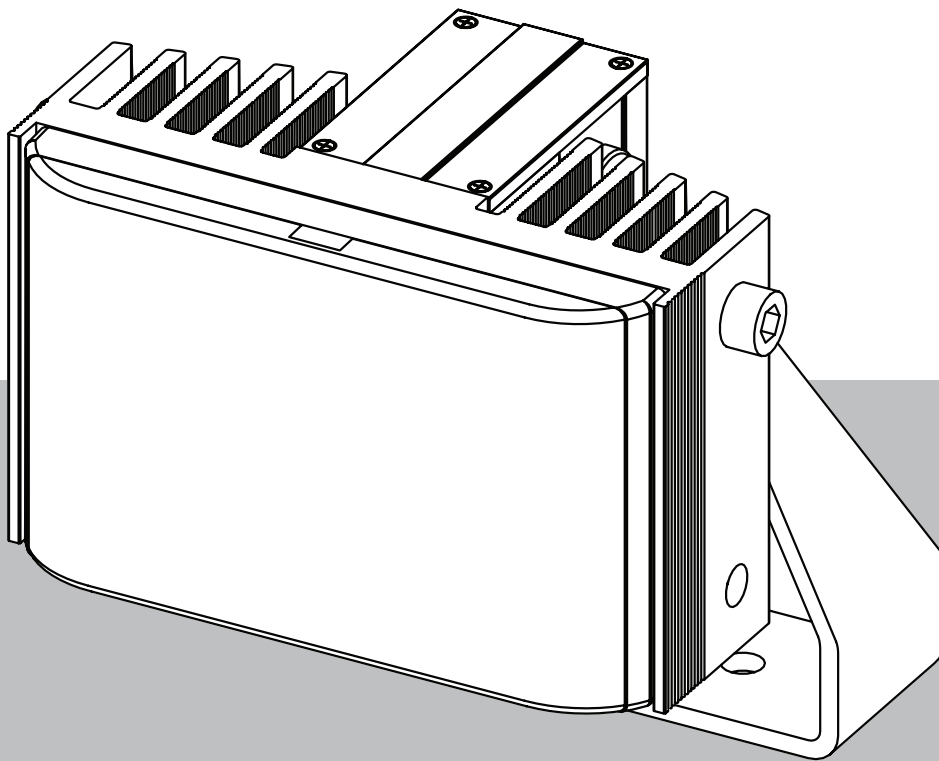


# IR Illuminators 5000

IIR-50850 | IIR-50940 | NIR-50850 | NIR-50940





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# 1 Safety

## Safety message explanation

**Caution!**

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

**Notice!**

Indicates a situation which, if not avoided, could result in damage to the equipment or environment, or data loss.

## Safety precautions

**Caution!**

Risk Group 2 Caution: Invisible infrared light (IR) emitted from this product. Avoid eye exposure, use appropriate shielding or eye protection.

**Caution!**

Installation should only be performed by qualified service personnel in accordance with the National Electrical Code (NEC 800 CEC Section 60) or applicable local codes.

**Caution!**

The Low Voltage power supply unit must comply with EN/UL 60950. The power supply must be a SELV-LPS unit or a SELV - Class 2 unit (Safety Extra Low Voltage - Limited Power Source).

**Caution!**

These units must be properly and securely mounted to a supporting structure capable of sustaining the unit weight. Use care when selecting mounts for installation; the mounting surface and unit's weight should be carefully considered.

## Important safety instructions

Read, follow, and retain for future reference all of the following safety instructions. Follow all warnings before operating the device.

- Clean only with a dry cloth. Do not use liquid cleaners or aerosol cleaners.
- Do not install device near any heat sources such as radiators, heaters, stoves, or other equipment (including amplifiers) that produce heat.
- Never spill liquid of any kind on the device.
- Take precautions to protect the device from power and lightning surges.
- Adjust only those controls specified in the operating instructions.
- Operate the device only from the type of power source indicated on the label.
- Unless qualified, do not attempt to service a damaged device yourself. Refer all servicing to qualified service personnel.
- Install in accordance with the manufacturer's instructions in accordance with applicable local codes.
- Use only attachments/accessories specified by the manufacturer.

