The MP-955 and MP-955DN I-Onyx® Megapixel Cameras are powerful IP cameras compatible for operation within a ViconNet® (version 5 software) digital video management system. Offering the ability to deliver 1.3 megapixel resolution video across the network, the camera can be remotely managed and controlled from ViconNet NVRs, DVRs and Workstations. The MP-955 is a color camera; the MP-955DN provides day/night functionality.

Equipped with a 100 Mbps LAN interface board, the camera allows direct plug-in to a network switch. Images received from the IP camera can be displayed, recorded or archived using the ViconNet management software.

Megapixel cameras provide higher resolution, which results in images with more detail and clarity. They also offer the ability to cover a larger area while maintaining the detail in the image. This provides the capability to digitally zoom further into the live or the recorded video without losing focus and pixelating.

The cameras support either Multicast or Unicast and allows networks that support multicast to take advantage of this feature. Multistream support allows viewing and recording video at different frame rates (fps) at the same compression (MPEG-4 or M-JPEG).

The MP-955 series is a 1/3-inch format camera with a micron progressive scan CMOS image device. It has a maximum resolution of SXGA (1280 x 1024) and offers frame rates up to 8 fps (lower resolutions provide higher fps – refer to Technical Information). The camera offers a selectable compression type of MPEG-4 or M-JPEG.

The color camera has a sensitivity of 0.046 fc (0.5 lux); the day/night version provides 0.0046 fc (0.05 lux) in B/W mode and 0.046 fc (0.5 lux) in color mode, all at F1.8, 30 IRE, max AGC. The day/night camera automatically switches from color mode to black-and-white mode under 0.37 fc (4 lux).

The camera includes a 4.2 mm/f1.8 megapixel fixed lens. The camera accepts CS-mount or C-mount lenses. All connectors are conveniently located on the rear panel. Synchronization is internal. The camera may be powered by either PoE or a provided 12 VDC power input.

The MP-955 and MP-955DN cameras comply with radiation requirements for an FCC Class A device and CE.

Note: When using these cameras with the ViconNet Virtual Matrix Controller (VMC), they must be configured to M-JPEG mode only.

MP-955 IP Color and Day/Night Megapixel Cameras

- **Up to 1.3 megapixel resolution IP camera (SXGA 1280x1024 pixels)**
- **Compatible with ViconNet Version 5 software**
- **Transmits high quality video across the LAN and WAN for remote viewing and recording on ViconNet NVRs, DVRs and Workstations**
- **Uses MPEG-4/M-JPEG compression that optimizes file size and maximizes picture quality**
- **Power over Ethernet (PoE) eliminates the need for separate power supply**
- **A range of fps available depending on resolution**
- **Supports Multicast**
- **Multi-stream with variable frame rate in the same compression**
- **Remote configuration across the network**
- **Password protection for configuration**
- **Camera features electronic iris, BLC, AGC, white balance, flickerless**
- **Includes 4.2 mm/f1.8 megapixel fixed lens**

ASSOCIATED EQUIPMENT AND ACCESSORIES
ViconNet VN-WS-SW Software/VN-WS-PC: Full capability master workstation software package/preconfigured PC, except the recording function, for a PC for use with Kollector recorders; registration required for use. Product Specification V113-09.

ViconNet VN-NVR-SW Software/VN-NVR Master Workstation: ViconNet master workstation software package (primarily for recording function)**/**PC preloaded with Master Control Software for use with Kollector recorders; registration required for use. Product Specification V113-20.

Kollector Elite Digital Video Recorders, Product Code varies by model: 16-channel networked digital video recorders. Product Specification V112,

NETSWITCH-16, Product Code 8495-00: 16-port network switch, includes 10/100Mbps ports, desktop/wall mount, 120 VAC. Product Specification 161.

NETSWITCH-24, Product Code 8495-10: 24-port network switch, includes 10/100/1000Mbps ports, rack mount, 120 VAC. Product Specification 162.

NETSWITCH-24POE Network Switch, Product Code 8495-20: 16-port, 10/100/1000 autosensing network switch with a choice of 24 VAC or PoE power source, stackable. Product Specification V162-20.

