



# Integrated IR Bullet Camera

WZ16



**BOSCH**

en Installation Manual



# Table of Contents

<b>1</b>	<b>Safety</b>	<b>4</b>
1.1	Safety Precautions	4
1.2	Important Safety Instructions	4
1.3	Important Notices	5
1.4	FCC & ICES compliance	7
1.5	CSA certification	8
1.6	Warranty / Limitation of Liability	8
<b>2</b>	<b>Introduction</b>	<b>10</b>
2.1	Parts Included	10
<b>3</b>	<b>Installation and Connection</b>	<b>11</b>
<b>4</b>	<b>Configuration</b>	<b>13</b>
4.1	Adjusting the Zoom	13
4.2	Adjusting the Focus	13
4.3	Adjusting the Video Output Brightness	13
<b>5</b>	<b>Troubleshooting</b>	<b>14</b>
5.1	5.1 Troubleshooting Tips	14
<b>6</b>	<b>Technical Specifications</b>	<b>15</b>

# 1 Safety

## 1.1 Safety Precautions

**DANGER!**

High risk: This symbol indicates an imminently hazardous situation such as "Dangerous Voltage" inside the product.

If not avoided, this will result in an electrical shock, serious bodily injury, or death.

**WARNING!**

Medium risk: Indicates a potentially hazardous situation.

If not avoided, this could result in minor or moderate bodily injury.

**CAUTION!**

Low risk: Indicates a potentially hazardous situation.

If not avoided, this could result in property damage or risk of damage to the unit.

## 1.2 Important Safety Instructions

Read, follow, and retain all of the following safety instructions. Heed all warnings on the unit and in the operating instructions before operating the unit.

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 a clean, soft, dry or moistened cloth and mild detergent solution.
7. Do not block any ventilation openings. Install in accordance with manufacturer's 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 put objects inside the camera. Make sure that no metal objects or flammable substances enter the camera. This may cause fire, short-circuits and other damages.
10. Be careful when handling the camera. To prevent damage, do not drop the camera or subject it to strong shock or vibration.
11. 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.
12. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the power where they exit from the apparatus.
13. Protect the camera from humidity and dust.
14. Unplug this apparatus during lightning storms or when unused for long periods of time.
15. Use only attachments/accessories specified by the manufacturer.
16. Use only with the bracket sold with the apparatus.
17. Do not attempt to open or disassemble the camera to gain access to the internal components. 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, does not operate normally, or has dropped. When servicing, power shall be disconnected.

18. These servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions, unless you are qualified to do so.

### 1.3 Important Notices



**Accessories** - Do not place this unit on an unstable stand, tripod, bracket, or mount. The unit may fall, causing serious injury and/or serious damage to the unit. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer. When a cart is used, use caution and care when moving the cart/apparatus combination to avoid injury from tip-over. Quick stops, excessive force, or uneven surfaces may cause the cart/unit combination to overturn. Mount the unit per the manufacturer's instructions.

**All-pole power switch** - Incorporate an all-pole power switch, with a contact separation of at least 3 mm in each pole, into the electrical installation of the building. If it is needed to open the housing for servicing and/or other activities, use this all-pole switch as the main disconnect device for switching off the voltage to the unit.

**Camera grounding** - For mounting the camera in potentially damp environments, ensure to ground the system using the ground connection of the power supply connector (see section: Connecting external power supply).

**Camera lens** - An assembled camera lens in the outdoor housing must comply and be tested in accordance with UL/IEC60065. Any output or signal lines from the camera must be SELV or Limited Power Source. For safety reasons the environmental specification of the camera lens assembly must be within the environmental specification of -10 °C to 50 °C (14 °F to 122 °F). Camera signal - Protect the cable with a primary protector if the camera signal is beyond 140 feet, in accordance with NEC800 (CEC Section 60).

**Camera signal** - Protect the cable with a primary protector if the camera signal is beyond 140 feet, in accordance with NEC800 (CEC Section 60).

**Coax grounding:**

- Ground the cable system if connecting an outside cable system to the unit.
- Connect outdoor equipment to the unit's inputs only after this unit has had its grounding plug connected to a grounded outlet or its ground terminal is properly connected to a ground source.
- Disconnect the unit's input connectors from outdoor equipment before disconnecting the grounding plug or grounding terminal.
- Follow proper safety precautions such as grounding for any outdoor device connected to this unit.

