/TCP/IP stack

Image Memory
96 MB SDRAM

Network
100Base T Fast Ethernet connection

Image Storage
1 to 30 minutes, depending on image management settings

Video Motion
8 separate windows, 1200 ROI per window, 255 sensitivity levels, fixed or progressive threshold settings

Logo Insertion
Supports .bmp image insertion for logo

Privacy/Masking Zones
Supports 64 polygon mask areas (0.8° per side, with 0.1° resolution). Each polygon mask can be turned on/off at a user-defined zoom position. All video below and above user-defined tilt angle can be masked. Masking areas adjust in size relative to the zoom magnification

ELECTRICAL

Power Input
89 VAC to 135 VAC, 120 VAC nominal 60Hz.
Conforms to NEMA TS2 para. 2.1.2.
24 VAC and 230 VAC also available

Power Consumption
104 W max with p/t and heaters operating

Power Interruption
Conforms to NEMA TS2 para. 2.1.4

Power Transients/Interruptions
Conforms to NEMA TS2 para 2.1.6

COMMUNICATIONS

Data Format
RS-422 and RS-232 (analog version)
IEEE 802.3U (Model 392x-x9xx version)

Protocol
Cohu, Pelco D & P, Vicon, Bosch, A/D, Ultrak, Javelin. Optional NTCIP available. (analog version only)

Firmware
Stored in flash memory; upload via serial port

MECHANICAL

Weight
14 lbs (6.3 kg)

Dimensions
see diagram

Connector
18-pin MS

ENVIRONMENTAL

Protection Rating
IP-67 and NEMA 4X; Sealed and pressurized to 5 psi with dry nitrogen

Ambient Temp. Limit
Operating: -34 to 74° C (-27 to 165° F)
Storage: -40 to 85° C (-40 to 185° F)
Conforms to NEMA TS2 para 2.1.5.1

Humidity
Up to 100% relative humidity

Vibration
Conforms to NEMA TS2, para. 2.1.9

Shock
Conforms to NEMA TS2, para. 2.1.10

Altitude
Sea level to equivalent of 3,000m/10,000 feet (508mm/20 inches of mercury)

Air Contaminants
Withstands exposure to sand, dust, fungus, and salt atmosphere, per MIL-E-5400T, paragraph 3.2.24.7, 3.2.24.8, and 3.2.24.9

Acoustic
Can withstand environments greater than 150 dB continuously for 30 minutes

EMI
FCC rules, Part 15, Subpart J, for Class B devices

ORDERING INFORMATION

High performance DSP camera with a high speed positioner in a sealed and pressurized dome

392X – X X X X / X X X X

Power
3 - 230 VAC
4 - 24 VAC
5 - 115 VAC

Video
3 - NTSC Day/night with 23x zoom
4 - NTSC Day/night with 23x zoom and EIS
5 - NTSC Day/night with 35x zoom and EIS
7 - PAL Day/Night with 23x zoom
8 - PAL Day/Night with 35x zoom and EIS

Protocol
1 - Standard (Contact Cohu for current list of protocols supported)
2 - NTCIP 1205 Camera Control
9 - MPEG4 ISO/IEC 14496-2 (Advanced Simple Profile)

Dome
0 - Clear dome
1 - Smoke dome

Mount
WALL - Wall mount
POLE - Pole mount
PEND - Pendant mount

WALL

POLE