Uninterruptible Power Supplies: 725 and 1000 VA units with DB9 (RS-232) and USB ports; 120 VAC input/output. Product Specification V147.

Model V2.8-12VF-MP Lens, Product Code 8305-30: 1/3-inch format varifocal IR manual iris lens for 1.3 megapixel cameras. Product Specification 813.

Network and Storage Considerations

The MP-955 and MP-955DN IP Cameras can be connected to any ViconNet version 5 network. ViconNet NVRs, DVRs and Workstations can be used for live viewing and recording of network-streamed video. A network can be as simple as a single camera connected to a ViconNet Workstation or can be complex with the addition of several networks interconnected via WAN. Refer to the network diagrams on the next page for sample configurations.

When adding MP-955 and MP-955DN IP Cameras to the ViconNet network, the following items must be considered:

- The number of cameras on a switch with respect to switch capabilities and system bandwidth mapping.
- Bandwidth limitations on ports connected to Workstations (using 100 or 1000 Mbps).
- Workstation capabilities such as processing speed and disk write speed.
- Storage size and location types including local Workstation recording, attached SCSI RAID and integrated SAN devices.

The MP-955 and MP-955DN offer a variety of configurations that impact on the video quality (resolution/fps) vs bandwidth usage. There is a choice of Video Bit Rate Mode (Constant Bit Rate and Variable Bit Rate) and Frame Rate Mode (Constant and Variable). If the Video Bit Rate is set to variable, the Video Quality can only be set to Low, Middle or High; if it is set to constant, the video maximum bit rate is unlimited. It is suggested that the Constant Bit Rate be selected, since it provides more exact control over the network; the parameters shown below have been tested and proven to provide the best quality of video.

Table 1: Constant Bit Rate Guidelines (MPEG-4 Mode)

		Video Settings			Expected Recording Duration		
Recording Requirement	Resolution	Frame Rate*		Video Maximum Bit Rate (K)	1 day	7 days	30 days
		NTSC	PAL				
	1.3 Megapixel (1280x1024, CMOS)	8 (constant mode)		2000	21.6 G	151.2 G	648.0 G
		4 (constant mode)		1200	13.0 G	90.7 G	388.8 G
		2 (constant mode)		500	5.4 G	37.8 G	162.0 G
		1 (constant mode)		256	2.8 G	19.4 G	82.9 G
	D1 (720x480@NTSC, 720x576@PAL)	30	25	1500	16.2 G	113.4 G	486.0 G
		15	12	750	8.1 G	56.8 G	243.1 G
		10	8	500	5.4 G	37.8 G	162.0 G
	CIF (352x240@NTSC, 352x288@PAL)	30	25	750	8.1 G	56.8 G	243.1 G
		15	12	384	4.1 G	29.1 G	124.4 G
		10	8	256	2.8 G	19.4 G	82.9 G
		5	5	128	1.4 G	9.7 G	41.5 G

*Maximum frame rate is 8 fps at 1.3 megapixel resolution.

Table 2: Constant Bit Rate Guidelines (M-JPEG Mode)

Video Settings			Time Frame at Quality Level (50 is Recommended)								
Resolution	Frame Rate		1 day			7 days			30 days		
	NTSC	PAL	~25	~50	~75	~25	~50	~75	~25	~50	~75
1.3 Megapixel (1280x1024, CMOS)	8 (constant mode)	8 (constant mode)	77GB	135GB	195GB	539GB	945GB	1.4TB	2.3TB	4.05TB	5.85TB
	4 (constant mode)	4 (constant mode)	38GB	68GB	93GB	266GB	476GB	651GB	1.15TB	2.1T	2.8TB
	2 (constant mode)	2 (constant mode)	19GB	34GB	47GB	133GB	238GB	329GB	570GB	1.1TB	1.4TB
	1 (constant mode)	1 (constant mode)	10GB	17GB	24GB	70GB	119GB	168GB	300GB	510GB	720GB
D1 (720x480@NTSC, 720x576@PAL)	30	25	88GB	152GB	190GB	616GB	1.1TB	1.4TB	2.65TB	4.6TB	5.7TB
	15	12	44GB	76GB	95GB	308GB	532GB	651GB	1.35TB	2.3TB	2.85TB
	10	8	29GB	51GB	64GB	203GB	357GB	448GB	870GB	1.55TB	1.95TB
	5	4	15GB	26GB	32GB	105GB	182GB	224G	450GB	780GB	960GB

