BOSCH

INSTALLATION INSTRUCTIONS

EX85
MEGAPIXEL-IP INFRARED IMAGER™

IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.

2. Keep this instruction.

3. Heed all warnings.

4. Follow all instructions.

5. Do not use this apparatus near water.

6. Clean only with dry cloth.

7. Do not block any ventilation openings. Install in accordance with manufacturer instructions.

8. Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.

9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the power where they exit from the apparatus.

11. Only use attachments/accessories specified by the manufacturer.

12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13. Unplug this apparatus during lightning storms or when unused for long periods of time.

14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in a way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

NOTE: This equipment has been tested and found to comply with the limits for a digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. As part of it's normal operation this device can generate radio frequency energy and if not installed and used in accordance with the installation manual may cause interference to radio communications. However, there is no guarantee that interference will not occur on a particular installation. If the device does cause interference to radio or television reception the user is encouraged to try to correct the interference by one or more of the following measures:

1) Fit Ferrite beads on all cable to and from the power supply box, within the box walls.

2) Route the composite cable between the camera and the power supply in steel conduit piping over the entire run of the cable up to and including connection to a deep conduit base fitted under the camera and a conduit fitting adaptor in the wall of the PSU box.

3) Contact BOSCH Service Center for further advice.

INDEX – *EX85 Megapixel-IP Infrared Imager*™

DESCRIPTION

The *EX85* is the pinnacle of today's most advanced imaging technologies, combining megapixel sensors, Black Diamond™ night vision technology and IP connectivity.

The result is the most advanced level of imaging performance for today's critical security applications. Crystal clear megapixel color by day delivers images with amazing details. 420ft (130m) of award-winning Black Diamond™ megapixel monochrome provides the industry's best IP night vision.

The *EX85* incorporates the ruggedized enclosure, field-proven for reliability in the worst outdoor environments.

UNPACKING

Care should be taken when unpacking the shipped unit.
Check the parts list and confirm all items have been
located. Inspect the equipment thoroughly to ensure
nothing was damaged in transit.

Contact BOSCH Service Center if a problem is noted,
see the rear page of this booklet for contact numbers.

PARTS LIST (items supplied with unit)

- **EX85 Camera Assembly**
- Installation Instructions booklet
- Allen Key
- EXMB028B or EXMB028W cable management
  mounting bracket.
- EX85 Set-Up Software CD

ITEMS REQUIRED FOR INSTALLATION
(not supplied with units)

- Mounting hardware
- Mounting tools
- Computer with RJ45 Ethernet port
- Network switcher (standard or POE type)
- CAT5 Ethernet cable

NETWORK SYSTEM REQUIREMENTS

A dedicated PC is recommended for receiving image streams from cameras and for archiving and display. Minimum recommended requirements for the PC are as follows:

- CPU: Core 2 Duo 2Ghz
- RAM: 1GB
- Video Card: NVIDIA, 128MB RAM
- Network Card: 100 base-T (one card required for camera stream, a second card required for remote viewing)

A 100Mbps or better network switch or router is required to connect the camera to the network. A regular hub does not provide collision management and is not suitable for multi-camera systems. Category 5 cabling or better is recommended, and must be installed according to all applicable codes and regulations.

The camera is capable of accepting a standard network connection. However, the camera unit will still require a dedicated 12-24V power input.

The cameras can be accessed and controlled by two main methods: through the included viewing software and through HTTP commands from a web browser, such as Internet Explorer.

INITIAL PREPARATIONS

- Determine the operating voltage at the installation site. The camera's Voltage Regulator Board accepts 12-24V AC/DC input without change to internal connections.

- Determine the optimum mounting location for the camera. *See Section 4, Camera Mounting.*

- All cameras have been tested and pre-focused with telephoto setting as factory default prior to shipment. If any adjustment needed, it is advisable to check the camera's operation before installation.

GUIDELINES

The installation of the **EX85** is shown in Sections 1 to 13.

It is important that these steps are followed in numerical order.

It is also important to follow proper safety guidelines when installing this product.

1. MOUNTING BRACKET PREPARATON

EXMB.028 (B or W)
Mounting Bracket
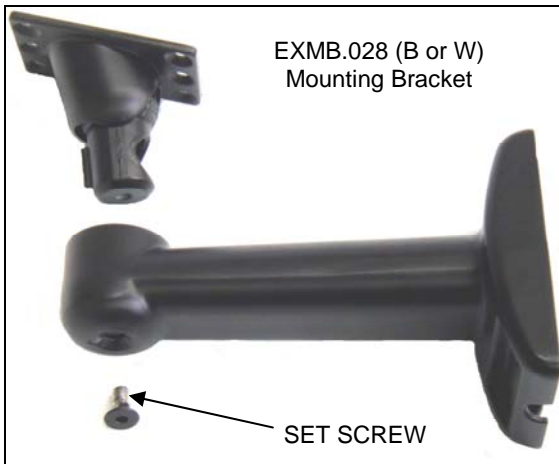
SET SCREW

- Use the supplied Allen Key to remove the setscrew from the supplied mounting bracket.
- Separate the two sections of the mounting bracket.

