

Model 375 Ethernet Software
LMI Part No. 1370-055

Software Manual
Version 1.5.2
October 2013

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TABLE OF CONTENTS

1. General.....	1
2. Installation.....	2
2.1 Minimum PC Requirements	2
2.2 Model 375 Configuration.....	2
2.3 ID Number Assignment	2
2.4 IP Address Configuration	3
2.5 UDP Port Number Assignment.....	3
2.6 Camera Installation	3
3. Operation.....	4
3.1 Main Window	4
3.1.1 Alarm Image Window.....	5
3.1.2 Quick Alert Window.....	6
3.1.3 Main Window Controls.....	6
3.2 Preferences Window	6
3.2.1 Customization Tab.....	7
3.2.2 Channel Enabled Tab.....	8
3.2.3 Channel Configuration Tab.....	9
3.2.4 E-Mail Settings Tab	10
3.2.5 Data Logging Tab	11
3.2.6 Channel Unit ID Tab.....	12
3.2.7 Camera IP Tab	13
3.2.8 Camera URL Tab.....	14
3.3 Status Window	15
3.4 Map Edit Window.....	16
3.5 Graph View Window	17
3.6 Logged Data.....	18
3.7 Sample Report.....	19
4. Installation Guide.....	20
4.1 Installation without cameras	20
4.2 Installation with cameras	21
4.3 IP Addresses.....	30
5. Configuration Sheet	31
6. Ethernet Cable Termination.....	33
7. Network Troubleshooting	35
7.1 Model 375	35
7.2 IQeye Network Camera	37

1. General

The Model 375 Ethernet software monitors and stores data from up to 50 model 375 monitors connected to the network. The 375 uses User Datagram Protocol (UDP) for basic communications on a Local Area Network (LAN). The UDP port is user configurable from 50000 to 59999. The software can also be configured to listen on port 5555 for older versions of firmware. The UDP port chosen must not be blocked on the LAN. Consult with your network administrator for more information about which port to use.

Readings are sent from the Model 375 every two seconds. An indicator bar under each reading changes color to indicate the current status of the monitor.

Red	High Alarm
Blue	Low Alarm
Yellow	Over Range
Orange	Error
Purple	Detector Failure
Green	Online (OK)

The data is logged to a Microsoft Access® database and a comma-delimited file. The rate at which the data is logged is user-definable, and data can be logged at a different rate when an alarm occurs. This allows more data to be collected during the alarm. The database can be logged to a user-definable path, which can be found on the local computer or a remote server. The logged reading is the average of all two-second readings since the data was last logged.

Each channel can individually be labeled with a custom channel caption as well as a customizable comment that displays in the tool-tip when the mouse is over the channel name. This information is also logged in the database.

The software supports the ability to query and view the data either in graph form or in terms of status. The database stores the serial number, time, date, status, reading, comment, and path of camera image.

The software supports the ability to capture a JPEG image from IQeye3 Ethernet cameras when a high alarm occurs. The images are saved to the “images” folder where the application is installed. A resizable window is displayed, which shows the date and time of the alarm, the reading of the Model 375, the channel where the alarm occurred, and the image.

The readings for live data or from a specified day can be displayed on a graph. When an alarm or failure occurs, a report is printed to the default printer.

2. Installation

To begin installation of the software, place the installation disc in the CD-ROM drive. If the installation process does not automatically begin, navigate to the root folder of the CD-ROM and double-click on the “setup.exe” file to begin. Follow the on-screen prompts to install the software.

2.1 Minimum PC Requirements

- 1 GHz processor or greater
- 256 MB of memory (512 MB recommended)
- CD-ROM Drive
- 2 GB storage space (More space will allow for more data to be saved.)
- SVGA monitor capable of a resolution of 800 x 600 or greater
- Windows 98/98SE/ME/NT/2000/XP

2.2 Model 375 Configuration

The Model 375 must have an updated firmware version that supports the Ethernet functionality. The following versions are supported by this software:

39602n35 – Supports UDP Port 5555 only.

39608n38 – Supports UDP Port 5555 only.

39608n42 – This version supports UDP Ports 50000-59999.

Contact Ludlum Measurements, Inc. if you require a firmware update.

There are two parameters that must be set for the Model 375 to function on the LAN. First, a unit ID must be set for each Model 375. Second, the UDP port number must be specified. The serial number must be unique for each Model 375 while the port number must be the same.

In order to change these parameters, the Model 375 must be put into calibration mode so the parameters can be changed. Do this by removing the calibration cover to expose the four-pole dipswitch. Switch the top CAL MODE switch to the right (ON) to place the monitor in calibration mode. After changing the parameters, return the CAL MODE switch to the left (OFF) position and re-attach the calibration cover.

Note: See Section 4 for a step-by-step installation guide.

2.3 ID Number Assignment

Each Model 375 must be assigned a unique ID number, which can range from 1 to 255. To set the id number for the Model 375, press both the LOW ALARM and HIGH ALARM buttons simultaneously. To do so for the Model 375P, press both the SIGMA ALARM and SUM ALARM buttons simultaneously. The current ID number will be displayed on the LED display. Use the UP and DOWN buttons to change the ID number. In the Preferences window under the Channel designation tab, match the ID number to the corresponding channel. For example, if you have two Model 375s, assign them an ID

number of 1 and 2 respectively, and set the software to use ID number 1 for channel 1 and an ID number of 2 for channel 2. The Model 375s do not have to be assigned in a strict numerical order.

Note: See Section 4 for the step-by-step installation guide.

2.4 IP Address Configuration

The Model 375 is configured by default to use DHCP. If it is desired not to use DHCP, use the IPSetup.exe to search for and display the current IP address configurations of all the 375s. IPSetup.exe is located on the root directory of the Model 375 CD-ROM. Select the 375 you wish to set to a static IP and type a new IP address. Set the network mask to match your network's configuration. The Gateway and DNS can be left at their default values. If the 375 needs to function with DHCP, place zeros in the IP address location. If necessary, in the Gateway address location, an IP address can be placed, which is the fallback IP address if the DHCP fails. This fallback IP address is only useful if the Model 375 is set in DHCP mode. Click "Set" to save the settings to the Model 375 NIC.

WARNING: If you wish to make a specific Model 375's IP address static and do not know its MAC address, you must isolate that Model 375 from all the other Model 375 instruments and then use IPSetup.exe to change its IP address.

2.5 UDP Port Number Assignment

The Model 375 monitors communicate with the software via a UDP port. This port must be specified for all monitors that will be connected and must be the same for all monitors. The display will only show the last four digits of the port and is adjustable from 0 to 9999, which corresponds to 50000 to 59999. To set the UDP port for the Model 375, press both the LOW ALARM and CAL CONST buttons simultaneously. To do so for the Model 375P, press both the SIGMA ALARM and the CHI buttons simultaneously. The current UDP port will be displayed on the LED display. Use the UP and DOWN buttons to change the port number. In the Options window under the channel designation tab, type in the UDP port number. Firmware version 39602n35 and 39608n35 do not support a user-defined UDP port number and instead use a fixed value of 5555. It is not possible to use an older version of the firmware with monitors that contain the newer version.

Note: See Section 4 for the step-by-step installation guide.

2.6 Camera Installation

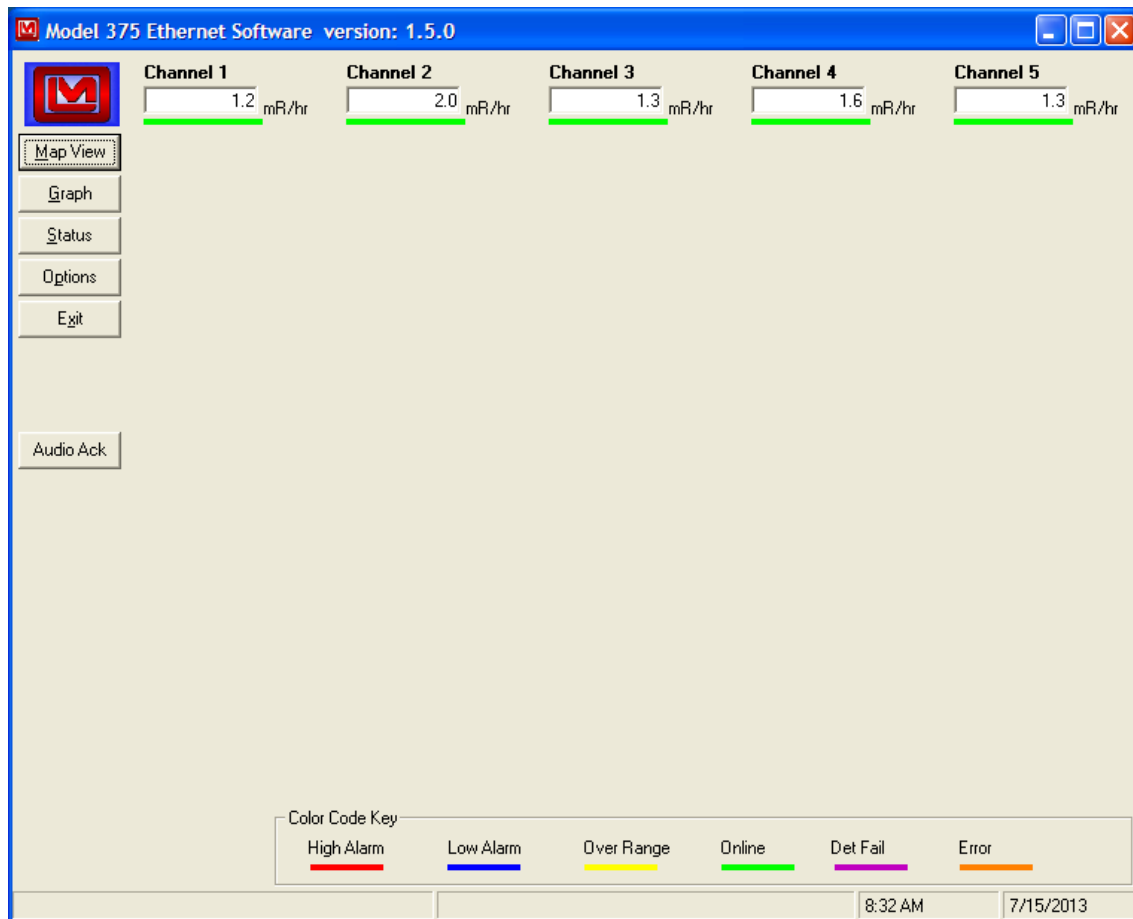
The software supports 50 IQeye cameras, one for each channel. The configuration program Visicon is used to assign the IP addresses for the cameras. The Visicon software and the Web browser interface both require the latest version of Java to work correctly. If errors occur running the Visicon software or using the Web browser interface, download and install the latest version of Java from www.java.com. The current release of Java can also be found on the installation CD under the Java folder. Please refer to the manufacturer's instructions for mounting and installing the cameras. Consult your network administrator on how to setup the IP addresses. Once the cameras are set up, enter the IP addresses for each channel in the Preferences window.

