



BOSCH

Precision Engineered Opto-Electronics™

INSTALLATION INSTRUCTIONS

EX27/EX27N/EX27D

All-Weather Camera



MAN-27/27N/27D-00

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 **EX27** camera.



EU Directives covered by this declaration:

72/9/EC Low Voltage Directives

89/336/EEC Electromagnetic Compatibility Directive

This installation should be made by a qualified service person and conform to all local codes.

EXTREME CCTV™ will not be responsible for injuries or damages resulting from the improper installation or use of any camera sold by **EXTREME CCTV™**, 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 its' 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 **EX27** integrated camera is an all-weather system that includes all of the best features of a “plug and play” camera without compromise to CCD optics and lens quality.

Full size “Vari Focal” auto-iris lenses are integrated as standard equipment to ensure that a picture is received under extreme outdoor lighting conditions.

The **EX27** is rugged, compact, power protected, weather sealed, easily installed and designed for use in industrial applications.

A voltage regulator circuit automatically allows for 12V *dc* or 24V *ac* operation without any wiring changes. Its wider voltage range also provides protection from voltage surge, transient spikes, and reverse voltage.

The **EX27** is available in several models to meet individual requirements or specific needs.

See the Light. Get the Picture.™

UNPACKING

Care should be taken when unpacking. 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)

- *EX27/EX27N/EX27D* camera assembly
- Installation Instructions
- Universal type pan/tilt mounting bracket with
1/4 - 20 captive nut
- 3mm Allen key

ITEMS REQUIRED FOR INSTALLATION

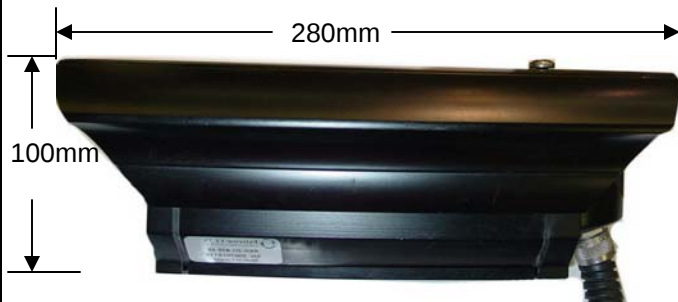
(not supplied with unit)

- Phillips screwdriver
- Optional heavy duty “L” mounting bracket or die-cast aluminum mounting bracket (contact Extreme CCTV® for details and prices)
- Hardware for camera mounting (bolts, etc.)

(See Section 5 - General Specifications, for additional information)



EX27D MECHANICAL SPECIFICATIONS



INITIAL PREPARATIONS

- Determine the operating voltage at the installation site.
- All cameras have been tested prior to shipment.

Select a suitable location that is protected from accidental damage, tampering, and environmental conditions exceeding the camera's specifications.

Caution: The selected mounting location should not place the camera in a situation where its environmental specifications could be exceeded.

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 camera such that it cannot be easily interfered with, either intentionally or accidentally.
- Select a mounting surface capable of supporting the combined weight of the camera and mounting hardware under all expected conditions of vibration and temperature.
- Secure all cabling.
- Installations on drywall must use a 1/4" bolt and drywall butterfly type anchor or superior connection.

GUIDELINES

Three basic requirements must be met before the *EX27* can be installed.

1. Voltage Setting
2. Camera Wiring & Settings
3. Video Auto-Iris, CS-mount Lens

Sections 1 to 3 will guide the installer through these settings and adjustments.

1. VOLTAGE SETTING

The camera unit is pre-connected with an electrically isolated power board for 24V ac or 12V dc operation with no wiring change or wiring polarity. See diagram below for wiring details.

Note: Input voltage is 10.5VDC to 40VDC for DC input. The AC input range is 12VAC to 28VAC.

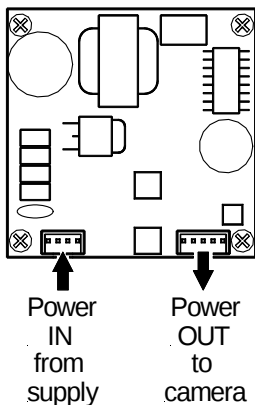


FIGURE 1 – 1
12VDC or 24VAC
Electrically Isolated Board

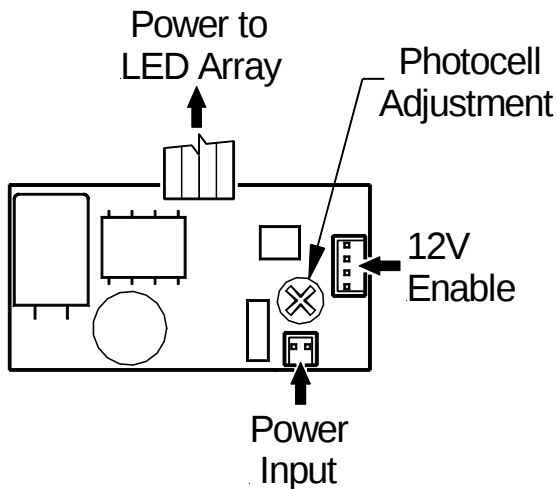


FIGURE 1 – 2
EX27N LED Array Power Board

2. LENS SETTING

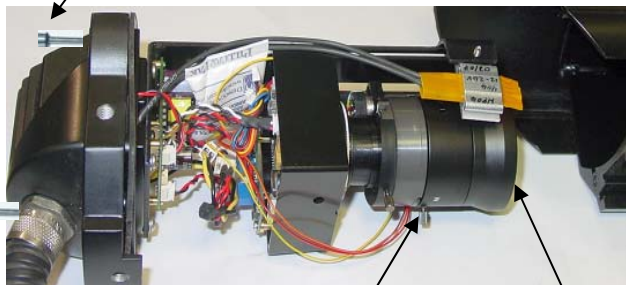
The following steps show the installer how to access the camera board and the camera lens.

