



Extreme CCTV®
SURVEILLANCE SYSTEMS

INSTALLATION INSTRUCTIONS

REG-D1



www.ExtremeCCTV.com

Toll free: 1-888-409-2288
MAN-REG-D1-00



IMPORTANT

For best results, please read this Instruction Booklet prior to installing the **REG-D1** camera.



WARNING !

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

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.



EU Directives covered by this declaration:

72/9/EC Low Voltage Directives

89/336/EEC Electromagnetic Compatibility Directive

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DESCRIPTION

The **REG-D1** license plate capture camera unit consists of one IR-sensitive monochrome camera, one integrated panel of Infrared LEDs, and one color overview camera. The license plate capture camera produces optimum license plate images during day and night settings in all-weather conditions. The camera has optical filtering technology that help block out unwanted ambient light such as headlamps or sunlight, thus ensuring no bloomed-out or washed-out images of the license plates.

The REG-D1 camera you have purchased is designed and configured to capture images of license plates under a wide range of ambient light to weather conditions.

The all-weather housing with a covert acrylic window contains all the electronics. Low voltage operation, low power consumption, LED illuminator, and solid-state CCD technology make this camera very reliable and efficient. A voltage regulator circuit allows for *DC* or *AC* operation between 12 and 24 VAC/VDC. It also provides protection from voltage surges, transient spikes, and reverse voltage.

The **REG-D1** is available in several models designed to meet specific needs. 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 booklet for contact numbers.

PARTS LIST (items supplied with unit)

- **REG-D1** camera assembly
- Installation Instructions booklet
- One 3mm Allen key

ITEMS REQUIRED FOR INSTALLATION (not supplied with units)

- Mounting hardware
- Mounting tools
- Proper Power Supply

INITIAL PREPARATIONS

- Determine the operating voltage at the installation site. The camera's Voltage Regulator Board accepts both 12-24VDC/VAC input without change to internal connections. See *Section 2, Input Power Connections*.
- Determine the optimum location for the camera. See *Section 3, Mounting Specification*.
- All cameras have been tested prior to shipment. After the wiring has been reconnected, it is advisable to check the camera's operation before installation.

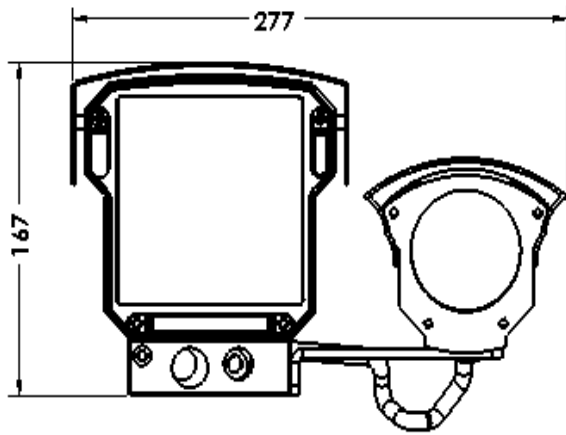
GUIDELINES

The installation of the **REG-D1** camera is explained in Sections 1 to 3.

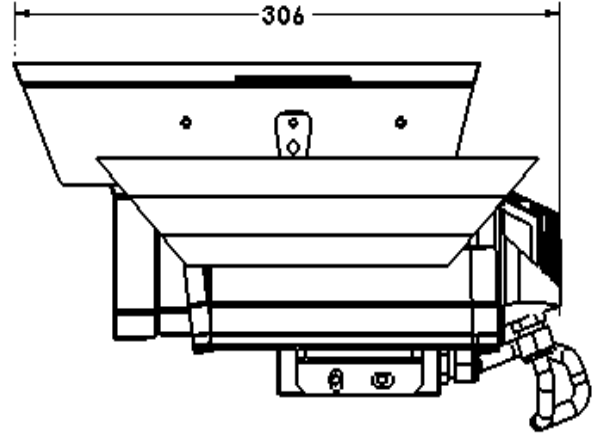
It is important that these steps are followed and to practice proper installation procedures with proper safety equipment.

