



BOSCH

INSTALLATION INSTRUCTIONS

EX80/82
Infrared Imager™



MAN-80-82-08

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.

®



IMPORTANT

For best results, please read this Instruction Booklet
prior to installing the **EX80/82** Infrared Imager.



WARNING !

CSA Certified / UL Listed CLASS 2 power adaptors must be used
in order to comply with electrical safety

®surveillance

“The cameras have not been evaluated for surveillance performance.”

Bosch Security Systems, Inc. will not be responsible for
injuries or damages resulting from the
improper installation or use of any product
sold by **Bosch Security Systems, Inc** their agents,
distributors or dealers.

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.

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DESCRIPTION

The ***EX80/82 Infrared Imager™*** consists of two cameras: color and mono-chrome. These cameras give optimum color performance during daylight conditions and LXR-infrared illuminated performance in the pitch black of night. Both cameras have “Vari-Focal” lenses, and are seamlessly switched by a photocell when light conditions change from day to night, ensuring “No Focus Shift”.

The all-weather housing with tough polycarbonate windows contains all the electronics. Low voltage operation, low power consumption, LED illuminators, thermostat controlled defroster and solid-state CCD technology make this camera very reliable and efficient.

A voltage regulator circuit allows for *DC* or *AC* operation, also providing protection from voltage surges, transient spikes, and reverse voltage.

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)

- **EX80/82 Infrared Imager™** assembly
- Installation Instructions booklet
- EXMB028B or EXMB028W cable management mounting bracket.
- Extra window (80° illumination beam) for 4-9mm version only.

ITEMS REQUIRED FOR INSTALLATION (not supplied with units)

- Mounting hardware
- Mounting tools
- Camera Power supply

INITIAL PREPARATIONS

- Determine the operating voltage at the installation site. The camera's Voltage Regulator Board accepts both 10.5-40VDC and 12-28VAC 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.

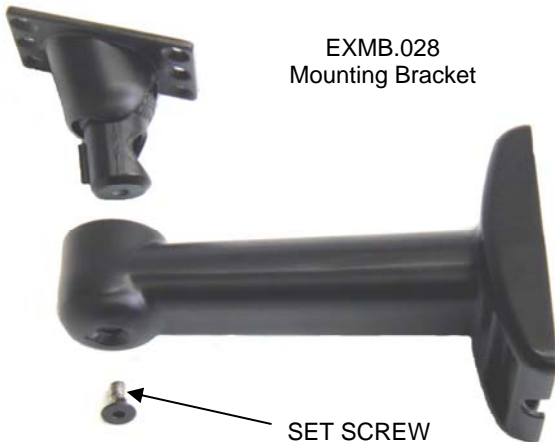
GUIDELINES

The installation of the **EX80/82 Infrared Imager™** is explained in Sections 1 to 7.

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

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

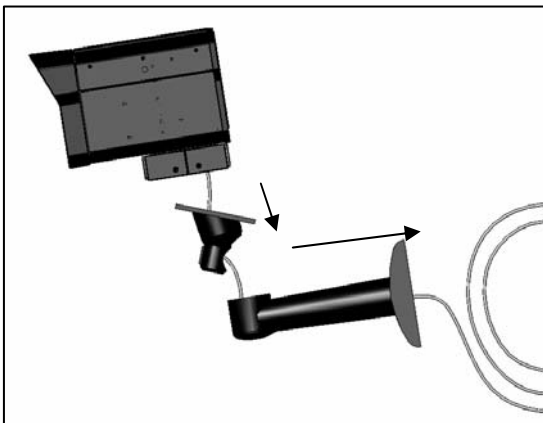
1. MOUNTING BRACKET PREPARATON



- 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

EX82 Camera



- Carefully feed the Power/BNC cable through both sections of the mounting bracket.
- Make sure the cable is 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 may result 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.

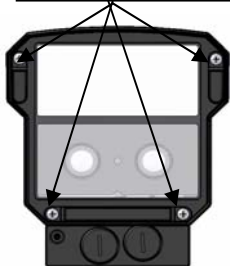
5. CAMERA LENS ADJUSTMENTS AND SELECT A WINDOW

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

The camera is pre-focused with telephoto setting as factory default. Follow the steps below if any adjustment needed.

- Loosen the four bolts from the extrusion.
- Remove the faceplate, window and the lens foam, set aside. Make sure the photocell is not dislodged.
- Loosen the two long bolts that hold the camera and VRB together. Pull the camera assembly forward until the lens setscrews can be easily reached.
- Do proper adjustment as **5.1**

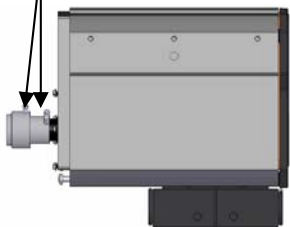
Loosen the four bolts



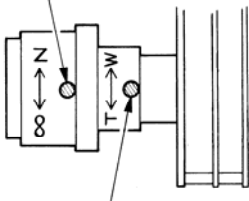
Loosen the two long bolts



Lens setscrews



Loosen this set screw for Focus Adjustment.



Loosen this set screw for Telephoto or Wide Angle Adjustment.

5.1 Vari Focal and “Auto-Iris” Control Adjustments

- Loosen the lens set screws for focus/zoom adjustments.
- The setscrew marked **N** $\longleftrightarrow \infty$ is used for image focus.
- The setscrew marked **T** \longleftrightarrow **W** is used for telephoto or wide-angle settings.
- Re-tighten the setscrews after focus adjustments have been completed.