Table 3: Variable Bit Rate Parameters

Video Quality	Min-Max Bit Rate
High	~1Mbps ~4.6Mbps
Middle	~500kbps ~2.6Mbps
Low	~300 kbps ~1.8Mbps

| Vicon Product Facts | FC CE | Model No: MP-955/MP-955DN | Product Code: 9607-00/9607-10 | SEC: 3 | SPEC: V194 | REV: 809 |

Single Camera

100 Mbps

100 Mbps

I-ONYX MEGAPIXEL CAMERA

NVR WORKSTATION

100 Mbps SWITCH

- Number of cameras - Single
- Network bandwith - 100 Mbps
- Storage method - Local workstation hard drive

I-ONYX MEGAPIXEL CAMERAS

Multiple Cameras

100/1000 Mbps SWITCH

RAID

100/1000 Mbps

100 Mbps

NVR WORKSTATION

- Number of cameras - Multiple
- Network bandwith - Each switch to its limit
- Storage method - Local workstation hard drive or SCSI attached RAID

I-ONYX MEGAPIXEL CAMERAS

Multiple Cameras in Complex Network

SWITCH

ROUTER

SWITCH

100 Mbps

SWITCH

100 Mbps

ROUTER

100/1000 Mbps

I-ONYX MEGAPIXEL CAMERAS

T1 1.5 Mbps

100/1000 Mbps

100/1000 Mbps

1 Gbps

1 Gbps

1 Gbps

1 Gbps

(optional NAS)

(optional SAN)

T1 1.5 Mbps

WAN

VIEWER WORKSTATION

RAID

NVR WORKSTATION

SAN

- Number of cameras - Multiple on multiple sites
- Network bandwith - Each switch to its limit (as shown above), constrained only by the WAN (T1 @ 1.5 Mbps)
- Storage method - Local workstation hard drive, SCSI attached RAID or SAN storage

ELECTRICAL

Input Power Source:	12 VDC or PoE (IEEE 802.3af Class 3).
Current:	12 VDC: 275 mA. PoE: 90 mA.
Power Consumption:	12 VDC: 3.3 W max. PoE: 4.3 W max.
Heat Equivalent:	12 VDC: 0.19 btu/min (0.05 kg-cal/min); PoE: 0.24 btu/min (0.06 kg-cal/min). Note: These figures represent the conversion of 100% of the electrical energy to heat. Actual percentage of heat generated will be less and will vary from product to product. These figures are provided as an aid in determining the extent of cooling required for an installation.
Radio-Frequency Emission Standard:	FCC Class A; CE.
Video Management and Communication System:	ViconNet Digital Video Management System Version 5.
LAN Interface:	10/100 Mbps, TCP/IP Unicast/Multicast.
Number of Video Channels:	1, over LAN connection.
Picture Resolution And Frame Rate:	SXGA: 1280 x 1024 up to 8 fps; HD720: 1280 x 720 up to 10 fps; VGA: 640 x 480 up to 30 fps.
Audio Input/Output:	Future feature.
Alarm:	Future feature.
Video Bandwidth:	Refer to Tables 1 and 2.
Hard Drive Consumption Rate:	Refer to Tables 1and 2.

SOFTWARE OPERATION (ViconNet)

Network Setup:	Standard network protocol type using IP addressing scheme and separate PC application software.
Site Administration:	Camera can be setup from NVRs, DVRs and Workstations.
Macro Create & Edit:	System macros can be configured to use the camera's live or record their video.

