



# CHAPTER 1

# INTRODUCTION

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## In This Chapter...

Introduction .....	1-2
Conventions Used.....	1-3
Frequently Asked Questions .....	1-6

# Introduction

### The Purpose of this Manual

This manual describes how to use the Ethernet Communication (ECOM) Modules. You will find information about:

- Setting up the ECOM module
- Network layouts
- PC-to-PLC communications
- PLC-to-PLC communications
- RLL programming examples
- Maintenance and troubleshooting



### Other Reference Materials

Other *Direct*LOGIC manuals may be useful for your application.

User Manuals:

- DL05 User Manual (ADC p/n D0-USER-M)
- DL06 User Manual (ADC p/n D0-06USER-M)
- DL205 User Manual (ADC p/n D2-USER-M)
- DL405 User Manual (ADC p/n D4-USER-M)
- D4-454 User Manual (ADC p/n D4-454-M)
- *Direct*SOFT User Manual (ADC p/n PC-DSOFT6-M, for version 6)
- KEPDirect for PLCs (with part number DA-KEPPLC-M)

### Who Should Read this Manual

If you need a high-speed communications link between your *Direct*LOGIC PLC and PCs or other *Direct*LOGIC PLCs and you understand the basics of installing and programming PLCs, this is the right manual for you. This manual gives you the information you need to set up and install a communication link to an ECOM module.

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## Conventions Used



When the “notepad” icon is 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 the “exclamation mark” icon is 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 which will also be in boldface..

## Key Topics for Each Chapter

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

Getting Started	
	<b>CHAPTER 1</b>
In This Chapter...	
General Information .....	1-2
Specifications .....	1-4

### ECOM Module Introduction

Several Ethernet Communication (ECOM) modules are currently available for use with DL05/06, DL205 and DL405 PLC systems. The ECOM modules are shown below. These modules provide a low-cost, high-speed Ethernet link for PLC systems. The modules are easy to set up and install on 10/100BaseT (twisted pair, copper wire) or 10BaseFL (fiber optic) Ethernet networks.

LEDs on the face of each module give vital information about the status of the module and the communication link. The 10/100BaseT modules use standard RJ45 modular connectors, and the 10BaseFL modules use ST style bayonet connectors.

#### DL05/06 ECOM Modules

H0-ECOM  
H0-ECOM100



H0-ECOM100

#### DL205 ECOM Modules

H2-ECOM  
H2-ECOM100  
H2-ECOM-F



H2-ECOM100

#### DL405 ECOM Modules

H4-ECOM  
H4-ECOM100  
H4-ECOM-F



H4-ECOM100



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**NOTE:** If you are using a D0-06LCD in your DL06 PLC, the date code for the display unit must be 032A\_ or later to be compatible with the H0 series ECOM modules.

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### ECOM Communication Possibilities

You can use the ECOM modules to share data between two or more *Direct*LOGIC PLCs or between *Direct*LOGIC PLCs and personal computers. The H0/H2/H4 -ECOM100 additionally allows client/server communications with other Ethernet devices using the MODBUS TCP protocol. Communication between PLCs/MODBUS TCP devices is accomplished by using the Read/Write (RX/WX) instructions which are available in the *Direct*SOFT Programming Software Users Manual. Chapters 4 and 5 explain the use of the RX/WX instructions.



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**NOTE:** Please review intelligent instructions (IBox) in Chapter 5 of the user manual for the PLC you are using, which simplify this and other functions.

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You can also use a personal computer running *DirectSOFT* Programming Software to program your PLCs over the Ethernet network. It is just like programming through the programming port on the CPU, but with the convenience of doing it from a single location.

Use *DirectSOFT* programming software to program the complete *DirectLOGIC* family of PLCs (the DL105 and DL305 series are the only PLCs that cannot be programmed over Ethernet). Chapter 2 will indicate the CPUs which can be used with the ECOM modules.



**NOTE:** We recommend using a dedicated network for your PLC control applications. For more information see Chapter 2, Setup and Installation

### Your Network PC

PCs running our KEPCDirect for PLCs software can establish Ethernet links for exchanging information with *DirectLOGIC* 05/06/205/405 PLCs.

You can use a personal computer equipped with a 10/100BaseT or 10BaseFL network adapter card and NetEdit3 software to configure the ECOM module over the network. You can also use NetEdit3 for troubleshooting certain communication problems. The NetEdit3 utility is available for download at <http://www.automationdirect.com>.



## Frequently Asked Questions

- Q. How can I speed up my ECOM communications?**
- A. Try shortening the scan time of the PLC (the PLC allows only one ECOM transaction per scan).
- Q. What causes “Task code error response” with extended E353 error?**
- A. Error is from the PLC and means “timeout in the background communications”. Error is due to a backplane communication problem (ECOM, DCM, etc.).
- Q. Can an ECOM be configured to talk through a gateway?**
- A. Yes. You configure the gateway to reroute traffic to and from the ECOM via port 7070 (hex).
- Q. When using a DL205 with an ECOM, is there a way to turn on the PLC outputs from a computer using a non- Windows operating system?**
- A. Host Engineering has what is called an Ethernet SDK (software developers kit) which can normally be downloaded (free) from their website. However, this will be useless for your system, but to accommodate your operating system, you can fill out a form located on the Host Engineering website and request the source code for the Ethernet SDK. This is necessary so that Host Engineering will know who is using their source code. The source code can then be recompiled to work on your system.
- With the SDK recompiled for your system, you can use CCM (i.e. DirectNET) protocol to turn on PLC outputs by simply knowing the memory types and ranges as required for syntax.
- The request form and details about the SDK can be found on the Host Engineering homepage ([www.hosteng.com](http://www.hosteng.com)). Once there, click on “EBC/ ECOM/EDRV” under “S/W Developer Kits” in the left- hand column.
- Q. What is the fastest way to get data from PLC to PLC?**
- A. Install ECOM in both PLCs and use the RX/WX commands is the quickest way to do this. It is much faster than using serial communication.
- Q. Can the ECOM do a broadcast message to multiple slave devices?**
- A. No.
- Q. Can the MAC address be changed?**
- A. The MAC address is burned into ROM on the module and is set just before it leaves the factory. There is no logical way for any protocol to change this address. Host Engineering’s range for Ethernet (MAC) addresses is 00.E0.62.xx.xx.xx.