

Q/DH Subsystem User's Guide

10180X07

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ABLE Computer
Irvine, California 92714
(714) 979-7030
TWX 910-595-1729

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CHAPTER 1

How to Use This Manual

Congratulations on your purchase of an ABLE Q/DH Subsystem from ABLE Computer. We are sure it will provide you with years of satisfactory service. We have prepared this manual to help you maximize the effectiveness of the Q/DH in your system.

This manual is provided to assist you with the installation, use and care of Q/DH; it does not provide repair information. If you have problems with your Q/DH, we prefer that you let us repair it in our factory.

This manual assumes that you are familiar with the LSI-11 architecture and Q Bus structure. For information about the LSI-11, refer to the following DEC documents:

- * Microcomputers and Memories Handbook

- * Microcomputer Interfaces Handbook

For information about the Q Bus, refer to the following DEC documents:

- * Microcomputers and Memories Handbook

- * PDP-11 Bus Handbook

The Q/DH Subsystem is built around the Q/DH Controller. For detailed information about the controller, refer to the Q/DH Controller User's Guide, document number 10177X07. For more detailed information about the distribution panel, refer to the user's guide for the distribution panel supplied with your subsystem.

The remainder of this manual is organized into the following chapters:

- * Chapter 2 contains a general description of Q/DH and lists its special features. It also includes programmable line

CHAPTER 2

What Is the Q/DH Subsystem?

2.1 GENERAL DESCRIPTION

The Q/DH Subsystem consists of a control board for connection to the first eight-line group, an optional expander board for the second eight-line group, and optional distribution panel and cables.

The heart of the Q/DH Subsystem is a micro-processor based controller which connects a Q Bus system to 8 asynchronous communications lines. It provides DMA (direct memory access) output capabilities and modem control, and is system software compatible with the DEC DH11 and DM11-BB. The Q/DH can be installed in any quad Q Bus backplane. The Q/DH Controller is shown in Figure 2-1. The Q/DH has a self-test feature that automatically verifies its internal operation on every power-up sequence.

2.2 FEATURES

- * The DMA output capability provides significant system throughput improvement over interrupt-driven devices.
- * Large input silo improves input handling capacity which reduces data overrun probability for block mode terminals and computer-to-computer interconnects.
- * Word DMA output transfers allow optimum Q Bus utilization.

2.3 SPECIFICATIONS

2.3.1 Programmable Line Parameters

| | |
|--|---|
| Character Length: | 5, 6, 7 or 8 data bits |
| Number of Stop Bits: | 1 or 2 for 6-, 7- or 8-bit characters; 1 or 1.5 for 5-bit characters |
| Parity Generation/ Detection: | Odd, even or none |
| Operating Modes: | Full duplex |
| Transmitter/Receiver Speeds (Baud): | 0, 50, 75, 110, 134.5, 150, 300, 600, 1200, 1800, 2400, 4800, 9600, 19200 (replacing External A) |

2.3.2 Electrical Specifications

| | |
|-----------------|---------------------|
| Bus Loading: | Controller |
| | DC Loads: 1 |
| | AC Loads: 2 |
| | Expander Board |
| | DC Loads: 0 |
| | AC Loads: 2 |
| Power Required: | Refer to Table 2-1. |

2.3.3 Physical Specifications

The Q/DH controller and expander boards are standard quad-width boards measuring 10.45 inches (26.5 cm) x 8.40 inches (21.3 cm). Mounting space for both the controller and expander boards is one quad-width SPC (Small Peripheral Controller) slot in a Q Bus backplane. The optional distribution panels are 6.50 inches (16.5 cm) high and mount on standard RETMA rails.

CHAPTER 3

How To Install The Q/DH Subsystem

3.1 INSTALLATION PROCEDURE

This chapter explains in detail how to install your Q/DH Subsystem. Below is a brief, step-by-step description of the entire procedure.

1. Unpack your Q/DH Subsystem and verify that you have received the proper equipment using Sections 3.2 and 3.3. (Section 3.4 provides a list of the equipment needed to use the Q/DH Subsystem.)
2. Set up and install the Q/DH Controller and optional expander board as described in Chapter 3 of the Q/DH Controller User's Guide.
3. Set up and install the optional distribution panel as described in the distribution panel user's guide.
4. Install the cables as described in Section 3.6 through 3.8 of this user's guide.
5. Verify installation as described in Section 3.9 of this user's guide.

