ViconNet software is the application that runs Kollector Elite, Pro recorders and ViconNet workstations (see specifications V112 and V113). ViconNet includes a Nucleus where vital information of all system recorders and workstations is kept.

The Nucleus can be resident on a specified Kollector Pro recorder. Backup versions of the Nucleus can be resident on secondary recorders. The existence of this Nucleus is what enables each Kollector recorder and ViconNet workstation to share video and configuration commands.

Kollector Pro 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.

Kollector Pro 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.

Kollector Pro has a recording rate based on system settings, video scene content and selected hard drive size. An optional RAID storage unit can be connected for extended recording capability. Refer to Table 4 for actual GB per day and total recording days data.

Kollector Pro can distribute 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.

Kollector Pro includes full 16-channel simultaneous record and playback, integrated GUI for system configuration, playback and record on a SVGA monitor and support for NTSC/EIA and PAL/CCIR video cameras.

The Kollector Pro GUI offers complete local configuration and control. The Main Window provides a display area containing up to a four-by-four matrix (16) of connected cameras. The toolbar provides the functions of scheduling and macros, report generation, setup, and user logout and shutdown.

The Site & Device tree allows a user to view and activate locally connected cameras and PTZ cameras. The display controls allow a user to set the image quality. The Navigator Window allows many of the same features of the Main Window for system playback functions.

Kollector Pro 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 cause damage to the equipment. Failure to comply voids the warranty.

The software platform offers features unequalled by other recorders. These features include:

**ASSOCIATED EQUIPMENT AND ACCESSORIES**


**Model VN-MON Monitor, Product Code 8222:** 17-inch VGA monitor for use with Kollector Elite and Pro series recorders and ViconNet VN5000 systems.

**Model VN-17FLT Monitor, Product Code 8237:** 17-inch flat-screen monitor for use with Kollector Elite and Pro series recorders and ViconNet VN5000 systems. Product Specification V127.

**Model NETSWITCH-8 Network Switch, Product Code 7787:** 8 port, 10/100 autosensing network switch, stackable.

**Model V650-UPS Uninterruptible Power Supply, Product Code 8298:** 650 VA/400 W unit with DB-9 port (RS-232) and 120 VAC input/output.

**Model KOL-RAID3 Kollector RAID Storage System, Product Code varies by model:** 0.5, 0.75 and 1.0 TB Ultra ATA SCSI storage systems for use with Kollector Elite and Pro series recorders; Product Specification V102.

**Model VN-RAID15160 ViconNet/Kollector RAID Storage System, Product Code 8330:** 2.0 TB Ultra ATA SCSI storage system for use with Kollector Elite and Pro series recorders; Product Specification V133.

