

INVITATION TO BID

The City of Rochester, New Hampshire is accepting sealed bids for **“WWTF Security Camera”**. Bids must be submitted in a sealed envelope plainly marked:

WWTF Security Cameras
Bid # 17-01
City of Rochester 31 Wakefield Street
Rochester, NH 03867
Attn: Purchasing Agent

All bids must be received no later than **“August 4, 2016” at 2:15 PM**. The actual bid opening will be at Rochester City Hall, 31 Wakefield Street in Rochester NH, at **2:30 PM**. No late bids, faxed, e-mailed or telephone bids will be accepted. Bid proposals and specifications may be obtained by visiting www.rochesternh.net, or emailing purchasing@rochesternh.net, or by contacting the Purchasing Agent at City Hall, 31 Wakefield Street, Rochester, NH 03867, (603) 335-7602. All bid questions must be submitted in writing (email preferred) to the Purchasing Agent. Bidders are to monitor website for addendums and postings of all bid questions and answers. All bid proposals must be made on the bid proposal forms supplied and the bid proposal forms must be fully completed when submitted.

A mandatory walk through will take place on Tuesday July 19, 2016 at 9:30 a.m. at 175 Pickering Road, Rochester, NH 03867. All parties wishing to attend the walk through will meet inside the wastewater Treatment Facility.

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SECTION 1

Bid Proposal Form, Scope of Work and Instruction to Bidders

Bid Proposal Form

The selected contractor will be required to meet Davis Bacon Wage schedules and comply with all associated reporting activities.

Bidders on this work must demonstrate compliance with the United States Environmental Protection Agency's MBE/WBE policy in order to be deemed a responsible bidder.

All construction methods and materials shall be in accordance with BOCA codes. All work shall be performed in accordance with all applicable federal, state and local regulations.

Company Name: _____

Address: _____

Telephone# _____ Fax# _____ E-mail _____

Print Name _____

Authorized Signature _____ Date _____

Total Amount of Project \$ _____

Estimated time to complete _____

Bid results will be posted after 48 hours on the City of Rochester's web site: www.rochesternh.net or will be available by request via e-mail at the following address: [purchasing @rochesternh.net](mailto:purchasing@rochesternh.net).

Scope of Work

The City of Rochester is soliciting bids for a Security Camera System at the Wastewater Treatment Plant.

A 67668 terabyte video insight rack mounted expansion server will be provided and installed into the IT room at the Wastewater Treatment Facility. The City of Rochester will provide a network connection and 120v power for the server, a/c power outlet at the head-end location and control panel or switch locations. The City will also provide the network connection and an IP address for each location. The server is sized for growth and 30 days storage. A small client computer and 32" monitor will be installed in the break room to allow for passive monitoring and review of video.

Panasonic and Bridge IP camera will be provided at the following locations:

- Rear parking area-3 megapixel dome camera (exhibit 1)
- Side admin entry/view of mechanical building entry-3 megapixel dome camera (exhibit 1)
- Front view of entry and driveway-3 megapixel dome camera (exhibit 1)
- View of front gate (from main building)-3 varifocal megapixel dome camera (exhibit 2)
- Septic receiving-9 megapixel 360 degree camera (pole mounted) (exhibit 3)
- Wireless radio and receiver (exhibit 3)
- Headworks-9 megapixel 360 degree camera(exhibit 3)
- Requires existing cable modem to be functioning and online (exhibit 3)

The use of Panasonic and Bridge cameras eliminate camera licensing fees.

Equipment

- Video insight server
- Cameras
- 32 inch wall mounted monitor
- Client computer to drive monitor
- Wireless equipment
- Wiring
- Installation
- Programming
- 1-2 hour training session

1. IP Server (Acceptable Systems – Video Insight or Salient Systems)
 - a. The Server shall be designed to run on a Windows platform, supporting both Desktop and Server class operating systems including Windows7, 2008r2, and 2012.
 - b. Server shall run as a Window's Service. This service shall run as part of the local service account. This service shall be running as long as the system is booted and has started Windows. It shall not require the user to be logged in.
 - c. The Server will store settings in SQL Express and shall not require a full MS-SQL license.
 - d. The Server shall have an option for a 32 bit binary and a true 64-bit binary. In a 64 bit OS, the server shall run as a native 64 bit application, not merely a 32 bit application.
 - e. The service shall connect to the camera and handle streaming to the server. It shall not require each client to connect to individual cameras.
 - f. This service shall allow the cameras to be placed on one network and the clients on a separate network using a different IP range.
 - g. The software shall support the ONVIF standard.
 - h. The software shall support Megapixel virtual cameras within a single camera license.
 - i. The server shall only require two ports for streaming video as well as handling any setting changes or commands from the client software.
 - j. The Server shall record the video streams from different cameras.
 - i. The service shall handle transcoding of the camera streams if the cameras are MJPEG based. The video shall be re-encoded to WMV to reduce storage needs and to reduce the impact of streams to clients on the server.
 - ii. For MPEG-4 based cameras, the video shall be stored in the native codec of the server.
 - iii. For H.264 based cameras the video shall be stored in the native codec of the server.
 - iv. Each camera will have the option to be able to be stored in different locations (i.e. One locally, another on a NAS, a third on a different network share)
 - v. Streaming from server to client shall support H.264.
 - vi. The server must have Pivot 3 integration.
 - k. The Server shall support H.264, MPEG-4, MJPEG and MXPEG based cameras.
 - l. The Server shall support motion detection at the camera and at the software levels.
 - m. The Server shall provide graphic examples of what it determines as motion to thick clients if the thick client requests it.
 - i. The software shall display the motion detection as an outline around the area moving.
 - ii. The software shall provide a bar showing the total percentage of change. This bar shall have a slider on it to allow the user to quickly set motion detection.
 - n. The Server shall allow for multiple zones to be set within an image that support differing motion detection values within a cameras field of view.
 - i. There shall be no limit on the total number of zones allowed, either on a per camera or per server basis.
 - ii. Zones should allow the ability to ignore motion within an area.
 - iii. The user shall have the ability to move the zones after the fact.
 - iv. Motion zones should be able to be tied into a rules engine to allow the software use them as triggers for events.
 - o. The Server shall support the use of imported maps to show camera placement. These maps will be in .jpg, .gif, or .bmp formats as determined by the user.
 - i. Hovering over a camera on a map shall cause it to be displayed in a window on the side.

- ii. When the camera is displayed on the side, the option to review recently recorded video will be available to them.
- iii. The user shall be able to embed layouts onto the facility map. Clicking on the layout shall change the display of the client software.
- iv. Alarms from DIOs shall be able to be embedded as well.
- v. Audio sources shall also be an option.
- vi. Other facility maps shall also be an option to embed. Clicking on a different embedded map shall bring up that map.
- vii. Doors from certain access control systems can be imported and displayed. Hovering over the door shall display the last badge used to badge in, a live view of the camera associated with the door. The user from this pop up shall be able to see badge events and alarm events along with the associated video.
- p. The Server shall not require the administrator to contact the manufacturer to replace a camera.
- q. The Server shall support reporting to a diagnostic tool.
 - i. The server will report the number of active cameras.
 - ii. The server shall report active cameras offline.
 - iii. The version of the server.
 - iv. The amount of disk space left.
 - v. The recording status of the server.
- r. The server shall support pre-motion and post motion recording.
- s. The server shall support customizable layouts. The layouts will allow for blank spaces within the layout.
- t. The server shall support an unlimited number of users.
 - i. Users can be drawn from either an Active Directory server, Novell eDirectory or entered manually.
 - ii. There will be five different levels of user.
 - iii. Users can be members of a group with settings set for the group. Individual user settings can override the group settings.
 - iv. Permissions can be set for live viewing, access to recorded video, control of PTZ cameras, access to audio, the ability to export video, custom layouts, facility maps and rules. Permissions can be defined on a per camera basis.
 - v. The server shall support the option of having the users limited to being signed in to a single location.
- u. The server will include a diagnostic version with limited interface, to allow for testing of the server.
- v. The server shall support an optional secondary server with fallover capacity.
- w. A rules engine shall be included to allow the server to handle more complex tasks.
 - i. Triggers will include:
 - 1. Dry contacts (DIO)
 - 2. Motion detection of a camera stream.
 - 3. Scheduled events. Events can be scheduled on daily, weekly, or monthly basis. Individual events can be handled as well.
 - 4. An Alert button for the user interaction in the monitor station.
 - 5. Inputs sent programmatically via appropriate APIs.
 - 6. Access control events from supported Access Control Vendors.
 - ii. Actions will include:
 - 1. Logging the event.
 - 2. Opening or closing a dry contact.
 - 3. Sending an e-mail with a custom text message tied to the trigger. Multiple texts will be allowed for different triggers.
 - 4. Sending an e-mail with an .avi clip from a selected camera.

5. Sending an e-mail with a .jpg of a selected event from a camera.
6. Opening a live window for a user who is viewing.
7. Move a PTZ to a certain preset location.
8. Force recording.
9. Force recording with audio.
10. Instant Replay
11. Sending video to a Network Decoder
12. Switching single camera or layout views.
13. Message Instruction
14. Moving, copying or deleting of files.
15. Execute a program or batch file.
16. Send an ASCII string to a TCP port.
- x. The server shall support time out functionality.
- y. A universal RTSP option shall exist for adding cameras if they are not currently supported through native APIs.
- z. PTZ functionality within the camera will be supported.
- aa. Dewarping of Panoramic shall be supported for the following manufacturers:
 - i. Sentry 360
 - ii. Vivotek
 - iii. Panasonic
 - iv. Axis
 - v. Immervision
 - vi. Mobotix
 - vii. ACTi
- bb. The server will only stream video to clients that the clients request.
- cc. If live video is paused then the server shall stop streaming video to the clients to conserve bandwidth.
- dd. The server shall support integration with various access control platforms, including:
 - i. RS2
 - ii. Feenics Keep
 - iii. Vanderbilt SMS
 - iv. Monitorcast
- ee. With Monitorcast, the server shall allow for importing the doors from those systems and respond to events in the VMS software along with basic door control.
- ff. The server shall have support for the Audio Enhancement's panic button functionality.
- gg. The server shall have the ability to handle a total throughput of 600 mbit/s total throughput for the server for camera connections.

2. Monitor Station

- a. The monitor station will be a thick client for viewing live and recorded video, along with handling administrative tasks.
- b. The software shall not require a client license to operate.
- c. The thick client will support an encrypted XML file for storing settings. The file can be set up to be shared between many clients, allowing the administrator to update all clients with a single file push.
- d. Clients will be able to use Active Directory to authenticate users.
- e. Clients will be able to use Novell E-directory to authenticate users.
- f. The Monitor Station will display the servers it's connected to along with the server's cameras in a tree view on the left hand side.
 - i. The tree view will allow the user to see the status of the servers that the instance of the monitor station is aware of.