VIDEO CHARACTERISTICS

Image Device:	1/3-inch progressive scan CMOS.
Effective Pixels:	1280 x 1024.
Sensitivity:	MP-955: 0.046 fc (0.5 lux) MP-955DN: Color: 0.046 fc (0.5 lux); B/W: 0.0046 fc (0.05 lux). Conditions: lens at f/1.8 and 30 IRE video output, max AGC. Color mode automatically switches to B/W under 0.37 fc (4 lux).
Resolution:	1.3 megapixel SXGA (1280 x 1024).
Electronic Iris:	1/10-1/2000, 50/60 Hz.
Day/Night Function:	Mechanical IR cut filter.
Flickerless:	1/120 sec (60 Hz; 1/100, 50 Hz).
Backlight Compensation:	Yes.
Signal-to-Noise Ratio:	Better than 45 dB.
White Balance:	6 configurable modes: Auto, indoor1, indoor2, outodoor1, outdoor2, hold current, manual.
Video Signal Output:	1.0 V p-p VBS @ 75 ohms composite video.
Synchronization In:	Internal.
Gain Control:	Automatic (AGC), user defined.
Compression:	MPEG-4 or M-JPEG, selectable.
Lens (included):	Focal Length: 4.2 mm/f1.8. Angle of View: 75° (horizontal). Mount: C/CS (with adaptor).

CONTROLS AND CONNECTORS

External Controls: System Status: Red LED.
Reset button: Sets factory defaults.

Connectors: Power: 12 VDC: 3-pin terminal; PoE: RJ-45.
Alarm in/out: screw terminal connector (for future use).
Ethernet: RJ-45 CAT 5.
Audio: 3.5 mm phone jack (for future use).
See Rear Panel diagram.

CAMERA SOFTWARE
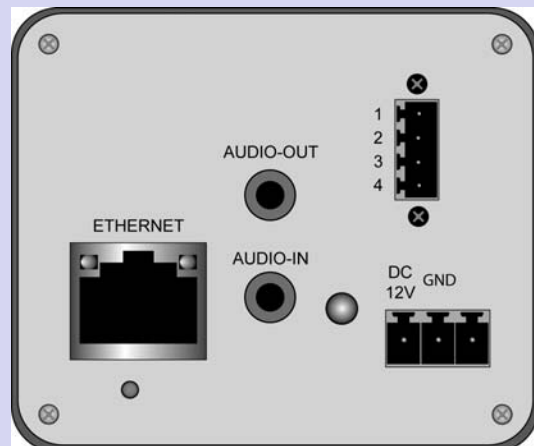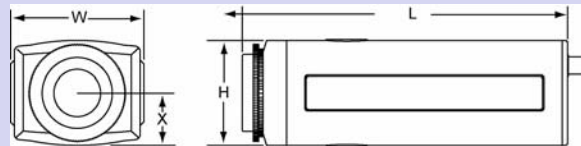
Network: Ethernet: 10/100Base-T.
Protocol: TCP, UDP, IP, HTTP, DHCP, PPPoE, RTP, RTSP, FTP, SMTP, DNS, DDNS, NTP, ICMP,OGMP, ARP, 3GPP.
Web Browser: Microsoft Internet Explorer 6.0 or above.

Software Security: Password protection configured by administrator.

MECHANICAL

Dimensions: See Figure.
Height (H): 2.17 in. (55 mm).
Width (W): 2.64 in. (67 mm).
Length (L): 5.1 in. (129.5 mm).

Distance from Base to Optical Center of Lens (X): 1.1 in. (30 mm).

Weight: 0.88 lb (0.4 kg).

Flange Back Adjustment: CS mount: 12.5 mm.
C mount: 17.5 mm.

Lens Mount: C or CS mount.

Camera Mounting: Mounting bracket for either camera bottom or top.

Shipping Dimensions: Height: 3.7 in. (95 mm).
Width: 8.3 in. (210 mm).
Length: 9.4 in. (240 mm).

Shipping Weight: 2.2 lb (1.0 kg).

Shipping Volume: 0.17 ft^3 (0.005 m^3).

ENVIRONMENTAL

Operating Temperature Range: 32 to 122° F (0 to +50° C).

Humidity: 20 to 80% relative, noncondensing.

Typical Rear Panel