

Introduction

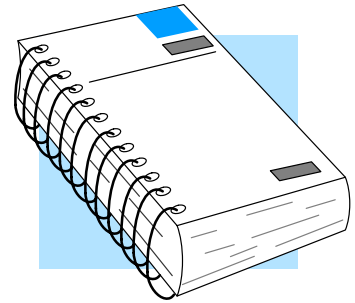
In This Chapter. . . .

- Manual Overview
- Ethernet Base Controller Overview

Manual Overview

Overview of this Manual

This manual describes the installation and operation of the **Ethernet Base Controller (EBC)**. You will find the necessary information for configuring the H2-EBC, H2-EBC100, H2-EBC-F, H4-EBC and H4-EBC-F, installing the module in a DL205 or DL405 I/O base and connecting the EBC to a 10BaseT, 100BaseT or 10BaseFL Ethernet network. In this manual, the phrase “H2 Series EBCs” will be used when the subject applies to the H2-EBC, H2-EBC100 and H2-EBC-F. Otherwise, the specific H2 Series EBC part number will be listed. Also, the phrase “H4 Series EBCs” is used when the subject applies to both the H4-EBC and H4-EBC-F. Otherwise, the specific H4 Series EBC part number will be listed. The term “EBC” will be used when the subject applies to all of the EBC modules.



Other Reference Materials

You may find other technical manuals useful for your application. For technical information related to your PC-based control software or your PC, please refer to the appropriate manual for that product. For more information about the **DirectLOGIC™** products, you may want to read the following:

- DL205 Installation and I/O Manual (D2-INST-M)
- DL405 Installation and I/O Manual (D4-INST-M)

Who Should Read This Manual

You will find this manual helpful for setup and installation if you have chosen to use all of the following:

- Network master – PC-based Control with embedded Ethernet I/O drivers, **KEP Direct** EBC I/O Server or **DirectLOGIC** PLCs/WinPLC using the Ethernet Remote Master (ERM) module
- Automationdirect **DirectLOGIC** DL205 or DL405 I/O

A familiarity with Ethernet communications and with the setup and installation of PLCs is helpful. An understanding of electrical codes and industrial control is essential.

Technical Support

We strive to make our manuals the best in the industry. We rely on your feedback to let us know if we are reaching our goal. If you cannot find the solution to your particular application, or, if for any reason you need additional technical assistance, please call us at

770-844-4200

Our technical support team is happy to work with you in answering your questions. They are available **weekdays from 9:00 a.m. to 6:00 p.m. Eastern Time**. We also encourage you to visit our website where you can find technical and nontechnical information about our products and our company.

www.automationdirect.com

If you have a comment or question about any of our products, services, or manuals, please fill out and return the ‘Suggestions’ card that was shipped with this manual.

Conventions Used



When you see the “light bulb” icon in the left-hand margin, the paragraph to its immediate right will give you a **special tip**.
The word **TIP:** in boldface will mark the beginning of the text.



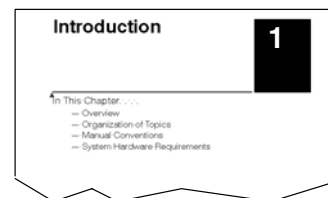
When you see the “notepad” icon in the left-hand margin, the paragraph to its immediate right will be a **special note**.
The word **NOTE:** in boldface will mark the beginning of the text.



When you see the “exclamation mark” icon in the left-hand margin, the paragraph to its immediate right will be a **warning**. This information could prevent injury, loss of property, or even death (in extreme cases).
The word **WARNING:** in boldface will mark the beginning of the text.

Key Topics for Each Chapter

The beginning of each chapter will list the key topics that can be found in that chapter.



Ethernet Base Controller Overview

The Ethernet Base Controllers provide a low-cost, high-performance Ethernet link between a network master controller and an Automationdirect DL205/405 I/O slave system. Network masters include the DL205, DL405 **DirectLogic** PLCs and WinPLCs using the Ethernet Remote Master module (ERM), and PCs using PC-based control software that includes embedded Ethernet I/O drivers or through a compatible OPC server. The H2-EBC100 also supports the MODBUS TCP/IP client/server protocol.

