



Extreme CCTV™
SURVEILLANCE SYSTEMS

INSTALLATION INSTRUCTIONS

EX82 MECC1.5

Dual Sensor Wireless IDN Camera System



www.ExtremeCCTV.com

Toll free: 1-888-409-2288
MAN-82MECC-01

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IMPORTANT

For best results, please read this Instruction Booklet prior to installing the **EX82 MECC1.5** Camera System.



WARNING !

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

Only qualified personnel shall install any **EXTREME CCTV™** surveillance camera. **EXTREME CCTV™** will not be responsible for injuries or damages resulting from the improper installation or use of any equipment sold by **EXTREME CCTV™**, their agents, distributors or dealers.

DESCRIPTION

The **EX82 MECC1.5** Surveillance System consists of two cameras (color & monochrome), a 2.4GHz radio transmitter / receiver, and a rechargeable battery. The cameras have 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”. An all-weather housing with tough polycarbonate windows contains all the electronics. Low power consumption LED illuminators and solid-state CCD technology makes this camera very reliable and efficient. The receiver can operate at *12V dc* or *24V ac*, and a range in between, with protection from voltage surges, transient spikes, and reverse voltage.

Contact Extreme CCTV™ for information.

- sales@ExtremeCCTV.com
- Tel: 1-888-409-2288 (Toll free NA)

See the Light. Get the Picture.™

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 Extreme CCTV if a problem is noted.

- quality@ExtremeCCTV.com
- Tel: 1-604-420-7711 or see the rear of the front page for contact numbers.

PARTS LIST (items supplied with unit)

- Camera/Transmitter unit.
- Battery Pack.
- Mounting Bracket.
- Power Adaptor Cable.
- System securing plate (guide bracket).
- RX27-R2B Receiver with double “U” mounting bracket.
- Battery charger.
- Installation Instructions.
- Antenna

ITEMS REQUIRED FOR INSTALLATION (not supplied with units)

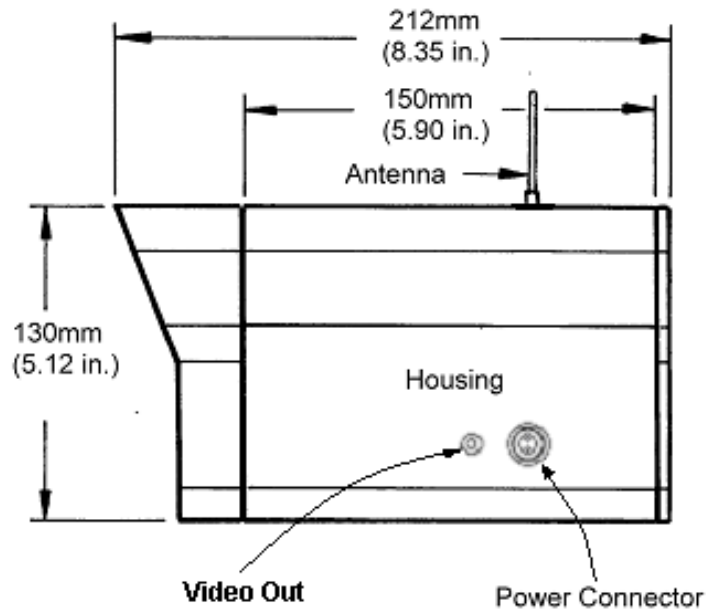
- Phillips screwdriver.
- Small slotted screwdriver.
- 3mm Allan key.
- Optional heavy duty “L” mounting bracket or die-cast aluminum mounting bracket (contact Extreme CCTV™ for details and prices).
- Hardware for camera mounting (bolts, etc.)

INITIAL PREPARATIONS

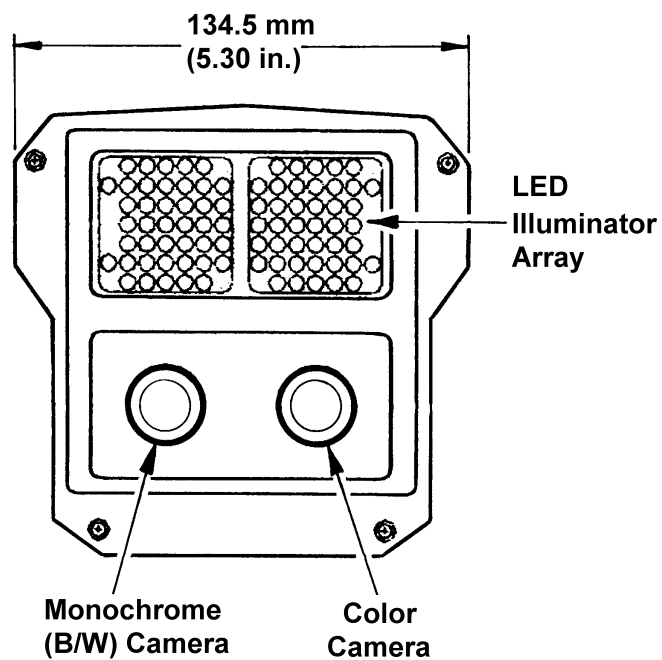
- The Camera/Transmitter unit operates at +12V dc. Ensure the Battery Pack is fully charged before installation.
- Determine the optimum mounting locations for the Camera/Transmitter unit and the RX27-R2B Receiver.
- The Camera/Transmitter unit and the RX27-R2B Receiver have been tested prior to shipment. If any wiring changes or channel adjustments are needed due to on-site requirements, it is advisable to check the camera’s operation after these changes have been made.
- The RX27-R2B Receiver has been pre-wired for 24V ac operation. See *Section 10.1, Voltage Setting*.

MECHANICAL SPECIFICATIONS – CAMERA / TRANSMITTER

(See Section 15 - General Specifications, for more information)



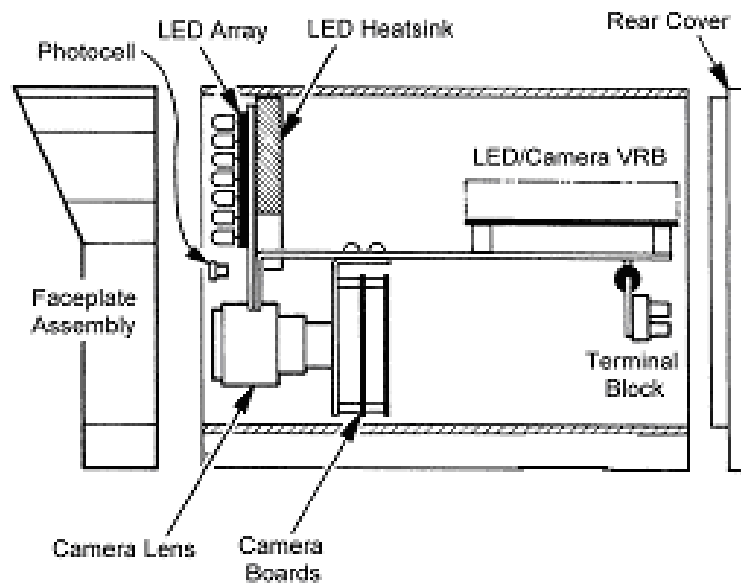
FRONT VIEW - CAMERA / TRANSMITTER



1. CAMERA / TRANSMITTER HOUSING – INTERNAL MODULE LOCATIONS and ACCESS

Step 1.1 - Remove the screws securing the faceplate and the rear cover.

Step 1.2 - Carefully separate the faceplate and rear cover from the camera housing. Make sure the gaskets stay in place.



2. CAMERA / TRANSMITTER – WIRING CONNECTIONS and TX CHANNEL ADJUSTMENTS

The Camera / Transmitter unit is wired for +12V dc operation. The power input terminal block, the VRB module, the TX module, and the TX Dip Switch settings are accessible once the front and rear covers have been removed.

Care should be taken when removing the rear cover plate for module access due to the power wires being soldered to the power connector.

The VRB mounting plate is secured by four screws through the LED plate.

Figures 2-1 to 2-3 show the locations of the VRB, the wiring terminal block, and the TX board.