Note: See Section 4 for the step-by-step installation guide.

3. Operation

The Model 375 Ethernet software must be running in order for the data to be logged, and the computer must be logged into a user account with sufficient privileges to write to the folder where the data and images will be stored. To start the software, click on the shortcut in the Start Menu labeled “Model 375 Ethernet Software,” located under Ludlum Measurements, Inc.

3.1 Main Window



The main window displays reading boxes for all enabled Model 375s along with their status, units, and caption. Clicking on the channel name will display the last image and alarm information that has occurred since the program was running. Holding the mouse over the channel name will display a tool tip with the user-defined comment.

An indicator bar under each reading changes color to indicate the current status of the monitor:

- | | |
|------|------------|
| Red | High Alarm |
| Blue | Low Alarm |

Yellow	Over Range
Orange	Error
Purple	Detector Failure
Green	Online (OK)

On the left side of the window are buttons used to change the display from normal and map view, save and change preferences, and display the daily status.

3.1.1 Alarm Image Window



When a high alarm occurs, the image will be displayed in a resizable window along with the date, channel caption, and reading. The images are saved in the images folder under the installation path. The images are named using the following format:

XXX_YYYYMMDD_HHMMSS.JPG where:

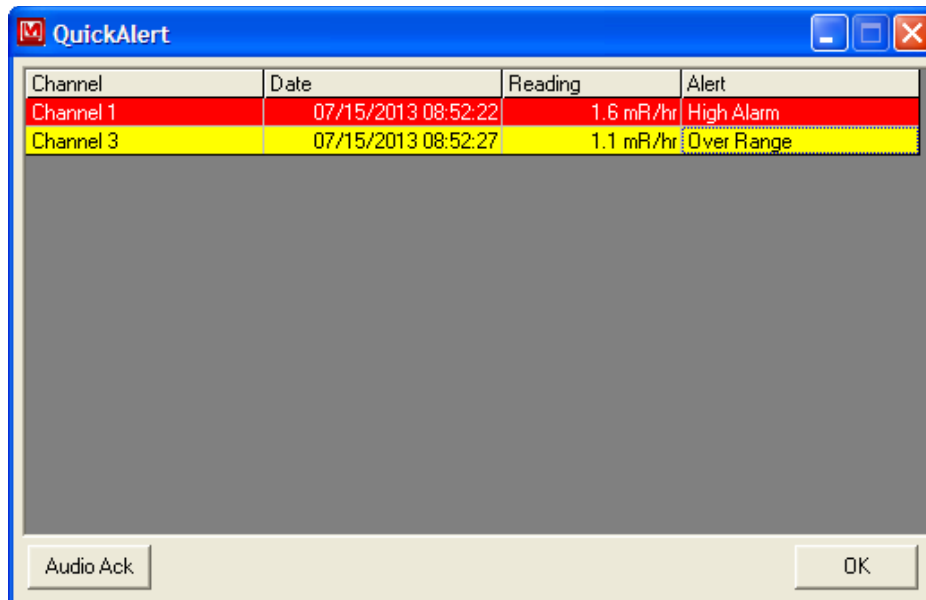
XXX = Channel number (001 – 050)

YYYYMMDD = Date of image

HHNNSS = Time of image

If the image cannot be retrieved from the camera, a default image will be used that indicates no valid image was found.

3.1.2 Quick Alert Window



When any type of failure or alarm occurs, this window is displayed showing the channel, date, reading, and type of event. This data is available until the window is closed. Click the **Audio Ack** button to silence the audio.

3.1.3 Main Window Controls

Map/Normal View: The Map/Normal View toggles the main display from showing the reading boxes formatted as 10 rows and 5 columns of text boxes to a graphical view where the readings are displayed on a scrollable and resizable map. Use the map editor in the preferences window to select and place the readings on the map.

Graph View: The Graph view displays a new window that will show the live readings from any available Model 375. Previous logged data can also be graphed.

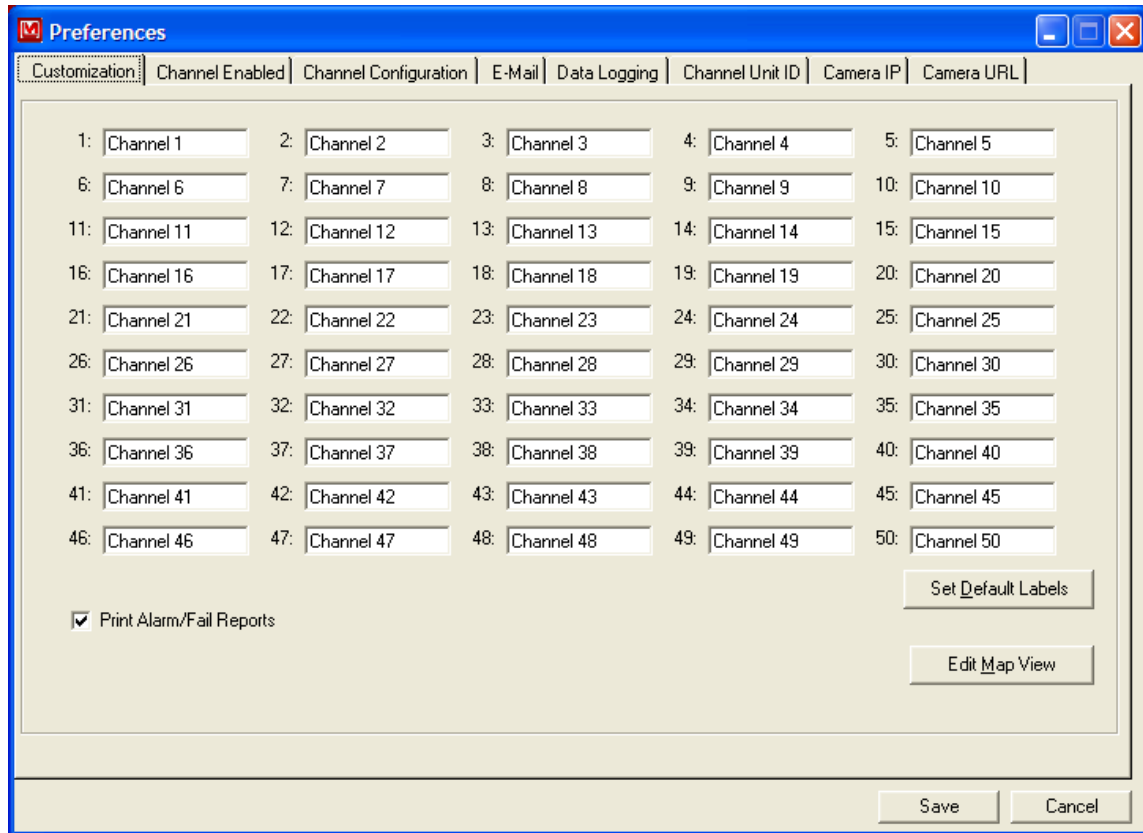
Status: The Status window displays the number of events, such as alarms and failures that occurred during the specified day. Any images that were taken during the specified day can be viewed.

Options: The Options window allows the various parameters that affect the operation of the software be changed.

3.2 Preferences Window

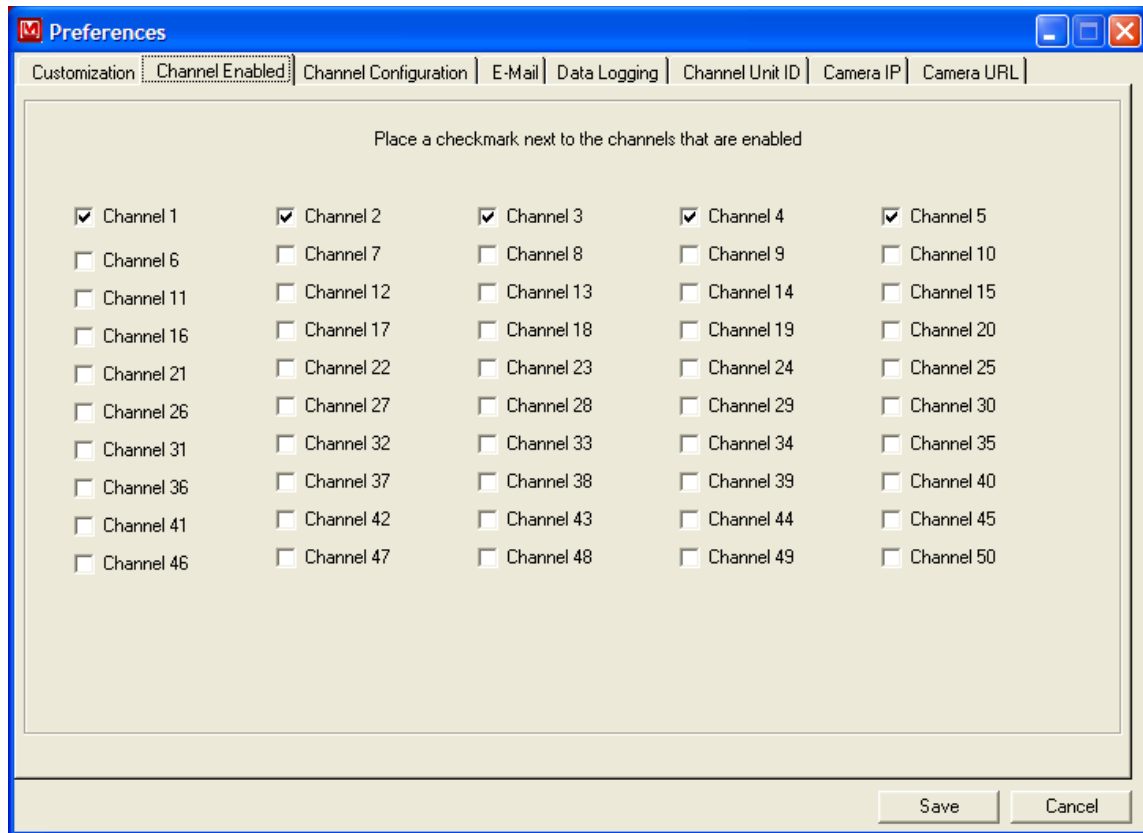
The Preferences window is divided into different tabs where related parameters are grouped. Clicking on the Save button will save the changes and close the Preferences window. .

3.2.1 Customization Tab



The customization tab allows the channel label to be set and provides access for editing the map view. Printing the alarm and fail reports can be enabled or disabled. Custom labels can be up to 11 characters. Clicking the Default Labels button will automatically reset all channel labels to numerical order: Channel 1:, Channel 2:, Channel 3:, etc.. For more information about the map editor, refer to section 3.4

3.2.2 Channel Enabled Tab



Any channel that is to be used must be marked as enabled first. If a channel is marked enabled and no data is received for a 10-second time interval, the software will indicate that a failure has occurred. Only channels that are enabled will be displayed on the main screen.