- ii. The tree view will also include access to custom layouts, facility maps and action buttons.
- iii. There will be an option to hide the tree on start up of the monitor station.
- iv. The user shall be able search for cameras using a searchable box on the left hand tree.
- g. The thick client will not be limited in the number of servers it can connect to.
- h. Live view will allow views of 1, 4, 8, 9, 10, 13, 16, 25 and 36 cameras. A widescreen option for 18 and 24 cameras will also be available.
 - i. Layouts will be selectable via icon or keyboard function keys.
 - ii. Layouts will not be limited to cameras from a single server.
 - iii. Users will be able to get any combinations of layouts to cycle through on the main screen.
 - iv. Users will be able to designate cameras within a layout to be able to cycle between multiple cameras from multiple servers.
 - v. Layouts shall be able to be put into groups.
- i. If motion is detected on a camera then the software, then the camera shall have a red pulse around the edge of the window.
- j. Live view will allow cameras to be dragged and dropped onto the live view from the left hand tree. Cameras can be duplicated in a view.
- k. Users will be able to invoke a digital zoom by drawing a box.
- l. After invoking the digital zoom, the Monitor Station shall support the use of picture in picture within the zoomed image.
- m. Digitally zoomed areas will be treated as a digital PTZ.
- n. PTZ Presets shall be listed in a drop down menu in the camera window.
- o. Users shall be able to move the PTZ movements simply by clicking on the image or by using the scroll wheel.
- p. Live view will support a full screen mode that hides the UI. User shall be able to start the Monitor Station in this full screen mode with a setting.
- q. Live view shall allow the user to de-warp the video from panoramic lenses and cameras.
- r. Right clicking on a camera in live view will have the following behaviors:
 - i. Right clicking on a camera within live view will allow the user to be able to review the recently recorded video for that camera.
 - ii. Right clicking on a camera within live view will also allow access to the properties dialog box for that camera.
 - iii. Right clicking on a camera will bring up the option to save a still image of the live view.
 - iv. Live audio will be able to be accessed by right clicking on a camera in the live view.
 - v. Allowing access to recorded video.
- s. Recorded video will be able to be accessed by right clicking the live view, expanding the camera in the tree view, or by opening the media player via the pull down menus.
- t. The Media player shall support the following functionality:
 - i. The ability to fast forward and rewind video at up to 16x normal playback speed. .
 - ii. The ability to generate clips of recorded video. The clips can be defined by either frame numbers or by the use of slider bars visible on the player.
 - iii. The ability to save video directly to a CD or to a local hard drive or network share.
 - iv. If motion detection and logging are enabled, a timeline of video will be displayed. The user will be able to zoom in on the timeline and use it to select where video will start playing from.

- v. Users will have access to a motion log which will show motion events and how long they occurred for. Clicking on the entry will start the video from the appropriate spot.
- vi. The player will support digital zoom.
- vii. The player will have the option to allow an object search. The user will be able to define an area and seek out changes in the image within that area.
- viii. The User shall have the option of forcing export of video as the native codec of the camera or MJPEG.
- ix. User will have the option to burn time-date into the video as a clip.
- x. Users will have the option of burning in the Video Insight logo on a clip.
- xi. Users will have the option to create a time index file for clips.
- xii. Users will be able to grab a snapshot of the recorded video.
- u. Synchronized playback will allow for cameras to simply be dragged and dropped into the player. The Synchronized player shall allow for the exporting of the view of up to four cameras a single video file.
- v. The thick client will include a repair utility for corrupted video.
- w. The Monitor Station will be able to display logging information, such as changes to the server, lost camera signals, who exported recorded video, when did users log-on/off and other errors. This functionality will be limited to administrative users. The log will be exportable as txt or to the Windows clipboard.
- x. The Monitor Station shall also provide real time status updates for server status and camera status, including the CPU usage, disk usage, bandwidth usage, licensing and number and names of users who are logged in.
- y. The system will support an Alarm Log to make it easier to find DIO based events.
- z. Facility maps will be available in the software for viewing.
 - i. When the user hovers over a camera in the facility map it will display the camera in a window off the side of the map.
 - ii. While a camera is displayed it will allow access to recorded video from that camera as well as the live stream.
 - iii. Cameras will display where they are pointed.
 - iv. Embedded layouts will change the layout of the Monitor station if they are clicked on.
 - v. Embedded Facility maps will cause the current map to change to the embedded map if clicked on.
 - vi. The user will have the option of importing and placing doors from supported access control partners on the map. This shall allow them to see badge events as well as alarm events. It shall also support the ability to lock and unlock doors from the map.
 - vii. Panic button events from the Audio Enhancement systems will be visible on the map as well.
- aa. The Monitor Station will support the Axis Joystick as well as standard USB joysticks.
- bb. The software shall support the ability to open a live window that can be moved around. This window will be able to access the view of any camera or layout the user has access to.
- cc. The user will be able to enable or disable the following settings:
 - i. Server name in the live view.
 - ii. Camera Name in the live view.
 - iii. Audio notification on motion.
 - iv. Forcing aspect ratio.
 - v. Use Direct Show for display.
 - vi. Double clicking to change the server layout.
 - vii. Double clicking expands the camera.

- viii. Allowing multiple live windows.
- ix. Block live windows from popping up.
- x. Live window always on top.
- xi. The speed in which layouts cycle.
- xii. Hiding left tree on start up.
- xiii. Launching Facility maps on start up.
- dd. Users with Administrator privileges will be able to configure the server and camera settings. Users will also be able to test SMTP settings and database settings.
 - i. Users will be able to configure the framerate of the camera, including the option to have the server record continuously at 1 fps with the option to go to the cameras maximum framerate on motion detection.
 - ii. Users will be able to select various time-lapse options for the camera.
 - iii. Users will be able to select the camera stream type.
 - iv. Users will be able to select camera or server side motion detection.
- ee. Users will be able to access a graphic representation of what the server's motion detection settings are picking up.
- ff. Users will be able to configure user settings as well as layout settings from within the thick client.
- gg. The software shall allow users to send video or messages to other users in the form of a popup window.
- hh. The Monitor Station will allow users to send video to other users, allowing for remote live pop ups of video of important events.
- ii. The Monitor Station will support Layout touring. Selecting a layout will cycle through a list of cameras.
- jj. User shall be able to allow for remote support via the monitor station.

3. Web Client

- a. The Web Client will be a thin client, using either an active-x control or an MJPEG streaming method.
- b. It shall support IE, Firefox, Safari, Chrome and Opera.
- c. It will not be limited to Windows platforms only.
- d. It will not require a license.
- e. Users will not be able to change any settings within the server via the thin client.
- f. Users will be able to select layouts for live viewing, or individual cameras or groups of cameras.
- g. Users will be able to access recorded video.
- h. Users will be able to download recorded video from the system.
- i. Users will be able to use the motion log to find recorded video.
- j. The Web Client shall support the use of facility maps.
- k. The Web interface will support the use of custom layouts.
- l. The web client will use IIS as its web server.
- m. The Web client shall allow remote access for iPhone, Blackberry, Windows Mobile, and Android mobile phones without the installation of an app.

4. Health Monitor

- a. The Health Monitor will listen for reports given by the service as to its status.
- b. If the Health Monitor detects anything abnormal, it will give a visual display through a web front end, or by sending out an e-mail to one or more users.
- c. It will be able to support an unlimited number of servers.
- d. It will be hosted locally or across the internet.
- e. It shall have the option to be run as a service.

5. LTS

- a. Long Term Storage solution will be a service that allows for automated backing up of the server.
- b. It will allow for transcoding of the video stored on the server.
- c. It will support reducing frame rate of video over a certain age.
- d. It will allow for continuous or scheduled usage.

6. Video Wall

- a. The video wall shall support an unlimited number of monitors.
- b. The video wall shall support up to four monitors per workstation.
- c. The user shall be able to select the display of the video wall via the monitor station.
- d. No license shall be required for the video wall.

7. iPhone/iPad application

- a. The iPhone/iPad application shall not require a license to operate.
- b. The app will have access to live cameras.
- c. PTZ functionality will be available in the app.
- d. The app will have access to recorded video.
- e. Facility map functionality will be available.
- f. Users will be able to make a clip from the app.
- g. Snapshots will be able to be e-mailed from the app.

8. Android Application.

- a. The Android application shall not require a license to operate.
- b. The app will have access to live cameras.
- c. PTZ functionality will be available in the app.
- d. The app will have access to recorded video.
- e. Facility map functionality will be available.
- f. Users will be able to make a clip from the app.

INSTRUCTION TO BIDDERS**PREPARATION OF BID PROPOSAL**

1. The Bidder shall submit her/his proposal upon the form(s) furnished by the City (attached). The bidder shall specify a unit price for each pay item. All figures shall be in ink or typed.
2. If a unit price or lump sum bid already entered by the bidder on the proposal form is to be altered it should be crossed out with ink, the new unit price or lump sum bid entered above or below it, and initialed by the bidder, also with ink. In case of discrepancy between the prices written in words and those written in figures, the prices written in words shall govern.
3. The bidder's proposal must be signed with ink by the individual, by one or more members of the partnership, by one or more members or officers of each firm representing a joint venture, by one or more officers of a corporation, or by an agent of the contractor legally qualified and acceptable to the owner. If the proposal is made by an individual, his name and post office address must be shown, by a partnership the name and post office address of each partnership member must be shown; as a joint venture, the name and post office address of each must be shown; by a corporation, the name of the corporation and its business address must be shown, together with the name of the state in which it is incorporated, and the names, titles, and business addresses of the President, Secretary, and Treasurer.
4. All questions shall be submitted in writing to and received by the Purchasing Agent at the above address, a minimum of 7 days prior to the scheduled bid opening. The Purchasing Agent, will then forward both the question and the city's response to the question to all known prospective bidders.

IRREGULAR PROPOSALS

Bid proposals will be considered irregular and may be rejected for any of the following reasons:

1. If the proposal is on a form other than that furnished by the Owner or if the form is altered or any part thereof is detached.
2. If there are unauthorized additions, conditional or alternate bids, or irregularities of any kind which may tend to make the proposal incomplete, indefinite or ambiguous as to its meaning.
3. If the bidder adds any provisions reserving the right to accept or reject an award, or to enter into a contract pursuant to an award.
4. If the proposal does not contain a unit price for each pay item listed, except in the case of authorized alternate pay items.

DELIVERY OF BID PROPOSALS

When sent by mail, the sealed proposal shall be addressed to the City of Rochester, Purchasing

Agent, 31 Wakefield Street, Rochester, NH 03867. All proposals shall be filed prior to the time and at the place specified in the invitation for bids. Proposals received after the time for opening of the bids will be returned to the bidder, unopened. Emailed or faxed bid proposals are not acceptable.

WITHDRAWAL OF BID PROPOSALS

A bidder will be permitted to withdraw his proposal unopened after it has been deposited if such request is received in writing prior to the time specified for opening the proposals.