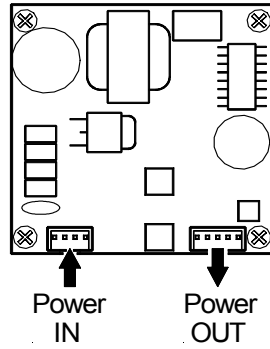


FIGURE 2 – 1
12VDC or 24VAC
Electrically Isolated Board

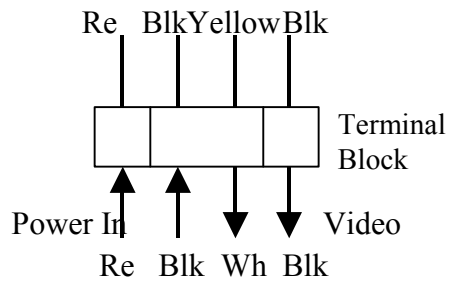
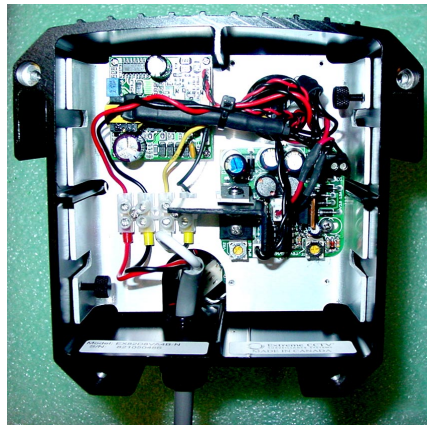


FIGURE 2 – 2
Terminal Block - Input / Output Wiring

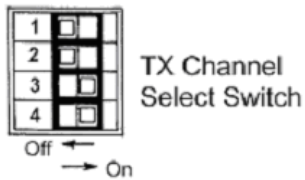


Figure 2 – 3
Transmitter Dip Switch Setting

The transmit channels can be changed by toggling the number 3 and 4 dip switch positions. Refer to the table below for the channel settings.

SWITCH	CHANNEL 1	CHANNEL 2	CHANNEL 3	CHANNEL 4
1	Not used	Not used	Not used	Not used
2	Not used	Not used	Not used	Not used
3	→	←	→	←
4	→	→	←	←

Note: The selected TX channel must be the same as the selected RX channel as shown on page 26.

3. MOUNTING –CAMERA / TRANSMITTER and BATTERY PACK

***Caution:** The selected mounting location should not place the “System” in a situation where its environmental specifications could be exceeded. Refer to page 31.*

***Note:** This assembly must be mounted in conjunction with the RX27-24 Receiver. Refer to **Section 11**, page 25 for details.*

- Step 3.1 - Re-install the VRB modules’ mounting bracket into the Camera/Transmitter housing in case any wiring changes or adjustments have been made. Tighten the four screws located on each side of the bracket against the inside of the housing.
- Step 3.2 - Attach the rear cover, ensuring that the gasket is properly seated and no wires are crimped.
- Step 3.3 - Slide the System Securing Plate into the bottom of the Battery Pack until it touches the rear cover.
- Step 3.4 - Slide the Camera/Transmitter housing onto the protruding part of the System Securing Plate until the Battery Pack is fully engaged.
- Step 3.5 - Tighten the System Securing Plate against the Camera/Transmitter housing and the Battery Pack with the two of the supplied screws.
- Step 3.6 - Bolt the camera’s mounting bracket to the selected mounting surface.
- Step 3.7 - Attach the Camera/Transmitter & Battery Pack to the mounting bracket with the two remaining screws.
- Step 3.8 - Tilt the complete unit in the desired viewing direction and then tighten the screw to the mounting bracket.

See **Figure 3-1** on page 9 for mounting details.

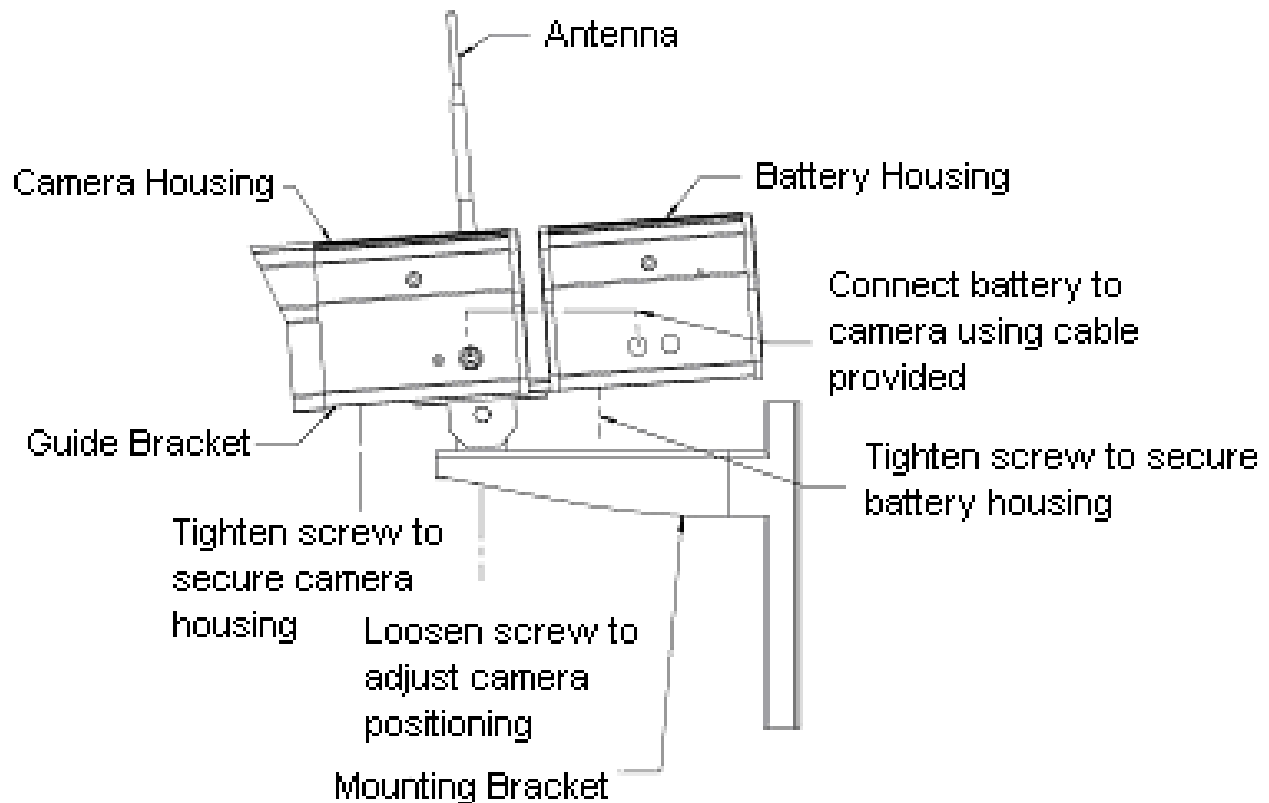


FIGURE 3 – 1
Mounting Details, Camera/Transmitter and Battery Pack

4. CAMERA LENS ADJUSTMENTS

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

Remove the Camera/Transmitter front cover and the foam lens protector without damaging the photocell or its wires. Loosen the three screws securing the LED/Camera Lens assembly bracket to the enclosure. Slide out the assembly bracket to its “forward stop” position. See **Figure 4-1** on page 10.

The lenses’ inside clearance adjustment can be achieved by: (a) loosening the screws which secure the Camera / Lens mounting bracket, (b) sliding the bracket to its new location, and (c) re-tightening the screws. See **Figure 4-2** on page 10.

The camera’s color lens has “Auto-Iris” control adjustment. See paragraph 4.1 and **Figure 4-3** on page 11.

Loosen these three screws



These screws are captive and need not be removed, just loosened to the point where the bracket can be moved forward.

