

PDP-X Technical Memorandum # 5

Title: Specifications

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Index Keys: Design
IO
Peripherals
Specifications

Distribution

Keys: A, C, D, E

Obsolete: None

Revision: None

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In order to facilitate manufacture, checkout and maintenance of optional equipment, certain specifications are required. It is the responsibility of the design engineer to write this specification before the design is considered complete. The required format is attached; minor deviations are permissible if required by the nature of the option.

The specifications will be ^{distributed} ~~considered~~ as will all subsequent changes. The suggested distribution list is A, B, D.

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0. Overall Description

A description of basic operating philosophy, major functional components, programming considerations, etc. This is intended to serve as an introduction and should be brief.

1. General Specifications

The detailed performance and construction-specification of the unit. Includes:

- 1.1 Definition of basic system
- 1.2 List of included options
- 1.3 Mechanical packaging
- 1.4 Environmental Specification, including power required
- 1.5 General performance specification.

2. Specification of Vendor-supplied equipment

Includes purchase specification and general performance description.

3. Programming

The programming-specification of the unit including:

- 3.1 Listing and description of all instructions
- 3.2 Description of special maintenance instructions
- 3.3 Description of data formats
- 3.4 Timing diagrams of signals available to the programmer
- 3.5 Description of all operator controls
- 3.6 Meaning of all status bits and a suitable drawing of the status word.
- 3.7 Programming examples.

4. Installation Data

An installation procedure (including crating specifications). Includes any special air conditioning, subflooring, special outlets, etc. This section is normally not required unless some subassembly is specially removed or secured for shipment.

5. Interface Specifications

A definition of all lines into or out of the unit by which it is connected to the outside world. If it is a standard IO bus device with no other external connections, that fact may simply be noted. The connection between a controller and its devices must be detailed; diagrams are particularly helpful.

6. Master Drawing List

A master drawing list for the unit is required, both electrical and mechanical.

The print set must include:

- 6.1 Functional block diagram
- 6.2 Flow chart, timing diagram
- 6.3 UML with optional modules (if any) clearly indicated
- 6.4 Power wiring
- 6.5 Bus schedule
- 6.6 Mechanical layout
- 6.7 Cable diagram and list (include detailed description of all nonstandard connectors).
- 6.8 Block schematics
- 6.9 Interface description.

7. System Components

A list of basic system components including:

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- 7.1 Modules
- 7.2 Power controls
- 7.3 Cables
- 7.4 Vendor-supplied equipment.

8. Checkout Specifications

A list of all test to be run on assembled system and the required results. Includes voltage and timing margins to be taken, duration of tests, and any other aggravation tests required. Specification of relevant test equipment.

8.1 Test equipment required

- Diagnostic Programs
- System Programs
- Marginal Check Power Supply
- Vibration Stick

8.2 Diagnostic programs

All diagnostics must run successfully. These include:

Program name	Program number	Running time	Comments:

8.3 System programs

Several systems programs which are in the library and have been proven operational must be run successfully.

Program name	Program number	Comments:

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8.4 Voltage Margins

Table - high temperature is °C

Program Number	Time	Rack	+10 spec		-15 spec	
			cold	hot	cold	hot

8.5 Vibration and other aggravation test specs

9. Acceptance Test Procedures

9.1 Incoming test on vendor equipment

9.2 The procedure to be followed by the field service representative before system shipment. This includes a check for proper documentation supplied, a list of tests to be performed with acceptance specifications, etc.

9.2.1 Check for the presence of all items listed on the Accessory Check List (Sec. 9.3).

9.2.2 Diagnostics and System Programs to be run.

9.2.3 Margin spot check.

9.2.4 Shipping check.

9.3 Accessory Check List

9.4 Test equipment required for 9.2.

9.5 Special test procedures for field-installed options.

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10. A list of all spare parts required, including:

- 10.1 Modules
- 10.2 Components, esp. semiconductors
- 10.3 Mechanical parts
- 10.4 Special tools

11. Preventative Maintenance Procedures

The procedures to be followed by the customer or field service representative to insure reliable operation of the units. This includes clearing tape heads, changing filters, electrical or mechanical adjustments running monthly margins, etc. The procedures should be broken down into categories including:

- 11.1 Daily
- 11.2 Weekly
- 11.3 Monthly
- 11.4 Semi-annually