1. MECHANICAL SPECIFICATIONS—REG D1

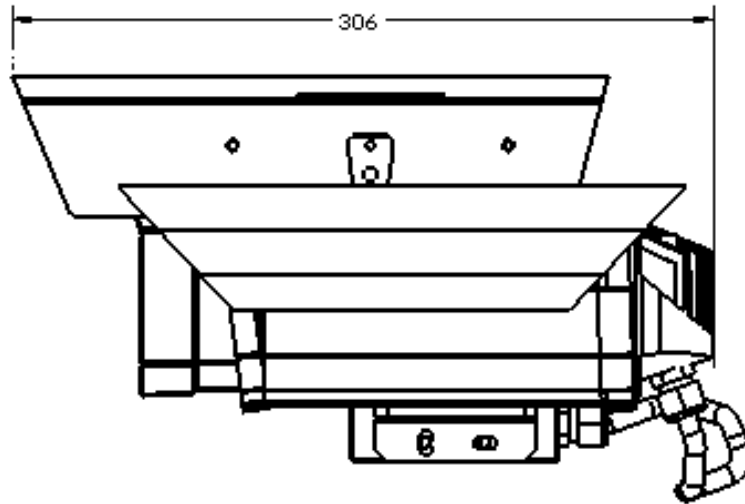
(See Section 6 - General Specifications, for more information)



Front View



Side View



Side View

**Optional mounting kits: EXMB028 or EXMB029*

Figure 1 – 1 General Mechanical Specifications

2. INPUT POWER / VIDEO OUTPUT CONNECTIONS

The camera unit is pre-connected with a electrically isolated power board for 12 to 24 VDC/VAC operation with no wiring change or wiring polarity.

Note:

Input voltage is 12VDC to 24VDC for DC input.
The AC input range is 12VAC to 24VAC.

