The i-Volution™ 4000 Hardened Encoder

The i-Volution 4000 (i4000) series of Video-over-IP encoders delivers outstanding performance for advanced surveillance applications requiring high resolution, full motion video. The i4000 can encode a single MPEG-1/MPEG-2 video stream and two serial data channels for transport over a standards-based IP network. The MPEG video stream can be viewed simultaneously from any PC and/or CCTV monitor in the network. The i4000 is available as a stand-alone single port video encoder with dual 10/100 Base-T Ethernet interfaces. Optional single or dual fiber interfaces are also available.

Front View

Rear View

The i4000 comes standard with dual Ethernet interfaces. Optional Single or Dual Optical interfaces are also available.

Applications

- Security Surveillance
  - *Airports*
  - *Military*
  - *Industrial Complexes*
  - *Hospitals*
  - *Campuses*
  - *Detention Centers*
- Transportation Monitoring
  - *Road (ITS)*
  - *Rail / Light Rail*
  - *Subway / Metro*
- Industrial Process Control

High Resolution - Full Motion Video

*i*MPath Networks i4000 provides the highest digitized video quality over standard IP Ethernet networks. Every image is encoded in real-time and displayed at 30/25 (NTSC/PAL) frames per second. This advanced capability provides full motion DVD quality video for digital networked CCTV surveillance applications.

Single Channel Capacity

The i4000 provides single-channel connectivity for surveillance applications supporting dispersed video cameras over an IP network. The two serial data ports provide additional capacity for network applications such as PTZ, NMS and Point of Sales applications.

Network Scalability and Flexibility

The stand-alone i4000 Encoder is ideal for a multitude of surveillance applications requiring single or extended network channel flexibility and high quality full motion video. The integral Layer-2 network switch allows for easy deployment and permits extended channel capability (cascading of i4000s) to eliminate distance and topology restrictions.

Advanced features such as On-Screen-Display (OSD) allows network administrators to display camera name, date, time, resolution, bit rate and other related information onto any video monitor in the network. When used in combination with the Video Motion Detection feature, the i4000 provides effective, real-time surveillance and alarm notification.

Temperature Hardened

The i4000 is designed to meet high availability network requirements. The unit is environmentally hardened to operate over extended operating ranges and is conformal coated to ensure maintenance free operation.

Standards Compliant

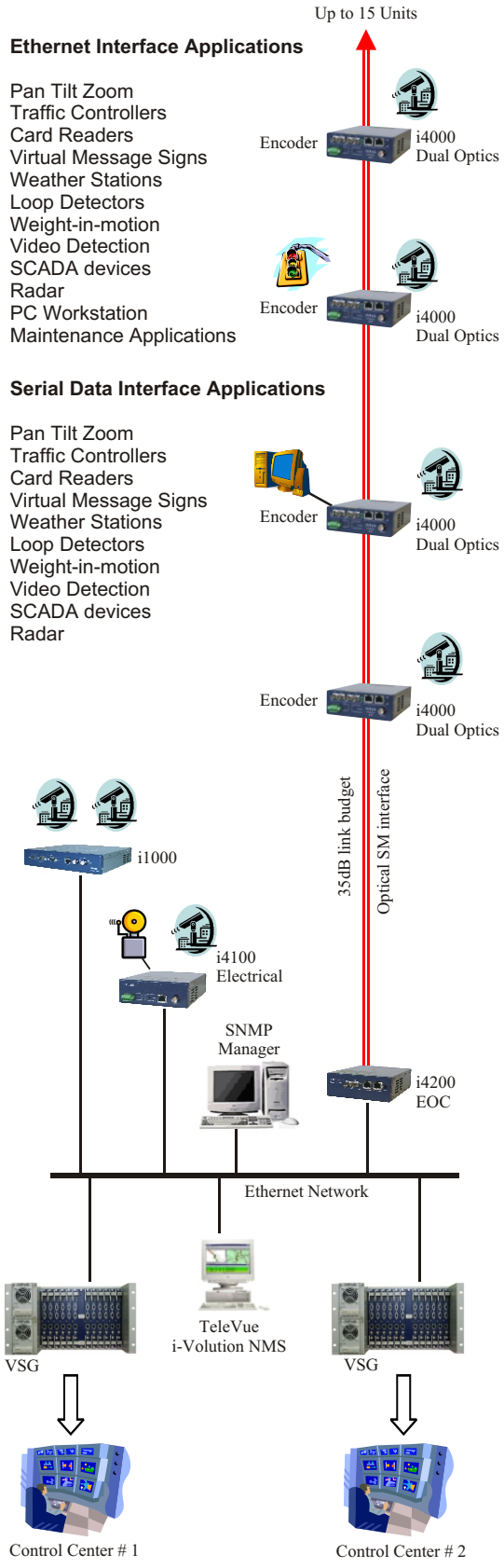
Video is encoded using standard MPEG-1/MPEG-2 compression. The video stream(s) can be viewed by *i*MPath software/hardware decoders and/or 3rd Party products supporting "Elementary Stream" and "Raw Dump" standards.