- Step 2.1 - Disconnect the power source to the camera and the video signal at the BNC connector.
- Step 2.2 - Remove the four cap screws with a 3mm Allen key. See **Figure 2-1** on page 9.
- Step 2.3 - Carefully slide out the rear housing from the main enclosure. Make sure the gasket remains with the rear section.
See **Figure 2-2** on page 10.
- Step 2.4 - Make any necessary adjustments as per **Figure 3-1** on page 13.
- Step 2.5 - Carefully slide the rear section into the main enclosure and tighten the cap screws.



FIGURE 2 – 1
Rear Housing Removal

**Remove
Cap screw**



**Loosen lens
set screws**

Lens

FIGURE 2 – 2
Housing Separation for Camera, Lens
and Voltage Regulator Board Access

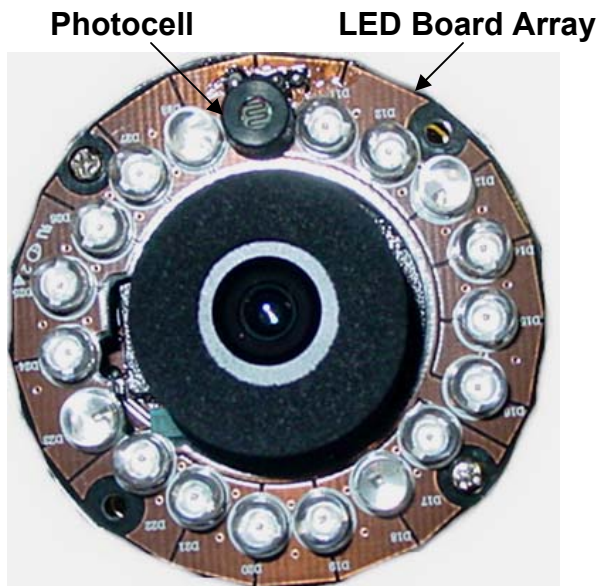
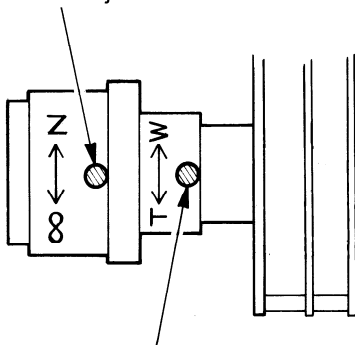


FIGURE 2 – 3
EX27N Round LED Illuminator

Figure 2-3 shows the EX27N (with fix lens) round LED illuminator and the photocell.

3. EX27 VARIFOCAL LENS ADJUSTMENT

Loosen this set screw
for Focus Adjustment.



Loosen this set screw for
Telephoto or Wide Angle
Adjustment.

FIGURE 3 – 1
EX27 varifocal Lens Focus Adjustment

Vari Focal Lens 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.



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

4. TROUBLESHOOTING GUIDE

<i>PROBLEM</i>	<i>POSSIBLE CAUSE</i>	<i>LIKELY SOLUTION</i>
No Video	1. <u>Power Supply</u>: -Connections.... -Voltage Range...	Check input power connections at the cable leads Check for loose wires. If connected to DC, check voltage input range of 10.5 - 40 V. If connected to AC, check input voltage range of 12 – 28 V. Measure the voltage at the Input terminal block.

No Video (cont'd.)	2. <u>Video Connections</u>	Determine if wiring polarity at "Video Connector" terminal block is correct. Check BNC connector. If still no video, connect the camera directly to the 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.
Poor Picture Quality Snowy Image	Poor Video Signal	Ensure video cable is correctly matched and terminated with 75 ohms at each end. Make sure video cables are similar types.

Poor Picture Quality		
Dim Image	Iris closed	Increase iris level on lens
Snowy Image (cont'd.)	Noisy Power Supply	Check connections. Relocate or replace power supply.
Horizontal Scan Lines, Rolling Up or Down	Ground Looping on video cable	Check the coax cable shield is not touching ground, e.g. at couplings. An electrically isolated circuit board or isolation transformer may be required.
	24V ac operation	Line Lock adjustment required.
Negative, scrambled, or faded image	Low voltage	Check voltage at input power cable. Must be >10.5V dc or >12V ac.

5. GENERAL SPECIFICATIONS

Input Voltage:	10.5-40 VDC 12-28 VAC (60Hz), 9W
Enclosure (housing):	Aluminum casting and extrusion (sealed to IP66 / NEMA4)
Viewing Window:	Polycarbonate
Weight:	1.4kg (3.1lbs.)

Subject to Change Without Notice.

Notes:

Notes:

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