



## KollectorElite<sup>XG</sup> 16-Channel Hybrid Digital Network Video Recording Systems

- Powered by ViconNet software Version 5
- Open platform allows full functionality with IP cameras from major manufacturers
- Supports megapixel cameras of leading manufacturers
- Hybrid proprietary compression based on MPEG-4
- Remote setup from any Kollector Elite or Workstation
- Graphical Map feature supports realistic camera location
- Simultaneous record, playback and transmission of up to 16 digital video and audio channels and up to 8 additional IP cameras
- Record and view live video at different fps without additional video streams
- Models available with up to 3.0 TB internal hard drive space
- Maximum recording rate for the local 16 inputs of 480 fps automatically optimized for maximum recording rate per channel
- User selectable levels of resolution depending on camera; for Vicon devices a maximum resolution of 480 TV lines @ 720 x 488 (576 TVL @ 864 x 586 PAL) pixel capture without loss of video quality
- 16 alarm inputs (NO or NC) and 8 relay alarm outputs (dry contact)
- Includes 16x4 analog video matrix on the rear panel controlled by the software locally and over the network
- 9 individual RS-422 ports for PTZ/Dome Control and support of a distribution unit
- Macros are used for programming recording, alarm and display events
- Built-in GUI provides quick setup of live view and playback video without affecting recording
- Museum Search (Smart Search) feature scans hours of video in minutes
- Video Motion Detection uses "Region of Interest" feature to enable alarms triggered by motion
- Archive segments of video to a CD-R/CD-RW/DVD with viewer for playback on a standard PC
- Select models available with internal hot swappable data base drives (RAID 5)

Kollector® Elite XG is a 16-channel digital video recorder powered by ViconNet® software. This software allows each Kollector Elite to record video and audio from local analog inputs as well as video and audio streamed over the network from other recorders and IP cameras, providing outstanding flexibility. The unit supports up to 8 IP cameras in addition to the 16 local video inputs; the data from these are stored on the same hard drive space as the 16 local inputs.

ViconNet software is the application that runs Kollector Elite recorders and ViconNet Workstations. The software capabilities outlined in specification V113 apply to Kollector Elite Recorders as well as the ViconNet software package and workstation. Refer to Product Specification V113-09/-20 for details of the ViconNet system's powerful features.

ViconNet version 5 provides an open platform that allows integration with IP cameras, encoders and IP edge devices, including megapixel cameras, from numerous industry-leading manufacturers (see Table 2). Additionally, the ViconNet interface has integrated ViconNet VI video intelligence. It also allows integration with leading access control systems; these integrations may require additional 3<sup>rd</sup> party software. With version 5, there is support for the ViconNet GUI on a widescreen monitor (16:9/16:10 at a variety of resolutions). ViconNet version 5 continues to support the Virtual Matrix Controller (VMC), now supporting the same graphical map showing cameras placement as the ViconNet GUI.

ViconNet powers each Kollector Elite recorder with the ability to perform remote system configuration of other recorders on the network. Changes to camera tilting, macro programming and scheduling, as well as frame rate manipulation, are all possible from one or more recorders on the system; no separate workstation required. Refer to Table 1 for a detailed list of models.

The topology of a ViconNet system includes a Nucleus where vital information of all system recorders and workstations is kept. A Nucleus, which can be configured on a specified Kollector recorder or ViconNet Workstation, enables each system device to share video and configuration commands. Backup versions of the Nucleus can also be configured on selected recorders or workstations.

ViconNet utilizes two different video compression methods, selectable based on the application's requirements.

- **NORMAL:** Optimized MPEG4; a proprietary compression algorithm developed by Vicon that produces outstanding video quality and extended recording durations.
- **FULL:** JPEG; standard full frame compression for use in situations that cannot use a motion compensation compression.

Simultaneously, ViconNet supports other manufacturers JPEG and MPEG compression methods.



