



9900/9100 Series

i-linx^{II} IP video encoder/decoder systems

Complete line of MPEG2 or MPEG4 encoders, decoders and accessories

Stream video, audio, serial data, sensor inputs and outputs over Ethernet based networks

Independent dual stream video for viewing and/or recording at optimized resolutions and frame rates

Hardened temperature option for extreme operating environments

Integrated high capacity hard drive video storage options

Card cage/blade options for high density configurations

Integral web server for viewing, control and management using standard web browsers

Supports full motion video at selectable range of resolutions up to 4CIF

Units can be programmed to act as either an encoder or decoder

Available SDK/API provides simple integration to third-party systems

- High value asset surveillance and detection

- Access Control

- Border Protection

- Power Plants

- Water Departments / Reservoirs



The *i-linx*^{II} series IP video management system is an advanced suite of network appliances and software designed to provide high quality delivery and processing of video, audio, control and sensor data using standard ethernet based networks.

With a wide range of products to select from, *i-linx*^{II} can be used for solving the very simple, to the extremely complex IP video system applications.

i-linx^{II} solutions are built from three series of products, consisting of the 9900/9910 Series encoder/decoder appliances and accessories, the 9950 Series network video archiving and storage systems, and the 9990 Series video management software suite.

i-linx^{II} provides cost effective solutions with seamless integration of common surveillance and control functions, including video matrix switching and camera control, two way audio communication, alarm point monitoring and output control, video/audio recording and archive management, and 3rd party system interfacing.

i-linx^{II} systems begin with the 9900 Series. This line consists of a selection

of MPEG2 or MPEG4 video encoders and decoders, providing the connections for analog video, camera control data, bi-directional audio, sensor inputs and control system outputs. All signals are efficiently compressed and encoded, and delivered onto the network for processing and control by *i-linx*^{II} 9990 and 9950 Series products.

When recorded video documentation is required, the *i-linx*^{II} 9950 Series NVR systems can be attached to the network and record any, or all encoded video and audio streams directly from the network.

For operator interface and system management, the *i-linx*^{II} 9990 Series software suite provides the solutions. The 9990 Series server module provides the *i-linx*^{II} framework and database for simple configuration and device set-up for the system. The 9990 Series GUI module provides operator interface using easy-to-understand icons, placed on graphical site maps of the monitored areas. System operations can be automatic, event driven via pre-defined scenarios or manually controlled.

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SYSTEM HARDWARE FEATURES

All 9900 Series video appliances are equipped with a variety of interfaces as standard features.

These interfaces include one USB port, three serial communication ports, one bi-directional audio channel, two sensor inputs, two trigger outputs, one 10/100 baseT Ethernet connection, and of course, at least one video input.

The three serial communication ports consist of two RS232 and one RS422 type. Each port is independently configurable for baud rate, data bits, stop bits, parity and handshake settings.

An encoder and decoder connection can be established to create a transparent serial connection across a network, allowing serial communication devices to be interconnected.

CONFIGURATIONS

The Cohu 9900 *i-linx* provides a wide variety of configuration options for meeting the most demanding application requirements.

Options include single, dual or quad video inputs, standard or TS2 operating temperature ranges, surface mount, blade/cardcage mount, or surface mount

with HDD slot, along with various capacity hard disk drive options to choose from.

When video decoding capability is needed, the single input versions can be configured as either a single input encoder or a single output decoder during system configuration.

MULTI-STREAM VIDEO

Each 9900 Series video appliance when configured as an encoder, provides two independent video streams, allowing unique configurations of video resolution, streaming mode, bit rate, frame rate, GOP and image settings, providing unmatched flexibility for optimizing viewing, recording and network bandwidth utilization.

VIRTUAL VIDEO MATRIX SWITCHING

The 9900 Series video appliances can be configured to simulate analog switching functions, using the network cabling infrastructure.

By use of the 9990 Series video management software, 9900 Series encoders and decoders can be connected to display any camera site on any monitor.

Adding additional camera sites or monitors to the system only requires a network connection between the camera site and

the decoder, minimizing the costly expansion costs and complexities common in analog matrix switching systems.

WEB SERVER

All 9900 Series appliances include an integrated web server, allowing viewing, camera PTZ control and network setting management using a conventional web browser (activeX support required).

Password protection is used to prevent unauthorized access to the 9900 Series appliances.