FIGURE 4 – 1
LED/Camera Lens Bracket Removal

Loosen these screws to adjust the
Camera / Lens Mounting Bracket

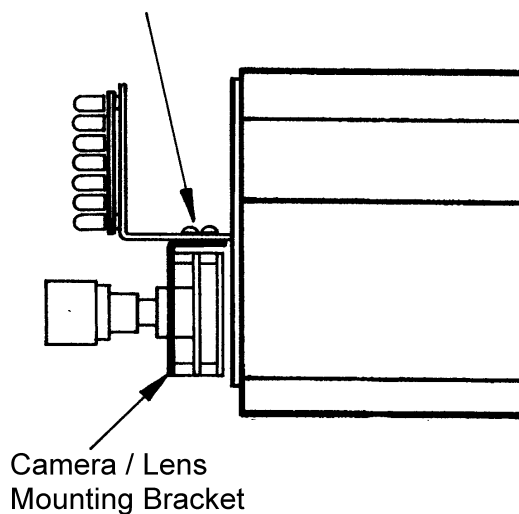


FIGURE 4 – 2
Camera / Lens Mounting Bracket Adjustment

4.1 Vari Focal and “Auto-Iris” Control Adjustments

Note: Completely cover photocell for B/W mode.

Step 4.1.1 - Loosen the lens set screws for focus/zoom adjustments.
See **Figure 4-3** on page 11.

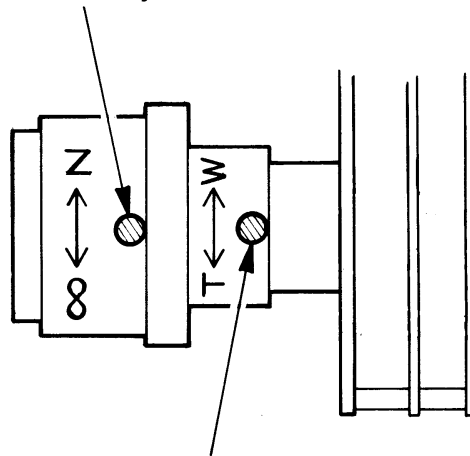
Step 4.1.2 - The set screw marked **N** $\longleftrightarrow \infty$ is used for image focus.

Step 4.1.3 - The set screw marked **T** \longleftrightarrow **W** is used for telephoto or wide-angle settings.

Step 4.1.4 - Re-tighten the set screws after focus adjustments have been completed.

Step 4.1.5 - Locate the “Auto-Iris” adjustment controls as shown in **Figure 4-4** on page 13 and as per Tables **A** on page 12.

Loosen this set screw
for Focus Adjustment.



Loosen this set screw for
Telephoto or Wide Angle
Adjustment.

FIGURE 4 – 3
Lens Focus Adjustment

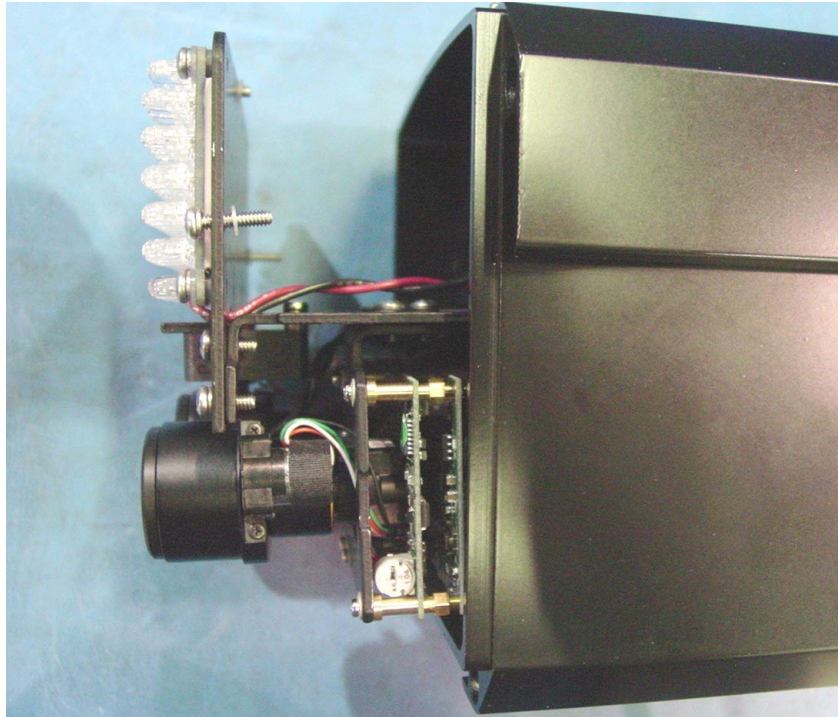


FIGURE 4 – 4
Adjustments, “Level” for Color Camera

Table A – Brightness Level Adjustment

Brightness	LEVEL Adjustment
For a brighter picture	Turn towards “H”
For a darker picture	Turn towards “L”

Note: Completely cover photocell for B/W mode

Step 4.1.6 - After adjustments are complete, re-install the LED/Camera lens assembly bracket back onto the LED heatsink.

5. LEDs - POWER

The Camera/Transmitter should be powered-up while making the LED power and directional adjustments.

Caution: The installer must follow established safety procedures while performing these adjustments. Extreme CCTV™ will not be liable for injuries incurred during this task.

5.1 LED POWER ADJUSTMENT

If adjustment needed, remove the rear cover for access to the VRB. The **EX82DXL** needs to be powered-up while making the LED power adjustments. Cover or adjust the photocell to turn the LEDs “ON” (850nm LEDs will have a slight red glow while 940nm LEDs are covert).

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

Refer to **Figure 3**

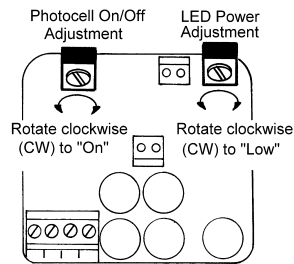


FIGURE 3
LED Power and Photocell On/Off Adjustments

For LED power adjustment, rotate clockwise (CW) for “Low” and counter-clockwise (CCW) for “High”.

For photocell “On/Off” light-level adjustment, rotate clockwise (CW) for “On” and counter-clockwise (CCW) for “Off”.