3.2 UNPACKING THE Q/DH

The Q/DH Subsystem is shipped in special containers to prevent damage during shipment. It is recommended that the containers be saved for use in the event that the product requires subsequent reshipment. Unpack the contents carefully and inspect for any signs of damage. If damage is found, notify the carrier immediately.

| Version | Component | Part Number | Location of Number |
|---------|------------------------------|---|------------------------|
| 10181-0 | Controller | 10176000 (etched) 10177000 (stamped) | Solder side |
| | EIA/CL Dual Purpose Panel | 10130000 (etched) 10129000 (stamped) | Between U38 and U39 |
| | Cable | 90000278 | On one connector |
| 10181-1 | Controller | 10176000 (etched) 10177100 (stamped) | Solder side |
| | Expander Board | 10178000 (etched) 10178100 (stamped) | Solder side |
| | EIA/CL Dual Purpose Panel | 10130000 (etched) 10129000 (stamped) | Between U38 and U39 |
| | Cables | 90000278 | On one connector |

Table 3-1: Components and Part Numbers
(con't.)

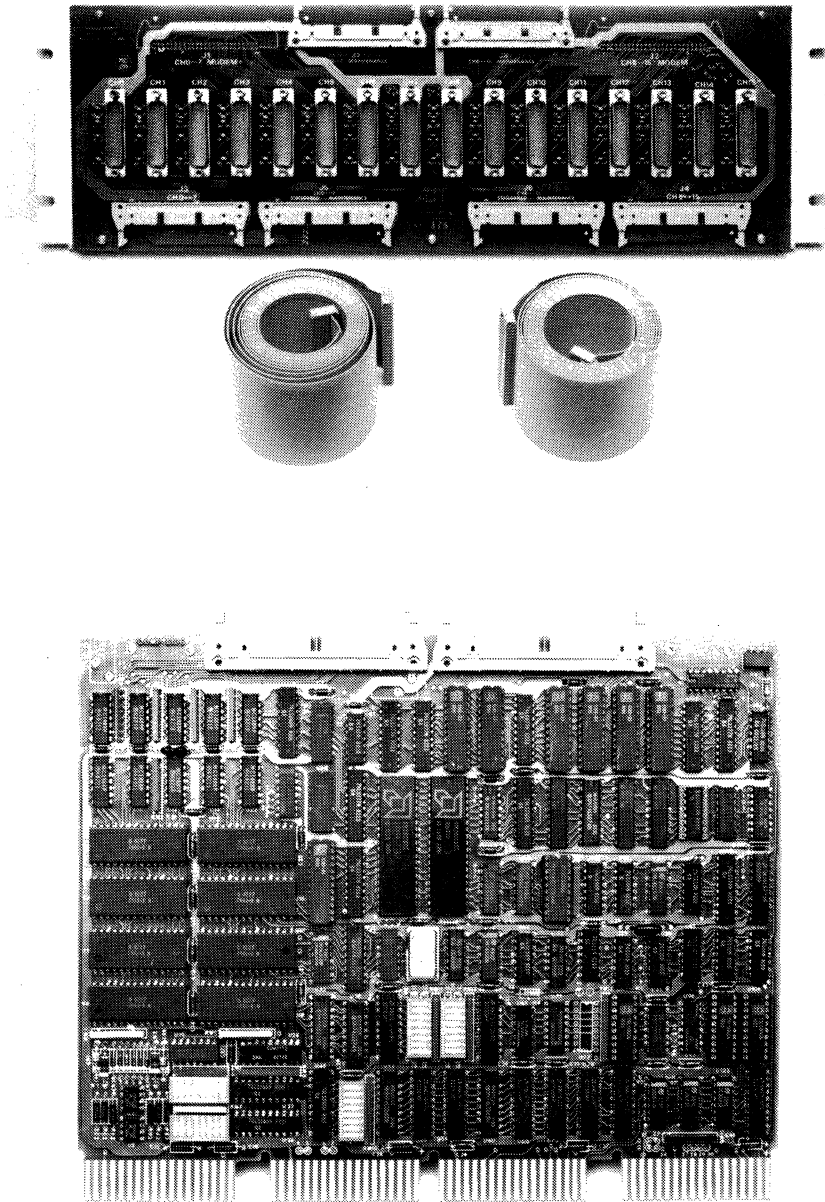


Figure 3-1: Q/DH 8-Line EIA Subsystem, Number 10180-0

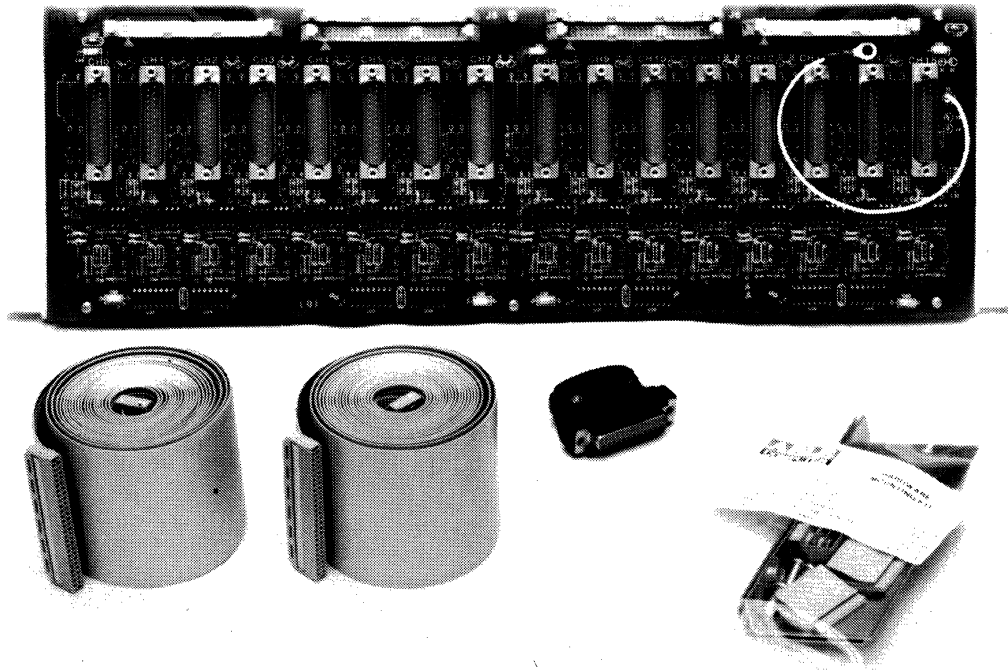


Figure 3-3: Dual Purpose Distribution Panel

CHAPTER 4

What to Do if The Q/DH Subsystem Does Not Work

4.1 HOW TO CARE FOR THE Q/DH

ABLE products are designed to provide years of service with a minimum of care. Here are a few tips to help you avoid problems.

- * If a printed circuit board is frequently inserted and removed, it tends to build up a gum-like residue on the contacts. Clean this off using alcohol or freon. Use of a pencil eraser can remove some of the gold on the contacts, so if you choose to use one, go easy.