**Table 2: Compatible Equipment  
Supported Vicon IP Cameras and Encoders**

Model	Description
Kollector Series DVRs	Includes Kollector Elite, Pro and Lite 16-input digital video recorders
I-Onyx® VN-855 Series	Includes high-resolution color, day/night and WDR versions; 24 VAC or PoE
SurveyorVFT™ Camera Dome Series	Indoor and outdoor models, pendant or in-ceiling, 22X, 23X or 35X PTZ, variety of fixed with varifocal lenses
Roughneck® V910 Impact-Resistant Camera Dome	Outdoor fixed with a variety of varifocal lenses, 24 VAC or PoE available
KTX-4 Encoder	4-channel network encoder converts up to 4 analog video inputs into digital, 24 VAC or PoE
VN-301T Encoder	Single-channel encoder converts analog video input into digital, 24 VAC

**Compatible IP Camera Manufacturers  
(Frequently Updated)**

ACTi Corporation
AXIS Communications, Inc.
Panasonic Corporation
Sony Corporation of America

**Compatible Megapixel Camera Manufacturers  
(Frequently Updated)**

Arecont Systems, Inc. (Arecont Vision)
IQinVision

ViconNet uses an MD5 type video authentication algorithm. MD5 is a standard authentication that is based on a 128-bit message used to verify data integrity (ViconNet devices only).

Kollector Elite distributes its own collected video to each client, or other workstation, upon request over a network. Each workstation is capable of viewing 16 simultaneous cameras while supporting archiving, system configuration and the control of pan/tilt/zoom drives. 16 audio inputs are available for microphone connection.

Kollector Elite includes full 16-channel simultaneous record and playback, an integrated GUI for system configuration, playback and record on a SVGA monitor and support for NTSC/EIA and PAL/CCIR video cameras. In addition, Kollector Elite supports WAN/Internet connectivity for remote video and audio transmission.

The ViconNet GUI offers complete configuration and control of the networked video. The Main Window provides a multi-channel display area containing up to 16 connected cameras and microphones. An optional map can be added with actual camera locations, making camera selection simple. The Kollector Elite is equipped with dual output VGA card, allowing the display of the Map on a dedicated monitor while viewing video on the other. The Main Window contains the necessary controls to operate and setup the system.

ViconNet has vast features to view, record and playback video as well as setup the system to the specific needs of the user.



**Main Window**

**Toolbar** provides access to all major functionality of the system. The Schedule/Macro, Reports, Setup, and Logout buttons are accessible in this area.

**Schedule/Macro** button allows the running of preconfigured combinations of programmed routines.

- **Reports** button allows the viewing of system status reports.
- **Setup** button allows configuration of the local and remote components, authorizations, sites, authentication, utilities, schedules and macros.
- **Logout** button allows logging out without closing the application. Minimize and Close buttons are also available.

**Current Details Area** displays the name of the current local device name, user and Nucleus name.

**Site Devices** are cameras, microphones and sensors that can be remotely configured. **Sites List** provides a physical list of all known network Site areas, connected cameras, PTZ cameras and microphones. **Site Map** allows organizing devices on a map of the physical environment. Cameras can be organized into logical groups and individually named for flexibility and easy access (**Groups List**).

**Other Controls** provide a palette of buttons that only become active when a valid device is selected. The Other Controls are Audio, Picture, Matrix, Controls, PTZ, Print and Export Image. The selection of each button causes the Control Dialog Display Area to display additional controls.

**Control Dialog Display Area** offers controls depending on which of the Other Controls is selected.

**Function Controls** provide a palette of controls to manually start and stop recording, stop currently running live video and macros and set the video quality.

**Video Display Area** is a multiscreen-selectable view area where all live view and playback video can be viewed.

**Display Mode Controls** provide a palette of buttons to select and modify the number of simultaneous video display locations in the Video Display Area. This area can be displayed in single, two-by-two [quad, hexa (six)], three-by-three (nine), four-by-four (sixteen) and full screen (maximized to entire screen). The current video quality is displayed in the lower left portion of each video space.

**System Status Area** provides current information on the number of recording cameras and microphones and the Scheduler state of activity.