- Permanently connected devices must have an external, readily operable mains plug or all-pole mains switch in accordance with installation rules.
- Disconnect power supply and arrange for the device to be serviced by qualified personnel if:
  - The power cable/plug is damaged.
  - Liquids or foreign bodies have entered the device.
  - The device has been exposed to water or extreme environmental conditions.
  - The device is faulty despite correct installation/operation.
  - The device has fallen from a height, or the housing has been damaged.
  - The device performance is noticeably changed.
- Use only one of these three Power supply units with this product:
  - PSU-IIR-35
  - PSU-IIR-60
  - PSU-IIR-100

### Notices

#### FCC & ICES Information

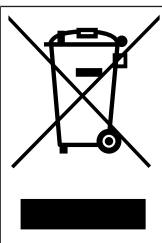
This equipment has been tested and found to comply with the limits for a **Class B** digital device, pursuant to *part 15* of the *FCC Rules*. These limits are designed to provide reasonable protection against harmful interference in a **residential installation**. This equipment generates, uses, and 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:

- 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 the dealer or an experienced radio/TV technician for help.

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.

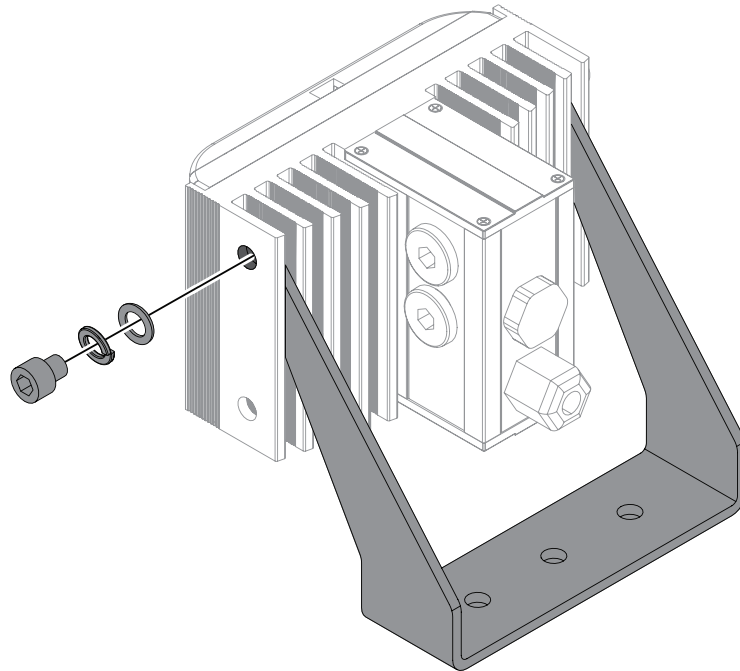
#### Old electrical and electronic equipment



This product and/or battery must be disposed of separately from household waste. Dispose such equipment according to local laws and regulations, to allow their reuse and/or recycling. This will help in conserving resources, and in protecting human health and the environment.

## 2 Installation

### Mounting the bracket



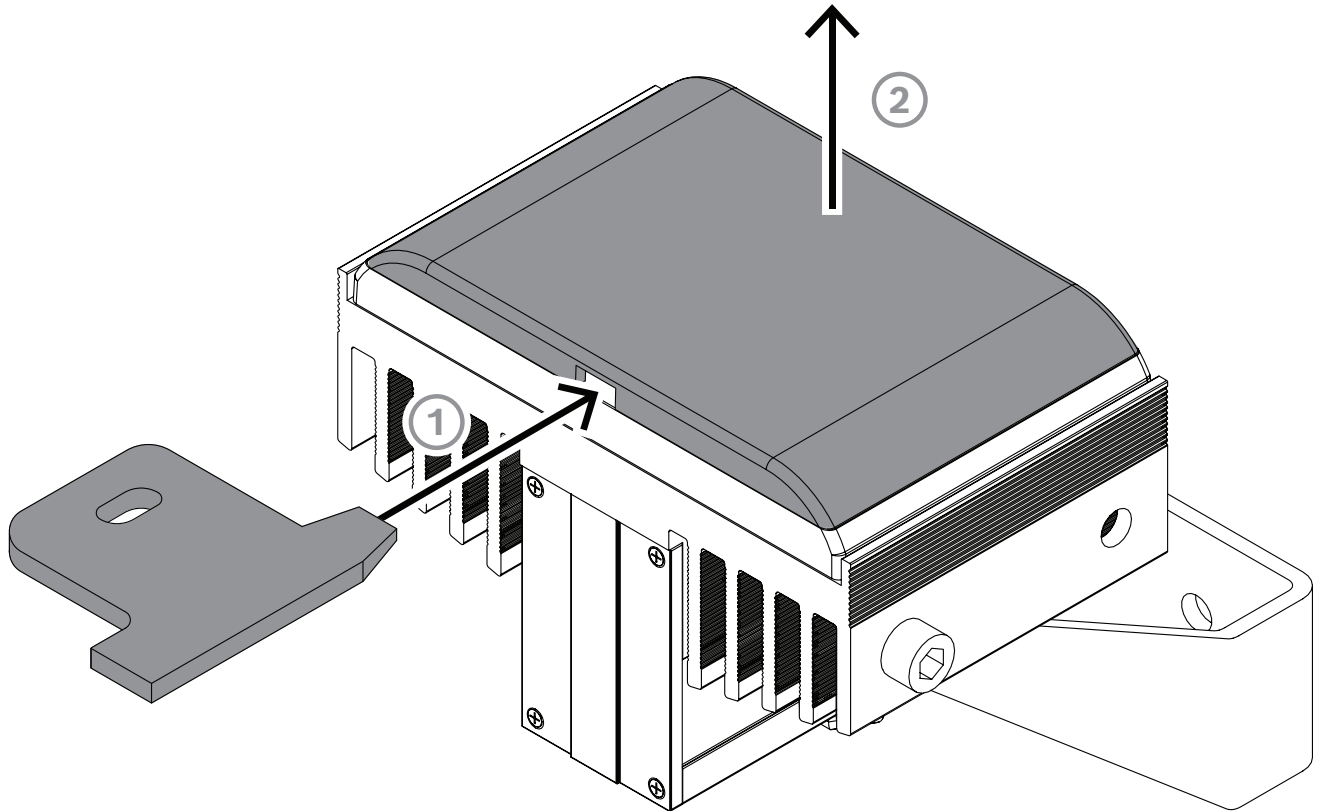
Connect the bracket to the illuminator as follows:

1. Ensure that the parts are mounted in the following order:
  - Socket head screw
  - Lock washer
  - Washer
  - Illuminator
  - Bracket
2. Use the supplied socket wrench to secure the bracket on both sides of the illuminator.

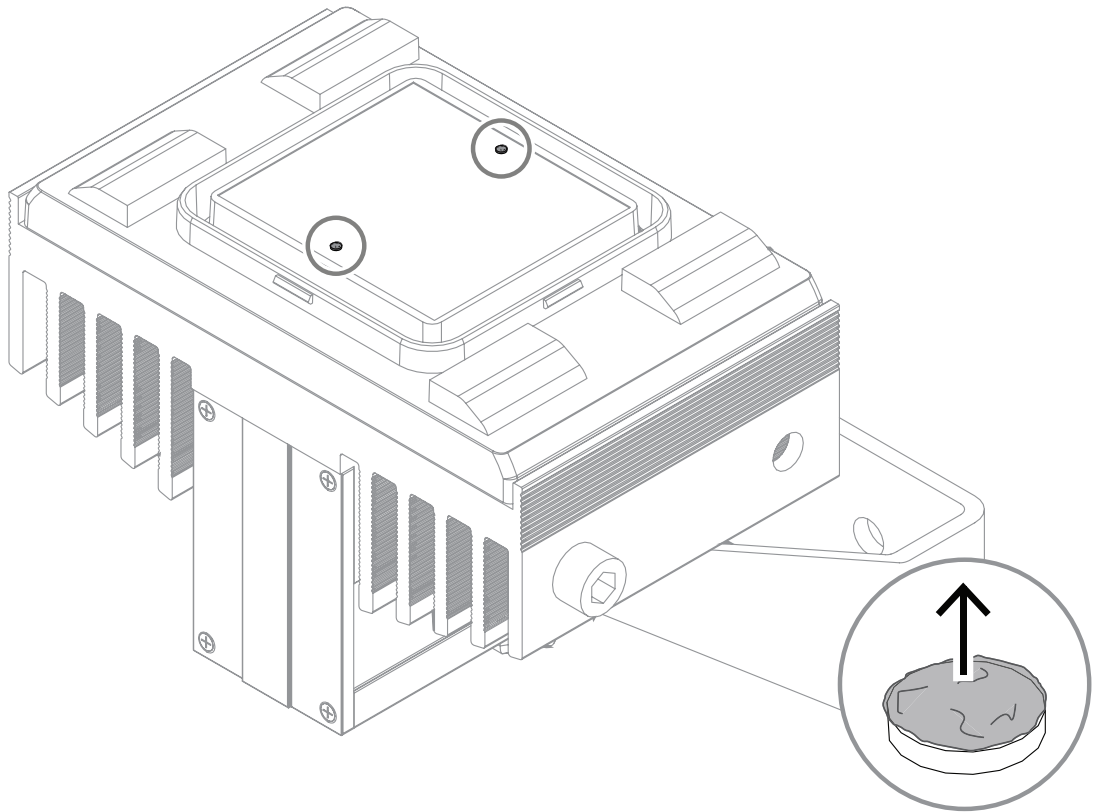
### Changing the beam-angle filter

Insert a beam-angle filter as follows:

1. Insert the supplied tool into the slot and twist. (Use the thick end for the IIR-50xxx0-SR illuminator; use the tapered end for all other illuminators.)

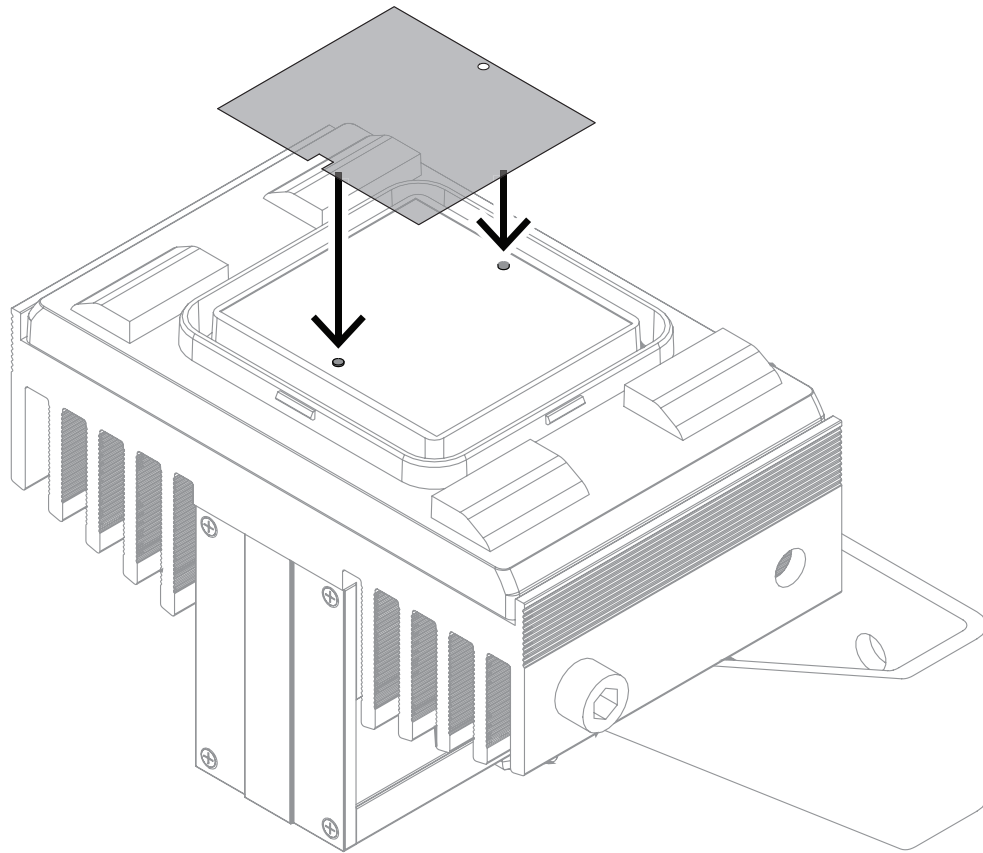


2. Remove the top cover.
3. Peel back the protective foil from the adhesive points.
4. Attach the selected beam-angle filter with the label side up to the adhesive points.



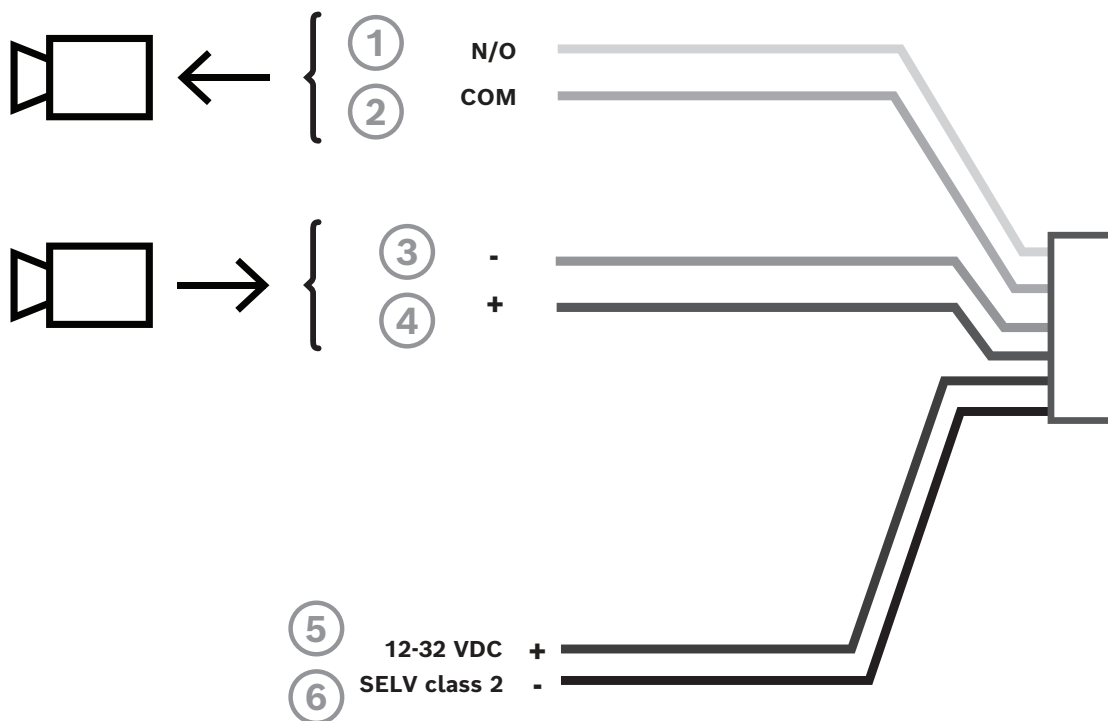
5. Click the top cover back into place.





## 3 Connection

### 3.1 Connecting the IIR-50xx0



#### Power

- To power the illuminator, connect a 12 to 32 VDC supply from a SELV class 2 power supply to wires 5 (+ red) and 6 (- black).



#### Notice!

Make sure the unused wires are not connected to each other.

#### Illuminator masters the camera

To use the light sensor in the illuminator to switch the day/night function of the camera:

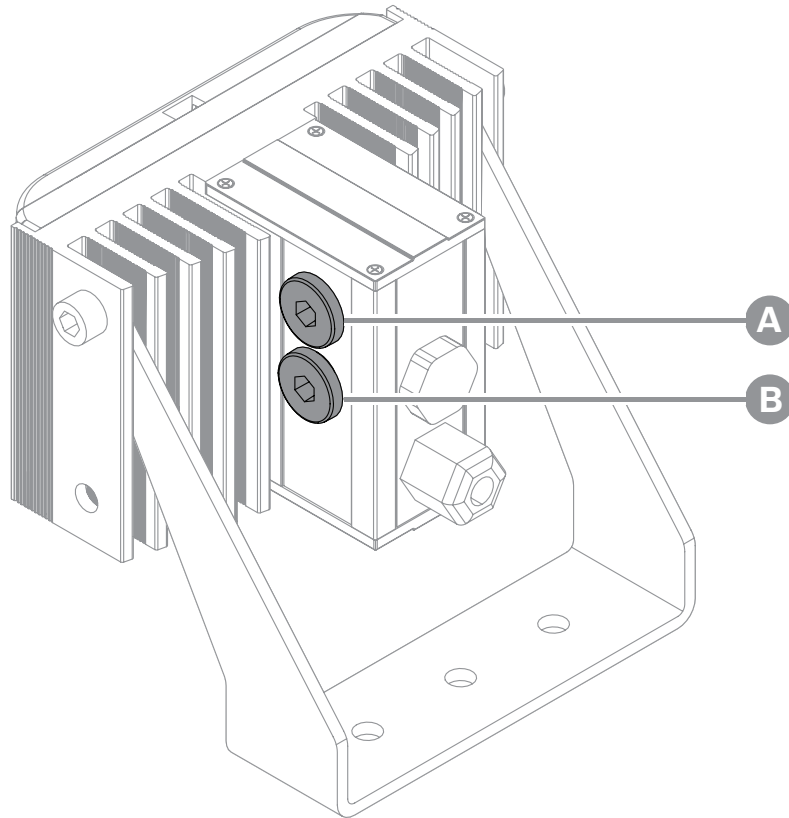
1. Connect wires 1 (+ white) and 2 (- yellow) to the alarm input of the camera.
2. If required, adjust the **Photocell adjust** control to determine the switching points of the illuminator.

#### Camera masters the illuminator

To control illuminator switching from the camera:

1. Turn the **Photocell adjust** control fully counterclockwise.
2. Connect a relay output from the camera to wires 3 (- green) and 4 (+ blue).

## Adjustments



To adjust the sensitivity (Photocell adjust **A**):

1. Remove the protective sealing cap **A**.
2. Use a small screwdriver to adjust the internal control:
  - To use the remove switching control input, turn the control fully counterclockwise. (Now the IR LED lights when the green and blue wires are not connected; it does not light when the wires are connected.)
  - To set the light level at which the illuminator switches on, turn the control counterclockwise to turn on the illuminator when there is more light; turn it clockwise to turn it on when it is darker. (The factory setting turns on the illuminator at approximately 30 lx and turns it off at approximately 70 lx.)
3. Put the protective sealing cap back in place and secure.

To adjust the IR intensity (Power adjust **B**):

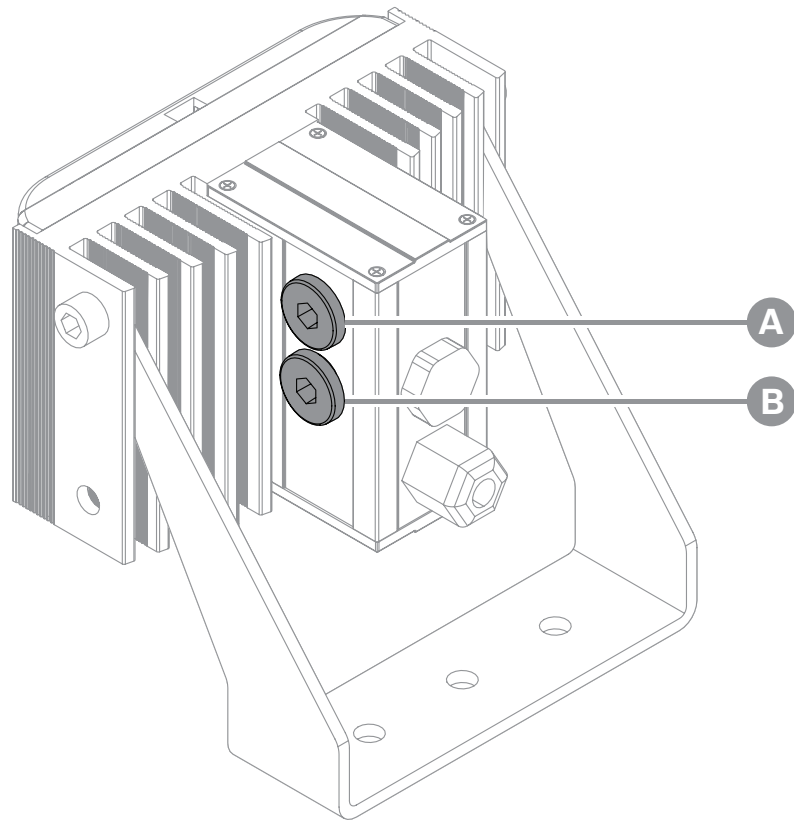
1. Remove the protective sealing cap **B**.
2. Using a small screwdriver, turn the internal control counterclockwise to reduce the IR intensity. (The factory default is maximum power.)
3. Put the protective sealing cap back in place and secure.

## 3.2 Connecting the NIR-50xx0

### Power

To power the illuminator, connect a PoE power supply to the RJ45 connector of the illuminator.

## Adjustments



To adjust the sensitivity (Photocell adjust **A**):

1. Remove the protective sealing cap **A**.
2. Use a small screwdriver to adjust the internal control:
  - To use the remove switching control input, turn the control fully counterclockwise. (Now the IR LED lights when the green and blue wires are not connected; it does not light when the wires are connected.)
  - To set the light level at which the illuminator switches on, turn the control counterclockwise to turn on the illuminator when there is more light; turn it clockwise to turn it on when it is darker. (The factory setting turns on the illuminator at approximately 30 lx and turns it off at approximately 70 lx.)
3. Put the protective sealing cap back in place and secure.

To adjust the IR intensity (Power adjust **B**):

1. Remove the protective sealing cap **B**.
2. Using a small screwdriver, turn the internal control counterclockwise to reduce the IR intensity. (The factory default is maximum power.)
3. Put the protective sealing cap back in place and secure.

## 3.3

### Setting up

To achieve the best results:

1. Mount and connect the illuminator as described above.
2. Complete the following steps at night and view the results on a monitor.
3. Adjust the pan of the illuminator to match the camera's field of view.

4. Loosen the bolts on each side of the unit and adjust the vertical alignment to maximize the results:
  - Tilt the unit downwards until the near part of the required field of view is saturated with light as viewed on the monitor.
  - Slowly tilt the unit upwards until the furthest part of the required field of view is illuminated correctly on the monitor.
5. Re-tighten the bolts.

## 4 Troubleshooting

Recommended Bosch PSU for SR/MR illuminators: PSU-IIR-36

Recommended Bosch PSU for LR/XR illuminators: PSU-IIR-60

The following table is intended to help diagnose and resolve common issues with Infrared illuminators in security systems.

Malfunction	Possible causes	Solution
No output from unit.	Unit not set up correctly	<p>Ensure illuminator is mounted and connected properly.</p> <p>Check if there is a red glow from the unit with the photocell window covered. - If no output, check voltage at PSU output. (See Top Tip at the end of this guide)</p> <p>If no voltage at illuminator, check for cable breaks and suitability. If voltage at illuminator is OK, check power pot and PC pot settings.</p>
Unit powers up but does not achieve required distance.	Incorrect mounting, orientation or diffuser.	<p>Ensure illuminator is mounted correctly and in the right orientation.</p> <p>Check power pot is set to maximum and diffuser is correct angle to cover the camera field of view.</p> <p>This could also be due to poor camera sensitivity or incorrect camera settings. Consult camera manufacturers information.</p>
Unit switches on at wrong lux level.	PC pot not adjusted correctly	<p>Adjust the PC pot to set the lux level switching point.</p> <p>Turn clockwise to increase sensitivity (switch on in darker conditions) or anticlockwise to reduce sensitivity (switch on in lighter conditions).</p> <p>Ensure the sealing cap is replaced.</p>

Malfunction	Possible causes	Solution
Set illuminator for on/off control from PIR sensor.	Incorrect wiring or pot settings.	<p>Set PC adjust pot fully anticlockwise. Connect telemetry wires, (blue and green), to PIR's Normally <b>Closed</b> relay terminals.</p> <p>Ensure relay contacts are normally closed for the illuminator to be off. When PIR triggers relay opens, and illuminator will turn on.</p>
Top tip (Check if LEDs are working).	LEDs not emitting.	<p>Use a mobile phone camera to check for the red glow from the 940nm illuminator.</p> <p>Purple colour in the camera indicates LED activity.</p> <p>Infrared wavelengths are at the extreme of human vision. Most humans can see a red glow from an 850nm illuminator. However, at 940nm it is very difficult to see. Only a very slight glow can be seen in complete darkness.</p> <p>This image shows a 940nm illuminator. Although the camera shows the light to be a purple colour, it can be clearly seen that all LEDs are working even in full day light.</p>
Pulsing LEDs indicate potential power supply issue.	Pulsing LEDs may indicate an insufficient or unstable power supply, causing disruptions in device operation.	<p>Check the power supply voltage to ensure it meets the device requirements.</p> <p>If the voltage is inadequate, replace the Power Supply Unit (PSU) with a suitable one to stabilise the power source and resolve the pulsing LED issue.</p>

Malfunction	Possible causes	Solution
		For PoE models check the switch/injector complies with the required standard (af/at) and power budget has not been exceeded (for switch).

Applicable to NIR-50850 and NIR-50940 only:

Malfunction	Possible causes	Solution
Web browser continuously prompts for username and password.	The persistent request for username and password in the web browser may be due to accumulated cache memory, leading to authentication issues.	For Microsoft browsers: Navigate to browser settings. Select "personal preferences." Access the "cache" section. Click on "clear previous history, including passwords."
IP integration failure with third-party equipment.	The integration failure with third-party equipment is likely a result of incompatible firmware or software versions.	Upgrade the firmware or software associated with the equipment to ensure compatibility and seamless integration.

We strongly recommend the use of regulated switch mode 24V DC PSUs for use with the illuminator range. In particular the Bosch PSU-IIR-35, PSU-IIR-60 and PSU-IIR-100.

<https://commerce.boschsecurity.com/gb/en/Power-Supply-Units-for-IR-Illuminators/p/23863891851/>

Due to variations in mains voltage, we would not recommend the use of AC supplies with illuminator products.