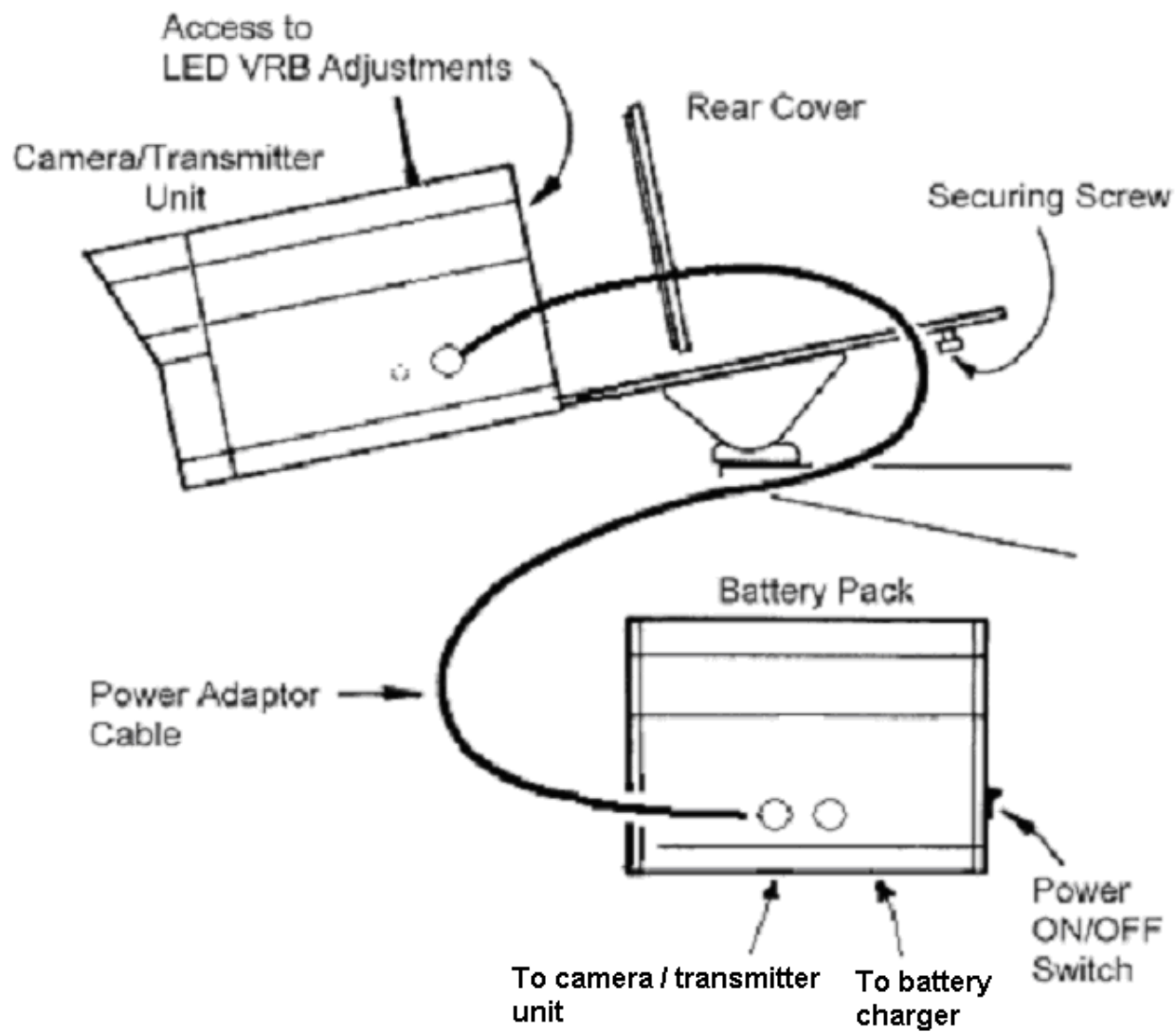


FIGURE 5 – 1
LED Power Adjustment Configuration

Extreme care must be taken during this adjustment phase. The installer must be secured with a safety harness to the mounting pole or ladder in accordance with local Workers Compensation regulations.

6. CAMERA WIRING & SETTINGS

Figure 6-1 illustrates the rear of the camera board. The switch is set at the factory and should not require adjustment.

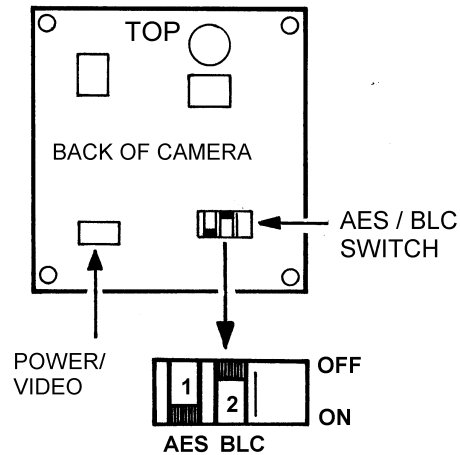


FIGURE 6 – 1
Wiring and Switching Diagram
C.700

7. CAMERA / TRANSMITTER UNIT RE-ASSEMBLY

Make sure all wires are properly connected and tightened into the terminal blocks, all holes are sealed against moisture penetration, and all mounting screws are tight.

- Step 7.1 - Slide the rectangular foam pad over the camera lenses. Make sure the pad is as close to the faceplate viewing window as possible.
- Step 7.2 - Attach the faceplate and the rear cover to the Camera/Transmitter housing.
- Step 7.3 - Slide the Camera/Transmitter unit onto the System Securing Plate and re-connect to the Battery Pack.
- Step 7.4 - Power-up the camera by switching the toggle switch, located at the rear of the Battery Pack, to "ON". Check for proper operation.

8. BATTERY PACK

The Battery Pack is a rechargeable sealed lead acid battery housed in an extruded aluminum enclosure.

The supplied Battery Charger can be connected to the rear of the Battery Pack at any time, but preferably before the charger is connected to the 110V ac source.

The power ON/OFF switch at the rear of the battery should be "OFF" whenever the battery is disconnected from, or joined to the Camera/Transmitter Unit.

The battery will charge fully overnight at room temperature, but it should not be overcharged.

8.1 Battery Pack – Mechanical Specifications

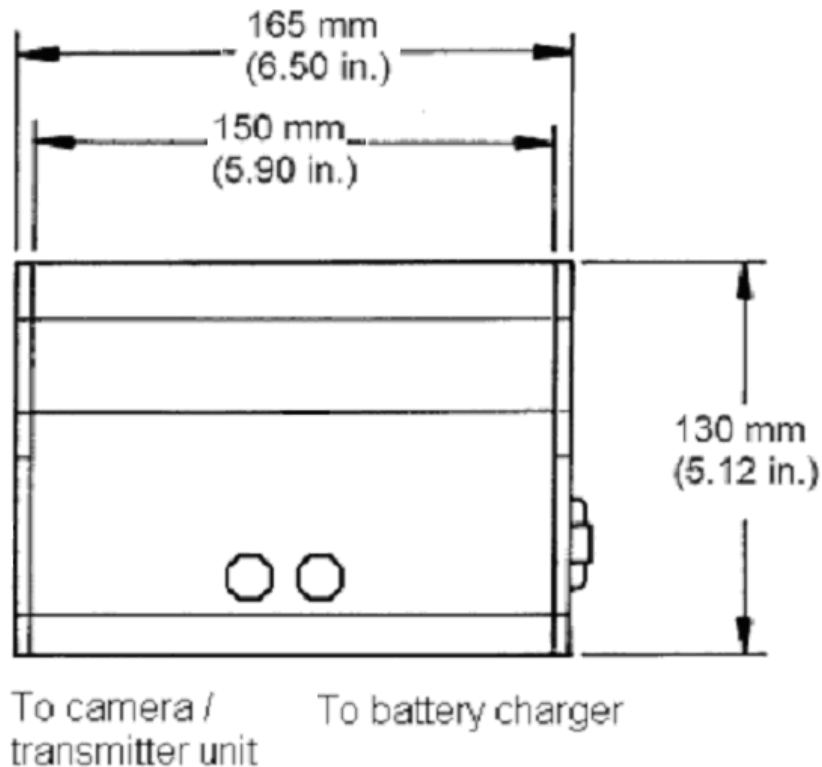


FIGURE 8 – 1
Side View, Battery Pack

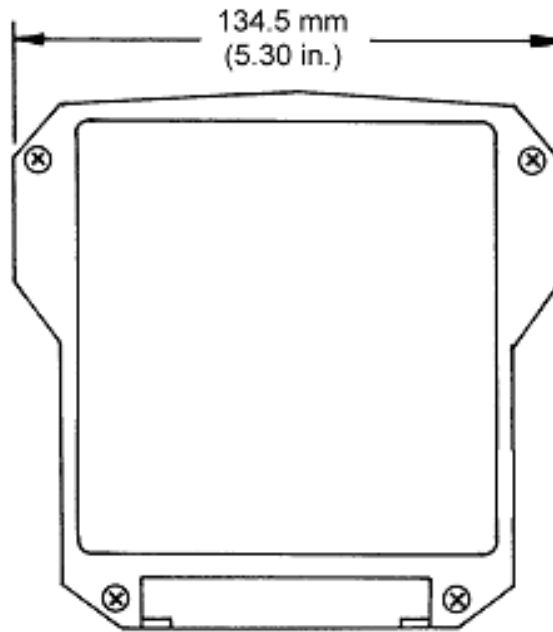


FIGURE 8 – 2
Front View, Battery Pack

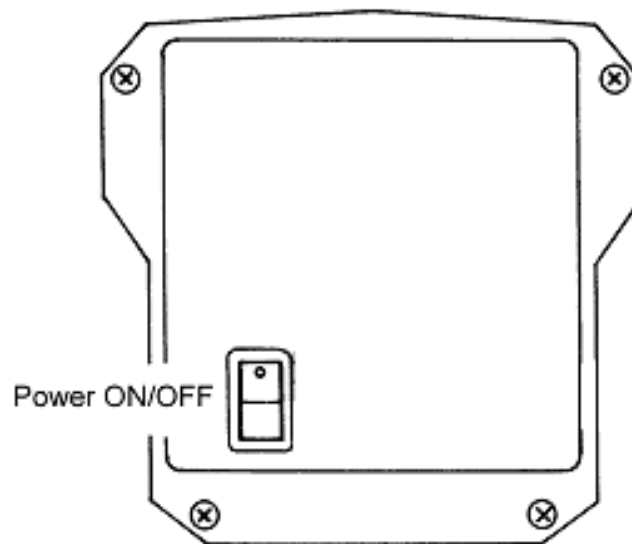


FIGURE 8 – 3
Rear View, Battery Pack

9. ANTENNA

A 2.4GHz wireless transmitter module is located in the Camera/Transmitter unit and in turn connected to an omni-directional antenna. This antenna can be adjusted for best reception, preferably pointing in a vertical direction.

