1

Getting Started

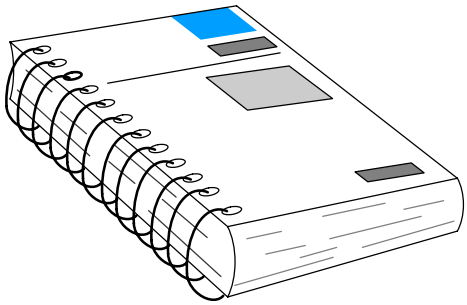
In This Chapter. . . .

- Introduction
- Introduction to DeviceNet
- Terminator I/O System
- T1K–DEVNETS DeviceNet Base Controller

Introduction

The Purpose of this Manual

This manual describes the installation and operation of the Terminator I/O DeviceNet Base Controller (T1K–DEVNETS).



Supplemental Manuals

The following manuals are essential to the proper use of your Terminator I/O DeviceNet Adapter.

- *Terminator Installation and I/O Manual* part number **T1K–INST–M**

  This manual contains very important information, including a complete I/O Module Memory Map. The Memory Map is crucial in designing and implementing a Terminator I/O system.
- The PLC/PC software manual
- The DeviceNet software (if separate) manual
- The DeviceNet Scanner (or Master) manual

Who Should Read this Manual

If you have a working knowledge of the DeviceNet network, the DeviceNet software and PLC or PC which you are using, this manual will help you configure and install your T1K–DEVNETS DeviceNet Base Controller.

Technical Support

We strive to make our manuals the best in the industry and rely on your feedback in 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 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 also encourage you to visit our website where you can find technical and nontechnical information about our products and our company.

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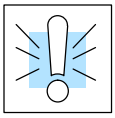
Symbols Used

The “light bulb” icon in the left-hand margin indicates a **tip** or **shortcut**.

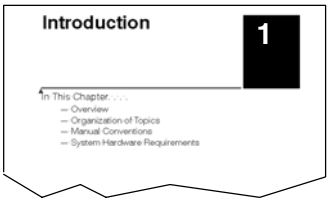
The “note pad” icon in the left–hand margin indicates a **special note**.



The “exclamation mark” icon in the left-hand margin indicates a **warning** or **caution**. These are very important because the information may help you prevent serious personal injury or equipment damage.

Key Topics for Each Chapter

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



Introduction to DeviceNet

DeviceNet is a low-level network designed to connect factory-floor devices to control systems. There are a host of manufacturers of DeviceNet products, offering an array of products including sensors, motor drives and starters, PLCs, pushbuttons, remote I/O systems, etc.

DeviceNet Concepts

Here are some DeviceNet concepts you may find helpful.

- DeviceNet supports various communication structures including Peer to Peer, Multi-master and Master/Slave. *The T1K–DEVNETS uses the predefined Master/Slave connection.*
- DeviceNet has two types of messaging: Explicit Messaging and I/O Messaging.
    - Explicit Messaging is low priority, not time-critical and usually for configuration/diagnostic purposes.
    - I/O Messaging is time-critical and high priority for I/O data transfer. I/O Messaging comes in four types:
        - Strobed
        - Polled *(The T1K–DEVNETS only supports Polled.)*
        - Change of State (or COS)
        - Cyclic
- A single DeviceNet network is limited to 64 nodes. A node can be a single-bit device, such as a limit switch, or a remote I/O slave with several I/O modules, such as the T1K–DEVNETS. The Master (Scanner) is usually assigned to node address 0, and many Slave devices have a factory default node address of 63.
- DeviceNet has the following data rates (with maximum bus lengths):
    - 125 kbps (bus length = 500m max.)
    - 250 kbps (bus length = 250m max.)
    - 500 kbps (bus length = 100m max.)
- The 24V DeviceNet power supply must be grounded at only one point. The V– terminal must be tied to Protective Earth Ground at the power supply only.

The ODVA

The DeviceNet standard is maintained by the ODVA (Open DeviceNet Vendor Association, Inc.). Contact the ODVA for detailed information about DeviceNet.