The video and serial data can be transmitted over any standard IP network. This includes Ethernet, Gigabit Ethernet, SONET/SDH and ATM networks.

Network Manageability

The i4000 can be managed both locally and remotely using Telnet, i-Volution NMS or via 3rd Party SNMP network management systems.

*i*MPath Networks



Video

Analog Video		NTSC (30 fps), PAL (25 fps)
Connector		BNC, 75 ohm
Digital Video		MPEG-1 (ISO/IEC 11172-2) and MPEG-2 (ISO 13818-2) MP@ML
Data Rate		128 Kbps - 12 Mbps (12 Mbps aggregate stream(s))
Resolution		**NTSC** / **PAL**
	Full	720 x 480 / 720 x 576
	HHR	352 x 480 / 352 x 576
	SIF	352 x 240 / 352 x 288
	QSIF	192 x 128 / 160 x 128
Latency		170ms with Optimal Setting

Data

Format	Serial / Asynchronous
Connectors	DB9-F
Interface	EIA-232, EIA-422/485 - 2 or 4 Wire, Half or Full Duplex
Data Rate	1.2 Kbps to 115.2 Kbps

LAN

LAN Format	IEEE 802.3 Ethernet
Interface	RJ 45 10/100 Base-T Ethernet, Half/Full Duplex, Auto-Sensing Integral Layer-2 Switching with Extended Channel Support Maximum cascade of 15 units provided aggregate bandwidth <70% of LAN link.
Data Rate	10/100 Mbps
Protocol	TCP, UDP, IPv4, IGMPv2, SNMPv2

Optical Link

Optical Format	IEEE 802.3 Ethernet
Connector / Fiber	ST / Single Mode / 35dB link Budget
Interface	100 Base-FX Ethernet, Full Duplex Integral Layer-2 Switching with Extended Channel Support Maximum cascade of 15 units provided aggregate bandwidth <70% of Optical Link.
Data Rate	100 Mbps

Motion Detection

Zone	Full Screen
Sensitivity	User Selectable: Low to High (1 to10)
Re-Arm Delay	User Selectable:100ms to 25 seconds

Contact Sense & Closure

Connector	Terminal Block
Contact Sense	Output Voltage: +5 VDC, Maximum Resistance: 1.2 K Ohms
Dry Contact	Off Leakage: < 1 nA, On Resistance: 1.5 Ohms
Maximum Rating	250 Vp / 150 mA
Re-Arm Delay	User Selectable: 100ms to 25 Seconds

Alarms

Via NMS/SNMP	Video Loss Detection Video Motion Detection Contact Sense & Closure (Product Specific) Unit Configuration Change / Unit Reset

Management

Local Management	Via Serial (Console) Maintenance Port, LED Status Display
Remote Management	Via i-Volution NMS (TeleVue), Telnet, SNMPv2
Software Updates	Via Network Download or Serial Maintenance Port

Power

Input Voltage	11.4 - 12.6 V DC (.100" center pin diameter lock type connector.) *AC Power Adapter sold separately*
Consumption	15 W (typical)

Physical

Size/Weight	W 5.0" (12.7cm) x H 1.72" (4.37 cm) x L 7.5" (19 cm) / 1.34 lbs (0.6 kg)

Environmental

Operating Temperature	-34°C to +74°C
Relative Humidity	5% to 95%, non-condensing
Environmental Protection	PCB Conformal Coating

Regulatory Approvals

Emissions	
Europe	EN55022: 1998 For Class A, EN61000-3-2: 1995 & EN6100-3-3: 1995
North America	FCC47 CFR Part 15, Subpart B: 1999 Class A
Australia/New Zealand	AS/NZS 3548: 1995 for Class A
Immunity	EN55024
Laser Products	
Europe	IEC60825-1,2
North America	CFR1040 Class 1

Variant	# of Video ports	# of Data ports	# of Ethernet ports	# of Optical ports
i4000 (i4020)	1	2	2	0
i4000 - SO (i4021)	1	2	2	1
i4000 - DO (i4022)	1	2	2	2
i4100 (i4110)	1	2	1	0
i4200 - EOC (i4221)	0	0	2	1
i4222 - DEOC	0	0	2	2

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