The patch antenna in the RX27-R2B Receiver is 'directional' and must be pointed at the Camera/Transmitter unit (up to 1000' in direct line-of-sight).

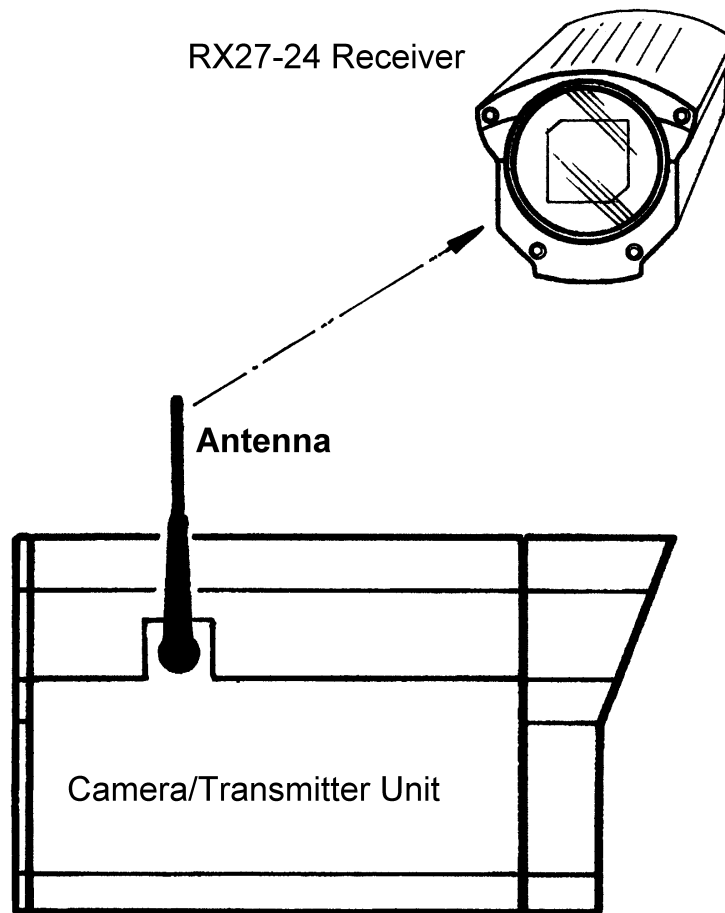
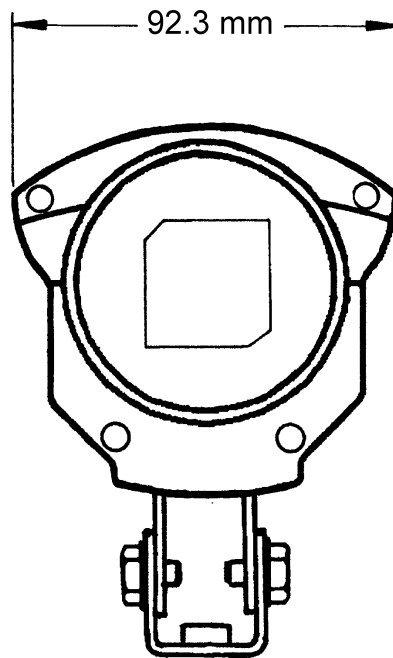
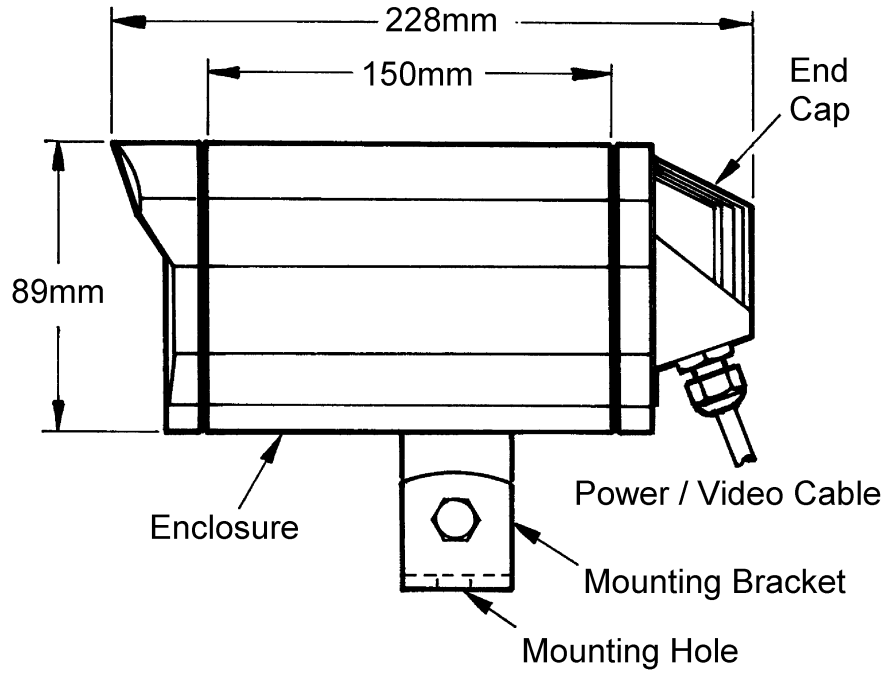


FIGURE 9 – 1
Antenna, Directional configuration

10. RX27-R2B RECEIVER

MECHANICAL SPECIFICATIONS

(See Section 16 - General Specifications, for more information)



10.1 -Voltage Setting

The **RX27-R2B**, when shipped, is pre-connected with an electrically isolated power board (VRB) for 24V ac or 12V dc operation, with no change to the polarity of the wires.

See **Figures 10-1**

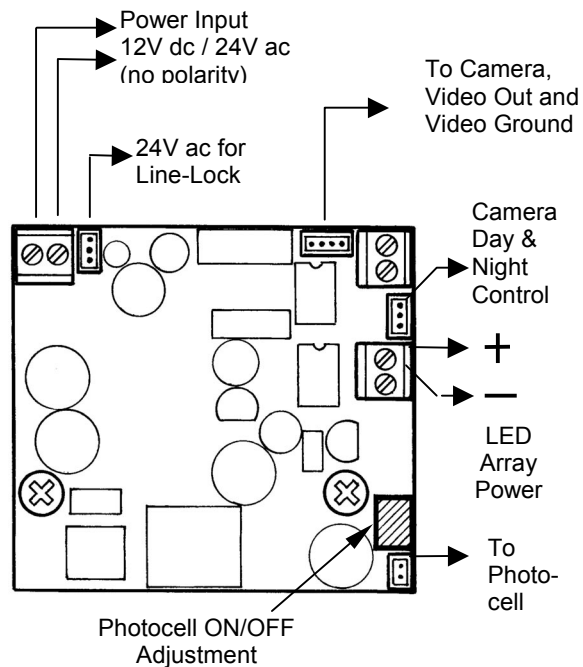


FIGURE 10-1
12V dc or 24V ac
Electrically Isolated Power Board

10.2 - Access for RX Channel Switching

The following steps show the installer how to access the Receiver module for changes to channel numbering. The Voltage Regulator Board (VRB) is shown for reference only. All voltage changes are done at the Terminal Block (Section 10.1).

Step 10.2.1 - Disconnect the power source to the RX27-24 and the video signal at the BNC connector.

Step 10.2.2 - Remove the four cap screws with a 3mm Allen key. See **Figure 10-5** on page 22.

Step 10.2.3 - Carefully slide out the rear housing from the main enclosure. Make sure the gasket remains with the rear section.
See **Figure 10-6** on page 22.

Step 10.2.4 - Make any necessary adjustments as per **Figure 10-7** on page 23.

Step 10.2.5 - Carefully slide the rear section into the main enclosure and tighten the cap screws.