- * Every six months remove each printed circuit board and clean off any accumulated dust. Dust can impede air flow. While the board is out, inspect it for any visual evidence of a potential problem such as damaged components, loose connections, etc.
- * Schematics for your Q/DH Subsystem can be ordered from the ABLE factory. The document order numbers are:

| <u>Subsystem Model</u> | <u>Controller</u> | <u>Distribution Panel</u> |
|------------------------|-------------------|---------------------------|
| 10180-0 | 10176003 | 10117003 |
| 10180-1 | 10176003 | 10129003 |

- * If you wish to maintain a spare parts inventory, refer to the recommended lists in the appendices of the controller board and distribution panel user's guides.
- * If a problem arises with the operation of your Q/DH, follow the steps outlined in the next section.

CHAPTER 5

How To Use Q/DH

The Q/DH connects a LSI-11 system to eight or sixteen terminals designed to interface with asynchronous communications lines. It provides direct memory access (DMA) output capabilities.

Figure 5-1 illustrates typical interfaces between the Q/DH and local or remote terminals.

The Q/DH is used to interface with local terminal devices (either EIA or current loop) or, via modems and dedicated lines, with remote terminal devices. When communicating with remote terminals via datasets that interface over switched networks, modem control is available for all lines.

Refer to Chapter 5 of the Q/DH Controller User's Guide for terminal/communications link interface information and Q Bus connector information.