3.2.3 Channel Configuration Tab

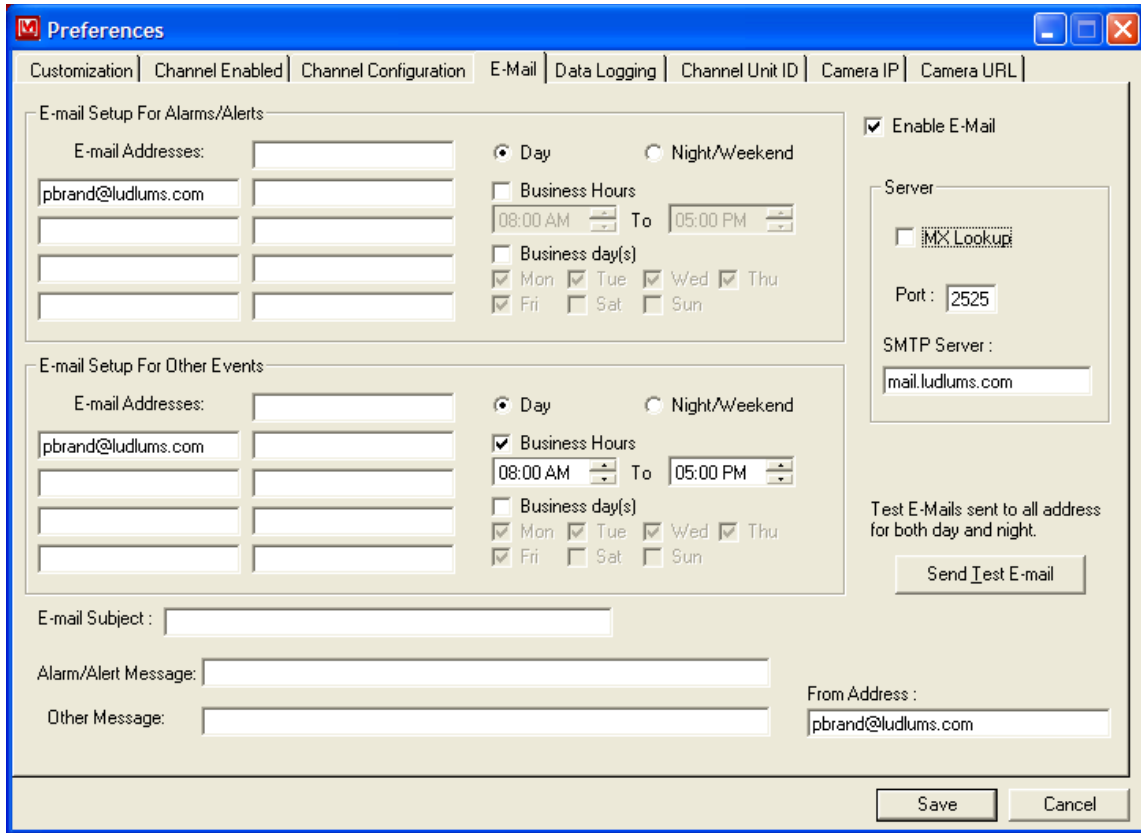
The screenshot shows a software window titled "Preferences" with a blue title bar. The window has a tabbed interface with the following tabs: Customization, Channel Enabled, Channel Configuration (selected), E-Mail, Data Logging, Channel Unit ID, Camera IP, and Camera URL. The main content area is light beige and contains the following controls:

- A "Select Channel" dropdown menu with "Channel 1" selected.
- A "Units:" text box containing "mR/hr".
- A "Normal save interval (save every Xth reading on each channel):" text box containing "30".
- A "High Alarm/Det Fail save interval (same as above):" text box containing "2".
- A "Comments:" text box.
- An "Apply Settings to All Channels" button.
- A "Default" button.

At the bottom right of the window, there are "Save" and "Cancel" buttons.

The Channel Configuration tab allows the unit of measurement, normal log interval, alarming log interval, and comment be set for each channel. To change the values for a channel, select that channel from the drop-down list. The unit's text box is used to set the unit of measurement the Model 375 is using. The normal save interval defines how often data is saved to the database and comma-delimited file when no alarm or fail condition is present. The high alarm/detector fail save interval defines how often data is saved when an alarm or fail condition is present. In both cases, the number defined here is the number of two-second intervals to save the data. For example, if the number was 5, then the data would be saved every 10 seconds. The Comments text box is a user-defined field that is saved in the database and is also displayed as a tool tip on the channel caption on the main screen. The Apply Settings to All Channels button will take the current values and apply them to all channels.

3.2.4 E-Mail Settings Tab



The E-mail Settings tab allows the configuration of the e-mail capability of the software. Four sets of nine e-mail addresses are available, separated by day/night and alarms/other events. If the Business Days check box is not selected, then all days are considered business days. If the Business Hours check box is not checked, then all hours are considered to be business hours. The Enable E-Mail checkbox must be checked for e-mail to be sent.

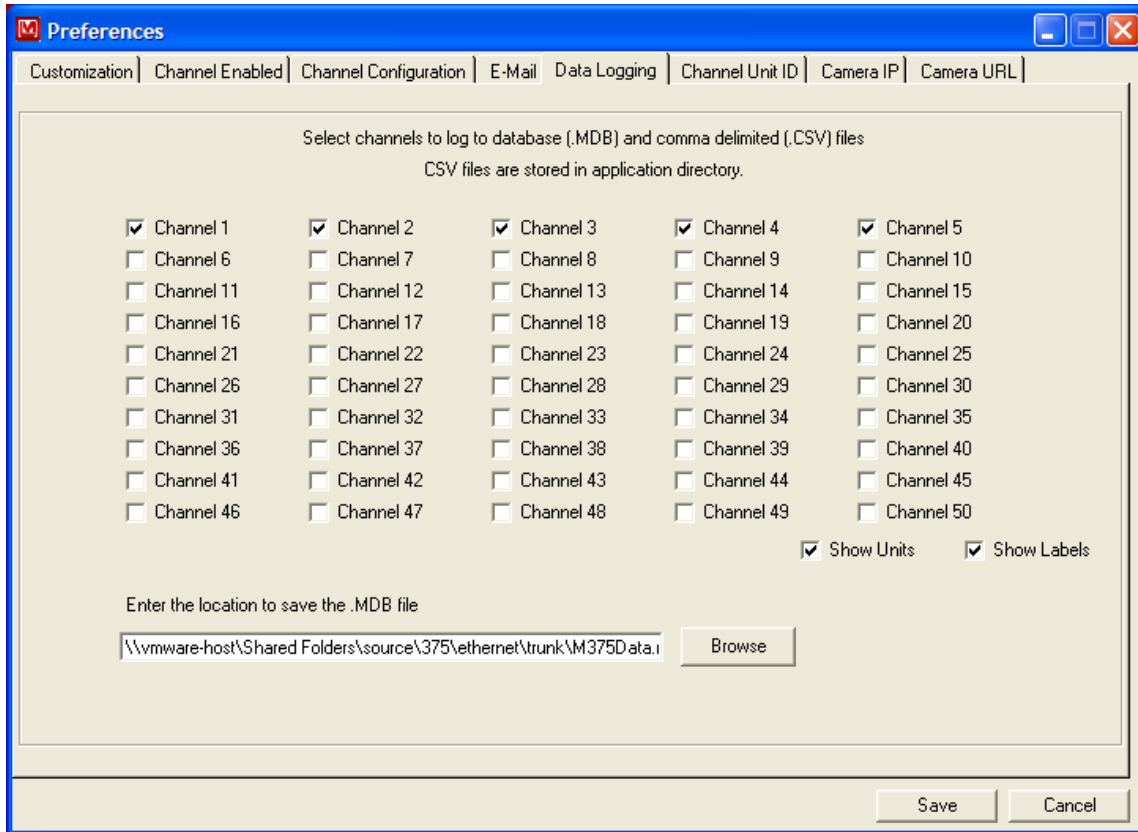
The Server section specifies if a user-defined SMTP server and port is used or if an MX lookup is performed on each email address. An MX lookup will attempt to automatically determine the correct SMTP server but if that fails, disable this option and specify the SMTP settings manually.

The Day and Night/Weekend options for each set of addresses displays Day e-mail addresses or Night/Weekend addresses in the address boxes to the left of the window.

The Subject field is used for all e-mails sent. Each e-mail will have a description of the event separated by square brackets preceding the subject. A custom message can be entered for the alarm e-mails and for the other events. The From Address specifies who the E-Mail message appears to be from.

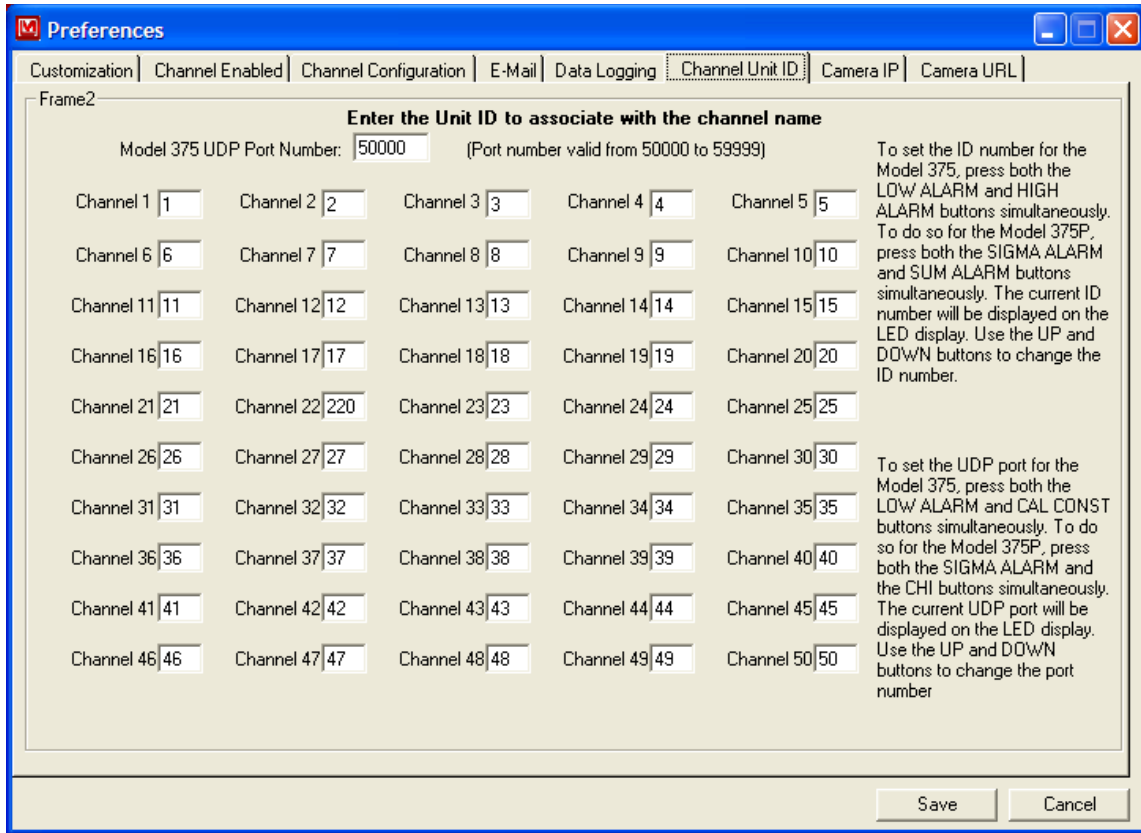
The Send Test E-mail button is used to send a test e-mail to check for correct setup of the settings. A test message is sent to every address listed for both day and night and for alarms and other events.