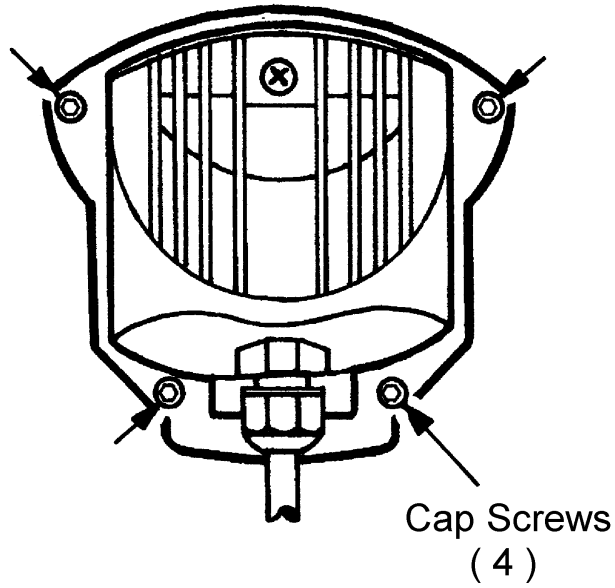


FIGURE 10-5
Internal Access, RX27-R2B

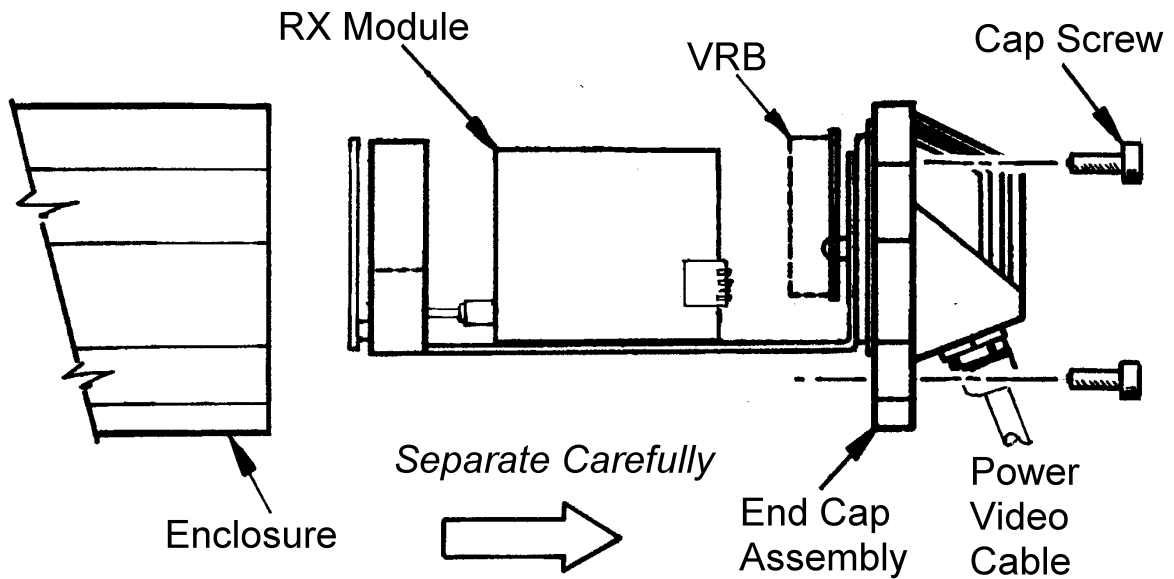
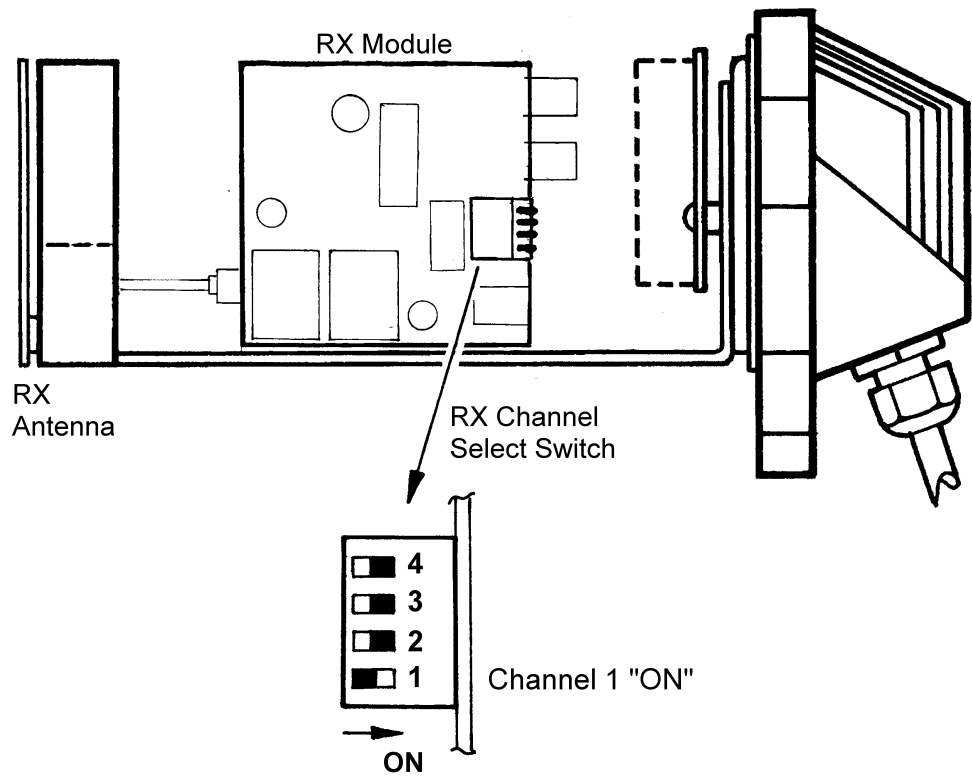


FIGURE 10-6
Housing Separation for Access to the Receiver Module and Voltage Regulator Board



Note: The input power must be OFF during the channel selection process. Ensure that only one channel is selected at a time and all others are in the OFF position. The selected channel must be the same as the TX channel selection as shown on page 8.

FIGURE 10 – 7
Channel Selection Diagram, RX Module

11. MOUNTING – RX27-R2B RECEIVER

Caution: The selected mounting location should not place the Receiver in a situation where its environmental specifications could be exceeded. Refer to page 31.

The Receiver can be mounted to any suitable flat surface. It is at the installer's discretion how the Power & Video cable is routed. The diagram below is not to scale, however, it does show the major parts of the Receiver system.