2. CABLE / BRACKET INSERTION

EX85 Camera
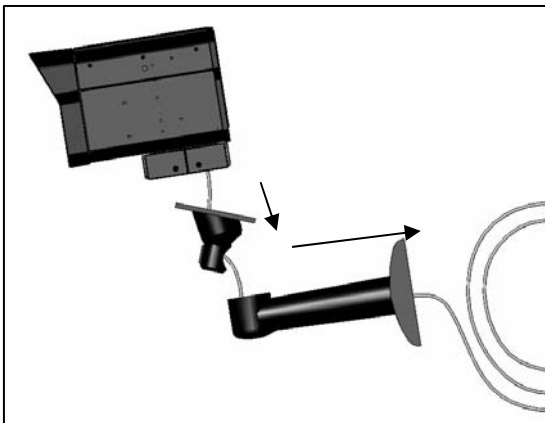
- Carefully feed the Power and Ethernet cables through both sections of the mounting bracket.
- Make sure the cables are not kinked, chafed, or split during this procedure.

3. MOUNTING BRACKET ATTACHMENT
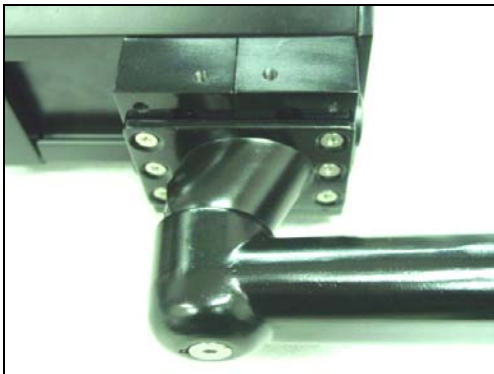
- Attach the Mounting Bracket to the Camera's Mounting Block using the six bolts supplied with the bracket.
- Snug the two halves of the bracket together with the Allen head set screw.
- Tighten the setscrew enough so that the camera can be adjusted for angle. Do not over-tighten.
- Note the angled part of the mounting bracket faces to the rear of the camera.

4. CAMERA MOUNTING

Warning: this apparatus must be securely attached to the wall or ceiling in accordance with installation instructions. Failure to follow installation instructions ma results in injury/death.

Select a suitable location that protects the camera from accidental damage, tampering and environmental conditions exceeding the specifications of the camera to be mounted.

Caution: Ensure the selected location is protected from falling objects, accidental contact with moving objects and unintentional interference from personnel. Follow all applicable building codes.

☞The following installation guidelines must be followed:

- Locate the bracket such that it cannot be easily interfered with, either intentionally or accidentally.
- Select a smooth, flat mounting surface to ensure proper sealing. The surface must also be capable of supporting the combined weight of the camera and mounting hardware under all expected conditions of vibration and temperature.
- Secure all cabling.
- Installation should only be performed by skilled personnel

Hardware required:
- For ceiling mount:
  1. Mounting Bracket, Model EXMB.029, Qty = 1
  2. ¼'' x 2" Lag Screws, Qty = 1
  3. ¼'' Washer, Qty = 1
- For wall mount:
  1. Mounting Bracket, Model EXMB.028, Qty = 1
  2. ¼'' x 2" Lag Screws, Qty = 4

Tools required:
- Drill
- Stud Finder
- 5/32" Drill Bit
- Socket Driver
- 7/16" Socket

Mounting instructions for wall and ceiling mount:
Camera is intended to be securely mounted to a wall using mounting bracket model EXMB.028, or to a ceiling using mounting bracket model EXMB.029. Camera has been evaluated for wall mounting using the following wood screws secured into a 2x4 stud under ½" drywall. Wood screws, 1/4" lag, dia Ø1/4", 2" long, 9 TPI, with ½" head. Camera has been evaluated for ceiling mounting using the following wood screws secured into a 2x4 stud under ½" drywall:

- wood screws with washer, 1/4" lag, dia Ø1/4", 2" long, 9 TPI, with ½" head
- 16" flat washer.

Camera has not been evaluated for safety requirements using other mounting kits.