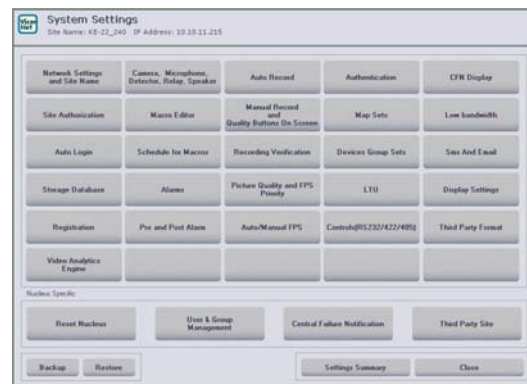
**Playback Controls** provide a palette of buttons used to playback video previously selected in the Navigator Window. The control buttons include Play, Forward, 7-Speed Fast Forward, Backward, 7-Speed Fast Rewind, Stop/Pause, Previous Frame and Next Frame.

Playback **Navigator Window** graphically displays a timeline of recorded video. It contains all function buttons necessary to control playback video. Cameras and Microphones can be selected from the **Navigator List** and displayed in the timeline. The Display Mode can be selected to configure the number of cameras played back. The **Archive Controls** allow the saving of selected video to the storage location of your choice. The video can be saved to any local or remote storage location, including CD-RW or DVD drives, recognized by the system. An **Export Video** button can be used to create an AVI, Xvid or MPEG-4 file of the selected single camera video segment and save it on the system. **Analytics Search** button is used to search for video displaying behavior violations from one camera at a time. When the **Play** button is selected, the Main Window appears showing the previously selected video.

The Navigator List displays a list of the current storage location sources and devices. Navigator Controls List defines what is displayed in the list as a regular database, an archive or both. The **Main Window Display Location Area** is a graphical representation of the Video Display area in the Main window. The **Recorded Devices Contents** displays a list of the devices that have been selected for viewing.

Selection of video and audio for playback can be done using the **Time Interval Tabs**, the **Date/Time Controls**, a scalable timeline defined by the “**From**” and “**To**” **Date/Time Controls**, or the **Playback Start Time Selector**, allowing calling up playback images from any database on the network directly from the screen. **Zoom Controls** enable the selected segment of video easier to view. **Museum Search** allows the search for a specific camera’s data within a defined region of the database, saving the time of searching the whole database. Playback Controls are also displayed. **Quick Playback** allows instantaneous playback of a currently recording, live-view window of a local camera.

There are several high-level configuration features that provide custom setup of the system by means of the **System Settings** menu.



**System Settings Window**

The **Network Settings and Site Name** configuration allows setup of all site IP address information and a system Nucleus. The Nucleus acts as the coordinator of all running system applications. The Backup Nucleus stores all Nucleus settings to be used if the Nucleus recovery is needed, providing uninterrupted system functionality. **Device** configuration is done remotely by connecting to a Kollektor using the Site Selection window.

**Macros** are defined for those cameras that will be recorded in predetermined routines. They are configured to display and record cameras and activate devices at specific times. Macro configuration can be defined for displayed/played cameras, microphones and sensors, command duration, picture quality, refresh mode and related devices. Macros can be set up to send email or text messages upon alarms or schedule. **SMS and Email** screen configures the system trigger the sending of email and SMS via a macro.

**Site Authorization** rights are configured by specific site. Rights provide authority to perform specific system functions for defined users and groups, Administrator or Guest.

**Scheduling** establishes routines for recording and operating devices.

**Alarm** response is performed using system macros. Alarms can be programmed to announce under specific schedules. Alarms can be triggered by physical sensors, detected video loss, detected video motion, or messages sent over the network. A log is kept of each alarm occurrence.

**Manual Recording and Quality** allows control of the display quality that applies to manually initiated recording.

The Advanced Settings in **Storage Database** sets the storage configuration parameters, defining where an archive can be saved and duration for which recordings will be stored.

Video is always authenticated, but **Authentication** display can be configured on or off. When display is set to on, a video authentication symbol displays, notifying if the video was authenticated or not.

**Central Failure Notification (CFN)** enables workstations and Kollector Elites connected to the same Nucleus to receive notifications indicating that certain applications have failed, for example, macro, recording and database failures. It also notifies any device (camera, encoder, DVR or workstation) failure. CFN increases the user's awareness of problems that occur at unmanned remote sites. The notifying site is the same as the Nucleus. The display of the notification can be programmed to be sent to other workstations/Kollector Elites.

**Recording Verification System (RVS)** ensures continuous recording by notifying users of any recording errors, since automatic recording and scheduled macros are two of the ViconNet's most important features. RVS monitors automatic recording activity (audio and video) at all times, both locally and over the network. The RVS includes a watchdog in which the RVS allows the system to reboot under specific conditions.