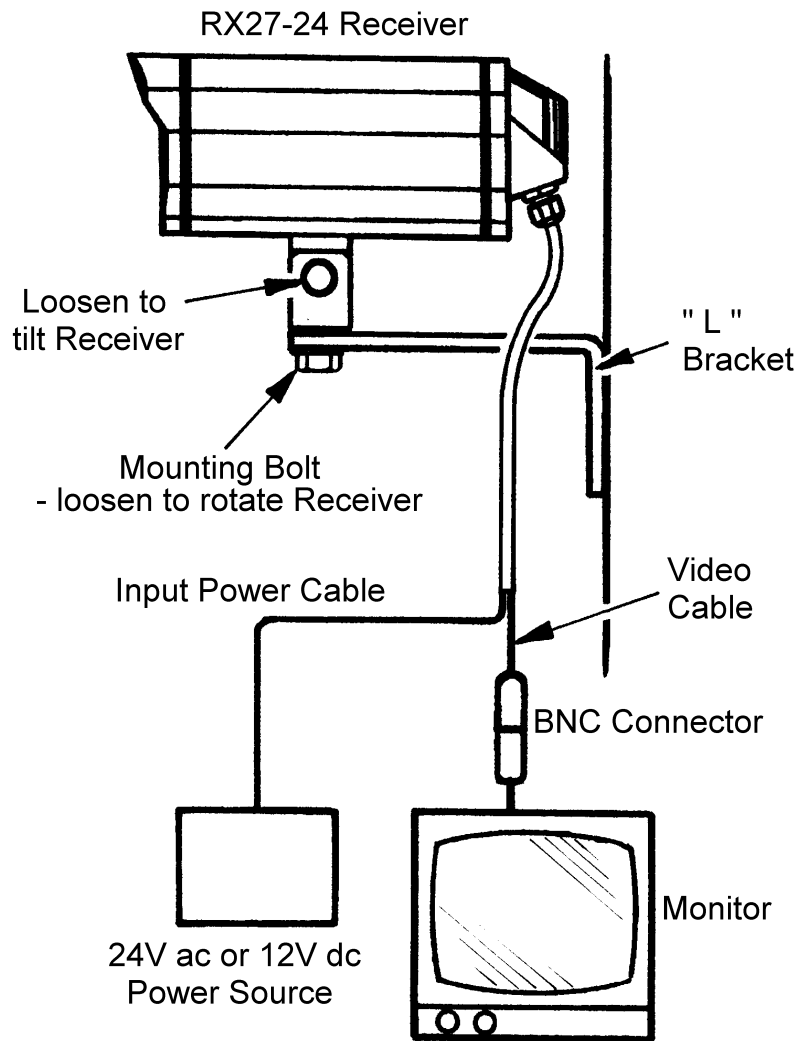
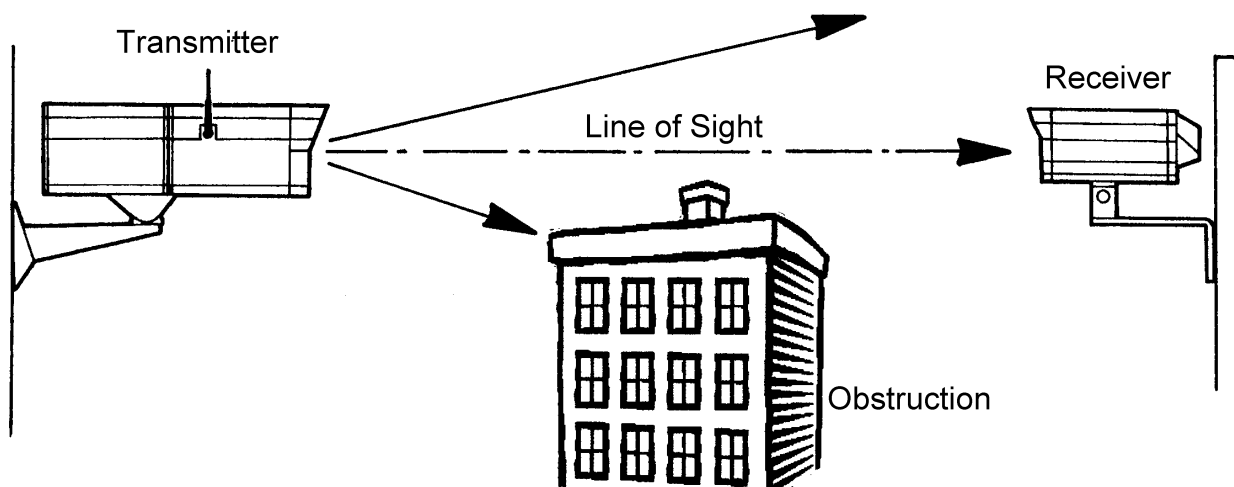


FIGURE 11 – 1
Mounting Details, RX27-24 Receiver

11.1 Mounting Considerations

- Spray the mounting brackets and hardware with silicone to prevent corrosion.
- If possible, confirm the video signal from the video source before connecting the input of the Receiver or the Transmitter.
- Confirm the input power by using a voltmeter.
- After all connections are complete, seal any exposed connectors with silicone tape, spray and/or putty.
- Point or aim the Transmitter Unit and the Receiver Unit at each other. For maximum transmitting distance, the faceplate of the Receiver Unit should be looking at the Antenna attached to the Transmitter Unit.
- Adjust the Receiver or Transmitter mounting angle or height for best reception.

See **Figures 11-2, 11-3, and 11-4** on pages 25, 26, and 27 for reference.



PROBLEM:

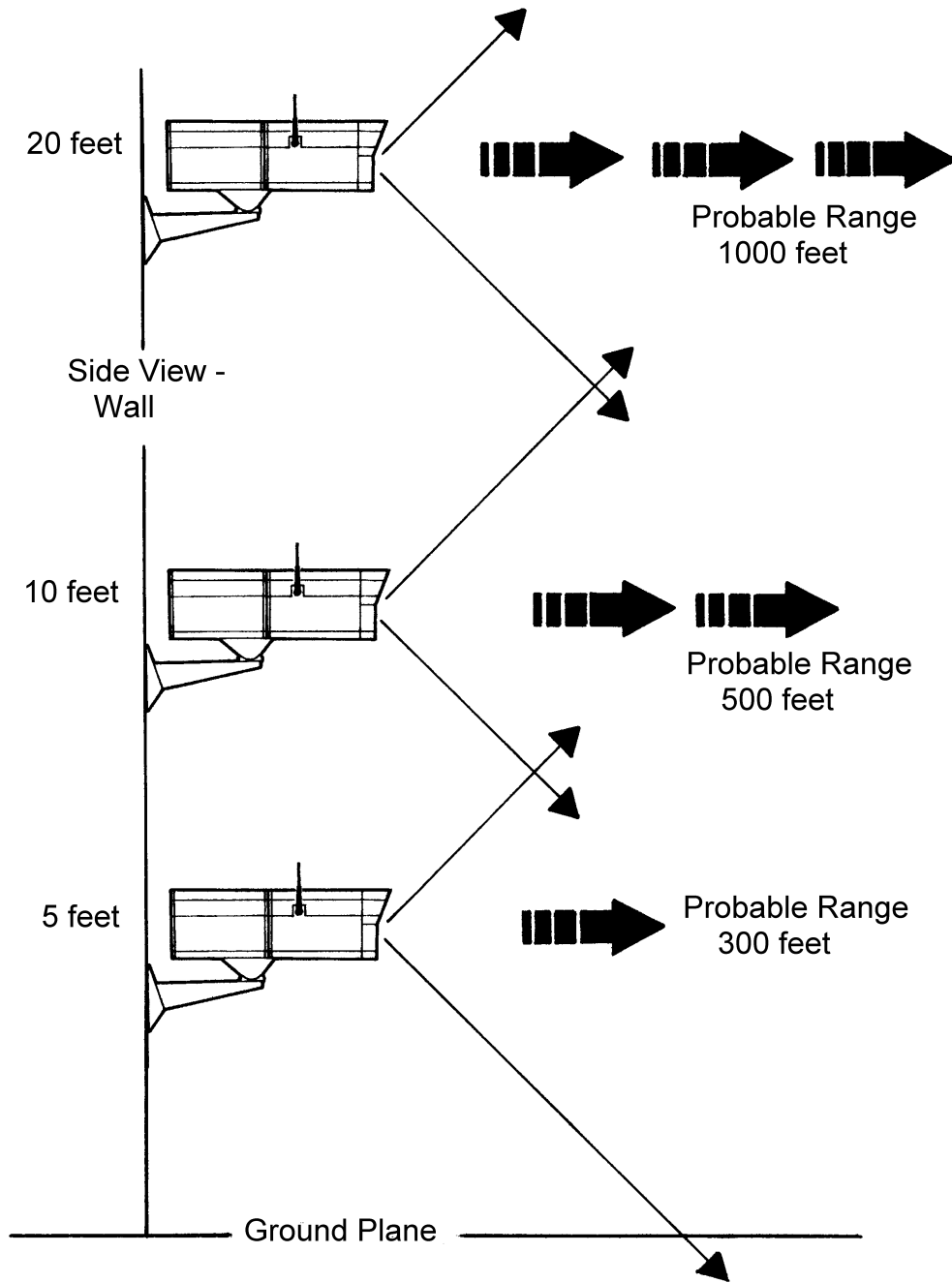
Although technically the transmitter has “line of sight” with the receiver, the video quality from the receiver will be poor.

As shown in the above diagram, most of the signal will be blocked by the building (or other similar obstruction). Therefore the receiver will not receive a strong enough signal to “output” a reasonable picture.

