

# EagleEye

## Vision System

### EagleEye Vision System Components

EagleEye vision systems are shipped with the components listed below. Take a few moments to verify that everything has arrived in good condition. If your product has been visibly damaged during shipment or is missing parts, please contact your Advantech representative immediately.

Component	Description
EagleEye Vision System	EagleEye Vision System. Fully integrated vision system with 640x480, 1024x768, 1280x960, 1600x1200 mono or color sensor, processing engine, Inspector Express embedded software, communications and light control.
	CD including PC emulation software and associated product manuals.

Optional components (sold separately):

Component	Description
Cables	
AEE-E-5E & AEE-E-10E	M12-RJ45 Ethernet cordset, 5M & 10M
AEE-IO-5E & AEE-IO-10E	M12 single-ended IO cordset, 5M & 10M
AEE-L-5E & AEE-L-10E	M12 single-ended lamp cordset, 5M & 10M
AEE-PL2IO-5E	M12 I/O to AEE-PL-200 cable, 5M
AEE-PL2L-5E	M12 Lamp to AEE-PL-200 cable, 5M
AEE-PL-100E, AEE-PL-200-IEE, AEE-PL-200-IOE, AEE-PL-200-EE	Panel Link breakout modules. Provide Ethernet power and convenient panel access to EagleEye I/O
AEE-MB-0E	Right Angle mounting block

### Notes

For more information on this and other Advantech products, please visit our websites at:

<http://www.advantech.com/eAutomation>

For technical support and service:

<http://support.advantech.com.tw/>

This startup manual is for EagleEye Vision System.

Part No: 2003102460

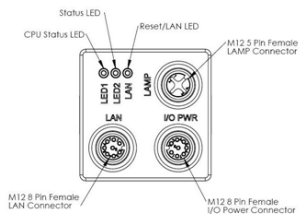
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### Connecting the EagleEye Vision System

This section details how to connect the EagleEye vision system with its associated components and factory environment.

#### Camera Connectors and Indicators



Designator	Definitions
LAN	10/100 BaseT Ethernet connection. Provides the primary interface for configuring the camera, developing the application and monitoring results. NOTE: The camera can be powered from the Ethernet cable directly (Passive Power over Ethernet)
I/O PWR	Provides access to the camera I/O – 2 IN, 2 OUT Opto. Also provides PWR input (12-30V).
LAMP	Provides PWR and strobe control to a local LED light source. NOTE: Lamp PWR is identical to EagleEye PWR input. The camera should be powered from a 12V PWR source if the light requires a 12V supply (Recommend 24V supply)
LAN LED	Red/Green/Yellow = Network activity Blue = Warm Reset
LED2	Green = Inspection Pass (runtime) Blue blink = Booting (should stop after 20 seconds) Blue = Inspection Recycle (runtime); Red = Inspection Fail (Runtime)
LED1	Blue Solid = Camera booted, not configured Green blink = Solution loaded, acquisition in process Green Solid = Solution loaded Red = Camera Fault

## Cable Pinouts

The EagleEye vision system is compatible with M12 factory cordsets as show below:

### LAN Connector Pinout and Cordset

Pin	Name	RJ45 Pin
1	PWR*	5
2	NC	7
3	GND*	8
4	TXD*	2
5	RXD+	3
6	TXD+	1
7	NC	4
8	RXD-	6



AEE-E-5E & AEE-E-10E

Pin	Name	Color
1	TRIG	White
2	PWR	Brown
3	INO	Green
4	OUT1	Yellow
5	INCMN	Grey
6	OUT0	Pink
7	GND	Blue
8	OUTCMN	Red



AEE-IO-5E & AEE-IO-10E

Pin	Name	Color
1	PWR	Brown
2	RS232 RX	White
3	GND	Blue
4	STR	Black
5	RS232 TX	Gray



AEE-L-5E & AEE-L-10E

\* For Passive Power over Ethernet

## Cable Configurations

The EagleEye vision system offers flexible cabling options to suit a number of application configurations:

- For single cable applications, the Ethernet cable can be used to supply power (referred to as "Passive Power over Ethernet") and communications between the camera and the control environment. Power is supplied by connecting a DC voltage source between 12-30V to conductors 4 (pwr) and 8 (gnd) on the Ethernet RJ45 connector. **Note:** The AEE-PL-100E module does this automatically. In this configuration, the camera I/O is unavailable.
- For single cable applications that do not require a run-time Ethernet connection, the I/O-PWR cable provides limited communications and power between the camera and the control environment. **Note:** Ethernet is still required for setup.
- For typical applications, both the Ethernet and I/O-PWR cables are connected to provide flexibility between the camera and the control environment. In this configuration, either or both cables can supply power provided they come from the same power source. Do not connect different power sources to the EagleEye camera connectors.
- In all configurations, the Lamp cable can be connected between the camera and a compatible LED light source. The EagleEye vision system supplies power and strobe control to the external light. Power is routed from camera power input to the lamp.

**BEWARE: Connecting a voltage on pin 1 of the lamp connector that is lower than the input power voltage to EagleEye could result in damage to the camera!!**

## Panel Link Module (AEE-PL-100E)

The AEE-PL-100E module is an optional module that provides a safe and convenient way to interface EagleEye. It provides an isolation layer between the factory and the camera (differential isolation), as well as supplying power via the Ethernet cable for single cable applications. The AEE-PL-100E also provides a manual trigger button and status lights for application debug.

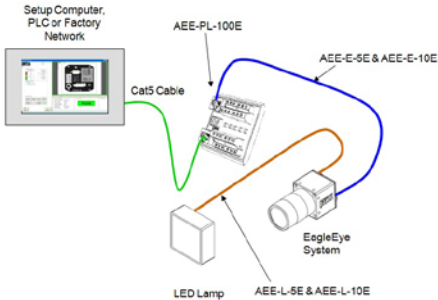


AEE-PL-100E

**NOTE:** The EagleEye vision system does not support the IEEE 802.3af standard Power over Ethernet (PoE) and should not be directly connected to a PoE supported router.

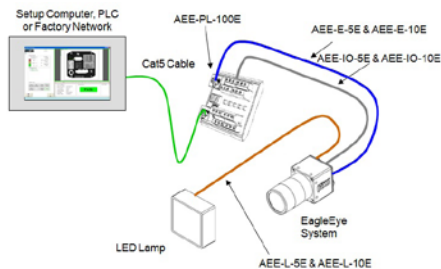
## Ethernet Only Setup with Lamp

1. Connect the M12-8 male end of the Ethernet cordset (AEE-E-5E & AEE-E-10E) to the M12-8 female connector labeled "LAN" on the camera.
2. Connect the RJ45 end of the Ethernet cordset to the RJ45 connector labeled "CAM LAN" on the Panel Link breakout module (AEE-PL-100E)
3. Connect the RJ45 labeled "LAN" on the breakout module to the controlling PC, PLC or the factory LAN
4. Connect camera PWR and GND to the breakout screw terminals labeled "PWR"
5. Connect the Lamp via cordset AEE-L-5E & AEE-L-10E between the camera (M12-5 and the lamp)



## Ethernet and I/O Setup with Lamp

1. Connect the M12-8 male end of the Ethernet cordset (AEE-E-5E & AEE-E-10E) to the M12-8 female connector labeled "LAN" on the camera.
2. Connect the RJ45 end of the Ethernet cordset to the RJ45 connector labeled "CAM LAN" on the Panel Link breakout module (AEE-PL-100E)
3. Connect the RJ45 labeled "LAN" on the breakout module to the controlling PC, PLC or the factory LAN
4. Connect camera PWR, GND and I/O from the control panel to the breakout screw terminals.
5. Connect the M12-8 male end of the IO-PWR cordset (AEE-IO-5E & AEE-IO-10E) to the M12-8 female connector on the camera labeled "I/O PWR"
6. Connect the open-ended wires of the IO-PWR cordset to their respective connections on the breakout module.