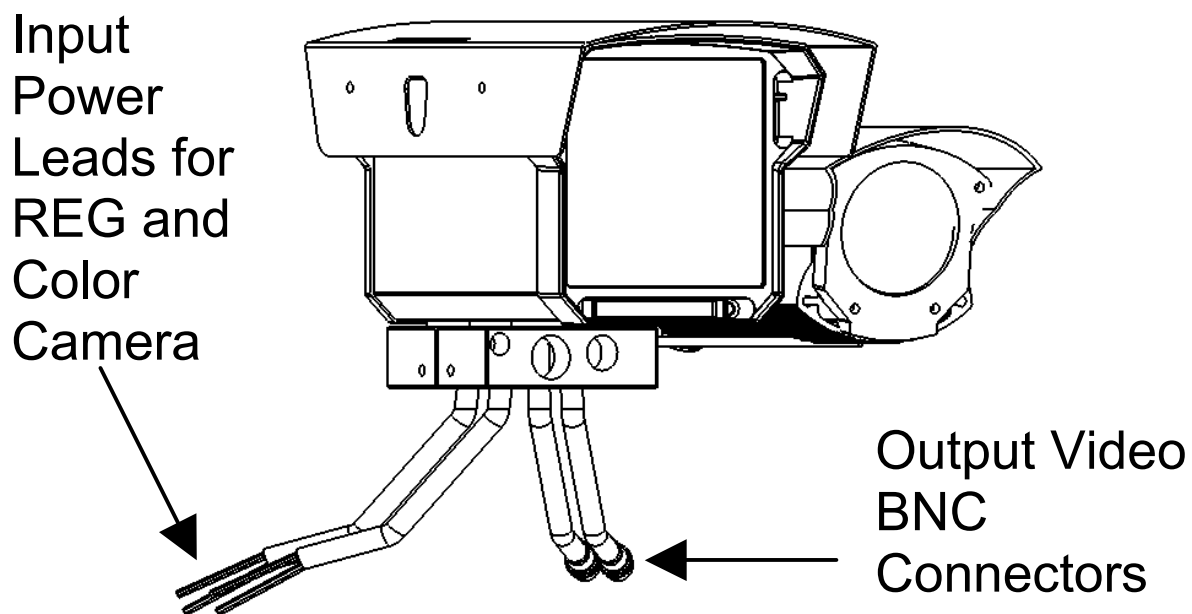


Figure 2 – 1 Power and Video Connections

3. MOUNTING SPECIFICATION

Caution: *Install with appropriate screws to suit mounting surface. Select a suitable location that is protected from accidental damage, tampering and environmental conditions exceeding the camera's specifications.*

See page 20.

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 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.

The REG-D1 units have a horizontal field of view of about 10 feet at the specified optimal capture distance for each model of REG-D1 as shown on **Figure 3 - 1** below. This is the normal width for a standard traffic lane and ensures that the number plate is in view whatever the position of the vehicle within the lane. Any number plate recognition installation should aim to control the traffic through a lane.

Model	Range, 'R'	Optimal Distance*
REG-D1-816	12 ft - 22 ft	16 ft
REG-D1-825	20 ft – 34 ft	25 ft
REG-D1-835	27 ft – 48 ft	35 ft
REG-D1-850	40 ft – 68 ft	50 ft
REG-D1-875	55 ft – 80 ft	75 ft

Figure 3 – 1 REG-D1 Range Chart

** Optimal distance calculated with a 6' lane field of view to allow license plates of 120 pixels wide. Most DVR application can provide readable plates larger than 80 pixels depending on level of image compression set on DVR.*

The maximum angle of the unit to the car is 40° . This is both horizontally and vertically. This limits the amount of skew of the letters on the number plate. If the letters are skewed too much they will start to become unrecognizable and will reduce automatic software recognition rates.