3.2.5 Data Logging Tab



The Data Logging tab allows which active channel will log its data to a file. The location of the database can be specified by clicking on the Browse button. If the units and custom labels are not needed on the main window, un-checking Show Units and Show Labels will remove them.

3.2.6 Channel Unit ID Tab



The Channel Unit ID tab associates a specific Model 375 with a specified channel based on the Model 375's three-digit ID number. The UDP port number must be set to the correct value that matches those that all connected Model 375s are using. See Section 2.4 for more information.

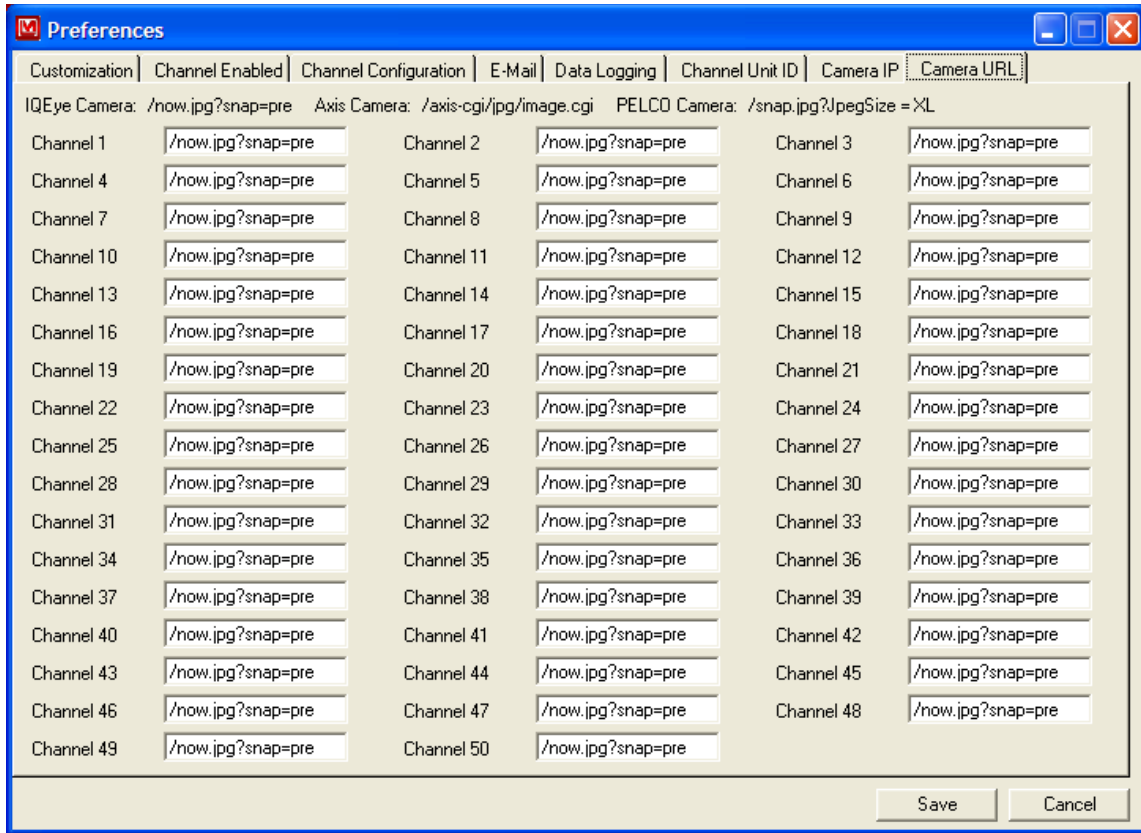
3.2.7 Camera IP Tab

The screenshot shows a 'Preferences' dialog box with the 'Camera IP' tab selected. The dialog contains a grid of 50 channels, each with an input field for an IP address. The channels are arranged in three columns: Channel 1-15, Channel 16-30, and Channel 31-45. The remaining channels (46-50) are in a fourth column. The 'Camera IP' tab is active, and the 'Camera IP Addresses' section is visible. The 'Save' and 'Cancel' buttons are located at the bottom right of the dialog.

Camera IP Addresses			
Channel 1	<input type="text"/>	Channel 2	<input type="text"/>
Channel 3	<input type="text"/>	Channel 4	<input type="text"/>
Channel 5	<input type="text"/>	Channel 6	<input type="text"/>
Channel 7	<input type="text"/>	Channel 8	<input type="text"/>
Channel 9	<input type="text"/>	Channel 10	<input type="text"/>
Channel 11	<input type="text"/>	Channel 12	<input type="text"/>
Channel 13	<input type="text"/>	Channel 14	<input type="text"/>
Channel 15	<input type="text"/>	Channel 16	<input type="text"/>
Channel 17	<input type="text"/>	Channel 18	<input type="text"/>
Channel 19	<input type="text"/>	Channel 20	<input type="text"/>
Channel 21	<input type="text"/>	Channel 22	<input type="text"/>
Channel 23	<input type="text"/>	Channel 24	<input type="text"/>
Channel 25	<input type="text"/>	Channel 26	<input type="text"/>
Channel 27	<input type="text"/>	Channel 28	<input type="text"/>
Channel 29	<input type="text"/>	Channel 30	<input type="text"/>
Channel 31	<input type="text"/>	Channel 32	<input type="text"/>
Channel 33	<input type="text"/>	Channel 34	<input type="text"/>
Channel 35	<input type="text"/>	Channel 36	<input type="text"/>
Channel 37	<input type="text"/>	Channel 38	<input type="text"/>
Channel 39	<input type="text"/>	Channel 40	<input type="text"/>
Channel 41	<input type="text"/>	Channel 42	<input type="text"/>
Channel 43	<input type="text"/>	Channel 44	<input type="text"/>
Channel 45	<input type="text"/>	Channel 46	<input type="text"/>
Channel 47	<input type="text"/>	Channel 48	<input type="text"/>
Channel 49	<input type="text"/>	Channel 50	<input type="text"/>

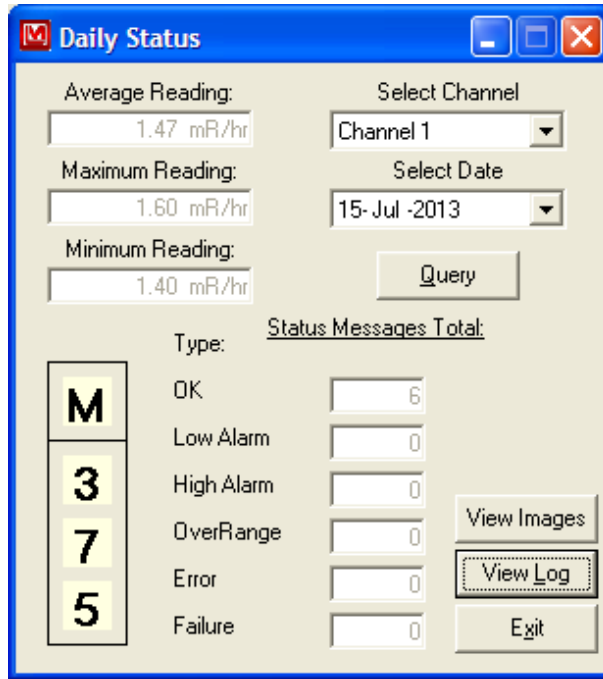
The Camera IP tab sets the IP address for any network cameras that may be installed. If the IP address is blank, that channel will not capture any images. It is possible to assign one camera for multiple channels.

3.2.8 Camera URL Tab



The Camera URL tab sets the URL that is used to get a static image from the camera. Consult your Ethernet camera's documentation for the correct setting. If the URL address is blank, that channel will not capture any images.

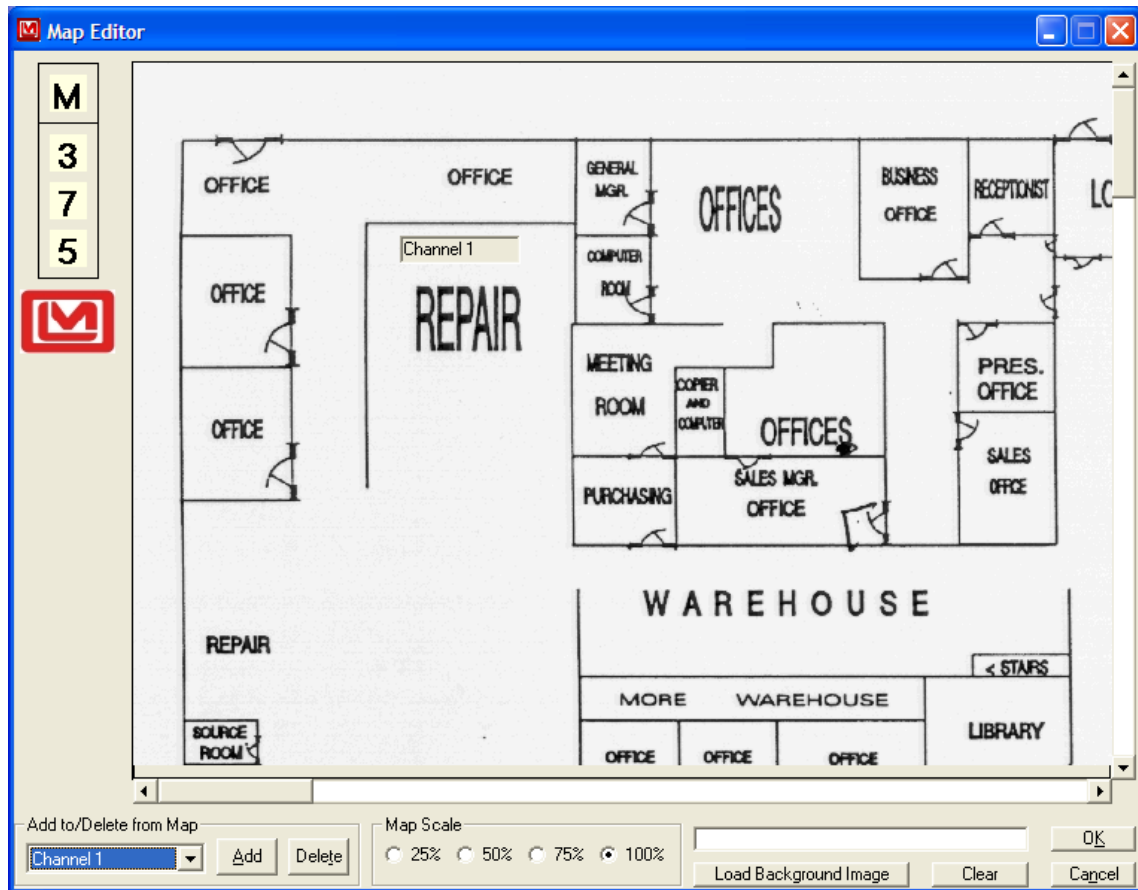
3.3 Status Window



The Daily Status window is used to view previously logged data and also any images taken during alarms. Select a day and click the Query button to read the data. The average, maximum, and minimum readings are displayed, as well as the total number of low alarm, high alarm, over range, errors, and failures that occurred during the specified day. Clicking the View Images button will bring up a window that will display the alarm images that were taken during the specified day. Clicking the View Log button will open up the notepad application with the specified comma-delimited file loaded automatically.