**Quick Playback**

The Quick Playback feature allows instantaneous playback of any currently recording, live-view window of a local camera. When that screen is selected, there are 2 options; display of the camera information or selection of 7 playback intervals from 10 seconds to 30 minutes. When selected, the playback video is displayed in an adjacent window and the recording for all cameras is unaffected.
<table>
<thead>
<tr>
<th>Model</th>
<th>Product Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>KPR30-16-120</td>
<td>8240-00</td>
<td>Kollector Pro Server, 16-channel networked digital video recorder, 30 fps, 120 GB HD, NTSC/EIA and PAL/CCIR</td>
</tr>
<tr>
<td>KPR30-16-280</td>
<td>8241-00</td>
<td>Kollector Pro Server, 16-channel networked digital video recorder, 30 fps, 280 GB HD, NTSC/EIA and PAL/CCIR</td>
</tr>
<tr>
<td>KPR30-16-440</td>
<td>8242-00</td>
<td>Kollector Pro Server, 16-channel networked digital video recorder, 30 fps, 440 GB HD, NTSC/EIA and PAL/CCIR</td>
</tr>
<tr>
<td>KPR60-16-200</td>
<td>8366-00</td>
<td>Kollector Pro Server, 16-channel networked digital video recorder, 60 fps, 200 GB HD, NTSC/EIA and PAL/CCIR</td>
</tr>
<tr>
<td>KPR60-16-400</td>
<td>8367-00</td>
<td>Kollector Pro Server, 16-channel networked digital video recorder, 60 fps, 400 GB HD, NTSC/EIA and PAL/CCIR</td>
</tr>
<tr>
<td>KPR60-16-600</td>
<td>8368-00</td>
<td>Kollector Pro Server, 16-channel networked digital video recorder, 60 fps, 600 GB HD, NTSC/EIA and PAL/CCIR</td>
</tr>
<tr>
<td>KPR120-16-200</td>
<td>8369-00</td>
<td>Kollector Pro Server, 16-channel networked digital video recorder, 120 fps, 200 GB HD, NTSC/EIA and PAL/CCIR</td>
</tr>
<tr>
<td>KPR120-16-500</td>
<td>8370-00</td>
<td>Kollector Pro Server, 16-channel networked digital video recorder, 120 fps, 500 GB HD, NTSC/EIA and PAL/CCIR</td>
</tr>
<tr>
<td>KPR120-16-900</td>
<td>8371-00</td>
<td>Kollector Pro Server, 16-channel networked digital video recorder, 120 fps, 900 GB HD, NTSC/EIA and PAL/CCIR</td>
</tr>
<tr>
<td>KP240A-16-300</td>
<td>8450-00</td>
<td>Kollector Pro Server, 16-channel networked digital video recorder, 240 fps, 300 GB HD, NTSC/EIA and PAL/CCIR</td>
</tr>
<tr>
<td>KP240A-16-600</td>
<td>8451-00</td>
<td>Kollector Pro Server, 16-channel networked digital video recorder, 240 fps, 600 GB HD, NTSC/EIA and PAL/CCIR</td>
</tr>
<tr>
<td>KP240A-16-900</td>
<td>8452-00</td>
<td>Kollector Pro Server, 16-channel networked digital video recorder, 240 fps, 900 GB HD, NTSC/EIA and PAL/CCIR</td>
</tr>
<tr>
<td>KPV30-16-120</td>
<td>8240-50</td>
<td>Kollector Pro Server, 16-channel networked digital video recorder, 30 fps, 120 GB HD and 4 channels of audio, NTSC/EIA and PAL/CCIR</td>
</tr>
<tr>
<td>KPV30-16-280</td>
<td>8241-50</td>
<td>Kollector Pro Server, 16-channel networked digital video recorder, 30 fps, 280 GB HD and 4 channels of audio, NTSC/EIA and PAL/CCIR</td>
</tr>
<tr>
<td>KPV30-16-440</td>
<td>8242-50</td>
<td>Kollector Pro Server, 16-channel networked digital video recorder, 30 fps, 440 GB HD and 4 channels of audio, NTSC/EIA and PAL/CCIR</td>
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<tr>
<td>KPV60-16-200</td>
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<td>Kollector Pro Server, 16-channel networked digital video recorder, 60 fps, 200 GB HD and 8 channels of audio, NTSC/EIA and PAL/CCIR</td>
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<tr>
<td>KPV60-16-400</td>
<td>8367-50</td>
<td>Kollector Pro Server, 16-channel networked digital video recorder, 60 fps, 400 GB HD and 8 channels of audio, NTSC/EIA and PAL/CCIR</td>
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<tr>
<td>KPV60-16-600</td>
<td>8368-50</td>
<td>Kollector Pro Server, 16-channel networked digital video recorder, 60 fps, 600 GB HD and 8 channels of audio, NTSC/EIA and PAL/CCIR</td>
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<td>KPV120-16-200</td>
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<td>KPV120-16-500</td>
<td>8370-50</td>
<td>Kollector Pro Server, 16-channel networked digital video recorder, 120 fps, 500 GB HD and 16 channels of audio, NTSC/EIA and PAL/CCIR</td>
</tr>
<tr>
<td>KPV120-16-900</td>
<td>8371-50</td>
<td>Kollector Pro Server, 16-channel networked digital video recorder, 120 fps, 900 GB HD and 16 channels of audio, NTSC/EIA and PAL/CCIR</td>
</tr>
<tr>
<td>KPV240A-16-300</td>
<td>8450-50</td>
<td>Kollector Pro Server, 16-channel networked digital video recorder, 240 fps, 300 GB HD and 16 channels of audio, NTSC/EIA and PAL/CCIR</td>
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<tr>
<td>KPV240A-16-600</td>
<td>8451-50</td>
<td>Kollector Pro Server, 16-channel networked digital video recorder, 240 fps, 600 GB HD and 16 channels of audio, NTSC/EIA and PAL/CCIR</td>
</tr>
<tr>
<td>KPV240A-16-900</td>
<td>8452-50</td>
<td>Kollector Pro Server, 16-channel networked digital video recorder, 240 fps, 900 GB HD and 16 channels of audio, NTSC/EIA and PAL/CCIR</td>
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</table>

Table 1: Models, Product Codes and Descriptions
<table>
<thead>
<tr>
<th>MODELS</th>
<th>SPECIFICATIONS</th>
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<tbody>
<tr>
<td></td>
<td>Internal Hard Drive (GB)</td>
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<tr>
<td>KPR30-16-120</td>
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<tr>
<td>KPR30-16-280</td>
<td>280*</td>
</tr>
<tr>
<td>KPR30-16-440</td>
<td>440*</td>
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<td>KPR60-16-600</td>
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<tr>
<td>KPV240A-16-600</td>
<td>600*</td>
</tr>
</tbody>
</table>

* 20 GB of space is used for the application

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Table 2: Kollector Pro Overview