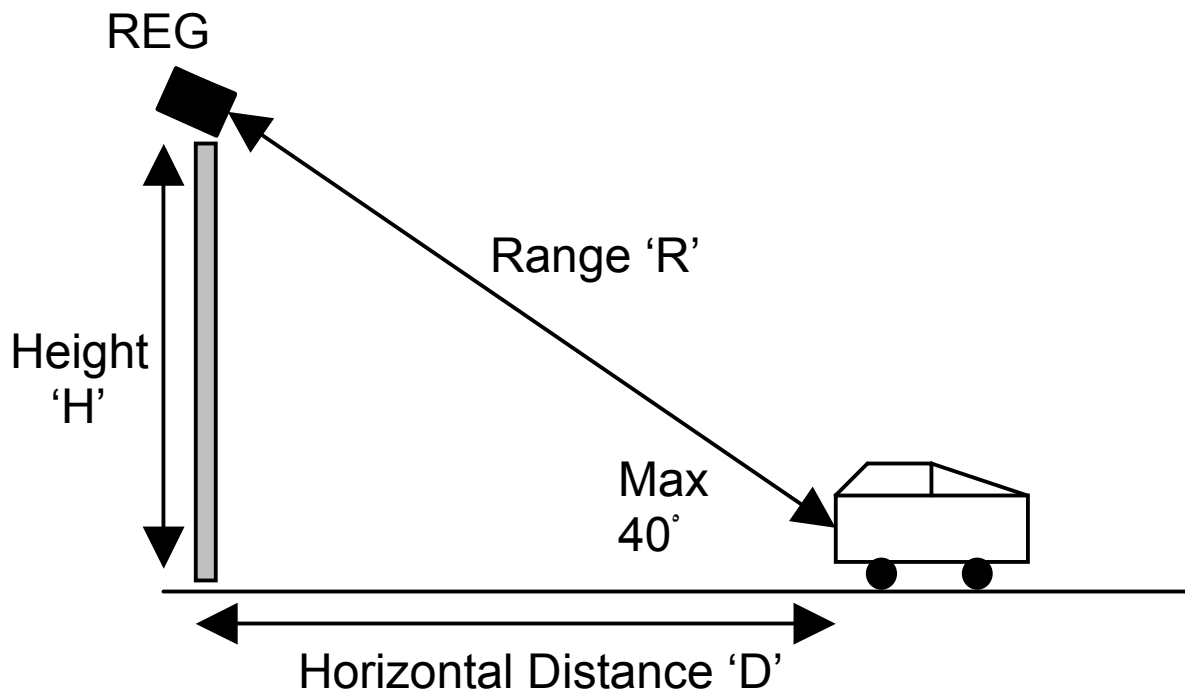


Figure 3 – 2 Maximum Vertical Angle

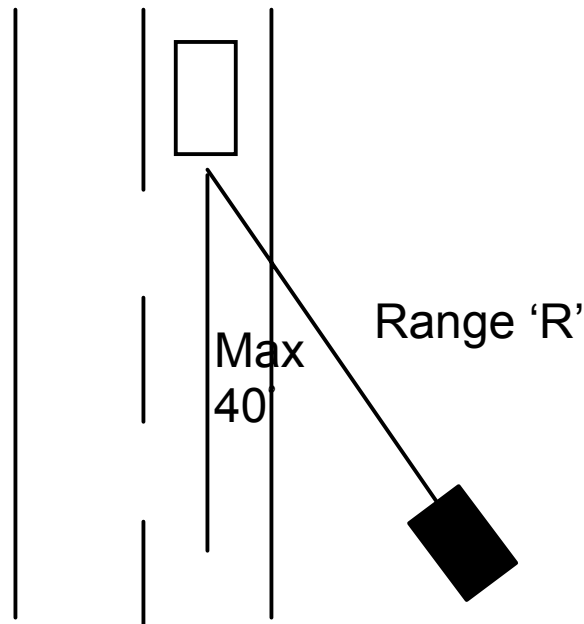


Figure 3 – 3 Maximum Horizontal Angle

If the maximum range is exceeded the letters will become smaller and be more difficult to read. At the max range the width of the number plate covers approximately 12% of the width of the screen.

Note: The 'R', Range is the distance from the camera to the license plate. Working below max range gives larger number plates and hence more accurate recognition but less lane area to be covered. If too close the license plate could disappear from the Field-of-View, especially for side-mounted plates.

4. COLOR OVERVIEW CAMERA LENS SETTING

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

Step 4.1 - Remove sunshield by loosening top bolt with a standard Philips screwdriver.

Step 4.2 - Disconnect the power source to the camera and the video signal at the BNC connector.

Step 4.3 - Remove the four cap screws with a 3mm Allen key. See **Figure 4-1** on page 11.

Step 4.4 - Carefully slide out the rear housing from the main enclosure. Make sure the gasket remains with the rear section.
See **Figure 4-2** on page 12.

Step 4.5 - Make any necessary adjustments as per **Figure 4-3 and Figure 4-4** on page 14.

Step 4.6 - Carefully slide the rear section into the main enclosure and tighten the cap screws.

