Introduction

1

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 T1H–EBC or T1H–EBC100, installing the module, and connecting the EBC to a 10Base-T or 100BaseT Ethernet network. In this manual, the EBC designation is used when the subject applies to both the T1H–EBC and T1H–EBC100. Otherwise, the specific part number will be listed.
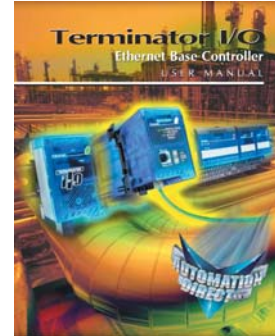
Other Reference Materials

You may find other technical manuals useful for your application. For technical information related to your PC–based control software, your PC or other network masters, please refer to the appropriate manual for that product.

- Terminator I/O Installation and I/O Manual (T1K–INST–M)

Who Should Read This Manual

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

- Network master – PC-based Control with embedded Ethernet I/O drivers, KEPDirect EBC I/O Server or **Direct**Logic PLCs/WinPLC using the Ethernet Remote Master (ERM) module
- Automationdirect Terminator I/O products

A familiarity with Ethernet communications and with the setup and installation of industrial controls is helpful. An understanding of electrical codes 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 group is glad 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 encourage you to visit our site on the worldwide web where you can find technical and nontechnical information about our products and our company.

http://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.
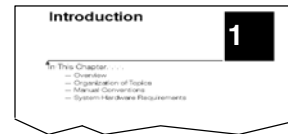
When you see the "notepad" icon in the left-hand margin, the paragraph to its immediate right will be a **special note**.

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.

Key Topics for Each Chapter

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

Introduction

1

In This Chapter. . . .
— Overview
— Organization of Topics
— Manual Conventions
— System Hardware Requirements

Introduction

Ethernet Base Controller Overview

The Ethernet Base Controllers provide a low-cost, high-performance Ethernet link between a network master controller and an Automationdirect Terminator I/O slave system. Network masters include the DL205, DL405 *Direct*Logic 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 T1H–EBC100 also supports the MODBUS TCP/IP protocol.

The Ethernet Base Controller serves as an interface between the master control system and the Terminator I/O modules. The control function is performed by the master controller, not the EBC slave. The EBC is positioned immediately to the right of the first power supply and communicates across the backplane to input and output modules. The function of the EBC is to:
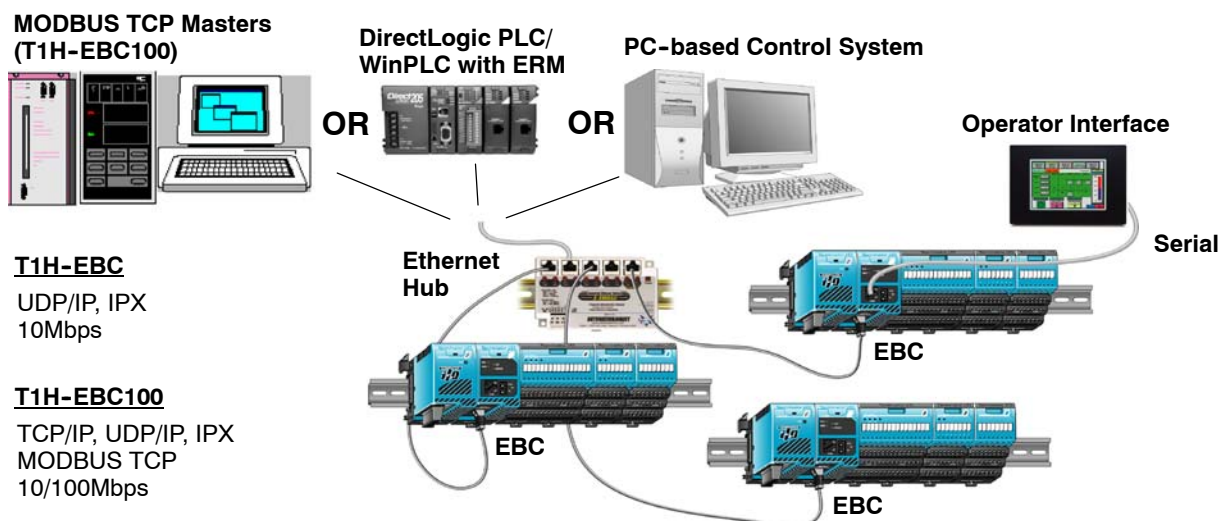
- process analog and digital input signals
- format the I/O signals to conform to the Ethernet standard
- transmit the signals to the network master
- receive and translate output signals from the network master
- distribute the output signals to the appropriate output module in the base

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

MODBUS TCP Masters (T1H–EBC100)

DirectLogic PLC/ WinPLC with ERM

PC–based Control System

OR **OR**

Operator Interface

T1H–EBC
UDP/IP, IPX
10Mbps

Ethernet Hub

Serial

EBC

T1H–EBC100
TCP/IP, UDP/IP, IPX
MODBUS TCP
10/100Mbps

EBC

EBC

EBC

Industry Standard Ethernet

The T1H–EBC module supports industry standard 10Base-T Ethernet communications. It allows up to10Mbps transfer rates between your master controller and and your I/O.

The T1H–EBC100 module supports industry standard 10/100Base-T Ethernet communications. It allows up to100Mbps transfer rates between your master controller and your I/O.
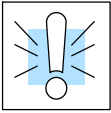
WARNING: For deterministic Ethernet communication you must use a dedicated network of EBC modules connected to your master control system. The EBC modules and the master controller must be the only devices on the network.

T1H–EBC/ T1H–EBC100

The EBC installs to the right of the first power supply (see chapter 2 for basic installation steps). For further information about installing power supplies and I/O modules, consult the Terminator I/O Installation and I/O Manual (T1K–INST–M).

RS–232 Serial Port

An RJ12 RS–232 serial port on-board the EBC module allows serial communication to an operator interface device or other serial device. See your master controller documentation to determine whether this EBC feature is supported.
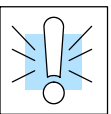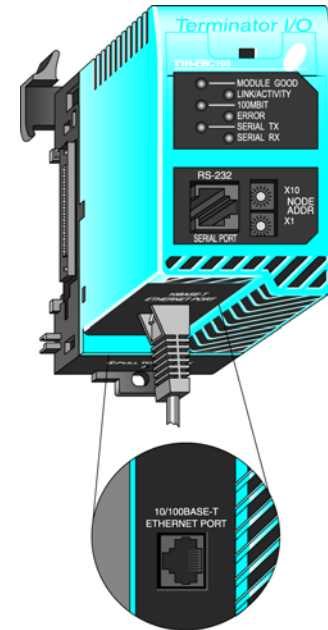
Important Note: The T1H–EBC100 is configured at the factory to look for a DHCP (Dynamic Host Configuration Protocol) server at power up. Refer to Chapter 5 for information on DHCP.