**Auto Login** can be activated to allow selected users to automatically log in; when the application starts, the Main window displays without entering a user name/password.

**Map Sets** consists of various maps related maps, for example each floor of a building.

**Video Analytics** consists of enabling the ViconNet integrated video intelligence used for the detection of unusual events or behavior.

**Third Party Site** allows cameras from other manufacturers to be accessed over the network to be used with ViconNet.

**Third Party Format** defines the format of the third party camera selected in the Third Party Site.

**Display Settings** provides a variety of screen resolutions and aspect ratios.

**LTU** enables translating the ViconNet user interface to any language.

**Controls RS232/422/485** is used to configure the controls (PTZ joystick, relays, control panel) after the appropriate driver is installed.

**Devices Group Sets** enables organizing devices into logical groups by any criteria and combining these groups into group sets.

**Registration** of the ViconNet system is required for it to perform its full functionality.

ViconNet automatically backs up system settings upon closing, but this can be done manually using the **Backup** button; settings can be restored by clicking **Restore**.

The **Setting Summary** displays all settings for the specified site.

Only available in the Nucleus, **Reset Nucleus** is used to cleanup the Nucleus by removing all associated disconnected sites. **Users & Group Management** defines which system operations are available to each group, per site.

Kollector Elite offers internal hard drive storage up to 3 TB. An optional RAID storage unit can be connected for extended recording capability. Models are available that include an internal 5-bay HDD enclosure; one bay is used for the OS and is not part of the RAID array. The 4 database drives are hot-swappable. These units do not have an integral CD drive.

Kollector Elite is housed in an industrial-hardened case with all connections made from the back panel. It has a universal power supply that can accept 110 - 240 VAC.

**Vicon requires the use of uninterruptible power supply systems (UPS) to prevent voltage fluctuations that can affect operation, cause video loss and damage to the equipment. Failure to comply voids the unit's warranty.**

**ASSOCIATED EQUIPMENT AND ACCESSORIES**

**Kollektor Pro/Lite Digital Video Recorder, Product Code varies by model:** 16-channel local-video networked digital video recorder for use with Kollektor Elite recorders and ViconNet Workstations. Product Specification V128/185.

**ViconNet VN-WS-SW Software:** Full capability master workstation software package, except the recording function, for a PC for use with Kollektor 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 Kollektor recorders; registration required for use. Product Specification V113-20.

**Model VM-617LCD/VM-619LCD Flat Panel Monitors, Product Code 8776-21/8776-31:** 17-inch or 19-inch flat panel monitor for use with Kollektor Series recorders and ViconNet VN-NVR systems. Product Specification V171.

**Model VM-632LCD/VM-642LCD/VM-646LCD LCD HDTV Monitors, Product Code 9213-00/9214-00/9215-00:** 32-inch, 42-inch or 46-inch LCD monitor for use with Kollektor Series recorders and ViconNet VN-NVR systems. Product Specification V187.

**Model VN-17FLT Monitor, Product Code 8237:** 17-inch flat screen monitor for use with Kollektor Series recorders and ViconNet VN-NVR systems. Product Specification V127.

**I-Onyx Camera Series:** IP color cameras with PoE power. High-resolution, wide dynamic range and day/night models. For use with Kollektor Elites. Product Specification V181.

**SurveyorVFT Camera Dome Series:** IP PTZ and fixed camera dome systems with a wide selection of camera/lens and mounting options. High-resolution, wide dynamic range and day/night models available. For use with Kollektor Elites. Product Specification V134-2X and V152-2X.

**V910 Roughneck Camera Dome Series:** Impact-resistant dome camera, with PoE available. High-resolution, wide dynamic range and day/night models available. For use with Kollektor Elites. Product Specification V137-2X.

**NETSWITCH-16 Network Switch, Product Code 8495:** 16-port, 10/100 autosensing network switch, stackable. Product Specification V161.

**NETSWITCH-24 Network Switch, Product Code 8495-10:** 16-port, 10/100 autosensing network switch, stackable. Product Specification V162.

**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 VA and 1000 VA units with DB9 (RS-232) and USB ports; 120 VAC input/output. Product Specification V147.