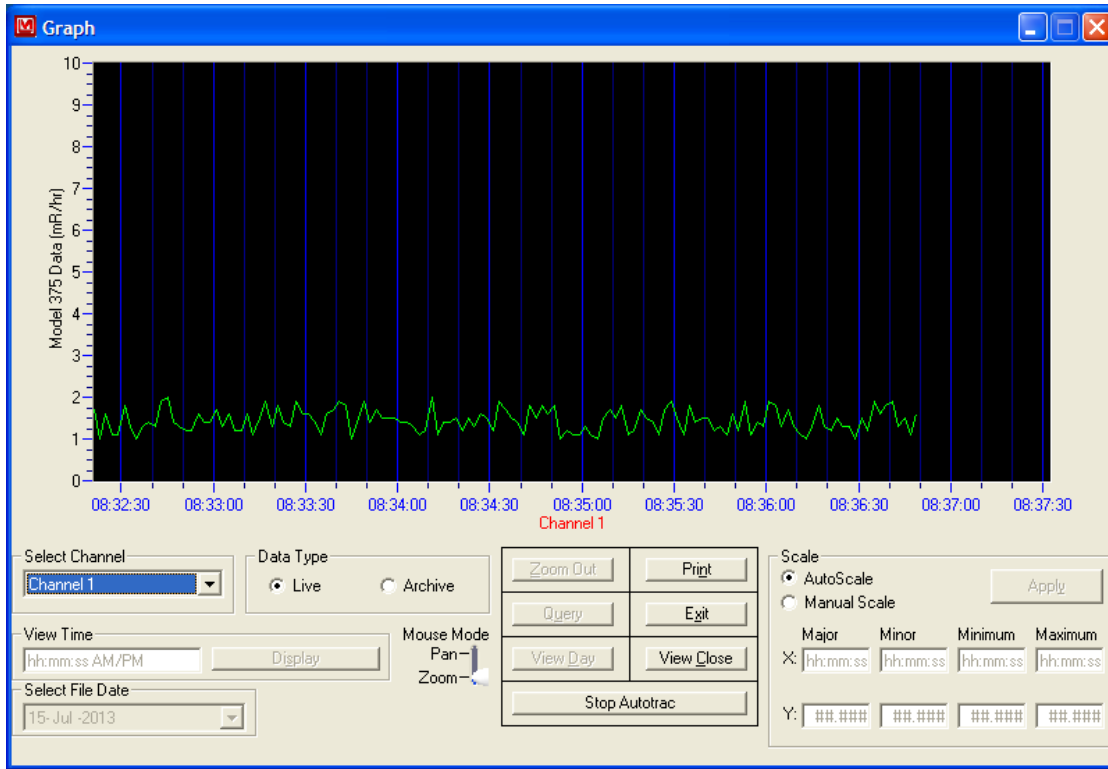


3.4 Map Edit Window



The Map Edit window is opened through the Customization tab on the Preferences window. Channels can be made visible by clicking on the Add button and removed from the map view by clicking on the Delete button. The Map scale can be set to 25%, 50%, 75%, or 100% using the four scale options on the map scale frame. Click the Load Background Image button to load in a background image for the map view. To clear the current image, click the Clear button. Channel location on the map view is manipulated by clicking and dragging the channels to their desired location. After all changes have been made, click the OK button to close the window and apply the changes. Click the Cancel button to restore any changes made to the current map. When editing a map while in map view on the main window, it is necessary to return to the normal map view and then back to map view to reload any changes made.

3.5 Graph View Window



The Graph view displays the readings from the Model 375 as a graph with options to view live or previously saved data (archive mode).

Select Channel: defines which channel to view. In live mode, all channels are available, and in archive mode, only channels that have logged data will be available.

Data Type: The live mode graphs real-time data as it is received. The archive mode graphs data that has been saved to the comma-delimited files.

View Time: Available only after an archive date has been queried. It allows the user to specify a time, which scrolls to that position on the graph.

Select File Date: specifies the date to query

Mouse Mode: switches between zooming in on the graph or scrolling the graph display. When in the zoom position, drag a box around the area of interest by clicking and holding down the left mouse button. This box will be used as a reference to magnify the graph.

Zoom Out: Clicking the Zoom Out button will return to the original display prior to zooming in.

Print: The Print button will print the currently displayed graph data along with the average, minimum, and maximum readings for the day when in archive mode. When

printing in live mode, only the currently visible section of the graph will be printed. No average line or overall daily values are printed. The print button will always print to the default printer for your system as determined under your computer's control panel settings.

Query: The Query button is used to import logged data once a date has been selected while the archive mode is active. After the file is loaded, select the channel to view from the drop-down list.

Exit: exits the graph window

View Day: In archive mode, this is used to view the entire day's reading in the graph window.

NOTE: On all archive graphs, the red dotted line signifies the average value for the day and will be printed as a solid line, thicker than the readings line.

View Close: This is the standard view used when the window is opened and can be returned to at any time by clicking the View Close button.

NOTE: In View Close mode, the Y axis (readings) will auto-scale and may vary; however, the time axis will be a constant interval.

Stop Autotrac/Autotrac: In live mode when the incoming readings are within 30 seconds of going off the currently visible section of the graph, the graph will automatically be set back to maintain incoming reading visibility. When Autotrac is stopped, this will not occur; however, incoming data is still graphed offscreen. This option is best used with the Manual Scale option.

Scale: When in auto scale the scale, on the Y axis will automatically adjust to display the entire range of readings. When in manual the user can enter any desired values for the X and Y axis limits, as well as where to place major and minor division marks on each axis. After these values are entered into the appropriately labeled boxes using the displayed format, clicking the Apply button will implement them. Remember that if Autotrac is on, the visible section of graph may jump too far back to be viewed due to the new X axis limits.

3.6 Logged Data

Data logged to a database consists of six parts. From the left most column going right, the database records include: Serial Number (manually set on Model 375), Date and Time, Status at time of reading, Numerical reading value, Units for reading, and Channel Comment. Data logged to a .csv file has different parts. From left to right these are: Channel Name, Logged reading and units, Audio Status (AS- 1 ON/ 0 OFF), High alarm (HA- 1 ON/ 0 OFF), Low Alarm (LA- 1 ON/ 0 OFF), and Over Range Status (OS- 1 ON/ 0 OFF).

3.7 Sample Report

Model 375 Report
Channel 1 - High Alarm

A high alarm condition has occurred.
Channel: Channel 1
Reading: 1.6 mR/hr
Status: High Alarm
Date: 7/15/2013 8:52:22 AM
Comments:

4. Installation Guide

The Model 375 area monitors require A/C power and a standard Ethernet connection for operation. The Ethernet port on the Model 375 is 10 Base-T half-duplex and does not support 100 Base-T. IP Addresses for the Model 375 monitors will be automatically assigned by the DHCP server. It is not possible to specify a static IP address.

Note: The Model 375 monitor software must be run on a computer on the same broadcast domain as the Model 375 monitors, since they use UDP broadcasts to communicate to the computer.

Check with your network administrator before connecting any devices to your network.

4.1 Installation without cameras

1. Determine location for the Model 375 monitors.
2. Run a Cat-5 Ethernet cable to each location.
3. Run A/C power to each location to power the Model 375 monitors.
4. Mount the Model 375 monitors.
5. Power on the first Model 375. Check the switch or hub that connects the Model 375 to the network for a good link indication.
6. Remove calibration cover and switch the CAL MODE switch to the ON (right) position to enable the parameters to be changed.
7. Set the ID number to the desired value. It is recommended to use incrementing values starting at one for the first Model 375. Hold down both the LOW ALARM and HIGH ALARM buttons simultaneously. While holding down these buttons, press the UP and DOWN buttons to change the ID number. The ID number is adjustable from 1 to 255. Each Model 375 must have a unique ID number. To check the ID number at any time, simply press both the ALARM and HIGH ALARM buttons.
8. Set the UDP port to the desired value. Hold down both the LOW ALARM and CAL CONST buttons simultaneously. While holding down these buttons press, the UP and DOWN buttons to change the UDP port number. The port number is adjustable from 0 to 9999. This corresponds to setting the port to 50000 to 59999. To check the UDP port number at any time, simply press both the LOW ALARM and CAL CONST buttons.
9. Fill in the configuration sheet in Section 5 for your records.
10. Return the CAL MODE switch to the OFF (left) position and screw the calibration cover back on. The parameters can still be viewed when the calibration mode is off by pressing the appropriate buttons.

11. Perform steps 4 through 10 for the rest of the Model 375 monitors.
12. Install and run the Model 375 software on the computer. See Section 2 for software installation instructions. The computer must be logged in, and the software must be running for data to be collected from the Model 375 monitors.
13. Click on the Options button and select the Channel Enabled Tab. Place a checkmark on each channel that will be active.
14. Select the Channel Designation tab and fill in the correct ID number for each of the channels that will be active.
15. Click the Apply button. The Preferences window will close.
16. Click on the Save button and save the changes.
17. The software should be receiving data from all active Model 375 monitors. If a failure message occurs, then the software has not received any data from that monitor. Check the cabling and make sure the ID number matches the value for that channel. Also check to make sure the Model 375 is powered on and operating correctly.

4.2 Installation with cameras

The IQeye3 network cameras require A/C power and a standard Ethernet connection for operation. It is also possible to power the cameras using a Power over Ethernet Injector. The back of the IQeye camera contains the ports you will need for installation – the Ethernet port and the Power Input. The two LEDs on the rear cap will verify that the camera is successfully connected. The green “Status” LED will flash after you have properly connected power, and the yellow “Link & Activity” LED will flash to indicate network activity.

When you assign an IP address to the camera, you will likely need to know the camera’s hardware address, which appears on the label affixed to the back of the camera.