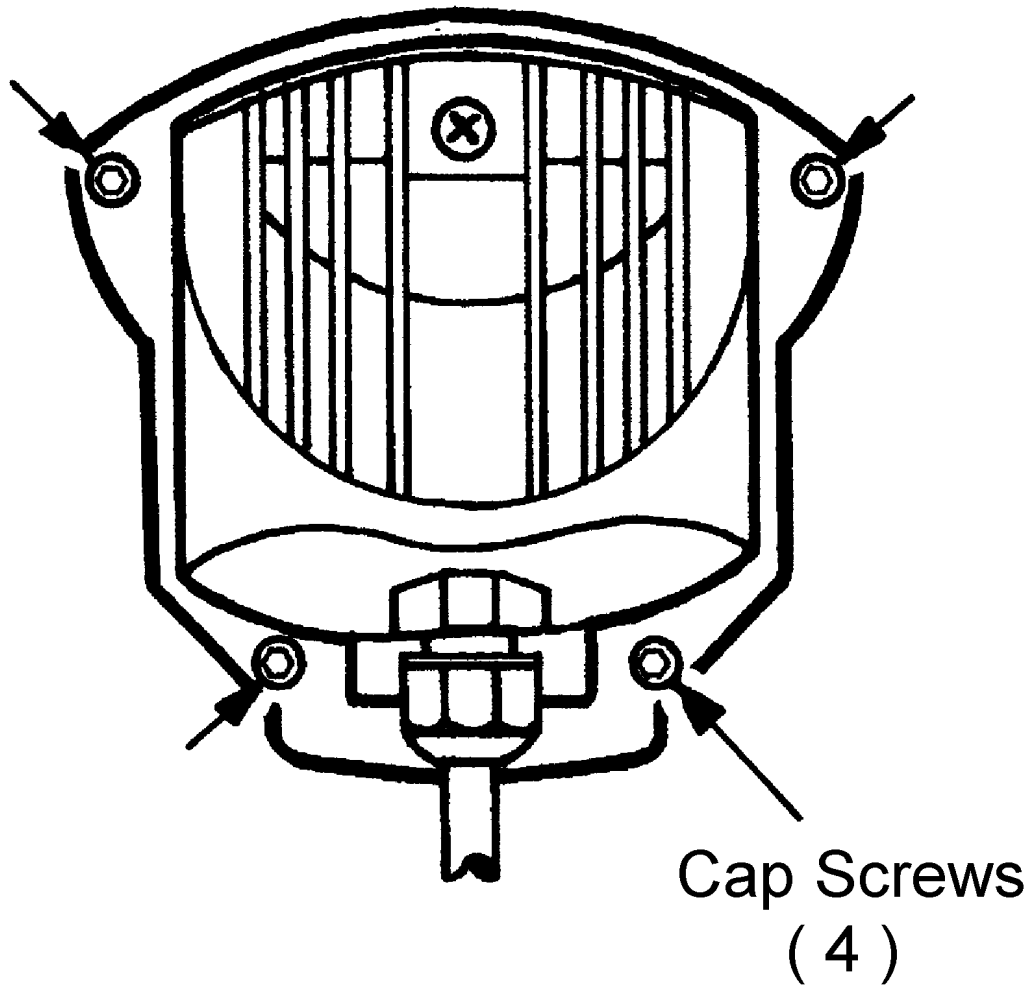


FIGURE 4 – 1
Rear Housing Removal

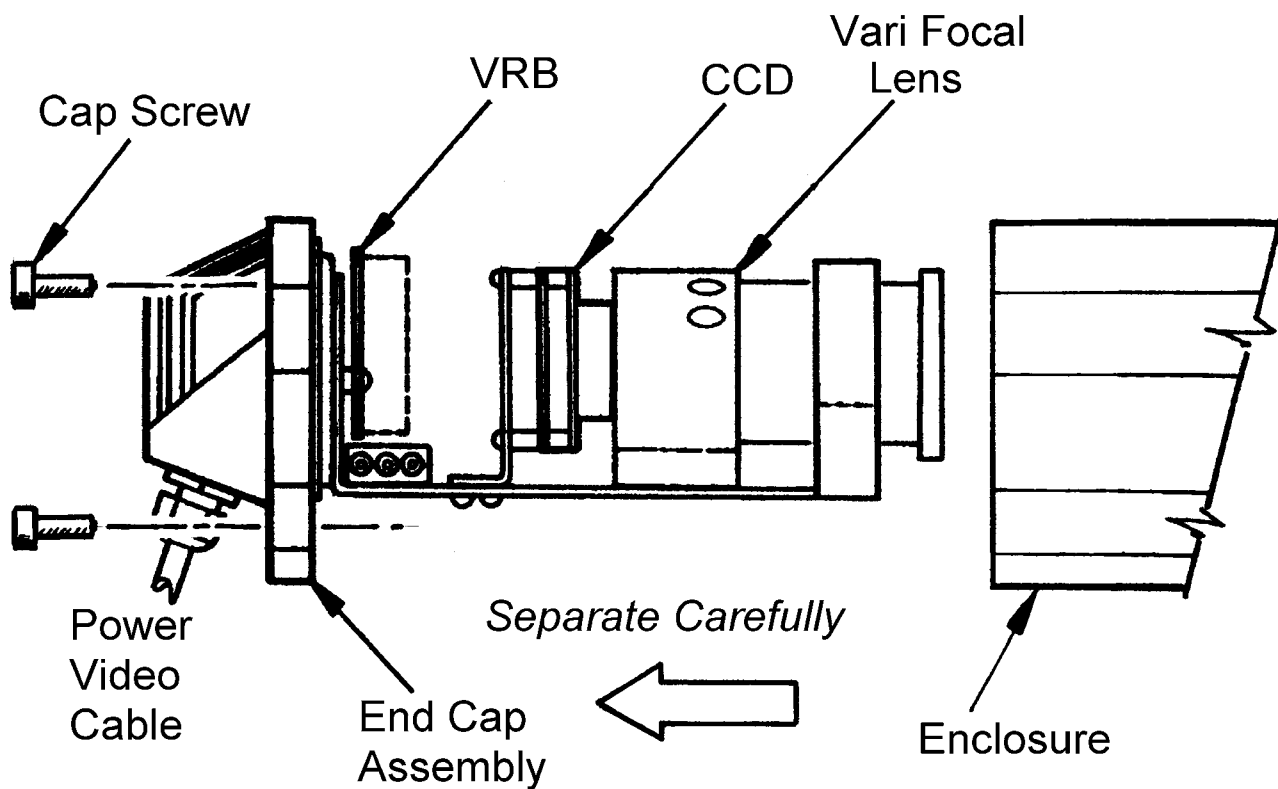


FIGURE 4 – 2
Housing Separation for Camera, Lens and Voltage Regulator Board Access

4.1 Vari-Focal and “Auto-Iris” Control Adjustments

- Step 4.1.1 - Loosen the lens set screws for focus/zoom adjustments. See **Figure 4-3** on page 14.
- 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 14 and as per **Figure 4-5** on page 15.
- Step 4.1.6 - After adjustments are complete, re-install the Camera lens back on to the camera assembly