HARSH ENVIRONMENTS

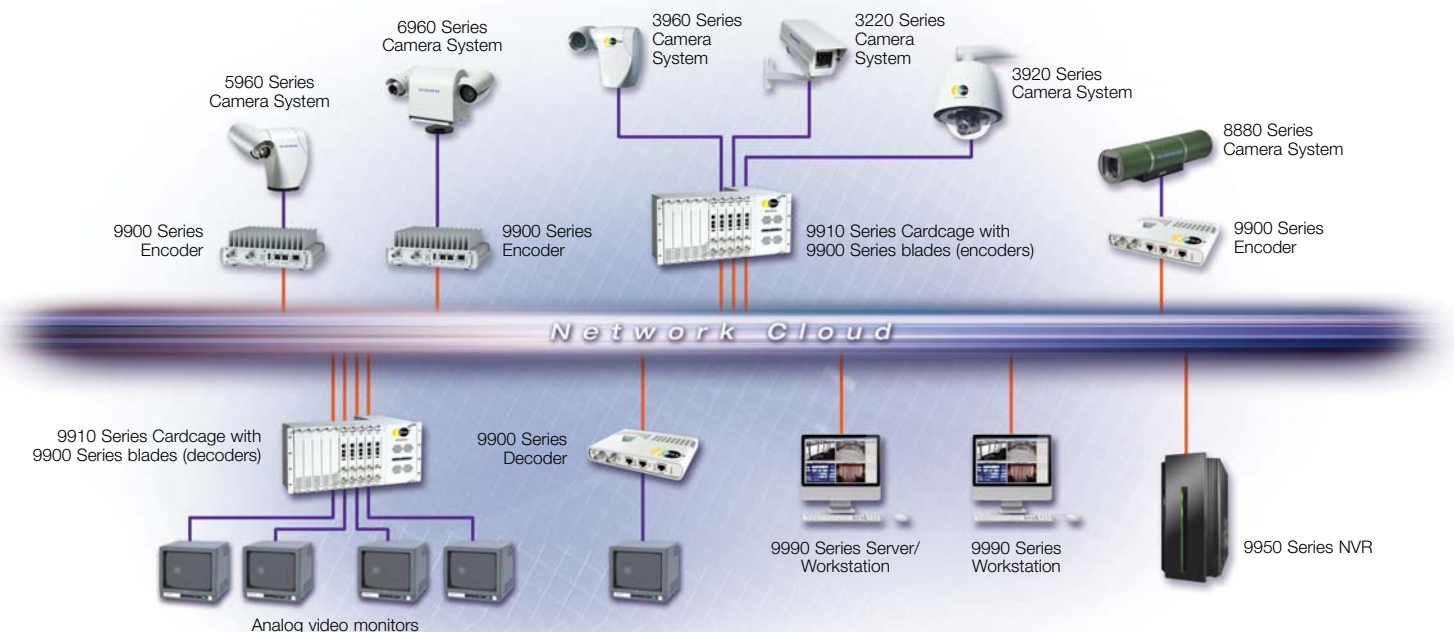
When wide operating temperatures are encountered, the 9900 series provides a TS2-compliant temperature range option (-34C to +74C) to insure continuous and reliable operation in extreme environment locations.

ON-SITE LOCAL RECORDING

The 9900 can optionally be fitted with a hard disk drive, allowing camera site video to be recorded without streaming to an NVR, thus saving network bandwidth.

The recorded video can be viewed directly from the camera site encoder, or downloaded for later viewing.

Typical Cohu *i-linx* System Architecture



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9900/9100 Series Specifications



SIGNAL/CONNECTIONS

Video Inputs

- 9905-2xxx: (1) One BNC, NTSC or PAL
- 9905-4xxx: (1) One BNC, NTSC or PAL
- 9905-8xxx: (2) Two BNC, NTSC or PAL
- 9905-9xxx: (4) Four BNC, NTSC or PAL

Video Outputs (Available when used as decoder)

- 9905-2xxx: (1) One BNC, NTSC or PAL
- 9905-4xxx: (1) One BNC, NTSC or PAL

Serial Data (All configurations)

- Com 1: RS232 3 wire half duplex, Shared RJ45 (Default PTZ port)
- Com 2: RS422 4 wire, half duplex, Shared RJ45 (Default PTZ port)
- Com 3: RS232 half duplex, Full Support, RJ45

Serial Data Settings (All ports)

- Baud Rate: (75 to 115.2Kps)
- Data Bits: (6, 7, 8)
- Stop Bits: (1, 2)
- Handshake: (None, Soft, Hard)

Ethernet (All configurations)

- (1) RJ45 100BaseT 802.3U interface

Local HDD Slot

- 9905-xx1x only: Supports (1) 7411478-xxx series HDD
- Refer to accessories for HDD selections.