**U.S.A. models only** - Section 810 of the National Electrical Code, ANSI/NFPA No.70, provides information regarding proper grounding of the mount and supporting structure, grounding of the coax to a discharge unit, size of grounding conductors, location of discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.



**Disposal** - Your Bosch product was developed and manufactured with high-quality material and components that can be recycled and reused. This symbol means that electronic and electrical appliances, which have reached the end of their working life, must be collected and disposed of separately from household waste material. Separate collecting systems are usually in place for disused electronic and electrical products. Please dispose of these units at an environmentally compatible recycling facility, per European Directive 2002/96/EC.

**Electronic Surveillance** - This device is intended for use in public areas only. U.S. federal law strictly prohibits surreptitious recording of oral communications.

**Environmental statement** - Bosch has a strong commitment towards the environment. This unit has been designed to respect the environment as much as possible.

**Electrostatic-sensitive device** - Use proper CMOS/MOS-FET handling precautions to avoid electrostatic discharge.

NOTE: Wear required grounded wrist straps and observe proper ESD safety precautions when handling the electrostatic-sensitive printed circuit boards.

**Moving** - Disconnect the power before moving the unit. Move the unit with care.

Excessive force or shock may damage the unit and the hard disk drives.

**Outdoor signals** - The installation for outdoor signals, especially regarding clearance from power and lightning conductors and transient protection, must be in accordance with NEC725 and NEC800 (CEC Rule 16-224 and CEC Section 60).

**Permanently connected equipment** - Incorporate a readily accessible disconnect device external to the equipment.

**Pluggable equipment** - Install the socket outlet near the equipment so it is easily accessible.

**Power resupply** - If the unit is forced to power down due to exceeding the specified operating temperatures, disconnect the power cord, wait for at least 30 seconds, and then reconnect the power cord.

**Power lines** - Do not locate the camera near overhead power lines, power circuits, or electrical lights, nor where it may contact such power lines, circuits, or lights.

**SELV** - All the input/output ports are Safety Extra Low Voltage (SELV) circuits. SELV circuits should only be connected to other SELV circuits.

Because the ISDN circuits are treated like telephone-network voltage, avoid connecting the SELV circuit to the Telephone Network Voltage (TNV) circuits.

#### **System ground/Safety ground**

System (video) ground is indicated by the symbol .

Safety (power) ground is indicated by the symbol .

The system ground is only used to comply with safety standards or installation practices in certain countries. Bosch does not recommend connecting system ground to safety ground unless it is explicitly required. However, if the system ground and safety ground are connected and grounding loops are causing interference in the video signal, use an isolation transformer (available separately from Bosch).



#### **CAUTION!**

Connecting System ground to Safety ground may result in ground loops that can disrupt the CCTV system.

**Video loss** - Video loss is inherent to digital video recording; therefore, Bosch Security Systems cannot be held liable for any damage that results from missing video information. To minimize the risk of lost digital information, Bosch Security Systems recommends multiple, redundant recording systems, and a procedure to back up all analog and digital information.

## 1.4 FCC & ICES compliance

### FCC Information

(U.S.A. and Canadian Models Only)

This equipment has been tested and found to comply with the limits for a **Class B** 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**. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the

interference by one or more of the following measures:

- Fit Ferrite beads on all cable to and from the power supply box, within the box walls.
- 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.
- Reorient or relocate the receiving antenna;
- Increase the separation between the equipment and receiver;
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected;
- Consult your Bosch Service Center, dealer, or an experienced radio/TV technician for further advice.

Intentional or unintentional modifications, not expressly approved by the party responsible for compliance, shall not be made. Any such modifications could void the user's authority to operate the equipment. If necessary, the user should consult the dealer or an experienced radio/television technician for corrective action.

The user may find the following booklet, prepared by the Federal Communications Commission, helpful: How to Identify and Resolve Radio-TV Interference Problems. This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

### Informations FCC et ICES

(modèles utilisés aux États-Unis et au Canada uniquement)

Suite à différents tests, cet appareil s'est révélé conforme aux exigences imposées aux appareils numériques de **classe B**, en vertu de la section 15 du règlement de la Commission fédérale des communications des États-Unis (FCC), et en vertu de la norme ICES-003 d'Industrie Canada. Ces exigences visent à fournir une protection raisonnable contre les interférences nuisibles lorsque l'appareil est utilisé dans le cadre d'une **installation résidentielle**. Cet appareil génère, utilise et émet de l'énergie de radiofréquences et peut, en cas d'installation ou d'utilisation non conforme aux instructions, engendrer des interférences nuisibles au niveau des radiocommunications. Toutefois, rien ne garantit l'absence d'interférences dans

une installation particulière. Il est possible de déterminer la production d'interférences en mettant l'appareil successivement hors et sous tension, tout en contrôlant la réception radio ou télévision. L'utilisateur peut parvenir à éliminer les interférences éventuelles en prenant une ou plusieurs des mesures suivantes:

- Modifier l'orientation ou l'emplacement de l'antenne réceptrice;
- Éloigner l'appareil du récepteur;
- Brancher l'appareil sur une prise située sur un circuit différent de celui du récepteur;
- Consulter le revendeur ou un technicien qualifié en radio/télévision pour obtenir de l'aide.

Toute modification apportée au produit, non expressément approuvée par la partie responsable de l'appareil, est strictement interdite. Une telle modification est susceptible d'entraîner la révocation du droit d'utilisation de l'appareil.

La brochure suivante, publiée par la Commission fédérale des communications (FCC), peut s'avérer utile : How to Identify and Resolve Radio-TV Interference Problems (Comment identifier et résoudre les problèmes d'interférences de radio et de télévision). Cette brochure est disponible auprès du U.S. Government Printing Office, Washington, DC 20402, États-Unis, sous la référence n° 004-000-00345-4

**NOTICE!**

This is a class B product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

## 1.5 CSA certification

**Disclaimer**

CSA has not tested the performance or reliability of the security or signaling aspects of this product. CSA has only tested fire, shock and/or casualty hazards as outlined in CSA's Standard(s) for Safety for Audio, Video and Similar Electronic Apparatus. Safety Requirements UL 60065. CSA Certification does not cover the performance or reliability of the security or signaling aspects of this product. CSA MAKES NO REPRESENTATIONS, WARRANTIES, OR CERTIFICATIONS WHATSOEVER REGARDING THE PERFORMANCE OR RELIABILITY OF ANY SECURITY OR SIGNALING RELATED FUNCTIONS OF THIS PRODUCT.

## 1.6 Warranty / Limitation of Liability

The Night Vision B&W & DSP Color CCD Camera has a three-year warranty. BOSCH Security Systems warrants that its products, at the time of shipment by BOSCH Security Systems, are free from defect in material or workmanship under normal use and service for the respective warranty periods specified in the applicable Price Schedule or as otherwise published. To assure conformance with operating limitations, Buyer should refer to the applicable data sheet.

The warranty is void (i) if the Product is not operated in conformance with installation, environmental, mechanical or electrical requirements, or within thermal stress limits, or (ii) to the extent that any malfunction is the result of misuse, abuse, vandalism, neglect, improper installation or application, alteration, accident, or negligence in use, storage, transportation, or handling or if the original identification markings on the product have been removed, defaced or altered, lightning, electricity, water, fire, environment or other hazard, or act of God, or other impact outside of normal operating guidelines.

The foregoing warranty is subject to Buyer's (i) promptly written claim and (ii) timely provision to BOSCH Security Systems of an opportunity to inspect and test the Product claimed to be defective. Such inspection may be on Buyer's premises and/or BOSCH Security Systems may request the return of the Product at Buyer's expense. However, BOSCH Security Systems shall not be responsible for packing, inspection, or labor costs in connection with the return of Product. No Product shall be accepted for warranty service that is not accompanied by a Return Authorization issued by BOSCH Security Systems.



The liability of BOSCH Security Systems hereunder or otherwise is solely and exclusively limited to replacement (new or refurbished Product), repair, or credit of the amortized purchase price, as BOSCH Security Systems may elect, for any Product which is returned by Buyer during the applicable warranty period, or services for which timely notice of defect has been given by Buyer, and which are found by BOSCH Security Systems to be subject to adjustment under this warranty.

BOSCH Security Systems' warranty shall not be enlarged, diminished, or affected by, and no obligation or liability shall arise or grow out of BOSCH Security Systems' rendering or technical advice, facilities, or services in connection with Buyer's order to the products furnished hereunder.

For more information about the warranty on this product, see the Warranty Repair section on Bosch's Customer Care web page at [www.boschsecurity.us/en-us/Service/CustomerCare](http://www.boschsecurity.us/en-us/Service/CustomerCare).

**NOTICE!**

No do not remove the serial sticker for the warranty service. Doing so will void the warranty.