There are three simple ways by which to assign an IP address: DHCP, VisiCon (a Java-based configuration utility), or a directed ping packet. VisiCon is the easiest to use, but if your system does not support VisiCon or you would like to assign the IP address at the command line, you must use DHCP or the directed ping packet method. These instructions assume the user is going to use VisiCon for configuration. See the camera’s documentation for information on how to use the directed ping packet method.

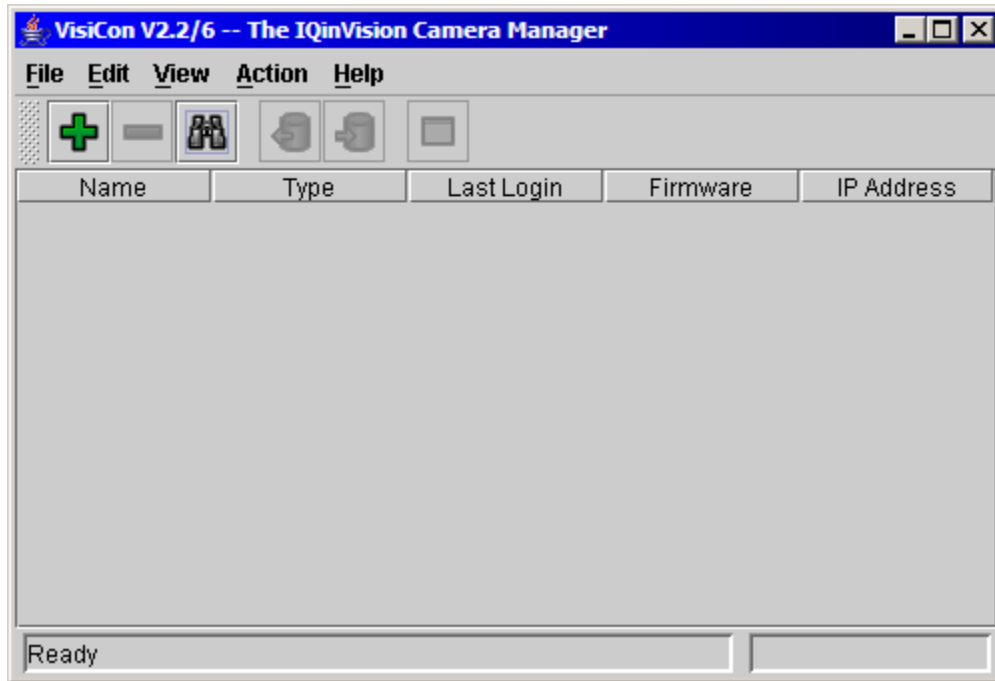
Note: VisiCon must be run on a computer on the same broadcast domain as the target camera since it uses UDP broadcasts to communicate initially.

1. Determine location for the Model 375 monitors and cameras.

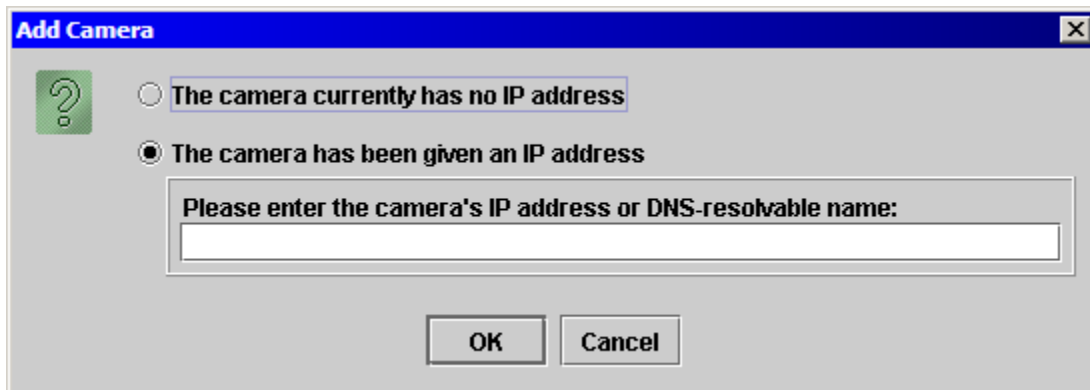
Note: One camera can be used for multiple Model 375 monitors.

2. Run two Cat-5 Ethernet cables to each location.
3. Run A/C power to each location to power the Model 375 monitors and cameras. The cameras may be powered via Power over Ethernet, in which case only a network cable is used. For more information visit:
(www.iqeye.com/mkt/accessories.htm#poet)
4. Mount the Model 375 monitors and cameras. Record the camera's hardware MAC address located on the rear cap on the configuration sheet in Section 5.
5. Power on the first Model 375. Check the switch or hub that connects the Model 375 to the network for a good link indication.
6. Remove calibration cover and switch the CAL MODE switch to the ON (right) position to enable the parameters to be changed.
7. Set the ID number to the desired value. It is recommended to use incrementing values starting at one for the first Model 375. Hold down both the LOW ALARM and HIGH ALARM buttons simultaneously. While holding down these buttons, press the UP and DOWN buttons to change the ID number. The ID number is adjustable from 1 to 255. Each Model 375 must have a unique ID number. To check the ID number at any time, simply press both the ALARM and HIGH ALARM buttons.
8. Set the UDP port to the desired value. Hold down both the LOW ALARM and CAL CONST buttons simultaneously. While holding down these buttons press the UP and DOWN buttons to change the UDP port number. The port number is adjustable from 0 to 9999. This corresponds to setting the port to 50000 to 59999. To check the UDP port number at any time, simply press both the LOW ALARM and CAL CONST buttons.
9. Fill in the configuration sheet in Section 5 for your records.
10. Return the CAL MODE switch to the OFF (left) position and screw the calibration cover back on. The parameters can still be viewed when the calibration mode is off by pressing the appropriate buttons.
11. Perform steps 4 through 10 for the rest of the Model 375 monitors.
12. Connect the network cable to the cameras.
13. Connect the plug of the included power supply to the camera's universal Power Input. The IQeye camera automatically turns on once the power is supplied. The green "Status" LED will flash to tell you that the camera is on.

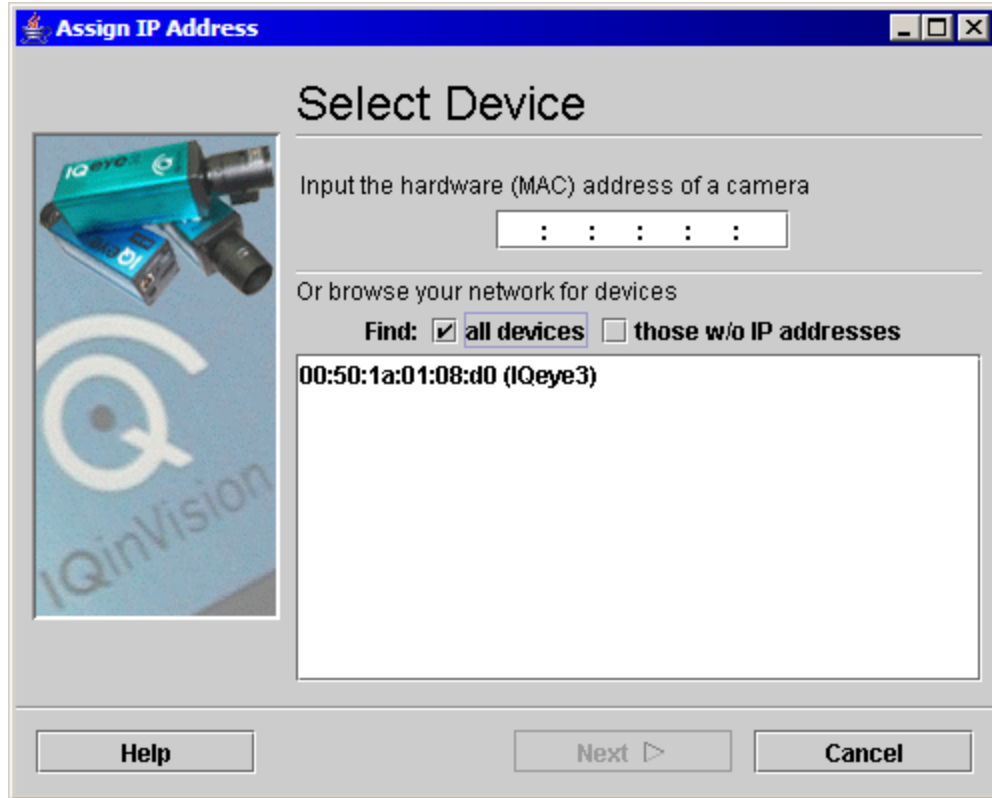
14. Insert the IQeye software installation CD in the computer and install the VisiCon software. The latest version of VisiCon can be downloaded from (www.IQeye.com). VisiCon requires Java to be installed on the computer and can be downloaded from (www.java.com) or installed from the Model 375 software CD.
15. Start the VisiCon program.



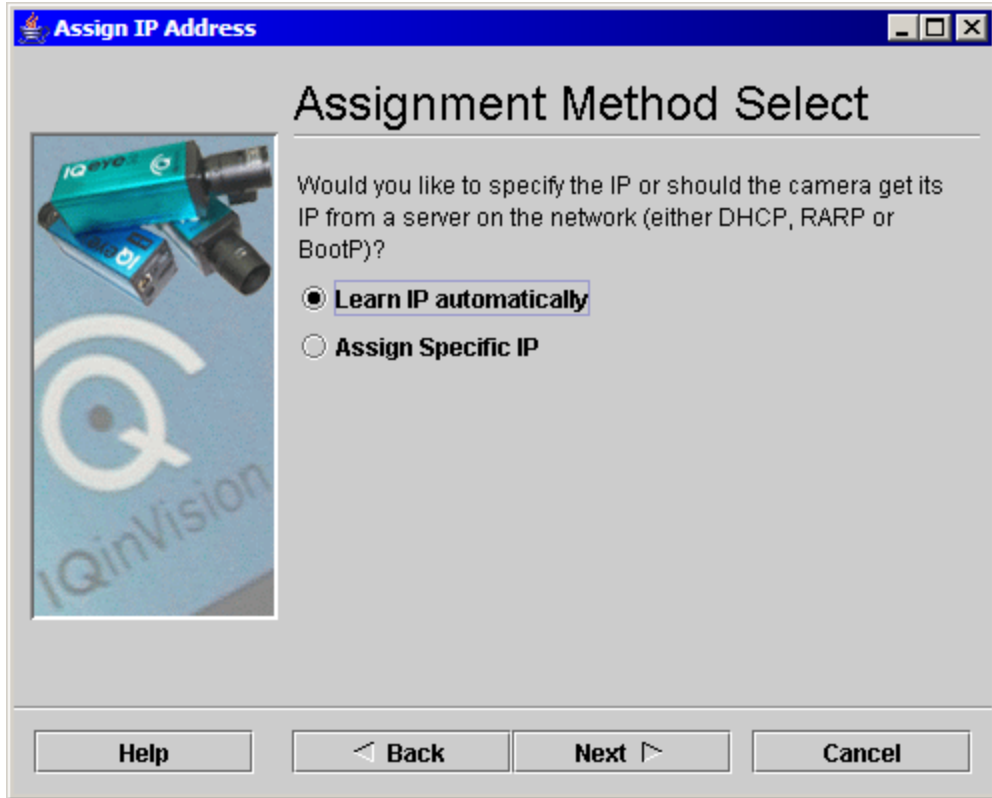
16. Click on the “+” icon in the toolbar or “Add Camera” from the Edit menu.
17. Select “The camera currently has no IP address” on the Add Camera window and click OK.



18. Place a checkmark next to the “Find: all devices” option. After a few seconds, the list will be populated with all cameras on the network.



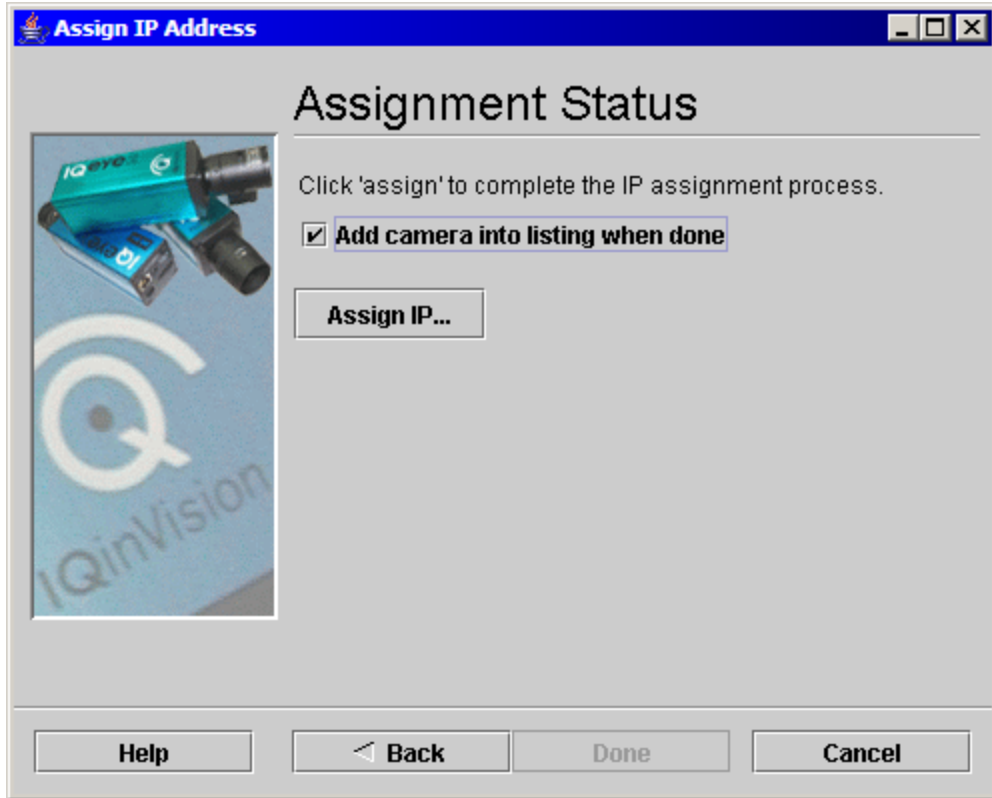
19. Select a camera from the list and click Next.
20. Select "Learn IP automatically" if the IP address will be assigned by the DHCP server. Select "Assign Specific IP" if the IP address will be assigned statically. Go to the next step for dynamically assigned IP addresses. Skip to Step 24 for static IP address assignment.



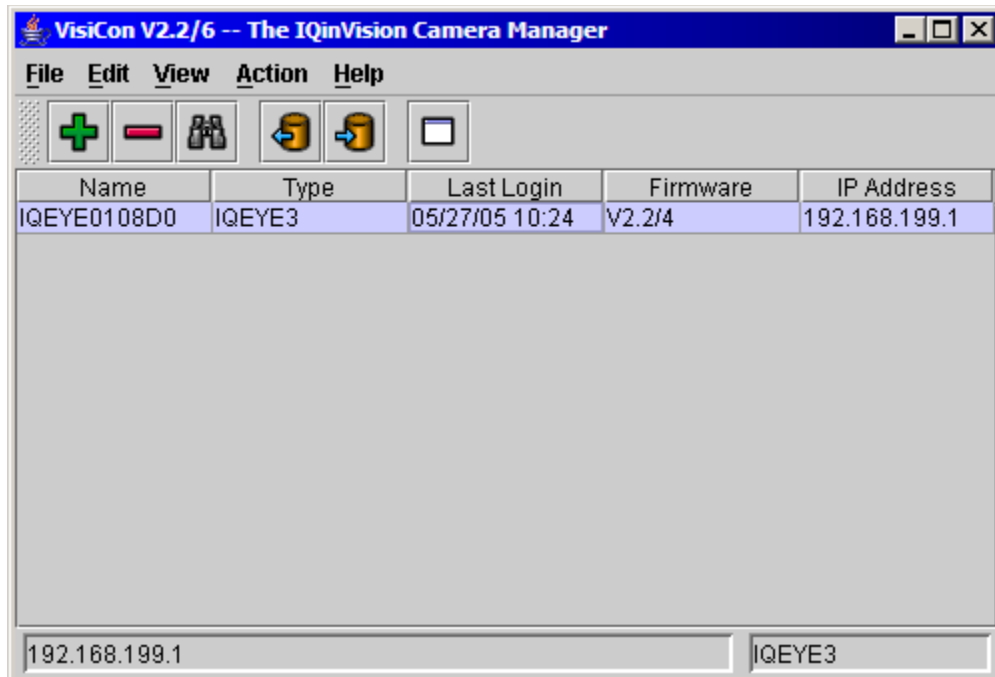
21. In most cases select DHCP and click Next. Check with your network administrator for the correct settings if you are not sure.



22. Place a checkmark next to the “Add camera into listing when done” and Click Assign IP... button.



23. Click the Done button. The camera should be added to the VisiCon Main window. Record the IP address on the configuration sheet in Section 5. Skip to Step 27.



24. Enter the IP address, subnet mask, and default gateway as provided by your network administrator and click Next.

Assign IP Address

IP Settings

Please fill in the fields below. We will fill in the natural subnet as you type, but please verify it for accuracy. Incorrect values can make your device inaccessible and disrupt your network.

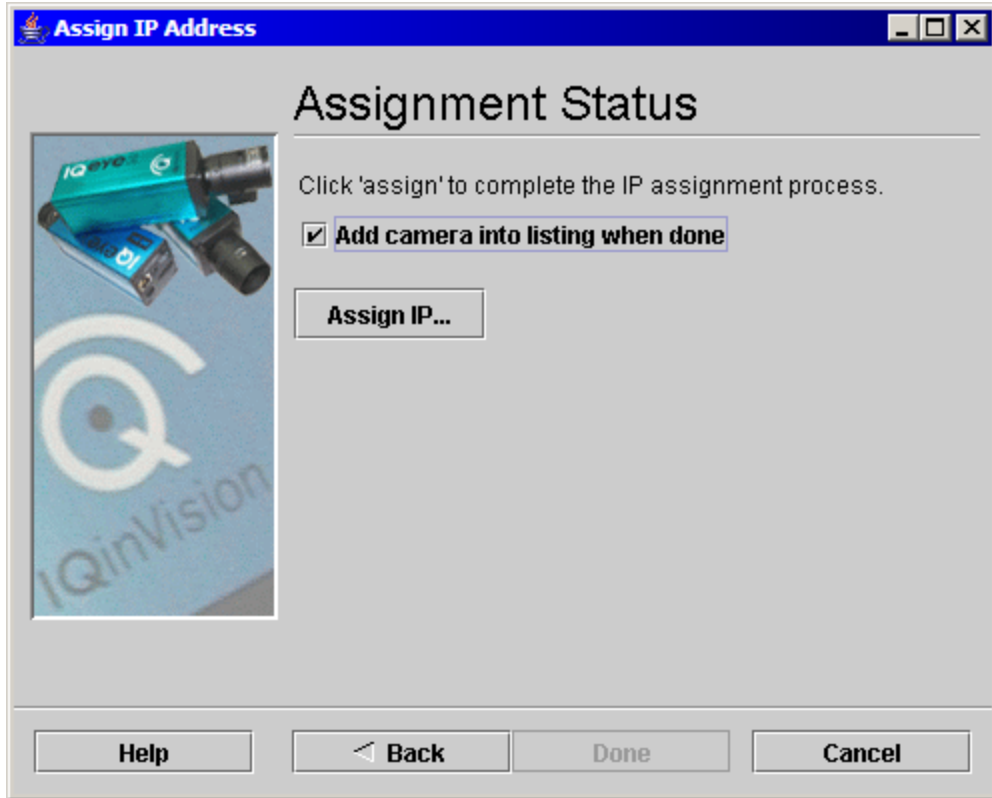
Note that automatic IP discovery protocols (DHCP,BOOTP,RARP) will be disabled.

IP Address: 192 . 168 . 10 . 180
Subnet Mask: 255 . 255 . 0 . 0
Gateway: 192 . 168 . 0 . 1 **Auto**

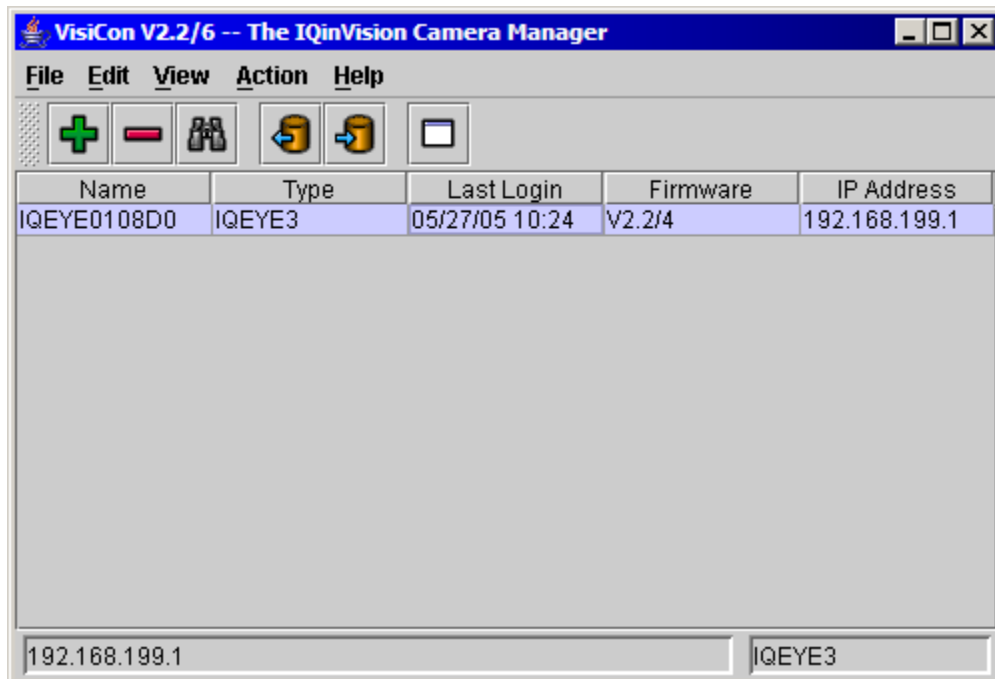
Checking 'Auto' will cause your gateway to be automatically discovered through your networking hardware

Help **< Back** **Next >** **Cancel**

25. Place a checkmark next to the “Add camera into listing when done” and Click Assign IP... button.



26. Click the Done button. The camera should be added to the VisiCon Main window. Record the IP address on the configuration sheet in Section 5.