Installation (Ceiling and Wall Mount)

- Locate stud in the ceiling/wall and mark outside edges of stud.
- Using ceiling/wall mount bracket as a template, align the mounting hole with the center of the stud.
- Marking the point on the ceiling/wall in the center of the hole where mounting screw will be positioned.
- Remove the ceiling/wall mount bracket and using a 5/32" drill bit, drill a pilot hole at the marked point.
- Align the ceiling/wall mount bracket mounting hole with the hole drilled in the ceiling/wall
- Using a 7/16" socket and driver, secure the ceiling/wall mount bracket by screwing the 1/4" lag bolt with 1/4" washer securely into the stud.
- Use additional 1/4" lag bolt and 1/4" washer to secure the remaining mounting holes.

Installation is complete

5. CAMERA LENS ADJUSTMENTS

For optimum picture quality, the camera lenses should be as close as possible to the inside face of the viewing window, without touching.

For focus adjustment follow the steps below.

- Loosen the four bolts from the extrusion.
- Remove the faceplate, window and the lens foam, set aside. Make sure the photocell is not dislodged.
- Perform the proper lens adjustments as per paragraph **5.1** on page 10.

Loosen the four bolts
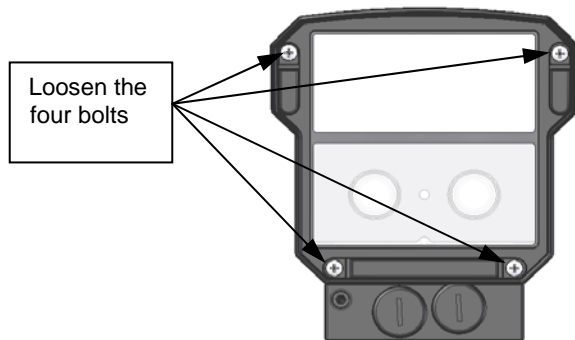
SETSCREWS

5.1 Focus Control Adjustments

- Loosen the lens set screws for focus adjustment.
- The setscrew marked **N** ←→ **∞** is used for image focus.
- Re-tighten the setscrews after focus adjustments have been completed.

IMPORTANT

Use a Neutral Density filter or Infra-Red Pass filter to cover the lens during focusing to simulate low light conditions on scene for correct 24-hour focusing. For camera with vari-focal lens, the camera should be focused with the lens iris fully opened to simulate the worst possible depth of field. Using a Neutral Density filter or Infra-Red Pass filter will ensure the iris is fully open for correct setup and adjustment.

Note that statement above is applicable only for Day/Night or IR version cameras.

6. LED ARRAY - POWER ADJUSTMENTS

If adjustment is needed, remove the rear cover for access to the LRB. The **EX85** needs to be powered-up while making the LED power adjustments. Cover the photocell to turn the LEDs "ON" (850nm LEDs will have a slight red glow).

For photocell "On/Off" light-level adjustment, rotate **VR2.** Clockwise is off and counter-clockwise is on.

LED Power Adjustment

Photocell On/Off Adjustment
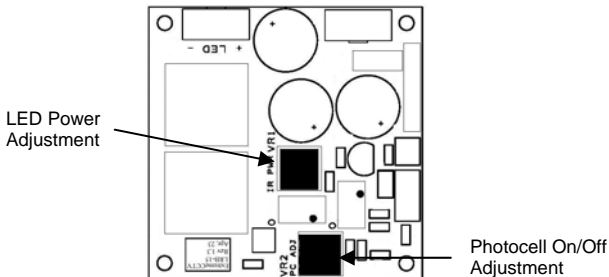
LED Power and Photocell On/Off Adjustments

Adjust the **LED** power if they are too bright or too dim.

For **IR** power adjustment, rotate **VR1.** Clockwise is high and counter-clockwise is low.

7. VIEWING SOFTWARE SETUP

To begin using the viewing software, it must first be installed. To install the software:

a. Make sure any older versions of the program are removed if present on the PC.

b. Run the *Setup-EXT5.0.5.13-XP-Vista.exe* file and follow the directions to complete the installation.

c. If using Windows Vista, users must navigate to installation directory, open "My Computer\C Drive\Program Files\...\Video Surveillance\Local Machine" and (type choose Application). Right click on the file named "LocalMachine.exe", choose "properties -> Compatibility -> Privilege Level" and enable the "Run this program as an administrator" option.

The setup process installs the software and places a shortcut to the Application Manager on the desktop and creates a Video System in the Start menu.

Configure Firewall

When you start the viewer application, your PC may prompt you to permit access to the network.
The installer includes two applications that need access to the network:

- **AVInstaller.exe** – camera finding and installation program

- **LocalMachine.exe** – viewing and archiving program

Both programs are located in the Video Surveillance installation folder. Access to these applications should be granted if the firewall prompts you.