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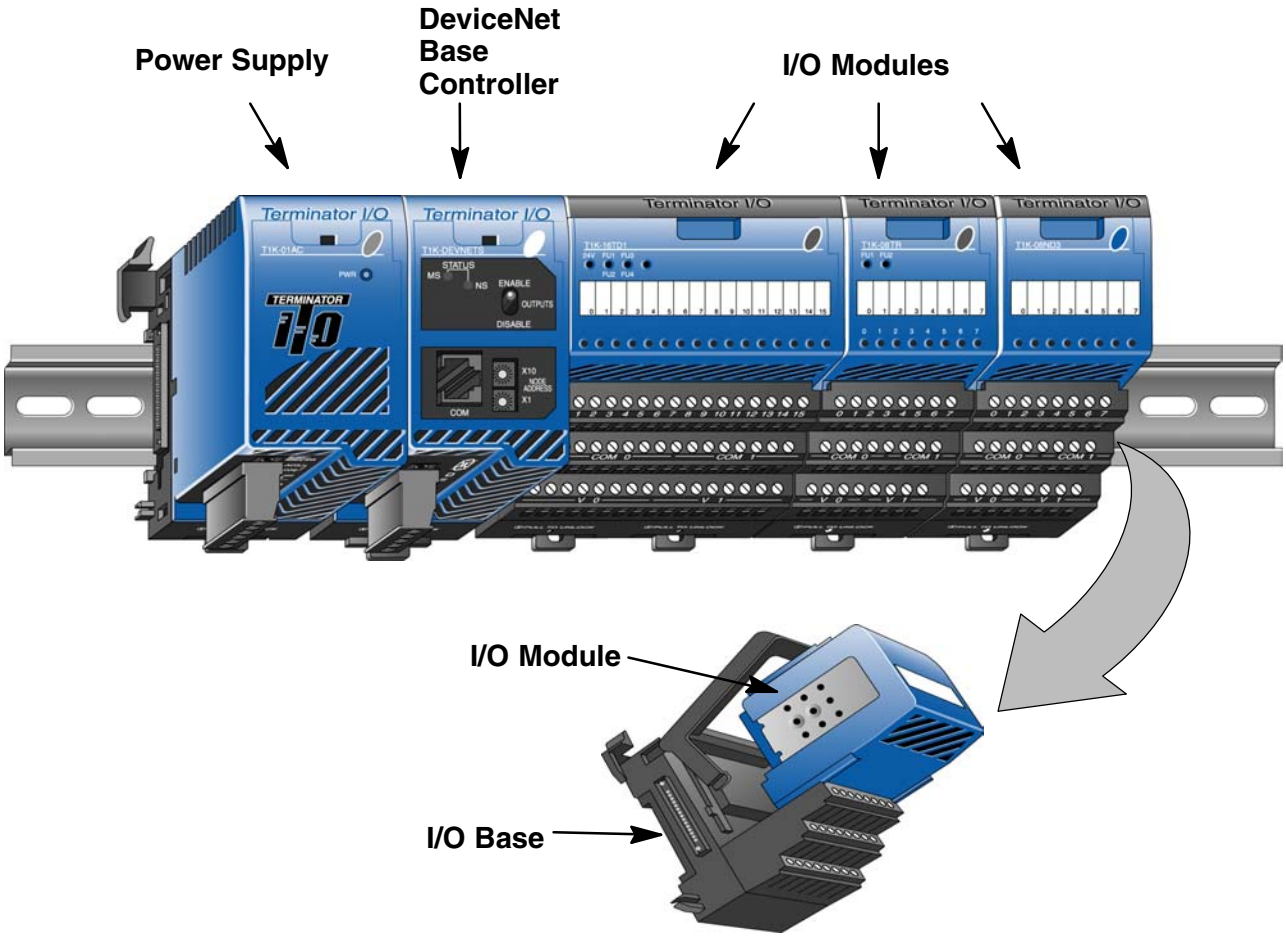
Terminator I/O System

Terminator I/O is a modular system which combines the functions of terminal blocks and I/O modules for distributed I/O. Each Terminator I/O system has the following components: a Power Supply, a Base Controller, and one or more I/O Module(s).



Mini Glossary

Below is a small glossary of terms used in this manual.

Scanner or Master	The DeviceNet Master of which the T1K–DEVNETS is a slave. This can be either a PLC module or a card in your PC.
Controller or Slave	Short for the T1K–DEVNETS Base Controller. The controller is also referred to as a Network Interface Module elsewhere.
Node Address or MAC ID	The unique device address on a DeviceNet network. There are a maximum of 64 total (0–63). Usually the scanner is node 0.

T1K–DEVNETS Base Controller

The T1K–DEVNETS Base Controller is a slave module that functions as a controller for Terminator I/O on a DeviceNet network.

T1K–DEVNETS Base Controller Features

The Controller has the following features:

- Status LEDs (Module and Network)
- Serial Port
- Node Address Switches
- Output Enable Switch
- DeviceNet Connector