Window Selection

Telephoto(Factory standard)	Use 40 \blacktriangledown illumination beam
Wide (for4-6mm lens set up)	Use 80 \blacktriangledown illumination beam



IMPORTANT

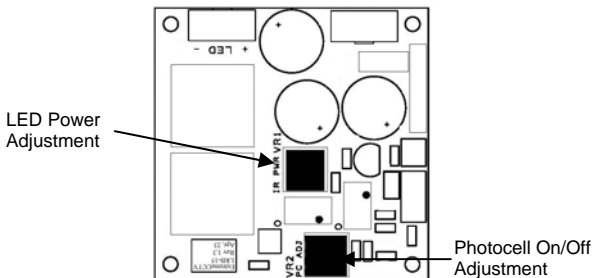
Use a Neutral Density filter or Infra-Red Pass filter to cover the lens during focusing to simulate low light conditions on scene for correct 24-hour focusing. For camera with vari-focal lens, the camera should be focused with the lens iris fully opened to simulate the worst possible depth of field. 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 **EX80/82** 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 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. 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.

8. TROUBLESHOOTING GUIDE -CAMERA

<i>PROBLEM</i>	<i>POSSIBLE CAUSE</i>	<i>LIKELY SOLUTION</i>
No Video	<p>1. <u>Power Supply</u>:</p> <ul style="list-style-type: none">- Connections....-Voltage Range... <p>2. <u>Video Connections</u></p>	<p>Check the input power connections at the terminal block, ensuring no wires are loose.</p> <p>The supply range is: <i>12-28VAC OR 10.5 – 40VDC.</i> Measure the voltage at the terminal block.</p> <p>Determine if the wiring polarity at the "Video Connector" terminal block is correct. Check BNC connector.</p> <p>If still no video, connect the camera directly to the</p>

**Poor
Picture
Quality**

Dim Image

Snowy
Image

Iris closed

Poor Video
Signal

Noisy Power
Supply

monitor. Check the video signal. If okay, the problem is with the interconnections.

If still no video, contact BOSCH Service Center. See rear page of this manual for contact information.

Increase iris level on lens

Ensure the video cable is correctly matched and terminated with 75 ohms at each end. Make sure the video cables are of similar types.

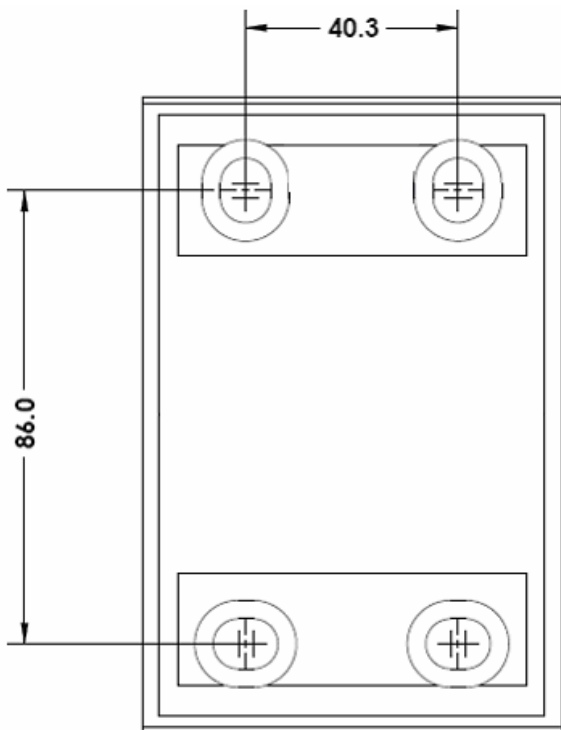
Check all power connections. Relocate or replace the power supply.

<p>Horizontal Scan Lines, Rolling Up or Down</p>	<p>Ground Looping on video cable</p>	<p>Check the coax cable shield is not touching "ground", e.g. at the couplings. An electrically isolated circuit board or isolation transformer may be required.</p>
<p>Negative, scrambled, or faded image</p>	<p>Low voltage</p>	<p>Check voltage at input power cable. Must be >10.5VDC or >12VAC. Video leads reversed connection.</p>

9. TROUBLESHOOTING GUIDE – LEDs

PROBLEM	POSSIBLE SOLUTION
Fuse Blows	<ul style="list-style-type: none">- Check the fuse rating.- Check for shorting between the housing and the input power wires.
Don't know if LEDs are "ON"	<ul style="list-style-type: none">- 850nm LEDs will have a faint red glow when "ON". 940nm LEDs are covert.- Aim the LEDs directly at an IR sensitive camera, or use a mirror to see the lights through the EX80/82DXL B/W camera, or wait for the LEDs to warm up (two minutes).
LEDs are not "ON"	<ul style="list-style-type: none">- Cover the photo sensor to activate power to the LEDs (up to 30 seconds delay for activation).- Adjust the photocell's variable resistor towards the "ON" position.- Adjust power to the LEDs.
LEDs are not turning "OFF" when sufficient ambient light is present	<ul style="list-style-type: none">- Make sure the photo sensor is not covered or hidden behind any object.- Adjust the photocell's variable resistor towards the "OFF" position (up to 30 seconds delay). The LEDs will stay "ON" or "OFF" if the adjustments are at full turn.

10. Mounting Hole - Diagram



- *All dimensions expressed in millimeters*
- *1.59" X 3.38" in inches*

11. GENERAL SPECIFICATIONS

Power Consumption:	36W Max.
Maximum Current:	2.3A @12Vdc
Input Voltage:	24VAC 12VDC
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.

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