<table>
<thead>
<tr>
<th>Compression Type</th>
<th>Resolution and Compression Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FULL (JPEG)</strong></td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Largest Picture Full Refresh</td>
</tr>
<tr>
<td></td>
<td>Largest Picture Full Refresh</td>
</tr>
<tr>
<td></td>
<td>Large Picture Full Refresh</td>
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<tr>
<td></td>
<td>Large Picture Full Refresh</td>
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<tr>
<td></td>
<td>Medium Picture Full Refresh</td>
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<tr>
<td></td>
<td>Medium Picture Full Refresh</td>
</tr>
<tr>
<td></td>
<td>Small Picture Full Refresh</td>
</tr>
<tr>
<td></td>
<td>Small Picture Full Refresh</td>
</tr>
<tr>
<td><strong>NORMAL (MPEG4)</strong></td>
<td>Low</td>
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<tr>
<td></td>
<td>Largest Picture Periodic Refresh</td>
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<td>Large Picture Periodic Refresh</td>
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<td></td>
<td>Small Picture Periodic Refresh</td>
</tr>
<tr>
<td></td>
<td>Small Picture Periodic Refresh</td>
</tr>
</tbody>
</table>

---

Table 3: Kollector Pro Video Quality
**Table 4: Kollector Pro Typical Recording Durations**

<table>
<thead>
<tr>
<th>Model</th>
<th>Internal HDs With KOL-RAID3-160 (1085 GB)</th>
<th>With VN-RAID15160 (2000 GB)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total HD Space (GB)</td>
<td>Days Recording</td>
</tr>
<tr>
<td>KPR30-16-120/</td>
<td>120*</td>
<td>50</td>
</tr>
<tr>
<td>KPV30-16-120</td>
<td>280*</td>
<td>130</td>
</tr>
<tr>
<td>KPR30-16-280/</td>
<td>440*</td>
<td>210</td>
</tr>
<tr>
<td>KPV30-16-280</td>
<td>200*</td>
<td>45</td>
</tr>
<tr>
<td>KPR60-16-200/</td>
<td>400*</td>
<td>95</td>
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<tr>
<td>KPV60-16-200</td>
<td>600*</td>
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<td>KPR120-16-200/</td>
<td>200*</td>
<td>22.5</td>
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<tr>
<td>KPV120-16-200</td>
<td>500*</td>
<td>60</td>
</tr>
<tr>
<td>KPR120-16-900/</td>
<td>900*</td>
<td>110</td>
</tr>
<tr>
<td>KPV120-16-900</td>
<td>300*</td>
<td>17</td>
</tr>
<tr>
<td>KPR240A-16-600/</td>
<td>600*</td>
<td>34</td>
</tr>
<tr>
<td>KPV240A-16-600</td>
<td>900*</td>
<td>51</td>
</tr>
</tbody>
</table>

**Note:** This table is based on the following conditions:
- 24 hours normal activity with 50% detected movement over time, Normal compression and Quality Q5 (320 x 240 pixels NTSC, 384 x 288 pixels PAL)
- Recording durations may vary based on actual scene activity.
- Recording data does not include audio data (0.7 GB/12 hour day/microphone).
* 20 GB of space is used for the application.
PART 2 - PRODUCTS

2.01 GENERAL

A. All equipment and materials used shall be standard components, regularly manufactured, regularly utilized in the manufacturer’s system.

B. All systems and components shall have been thoroughly tested and proven in actual use.

C. All systems and components shall be provided with the availability of a toll free 24-hour technical support phone number from the manufacturer. The phone number shall allow for immediate technical assistance for either the dealer/installer or the end user at no charge.

D. All systems and components shall be provided with an explicit manufacturer warranty.

2.02 DIGITAL VIDEO RECORDING MANAGEMENT AND TRANSMISSION SYSTEM

A. The digital video recording, management and transmission system shall be designed to meet the requirements of business and government surveillance applications. The system shall offer network connectivity to other family components and provide all video and control data over the Ethernet network to other recorders and workstations. The number of network-connected components is only limited to the number of assigned IP addresses. The system shall offer multiple continuously recorded digital video channels onto a hard drive medium. The system shall employ proprietary software run on a Microsoft® WindowsXP Embedded® platform. The software shall employ a proprietary optimized MPEG4 compression algorithm in the video digitizing scheme. The networked system shall be comprised of recorders and workstations. This specification shall refer to the recorder’s performance. The recorder, without any degradation to frame rates or resolution, shall simultaneously offer:

1. 16-channel video recording.
2. 16-channel video playback.
3. 16-channel video transmission to the Ethernet network.
4. User selectable video archiving of pre-existing recording.