## Precautions

### Handling Precautions

Care should always be exercised when handling and operating your EagleEye Vision System. Even though the system is encased within a rugged, industrial enclosure, incorrect use or handling can result in damage to your investment. To prevent this, we recommend you avoid the following:

- Hot-plugging cables and devices. Be sure to shut the system down and remove power before connecting or disconnecting anything to it.
- Free-standing operation. It is advisable to mount the system properly to prevent it from falling accidentally. Mounting holes are provided on each side of the system.
- Operating the system in an environment outside of its recommended operating conditions.

### Electro Static Discharge

Avoid the damage that ESD can cause. Never expose the internal electronics to a potentially hazardous environment by opening the enclosure. Doing so may cause serious damage.

### User Service Warning

This product has no field-replaceable components. Tampering with the unit will void the product warranty.

### Warranty

Advantech warrants the EagleEye Vision System against defects in materials and workmanship for a period of 24 months from the date of delivery. Advantech and its representatives expressly disclaim any and all other warranties.

## Getting Started

The EagleEye vision system is supplied with the Inspector Express vision application embedded. This application offers a suite of vision capabilities to satisfy a diverse range of automated inspection needs. The application interface is accessed through the Ethernet connection using a PC with Microsoft Internet Explorer version 6 or higher. You do not need to install software on your host system to setup or operate the EagleEye system.

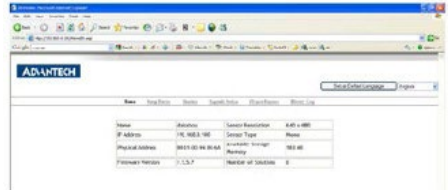
Take note of the following before attempting to access the application:

1. EagleEye vision systems are preconfigured with a default static IP address of 192.168.0.100
2. The PC used to access EagleEye initially will need to be configured on the same network neighborhood, but with a different address (i.e. 192.168.0.101). Consult your system administrator for instructions on how to do this. The subnet mask should be set automatically to 255.255.255.0
3. This static IP address can be changed at any time through the EagleEye web server interface to match your Local Area Network. Click on the "Setup Device" hot link to change the network address. Remember to keep a record of what the new address is set to. EagleEye supports both DHCP and Static IP addressing (preferred since the address does not change).  
**NOTE:** A power cycle is required before the new address will take effect.
4. If you incorrectly set, or forgot, the new address of your EagleEye, you can run the "iDiscover" utility. This program is installed automatically when you click on the "Inspector Express" or "upgrade" hot links in the web server interface. This program is also on the Inspector emulator CD that ships with the system.
5. In most cases you will need administrator privileges on your PC to access EagleEye. It may be necessary to customize the security settings on your browser to download and run ActiveX controls.
6. If for any reason you can not access EagleEye from your internet browser, you can install the emulator application from the shipping CD and connect to the camera through this interface. This step is explained in more detail later in the manual.
7. EagleEye is compatible with host computers running the Windows XP operating system. EagleEye has also been verified on the new Windows 7 O/S.

## EagleEye Web Server

The EagleEye web server is a portal through which the EagleEye system can be set up and configured for an application. The web server is accessed from a host PC using Microsoft Internet Explorer version 6 or higher as follows:

1. Open Internet Explorer on the configured PC connected to the camera
2. Enter the URL address of the camera: 192.168.0.100 and click "go"
3. The camera web server interface will be displayed in the browser as follows:



4. The web server provides a quick snapshot of the state of the camera and provides controls for language selection, IP address setup, firmware upgrading and image backup or restore. The web server is the portal into the inspect application and can be set up to prevent unauthorized access.
5. Click on the "Inspector Express" hot link to launch the application. The camera will automatically install some software components on the host PC when it connects for the first time. These components set up the remote access to the device.
6. Using the iInspect software (refer to the Inspector Express user manual), set up an application and store the solution on the camera. Exit the application and return to the web server interface.
7. The "History Log" hot link offers a quick and convenient way to view and store inspection results to an Excel spreadsheet on your host PC. This feature is also available from within the Inspector Express application using the scripting tool.