The Ethernet Base Controller serves as an interface between the master control system and the DL205/405 I/O modules. The control function is performed by the master controller, not the EBC slave. The EBC occupies the CPU slot on the base and communicates across the backplane to input and output modules. The function of the EBC is to:

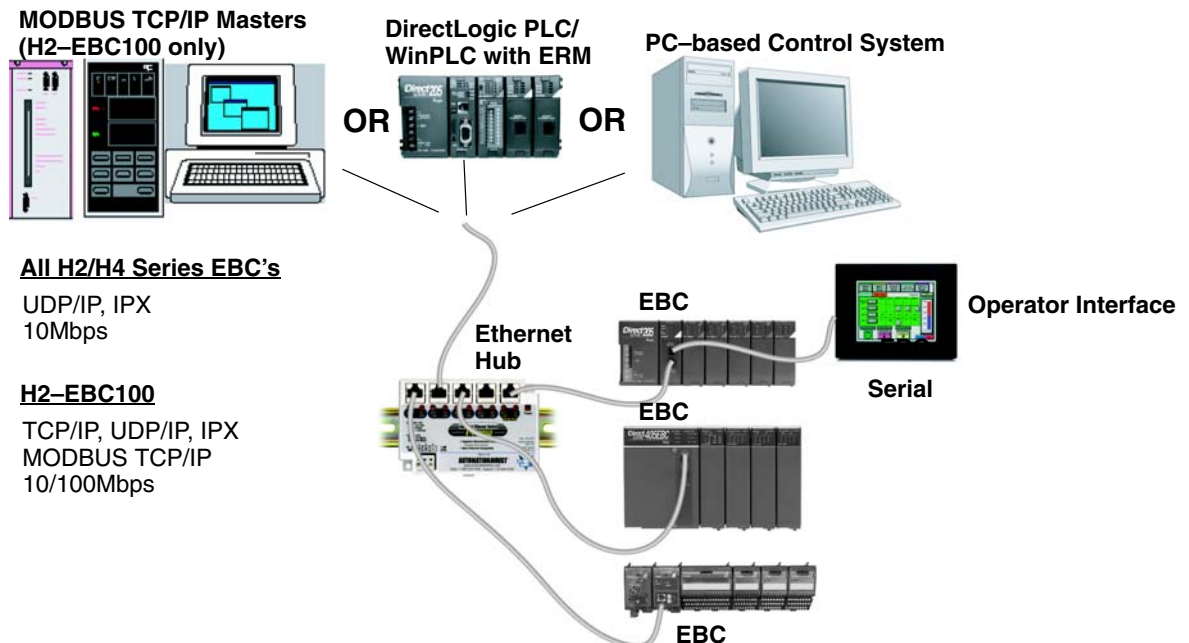
- process analog and digital input signals
- format the I/O signals to conform to the Ethernet standard
- transmit the signals to the network master
- receive and translate output signals from the network master
- distribute the output signals to the appropriate output module in the base

I/O Values Stored in Cache Memory

The EBC module continually scans all I/O and stores the most recent values in cache memory. The cache memory contents are available to the master controller as a block of data or by individual slot location. The EBC reads all channels of digital and analog modules on each scan.

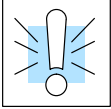
Typically, the network master will request *all* input and output values at the same time from the EBC. The EBC passes the cache memory values for all channels of all input and output modules. By using this method, very fast response times can be achieved by the network master control system. Various master controllers with EBC slaves are shown below.