B. The recorder shall offer features including the simultaneous display, playback, distribution and archive of multiple channel video. The recorder shall collect up to 16 channels of analog video and digitize them for the purpose of display, archive and requested distribution across the Ethernet network. Cameras shall be the primary analog input devices. Each channel of video data shall have the capability of being displayed, played back, distributed and archived locally. The recorder shall also have full WAN and Internet capability, offering expandability beyond a corporate LAN. The recorder shall employ a compression algorithm based on:

1. Optimized MPEG4 and JPEG.
2. User selectable resolution not requiring a need to restart the application recorder. It shall be selectable using a 4-position bar, from the Main Screen. There shall be 4 levels of resolution (Frame, Field, CIF, HCIF) with 2 levels of compression (Normal, Full) comprising 8 quality levels total, which shall be accessible from the Setup menu selections.

Kollector Elite shall use an MD5 type video authentication algorithm. MD5 is a standard authentication that is based on a 128-bit message used to verify data integrity.

The local recorder shall have a 30, 60, 120 and 240 fps version. All versions shall, by default, divide the total fps by the actual number of camera inputs. The actual fps rate shall have the ability to be set, by camera. The recorder shall have external RAID device connection capability to extend the total recording time beyond the limits of the specific internal hard drive.

The 240 fps version shall have a daily hard drive usage of 2 to 128 GB. This usage shall be based on Quality settings ranging from Q1 to Q8, 24 hours per day of activity ranging from Low to Very High, 50% of time movement detection and Normal compression (optimized MPEG4). Typical hard drive usage normal scene activity under the same conditions shall range from 2 to 64 GB per day.
The 120 fps version shall have a daily hard drive usage of 2 to 64 GB. This usage shall be based on Quality settings ranging from Q1 to Q8, 24 hours per day of activity ranging from Low to Very High, 50% of time movement detection and Normal compression (optimized MPEG4). Typical hard drive usage normal scene activity under the same conditions shall range from 2 to 32 GB per day.

The 60 fps version shall have a daily hard drive usage of 2 to 32 GB. This usage shall be based on Quality settings ranging from Q1 to Q8, 24 hours per day of activity ranging from Low to Very High, 50% of time movement detection and Normal compression (optimized MPEG4). Typical hard drive usage using normal scene activity under the same conditions shall range from 2 to 16 GB per day.

The 30 fps version shall have a daily hard drive usage of 2 to 16 GB. This usage shall be based on Quality settings ranging from Q1 to Q8, 24 hours per day of activity ranging from Low to Very High, 50% of time movement detection and Normal compression (MPEG4). Typical hard drive usage using normal scene activity under the same conditions shall range from 2 to 8 GB per day.

A line of “V” models shall be available to support audio recording and playback. The recorder’s audio data storage rate shall be approximately 0.7 GB/12 hour day/microphone.

The networked system shall be comprised of:

1. The software platform.
2. Recorders.
3. Workstations.

The software installed in all recorders and workstations shall be similar in:

1. Graphical User Interface, therefore an operator shall need to learn only one interface for both control and programming of the system.
2. Functions, offering the ability to be remotely configured from any recorder or workstation.

C. The recorder shall also offer a full multi-user authorization login application. This application shall offer levels of authorization based on defined sites and functions. In addition, a full setup utility shall be available for the Administrator to configure authorizations. The login window shall consist of a User Name and Password field. A user shall be able to login as an Administrator or Guest. Guest authorization shall be configurable for specific system operations. The software shall offer a full multi-user authorization process as follows:

1. User groups shall be created once globally and shall appear in all recorders and workstations connected to the network.
2. Users shall be created once globally and shall be given rights to particular groups.
3. Groups shall be authorized and given specific access to each server, permitting “function-specific” profiles.
4. Users created and authorized for each machine shall be able to login to any recorder and workstation and automatically have their group rights for that machine follow them.
5. There shall be no virtual limit on the amount of Groups and Users that can be authorized in the software.
6. The local recorder shall allow for each group to be authorized or denied access, per component, to:
   a. Login.
   b. Logout.
   c. Setup:
      1. Network Setup & Site Name.
      2. User and Group Management.
      4. Auto Login.
      5. Macro Create-Edit.
      7. Authentication Settings.
      10. Storage Database Utilities.
      11. Auto Record.
      12. Exit to OS.
15. Registration Setup.
17. Schedule for Macros.
d. Reports.
e. Scheduler/Macro.
f. Shutdown/Close.
g. Record.
h. Stop.
i. Change Quality.
j. Picture.
k. Export.
l. Print.
m. Controls.
n. Live View.
o. Playback.
p. PTZ.

7. All users created shall be able to login to the local system. A user, given appropriate access, shall be able to completely configure the local recorder. The programming shall include the complete operation of the recorders, including but not limited to:

a. Camera titles.
b. Alarm conditions.
c. System reports.
d. PTZ control.
e. Relays.
f. Alarms.