PUBLIC OPENING OF BID PROPOSALS

Proposals will be opened and read publicly at the time and place indicated in the invitation for bids. Bidders, their authorized agents, and other interested parties are invited to be present.

DISQUALIFICATION OF BIDDERS

Either of the following reasons may be considered as being sufficient for the disqualification of a bidder and the rejection of her/his bid proposal(s):

1. Evidence of collusion among bidders.
2. Failure to supply complete information as requested by the bid specifications.

CONSIDERATION OF PROPOSALS

1. Bids will be made public at the time of opening and may be reviewed only after they have been properly recorded. In case of discrepancy between the prices written in words and those written figures, the prices written in words shall govern. In case of a discrepancy between the total shown in the proposal and that obtained by adding the products of the quantities of items and unit bid prices, the latter shall govern.
2. The right is reserved to reject any or all proposals, to waive technicalities or to advertise for new proposals, if in the judgment of the City, the best interest of the City of Rochester will be promoted thereby.
3. Bid results will be available on the website at www.rochesternh.net within 48 hours of the bid opening.

AWARD OF CONTRACT

The City holds the right, in its judgment, to award the contract to the bidder, which it feels is in the best interest of the City. If a contract is to be awarded, the Contractor/Vendor selection shall be based in part on possession of the necessary experience, organization, technical and professional qualifications, skills and facilities, reference checks, project understanding, approach, ability to comply with proposed or required time to completion or performance, licensing or certification, in good standing with Federal, State and Local agencies, possession of satisfactory record of performance, cost and to a responsible and qualified bidder whose proposal complies with all the requirements prescribed as soon as practical after the bid opening. No bid shall be withdrawn for a period of (60) sixty days subsequent to the opening of bids without the consent of the City of Rochester. The successful bidder will be notified, by the form mailed to the address on his proposal, that his bid has been accepted and that he has been awarded the contract.

CANCELLATION OF AWARD

The City reserves the right to cancel the award of any contract at any time before the execution of such contract by all parties without any liability or other claim against the City.

BID EVALUATION

In addition to the bid amount, additional factors will be considered as an integral part of the bid evaluation process, including, but not limited to:

1. The bidder's ability, capacity, and skill to perform within the specified time limits.
2. The bidder's experience, reputation, efficiency, judgment, and integrity.
3. The quality, availability and adaptability of the supplies and materials sold.
4. The bidder's past performance.
5. The sufficiency of bidder's financial resources to fulfill the contract.
6. The bidder's ability to provide future maintenance and/or services.
7. Any other applicable factors as the City determines necessary and appropriate (such as compatibility with existing equipment).

CONDITIONS AT SITE

Bidders shall be responsible for having ascertained pertinent local conditions, such as: location, accessibility and general character of the site. The character and extent of existing work within or adjacent to the site and any other work being performed thereon at the time of the submission of her/his bid.

LAWS, PERMITS AND REGULATIONS

1. The Contractor shall obtain and pay for all licenses and permits as may be required of him by law, and shall pay for all fees and charges for connection to outside services, and use of property other than the site of the work for storage of materials or other purposes.
2. The Contractor shall comply with all State and Local laws, ordinances, regulations and requirements applicable to work hereunder, including building code requirements. If the Contractor ascertains at any time that any requirement of this Contract is at variance with applicable laws, ordinances, regulations or building code requirements, she/he shall promptly notify the City of Rochester in writing.

CONTRACTOR'S AND SUBCONTRACTOR'S INSURANCE

1. The Contractor shall deliver with bid documents; certificates of all insurance required hereunder. The certificate shall state that the companies issuing insurance will endeavor to mail to the City of Rochester ten (10) days notice of cancellation, alteration or material change of any listed policies. The Contractor shall keep in force the insurance required herein for the period of the Contract. At the request of the City of Rochester, the Contractor shall promptly make available a copy of any and all listed insurance policies. The requested insurance must be written by a Company licensed to do business in New Hampshire at the time the policy is issued.

2. The City of Rochester, NH shall be listed as additional insured on all the Certificates of Insurance.
3. The Contractor shall require each Subcontractor employed on the Project to maintain the coverage listed below unless the Contractor's insurance covers activities of the Subcontractor on the Project.
4. No operations under this Contract shall commence until certificates of insurance attesting to the below listed requirements have been filed with and approved by the Department of Public Works, and the Contract approved by the City Manager.
 - a. Workmen's Compensation Insurance
Limit of Liability - \$100,000.00 per accident
 - b. Commercial General Liability Limits of Liability
Bodily Injury: \$1,000,000.00 per occurrence, \$1,000,000.00 aggregate
Property Damage: \$500,000.00 per occurrence, \$200,000.00 aggregate
Combined Single Limit, Bodily Injury and Property Damage: \$2,000,000.00 aggregate
 - c. Automobile Liability
Limits of Liability - \$500,000.00 per accident.
 - d. The Contractor shall indemnify, defend, and save harmless the City of Rochester and its agents and employees from and against any suit, action or claim of loss or expenses because of bodily injury. Including death at any time resulting there from, sustained by any person or persons or on account of damage to property, including loss of use thereof, whether caused by or contributed to by said City of Rochester, its agents, employees or others.

ACCIDENT PROTECTIONS

It is a condition of this Contract, and shall be made a condition of each subcontract entered into pursuant to the Contract. That a Contractor and any Subcontractors shall not require any laborer or mechanic employed in the performance of the Contract to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to health or safety, as determined by construction safety and health standards of the Occupational Safety and Health Administration, United States Department of Labor, which standards include, by reference, the established Federal Safety and Health regulations for Construction. These standards and regulations comprise Part 1910 and Part 1926 respectively of Title 29 of the Code of Federal Regulations and are set forth in the Federal Register. In the event any revisions in the Code of Federal Regulations are published, such revisions will be deemed to supersede the appropriate Part 1910 and Part 1926, and be effective as of the date set forth in the revised regulation.

SUBCONTRACTS

1. Nothing contained in the Specifications or Drawings shall be construed as creating any contractual relationship between any Subcontractor and the City of Rochester. The Division or Sections of the Specifications are not intended to control the Contractor in dividing the work among Subcontractors or to limit the work performed by any trade.
2. The Contractor shall be as fully responsible to the City of Rochester for the acts and omissions of Subcontractors and of persons employed by her/him, as she/he is responsible for the acts and omissions of persons directly employed by her/him.

PROTECTION OF WORK AND PROPERTY

The Contractor shall, at all times, safely guard the City's property from injury or loss in connection with this Contract. She/he shall, at all times, safely guard and protect her/his own work and that of adjacent property from damage. All passageways, guard fences, lights and other facilities required for protection by State or Municipal laws, regulations and local conditions must be provided and maintained.

USE OF PREMISES AND REMOVAL OF DEBRIS

The Contractor expressly undertakes at his own expense:

1. To take every precaution against injuries to persons or damage to property;
2. To comply with the regulations governing the operations of premises which are occupied and to perform his Contract in such a manner as not to interrupt or interfere with the operation of the Institution;
3. To perform any work necessary to be performed after working hours or on Sunday or legal holidays without additional expense to the City, but only when requested to do so by the City;
4. To store his apparatus, materials, supplies and equipment in such orderly fashion at the site of the work as will not unduly interfere with the progress of his work or the work of any other Contractors;
5. Daily to clean up and legally dispose of (away from the site), all refuse, rubbish, scrap materials and debris caused by his operation. Including milk cartons, paper cups and food wrappings left by his employees, to the end that at all times the site of the work shall present a neat, orderly and workmanlike appearance;
6. All work shall be executed in a workmanlike manner by experienced mechanics in accordance with the most modern mechanical practice and shall represent a neat appearance when completed.

MATERIALS AND WORKMANSHIP

1. Unless otherwise specified, all materials and equipment incorporated into the work under the Contract shall be new. All workmanship shall be first class and by persons qualified in their respective trades.
2. Where the use of optional materials or construction method is approved, the requirements for workmanship, fabrication and installation indicated for the prime material or

construction method shall apply wherever applicable. Required and necessary modifications and adjustments resulting from the substitution or use of an optional material or construction method shall be made at no additional cost to the City.

STANDARDS

1. Materials specified by reference to the number, symbol or title of a specific standard, such as a Commercial Standard, a Federal Specification, Department's Standard Specifications, a trade association standard or other similar standard. Shall comply with requirements in the latest revision thereof and any amendment or supplement thereto in effect on the date of advertisement, except as limited to type, class or grade or modified in such reference.
2. Reference in the Specifications to any article, device, product, material, fixture, form or type of construction by name, make or catalog number shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition. In such cases the Contractor may, at his option, use any articles, device, product, material fixture, form or type of construction that, in the judgment of the City expressed in writing to all Bidders before opening of bids as an addendum, is an acceptable substitute to the specified.
3. Substitution During Bid Time: Whenever any particular brand or make of material or apparatus is called for in the Specifications, a Bidder's Proposal must be based upon such material or apparatus, or upon a brand or make which has been specifically approved as a substitution in an Addendum issued to all Bidders during the bidding time.
4. The intent is that the brand or make of material or apparatus that is called for herein establishes a standard of excellence that, in the opinion of the Consultant and Engineer, is necessary for this particular Project.
5. Substitution After Bid Opening: No substitutions will be considered after bids have been opened unless necessary due to strikes, lockouts, bankruptcy or discontinuance of manufacture, etceteras. In such cases, the Contractor shall apply to the City, in writing within ten (10) days of his realizing his inability to furnish the article specified, describing completely the substitution he desires to make.

EXTRAS

Except as otherwise herein provided, no charge for any extra work or material will be allowed unless the Director of City Services has ordered the same, in writing.

GUARANTEE OF WORK

1. Except as otherwise specified, all work shall be guaranteed by the Contractor against defects resulting from the use of inferior materials, equipment or workmanship for one (1) year from the Date of Final Acceptance.
2. Make good any work or material, or the equipment and contents of said building or site disturbed in fulfilling any such guarantee.
3. In any case, wherein fulfilling the requirements of the Contract or of any guarantee, should the Contractor disturb any work guaranteed under another contract, the Contractor shall restore such disturbed work to a condition satisfactory to the Director of Public Works.

And guarantee such restored work to the same extent as it was guaranteed under such other contracts.

4. If the Contractor, after notice, fails to proceed promptly to comply with the terms of the guarantee, the City of Rochester may have the defects corrected and the Contractor shall be liable for all expense incurred.
5. All special guarantees applicable to definite parts of the work that may be stipulated in the Specifications or other papers forming a part of the Contract shall be subject to the terms of this paragraph during the first year of the life of such special guarantee.

DEFAULT AND TERMINATION OF CONTRACT

If the Contractor:

1. Fails to begin work under Contract within the time specified in the notice to proceed; or
2. Fails to perform the work with sufficient workers and equipment, or with sufficient materials to assume prompt completion of said work;
or
3. Performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable;
or
4. Discontinues the prosecution of the work; or
5. Fails to resume work, which has been discontinued, within the time frames included in specifications; or
6. Becomes insolvent or has declared bankruptcy, or commits any act of bankruptcy or insolvency; or
7. Makes an assignment for the benefit of creditors; or
8. For any other causes whatsoever, fails to carry on the work in an acceptable manner the City of Rochester will give notice, in writing, to the Contractor for such delay, neglect, and default.