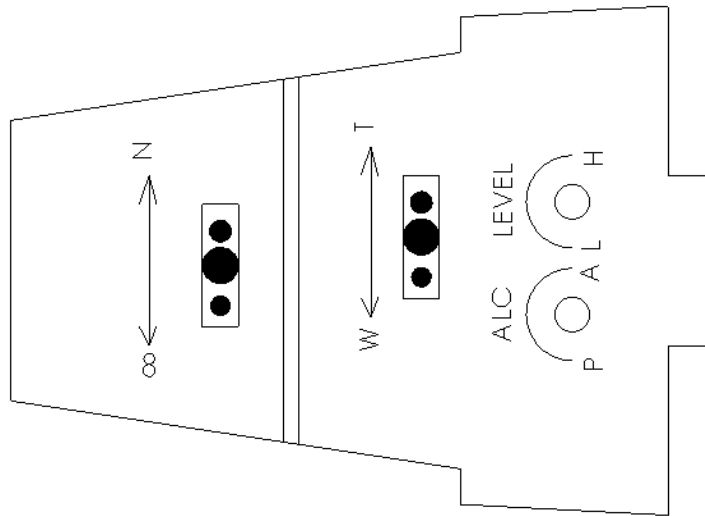


FIGURE 4 – 3
Zoom and Focus Adjustments

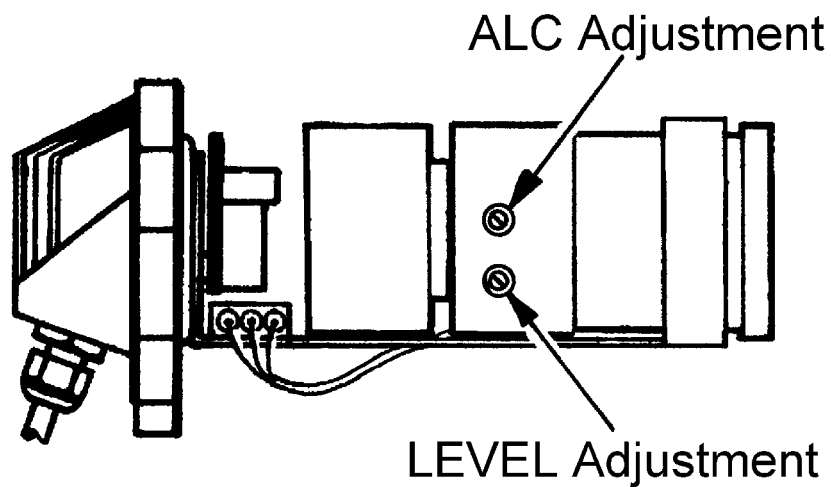


FIGURE 4 – 4
ALC and LEVEL Adjustments

ALC Mode Select	ALC Adjustment
Metering to the “peak” light intensity of the image	Turn towards “P”
“Average” metering over the image	Turn towards “A”

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

***FIGURE 4 – 5
Lens Adjustment, ALC and Level***

5. TROUBLESHOOTING GUIDE

<i>PROBLEM</i>	<i>POSSIBLE CAUSE</i>	<i>LIKELY SOLUTION</i>
No Video	<p>Power Supply Connections</p> <p>Voltage Range</p> <p>Video Connections</p>	<p>Check the input power connections at the terminal block, ensuring no wires are loose.</p> <p>The supply range is: <i>12 – 24 VDC or 12 – 24 VAC.</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>

<p>Horizontal Scan Lines, Rolling Up or Down</p>	<p>Ground Loop on video cable</p>	<p>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>
<p>Negative, scrambled, or faded image</p>	<p>Low voltage</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>Check voltage at input power cable. Must be >12VDC/VAC. Video leads reversed connection.</p>

Poor Color 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.
Negative, scrambled, or faded image	Low voltage	Check voltage at input power cable. Must be >12VDC/VAC.

NOTES:

▲ CAUTION

Safety and Precaution

Do not stare or look into the REG-D1 camera within a distance less than 5 feet (1.5m) directly in front of the camera.

When mounting and installing the REG-D1 camera, make sure proper safety equipment and procedures are used and practiced. This is to ensure the camera installation will not potentially cause any harm to people around the area and also the installer will be safe while performing the installation.

Only qualified personnel shall install any Extreme CCTV Inc product. Extreme CCTV Inc will not be responsible for injuries or damages resulting from the improper installation or use of any product sold by Extreme CCTV Inc, their agents, distributors or dealers.

6. GENERAL SPECIFICATIONS

Power Consumption:	27W Max.
Input Voltage:	12 – 24 VDC or 12 – 24 VAC
Enclosure (housing):	Aluminum casting and extrusion (sealed to IP66 / NEMA4)
Viewing Windows:	Polycarbonate and Acrylic
Dimensions:	167mm H (6.57") 277mm W (10.9") 306mm L (12.0")
Operational Temperatures:	-50 ⁰ C to +50 ⁰ C
Weight:	3.6kg (8.0 lbs.)

Subject to change without notice.



Extreme CCTV®

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