POSSIBLE SOLUTIONS:

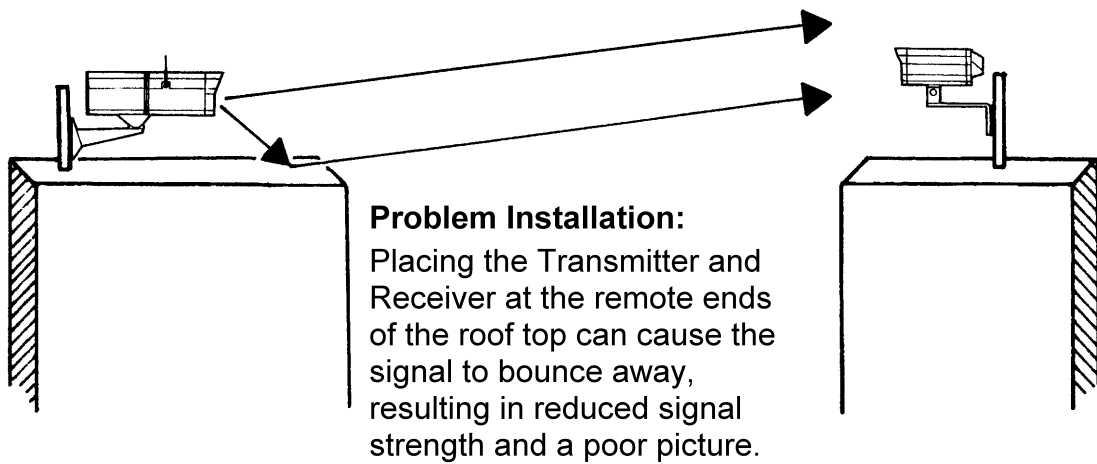
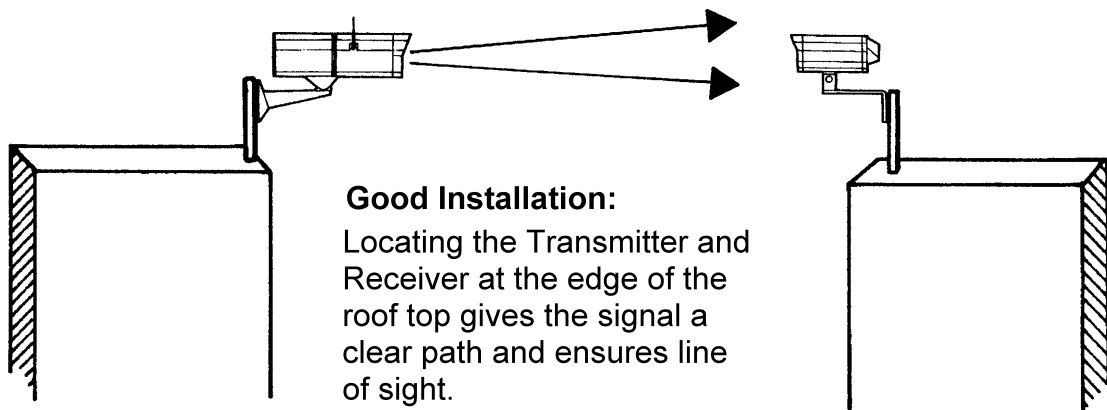
- Raise the transmitter and receiver much higher so that more signal can pass to the receiver.
- Add a high gain antenna to the receiver for improved signal strength.

FIGURE 11 – 2
Line of Sight Mounting Considerations - Obstruction



Negative Ground Plane Effect occurs when the Transmitter is too close to the ground. This dramatically reduces the potential transmitting range as shown above. It is best to locate the transmitter as high as possible.

FIGURE 11 – 3
Mounting Considerations – Ground Plane Effect



Solution:
Either mount the devices close to the edge of the roof line or elevate the units higher on the pole.

FIGURE 11 – 4
Mounting Considerations – Roof Top

12. TROUBLESHOOTING GUIDE – CAMERA / RECEPTION

<i>PROBLEM</i>	<i>POSSIBLE CAUSE</i>	<i>LIKELY SOLUTION</i>
No Video	<p>1. <u>Power Supply:</u></p> <p>-Connections....</p> <p>-Voltage Range...</p> <p>2. <u>Video Connections</u></p>	<p>Check the input power connections at the terminal:</p> <ul style="list-style-type: none"> * <i>AC input wires to “ ac IN”.</i> * <i>DC input wires to “ dc IN”.</i> * <i>Loose wires.</i> <p>If connected to “ dc IN”, the supply range is: <i>12 – 24V dc.</i></p> <p>If connected to “ ac IN”, the supply range is: <i>13.5 – 28V ac OR 13.5 – 30V dc.</i></p> <p>Measure the voltage at the VRB’s Input Power Connector.</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 monitor. Check the video signal. If okay, the problem is with the interconnections.</p> <p>If still no video, contact Extreme CCTV. See the inside front cover of the Service Manual for contact information.</p>

12. TROUBLESHOOTING GUIDE – CAMERA (cont'd.)

<i>PROBLEM</i>	<i>POSSIBLE CAUSE</i>	<i>LIKELY SOLUTION</i>	
Poor Picture Quality	Dim Image	Iris closed	Increase iris level on lens
	Snowy Image	Poor Video Signal	Ensure the video cable is correctly matched and terminated with 75 ohms at each end. Make sure the video cables are of similar types.
		Noisy Power Supply	Check all power connections. Relocate or replace the 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 the couplings. An electrically isolated circuit board or isolation transformer may be required.
	Negative, scrambled, or faded image	Low voltage	Check voltage at input power cable. Must be >12V dc.

13. TROUBLESHOOTING GUIDE – LEDs

<i>PROBLEM</i>	<i>POSSIBLE SOLUTION</i>
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"	<p>850nm LEDs will have a faint red glow when "ON". 940nm LEDs are covert.</p> <p>Aim the LEDs directly at an IR sensitive camera, or use a mirror, to see the lights or wait for the LEDs to warm up (two minutes).</p>
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). <p>The LEDs will stay "ON" or "OFF" if the adjustments are at full turn.</p>

14. TROUBLESHOOTING GUIDE – RX27-24 RECEIVER

<i>PROBLEM</i>	<i>POSSIBLE SOLUTION</i>
No reception	Check that receiver and transmitter are at same channel.
Low signal pick-up	<ul style="list-style-type: none"> - Check receiver is aimed at transmitter. - Check that there is no obstruction in the line of sight.

15. GENERAL SPECIFICATIONS – Camera/Transmitter

Power Consumption:	360 mA (max.) for color 1.5 A (max.) for mono
Input Voltage:	12V dc (Battery)
Enclosure (housing):	Aluminum casting and extrusion (sealed to IP66 / NEMA4)
Viewing Window:	Toughened glass
Dimensions:	<i>Camera/Transmitter Unit -</i> 130mm H (5.12") 134.5mm W (5.30") 212mm L (8.35") <i>Battery Pack –</i> 130mm H (5.12") 134.5mm W (5.30") 165mm L (6.50")
Cables:	Black Polyurethane (IP86/NEMA6P) 0.3m L
Weight:	<i>Camera & Battery -</i> 6.5kg (14.3 lbs)

16. GENERAL SPECIFICATIONS – RX27-24 Receiver

Power Consumption:	160 mA @ 24V ac
Input Voltage:	12 – 24V dc 13.5 – 28V ac
Enclosure (housing):	Aluminum casting and extrusion (sealed to IP66 / NEMA4)
Viewing Window:	Toughened glass
Dimensions:	89mm H (3.50") 91mm W (3.58") mm L (8.98")
Weight:	1.4kg (3.1lbs.)

NOTES:

**Extreme CCTV™ can be contacted
at the following locations:**

Canada	3021 Underhill Avenue, Burnaby, BC V5A 3C2
USA	3873 - C Airport Way, PO Box 9754, Bellingham, WA 98227
tel	1-888-409-2288 (toll free) 1-604-420-7711
fax	1-604-420-3300
e-mail	tech@ExtremeCCTV.com
Web	www.ExtremeCCTV.com
Europe	Colbourne Cres. Cramlington, Northumberland United Kingdom, NE23 1WB
tel	44.1670.730.187
fax	44.1670.730.188

DEALER / AGENT: