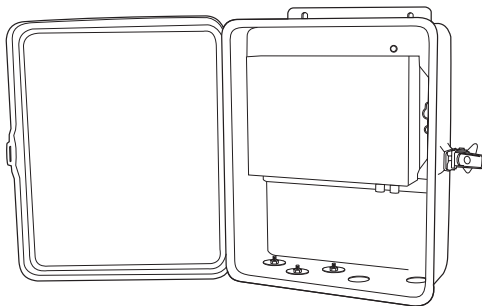




# Installation/Operation

IRD/ERD2000 Series  
Receiver

C1506M (3/00)



Pelco • 300 W. Pontiac Way, Clovis • CA 93612-5699 USA • Pelco Online @ [www.pelco.com](http://www.pelco.com)  
**In North America and Canada:** Tel (800) 289-9100 • FAX (800) 289-9150 • DataFAX (800) 289-9108  
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# IMPORTANT SAFEGUARDS AND WARNINGS

Prior to installation and use of this product, the following WARNINGS should be observed.

1. Installation and servicing should only be done by qualified service personnel and conform to all local codes.
2. Unless the unit is specifically marked as a NEMA Type 3, 3R, 3S, 4, 4X, 6 or 6P enclosure, it is designed for indoor use only and it must not be installed where exposed to rain and moisture.
3. Only use replacement parts recommended by Pelco.
4. The installation method and materials should be capable to supporting four times the weight of the receiver.
5. Use stainless steel hardware to fasten the unit to outdoor surfaces.
6. If the unit requires 120/230 VAC and does not have an on/off switch, the input power circuit must have a circuit breaker.
7. For continued protection against risk of fire, replace fuses only with the same type fuses.

The product and/or manual may bear the following marks:



This symbol indicates that dangerous voltage constituting a risk of electric shock is present within this unit.



This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.

CAUTION :
RISK OF ELECTRIC SHOCK. DO NOT OPEN.

Please thoroughly familiarize yourself with the information in this manual prior to installation and operation.

## DESCRIPTION

The IRD/ERD2000 Series Receiver operates Pelco's fixed speed pan/tilts and domes.

The receiver works with standard and extended Coaxitron® controllers, including the CM6700/7500/8500/9500, KBD9000, MPT9000/9008/9500, and MX4000. With Coaxitron control, pan/tilt and lens control signals are transmitted over the video coaxial cable. The control data is superimposed on the vertical blanking interval of the video signal.

Standard features include pan/tilt control (including auto and random scan), camera power, lens control (zoom, iris, and focus), and two auxiliary outputs. The receiver also can be used with the LRD41TLC Test Local Control module, which allows on-site testing and troubleshooting of system functions. The TLC module plugs into the receiver and operates off the receiver's power.

## Models

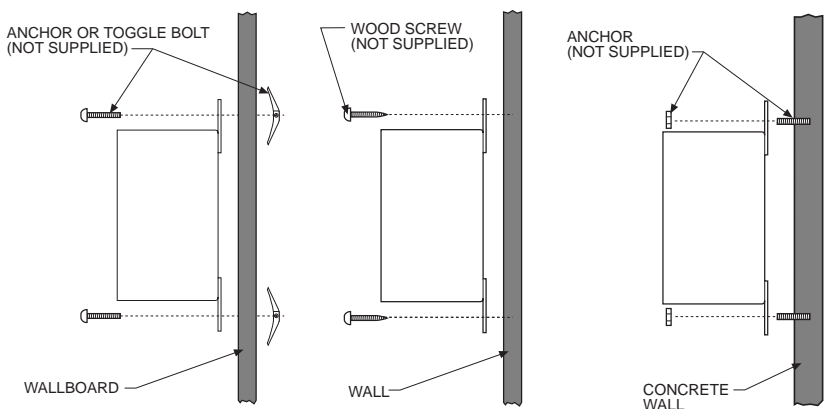
IRD2024	Indoor, fixed speed, Coaxitron receiver, 24 VAC input, 24 VAC output for camera power and pan/tilt operation
ERD2200	Outdoor, fixed speed, Coaxitron receiver, 115/230 VAC input, 24 VAC output for camera power, 24, 115, or 230 VAC output for pan/tilt operation, and 115 or 230 VAC output for enclosure accessories

## MOUNTING

Attach the IRD2024 to a flat surface.

Attach the ERD2200 to a vertical surface with the conduit entries facing down. Use the housing as a template for drilling mounting holes.

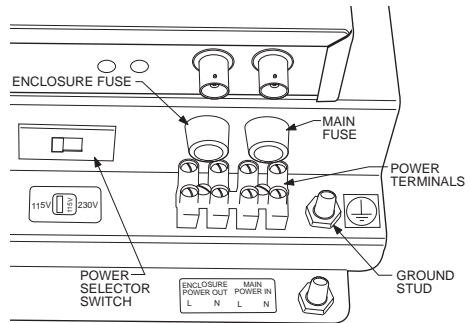
Use 1/4-inch fasteners (not supplied) of the appropriate length. Refer to the illustrations below.



## ERD2200 WIRING

Input Power	Enclosure	Main
115 VAC	4A	.5A
230 VAC	2A	.25A

### ERD2200 Power Connections



1. Fuses are installed for 115 VAC operation. For 230 VAC operation, install the appropriate fuses (supplied).
2. Set the power selector switch to either 115V or 230V to match your input power.
3. Connect main power.

The bottom of the housing has five conduit entries (fittings not supplied) to bring wiring into the receiver. Connect 115/230 VAC to the Main Power In terminals inside the receiver with AC high going to the L (line) terminal and AC low to the N (neutral) terminal. Connect ground wire to the stud inside the housing. Do not turn on power.

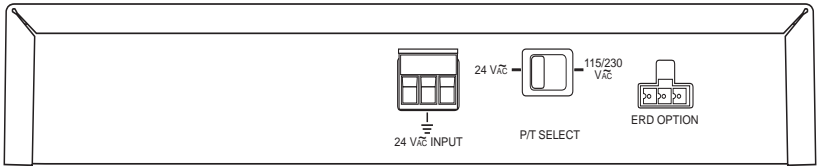
4. Connect enclosure power (optional). If you have an enclosure with heater, blower, or defroster, connect wires from the pan/tilt or enclosure to the Enclosure Power Out terminals inside the receiver. The enclosure must use the same power as the receiver.
5. Set the P/T SELECT switch on the rear of the receiver according to the pan/tilt voltage requirements.

#### *PAN/TILT VOLTAGE WARNING:*

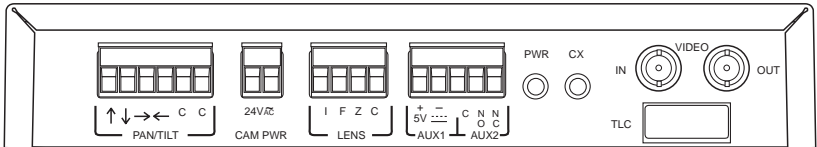
Never move the P/T SELECT switch toward the high voltage side unless you are positive your pan/tilt requires 115/230 VAC. Inadvertently selecting the switch for high voltage will permanently damage a 24 VAC pan/tilt.

If you select 24 VAC, the maximum output is 48 vA (supplied by the transformer inside the receiver); make sure the combined output of your pan/tilt and camera (if it also uses 24 VAC) does not exceed this output.

## Rear View of Receiver



## Front View of Receiver



6. Connect the pan/tilt controls (up, down, left, right, and common).

7. Connect the camera power.

If your camera uses 24 VAC, connect the camera to the CAM PWR connector on the front of the receiver. The camera's power must not exceed 5 VA.

If your camera uses 115 or 230 VAC, connect the camera's power leads to the Enclosure Power Out terminals inside the receiver. The camera's power must be the same as the receiver's power (Main Power In terminals).

8. Connect the motorized lens controls (iris, focus, zoom, and common).

9. Connect video.

VIDEO IN comes from the camera.  
VIDEO OUT goes to the controller.

If necessary, refer to Table B in the *Wiring Tables* section to determine appropriate coaxial cable types for video applications.

10. Connect the auxiliary outputs (optional).

AUX 1 is a 5 VDC, 20 mA maximum, open collector output. Use the auxiliary:

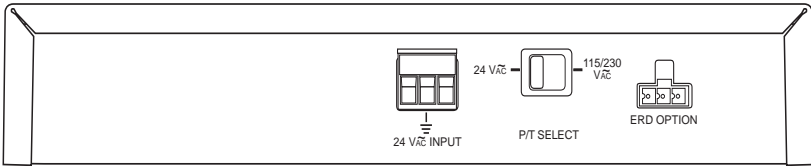
- To operate low current relays
- To turn on or off a Pelco window wiper that has TTL circuitry

AUX 2 is a normally open/normally closed (Form C) relay. Relay contacts are rated at 1A maximum at 24 VDC or .5A maximum at 115 VAC.

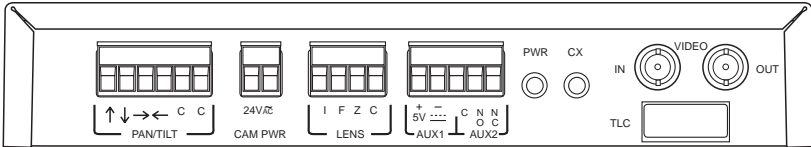
11. Double check all wiring connections, and then turn on power.

# IRD2024 WIRING

## Rear View of Receiver



## Front View of Receiver



1. Connect power to the 24 VAC INPUT connector on the rear of the receiver. The receiver's power requirement is a maximum of 5 vA, not including the camera and pan/tilt. Refer to the pan/tilt manual for its power requirements. Do not turn on power.

If necessary, refer to Table A in the *Wiring Tables* section to determine appropriate wire sizes for 24 VAC applications.

2. Make sure the P/T SELECT switch on the rear of the receiver is set toward 24 VAC. The 115/230 VAC switch position is used only with the ERD2200.
3. Connect the pan/tilt controls (up, down, left, right, and common).
4. Connect the camera power (24 VAC).
5. Connect the motorized lens controls (iris, focus, zoom, and common).
6. Connect video.

VIDEO IN comes from the camera.  
VIDEO OUT goes to the controller.

If necessary, refer to Table B in the *Wiring Tables* section to determine appropriate coaxial cable types for video applications.

7. Connect the auxiliary outputs (optional).

AUX 1 is a 5 VDC, 20 mA maximum, open collector output. Use the auxiliary:

- To operate low current relays
- To turn on or off a Pelco window wiper that has TTL circuitry

AUX 2 is a normally open/normally closed (Form C) relay. Relay contacts are rated at 1A at 24 VDC or .5A at 115 VAC.

8. Double check all wiring connections, and then turn on power.

## OPERATION

When power is applied to the receiver, the green PWR LED on the receiver lights.

Whenever the receiver gets a valid Coaxitron control signal, the green CX LED blinks.

### Random/Auto Scanning

Operation of random and auto scanning depends on whether your transmitter/controller is communicating with the IRD2000/ERD2200 in standard or extended Coaxitron mode.

#### Standard Coaxitron

Press the Pan Auto (or Autoscan) key to begin random scanning. In random scan operation the pan/tilt travels between the limit stops with a random scan period of 0-60 seconds. The pan/tilt then stops for a random period of 0-60 seconds before starting another random scan period. The direction the pan/tilt moves when another scan period is started is also randomly determined. When a pan limit stop is reached, scan direction reverses automatically.

Press the Pan Auto (or Autoscan) key again to start auto scanning. After approximately a half hour of auto scanning, the pan/tilt switches to random scanning.

To turn off random/auto scanning, press the Pan Man (or Manscan) key.

#### Extended Coaxitron

Activate random/auto scanning by calling the following presets:

Preset 97 – Random scanning

Preset 98 – Continuous auto scanning—see WARNING below

Preset 99 – Auto scanning with half-hour timeout, after which pan/tilt switches to random scanning

Preset 96 – Stop scanning

#### *WARNING*

Activating preset 98 (continuous auto scanning) reduces the warranty on your pan/tilt to six months.

### Auxiliary Operation

Operation of the two auxiliaries varies depending on the transmitter/controller you are using and whether it is communicating in standard or extended Coaxitron mode. Refer to your transmitter/controller manual for the exact key-press sequence required to send an Aux 1 or Aux 2 command. The following explains how the auxiliaries respond with the different Coaxitron modes.

#### Standard Coaxitron

When a valid Aux 1 or Aux 2 command is received, the corresponding auxiliary operates momentarily.

#### Extended Coaxitron

When a valid Aux 1 or Aux 2 command is received, the corresponding auxiliary operates momentarily.

*Optional Latching Mode (Extended Coaxitron Only)* – When a valid

Aux 3 or Aux 4 command is received, the corresponding auxiliary performs a latching operation.

*NOTE:* Aux 3 operates Aux 1 and Aux 4 operates Aux 2.

## FUSE REPLACEMENT

### IRD2024

Lens/Auxiliary Fuse – A 500 mA fuse protects the LENS and AUX 1 outputs. Remove the cover of the receiver to check the fuse.

### ERD2200

Main Fuse – The main fuse protects the pan/tilt output when 24 VAC pan/tilt operation is selected. It also protects the 24 VAC camera output. Refer to the *ERD2200 Wiring* section for fuse location and values.

Enclosure Fuse – The enclosure fuse protects the pan/tilt output when 115/230 VAC pan/tilt operation is selected. It also protects the enclosure output. Refer to the *ERD2200 Wiring* section for fuse location and values.

Lens/Auxiliary Fuse – A 500 mA fuse protects the LENS and AUX 1 outputs. Remove the cover of the receiver inside the housing to check the fuse.

## TROUBLESHOOTING

Check the wiring connections.

If the CX LED does not blink when commands are sent to the receiver, make sure the controller is working properly. Also check the video coaxial cable between the controller and the VIDEO OUT connection on the receiver.

An LRD41TLC Test Local Control Module is available from Pelco to test or troubleshoot your receiver, pan/tilt, and lens functions directly from the receiver.

This lightweight, hand-held keypad tests the up, down, left, and right functions of the pan/tilt, and the iris open/close, focus near/far, and zoom telephoto/wide functions of the lens.

1. Plug the module into the TLC connector on the front of the receiver. The module can be plugged in with the receiver's power turned on.
2. Push the buttons on the keypad to test your equipment. The TLC module can be used without disconnecting the receiver from the controller. The TLC module will override any signals from the controller.



# WIRING TABLES

Table A  
24 VAC Wiring Distances Table

The following are the recommended maximum wire distances (transformer to load) for 24 VAC applications and are calculated with a 10-percent voltage drop. (Ten percent is generally the maximum allowable voltage drop for AC-powered devices.) Distances are calculated in feet; values in parentheses are meters.

		<b>Wire Gauge</b>					
		<b>20</b>	<b>18</b>	<b>16</b>	<b>14</b>	<b>12</b>	<b>10</b>
<b>Total vA consumed</b>	<b>10</b>	283 (86)	451 (137)	716 (218)	1,142 (348)	1,811(551)	2,880 (877)
	<b>20</b>	141 (42)	225 (68)	358 (109)	571 (174)	905 (275)	1,440 (438)
	<b>30</b>	94 (28)	150 (45)	238 (72)	380 (115)	603 (183)	960 (292)
	<b>40</b>	70 (21)	112 (34)	179 (54)	285 (86)	452 (137)	720 (219)
	<b>50</b>	56 (17)	90 (27)	143 (43)	228 (69)	362 (110)	576 (175)
	<b>60</b>	47 (14)	75 (22)	119 (36)	190 (57)	301 (91)	480 (146)
	<b>70</b>	40 (12)	64 (19)	102 (31)	163 (49)	258 (78)	411 (125)
	<b>80</b>	35 (10)	56 (17)	89 (27)	142 (43)	226 (68)	360 (109)
	<b>90</b>	31 (9)	50 (15)	79 (24)	126 (38)	201 (61)	320 (97)
	<b>100</b>	28 (8)	45 (13)	71 (21)	114 (34)	181 (55)	288 (87)
	<b>110</b>	25 (7)	41 (12)	65 (19)	103 (31)	164 (49)	261 (79)
	<b>120</b>	23 (7)	37 (11)	59 (17)	95 (28)	150 (45)	240 (73)
	<b>130</b>	21 (6)	34 (10)	55 (16)	87 (26)	139 (42)	221 (67)
	<b>140</b>	20 (6)	32 (9)	51 (15)	81 (24)	129 (39)	205 (62)
	<b>150</b>	18 (5)	30 (9)	47 (14)	76 (23)	120 (36)	192 (58)

EXAMPLE: An enclosure that requires 80 vA and is installed 35 feet (10 m) or less from the 24 VAC source would require a minimum wire gauge of 20 AWG.

Table B  
Video Coaxial Wiring Distances

<b>Cable Type*</b>	<b>Maximum Distance</b>
RG59/U	750 ft (229 m)
RG6/U	1,000 ft (305 m)
RG11/U	1,500 ft (457 m)

\* Minimum cable requirements:  
75 ohms impedance  
All-copper center conductor  
All-copper braided shield with 95% braid coverage

# SPECIFICATIONS

## ERD2200

### ELECTRICAL

Input Voltage: 115/230 VAC, 50/60 Hz

Output Voltage

Camera: 24 VAC (or 115/230 VAC if using enclosure power)

Lens: 8 VDC

Pan/Tilt: 24/115/230 VAC

Enclosure: 115/230 VAC

Power Consumption

Receiver: 5 vA maximum

Pan/Tilt and

Camera: 48 vA maximum at 24 VAC (includes 5 vA maximum for camera)

Fuses

Main: 115 VAC – .5A 230 VAC – .25A

Enclosure: 115 VAC – 4A 230 VAC – 2A

Lens/Aux 1: .5A

Video Input/

Output: 75 ohms

Video

Bandwidth: 10 MHz

Video Gain: Unity

Video Formats: NTSC or PAL

Control

Method: Standard or extended Coaxitron

Auxiliary

Outputs: One open collector, TTL  
One N.O./N.C. (Form C) relay

### MECHANICAL

Video

Connectors: BNC

P/T, Camera,

Auxiliary,

Lens, Power

Connectors: Screw terminals

Cable Entry: Openings for .75-inch (1.91 cm) conduit

### GENERAL

Environment: Outdoor

Construction: Aluminum (receiver), steel (housing)

Finish: Gray polyester powder coat

Operating

Temperature: -50° to 122°F (-46° to 50°C)

Dimensions: 15.2 (L) x 12.2 (W) x 5.0 (H) inches  
(38.6 x 31.0 x 12.7 cm)

Weight: 9.90 lb (4.50 kg)

### CERTIFICATIONS/RATINGS

CE, Class A

UL, cUL pending

NEMA 4, IP 66 pending

## IRD2024

### ELECTRICAL

Input Voltage: 24 VAC, 50/60 Hz

Output Voltage

Camera and

Pan/Tilt: 24 VAC

Lens: 8 VDC

Power Consumption

Receiver: 5 vA maximum

Fuse

Lens/Aux 1: .5A

Video Input/

Output: 75 ohms

Video

Bandwidth: 10 MHz

Video Gain: Unity

Video Formats: NTSC or PAL

Control

Method: Standard or extended Coaxitron

Auxiliary

Outputs: One open collector, TTL  
One N.O./N.C. (Form C) relay

### MECHANICAL

Video

Connectors: BNC

P/T, Camera,

Auxiliary,

Lens, Power

Connectors: Screw terminals

### GENERAL

Environment: Indoor

Construction: Aluminum

Finish: Black polyester powder coat

Operating

Temperature: -10° to 122°F (-23° to 50°C)

Dimensions: 10.3 (L) x 6.0 (W) x 1.75 (H) inches  
(26.2 x 15.2 x 4.4 cm)

Weight: 1.25 lb (0.58 kg)

### CERTIFICATIONS/RATINGS

CE, Class A

UL, cUL pending

NEMA 1, IP 10 pending

(Design and product specifications subject to change without notice.)



# WARRANTY AND RETURN INFORMATION

## WARRANTY

Pelco will repair or replace, without charge, any merchandise proved defective in material or workmanship for a period of one year after the date of shipment. Exceptions to this warranty are as noted below:

- Three years on Genex® Series (multiplexers, server, and keyboard).
- Two years on cameras and all standard motorized or fixed focal length lenses.
- Two years on Legacy®, Camclosure™ Camera Systems, CM6700/CM8500/CM9500/CM9750/CM9760 Matrix, PelcoVision®, DF5 Series, and DF8 Fixed Dome products.
- Two years on Spectra® and Esprit™, including when used in continuous motion applications.
- Two years on WW5700 series window wiper (excluding wiper blades).
- Six months on all pan and tilts, scanners or preset lenses used in continuous motion applications (that is, preset scan, tour and auto scan modes).

Pelco will warrant all replacement parts and repairs for 90 days from the date of Pelco shipment. All goods requiring warranty repair shall be sent freight prepaid to Pelco, Clovis, California. Repairs made necessary by reason of misuse, alteration, normal wear, or accident are not covered under this warranty.

Pelco assumes no risk and shall be subject to no liability for damages or loss resulting from the specific use or application made of the Products. Pelco's liability for any claim, whether based on breach of contract, negligence, infringement of any rights of any party or product liability, relating to the Products shall not exceed the price paid by the Dealer to Pelco for such Products. In no event will Pelco be liable for any special, incidental or consequential damages (including loss of use, loss of profit and claims of third parties) however caused, whether by the negligence of Pelco or otherwise.

The above warranty provides the Dealer with specific legal rights. The Dealer may also have additional rights, which are subject to variation from state to state.

If a warranty repair is required, the Dealer must contact Pelco at (800) 289-9100 or (559) 292-1981 to obtain a Repair Authorization number (RA), and provide the following information:

1. Model and serial number
2. Date of shipment, P.O. number, Sales Order number, or Pelco invoice number
3. Details of the defect or problem

If there is a dispute regarding the warranty of a product which does not fall under the warranty conditions stated above, please include a written explanation with the product when returned.

Method of return shipment shall be the same or equal to the method by which the item was received by Pelco.

## RETURNS

In order to expedite parts returned to the factory for repair or credit, please call the factory at (800) 289-9100 or (559) 292-1981 to obtain an authorization number (CA number if returned for credit, and RA number if returned for repair). Goods returned for repair or credit should be clearly identified with the assigned CA/RA number and freight should be prepaid. All merchandise returned for credit may be subject to a 20% restocking and refurbishing charge.

Ship freight prepaid to: Pelco  
300 West Pontiac Way  
Clovis, CA 93612-5699

## REVISION HISTORY

Manual #	Date	Comments
C1506M	3/00	Original version.

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