---

## 2 Introduction

The WZ16 Integrated IR Bullet Camera is a night vision DSP Color CCD camera that uses a 1/3" CCD solid-state imaging device that provides superior performance. The camera can be installed easily in most indoor and outdoor locations.

Features include:

- Day/night operation
- Infrared, photocell-controlled LEDs
- Weight of less than 1.5 pounds / 0.6 kg
- IP67 rating
- Operates at temperature range from -30 °C to +55 °C ( - 22°F to + 131°F) at up to 80% humidity

### 2.1 Parts Included

Quantity	Item
1	1 WZ16 Integrated IR Bullet Camera
1	Mounting bracket
3	Mounting screws
1	Installation Manual

### 3 Installation and Connection



**DANGER!**  
RISK OF ELECTRIC SHOCK! DO NOT OPEN THE UNIT!



**WARNING!**  
To prevent injury, this apparatus must be securely attached to the floor/wall in accordance with the following installation instructions.



**CAUTION!**  
Do not install the camera near electric or magnetic fields. If possible, do not install in a kitchen or boiler room as heat will affect the camera.

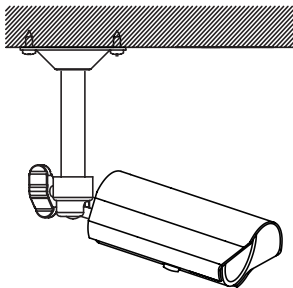


**CAUTION!**  
Do not use a power source other than the one specified. An unregulated power supply can cause damage to the camera. Use of an unregulated power supply will void the product warranty.

1. Select a mounting surface that is strong enough to support the camera.
2. Connect the camera to either a 12VDC (recommended for best picture and the most stable camera operation) or 24 VAC regulated power supply.
3. Face the camera away from the sun or any bright or reflective light. Excess light on the lens may cause smear on the picture and possible damage to the CCD.



**CAUTION!**  
To prevent humidity problems, the camera must be installed in dry conditions, and the cable leads should be sealed once connected.



**Figure 3.1** Camera mounted on ceiling

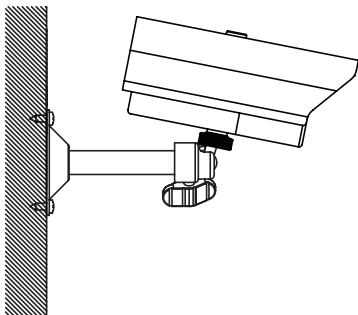


Figure 3.2 Camera mounted (from bottom) on Wall

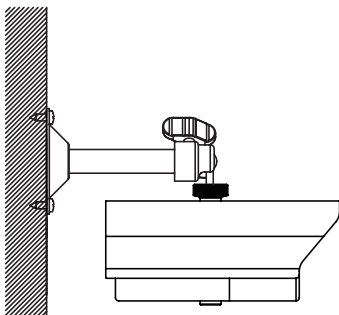


Figure 3.3 Camera mounted (from top) on Wall

4. Connect the camera to the video monitor. Bosch recommends using a monitor with a CCTV quality  $75\Omega$  video impedance level. If your monitor is switched to high impedance, please adjust the monitor accordingly.

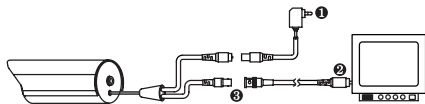


Figure 3.4 Standard 12 VDC BNC(RCA) Connection

Number	Description
1	12 VDC or 24 VAC regulated power supply
2	Video in
3	BNC (RCA) Female video

## 4 Configuration

Follow the steps below to adjust the zoom and focus. Remove the lens cap before making adjustments, then replace it when you finish. Refer to the figure below.

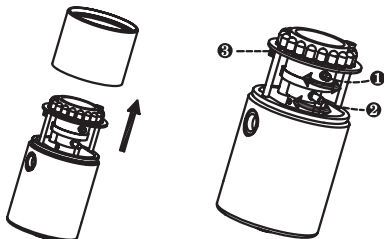


Figure 4.1 Lens adjustment

Number	Description
1	Zoom control
2	Focus control
3	Video brightness



### CAUTION!

To prevent humidity problems, the camera must be installed in dry conditions. Removing the lens cap in a wet or humid environment may result in condensation on the front window.

### 4.1 Adjusting the Zoom

1. Loosen the Zoom lock screw by turning it counterclockwise.
2. Adjust the zoom by moving the Zoom lever to Tele side or Wide side.
3. Turn the Zoom lock screw clockwise to tighten the focus lever after adjustment.

