

MODEL 902

ENVIRONMENTALLY RUGGEDIZED 60X CAMERA/LENS SYSTEM

E-O Imaging's camera/lens enclosures are designed to provide a reliable and cost effective solution for protecting camera/lens assemblies from the effects of temperature, shock, vibration and airborne contaminants. The Model 902 provides greater scene sensitivity and a higher resolution than its predecessor, the Model 901. The camera/lens assembly is a totally integrated package containing a camera/lens power supply, heaters and boresight adjustment. Its unique shape and mounting system allow for an infinitely variable roll orientation when integrated into the Customer's system. The boresight adjustment ensures the lens' boresight shift is held to a nominal 0.5 mr over the full zoom range, a critical parameter for precision tracking applications. The integrated assembly is then placed into the enclosure, which is then sealed and pressurized with dry nitrogen or air to keep out moisture and airborne contaminants. The enclosure accommodates a wide range of camera selections allowing E-O Imaging to customize the Model 902's performance to our Customers' specific applications. An optional sunshield is provided to minimize the effects of direct sunlight allowing the system to operate at higher ambient temperatures.



This is the latest evolution of highly-integrated and versatile imaging systems resulting from the successful Model 901 Camera / Lens System.

The Model 902 includes:

- Remotely controlled, high-precision, continuous 60x zoom lens
- Wide selection of cameras, including extended IR sensitivity, high resolution and various video outputs (standard selection 768 x 480 RS-170)
- Unequalled alignment of lens optical axis to the physical center of the imager (within 5 pixels)
- Lens / camera structure easily removed from enclosure to facilitate reconfiguration or maintenance
- Regulated heaters to maintain performance even during extreme cold
- Three axis image boresight adjustment (azimuth, elevation and rotation)

The enclosure allows simple alignment of the imager to within 100 μ rad of system boresight in both azimuth and elevation axes (while mounted to system) and unlimited adjustment of image rotation.

The enclosure is sealed, pressurized and mechanically robust to protect the camera and lens from humidity, dust, mechanical shock and vibration. The 902 structure can easily maintain alignment through a 10G shock. The system is designed for operation on motion systems and transport over unimproved roads.

The 902 is a complete system containing camera, lens, heaters, universal power supply and control electronics. The physical interface with the Customer's system can be customized to fit any configuration and bolt-hole pattern. The integrated control electronics provide the following features:

- Full system control via a single RS-422 or RS-232 serial interface
- Control of all camera parameters, including integration/exposure and gain (camera dependent)
- Closed loop servo control of all lens parameters, including zoom, focus and iris

Engineering High Performance Tracking Solutions

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SPECIFICATIONS

Enclosure

Length:	30 inches (34 inches with sunshield installed)
Diameter:	9 inches
Total Weight:	71 pounds (with mounting plate and boresight fixture installed)
Heaters:	Two (2) 40W automatic heaters
Operating Temperature:	-35°C to +60°C
Pressurized:	Dry nitrogen or dry air with pressure relief valve (2-5 pounds nominal)

Interface

Connector Type:	KPT07E20-16P
Input Voltage:	85-265V AC, 47-440 Hz
Camera/Lens Control:	RS-232/422 serial
Video Output:	75 ohm coax

Camera (typical)

Format:	1/2" interline transfer CCD, low light level sensitivity, RS-170 or CCIR
Pixels:	RS-170 at 768 (H) x 494 (V); CCIR at 752 (H) x 582 (V)
Sensitivity:	0.0012 lux at full video, max gain
Sync:	Gen Lock
Selectable Shutter Speed:	1/50 to 1/100,000 sec
SNR:	58 dB
Camera Options:	Color; Camera Link; HD-SDI; Shuttered; 1/3, 1/2, 2/3-inch formats

Lens

Type:	60X continuously variable zoom (12.5mm to 750mm; 25mm to 1500mm with X2 extender)
Focus Range:	5 meters to infinity
Free Aperture:	95 millimeters
Iris:	Auto/Manual
Boresight Shaft:	Less than 0.5 milliradian drift through zoom range

Environmental

Altitude:	15,000 ft Operational; 40,000 ft Non-operational
Solar Loading:	360 BTU for 4 hours with sunshield
Rain:	> 2 in/hr with 50 mph wind

Field of View (1/2 CCD Sensor)

X1:	a) Horizontal	Wide 28°	Narrow 0.5°
	b) Vertical	Wide 21°	Narrow 0.4°
	c) Diagonal	Wide 35°	Narrow 0.6°
X2:	a) Horizontal	Wide 14°	Narrow 0.25°
	b) Vertical	Wide 10°	Narrow 0.2°
	c) Diagonal	Wide 18°	Narrow 0.3°

Available Options

- A sunshield is available providing additional thermal protection
- An upgraded base is available providing alignment accuracies up to 1 arc-second in azimuth and elevation
- A wide selection of standard optical filters is available and can be simply added to the lens
- A wide range of cameras can be integrated with the optics
- Protective cover (thread, polyester, Type 1, Class 3, Subclass B, weather resistant)



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Specifications subject to change without notice. Consult Factory for latest specification and available options.