If the Contractor does not proceed in accordance with the Notice, then the City of Rochester will have full power and authority without violating the Contract to take the prosecution of the work out of the hands of the Contractor. The City of Rochester may enter into an agreement for the completion of said Contract according to the terms and conditions thereof, or use such other methods as in the City's opinion will be required for the completion of said Contract in an acceptable manner.

All extra costs and charges incurred by the City of Rochester as a result of such delay, neglect or default, together with the cost of completing the work under the Contract will be deducted from any monies due or which may become due to said Contractor. If such

expenses exceed the sum which would have been payable under the contract, then the Contractor shall be liable and shall pay to the City of Rochester the amount of such excess.

OBTAINING BID RESULTS

Bid results will be available on the website at www.rochesternh.net within 48 hours of the bid opening.

SECTION 2

DAVIS-BACON WAGE RATES

General Decision Number: NH160014 04/01/2016 NH 14

Superseded General Decision Number: NH20150014

State: New Hampshire

Construction Type: Building

County: Strafford County in New Hampshire.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.15 for calendar year 2016 applies to all contracts subject to the Davis-Bacon Act for which the solicitation was issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.15 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2016. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/08/2016
1	01/15/2016
2	01/29/2016
3	04/01/2016

ASBE0006-004 12/01/2015

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR.	\$ 29.01	18.15

CARP0118-006 04/01/2015

	Rates	Fringes
CARPENTER (Acoustical Ceiling Installation, Drywall Hanging, Form Work and Floor Layer Including Carpet, Hardwood and Resilient).....	\$ 26.19	18.89

ELEC0490-004 09/01/2015

	Rates	Fringes
ELECTRICIAN		
Electrician.....	\$ 28.00	18.69
Low Voltage Wiring		
Installer	\$ 19.34	16.43

ELEV0004-002 01/01/2016

	Rates	Fringes
ELEVATOR MECHANIC.....	\$ 54.53	29.985

a. PAID HOLIDAYS: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day and the Friday after Thanksgiving.

b. VACATION: Employer contributes 8% of basic hourly rate for 5 years or more of service; 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit.

* IRON0007-007 03/16/2016

	Rates	Fringes
IRONWORKER (Reinforcing and Structural).....	\$ 23.68	21.14

LABO0976-002 06/01/2013

	Rates	Fringes
LABORER: Concrete Worker (removing forms, demolition and removal of concrete, pouring and leveling of concrete).....	\$ 19.71	16.42

LABO0976-003 06/01/2013

	Rates	Fringes
LABORER: Common or General (including Carpenter Tender).....	\$ 19.71	16.42

SHEE0017-013 01/01/2013

	Rates	Fringes
SHEET METAL WORKER (HVAC Duct Work Only).....	\$ 28.35	23.52

SUNH2011-010 02/22/2011

	Rates	Fringes
BRICKLAYER.....	\$ 29.00	2.81
CARPENTER (Drywall Finishing/Taping Only).....	\$ 27.02	11.69
CARPENTER, Excludes Acoustical Ceiling Installation, Drywall Finishing/Taping, Drywall Hanging, and Formwork.....	\$ 25.61	10.23

CEMENT MASON/CONCRETE FINISHER...	\$ 20.91	0.00
GLAZIER.....	\$ 20.23	4.71
LABORER: Mason Tender - Brick...	\$ 17.00	2.06
OPERATOR: Backhoe.....	\$ 19.30	6.52
OPERATOR: Excavator.....	\$ 21.27	7.63
OPERATOR: Loader.....	\$ 22.03	0.95
PAINTER: Brush and Roller.....	\$ 16.15	0.00
PLUMBER/PIPEFITTER, Includes HVAC Pipe Work.....	\$ 25.02	4.48
ROOFER.....	\$ 17.55	3.25
SPRINKLER FITTER (Fire Sprinklers).....	\$ 24.91	5.74
TRUCK DRIVER.....	\$ 20.47	6.70

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number

where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter

* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

SECTION 3

Exhibits 1 through 3

WV-SFV631L

Super Dynamic HD Vandal Resistant & Waterproof Dome Network Camera

WV-SFV611L



Full HD / 1,920 x 1,080 60 fps H.264 Vandal Resistant Network Camera featuring Super Dynamic (WV-SFV631L)
HD / 1,280 x 720 60 fps H.264 Vandal Resistant Network Camera featuring Super Dynamic (WV-SFV611L)

Key Features

- **1080p Full HD / 720p HD images up to 60 fps^{*1}**
- Approximate 1/3 inches, high sensitivity MOS image sensor
- Super high resolution at Full HD/1,920 x 1,080 created by high sensitivity MOS Sensor. (WV-SFV631L only)
- **Multiple H.264 (High profile) streams (max. 4 streams)** and JPEG streams ensure simultaneous real time monitoring and high resolution recording by new enhanced "UniPhier®", Panasonic's proprietary System LSI platform.
- Maximum Screen Size is 2,048 x 1,536* @30fps, H.264 (WV-SFV631L only)
 * Used by super resolution techniques
- **Enhanced Super Dynamic^{*1}** and ABS (Adaptive Black Stretch) technologies deliver **133 dB** wider dynamic range compared to conventional cameras.
- **Multi process NR & 3D-DNR** ensures noise reduction in various conditions.
- High sensitivity with Day & Night (IR) function:
 WV-SFV631L: 0.04 lx (Color), 0.01 lx (B/W) at F1.3
 WV-SFV611L: 0.01 lx (Color), 0.003 lx (B/W) at F1.3
- **IR LED** equipped: The equipped infrared LED makes it possible to take pictures at zero lx.
- **IR LED** is controlled to match the environment, thereby the camera provides clear images of human faces without white blur.
- New camera attachment bracket allows an **easy camera installation** toward all four directions.
- **High Speed ABF (Auto Back Focus) and Motorized Zoom** ensures easy installation.
- Newly developed lens with aperture control function realizes the best focus in any environment.
- **VIQS (Variable Image Quality on Specified area)** technology allows the designated **eight areas** to retain higher image quality while the excluded area will have a decreased image quality, which enables to use lower image file size and bit rate.
- Cropping function enables to provide whole image and the part image simultaneously. Up to 4 image capture areas can be specified, and it is also possible to control the sequence.
- **Face Super Dynamic** technology ensures clear face image.
- Lens distortion compensation for the distorted images can be adjusted 256 steps.
- Electronic sensitivity enhancement: Auto (Up to 16/30s) / OFF
- Selectable light control modes:
Outdoor scene, Indoor scene (50 Hz) / Indoor scene (60 Hz), Fix shutter
 Indoor scene (50 Hz/60Hz): Flicker caused by fluorescent lightning will be automatically compensated.
- 3x (WV-SFV631L), 2x (WV-SFV611L) extra optical zoom at 640 x 360 resolution
- 2x, 4x digital zoom controlled by browser
- VMD (Video Motion Detection) with 4 programmable detection areas, 15 steps sensitivity level and 10 steps detection size
- Privacy Zone can mask up to 8 private areas, such as house windows and entrances/exits.
- Camera title display: Up to 20 alphanumeric characters on the browser
- Alarm sources including 3 terminal input, VMD and Panasonic alarm command can trigger actions such as SDXC/SDHC/SD memory recording, FTP image transfer, E-mail notification, Indication on browser, Alarm terminal output, and Panasonic alarm protocol output.
- Full duplex bi-directional audio allows interactive communication between camera site and monitoring site.
- JPEG Image compression ratio can be changed by alarm so that higher quality image can be provided.
- Prioritized stream control: One of the video streams can be prioritized when multiple recorders or client PCs are accessing the camera so that the recorder or the client PC can maintain the frame rate.
- **Double SDXC/SDHC/SD Memory card slots** for manual recording (H.264 / JPEG), alarm recording (H.264 / JPEG) and backup upon network failure (H.264 / JPEG). Realize long-term recording and auto backup function.
- Newly developed dome cover provides clearer images above the horizontal. Thereby, it expands the tilting range of the lens.
- Face detection function detects the position of human face and the information is sent by XML or video stream. (Optional)
- Can be added new intelligent extension software (Optional) in addition to built-in VMD (Video Motion Detection), alarm function.
- **Fog compensation function** equipped as standard.
- **HLC (High Light Compensation)** technology reduces strong light sources such as vehicle headlights to prevent camera being blinded. (As of June 2014)
- **Super Chroma Compensation** function realizes a better color
- H.264 max. bit rate/client and Total bit rate control allows flexible network traffic management. Frame rate priority mode controls bit rate and compression ratio to provide the specified frame rate.
- Internet mode: H.264 images can be transmitted over HTTP protocol.
- Multi-language: English / Italian / French / German / Spanish / Portuguese / Russian / Chinese / Japanese
- IPv4/IPv6 protocol supported
- Supports SSL, DDNS (viewnetcam, RFC2136)
- Still images (JPEG) can be viewed on mobile phones via Internet.
- Onvif compliant model
- IP66 rated water and dust resistant. Compatible with IEC60529 measurement standard, Type 4X(UL50), NEMA 4X compliant.
- Dehumidification device for use with various weather conditions
- Vandal resistant mechanism for high reliability

^{*1} Super Dynamic function is automatically set off on 60fps mode.

Optional Accessories

Ceiling Mount Bracket WV-Q169A 	Smoke Dome Cover WV-CW7S 	Sun Shade WV-Q7118 
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Specifications

City of Rochester, NH

WWTE Security Cameras

17-01

Camera	Image Sensor	Approx. 1/3" type MOS image sensor
	Effective Pixels	WV-SFV631L: Approx. 2.4 mega pixels, WV-SFV611L: Approx. 1.3 mega pixels
Scanning Mode	Progressive scan	
	Scanning Area	WV-SFV631L: 5.346 mm (H) x 3.336 mm (V) (7/32 inches (H) x 1/8 inches (V)) WV-SFV611L: 4.864 mm (H) x 3.891 mm (V) (3/16 inches (H) x 5/32 inches (V))
Minimum Illumination	WV-SFV631L:	
	Color: less than 0.04 lx, BW: 0.01 lx (F1.3, Maximum shutter: Max. 1/30s, Gain: On(High)) Color: less than 0.003 lx, BW: 0.0007 lx (F1.3, Maximum shutter: Max. 1/60s, Gain: On(High)) * WV-SFV611L:	
	Color: less than 0.01 lx, BW: 0.003 lx (F1.3, Maximum shutter: Max. Off (1/30s), Gain: On(High)) Color: less than 0.0007 lx, BW: 0.0002 lx (F1.3, Maximum shutter: Max. Max. 1/60s, Gain: On(High)) *	
IR LED Light	Off/Auto(High/Mid/Low)	
	IR LED irradiation distance	Approx. 30 m (98.43 feet)
White Balance	AWC (2,000 ~ 10,000 K), ATW1 (2,700 ~ 6,000 K), ATW2 (2,000 ~ 6,000 K)	
	Light Control Mode	Outdoor scene: Automatic integration of ALC and ELC Indoor scene [50 Hz]: Automatic integration of ALC and ELC with flickerless Indoor scene [60 Hz]: Automatic integration of ALC and ELC with flickerless
Shutter Speed	[2 mega pixel (16:9)(60 fps mode)/ 1.3 mega pixel (16:9)(60 fps mode)]	
	OFF(1/60), 1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 Other than [2 mega pixel (16:9)(60 fps mode)/ 1.3 mega pixel (16:9)(60 fps mode)]	
Super Dynamic *2	ON(High) / On(Normal) / Off	
	Face Super Dynamic	ON / OFF (Only at Super Dynamic: ON)
Adaptive Black Stretch	ON / OFF (Only when Super Dynamic OFF)	
	Fog compensation	ON / OFF (Only when Super Dynamic/ Adaptive black stretch: Off)
AGC	ON (LOW, MID, HIGH) / OFF	
	Electronic Sensitivity UP	max. 1/1000 s, max. 1/500 s, max. 1/250 s, max. 1/100 s, max. 1/60 s, max. 1/30 s, max. 2/30 s, max. 4/30 s, max. 6/30 s, max. 10/30 s, max. 16/30 s
Day & Night (IR)	Off/ On/ Auto1 (Normal)/ Auto2 (IR Light)/ Auto3 (SCC)	
	Dynamic Range	133 dB typ. (Super Dynamic: ON, Light Control Mode: indoor)
Digital Noise Reduction	High / Low	
	Video Motion Detection	4 areas, Sensitivity: 15 steps, Detection size: 10 steps
Privacy Zone	Up to 8 zones	
	VIOS	Up to 8 zones
Camera Title (OSD)	Up to 20 characters (alphanumeric characters, marks)	
	Electric Zoom	TELE / WIDE, Auto Coarse adjustment of Focus
Focus Adjustment	ABF / MANUAL (Html only)	
	Lens Distortion Compensation	256 steps
Lens	Vari Focal Length	2.8 ~ 10mm (1/8 inches ~ 13/32 inches)
	Angular Field of View	WV-SFV631L [16 : 9 mode] Horizontal : 28.8° (TELE) ~ 102.6° (WIDE) Vertical : 16.0° (TELE) ~ 56.0° (WIDE) [4 : 3 mode] Horizontal : 23.7° (TELE) ~ 84.3° (WIDE) Vertical : 17.8° (TELE) ~ 62.4° (WIDE) WV-SFV611L [16 : 9 mode] Horizontal : 26.4° (TELE) ~ 93.7° (WIDE) Vertical : 14.8° (TELE) ~ 51.6° (WIDE) [4 : 3 mode] Horizontal : 26.4° (TELE) ~ 93.7° (WIDE) Vertical : 20.0° (TELE) ~ 69.3° (WIDE)
Maximum Aperture Ratio	1 : 1.3 (WIDE) ~ 1 : 3.0 (TELE) *with Smart DOF (Depth of Field) mode	
	Focusing Range	0.3 m ~ ∞
Adjusting Angle	Horizontal: ±180°, Vertical: 0-85°, Image tilt adjustment range: -45° (Left) to +300° (Right)	
	Image tilt adjustment range: -45° (Left) to +300° (Right)	
Browser GUI	Cropping	H.264(1) / H.264(2) / H.264(3) / H.264(4) / H.264(a) / H.264(p) / JPEG(2) / JPEG(3) Up to 4 image capture areas can be specified
	Camera Control	Brightness, AUX ON / OFF
Display Mode	Spot, Quad : Image from 16 cameras can be displayed in 4 different Quad screens or 16 split screen (JPEG only). 20 characters camera title available.	
	Digital Zoom	1x, 2x, 4x controlled by browser GUI
Camera Title	Up to 20 alphanumeric characters	
	Clock Display	Time : 12H/24H, Date : 5 formats on the browser, Summer time (Manual)
Alarm Control	Reset	
	One Shot Capture	A still picture will be displayed on a newly opened window.
Audio	Mic (Line) Input : ON / OFF Volume adjustment : Low / Middle / High, Audio Output : ON / OFF Volume adjustment : Low / Middle / High	
	SD Memory Data Download	Still or motion images recorded in the SDXC/SDHC/SD memory card can be downloaded.
GUI / Setup Menu Language	English, Italian, French, German, Spanish, Portuguese, Russian, Chinese, Japanese	
	System Log	Up to 100 (Internal) Up to 4,000 (SDXC/SDHC/SD memory when the recording format is set to JPEG) error logs
Supported OS *3	Microsoft® Windows® 8, Microsoft® Windows® 7, Microsoft® Windows Vista®	
	Supported Browser	Windows® Internet Explorer® 10.0 (32 bit), Windows® Internet Explorer® 9.0 (32 bit) Windows® Internet Explorer® 8.0 (32 bit), Windows® Internet Explorer® 7.0 (32 bit) 10Base-T / 100Base-TX, RJ-45 connector
Network	Network IF	WV-SFV631L : 1,920 x 1,080 / 1,280 x 720 / 640 x 360 / 320 x 180 / 160 x 90 WV-SFV631L : 1,600 x 1,200 / 1,280 x 960 / 800 x 600 / 640 x 480 / 400 x 300 / 320 x 240 / 160 x 120 WV-SFV631L : 2,048 x 1,536 / 1,280 x 960 / 800 x 600 / 640 x 480 / 400 x 300 / 320 x 240 / 160 x 120 * Used by super resolution techniques
	Image Resolution	Image Capture Mode: 2 mega pixel (16:9) (30/60 fps) Image Capture Mode: 2 mega pixel (4:3) (30fps) Image Capture Mode: 3 mega pixel (4:3) (30fps) Image Capture Mode: 1.3 mega pixel (16:9) (30/60fps) Image Capture Mode: 1.3 mega pixel (4:3) (30fps) Image Capture Mode: 1.3 mega pixel (4:3) (30fps) Transmission Mode Frame Rate 1 / 3 / 5 / 7.5 / 10 / 12 / 15 / 20 / 30 / 60 fps 64 / 128 / 256 / 384 / 512 / 768 / 1,024 / 1,536 / 2,048 / 3,072 / 4,096 / 6,144 / 8,192 / 10,240 / 12,288 / 14,336 / 16,384 / 20,480 / 24,576 kbps Image Quality LOW / NORMAL / FINE Refresh interval 0.2 / 0.25 / 0.33 / 0.5 / 1 / 2 / 3 / 4 / 5s Transmission Type UNICAST / MULTICAST Image Quality 10 steps Refresh interval 0.1 fps ~ 30 fps (JPEG frame rate will be restricted when displaying both JPEG and H.264 images.) Transmission Type PULL / PUSH
H.264 *4	Audio Compression	G.726 (ADPCM) 32 kbps / 16 kbps, G.711 64 kbps / AAC-LC
	Audio Mode	OFF / Mic (Line) input / Audio output / Interactive (Half duplex) / Interactive (Full duplex)
Authentication for Audio	Level 1 only / Level 2 higher / All users	
	Total Bit Rate	64 / 128 / 256 / 384 / 512 / 768 / 1,024 / 2,048 / 4,096 / 8,192 kbps / Unlimited
Supported Protocol	IPv6: TCP/IP, UDP/IP, HTTP, HTTPS, FTP, SMTP, DNS, RTP, SNMP, DHCPv6, RTP, MLD, ICMP, ARP	
	IPv4: TCP/IP, UDP/IP, HTTP, HTTPS, RTSP, RTP, RTT/RTCP, FTP, SMTP, DHCP, DNS, DDNS, NTP, SNMP, UPnP, IGMP, ICMP, ARP	

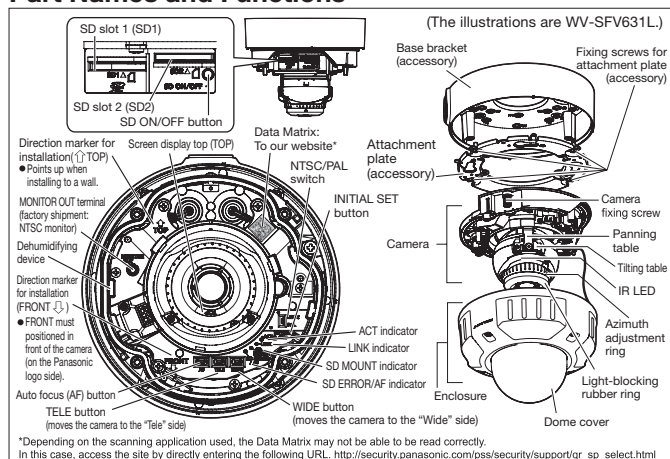
Network	FTP Client	Alarm image transmission, FTP periodic transmission (When the FTP transmission is failed, backup on an optional SDXC/SDHC/SD memory card is available.)
	No. of Simultaneous Users	Up to 14 users (Depends on network conditions)
SDXC/SDHC/SD Memory Card (Option)	H.264 recording : Manual REC / Alarm REC (Pre/Post) / Schedule REC/ Backup upon network failure Compatible(JPEG only)	
	JPEG recording : Manual REC / Alarm REC (Pre/Post) / Backup upon network failure Compatible SD (SDHC/SDXC) card: Panasonic 2 GB, 4 GB*, 8 GB*, 16 GB*, 32 GB*, 64GB** model	
Employment of two SD cards	* Manufactured by Panasonic (SD speed class 4 or higher) * Use the SD memory card that complies with UHS-1 (Ultra High Speed-1) in the case of SD Speed Class 10.	*SDHC card, ** SDXC card (except miniSD card and microSD card)
	Dual Recording for Redundancy Series Recording for long time	
Cellular Phone Compatibility	JPEG image, AUX control (by access level)	
	Mobile Terminal Compatibility	iPad, iPhone, iPod touch (iOS 4.2.1 or later), Android™ Terminal
Alarm	Alarm Source	3 terminals input, VMD, Command alarm, Audio detection alarm
	Alarm Actions	SDXC/SDHC/SD memory recording, E-mail notification, HTTP alarm notification Indication on browser, FTP image transfer, Panasonic protocol output
Alarm Log	With SDXC/SDHC/SD memory card : Up to 50,000 logs for each SD memory card	
	Schedule	Alarm / VMD / Access permission / H.264 recording / Scene file
Input/ Output	Monitor Output (for adjustment)	VBS : 1.0 V [p-p]/75 Ω, NTSC / PAL composite, ø3.5mm mini jack MONITOR OUT conversion plug included
	Microphone/Line Input	MIC IN and Line IN are selectable. ø3.5 mm monaural mini jack (monaural input) (Applicable microphone: Plug-in power type) Supply voltage: 2.5 V ±0.5 V Input impedance: Approx. 2 kΩ (unbalanced)
Audio Output	ø3.5 mm stereo mini jack (monaural output) Output impedance: Approx. 600 Ω (unbalanced)	
	External I/O Terminals	ALARM IN 1/DAY/NIGHT IN, ALARM IN 2/ALARM OUT, ALARM IN 3/AUX OUT
General	Safety	UL (UL60950-1), C-UL (CAN/CSA C22.2 No.60950-1), CE, IEC60950-1
	EMS	FCC (Part15 ClassA), ICES003 ClassA, EN55022 ClassB, EN55024
Power Source and Power Consumption	When IR LED is ON WV-SFV631L	DC power supply: 12 V DC/1080 mA/Approx. 12.9 W PoE Device: 48 V DC/270 mA/Approx. 12.95 W* (Class 0 device)
	WV-SFV611L	DC power supply: 12 V DC/1010 mA/Approx. 12.1 W PoE Device: 48 V DC/270 mA/Approx. 12.95 W* (Class 0 device) * Maximum power consumption on the camera power input side. ** ONLY CONNECT 12 V DC CLASS 2 POWER SUPPLY.
Ambient Operating Temperature	-45 °C ~ +50 °C (-49 °F ~ +122 °F)	
	Ambient Operating Humidity	20 ~ 90 % (no condensation)
Impact Protection	IEC 60068-2-75 test Eh, 50 J / IEC 62262 IK10	
	Water and Dust Resistance	IP66, IEC60529 measuring standard compatible, Type 4X(UL50), NEMA 4X compliant
Shock Resistance	Compliant with 50 J IEC60068-2-75	
	Dimensions	ø164 mm x 139 mm (H) (ø6-15/32 inches x 5-15/32 inches (H)) Dome radius 42 mm (1-21/32 inches)
Mass (approx.)	1.6kg (3.53 lbs.)	
	Finish	Main body : Aluminum die cast, light gray / Dome section: Clear polycarbonate resin

*1 Converted value *2 Super Dynamic function is automatically set off on 60fps mode.

*3 Refer to "Notes on Windows Vista® / Windows® 7 / Windows® 8" on the provided CD-ROM for further information about system requirements for a PC and precautions when using Microsoft® Windows® 8 or Microsoft® Windows® 7 or Microsoft® Windows Vista®.

*4 Transmission for 4 streams can be individually set.

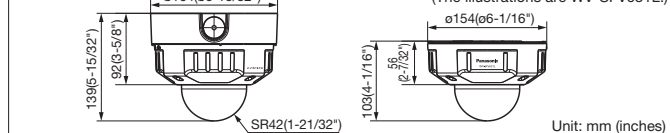
Part Names and Functions



* Depending on the scanning application used, the Data Matrix may not be able to be read correctly.

In this case, access the site by directly entering the following URL. http://security.panasonic.com/ps/security/support/or_sp_select.html

Appearance



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- UniPhier is a registered trademark of Panasonic Corporation.
- "i-PRO SmartHD" logo is trademark or registered trademark of Panasonic Corporation.
- ONVIF and the ONVIF logo are trademarks of ONVIF Inc.

Important

- Safety Precaution: Carefully read the Important Information, Installation Guide and operating instructions before using this product.
- Panasonic cannot be responsible for the performance of the network and/or other manufacturers' products used on the network.
- Masses and dimensions are approximate. • Specifications are subject to change without notice.

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(2A-113DA)

BridgeVMS

1/3" CMOS
Progressive SCAN

HD Video
H.264

IP66 Rated
3 Megapixels

PoE
Day & Night

IR
3D DNR

SD Card
Alarm I/O

Varifocal LENS
Digital WDR

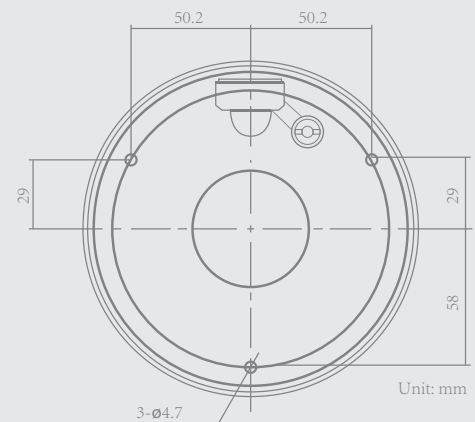
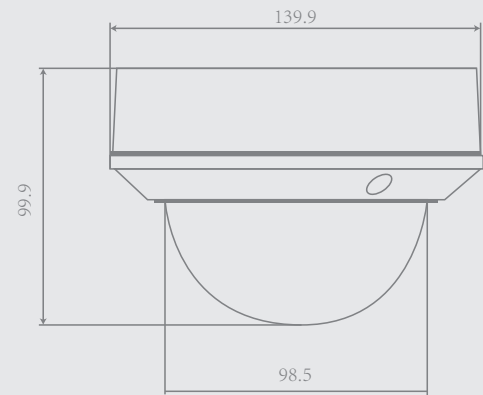
Vandal PROOF
Backlight COMPENSATION

VFD3000-IR-OD

3MP Vari-focal IR Dome Network Camera

Primary Features

- Up to 3 megapixel (2048 x 1536) resolution
- Full HD1080p real-time video
- Vari-focal lens
- IR LEDs (up to 15m)
- DWDR & 3D DNR & BLC
- IP66 protection
- SD Card Slot (up to 32GB)
- Audio
- Vandal-proof



VFD3000-IR-OD

3MP Vari-focal IR Dome Network Camera

Cameras

Image Sensor	1/3" Progressive Scan CMOS
Min. Illumination	0.07 lux@F1.2, AGC on 0 lux with IR
Shutter Speed	1/25 s to 1/100,000 s
Lens	2.8 ~ 12mm @ F1.4, Angle of view: 98° ~ 30.5°
Lens Mount	Ø14
Auto-iris	DC drive
Day & Night	ICR
Digital noise Reduction	3D DNR
Wide dynamic range	Digital WDR
Backlight compensation	Yes, zone configurable
Angle Adjustment	Pan: 0° ~ 360°, tilt: 0° ~ 75°, rotation: 0° ~ 360°

Compression Standard

Video Compression	H.264/MJPEG
H.264 compression profile	Main Profile
Bit Rate	32 Kbps – 16 Mbps
Audio compression (-S)	G.711/G.726
Audio bit rate	64Kbps (G.711) / 16Kbps (G.726)

Image

Max Resolution	2048 × 1536
Frame Rate	50Hz: 12.5fps (2048 × 1536), 25fps (1920 × 1080), 25fps (1280 × 720) 60Hz: 15fps (2048 × 1536), 30fps (1920 × 1080), 30fps (1280 × 720)
Image settings	Saturation, brightness, contrast adjustable through client software or web browser

Network

Network Storage	NAS (iSCSI optional)
Alarm Trigger	Motion detection, tampering alarm, network disconnect, IP address conflict, storage exception, storage error
Protocols	TCP/IP, HTTP, DHCP, DNS, DDNS, RTP, RTSP, PPPoE, SMTP, NTP, SNMP, HTTPS, FTP, 802.1x, Qos, UPnP (SIP, SRTP, IPv6 optional)
System compatibility	ONVIF, PSIA, CGI
General functionalities	Flickerless, dual stream, heartbeat, mirror, user authentication, video mask, watermark

Interface

Communication interface	1 RJ45 10M / 100M ethernet port
On-board storage	Built-in Micro SD card slot, up to 32 GB

General

Operating conditions	-30 °C ~ 60 °C (-22 °F ~ 140 °F), humidity 95% or less (non-condensing)
Power Supply	DC12V ± 10%, PoE (802.3af)
Power Consumption	Max. 5.5W
Impact Protection	IEC60068-2-75Eh, 50J; EN50102, up to IK10
Ingress protection level	IP66
IR range	Up to 15m
Dimensions	Ø 139.9 × 99.9 mm
Weight	1000g



5120 Woodway Dr., Suite 5006
Houston, TX 77056
(713) 609.9685
www.bridgevms.com

Panasonic

360-degree Vandal Resistant Outdoor Dome 9 Megapixel Network Camera WV-SFV481



High resolution, sensitivity, and built-in intelligent features

Key Features

- 360° monitoring with a wide variety of transmission modes : Panorama, Double Panorama, Quad PTZ, Single PTZ, and Quad streams (H.264)
- **9 Megapixel** images up to 15 fps.
- **VIQS** (Variable Image Quality on Specified area) technology allows the designated eight areas to retain higher image quality while the excluded area will have a decreased image quality, which enables to use lower image file size and bit rate. Only for fisheye image.
- Multiple H.264 (High profile) streams and JPEG streams ensure simultaneous real time monitoring and high resolution recording by new **4K ULTRA HD engine**.
- Smooth PTZ operation without mechanical action
- Built-in distortion correction function
- A fisheye lens control function realizes intelligible screen operation intuitively.
- Smartphone monitoring : Direct camera control from smartphone
- **Wide dynamic range** and **ABS** (Adaptive Black Stretch) technologies deliver wider dynamic range.
- High sensitivity with **Day/Night (ICR)*** function : 0.3 lx (Color), 0.04 lx (B/W) at F1.9
*ICR: IR Cutfilter Removal
- **Built-in ABF** enables automatic focus adjustment for sharp image both in color and B/W modes, and corrects the focus shift that caused by temperature difference.
You can install the camera even in the environment having drastic changes in temperature without focal blur.
- Digital Noise Reduction: 3D-DNR ensures noise reduction in various conditions.
- Progressive scan ensures clear images with less motion blur and no tearing even when the subject is moving.
- Superior color reproduction by primary (RGB) color filter.
- Electronic sensitivity enhancement : Auto (Up to 16x) / OFF
- Selectable light control modes :
Indoor scene (50 Hz) / Indoor scene (60 Hz) / ELC (maximum exposure time)
Indoor scene (50 Hz / 60 Hz) : Flicker caused by fluorescent lightning will be automatically compensated.
ELC (maximum exposure time) : The lightning control will be automatically performed by adjusting shutter speed in the range of ELC.
- **VMD** (Video Motion Detector) with 4 programmable detection areas, 15 steps sensitivity level and 10 steps detection size
- **Privacy Zone** can mask up to 8 private areas, such as house windows and entrances/exits. Configurable only on the fisheye image.
- Camera title display : Up to 20 alphanumeric characters on the browser
- Alarm sources including 3 terminal input, VMD and Panasonic alarm command can trigger actions such as SDXC / SDHC / SD memory recording, FTP image transfer, E-mail notification, Indication on browser, Alarm terminal output, HTTP notification, and Panasonic protocol output.
- Full duplex bi-directional audio allows interactive communication between camera site and monitoring site.
- Prioritized stream control : One of the video streams can be prioritized when multiple recorders or client PCs are accessing the camera so that the recorder or the client PC can maintain the frame rate.
- SDXC / SDHC / SD Memory card slot for manual recording (H.264 / JPEG), alarm recording (H.264 / JPEG) and backup upon network failure (JPEG)
- Can be added new intelligent extension software (Extension software)*1 in addition to built-in VMD (Video Motion Detection), alarm function.
- **Intelligent function** (Extension software)*1 such as Intruder / Loitering / Scene change / Object / Cross line detection, People Count (Cross line), MOR (Moving Object Remover) Function, Heat map (High Traffic Zone / Long-stay Zone)
- Super Chroma Compensation function realizes a better color
- H.264 max. bit rate/client and Total bit rate control allows flexible network traffic management. Frame rate priority mode controls bit rate and compression ratio to provide the specified frame rate.
- Internet mode : H.264 images can be transmitted over HTTP protocol.
- Multi-language : English / Italian / French / German / Spanish / Portuguese / Russian / Chinese / Japanese
- IPv4/IPv6 protocol supported
- Supports SSL, DDNS (viewnetcam, RFC2136)
- Still images (JPEG) can be viewed on mobile phones via Internet.
- IP66 rated water and dust resistant. Compatible with IEC60529 measurement standard, Type 4X (UL50), NEMA 4X compliant.
- Dehumidification device for use in various weather conditions
- Operating temperature -40 °C to +50 °C (-40 °F to 122 °F)
- Vandal resistant mechanism for high reliability
- "Railway applications – Electronics equipment used on rolling stock" compatible with EN50155
- Low profile design for discrete installation
- Onvif compliant model

*1 Heat map function: Available in March, 2015.

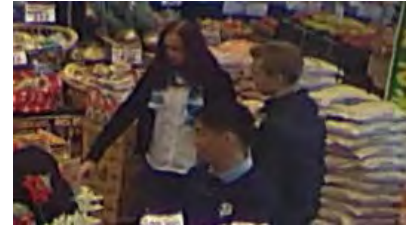
Other Intelligent VMD function: Available in January, 2015.

9 Megapixel Fisheye mode

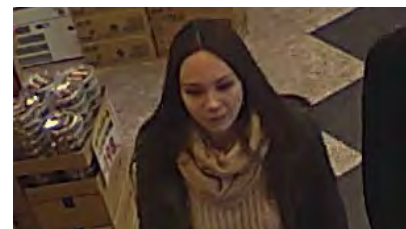


9M (3K x 3K) high-resolution performance enables sharp rendering of objects and people's faces at the edge sections of the fisheye image.

8m



4m

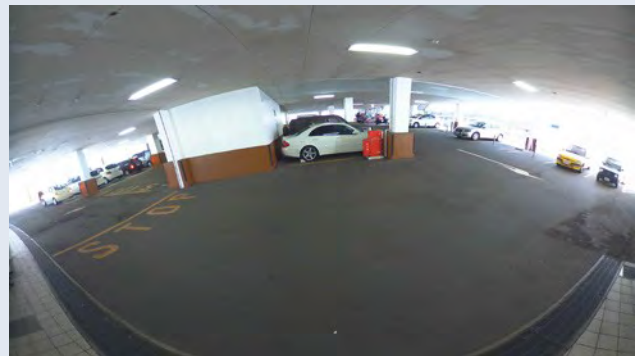


*Sample screen from 9 Megapixel Fisheye mode

Double Panorama mode



Panorama mode



Quad PTZ mode



Single PTZ mode



Camera	Image Sensor	1/2 type MOS image sensor, Built-in primary color filter
	Effective Pixels	Approx. 12.4 megapixel
	Scanning Mode	Progressive
	Scanning Area	5.54 mm(H) × 5.54 mm (V) (7/32 inches (H) × 7/32 inches (V))
	Minimum Illumination	Color: 0.3lx (F1.9, Maximum shutter: Off (1/30s), AGC: High) Color: 0.02lx (F1.9, Maximum shutter: max. 16/30s, AGC: High) *1 BW : 0.04lx (F1.9, Maximum shutter: Off (1/30s), AGC: High) BW : 0.003lx (F1.9, Maximum shutter: max. 16/30s, AGC: High) *1
	White Balance	AWC (2,000 - 10,000K), ATW1 (2,700 - 6,000K), ATW2 (2,000 - 6,000K)
	Light Control Mode	Indoor scene (50 Hz / 60 Hz) / ELC
	Maximum shutter	max. 1/10000 s, max. 1/4000 s, max. 1/2000 s, max. 1/1000 s, max. 1/500 s, max. 1/250 s, max. 1/120 s, max. 1/100 s, max. 2/120 s, max. 2/100 s, max. 3/120 s, max. 3/100 s, max. 1/30 s, max. 2/30 s, max. 4/30 s, max. 6/30 s, max. 10/30 s, max. 16/30 s
	Wide dynamic range	On/Off
	Adaptive Black Stretch	On/Off (only when Wide Dynamic range : Off)
	AGC	On(High) / On(Mid) / On(Low) / Off
	Day & Night (ICR)	Off/On(Auto1(Normal)/Auto2(IR Light)/Auto3(SCC))
	Digital Noise Reduction	High / Low
	Video Motion Detection	On/Off, 4 areas available
	Number of the preset positions	16 Preset can only be used when the image type is Quad PTZ or Single PTZ.
	Auto mode	Auto pan/ Preset sequence Auto mode can only be used when the image type is Quad PTZ or Single PTZ.
	Self return	10s / 20s / 30s / 1 min / 2 min / 5 min / 10 min / 20 min / 30 min / 60 min Self return can only be used when the image type is Quad PTZ or Single PTZ.
	Privacy Zone	On/Off (up to 8 zones available)
	VIOS	On/Off (up to 8 zones) Only for fisheye image.
	Camera Title (OSD)	On/Off Up to 20 characters (alphanumeric characters, marks) * You can specify characters to be displayed on each of the four screens when "Quad streams" is selected.
	Back focus	Auto back focus/ Focus/ Adjusting method (Auto/ Preset/ Fix)
	Video analytics *7	Optional Alarm: Intruder detection, Object detection, Cross line detection, Loitering detection, Scene change detection Others: Heat map, People count, MOR (Moving Object Remover) * Alarm and others don't work as the same time.
	Rotation	mechanical : -45° to 45°, electrical: Panorama/Double Panorama: 90°, 180°, 270°, Fisheye: N/A
Lens	Focal Length	1.38 mm (1/16 inches)
	Angular Field of View	Horizontal : 180° Vertical : 180°
	Maximum Aperture Ratio	1 : 1.9
	Adjusting angle	± 4.5°
	Image rotation	Mechanical Image rotation, about every 3.3°
	Camera Control	Brightness, AUX On/Off
	Display Mode	Spot, Quad: Image from 16 cameras can be displayed in 4 different Quad screens or 16 split screen (JPEG only). 20 characters camera title available.
	Zoom	electronic zoom
	Camera Title	Up to 20 alphanumeric characters
	Clock Display	Time: 12H/24H, Date: 5 formats on the browser, Summer time (Manual)
Browser GUI	Alarm Control	Reset
	One Shot Capture	A still picture will be displayed on a newly opened window.
	Audio	Mic (Line) Input: On/Off Volume adjustment: Low/Middle/High, Audio Output: On/Off Volume adjustment: Low/Middle/High
	SD Memory Data Download	Still or motion Images recorded in the SDXC/SDHC/SD memory card can be downloaded.
	GUI/Setup	English, Italian, French, German, Spanish, Portuguese,
	Menu Language	Russian, Chinese, Japanese
	System Log	Up to 100 (Internal), Up to 4,000 (SDXC/SDHC/SD memory when the recording format is set to JPEG.) error logs
	Supported OS *2	Microsoft® Windows® 8.1, Microsoft® Windows® 8, Microsoft® Windows® 7, Microsoft® Windows Vista®
	Supported Browser	Windows® Internet Explorer® 11 (32 bit), Windows® Internet Explorer® 10 (32 bit), Windows® Internet Explorer® 9 (32 bit), Windows® Internet Explorer® 8 (32 bit), Windows® Internet Explorer® 7 (32 bit)
Network	Network IF	10Base-T / 100Base-TX, RJ45 connector
	<Ceiling> <Wall>	9M Fisheye mode (Factory default mode) max. 15 fps 2992×2992 / 1280×1280 / 640×640 / 320×320 4M Fisheye mode max. 30 fps 2048×2048 / 1280×1280 / 640×640 / 320×320
		Double Panorama mode max. 15 fps 2560×1440 / 1920×1080 / 1280×720 / 640×360 / 320×180 Quad PTZ / Single PTZ mode max. 15 fps 2560×1920 / 2048×1536 / 1600×1200 / 1280×960 / 800×600 / 640×480 / 320×240 8M Fisheye + Double Panorama mode max. 7.5 fps (Fisheye) 2816×2816 / 1280×1280 / 640×640 / 320×320 (Double Panorama) 1280×720 / 640×360 4M Fisheye + Double Panorama mode max. 15 fps (Fisheye) 2048×2048 / 1280×1280 / 640×640 / 320×320 (Double Panorama) 1280×720 / 640×360 8M Fisheye + Quad PTZ mode max. 7.5 fps (Fisheye) 2816×2816 / 1280×1280 / 640×640 / 320×320 (Quad PTZ) 1280×960 / 800×600 / 640×480 4M Fisheye + Quad PTZ mode max. 15 fps (Fisheye) 2816×2816 / 1280×1280 / 640×640 / 320×320 (Quad PTZ) 1280×960 / 800×600 / 640×480 Quad streams mode (H.264 only) (Ch1 - Ch4) 1280×960 / 800×600 / 640×480 / 320×240 max. 15 fps (Quad PTZ) 2560×1920 / 2048×1536 / 1280×960 / 800×600 / 640×480 / 320×240 max. 5 fps
	<Ceiling>	Double Panorama mode max. 15 fps 2560×1440 / 1920×1080 / 1280×720 / 640×360 / 320×180 Quad PTZ / Single PTZ mode max. 15 fps 2560×1920 / 2048×1536 / 1600×1200 / 1280×960 / 800×600 / 640×480 / 320×240 max. 5 fps
		8M Fisheye + Double Panorama mode max. 7.5 fps (Fisheye) 2816×2816 / 1280×1280 / 640×640 / 320×320 (Double Panorama) 1280×720 / 640×360 4M Fisheye + Double Panorama mode max. 15 fps (Fisheye) 2048×2048 / 1280×1280 / 640×640 / 320×320 (Double Panorama) 1280×720 / 640×360 8M Fisheye + Quad PTZ mode max. 7.5 fps (Fisheye) 2816×2816 / 1280×1280 / 640×640 / 320×320 (Quad PTZ) 1280×960 / 800×600 / 640×480 4M Fisheye + Quad PTZ mode max. 15 fps (Fisheye) 2816×2816 / 1280×1280 / 640×640 / 320×320 (Quad PTZ) 1280×960 / 800×600 / 640×480 Quad streams mode (H.264 only) (Ch1 - Ch4) 1280×960 / 800×600 / 640×480 / 320×240 max. 15 fps (Quad PTZ) 2560×1920 / 2048×1536 / 1280×960 / 800×600 / 640×480 / 320×240 max. 5 fps
	<Wall>	Panorama mode max. 15 fps 2560×1440 / 1920×1080 / 1280×720 / 640×360 / 320×180 Quad PTZ / Single PTZ mode max. 15 fps 2560×1920 / 2048×1536 / 1600×1200 / 1280×960 / 800×600 / 640×480 / 320×240 max. 5 fps
		8M Fisheye + Panorama mode max. 7.5 fps (Fisheye) 2816×2816 / 1280×1280 / 640×640 / 320×320 (Panorama) 1280×720 / 640×360 4M Fisheye + Panorama mode max. 15 fps (Fisheye) 2048×2048 / 1280×1280 / 640×640 / 320×320 (Panorama) 1280×720 / 640×360
	Resolution: H.264 JPEG (MJPEG)	