D. The recorder shall also offer a GUI capable of complete configuration and operation. This capability is comprised of monitoring, recording and playback. Sub-features such as defined areas for video display and control, toolbars, site and device trees, video controls, and dialog areas shall be provided. Configuration of the system shall include setup of:

1. Camera and alarm names.
2. Network parameters.
3. Users and Groups.
4. Data storage allocation.
5. Macro programming.
6. Scheduling, display and alarm notification.
7. Pre/post alarm recording.
8. Backup utility.

E. The Main Window shall provide a multi-channel display area containing up to 16 connected cameras, a Site and Device Tree, a Navigator Window, a Control Dialog Display Area, a Toolbar, a Display Mode Control Area, a Function Control Area, a Video Display Controls Area and an Other Controls Area. Each area shall contain the necessary controls to operate and setup the system. The Main Window shall provide the following:

1. Site and Device Tree depicting all cameras.
2. A multiscreen display area that allows for screen displays of:
   a. Single camera.
   b. Quad.
   c. 3 × 3.
   d. 4 × 4.
   e. 6 way.
   f. Full screen of any of the above selected multiscreen displays shall allow for the viewing of the particular multiscreen in full screen mode by hiding the graphical user interface.
3. Access to all Programming menus.
4. User selectable resolution shall include capture sizes of:
   a. 320 × 120 pixels NTSC, 384 × 144, PAL.
   b. 320 × 240 pixels NTSC, 384 × 288, PAL.
Product Specification

c. 640 × 240 pixels NTSC, 768 × 288, PAL.
d. 640 × 480 pixels NTSC, 768 × 576, PAL.
e. Normal MPEG4 type (periodic refresh).
f. Continuous recording JPEG.

5. On demand recording of video currently viewed shall allow for the recording of any local camera.
6. Viewing of live cameras shall be performed by:
   a. Clicking on the desired camera.
   b. "Drag-and-Drop" operations of cameras from the Site and Device Tree to the appropriate
      multiscreen quadrant.
   c. "Drag-and-Drop" operation of the recorder from the Site and Device Tree to the appropriate
      multiscreen.

7. All recorders shall provide video for duplicate and simultaneous recording over the network by all
   remote recorders and workstations.
8. All recorders shall be able to simultaneously record, view and send:
   a. All cameras physically connected to recorders at the specified resolution (depending on recorder
      utilized) without any reduction in quality.

9. All recorders shall be able to be viewed by remote recorders.

F. The Site and Device Tree shall provide a physical list of all known locally connected cameras and PTZ
   cameras. The cameras and PTZ cameras shall be represented by graphical symbols.
Components in the Site and Device Tree shall be selectable and configurable. PTZ controls shall operate as
follows:

1. When a dome camera is selected, an operator shall be able to:
   a. Control pan, tilt, zoom, iris and focus.
   b. Execute preset positions.
   c. Program preset positions.
   d. Complete programming of menus embedded in the selected dome.
   e. All PTZ programming and control shall be local.
   f. PTZ control shall be performed on the video screen without the need for an operator to click on any
      arrows depicting direction of the device to be moved.
   g. The PTZ control shall be fully variable and shall permit an operator to obtain higher pan and tilt
      speeds by simply clicking-and-dragging the mouse cursor on the video screen.

G. The Navigator Window shall graphically display recorded video. It shall contain all function buttons
   necessary to access the video on-screen. The Navigator Window shall depict, in a notepad style, the
   following:

1. All cameras connected to the recorder.

Video retrieval shall be performed by:

1. Selecting the cameras to be played back.
2. By "drag-and-drop," similar to the live view, selected cameras shall be inserted into the multiscreen
   displays so that an operator can view a mix of previously recorded cameras and live video on the same
   screen.
3. When cameras are selected for playback, the notepad shall provide a graphical interface depicting bars
   that indicate video previously recorded as well as all alarmed video.
4. The playback interface shall offer the ability to playback cameras:
   a. One by one.
   b. Time synchronized (exact time line that the cameras were recorded in).
   c. As recorded episodes using the Museum Search feature.
   d. Record them as avf files to the storage location.

H. The Control Dialog Display Area shall provide a space to work in conjunction with the Other Controls Area.
   When one of the Other Controls is selected, the corresponding button palette shall appear in this area.
I. The Toolbar shall provide access to all major functionality of the system. The Schedule/Macro, Reports, Setup, Logout and Shutdown buttons shall be accessible in this area. The Schedule/Macro button allows the running of preconfigured combinations of camera, sensor and PTZ programmed routines.

J. The Reports button shall allow the viewing of system status reports. The Setup button shall allow configuration of the system components, authorizations, sites, authentication utilities and schedules/macros. The Logout button shall allow leaving the system without closing the software. Access to programming and more advanced screens shall be done by means of an immobile, permanently-docked toolbar located on the top Live screen.

K. The Display Mode Control Area shall provide a palette of buttons to select and modify the number of video channels displayed. It shall include but not be limited to:

2. 2 × 2.
3. 3 × 3.
4. 4 × 4.
5. 6 way.
6. All multiscreen displays shall be available in live, playback and mix of live-playback cameras. In addition, all multiscreen modes shall be affected by the Expand mode. The Expand mode shall hide the GUI and offer the currently displayed multiscreen in a full screen format. There shall be a Quick Playback feature available on any currently recording, live-view window of a local camera. This feature shall provide instantaneous playback of the selected camera. When selected, there shall be 2 options; display of the camera information or selection of 7 playback interval from 10 seconds to 30 minutes. When selected, the playback video shall be displayed in an adjacent window and the recording for all cameras is unaffected.

L. The Function Control Area shall provide a palette of controls to enable or disable the video recording as well as any currently running macros in the system. Alarm processing shall include but not be limited to:

1. External Alarms.
2. Sensor Alarms, that shall have the ability to be tagged as follows:
   a. Intrusion Alarms.
   b. Motion Detector Alarms.
   c. Smoke Detector Alarms.
   d. Perimeter Detector Alarms.
   e. Fire Alarms.
3. Other types of detector alarms.
4. Camera alarms shall include but not be limited to:
   a. Video Motion Alarms, based on an “Area of Interest” utility.
   b. Video Loss Alarms.
5. An authorized user shall link alarm conditions to preprogrammed macros to further extend the usability of the system.
6. Alarm scheduling shall include but not be limited to:
   a. Distinct activity items, each including:
      1. Beginning and end time for when each alarm is active.
      2. Day of the week for when an alarm is active.

M. The Video Display Controls Area shall provide a palette of buttons to set the picture quality (resolution) and refresh mode of the live video display. A 4-position bar shall allow the quality setting.

N. The Other Controls Area shall provide a palette of buttons that only become active when a valid device is selected from the Site and Device Tree. When active, the selection of these buttons shall cause the Control Dialog Display Area to display additional control information. The Other Controls are Playback, PTZ, Controls, Print, Export and Picture.

O. There shall be several high-level configuration features allowing custom setup of the system. The System Configuration feature shall be comprised of a Main Settings Menu. This menu shall allow setup of the...
network and sites, macros, devices, authorization, Alarms, Auto Login, Schedules, Auto Record, Storage Database Utilities, Authentication, Protocol Controls, Manual Record, Registration and Picture Quality.

P. The network and sites configuration shall be performed using a dedicated set of screens. The network portion of this setup shall allow setup of a system Nucleus and Backup Nucleus. The Nucleus shall act as the coordinator of all running system applications. The Backup Nucleus shall act as the hot stand-by Nucleus in the event that the primary Nucleus goes offline, providing uninterrupted system functionality. The network portion of this setup shall also allow all appropriate networking features including each server IP, Subnet and Gateway.

Q. Macro configuration shall be performed using a dedicated set of screens. Macros can be defined for recorded or displayed/played cameras, command duration, local recording location, local viewing, device ID, picture quality, refresh mode, recording rate (fps) and related devices (sensors). Macros shall allow an authorized user to create and schedule software commands that shall include but not be limited to:

1. Sequencing cameras, including multiscreen displays, in the recorder.
2. Record various cameras at various frame rates.
3. Receive alarm condition from any recorder and workstation on the network.
4. An authorized user shall be able to program and execute macros locally.
5. The Schedule/Macro button shall allow the running of preconfigured combinations of camera, PTZ camera, sensor and PTZ programmed routines. The Reports button shall allow the viewing of system status reports. The Setup button shall allow configuration of the system components, authorizations, sites, authentication, utilities and schedules/macros. The Logout button shall allow leaving the system without closing the software.

6. Macro scheduling shall include but not be limited to:
   a. Day of the week when the particular macro is active.
   b. Start and end time for when a macro is active.
   c. If a macro is to run continuously or not.
   d. A macro shall be able to run every:
      1. 5 min, 10 min, 1/4 Hour, 1/2 Hour, 3/4 Hour, 1 Hour, 2 Hours, 3 Hours, 4 Hours, 6 Hours, 8 Hours, 12 Hours.
      2. A macro shall be able to be scheduled to run for 1-256 cycles.

R. Device configuration shall have the ability to configure system recognition and operation. Valid devices shall be cameras (with PTZ), and sensors. All devices shall be assigned a unique ID number and title descriptor. Devices shall also be setup for RS-422 protocol and supported with existing manufacturer's drivers where applicable.

S. Authorization rights setup shall be performed using the Site Authorization screen. Group and user rights shall be available to configure, by specific site. Rights shall provide authority to perform all system functions.

T. Alarm configuration shall be performed using system macros. Alarms shall be programmed to annunciate under the conditions specified in the macro. Alarms shall be triggered by physical sensors, detected video loss, detected video motion, or messages received over the network.

U. Storage Database Utilities shall allow setup and usage of detected hard disks locally. Any local hard drive shall be a candidate to add to the storage database. Once established, certain recorders shall use established local hard disks for recording data.

V. Authentication shall be configured using the Authentication Settings screen. Authentication display shall be established by site and affect the destination video. A check box shall be available to enable the video authentication symbol (A). This symbol shall verify that the video generated is authentic.

W. Operation of the system shall be facilitated by the use of a monitoring screen whereby a security operator can perform a full scope of surveillance duties on the recorder using a mouse and keyboard.

X. The recorder shall use an Intel Pentium IV processor (minimum) for the 120 and 240 fps recorders and an Intel Celeron processor (minimum) for the 30 and 60 fps units running Microsoft Windows XP Embedded. There shall be a variety of hard disk sizes from 120 to 900 GB. The front panel shall contain a key locked user door making accessible a CD-RW drive, 3.5 in. floppy disk drive, power switch, keyboard port and mouse port.
Y. The recorder shall also be equipped in a standard 19 in. (482 mm) rack mount with carry handles. The rear panel shall contain 16 video input ports, 16 SMSR ports (Speaker, Microphone, Sensor, RS-422), power switch, 2 USB connectors, 1 serial port, RS-422 screw terminal block, VGA monitor port, 1 network port, 2 16-channel video looping ports, a Windows speaker port and a video out port.

Z. The recorder shall have a nominal system live, playback and transmission video rate of 30, 60, 120 or 240 fps, based on selected model. This rate shall be divided, by configuration, among the total camera inputs. It shall have 4 levels of resolution with 2 levels of compression comprising 8 quality levels. The maximum displayed resolution shall be 640 × 480 (768 × 576, PAL) pixels per image, scalable for speed and quality. The supported, and automatically detected, video formats shall be NTSC, PAL, EIA and CCIR.

AA. The 30, 60 and 120 fps recorder models shall be 7.0 inches (178 mm) high (4 RU), 19.0 inches (482 mm) wide and 22.0 inches (559 mm) deep. The 240 fps recorder models shall be 7.0 inches (178 mm) high (4 RU), 19.0 inches (482 mm) wide and 24.25 inches (616 mm) deep. All dimensions exclude rack handles and connectors. They shall weigh 50 lb (22.6 kg). They shall have a screened steel case construction and be finished in black color.

The recorder shall be Vicon Industries base models KPR30, KPR60, KPR120 and KPR240A and audio models KPV30, KPV60, KPV120 and KPV240A.
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.

Current: 3 A.

Power Consumption:
- KPR30 and KPR60: 400 W nominal.
- KPR120 and KPR240: 450 W nominal.

Heat Equivalent:
- KPR30 and KPR60: 22.75 Btu/min (5.7 kg-cal/min).
- KPR120 and KPR240: 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® Celeron® 1.7 MHz minimum, for 30 and 60 fps/system recorders. Intel® Pentium IV® 2.66 MHz minimum, for 120 and 240 fps/system recorders.
- RAM: 256 MB for 30 and 60 fps models. 512 MB for 120 and 240 fps models.
- HDD: 120 – 900 GB. (Based on model. See Table 2.)
- LAN Card: 3Com 100 Mbps TPO.

Connector Types/Quantities:
- Analog Video Inputs: 16 BNC-F.
- Analog Video Loopouts: 16 in 1 DB-15 connector.
- Power: 1 standard 3-conductor female socket.
- VGA Video Output: 1 standard port.
- Sensor Input Port: 16 NO/NC RJ-45 connectors, software selectable.
- PTZ Control Port: 1 4-pin terminal block serial port using RS-422 protocol for all 16 channels. Also, connections available in the 16 RJ-45 connectors.
- Network Port: Ethernet 100Base-T RJ-45 jack.
- Keyboard Port: 5-pin DIN jack (PS2).
- Mouse Port: 5-pin DIN jack (PS2).

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 @ 30, 60, 120 or 240 frames per second, maximum. 30 fps per channel, maximum.

Video Recording
- Resolution: 480 horizontal TV lines maximum at 640 x 480 pixel palette; 768 x 576, PAL.

Video Quality:
- Selectable using a 4-position bar, from the Main Screen. There are 4 levels of resolution (Frame, Field, 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, see Table 3.

(“V” models only)

Audio Function
- Microphone should be 0 dbm, 32 KHz bandwidth, 600 ohm impedance, 2 V RMS (1 V p-p) output. Sampling rate at 8 KHz/sec/channel, uncompressed. Data Storage rate at approximately 0.7 GB/12-hour day/microphone.

Hard Drive Consumption
- Model dependant, see Table 3.

CD-RW Drive
- Internal CD-RW drive.

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.

VGA Monitor Output
- SVGA, True-Color Mode with a minimum resolution of 1024 x 768.

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 LED used for HDD status indication.
- 1 green LED used for power indication.

Panel Key Lock:
- Key lock provided on front panel to secure all controls.
SOFTWARE OPERATION

Main Window Screen: A multi-channel display area containing up to 16 connected cameras and microphones, a current details area, a Site and Device Tree, a System Status Area, a Control Dialog Display Area, an Other Controls Area, a Playback Controls Area, a Function Controls Area, a Display Mode Controls Area, a Video Display Area and a Toolbar. Each area contains the necessary controls to operate and setup the system.

Site and Device Tree: A physical list of all locally connected cameras and PTZ cameras. The devices are represented by graphical symbols. Components in the Site and Device Tree are selectable and configurable.

Navigator Window: A set of function buttons used to access the video on-screen. The buttons include Frame buttons, Rewind buttons, and Fast Forward buttons.

Control Dialog Display Area: A space to work in conjunction with the Other Controls Area. When one of the Other Controls is selected, the corresponding button palette appears in this area.

Toolbar: An area providing access to all major functionality of the system. The Schedule/Macro, Reports, Setup, Logout and Shutdown buttons are accessible in this area. The Schedule/Macro button allows the running of preconfigured combinations of camera, sensor and PTZ programmed routines. The Reports button allows the viewing and printing of system status reports. The Setup button allows configuration of the system functions. The Logout button allows leaving the system without closing the software. The Shutdown button allows full system shutdown.

Display Mode Control Area: A palette of buttons used to select and modify the number of video channels displayed and monitored or recorded simultaneously.

Function Control Area: A palette of controls used to enable or disable the video recording as well as any currently running macros in the system.

Video Display Controls Area: A palette of buttons used to set the picture quality and resolution of the recorded and networked video. A 4-position bar allows the quality setting.

Other Controls Area: A palette of buttons that activate when a valid device is selected from the Site and Device Tree. When active, the selection of these buttons causes the Control Dialog Display Area to display additional control information. The Other Controls are Playback, PTZ, Controls, Print Export and Picture.

System Configuration: A Main Settings Menu used for setup of the network and sites, macros, devices, authorization, Alarms, Auto Login, Schedules, Auto Record, Storage Database Utilities, Authentication, Protocol Controls, Manual Record, Registration and Picture Quality.

Network and Sites Configuration: The network portion of this feature allows setup of a system Nucleus and Backup Nucleus. The Nucleus acts as the coordinator of all running system applications. The Backup Nucleus acts as the hot-standby Nucleus if the primary Nucleus goes offline. The Network Settings menu provides a comprehensive worksheet for each networked device.

Macro Configuration: Macros can be defined for recorded or displayed cameras, command duration, recording location, local viewing, device ID, picture quality, refresh mode, recording rate (fps), related devices (sensors/relays) and alarm activation.

Device Configuration: Devices can be configured for system recognition and operation. Valid devices are cameras (with PTZ) and sensors. All devices are assigned a unique ID number and title descriptor. Devices can also be setup for specific protocols and supported with existing manufacturer's drivers where applicable.
**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): 22.0 in. (559 mm). On 240 fps models, 24.25 in. (616 mm).

Note: Dimensions exclude connectors and rack mount handles. See Figure.

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$^3$ (0.13 m$^3$).

**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.

Vibration: Tested to ISTA Standard Procedure 1 dated April 1995, Section B, Method A.

**Authorization**

Rights Setup: Administrator and Guest group rights can be configured by specific site. Administrator rights provide authority to perform all system functions. Guest rights provide custom authority to perform any selected system functions.

Alarm Configuration: Alarms are programmed to annunciate under the conditions specified in the macro. Alarms can be triggered by physical sensors, detected video loss, detected video motion or messages sent over the network.

Storage Database Utilities: This utility allows setup and usage of locally detected hard disks and RAID storage units.

Authentication: Video authentication is MD-5 based. It is established by site and affects both the source and destination of video. A check box is used to enable video authentication on the video generated by the local system.

Macro Function: System can be setup to perform routines of record and playback and alarm in a dedicated screen setup menu.

Log Reporting: Continuously running activity log.

Schedule Function: System can be set to record and display a video “tour” of multiple channels.

**Model No:** Kollector Pro  
**Product Codes:** See Table 1  
**SEC:** 1  
**SPEC:** V128  
**REV:** 904
KOLLECTOR PRO (240 models)

KOLLECTOR PRO

KOLLECTOR PRO

Model No:
Kollector Pro

Product Codes:
See Table 1

SEC: 1
SPEC: V128
REV: 904