## 5 Technical data

<b>Optical</b>	
Wavelength	850 nm or 940 nm
IR control	Adjustable IR intensity (10% to 100%)
Day/night switch	Photocell, sensitivity adjustable (20 lx to 70 lx)
Beam angles	10°, 30°, 60°, and 95°

<b>Environmental</b>	
Operation Temperature Range	-50 °C to +50 °C (-58 °F to +122 °F)
Protection	IP66

**IIR-50850-SR | IIR-50940-SR**

<b>Power</b>	
Power supply	12 to 32 VDC
Power consumption	13 W

<b>Mechanical</b>	
Housing	Robust anodized aluminum extrusion, black
Front window	Polycarbonate high transmittance (vandal-resistant) with self-cleaning technology
Mount	Black powder coated stainless steel U-bracket (adjustable with M6 socket-head wrench)
Cable	3 m (9 ft)
Dimensions (W x H x D)	110 x 68 x 75 mm (4.33 x 2.68 x 2.95 in)
Bracket dimensions (W x H x D)	110 x 125 x 35 mm (4.33 x 4.92 x 1.38 in)
Weight	750 g (1.6 lbs)
Bracket weight	0.2 kg (0.44 lbs)

**IIR-50850-MR | IIR-50940-MR**

<b>Power</b>	
Power supply	12 to 32 VDC
Power consumption	26 W

<b>Mechanical</b>	
Housing	Robust anodized aluminum extrusion, black
Front window	Polycarbonate high transmittance (vandal-resistant) with self-cleaning technology
Mount	Black powder coated stainless steel U-bracket (adjustable with M6 socket-head wrench)
Cable	3 m (9 ft)
Dimensions (W x H x D)	110 x 114 x 75 mm (4.33 x 4.49 x 2.95 in)
Bracket dimensions (W x H x D)	110 x 125 x 35 mm (4.33 x 4.92 x 1.38 in)
Weight	1.06 kg (2.3 lbs)
Bracket weight	0.2 kg (0.44 lbs)

**IIR-50850-LR | IIR-50940-LR**

<b>Power</b>	
Power supply	12 to 32 VDC
Power consumption	39 W

<b>Mechanical</b>	
Housing	Robust anodized aluminum extrusion, black
Front window	Polycarbonate high transmittance (vandal-resistant) with self-cleaning technology
Mount	Black powder coated stainless steel U-bracket (adjustable with M6 socket-head wrench)
Cable	3 m (9 ft)
Dimensions (W x H x D)	110 x 161.5 x 75 mm (4.33 x 6.36 x 2.95 in)
Bracket dimensions (W x H x D)	110 x 125 x 35 mm (4.33 x 4.92 x 1.38 in)
Weight	1.4 kg (3.1 lbs)
Bracket weight	0.2 kg (0.44 lbs)

**IIR-50850-XR | IIR-50940-XR**

<b>Power</b>	
Power supply	12 to 32 VDC
Power consumption	52 W

<b>Mechanical</b>	
Housing	Robust anodized aluminum extrusion, black
Front window	Polycarbonate high transmittance (vandal-resistant) with self-cleaning technology
Mount	Black powder coated stainless steel U-bracket (adjustable with M6 socket-head wrench)
Cable	3 m (9 ft)
Dimensions (W x H x D)	110 x 214 x 75 mm (4.33 x 8.43 x 2.95 in)
Bracket dimensions (W x H x D)	110 x 125 x 35 mm (4.33 x 4.92 x 1.38 in)
Weight	1.84 kg (4.1 lbs)
Bracket weight	0.2 kg (0.44 lbs)

**NIR-50850-MRP | NIR-50940-MRP**

<b>Power</b>	
Input voltage	Power-over-Ethernet (48 VDC nominal)
PoE IEEE standard	IEEE 802.3at Compliant (PoE+)
Power consumption	26 W

<b>Mechanical</b>	
Housing	Robust anodized aluminum extrusion, black
Front window	Polycarbonate high transmittance (vandal-resistant) with self-cleaning technology
Mount	Black powder coated stainless steel U-bracket (adjustable with M6 socket-head wrench)
Cable	3 m (9 ft)
Dimensions (W x H x D)	110 x 114 x 75 mm (4.33 x 4.49 x 2.95 in)
Bracket dimensions (W x H x D)	110 x 125 x 35 mm (4.33 x 4.92 x 1.38 in)
Weight	1.06 kg (2.3 lbs)
Bracket weight	0.2 kg (0.44 lbs)



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