Network Image compression method	H.264 *3	Transmission Mode	Constant bitrate/VBR/Frame rate/Best effort/Advanced VBR
		Frame Rate	<When VBR / Frame rate / Advanced VBR is selected> 1fps/3fps/5fps*/7.5fps*/10fps*/12fps*/15fps*/20fps*/30fps* * "Framerate" is limited to "Bitrate". When a value with an asterisk (*) on the right of it is selected, the actual frame rate may be lower than the value selected.
		Max Bit Rate/Client	64kbps/128kbps/256kbps*/384kbps*/512kbps*/768kbps*/1024kbps*/1536kbps*/2048kbps*/3072kbps*/4096kbps*/6144kbps*/8192kbps*/10240kbps*/12288kbps*/14336kbps*/16384kbps*/20480kbps*/24576kbps*/30720kbps* * The available range of the H.264 bit rate varies depending on the setting selected for "Image capture size".
		Image Quality	<When Constant bitrate/Best effort is selected> Low/Normal/Fine <When VBR is selected> 0 SUPERFINE/1 FINE/2/3/4/5 NORMAL/6/7/8/9 LOW
	JPEG (MJPEG)	Transmission Type	Unicast/Multicast
		Image Quality	0 SUPERFINE/1 FINE/2/3/4/5 NORMAL/6/7/8/9 LOW (10 steps: 0-9)
		Transmission Type	Pull/Push
		Transmission Interval	0.1 fps - 30 fps (JPEG frame rate will be restricted when displaying both JPEG and H.264 images.)
Network	Audio Compression		G.726 (ADPCM) 32 kbps/16 kbps, G.711 64 kbps / AAC-LC *4 64 kbps / 96 kbps / 128 kbps
	Total Bit Rate		Unlimited / 64 / 128 / 256 / 384 / 512 / 768 / 1,024 / 2,048 / 4,096 / 8,192 kbps
	Supported Protocol		IPv6 : TCP/IP, UDP/IP, HTTP, HTTPS, RTP, FTP, SMTP, DNS, NTP, SNMP, DHCPv6, MLD, ICMP, ARP IPv4 : TCP/IP, UDP/IP, HTTP, HTTPS, RTP, RTP, RTSP, RTCP, FTP, SMTP, DHCP, DNS, DDNS, NTP, SNMP, UPnP, IGMP, ICMP, ARP
	FTP Client		Alarm image transmission, FTP periodic transmission (When the FTP transmission is failed, backup on an optional SD memory card is available.)
Alarm	No. of Simultaneous Users		Up to 14 users (Depends on network conditions)
	SDXC/SDHC/SD Memory Card (Option)		SD (SDHC/SDXC) card: Panasonic 2 GB, 4 GB*, 8 GB*, 16 GB*, 32 GB*, 64 GB** model *SDHC card, **SDXC card (except miniSD card and microSD card)
	Cellular Phone Compatibility		JPEG image, AUX control (by access level)
	Mobile Terminal Compatibility		iPad, iPhone, iPod touch (iOS 4.2.1 or later) Android™ mobile terminals
	Alarm Source		3 terminals input, VMD, Command alarm
	Alarm Actions		SDXC/SDHC/SD memory recording, E-mail notification, HTTP alarm notification Indication on browser, FTP image transfer, Panasonic protocol output
	Alarm Log		With SDXC/SDHC/SD memory card: Up to 50,000 logs for each SD memory card
	Schedule		Alarm/VMD/Access permission/H.264 recording/Scene file
	Monitor output*5		VBS : 1.0 V [p-p]/75 Ω, composite, ø3.5 mm mini jack (monaural) An NTSC or PAL monitor can be connected to the camera (the monitor type can be changed by the software). Audio out or monitor out can be selected for the audio/monitor output plug
	Microphone/Line Input		ø3.5 mm stereo mini jack, Input impedance : Approx. 2 kΩ
		For microphone input	Recommended applicable microphone : Plug-in power type Supply voltage : 2.5 V ±0.5 V Recommended sensitivity of microphone : -48 dB ±3 dB (0 dB=1 V/pa, 1 kHz)
Input/Output	Audio Output		ø3.5 mm stereo mini jack
		Output impedance : Approx. 600 Ω (unbalanced) Output level : -20 dBV	
	External I/O Terminals		ALARM IN1 (DAY/NIGHT IN), ALARM IN2 (ALARM OUT), ALARM IN3 (AUX OUT)
General	Mounting method		Ceiling/Wall
	Safety		UL (UL60950-1), C-UL (CAN/CSA C22.2 No.60950-1), CE, IEC60950-1
	EMS		FCC (Part15 ClassA), ICES003 ClassA, EN55022 ClassB, EN55024
	Power Source and Power Consumption		12 V DC, PoE (IEEE802.3af compliant) / DC12 V : 910 mA / Approx. 10.9 W PoE DC 48 V : 200 mA / Approx. 9.6 W (Class 0 device)
	Ambient Operating Temperature		-40 °C to +50 °C (-40 °F to 122 °F)
	Ambient Operating Humidity		10% to 90 % (no condensation)
	Water and Dust Resistance *6		IP66, IEC60529 measuring standard compatible, Type 4X (UL50), NEMA 4X compliant
	Shock Resistance		Compliant with 50 J (IEC 60068-2-75 / IK10 (IEC 62262))
	Railway Application		EN50155, EN50121
	Dimensions		When using the attachment plate : ø154 mm × 60.5 mm (H) {ø6-1/16 inches × 2-3/8 inches (H)} Dome radius 35 mm (1-3/8 inches) When using the base bracket: ø164 mm × 96.5 mm (H) {ø6-15/32 inches × 3-13/16 inches (H)} Dome radius 35 mm (1-3/8 inches)
	Mass (approx.)		When using the attachment plate : Approx. 860 g (1.90 lbs) When using the base bracket : Approx. 1.3 kg (2.87 lbs)
	Finish		Main body : Aluminum die cast, light gray Dome section : Clear polycarbonate resin

*1 Converted value

*2 Refer to "Notes on Windows Vista® / Windows® 7 / Windows® 8" on the provided CD-ROM for further information about system requirements for a PC and precautions when using Microsoft® Windows® 8 or Microsoft® Windows® 7 or Microsoft® Windows Vista®.

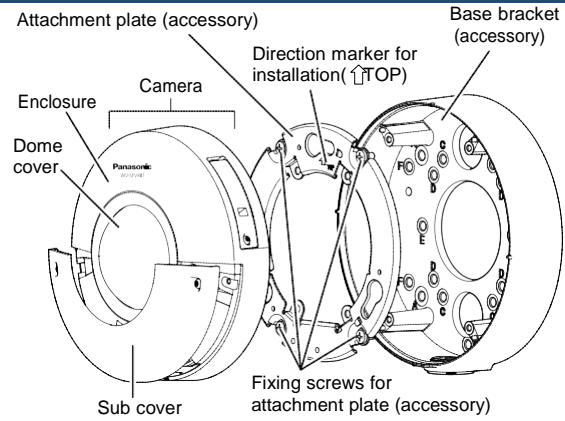
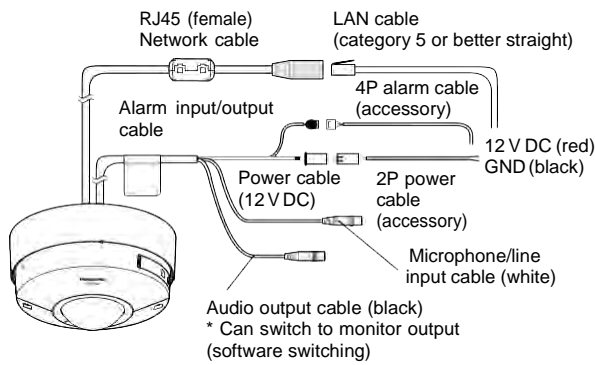
*3 Transmission for 2 streams can be individually set.

*4 When recording audio on an SD memory card, only AAC-LC (Advanced Audio Coding - Low Complexity) can be used.

*5 In order to be able to switch the monitor output, "9M Fisheye" or "4M Fisheye" must be selected for "Image capture mode". For information about usage limitations, refer to "10.1 Configure the basic settings [Basic]" of the Operating Instructions.

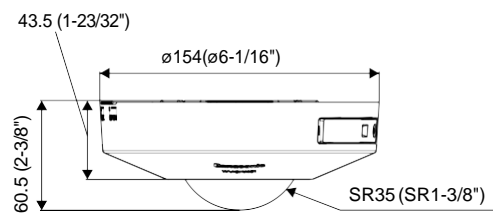
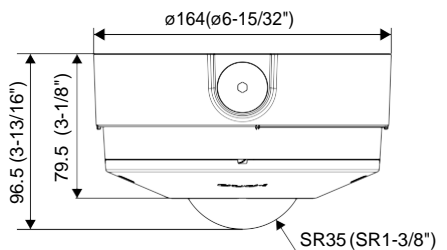
*6 Only when installation work is properly performed according to the instructions in this book and appropriate waterproof treatment is performed.

*7 HeatMap Function is available in March, 2015, other Intelligent VMD Functions are available in January, 2015.



Appearance

Unit : mm (inches)



Optional Accessories

Ceiling Mount Bracket WV-Q121B

*Launches in April, 2015



(Use with the WV-Q124 (suspension mount bracket) to be able to install on a ceiling.)

Wall Mount Bracket WV-Q122A



(Use with the WV-Q124 (suspension mount bracket) to be able to install on a wall.)

Mount Bracket WV-Q124



(Use when installing the WV-SFV481 using the WV-Q122A.)

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Important

- Safety Precaution: Carefully read the Important Information, Installation Guide and operating instructions before using this product.
- Panasonic cannot be responsible for the performance of the network and/or other manufacturers' products used on the network.

- All product pictures are NTSC models.
- Masses and dimensions are approximate.
- Specifications are subject to change without notice.

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