USB Port (All configurations)

- (1) 2.0 high speed USB port

Audio (All configurations)

- (1) Input/Mic 3.5mm stereo jack
- (1) Output 3.5mm stereo jack
- Audio Levels**
160mv RMS MAX, Impedance: 10K Ohm, AC coupled

Digital Inputs (All configurations)

- (2) Two dry contact Inputs, 4 screw terminal

Digital Outputs (All configurations)

- (2) Two open collector, 4 screw terminal

Power (All configurations)

- (1) One 6 Pin Female DIN (snap lock)

COMPRESSION

Video Standards (Firmware Selectable)

- MPEG-4; Simple Profile
- MPEG-2; Elementary stream, MP@ML

Video Data Rates

- MPEG-4; up to 4Mb continuous, 6Mb peak
- MPEG-2; up to 6Mb continuous, 10Mb peak

Video Encoding Resolution

- 9905-2xxx: 2CIF, CIF, QCIF
- 9905-4xxx: 4CIF, 2CIF, CIF, QCIF
- 9905-8xxx: 4CIF, 2CIF, CIF, QCIF
- 9905-9xxx: 4CIF, 2CIF, CIF, QCIF

Video Decoding Resolution

- 9905-2xxx: 4CIF, 2CIF, CIF, QCIF
- 9905-4xxx: 4CIF, 2CIF, CIF, QCIF

Video Frame Rate Settings

- NTSC: 30, 15, 10, 7.5, 6, 5, 3, 2, 1 frames/sec
- PAL: 25, 12, 8, 6, 5, 3, 2, 1 frames/sec

Video GOP Settings (I, IP)

- 0 to 500, increment by 1

Video Streaming Modes

- Constant Bit rate (CBR)
- Constrained CBR
- Variable Bit rate (VBR)
- Constrained VBR
- Fixed Quality
- Constrained Fixed Quality

Video Settings

- Brightness (0-255)
- Contrast (0-128)
- Saturation (0-128)

Video Latency

- < 150msec

Audio Standards

- G.711 (PCM)
- G.729A

Audio Data Rates

- 64Kbps (G.711)

ON-SCREEN DISPLAY

Site ID: 1 Line, 32 Characters Max,
X/Y Position
Event ID: 1 Line, X/Y Position
Time: On/Off, H:M, H:M:S or H:M:S:ff,
X/Y Position
Date: On/Off, Y/M/D, M/D/Y or D/M/Y,
X/Y Position
Logo: BMP File, X/Y Position, Mask

VIDEO STREAMING

Video Streams

9905-2xxx: 2 Streams
9905-4xxx: 2 Streams
9905-8xxx: 4 Streams, 2 Streams per Input
9905-9xxx: 2 Streams per stream channel
(qty 2), where channel 1 = quad display,
channel 2 = one of the 4 inputs

Stream/Frame Rate/Resolution Ratios

Processing Capacity based on high motion video content = 45 Frames @ 5 CIF, divided across video inputs and streams. Lower motion content increases resolution/frame rate assumptions. Examples below are for estimation purposes only.

Single Input: (1) Stream 1 = 30FPS @ 4CIF
Stream 2 = 15FPS @ 1CIF
Dual/ Quad (1) Stream 1 = 30FPS @ 2CIF
Stream 2 = 5FPS @ 1CIF
(2) Stream 1 = 5FPS @ 1CIF
Stream 2 = 5FPS @ 1CIF

Streaming Modes

Default Operation
Single connection = Uni-cast
Multiple connection = Multi-cast
Configurable Operations
Single Connection = Uni-cast
Multiple Connection = Multi-Unicast
Any Connection = Multi-cast

NETWORK

Electrical Interface

IEE 802.3 / 802.3U, Ethernet/Fast Ethernet
(Auto Sense) RJ45

Protocols

UDP, TCP, IP, HTTP, RTP, RTSP, ICMP,
IGMPv2, SNTP, FTP, ARP, Telnet; (RTP,
RTSP, is available with firmware update
option)

Requirements

Static IP addresses
Network must be Multicast-aware for maximum benefit, with IGMP 2.0 or greater required for full multicast support

Updates

Firmware and CODEC upgradable via FTP over IP. Full control of units via network (Telnet) or HyperTerminal.