<b>Vicon Product Facts</b>		Model No: Kollektor Elite	Product Code: Refer to Table 1	SEC: 1	SPEC: V112	REV: 608
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# Technical Information

## ELECTRICAL

**Input Voltage:** 120 – 230 VAC ±10%, 50/60 Hz nominal.  
**Note:** Vicon requires the use of uninterruptible power supply systems (UPS) to prevent voltage fluctuations that can affect operation and cause damage to the equipment. Failure to comply voids the warranty. Should the DVR lose power, video recording may not occur for up to 2 minutes prior to the power loss due to the buffering of video data.

**Current:** 3 A.

**Power Consumption:** 450 Watts nominal.

**Heat Equivalent:** 25.6 btu/min (6.4 kg-cal/min).  
**Note:** These figures represent the conversion of 100% of the electrical energy to heat. Actual percentage of the 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.

**System:** CPU: Intel® Pentium® IV 2.66 GHz, minimum (3.0 GHz on 480 models).  
 RAM: 512 MB (1 GB on 480 models).  
 HDD: 250 – 3000 GB. Based on model. (See Table 1.)  
 LAN Card: 100/1000 Mbps TPO.  
 OS System: Windows® XP Embedded.

**Connector Types/**

**Quantities:** Analog Video Inputs: 16 BNC-F. Analog Video Loopouts: 16 in 2 DB-15 connectors.  
 Power: 1 standard 3-conductor female socket.  
 VGA Video Output: Dual output (VGA/DVI).  
 Analog Video Output: S-Video connector and provided adapter cable.  
 Sensor Input Port: 16 NO/NC connectors, software selectable.  
 PTZ Control Port: 1 4-pin terminal block serial port using RS-422 protocol. Also, connections available through the 8 connectors.

Network Port: RJ-45 jack, female.  
 Keyboard Port: 5-pin DIN jack (PS2).  
 Mouse Port: 5-pin DIN jack (PS2).  
 Peripheral Port: 2 USB ports used for connection of printers and other peripherals.  
 16 x 4 Matrix: Allows switching any of the local inputs to 4 local outputs. Switcher is controlled through software locally and over the network. Also can be controlled as part of a macro.

**Video Level Input:** 1.0 V peak-to-peak (140 IRE) nominal.  
 Luminance: 100 IRE +/- 15%.  
 Sync: 40 IRE +/- 15%.  
 Colorburst: 40 IRE +/- 15%.

**Video Input**

**Impedance:** All BNC connectors: 75 ohms.

**Video Formats**

**Supported:** NTSC, PAL, EIA and CCIR.

**Video Recording**

**Rate:** 16 simultaneous channels @ 120, 240 or 480 frames per second, maximum. 30 fps per channel, maximum.

**Video Recording**

**Resolution:** User selectable levels of resolution depending on camera; for Vicon devices 480 horizontal TV lines maximum at 720 x 488 pixel palette; 864 x 586, PAL.

**Video Quality:** Selectable using a 4-position bar, from the Main Screen. There are 4 levels of resolution (4 CIF, 2 CIF, CIF, HCIF) with 2 levels of compression (Normal, Full) comprising 8 quality levels total, accessible from the Setup menu selections. Normal is Optimized-MPEG4 and Full is JPEG compression.

**Analog Video Quality:** Matrix output: 250 HTVL nominal.  
 S-Video output: 300 HTVL nominal.

**Audio Input:** 1 line level microphone; 0 dbm, 32 KHz bandwidth, 600 ohm impedance, 2 V RMS (1 V p-p) output.

**Audio Sampling Rate:** 8 KHz/sec/channel.

**Audio Data**

**Storage Rate:** Approximately 0.4 GB/12-hour day/microphone.

**CD-RW Drive:** Internal CD-RW drive; optional DVD. Not available on internal RAID models.

**Camera to Recorder**

**Analog Input**

**Video Transmission**

**Distance (coaxial cable distance):** 1000 ft (305 m) nominal.

**Alarm Input Type:** Each alarm input is automatically configured as a normally opened (NO) or normally closed (NC) trigger.

**Alarm Output:** 8 relay outputs.

**VGA Monitor Output:** SVGA, True-Color Mode with a minimum resolution of 1024 x 768. Includes a secondary monitor output.