### 4.2 Adjusting the Focus

1. Loosen the focus lock screw by turning it counterclockwise.
2. Adjust the focus by moving the focus lever to near side or far side.
3. Turn the focus lock screw clockwise to tighten the focus lever after adjustment.

### 4.3 Adjusting the Video Output Brightness

1. Adjust the brightness from VR according to the environment.

## 5 Troubleshooting

### 5.1 Troubleshooting Tips

Before sending the camera out for repair, check the items below. If the problem persists after checking these items, contact your service center.

**- If no image appears, verify that:**

- The coaxial cable is attached securely.
- The power and voltage are normal.
- There is adequate illumination.

**- If the image is unclear, verify that:**

- The lens is in focus.
- The lens is not dirty. Dirt or fingerprints on the lens can adversely affect the images. Gently wipe any dirt or fingerprints off the lens with a soft cloth or lens cleaning paper and cleaning fluid (available commercially).
- The monitor is adjusted correctly.

## 6 Technical Specifications

### Electrical

Power	12 VDC ( $\pm 10\%$ ) Max 700 mA 24 VAC ( $\pm 10\%$ ) Max 7 W
<b>Surge Suppression</b> Power Input	Peak current: 2000 A (8/20 $\mu$ s) Peak power: 5500 W (2 ms)

### Videos

Signal Format	NTSC	PAL	NTSC	PAL
Image Device	1/3 in. Super HAD CCD		1/3 in. Super HAD CCD II	
Scanning Systems	2 : 1 Interlace			
Horizontal Resolution	540 TVL			
Total Pixels	811 x 508	795 x 596	811 x 508	795 x 596
Effective Pixels	768 x 494	752 x 582	768 x 494	752 x 582
Signal-to-Noise Ratio	> 45 dB (with AGC off)			
Sensitivity/ Min. Illumination	Day: .5 Lux / F2.0 Night: 0.00 Lux (IR LED On)			
Video Output	Composite Video 1 Vpp, 75 Ohm unbalanced			
IR LED	18 ea.			
IR LED Wavelength	850 nm			
IR Beam Range	up to 20 meters			
LED Operation	Turn On: 2 Lux Turn Off: 4 Lux			

### Mechanical

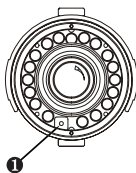
<b>Dimensions (H x W x L)</b>	
- Camera	115 mm x 60 mm x 60 mm (4.53 in. x 2.36 in. x 2.36 in.)
- Bracket	115 mm x 60 mm x 60 mm (4.53 in. x 2.36 in. x 2.36 in.)
<b>Weight</b>	
- Camera and Bracket	0.56 kg (1.2 lbs)
Construction	Robust aluminum extrusion
Color	Silver gray
Finish	Painted
Bracket	Pan-tilt bracket included
Bracket Pan/Tilt Range	Pan: $\pm 90^\circ$ (180° total) Tilt: $\pm 50^\circ$ (100° total)

### Environmental

- Operating Temperature	-10 °C to +50 °C (14 °F to 122 °F)
Storage Temperature	-20 °C to +60 °C (-4 °F to 140 °F)
Operating Humidity	10% to 80% (condensing or non-condensing?)

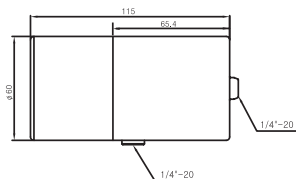
## Dimensions

Below are several dimensional drawings of the camera. Unit of measure is mm.

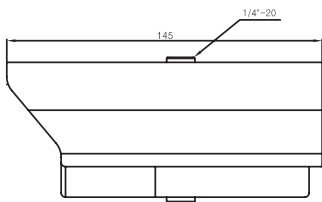


**Figure 6.1** Front view

Number	Description
1	Photocell
18 LED	

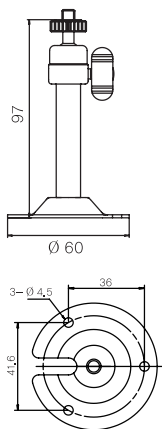


**Figure 6.2** Bottom view



**Figure 6.3** Side view





**Figure 6.4** Mounting bracket





**Bosch Security Systems, Inc.**

850 Greenfield Road  
Lancaster, PA 17601  
U.S.A.

**[www.boschsecurity.com](http://www.boschsecurity.com)**

© Bosch Security Systems, Inc., 2011