ELECTRICAL

Power Input

9905-xx0x: 100Vac to 240Vac via external supply
9905-xx1x: 100Vac to 240Vac via external supply
9905-xx5x: 5Vdc (via 9910 Series Card cage)
9914-5000: 48Vdc
9915-5000: 100Vac to 240Vac
9918-5000: 100Vac to 240Vac

Power Consumption

9905-2x0x: 7 watts
9905-xx0x: 10 watts
9905-xx10: 13 watts
991x-5000: 200 watts max.

MECHANICAL

Construction

Painted cast aluminum

Dimensions (cm)

9905-x00x: 1.5" x 6.5" x 8" (3.8 x 16.5 x 20.3)
9905-x01x: 3.5" x 6.5" x 8" (8.9 x 16.5 x 20.3)
9905-x500: 3" x 6.5" x 8" (7.6 x 16.5 x 20.3)
9905-x510: 4.5" x 6.5" x 8" (11.4 x 16.5 x 20.3)
9905-xx5x: Requires 991x-5000 card cage)
991x-5000: 19" x 10.5" x 17"
9911-1000: 19" x 3.5" x 12"

Weight

9905-x00x: 1.4 lbs (0.64 Kg)
9905-x01x: 2.3 lbs (1.04 Kg)
9905-x50x: 3.5 lbs (1.6 Kg)
9905-x51x: 4 lbs (1.8 Kg)
991x-5000: 29 lbs (13.2 Kg), plus 0.8 lbs
(350 g) per card

ENVIRONMENTAL

Operating Temperature

9905-x50x: -34°C to 74°C (-29.2°F to 165°F)
9905-x51x: -34°C to 74°C (-29.2°F to 165°F)
9905-x0xx: -34°C to 60°C (-29.2°F to 140°F)
991x-5000: -0°C to 50°C (32°F to 122°F)

Humidity (All configurations)

5% to 95% (Non-Condensing)

REGULATORY

Safety UL Listed, CE
FCC/CE/VCCI/ICES Class A

ACCESSORIES

Card Cage (991x-5000 Series)

Encoder/Decoder Card Slots

10 Slots available for 9905-xx5x Series blades

Power Options

120Vac via Single Supply or Dual/Backup Supply

Dual Unit Rack Shelf (9910-1000)

2 Slots available for 9905-x000 Series blades

Optional Hard Disk Drives

(Ordered Separately)

9905-x01x:
7411478-060, 60GB HDD
7411478-080, 80GB HDD
7411478-100, 100GB HDD
7411478-500, 500GB HDD
9905-x51x (Extreme Temp):
7411478-041, 40GB HDD

Spare Power Supplies

6510204-001 (120Vac->5Vdc)
Use for 9905-x00x, 9905-x01x
6510205-001 (12Vdc->5Vdc)
Use for 9905-x00x, 9905-x01x
6510206-001 (120Vac->5Vdc) Extreme Temp
Use for 9905-x50x, 9905-x51x
6510207-001 (120Vac Card cage supply)
Use for 991x-5000)

Spare Console Cable (Com 3 RJ45 to PC DB9)

7411489-001



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ORDERING INFORMATION

i-linx[®] Encoder/Decoder module

990X-XXXX

Power

5 - 100-240 VAC

Inputs / Resolution

2 - Single input, 2 CIF Max resolution

4 - Single input, 4 CIF Max resolution

8 - Dual input, 4 CIF Max resolution

9 - Quad input, 4 CIF Max resolution

Temperature Range

0 - 0 - 50°C operating temperature

5 - -34 - +74°C operating range

Mounting

0 - Surface mount (stand alone)

1 - Surface mount with integral hard drive

5 - Rack slot card

Video Motion Detection

0 - None

1 - Outdoor VMD (future)

i-linx[®] Accessories

991X-X000

Power

0 - None (for rack shelf option only)

4 - 48Vdc Single Power Supply

5 - Single 115/230 VAC power supply

8 - Redundant 115/230 VAC power supply

Mounting

1 - Rack shelf for two side-by-side units

5 - Card cage with 10 slots for 9900 Series rack slot cards

Cohu reserves the right to change specifications without notice.
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COHU
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