Example EBC Systems: Various Masters with EBC Slaves



Industry Standard Ethernet

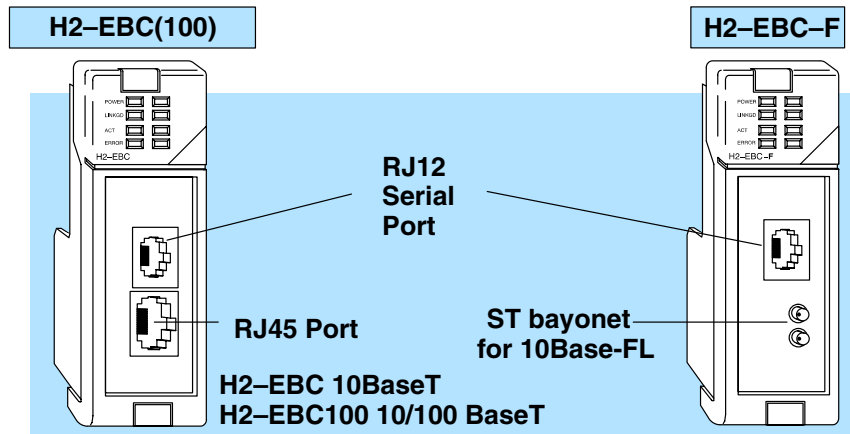
The H2-EBC and H4-EBC modules support industry standard 10BaseT Ethernet communications, the H2-EBC100 module supports industry standard 10/100Base T Ethernet communications and the H2-EBC-F and H4-EBC-F modules support 10BaseFL (fiber optic) Ethernet standards.



WARNING: For deterministic Ethernet communication you must use a dedicated network of EBC modules connected to your master control system. The EBC modules and the master controller must be the only devices on the network.

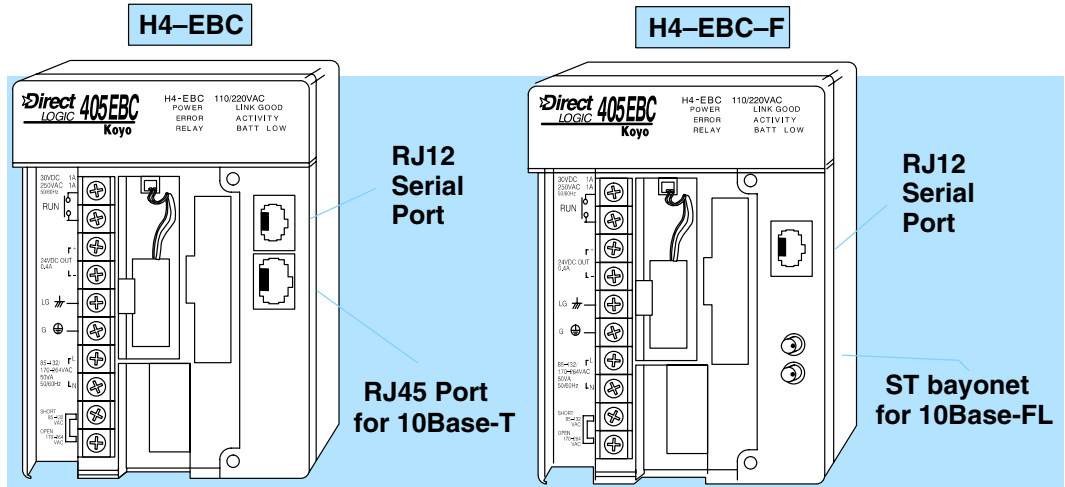
H2-EBC(100) and H2-EBC-F

The H2 Series EBCs install in the CPU slot of a DL205 base and communicates across the backplane to digital and analog input and output modules. The H2 Series EBC modules do not support remote I/O or Specialty Modules, except for the H2-SERIO and H2-CTRIO module. The H2-SERIO is supported when used in a WinPLC/ERM system, but not in a *Direct*Logic PLC/ERM system.



H4-EBC and H4-EBC-F

The H4 Series EBCs install in the CPU slot of a DL405 base and communicates across the backplane to digital and analog input and output modules. The H4 Series EBCs support up to three expansion I/O bases (see page 2-19), and supports the H4-CTRIO and D4-HSC High Speed Counter Module. The H4 Series EBCs also serve as the power supply for the local base. Expansion bases have their own power supplies.



RS232C Serial Port

An RS232C serial port on-board the EBC module allows serial communication to an operator interface device or other serial device. See your PC-based Control software documentation to determine whether this EBC feature is supported.