Vicon Industries Inc. does not warrant that the functions contained in this equipment will meet your requirements or that the operation will be entirely error free or perform precisely as described in the documentation. This system has not been designed to be used in life-critical situations and must not be used for this purpose.

Document Number: 8009-8286-40-00 Product specifications subject to change without notice. Issued: 10/18 Copyright © 2018 Vicon Industries Inc. All rights reserved.
1 Introduction

Vicon’s V922B-W551MIR-A1 HD IP Bullet Camera is designed for performance in the most demanding security installations. The 1080p megapixel camera delivers crisp clear images to fit any installation need. It includes a 5-51 mm motorized varifocal autoiris lens and IR illuminators; true WDR is provided.

The V922B-W551MIR-A1 provides triple-streaming video and supports H.264 compression technology. The bullet camera is designed for easy installation. Power over Ethernet (IEEE 802.3af) eliminates the need for power cables, providing a cost-effective method of installation. The camera also accepts 12 VDC.

1.1 Components

This system comes with the following components;

* Bullet Camera .................................................................................1
* Sunshield ............................................................................................1
* Installation Guide ................................................................................1
* Accessory Kit ......................................................................................1

NOTE: Check your package to make sure that you received the complete system, including all components listed above.

NOTE: Adaptor for 12 VDC is not supplied.
1.2 Key Features

• Brilliant video quality
The network camera offers the highly efficient H.264 video compression, which drastically reduces bandwidth and storage requirements without compromising image quality. Motion JPEG is also supported for increased flexibility.

• Wide Dynamic Range
The network camera provides true WDR (Wide Dynamic Range) that improves video exposure quality in scenes with high contrast between bright and dark areas in the video, for example a shady area and a sunny area in the same scene.

• Dual or Triple Streams
The network camera can deliver dual or triple video streams simultaneously at full frame rate in all resolutions up to Full-HD (1920 x 1080p) using H.264 and Motion JPEG. This means that several video streams can be configured with different compression formats, resolutions and frame rates for different needs.

• Image setting adjustment
The network camera also enables users to adjust image settings such as contrast, brightness and saturation to improve images before encoding takes place.

• Focus & Zoom Control via Network
The Network Camera also enables users to adjust focus and zoom remotely via network. It also supports auto focusing.

• Intelligent video capabilities
The network camera includes intelligent capabilities such as VCA (Video Content Analysis). The network camera’s external inputs and outputs can be connected to devices such as sensors and relays, enabling the system to react to alarms and activate lights or open/close doors.

• Improved Security
The network camera logs all user access, and lists currently connected users. Also, its full frame rate video can be provided over HTTPS.

• PoE (Power over Ethernet)
This network camera can be powered through PoE+, which simplifies installation since only one cable is needed for carrying power, as well as video controls.

• ONVIF Certificate
This is a global interface standard that makes it easier for end users, integrators, consultants, and manufacturers to take advantage of the possibilities offered by network video technology. ONVIF enables interoperability between different vendor products, increased flexibility, reduced cost, and future-proof systems.

• Micro-SD Recording support
The network camera also supports a Micro-SD memory slot for local recording with removable storage.

• Audio support
The network camera also supports two-way audio.
2 Installation

For the network camera to operate, it is necessary to connect a network cable for data transmission and power connection from a power adapter. Depending on operation methods, it is possible to connect an alarm cable.

2.1 Overview

- Dimension

Dimension Unit: mm
### Extension Cable

![Extension Cable Diagram]

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RJ-45</td>
<td>Ethernet, RJ-45 port compatible with 10/100Mbps PoE Modular Jack</td>
</tr>
<tr>
<td>2</td>
<td>DC Jack</td>
<td>Main Power, 12 VDC Input</td>
</tr>
<tr>
<td>3</td>
<td>AI (alarm In)</td>
<td>Alarm input and output, 3-pin terminal</td>
</tr>
<tr>
<td></td>
<td>G (GND)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AO (Alarm Out)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>MIC (Audio In)</td>
<td>Audio line input, 2-pin terminal</td>
</tr>
<tr>
<td></td>
<td>G (GND)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>SPK (Audio Out)</td>
<td>Audio line output, 2-pin terminal</td>
</tr>
<tr>
<td></td>
<td>G (GND)</td>
<td></td>
</tr>
</tbody>
</table>

### Installing Camera

To mount the bullet camera, fix the base of the camera with the three screws provided in the accessory kit.

![Camera Installation Diagram]
2.2 Connections

- **Micro SD memory slot**
  Remove the rear cap of the camera to insert the SD memory card.

- **Connecting to the RJ-45**
  Connect a standard RJ-45 cable to the network port of the network camera. Generally a cross-over cable is used for direct connection to PC, while a direct cable is used for connection to a hub. You can also use a router featuring PoE (Power over Ethernet) to supply power to the camera.

- **Connecting Alarms**
  **AI (Alarm In):** You can use external devices to signal the network camera to react on events. Mechanical or electrical switches can be wired to the AI (Alarm In) and G (Ground) connectors.
  **G (Ground):** Connect the ground side of the alarm input and/or alarm output to the G (Ground) connector.
  **AO (Alarm Out):** The network camera can activate external devices such as buzzers or lights. Connect the device to the AO (Alarm Out) and G (Ground) connectors.

- **Connecting the Power**
  Connect the power of 12 VDC for the network camera. Connect the positive (+) pole to the ‘+’ position and the negative (-) pole to the ‘-’ position for the DC power.
  - Be careful not to reverse the polarity when connecting the power cable.
  - A router featuring PoE (Power over Ethernet) can also be used to supply power to the camera.
    - For the power specifications, refer to the Appendix, Product Specification.
    - Power for PoE switch must be turned off if using 12 VDC.

- **Connecting Audio**
  Connect Speaker to Audio line output and external Mic to Audio input line.

- **Connecting Service Monitor Port**
  Service monitor output port is located on the board of the camera.* This camera does not support using the external OSD controller.

  *This camera does not support using the external OSD controller.
2.2.1 Network Connection & IP Assignment

The network camera is designed for use on an Ethernet network and requires an IP address for access. Most networks today have a DHCP server that automatically assigns IP addresses to connected devices. By the factory default, your camera is set to obtain the IP address automatically via DHCP server. If your network does not have a DHCP server the network camera will use 192.168.1.100 as the default IP address.

If DHCP is enabled and the product cannot be accessed, run the “Smart Manager” utility to search and allocate an IP address to your products, or reset the product to the factory default settings and then perform the installation again. The SmartManager utility is available on Vicon’s website, vicon-security.com, under Software Downloads/Vicon Cameras/Encoders.

1) Connect the network camera/device to the network and power up.

2) Start SmartManager utility (Start > All programs > SmartManager > SmartManager). The main window will display and after a short while any network devices connected to the network will be displayed in the list.

3) Select the camera on the list and right click right the mouse. The pop-up menu displays as below.

4) Select Assign IP Address. The Assign IP window will display. Enter the required IP address.

NOTE: For more information, refer to the SmartManager User’s Manual.
3 Operation

The network camera can be used with Windows operating system and browsers. The recommended browsers are Internet Explorer®, Safari®, Firefox®, Opera® and Google® Chrome® with Windows.

NOTE: To view streaming video in Microsoft® Internet Explorer, set your browser to allow ActiveX controls.

3.1 Access from a browser

1. Start a browser (ex., Internet Explorer).
2. Enter the IP address or host name of the network camera in the Location/Address field of your browser.
3. A starting page will display. Click Live View, Playback, or Setup to select corresponding web page.

3.2 Access from the Internet

Once connected, the network camera is accessible on your local network (LAN). To access the network camera from the Internet you must configure your broadband router to allow incoming data traffic to the network camera. To do this, enable the NAT traversal feature, which will attempt to automatically configure the router to allow access to the network camera. This is enabled from Setup > System > Network > NAT. For more information, see “System > Network > NAT” of User’s Manual.

3.3 Setting the Admin Password over a Secure Connection

To gain access to the product, the password for the default administrator user must be set. This is done in the Admin Password dialog, which is displayed when the network camera is accessed for the setup at the first time. Enter your admin name and password, set by the administrator.

\[\text{NOTE: The default administrator user name and password is "ADMIN" and the password is "1234". If the password is lost, the network camera must be reset to the factory default settings. Refer to “Resetting to the factory default settings” at the end of this manual.}\

To prevent network eavesdropping when setting the admin password, this can be done via an encrypted HTTPS connection, which requires an HTTPS certificate (see NOTE below). To set the password via a standard HTTP connection, enter it directly in the first dialog shown below. To set the password via an encrypted HTTPS connection, please see “System > Security > HTTPS” of User’s Manual.

\[\text{NOTE: HTTPS (Hypertext Transfer Protocol over SSL) is a protocol used to encrypt the traffic between web browsers and servers. The HTTPS certificate controls the encrypted exchange of information.}\\]
3.4 Live View Page

The Live View page comes in several screen modes: 1920x1080, 1280x1024, 1280x720(960), 1024x768, 704x480(576), 640x480(360) and 320x240. Users are allowed to select the most suitable one out of those modes. Adjust the mode in accordance with your PC specifications and monitoring purposes.

1) General controls

The video drop-down list allows you to select a customized or preprogrammed video stream on the Live View page. Stream profiles are configured under Setup > Basic Configuration > Video & Image. For more information, please see “Basic Configuration > Video & Image” of User’s Manual.

The resolution drop-down list allows you to select the most suitable one out of video resolutions to be displayed on Live View page.

The protocol drop-down list allows you to select which combination of protocols and methods to use depending on your viewing requirements, and on the properties of your network.

The preset drop-down list allows you to select the preset number; zoom and focus positions can be saved at any preset number.
2) Control toolbar

The live viewer toolbar is available in the web browser page only. It displays the following buttons:

- **Stop** button stops the video stream being played. Pressing the key again toggles the play and stop.
- **Play** button connects to the network camera or starts playing a video stream.
- **Pause** button pauses the video stream being played.
- **Snapshot** button takes a snapshot of the current image. The location where the image is saved can be specified.
- **Digital Zoom** button activates a zoom-in or zoom-out function for video image on the live screen.
- **Full Screen** button causes the video image to fill the entire screen area. No other windows will be visible. Press the ‘Esc’ button on the computer keyboard to cancel full screen view.
- **Manual Trigger** button activates a pop-up window to manually start or stop the event.
- **PTZ** button activates a pop-up window for Zoom and Focus adjustment.
- **VCA** button shows/hides VCA rule setting and detected objects.
- **Face Detector** button shows/hides detected faces.
- **Speaker** button activates/deactivates external speaker.
- **Mic** button activates/deactivates microphone input.

Use this scale to control the volume of the speakers and microphones.

**NOTE 1:** VCA and Face Detector buttons appear only when each function is activated.

**NOTE 2:** VCA and Face Detector work exclusively of each other.

3) Video Streams

The network camera provides several images and video stream formats. Your requirements and the properties of your network will determine the type you use.

The Live View page in the network camera provides access to H.264 and Motion JPEG video streams, and to the list of available video streams. Other applications and clients can also access these video streams/images directly, without going via the Live View page.
3.5 Playback

The Playback window contains a list of recordings made to the memory card. It shows each recording’s start time, length, the event type used to start the recording, calendar and time slice bar indicates if the recording is existed or not.

The description of playback window follows.

1) Video Screen
   You can see the video screen when playing the video clip in the Micro SD memory.

2) Playback Buttons
   To view a recording data in the SD local storage, select it from the list and click the Playback buttons.
   - Go to the first: go to the beginning of the video clip.
   - Fast backward play: fast play backward of the video clip.
   - Backward play: play backward of the video clip.
   - Step backward play: go back one frame of the video clip.
   - Pause: pause playback of the video clip.
   - Step forward play: go forward one frame of the video clip.
   - Forward Play: play forward the video clip.
   - Fast forward play: play fast forward of the video clip.
   - Go to the last: go to the end of the video clip.
   - Clip copy: copy the video clip.
   - Zoom In: zoom in the video clip.
   - Full Screen: display full screen of the video.
3) Time Chart
Display an hour-based search screen for the chosen date. If there is recording data, a blue section will be displayed on a 24-hour basis. If you select a particular hour in the chart, a yellow square on the hour will be displayed.

4) Speaker Control Bar
Use this scale to control the volume of the speakers.

5) Search Calendar
Search results from the SD local storage in the network camera connected are displayed monthly. If there is a recorded data for a particular date, a blue square on the date will be displayed. If you select a particular date in the calendar, a yellow square on the date will be displayed.

6) Play Time
Displays time of the video playing.

7) Event Search Window
Select a search option in the drop-down list and click GO button. You can also enter the time period for searching. If you click Start Date or End Date zone, displays Search Calendar.

8) Event List Window
Event List displays the event(s) that were recorded in the SD local storage. Select a list and click the play button. The video clip will be played.
3.6 Network Camera Setup

This section describes how to configure the network camera.

Administrator has unrestricted access to all the Setup tools, whereas Operators have access to the settings of Basic Configuration, which are Live View, Video & Image, Audio, Event, Dome Configuration, and System.

You can configure the network camera by clicking Setup either in the first connection page or the top second-right button of the Live View page. Accessing the network camera from a computer for the first time opens the Admin Password dialog box. Enter your administrator or operator id and password to get into setup page.

NOTE: If the password is lost, the network camera must be reset to the factory default settings. Please see “Resetting to the factory default setting”.


**Resetting to the factory default settings**

To reset the network camera to the original factory settings, go to the Setup > System > Maintenance web page (described in “System > Maintenance” of Users Manual) or use the **Reset** button on the network camera inside the bottom cap.

- **Using the Reset button:**
  
  Follow the instructions below to reset the network camera to the factory default settings using the Reset button.

  1. Switch off the network camera by disconnecting the power adapter.
  2. Open the cap.
  3. Press and hold the Reset button with a straightened paperclip while reconnecting the power.
  4. Keep the Reset button pressed until the Status indicator blink.
  5. Release the Reset button.
  6. When the Power Indicator changes to Green (may take up to 40 seconds), the process is complete and the network video camera has been reset.
  7. The network camera resets to factory defaults and restarts after completing the factory reset. The unit now obtains the IP address automatically via DHCP.
  8. Close the bottom cap tightly to ensure waterproof.

**CAUTION:** When performing a Factory Reset, you will lose any settings that have been saved.
System Requirement for Web Browser

- **Operating System**: Microsoft Windows OS Series
- **CPU**: Intel Core 2 Duo 2GHz or higher, 1GB RAM or more, 10GB free disk or higher
- **VGA**: AGP, Video RAM 32MB or higher (1024x768, 24bpp or higher)

General Performance Considerations

When setting up your system, it is important to consider how various settings and situations will affect performance. Some factors affect the amount of bandwidth (the bit rate) required, others can affect the frame rate, and some affect both. If the load on the CPU reaches its maximum, this will also affect the frame rate.

The following factors are among the most important to consider:

- High image resolutions and/or lower compression levels (or high bitrates) result in larger images. Frame rate and Bandwidth affected.
- Accessing both Motion JPEG and H.264 video streams simultaneously. Frame rate and bandwidth affected.
- Heavy network utilization due to poor infrastructure. Frame rate and Bandwidth affected.
- Heavy network utilization via wireless router due to poor infrastructure. Frame rate and bandwidth affected.
- Viewing on poorly performing client PCs lowers perceived performance. Frame rate affected.

More Information

For more information, please see the network camera User’s Manual, which is available on Vicon’s website, [vicon-security.com](http://vicon-security.com) under Documentation.
# Appendix

## A.1 Product Specification

### 10X FULL-HD BULLET NETWORK CAMERA

<table>
<thead>
<tr>
<th>Model</th>
<th>NETWORK CAMERA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IMAGE</strong></td>
<td></td>
</tr>
<tr>
<td>Lens</td>
<td>10x/5.1mm ~ 51.0mm</td>
</tr>
<tr>
<td>Angle of View</td>
<td>54.0° (H) ~ 4.9° (H)</td>
</tr>
<tr>
<td>Image Sensor</td>
<td>1/2.8” SONY STARVIS CMOS sensor</td>
</tr>
<tr>
<td>Pixels</td>
<td>1945 (H) x 1097 (V)</td>
</tr>
<tr>
<td>Min. Illumination</td>
<td>Color: 0.35 Lux @ 50IRE</td>
</tr>
<tr>
<td>Scanning Mode</td>
<td>Progressive Scan</td>
</tr>
<tr>
<td>Day and Night Mode</td>
<td>True D/N (Auto, Day, Night)</td>
</tr>
<tr>
<td>Noise Reduction</td>
<td>2DNR, 3DNR</td>
</tr>
<tr>
<td>Digital Zoom</td>
<td>16x</td>
</tr>
<tr>
<td>Exposure Control</td>
<td>Auto, Manual, Shutter Priority, Iris Priority, Multi-Shutter</td>
</tr>
<tr>
<td>White Balance Control</td>
<td>Auto, Manual, Incandescent, Fluorescent, Outdoor</td>
</tr>
<tr>
<td>Back Light Compensation</td>
<td>Yes</td>
</tr>
<tr>
<td>Image Effect</td>
<td>Mirror/Flip (Digital)</td>
</tr>
<tr>
<td>Shutter Speed</td>
<td>25/30fps: Auto (1/30,000 ~ x8 sec.), Manual 50/60fps: Auto (1/50,000 ~ x8 sec.), Manual</td>
</tr>
<tr>
<td>IR Illuminator</td>
<td>Quantity: 32 IR LEDs, Angle: 78°, Distance: 25m</td>
</tr>
<tr>
<td><strong>VIDEO/AUDIO</strong></td>
<td></td>
</tr>
<tr>
<td>Compression</td>
<td>H.264 (Baseline, Main, High Profile), MJPEG</td>
</tr>
<tr>
<td>Bitrate Control</td>
<td>CVBR, VBR</td>
</tr>
<tr>
<td>Resolution</td>
<td>1920x1080, 1280x1024, 1280x720/960, 704x480/576, 640x360/480, 320x240</td>
</tr>
<tr>
<td>Frame Rate</td>
<td>Max. 50fps/60fps</td>
</tr>
<tr>
<td>Streaming</td>
<td>50/60fps (Dual Stream : H.264 x 1, MJPEG x 1) 25/30fps (Triple Stream : H.264 x 2, MJPEG x 1)</td>
</tr>
<tr>
<td>Audio Compression</td>
<td>G.711</td>
</tr>
<tr>
<td>Audio Streaming</td>
<td>2 Way</td>
</tr>
<tr>
<td><strong>SYSTEM</strong></td>
<td></td>
</tr>
<tr>
<td>Video Contents Analysis</td>
<td>DIS, Defog, Face Detector, Tampering, Line Detector, Field Detector</td>
</tr>
<tr>
<td>Motion Detection Area</td>
<td>16 Programmable Areas (Include Area 8, Exclude Area 8)</td>
</tr>
<tr>
<td>Privacy Mask Zone</td>
<td>16</td>
</tr>
<tr>
<td>PTZ Preset</td>
<td>256</td>
</tr>
<tr>
<td>FTP Uploading</td>
<td>MJPEG</td>
</tr>
<tr>
<td>Event Notification</td>
<td>E-mail, FTP, Notification Server, XML Notification, Audio Alert, AIHM</td>
</tr>
<tr>
<td>Audio Alert</td>
<td>User-Defined 3 Audio files</td>
</tr>
<tr>
<td>Login Authority</td>
<td>Administrator, Operator, Guest</td>
</tr>
<tr>
<td>Event Buffering</td>
<td>FTP Pre: 30sec, Post: 30sec  SD Record Pre: 10sec, Post: 60sec</td>
</tr>
<tr>
<td>Manual Trigger</td>
<td>4 Programmable Triggers</td>
</tr>
<tr>
<td>Security</td>
<td>Multi User Authority, IP Filtering, HTTPS, SSL</td>
</tr>
<tr>
<td>Network Time Sync</td>
<td>NTP Server, Synchronized Computer, Manual</td>
</tr>
<tr>
<td>Software Reset</td>
<td>Restart, Reset, Factory Default</td>
</tr>
<tr>
<td>Hardware Factory Reset</td>
<td>Yes</td>
</tr>
<tr>
<td>Auto Recovery</td>
<td>Backup, Restore</td>
</tr>
<tr>
<td>Remote Upgrade</td>
<td>Web Browsing (IE, Chrome, Safari, Firefox), SmartManager</td>
</tr>
<tr>
<td>SD Recording Mode</td>
<td>Event, Continuous</td>
</tr>
<tr>
<td><strong>NETWORK</strong></td>
<td></td>
</tr>
<tr>
<td>Protocols</td>
<td>TCP/IP, UDP, IPv4/6, HTTP, HTTPS, QoS, FTP, UPnP, RTP, RTSP, RTCP, DHCP, ARP, Zeroconf, Bonjour</td>
</tr>
<tr>
<td>Client Software</td>
<td>Web, SmartManager, Client S/W, Mobile S/W</td>
</tr>
<tr>
<td>Max. User Connection</td>
<td>Live: 10 Users, Playback: 3 Users</td>
</tr>
<tr>
<td>API Support</td>
<td>Open API, ONVIF Compliance</td>
</tr>
<tr>
<td>Mobile Support</td>
<td>Android, iOS</td>
</tr>
<tr>
<td>EXTERNAL IN/OUT</td>
<td>Video Composite Output</td>
</tr>
<tr>
<td>----------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Audio</td>
<td>1 Input, 1 Output (Terminal Block)</td>
</tr>
<tr>
<td>Alarm</td>
<td>1 Input, 1 Output (Terminal Block)</td>
</tr>
<tr>
<td>Ethernet</td>
<td>RJ-45 (10/100Base-T)</td>
</tr>
<tr>
<td>u-SD Card</td>
<td>SDHC (Max. 32GB)</td>
</tr>
<tr>
<td>RS485</td>
<td>-</td>
</tr>
<tr>
<td>OSD-Remote control</td>
<td>-</td>
</tr>
<tr>
<td>RESET Button</td>
<td>Tact Switch</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ETC</th>
<th>Operating Humidity</th>
<th>0 ~ 90% RH (Non-condensing)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Operating Temperature</td>
<td>-22°F ~ +50°F (-30°C ~ +50°C)</td>
</tr>
<tr>
<td></td>
<td>Power Supply</td>
<td>PoE (IEEE802.3at class4 only), DC12V</td>
</tr>
<tr>
<td></td>
<td>Power Consumption</td>
<td>0.47A (22.6W) @ PoE, 1.6A (19.2W) @ 12VDC</td>
</tr>
<tr>
<td></td>
<td>Dimensions</td>
<td>11.4 in. (W) x 3.7 in. (H) x 3.9 in. (D) [287.7mm(W) x 92.9mm(H) x 98.4mm(D)]</td>
</tr>
<tr>
<td></td>
<td>Net Weight</td>
<td>2 lb (1.2 kg)</td>
</tr>
</tbody>
</table>

* Specifications are subject to change without notice.
VICON INDUSTRIES INC.

For office locations, visit the website: www.vicon-security.com