27. Continue following steps 16 through 26 to configure the rest of the cameras.

28. Install and run the Model 375 software on the computer. See Section 2 for software installation instructions. The computer must be logged in and the software must be running for data to be collected from the Model 375 monitors.
29. Click on the Options button and select the Channel Enabled tab. Place a checkmark on each channel that will be active.
30. Select the Channel Designation tab and fill in the correct ID number for each of the channels that will be active.
31. Select the Camera tab and fill in the correct IP addresses for the cameras.
32. Click the Apply button. The Preferences window will close.
33. Click on the Save button and save the changes.
34. The software should be receiving data from all active Model 375 monitors. If a failure message occurs, then the software has not received any data from that monitor. Check the cabling and make sure the ID number matches the value for that channel. Also check to make sure the Model 375 is powered on and operating correctly.

4.3 IP Addresses

Each device on a network has a unique address. This number is called the Internet Protocol (IP) address. This number can either be dynamically or statically assigned. A static IP address is assigned to the device manually. A dynamic IP address is automatically assigned by a Dynamic Host Configuration Protocol (DHCP) server. The format is a 32-bit numeric address written as four numbers separated by periods (dots). Each of the four numbers ranges from 0 to 255.

5. Configuration Sheet

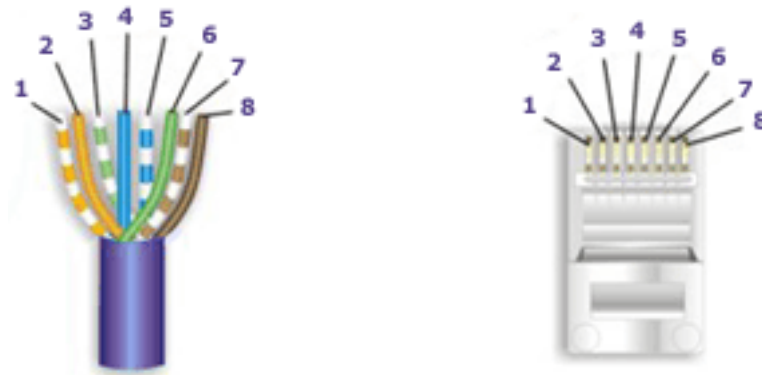
UDP Port Number: _____

Ch ID	Comment	Camera MAC address	Camera IP Address
01	_____	_____	_____._____._____._____
02	_____	_____	_____._____._____._____
03	_____	_____	_____._____._____._____
04	_____	_____	_____._____._____._____
05	_____	_____	_____._____._____._____
06	_____	_____	_____._____._____._____
07	_____	_____	_____._____._____._____
08	_____	_____	_____._____._____._____
09	_____	_____	_____._____._____._____
10	_____	_____	_____._____._____._____
11	_____	_____	_____._____._____._____
12	_____	_____	_____._____._____._____
13	_____	_____	_____._____._____._____
14	_____	_____	_____._____._____._____
15	_____	_____	_____._____._____._____
16	_____	_____	_____._____._____._____
17	_____	_____	_____._____._____._____
18	_____	_____	_____._____._____._____
19	_____	_____	_____._____._____._____
20	_____	_____	_____._____._____._____
21	_____	_____	_____._____._____._____
22	_____	_____	_____._____._____._____
23	_____	_____	_____._____._____._____
24	_____	_____	_____._____._____._____
25	_____	_____	_____._____._____._____

Model 375 Ethernet Software 1370-055
October 2013

Ch ID	Comment	Camera MAC address	Camera IP Address
26	_____	_____	_____._____._____._____
27	_____	_____	_____._____._____._____
28	_____	_____	_____._____._____._____
29	_____	_____	_____._____._____._____
30	_____	_____	_____._____._____._____
31	_____	_____	_____._____._____._____
32	_____	_____	_____._____._____._____
33	_____	_____	_____._____._____._____
34	_____	_____	_____._____._____._____
35	_____	_____	_____._____._____._____
36	_____	_____	_____._____._____._____
37	_____	_____	_____._____._____._____
38	_____	_____	_____._____._____._____
39	_____	_____	_____._____._____._____
40	_____	_____	_____._____._____._____
41	_____	_____	_____._____._____._____
42	_____	_____	_____._____._____._____
43	_____	_____	_____._____._____._____
44	_____	_____	_____._____._____._____
45	_____	_____	_____._____._____._____
46	_____	_____	_____._____._____._____
47	_____	_____	_____._____._____._____
48	_____	_____	_____._____._____._____
49	_____	_____	_____._____._____._____
50	_____	_____	_____._____._____._____

6. Ethernet Cable Termination



Looking at the connector with the pins at the top facing you, pin 1 is on the left. Pin 8 is on the right.

Pin 1 – White/Orange

Pin 2 – Orange

Pin 3 – White/Green

Pin 4 – Blue

Pin 5 – White/Blue

Pin 6 – Green

Pin 7 – White/Brown

Pin 8 – Brown

Tools required for cable termination:

Wire strippers

Network cable tester

Network cable crimper

RJ-45 connectors appropriate for cable conductor type

Category 5E network cable, stranded or solid conductor

Stranded cable is generally used where the network cable can be moved, such as patch cables. Solid cable is used where the cable will be fixed, such as internal wiring in walls.

If possible, save some of the extra cable that has been pulled into where the switch is located. This extra cable can be used to make patch cables, if necessary.

1. Strip off approximately one inch (2.5 cm) of the cable jacket.
2. Untwist the four pairs and straighten them out.
3. Arrange them in a fan shape, following the color order above, with the **white/orange** wire on the left, and the **brown** wire on the right.

4. Bring the wires together until they touch. Double-check the order.
5. Cut the wires to make a 90-degree angle approximately a half inch (1.3 cm) from the end of the jacket. The wires must be cut straight so that they fit all the way into the connector to make good contact with the pins.
6. Align Pin 1 of the cable with Pin 1 of the connector and insert the cable into the connector. Push firmly so the wires go all the way to the top of the connector and the jacket goes into the connector by about three-sixteenths of an inch (0.5 cm). Again, check to make sure the colors are in the right order.
7. Place the connector into the crimp tool and squeeze the handle hard.
8. Inspect the connector to make sure all pins were crimped.
9. Repeat steps 1-8 for the other end.
10. Use a cable tester to test the cable for shorts and crossed wires.

7. Network Troubleshooting

If you have trouble communicating with the Model 375 monitors or network cameras, first check all cabling with a network cable tester and make sure the power is connected and the devices are turned on.

7.1 Model 375

The Model 375 will broadcast a data message every two seconds. The format of the data will be one of the following two versions:

Obsolete Version:

Byte 1	0		x
Byte 2	x		x
Byte 3	x	OR	x
Byte 4	x		x
Byte 5	.		.
Byte 6	x		0
Byte 7	Audio Status = 1 = on		
Byte 8	Alarm Status = 1 = on		
Byte 9	Alert Status = 1 = on		
Byte 10	Over Range Status = 1 = on		
Byte 11	Monitor Status = 1 = on		
Byte 12	Error Code		
Byte 13	UNIT ID CHAR 1		
Byte 14	UNIT ID CHAR 2		
Byte 15	UNIT ID CHAR 3		
Byte 16	Carriage Return (0DH)		
Byte 17	Line Feed (0AH)		

New Version: (Firmware version 39608n42 or higher)

Byte 1	L		
Byte 2	M		
Byte 3	I		
Byte 4	0		x
Byte 5	x		x
Byte 6	x	OR	x
Byte 7	x		x
Byte 8	.		.
Byte 9	x		0
Byte 10	Audio Status = 1 = on		
Byte 11	Alarm Status = 1 = on		
Byte 12	Alert Status = 1 = on		
Byte 13	Over Range Status = 1 = on		
Byte 14	Monitor Status = 1 = on		

Model 375 Ethernet Software 1370-055
October 2013

```
Byte 15   Error Code
Byte 16   UNIT ID CHAR 1
Byte 17   UNIT ID CHAR 2
Byte 18   UNIT ID CHAR 3
Byte 19   PORT NUM CHAR 1
Byte 20   PORT NUM CHAR 2
Byte 21   PORT NUM CHAR 3
Byte 22   PORT NUM CHAR 4
Byte 23   3           Firmware version of Model 375
Byte 24   9
Byte 25   6
Byte 26   x
Byte 27   x
Byte 28   n
Byte 29   x
Byte 30   x
Byte 31   3           Firmware version of Ethernet board
Byte 32   9           Note: The firmware version of the
Byte 33   8           Ethernet board is not sent out the
Byte 34   x           serial port of the Model 375!
Byte 35   x
Byte 36   n
Byte 37   x
Byte 38   x
Byte 39   Carriage Return (0DH)
Byte 40   Line Feed (0AH)
```

Check to make sure the network is not blocking the UDP port used by the Model 375 monitor. Firewalls and/or routers may need to be configured. The Model 375 monitor uses a local port (Source) that is one less than the UDP port (Destination) set by the user. For instance, if the remote port (Destination) is set to 50005, the local port (Source) will be 50004. Older versions of the firmware do not have a user-definable UDP port and only use a remote port (Destination) of 5555, and a local port (Source) of 5554. A network protocol analyzer may be used to determine if the Model 375 is broadcasting any data. Ethereal (www.ethereal.com) is recommended for this purpose.

The RS-232 output of the Model 375 is connected internally to the Ethernet board, which converts the RS-232 signals into UDP packets. The external RS-232 connector is still active, and it is possible to connect a serial cable to the Model 375 to verify if the RS-232 port is functioning correctly.

An RS-232 cable can be made using the following:

Model 375	PC (9-pin)	PC (25-pin)
pin 4 TXD	pin 2	pin 3
pin 2 GND	pin 5	pin7

The cable connector has male pins on the Model 375 side. The cable connector has female pins on the PC side. The RS-232 uses the following parameters:2400 baud, 8 data

bits, 1 stop bit, No parity, No Handshaking. Using a program like HyperTerminal, which comes with Windows, will allow the verification of proper RS-232 operation.

7.2 IQeye Network Camera

For troubleshooting the IQeye camera refer, to the documentation that is included with the camera or visit (www.iqeye.com).