**VGA Video**

**Display Modes:** Multi-screen Display Mode for both live and Video Playback of 1, 4, 6, 9, 16 cameras.

**Panel Indicators:** 1 red power LED used for power status indication.  
1 green LED used for floppy disk indication.  
16 green LEDs used for camera detection and recording status.  
16 red LEDs used for device detection and alarm status.

**Panel Key Lock:** Key lock provided on front panel to secure all controls.

## SOFTWARE FEATURES

**Open Platform:** Compatible with IP cameras from ACTi, AXIS, Panasonic, and Sony; compatible with megapixel cameras from Arecont and IQinVision. Refer to Table 2.

**Main Window**

**Screen:** A multi-channel display area containing up to 16 connected cameras and microphones and all necessary controls to operate and setup the system.

**Graphical Map:** Supports realistic camera location (a workstation with a dual output VGA will allow showing the Map on a dedicated monitor while viewing video on the other).

**Quick Playback:** Start video playback of live camera with a few clicks.

**Site List:** A physical list of all known network Site areas and connected cameras and microphones.

**Play from Time:** Call up images from any database on the network from Main Screen.

**Navigator Window:** A graphical display of recorded video. It contains a set of function buttons used to access the video on-screen.

**Control Dialog**

**Display Area:** A space to work in conjunction with the Other Controls Area.

**Toolbar:** An area providing access to all major functionality of the system.

**Display Mode**

**Controls Area:** A palette of buttons to set the picture quality (resolution) and refresh mode of the live video display.

**Other Controls**

**Area:** A palette of buttons that activate when a valid device is selected from the Site list.

**System**

**Configuration:** A Main Settings Menu used for setup of devices, authorization, and all other system functions.

**Function Control**

**Area:** A palette of controls used to enable or disable any currently running macros in the system.

**Network and Sites**

**Configuration:** The network portion of this feature allows setup of all IP address information and a system Nucleus and Backup Nucleus.

**Macro**

**Configuration:** Macros can be defined for recorded or displayed/played cameras, microphones and related devices (sensors).

**Device**

**Configuration:** Devices can be configured for system recognition and operation.

## Technical Information

### Authorization

**Rights Setup:** Group rights can be configured by specific site. Rights provide authority to perform all system functions.

**Log Reporting:** Continuously running activity log.

**Schedule Function:** System can be set to display a video "tour" of multiple channels.

### Alarm

**Configuration:** Alarms can be programmed to annunciate under special conditions.

### Storage

**Database Utilities:** This utility allows setup and usage of detected hard disks locally.

**Authentication:** Video authentication is established by site and affects display of destination video.

### Central Failure

**Notification (CFN):** Sends notifications indicating certain applications have failed.

**GUI Display:** Supports 16:9 and 16:10 wide screen @ a variety of resolutions.

## MECHANICAL

**Application:** Indoor.

**Mounting:** Standard 19 in. (483 mm) rack mount and stackable, 4U height.

**Dimensions:** Height (H): 7.0 in. (178 mm).  
Width (W): 19.0 in. (483 mm).  
Depth (D) 120 fps: 22.0 in. (559 mm).  
240/480 fps: 24.25 in. (616 mm).  
See Figure.