8. APPLICATION MANAGER PROGRAM

All programs and utilities comprising the video system can be accessed via the Application Manager. The standard applications include the Camera Installer, Video System, and AVI Maker. The firmware loader Camera Upgrade can be listed if the *FirmwareLoader.exe* file is placed in the "Video Surveillance" folder. The splash screen for the Application Manager is shown below.

EX85 Application Manager

9. CAMERA INSTALLER

The camera installer helps to find all compatible cameras present on the local area network, assign IP addresses to detected cameras, and to verify cameras are accessible and operational. The program supports two modes of operation – Basic and Advanced.

Basic Mode

In this mode the Camera Installer detects all cameras that can be reached by the broadcast request and automatically assigns an IP address to the camera. IP addresses are selected from those belonging to the same sub-network as the computer running the Camera Installer not assigned to other devices. To detect and install the cameras automatically, the user should press the **Install Camera** button. The installer will find, configure and verify the operability of the cameras and report installation results. Once the installation is completed, users should press the **Save/Exit** button to save the installation information.
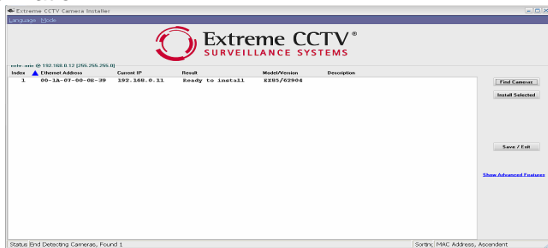
EX85 Camera Installer

Advanced Mode

In this mode the user can detect all cameras present on the LAN and choose one or more cameras to install. The installer has a mechanism to protect previously installed cameras (if any) from accidental change. IP addresses can also be set manually in this mode if required.

Advanced mode has an expanded function set that is usually invisible. Users can click **Show Advanced Features** to make it visible and click again to hide it.

Advanced mode provides the following set-up functions:

Find Cameras – function searches for all cameras present accessible by the broadcast request. It will also attempt to find previously installed cameras and set the status to "Installed, locked" so that further operations will not affect those cameras. Cameras can be locked/unlocked from this mode.

Install Selected – function installs selected cameras and verifies operation similarly to the **Install Cameras** function in Basic mode. Only selected cameras will be installed, and if no cameras are selected, all cameras available will be installed.

Unselect All – function deselects all cameras.

View Selected – open a web-browser to view the selected camera's HTTP interface where users can watch live video and configure the camera.

Edit Selected – function allows editing the selected camera's IP address and camera description.

Add Remote Units – function allows adding a camera manually. Feature is designed to install a camera on another sub-net that is not reachable by broadcasting. This feature should only be used if the camera's MAC and IP addresses are known and connectivity has been verified.

Save/Exit – function saves the information of the installed camera(s) into the "LocalMachine.ini" file and exports a plaintext list of cameras into a "CameraList.txt" file for third party software, then exits the installer.

10. VIDEO SYSTEM

After the camera has been successfully installed, the Video System can be activated by clicking on the **Run** button in the Application Manager. If **Hide** is selected, the application will be placed onto the system tray of the Windows taskbar. The main screen for the Video System interface is shown below.

EX85 Video System

Toolbar

The toolbar of the Video System is located in the upper portion of the screen above the video display area, and contains the following icons:

 Turns on/off a drop-down list of the installed cameras. Cameras can be enabled/disabled by double-clicking on the camera number. When disabled, the camera will be marked with a red cross.

 Displays the Settings menu (see below).

 Enables full screen display of video.

Each icon selects a different display format. Formats for a single camera to a maximum of 13 cameras are possible.

 Displays the Archive control settings.

 Takes a snapshot of live video or archive. The snapshot is taken from the camera highlighted in the installed cameras drop-down list. To take a snapshot of all cameras, highlight "cameras" at the root of the drop-down list. To locate/view

snapshots, right-click on the live video image and select "photo", "browse". The directory path to saved snapshots is specified in the settings menu (see below). Alternatively snapshots can be taken by right-clicking on the live video image and selecting "photo", "save". Default location for saved images is C:\Program Files\...\Video Surveillance\photo.
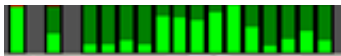
Reports the current CPU, network and camera usage. The first two LED bars show the CPU usage and total network usage respectively in percent. The rest of the LED bars show network usage of each camera. Values shown are relative to the camera using the most bandwidth.

Selecting Full/Reduced Resolution and Zoom

Images and video can be displayed at full or reduced resolutions. Each camera image can be expanded to a full resolution display by left double-clicking on the image. Full resolution can be scaled back to the reduced resolution by double-clicking gain on the image. Image resolution in pixels is displayed in the upper left corner of the image.

To zoom in on an area of interest, draw a rectangle with the mouse on screen (by left clicking and dragging the mouse). A separate zoom window will open up showing

live video of the selected area at full resolution. An outline of the selected area will appear in the underlying reduced resolution image. Zooming in and out is performed by pressing the Page Up and Page Down on the keyboard, or by scrolling the mouse wheel (if possible). Panning of the zoomed area is accomplished by dragging the zoom view outline across the overall image with the mouse, or by using the keyboard arrow keys.

A maximum of four independent live zoom windows can be opened per camera.

11. SETTINGS

Settings menu is displayed by clicking on the **Settings** button in the toolbar.

The Settings menu is the top level menu for all settings provided in the Video System. Selecting one of the menu items opens a lower level menu containing further settings and options. The settings menu is shown in the figure below:

```
Exposure
Image Quality
Auto Iris
Day / Night
Archive
Motion Detection
Save to
Advanced
Authentication
Remote Viewing
Reset All
```

Some of the lower level menus are discussed below:

Camera field

Displays the camera number which the settings are being applied to. The list includes an "All cameras" option to apply settings to all cameras.

Camera   2   ▼

Exposure

Displays options to adjust exposure related settings.

- **Illumination** – options to adjust camera's white balance to differing lighting conditions.
- **Lighting** – options to adjust auto-exposure to compensate for indoor lighting. (50Hz or 60Hz applies to areas supplying power at the respective frequency)
- **Low Light Mode** – options adjusting exposure times during low light conditions:
    i.   *High Speed* enables shortest exposure times between 1 and 10ms. This option eliminates motion blur, but may result in a darker image.
    ii. *Speed* enables short exposure times, between 10ms and 80ms.
    iii. *Balanced* enables medium-duration exposures between 20ms to 80ms.
    iv. *Quality* enables longer exposure times between 40ms to 200ms. Motion blue may be observed, but increased low light/IR sensitivity is resultant.
    v.   *Moonlight* enables very long exposures up to 500ms.
- **Auto Exposure** – option enables/disables automatic exposure function.

- **Single Capture** – option halts camera from sending images unless externally triggered from software**.**

Exposure

Image Quality

Auto Iris

Day / Night

Archive

Motion Detection

Save to

Advanced

Authentication

Remote Viewing

Reset All

Camera: 2

Illumination
- ◉ Automatic
- ○ Indoor
- ○ Outdoor
- ○ Mix

Lighting
- ○ 50Hz
- ◉ 60Hz

Low Light Mode
Mode: Balanced
Short exposures: 1
☑ Auto exposure On/Off

Single Capture
☐ On/Off [Continuous Capture]
[Cancel Continuous]
☐ Add timestamp to photos
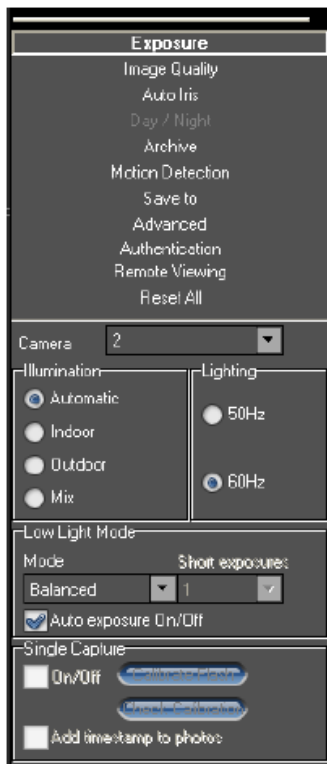
Image Quality

Displays options to adjust image quality settings.

- **Compression** – options to adjust level of JPEG compression to images in different display modes
    i. *Full View* is to display full resolution video.
    ii. *Multi View* is to display multiple cameras at reduced resolution
    iii. *Zoom View* is to display zoom windows
- **Brightness** – adjusts image brightness
- **Sharpness** – adjust image sharpness
- **Saturation** – adjusts image saturation
- **Red** – adjusts the red tint. This setting changes the target the camera's automatic white balance. The camera may take 20-30 seconds to fully adjust.
- **Blue** – adjusts the blue tint. This setting changes the target the camera's automatic white balance. The camera may take 20-30 seconds to fully adjust.
- **Frame Rate** – adjusts the rate at which the computer requests images from the camera. The maximum rate is controlled by the camera.
- **Size of Picture** – adjusts the starting coordinates and image size.
- **Rotate 180** – an option to flip the image 180 degrees.

Image Quality Adjustment Window

Archive
Displays options to set-up video archival settings.

Motion Detection
Displays options for configuring motion detection function. There are two main modes supported: a software mode in the Video System, and an on-camera mode. The Video System mode performs analysis on images that have been transmitted from the camera to the computer. In contrast, the on-camera mode performs motions prior to transmitting images, reducing CPU load and network bandwidth usage.

Motion detection is enabled via the Archive settings when either the "*Save all and mark motion*" or "*Save only motion*" options are selected. The enabled/disabled status is displayed in the bottom right corner of the Motion Settings window. Privacy masking can also be set up to block motion detection in selected zones.

Options for setting motion detection are the following:
- **Sensitivity** – options to adjust motion detection
    i. *Level* adjusts sensitivity to inter-frame brightness change triggering motion detection. Lower settings may cause false motion detection due to increased sensitivity.
    ii. *Detail* adjusts size of detectable objects. Lower settings will result in a more sensitive setting.
    iii. *Limit* serves as a guard against false triggering due to sudden overall changes in lighting. If the number of zones activated simultaneously is

larger than the "Limit" setting, motion detection will be ignored.

Images below show sample motion detection screen shots.
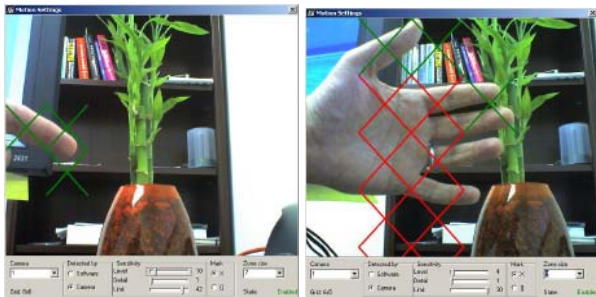
Save To
Displays options to specify the directory path for video archives and snapshot images. The name of the archival directory should be the same for all cameras, however it is possible to specify different locations for each camera.

Advanced
Displays advanced options for camera functionality.

- **Don't update sensor window** – determines how changes to the images size are performed: by the Video System software or at the camera. Enabling this option helps to avoid conflicts when multiple users are directly viewing the same camera. Each

user is able to set different image sizes. Disabling this option allows the increase of the camera frame rate due to smaller image size.

- **Use DirectX if possible** – option to use DirectX functions utilizing graphics card hardware to display images instead of using software. This function will reduce the load on the CPU when enabled. The "DirectX size" drop-down list provides options for the graphics area size supported by DirectX.
- **Auto-Startup** – option to automatically restart the Video System with earlier settings previous to it being stopped.
- **RealTime if folded** – option to continue running Video System application at the top priority level in the Windows Task Manger after the application has been minimized and placed onto the system tray.
- **Show motion** – option to mark areas of the image where motion was detected
- **Use double packets** – option to use data packets with 2904 bytes instead of regular 1450 bytes for image transmission. This allows for increased image transmission bandwidth, but may be less stable on overloaded networks.
- **Warning on disconnect** – option to display a red screen warning in place of live video that has been disconnected or temporarily lost. When disabled, the last captured frame is displayed on screen.
- **Statis ARP** – option to enable a static link between the camera's MAC address and the IP address. Alternative is a dynamic ARP.

Authentication
Displays options to create user profiles and password protect access to the Video System. There are three levels of access available:
- **Administrator** – grants full access to all features of the Video System
- **Viewer** – grants access to live video and archived video, but not to the settings
- **Live only** – grants access to live video only

Remote Viewing
Video System software has a built-in web server allowing the camera and archives to be viewed remotely.

Day/Night
Displays option for controlling the day/night modes of the camera. Three options are available:
- **Automatic** – enables the camera to automatically switch from the day to night modes and back based on the threshold settings
- **Day** – enables day mode
- **Night** – enables night mode
- **Threshold adjustments** – adjusts the parameters for automatic day/night switching
    i. *Switch At* adjusts level of darkness to switch from day to night modes
    ii. *Toggle Guard* adjusts level of brightness to switch from night mode to day mode. Toggle

guard should be adjusted to prevent day/night mode toggling during transitional lighting.

Auto-Iris
This function is not supported as the camera uses manual iris lenses. Therefore, this function should be left DISABLED by leaving the *Enabled* selection unchecked.

Right-Click Menu
Right-clicking anywhere within the Video System screen allows opening an additional menu:

- **Show** – presents two options:
    i. *Archive* enables access to browsing archives
    ii. *Photo* enables access to snapshopts taken with the camera. Default snapshots location is C:\Program Files\...\Video Surveillance\photo.
- **Photo** – enables saving and printing individual snapshots as well as browsing
    i. *Save* takes a snapshot of live video and saves it in the snapshot folder. The snapshot is taken from the camera which is highlighted in the drop-down list of installed cameras.
    ii. *Save/Print* takes a snapshot and prints it instantly
    iii. *Browse* opens the snapshot folder for browsing
- **Settings** – enables access to changing the main groups of settings
    i. *Miscellaneous* enables access to the following *Settings* menus:
        1. *Authentication*

2. *Remote Viewing*
3. *Save to*
4. *Advanced*
   ii. *Camera* enables access to the following combined menus:
   1. *Image Quality*
   2. *Exposure*
   3. *Day/Night*
   4. *Auto-Iris*
   5. *Archive*
   6. Includes some options in *Advanced* settings
   iii. *Motion* enables access to Motion Settings
   iv. *Printer* opens up the Print Setup menu
   v. *Dump* logs camera settings to a file named "*LocalMachine.ini*´located in the installation directory.
   vi. *Video* displays live video in full screen mode.

- **Hide** – minimizes the Video System application and hides it in the Windows system tray.
- **Log off** – logs off the current user
- **Exit** – exits the Video System application
- **About** – shows the version of the Video System software and additional information for each of the installed camera(s) including: revision of firmware, MAC address, and IP address.

Language Selection

Live video system supports interfaces in the following languages: Arabic, Chinese Simplified, Chinese

Traditional, English, Finnish, German, Japanese, Spanish, Russian and other languages. To select languages, press the **F2** button to bring up the language menu.

Firmware Loader – Upgrading the Camera

Ex85IP cameras are field upgradeable. Firmware Loader is the utility for upgrading the camera's firmware and/or hardware. Note: IT IS RECOMMENDED THAT THE USER RUNS CAMERA INSTALLER IMMEDIATELY PRIOR TO RUNNING THE FIRMWARE LOADER.
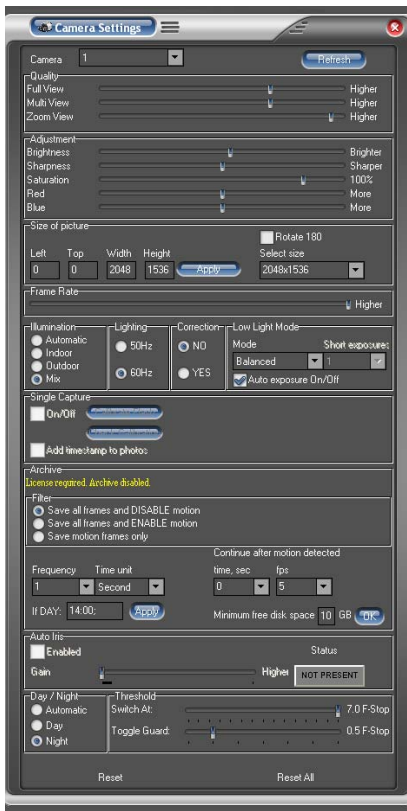
To upgrade, do the following:

1. Click "Find Cameras". Wait for a few minutes.
2. Select cameras to upgrade. Check the box.
3. Click "upgrade firmware" and choose firmware upgrade file name with "fwupdate.txt"

DEFAULT CAMERA SETTINGS

The camera's settings can be programmed via the supplied software. The screen will show the following window:
See page 36 for screen shot

Camera Settings

Camera 1 Refresh

Quality
Full View   Higher
Multi View   Higher
Zoom View   Higher

Adjustment
Brightness   Brighter
Sharpness   Sharper
Saturation   100%
Red   More
Blue   More

Size of picture
                                          Rotate 180
Left   Top   Width   Height   Select size
0   0   2048   1536   Apply   2048x1536

Frame Rate
                                                   Higher

Illumination   Lighting   Correction   Low Light Mode
○ Automatic   ○ 50Hz   ○ NO   Mode   Short exposures
○ Indoor   ○ YES   Balanced   1
○ Outdoor   ○ 60Hz   ☑ Auto exposure On/Off
● Mix

Single Capture
☐ On/Off

☐ Add timestamp to photos

Archive
License required. Archive disabled.

Filter
○ Save all frames and DISABLE motion
○ Save all frames and ENABLE motion
○ Save motion frames only

                              Continue after motion detected
Frequency   Time unit   time, sec   fps
1   Second   0   5
If DAY: 14:00; Apply   Minimum free disk space 10 GB OK

Auto Iris
☐ Enabled   Status
Gain   Higher   NOT PRESENT

Day / Night   Threshold
○ Automatic   Switch At: 7.0 F-Stop
○ Day   Toggle Guard: 0.5 F-Stop
● Night

Reset   Reset All

Default Camera Settings

12. IMPORTANT CAMERA SETTINGS

Camera Setting	Comments
Quality Display modes Full view Multi-view Zoom View	Adjusts the level of JPEG compression. There are 21 levels of compression. Different levels of compression can be used in the different views
Speed	Adjusts the rate at which the computer requests images from the camera. Note that the speed control is non-linear with a knee-point at 85%
Lighting	Adjusts the camera's Auto exposure to compensate for indoor lighting
Low Light Mode High Speed Speed Balanced Quality Moon Light AE on/off	Sets the shutter speed Exposure can be set in the range 1-10msecs Maximizes video gain with shutter ≤40msecs Maximizes video gain with shutter ≤80msecs Maximizes video gain with shutter ≤200msecs Exposure can be set up to 500msecs Allows AE to be disabled
Threshold	Sets the hysteresis of the day/night/day switch Day-to-night switching is set by "switch at" setting Night-to-day switching is set by "toggle guard" setting

13. CAMERA RE-ASSEMBLY

Make sure all wires are properly connected, all holes are sealed against moisture penetration, and all mounting screws are tight.

- Slide the lens foam over the camera lenses. Make sure the foam is snug and as close to the faceplate viewing window as possible and the photocell is secure with an unobstructed view.
- Attach the window, faceplate, and the rear cover to the camera housing. Tighten the four bolts.
- Tighten the camera's adjustable mounting bracket after the desired viewing angle has been determined.
- Power-up the camera and check its operation.

14. TROUBLESHOOTING GUIDE - CAMERA

PROBLEM	*POSSIBLE CAUSE*	*LIKELY SOLUTION*
No Video	1. Power Supply Connection	Check the input power connections at the terminal block, ensuring no wires are loose.
	Voltage Range	The supply range is: *12 - 24V AC/DC.* Measure the voltage at the terminal block.
	Viewer software	Ensure server can find camera (use find camera function
		If still no video, contact BOSCH Service Center. See rear page of this manual for contact information.

Poor Picture Quality		
	Poor focus	Follow directions given in Section 5.
	Low picture contrast	Check iris is fully open.
		Using viewer software check Auto-Exposure (AE) function is enabled.
		Using viewer software check shutter settings and increase if necessary.
	Over exposure	Using viewer software check shutter settings and reduce if necessary.

15. TROUBLESHOOTING GUIDE – LEDs

PROBLEM	*POSSIBLE SOLUTION*
Don't know If LEDS are "ON"	- 850nm LEDs will have a faint red glow when "ON". - Aim the LEDs directly at an IR sensitive camera, or use a mirror to see the lights through the EX85 camera, or wait for the LEDs to warm up (two minutes).
LEDs are not turning "OFF" when sufficient ambient light is present	Using the viewer software adjust the switch at and toggle guard

16. MOUNTING HOLES – DIAGRAM
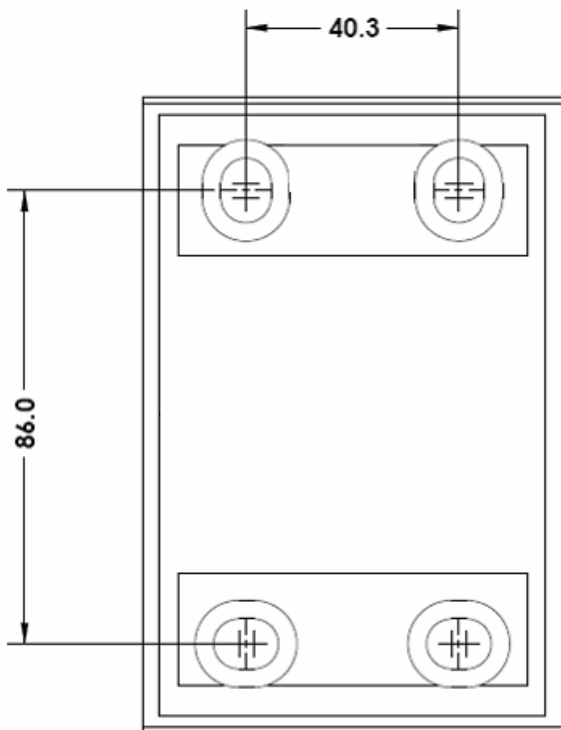
- *All dimensions expressed in millimeters*
- *1.59" X 3.38" in inches*

17. GENERAL SPECIFICATIONS

Power Consumption: 48W Max.
Maximum Current: 2 Amps

Input Voltage: 24VAC

Enclosure (housing):   Aluminum casting

Viewing Window: Glass

Dimensions: 130mm **H** (5.12")
                            134.5mm **W** (5.30")
                            212mm **L** (8.35")

Operational Temperatures: -50^0 C to $+50^0$C

Weight: 2.2kg (4.9 lbs.)

Subject to change without notice.