**Note:** Dimensions exclude connectors and rack mount handles.

**Weight:** 50.0 lb (22.6 kg), approximately

**Construction:** Steel case and hardware.

**Color:** Black.

### Shipping

**Dimensions:** Length: 28.5 in. (723 mm).  
Width: 24 in. (610 mm).  
Height: 12 in. (305 mm).

**Shipping Weight:** 63 lb (28.5 kg), approximately.

**Shipping Volume:** 4.75 ft<sup>3</sup> (0.13 m<sup>3</sup>).

## ENVIRONMENTAL

### Unit Operating

**Temperature Range:** 32 to 104° F (0 to 40° C).

### Unit Operating

**Humidity Range:** 0 to 95% relative, non-condensing.

### Ideal Room

**Temperature Range:** 66 to 75° F (19 to 25° C).

### Ideal Room

**Humidity Range:** 80% relative, non-condensing.

### Maximum Room

**Temperature Range:** 50 - 86° F (10 - 30° C).

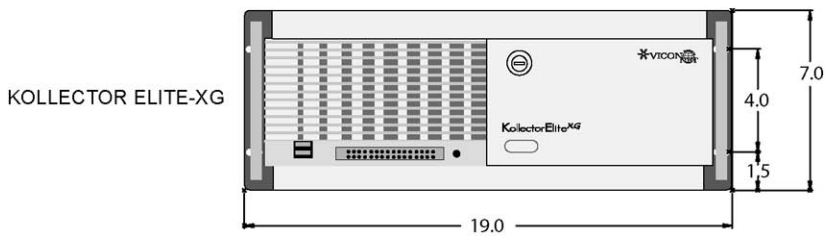
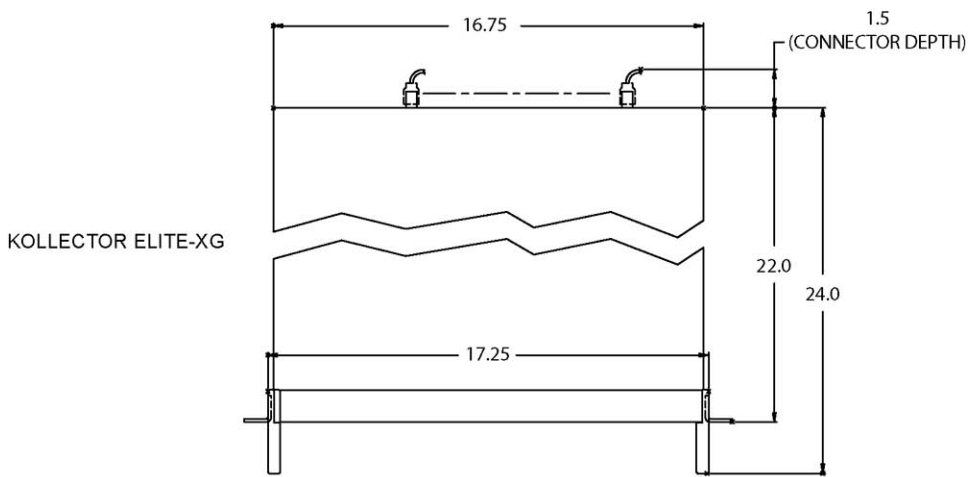
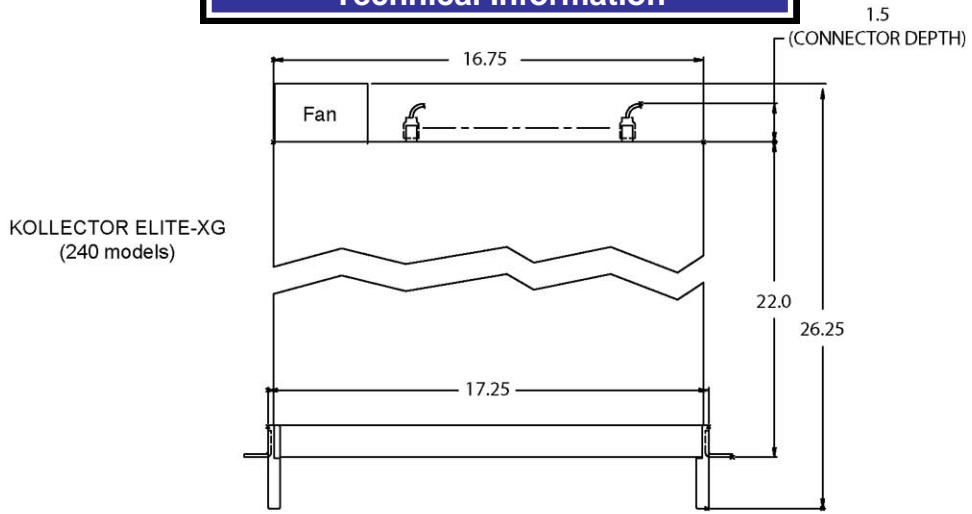
### Storage

**Temperature Range:** -4 to 158° F (-20 to 70° C).

### Storage

**Humidity Range:** 0 to 95% relative, non-condensing.

# Technical Information



## Dimension Drawings

# Technical Information (cont'd)

