FEATURES

- DUAL-DENSITY SYSTEM (NRZI and PHASE-ENCODED)
- HIGH-SPEED TRANSFERS (150 ips)
- INDUSTRY COMPATIBLE FORMATS
- EXPANDABLE CONFIGURATIONS
- 800/1600 CPI DENSITY
- DECsystm-10 MONITOR SUPPORT
- 9-TRACK RECORDING
- DIAGNOSTIC SOFTWARE
- MAINTENANCE CONTRACTS
GENERAL

For the first time, DECSys 10 users are offered a high-speed, high-performance magnetic tape system capable of both phase-encoded and NRZI recording. The TC10 Magnetic Tape System provides control of up to eight dual-density (1600 cpi PE or 800 cpi NRZI, 9-track) transports operating at 150 ips. Fully-supported software is included, providing PDP-10 users transfer speeds of 240K or 120K bytes per second (60K or 30K words per second).

The TC10-C Controller interfaces one or two formatters to a DECSys 10 data channel. Each formatter handles up to four magnetic tape drives.

FUNCTIONAL DESCRIPTION

In IBM-Mode read operations the TC10-C assembles four 8-bit bytes from the Bucode Formatter into the most significant 32 bits of a PDP-10 word. In write operations, each PDP-10 word is unpacked into four bytes. A core-dump mode is available, wherein a 36-bit PDP-10 computer word is packed into five magnetic-tape bytes. The TC10-C also performs: function decoding; formatter command strobe timing; status generating, checking, and storage; PDP-10 data channel interface and control; and PDP-10 I/O Bus interface and priority interrupt control. The read/write data is double-buffered in the TC10-C to allow the unit to be multiplexed through a DF10 Data Channel and an MX10 Memory Data Multiplexer in large, complex, real-time, data handling systems.

SYSTEM PREREQUISITE

The tape system requires either a DF10 (or DM10) Data Channel to transfer data between the tape control and PDP-10 core memory. The computer program initializes the TC10-C tape control and data channel device command list in core. Data is then transferred without program intervention until the transfer is terminated. At this time, the TC10-C signals the processor that the operation has ended.

COMMAND STRUCTURE

An executive program must control the operation of the data channel and the magnetic tape control. All data transfer operations and Space-N record operations require the data channel. Space To End Of File, Write EOF, Erase, Rewind and Rewind Unload, Clear, and Set Job Done When Transport Ready commands do not require the data channel.

CONO INSTRUCTION

The following is the CONO format:

```
UNIT FUNCTION CD WEP GO LC PIA
```

CONI INSTRUCTION

The following is the CONI format:

```
EOF BOT TH AMDG WCC CERS RLD CE TR
```

DATAO INSTRUCTION

A data channel Initial Address (INAD) must be loaded into the TC10-C INAD Register before any operation requiring the data channel can be initiated. The initial address may be any even address in core memory between locations 208 and 7768. This initial control word address pointer may be loaded into the TC10-C by means of the DATAO instruction. The address is in bits 27 through 35 (Bit-35 is always 0).

DATAI INSTRUCTION

The DATAI instruction reads the contents of the INAD register into the processor.

DIAGNOSTIC SOFTWARE

The TC10-C Diagnostic Test Program provides logic exercisers to demonstrate the operational capability of the tape control unit. The program can also be used to generate specific command sequences to aid in locating hardware failures.
**MODELS**

System component designations are as follows:

TC10-CC (CD) – Controller, 1 Formatter, 2 Drives
TC10-CE (CF) – Controller, 2 Formatters, 5 Drives
TC10-PN – Second Formatter
TSU43-A (B) – Additional Drives

**AVAILABILITY**

The TC10 System is a product of Digital's Computer Special Systems group and is available, with new installations or for add-on to existing compatible systems, from engineering and manufacturing facilities in Maynard, Massachusetts; Santa Ana, California; Kanata, Ontario, Canada; Reading, England; Paris, France; Munich, West Germany and Sydney, Australia. Main offices are at 146 Main Street, Maynard, Massachusetts 01754.

**SPECIFICATIONS**

TC10-C (CONTROLLER)

**MECHANICAL:**
- Logic Housing
- Dimensions
- Weight
- Logic Panels
- Interconnections

Cabinet
- 69 in. h, 22 in. w, 29 in. d
- 450 lb (approx)
- Three Type H911, plus Indicator Panel
- PDP-10 I/O Bus, Data Channel Control, Data Channel Bus, Formatter(s)

**ELECTRICAL:**
- Input Power
  - 115/230 Vac ± 10%, Single-Phase
  - 60 or 50 Hz
  - +5 Vdc, −15 Vdc, +6.8 Vdc (Indicator Lamp Supply)
- Module Type
  - M-Series
- Logic
  - Integrated Circuitry

**OPERATIONAL:**
- Transfer Modes
  - Control
  - Data
- Expansion
  - Formatters
  - Drives
- Software
  - Diagnostics
  - Handler
- Bytes per PDP-10 Transfer
  - Read/Write
  - Core Dump
- Transfer Speed
  - NRZI (800 cpi)
  - PE (1600 cpi)
- Simultaneous Operations

Program Control (I/O)
- Data Channel (DCH)

2 max
- 8 max (4 per formatter)

EXEC and USER modes
- DEXsystem-10 Monitor (Version 506)

4-bytes/word
- 1 word/5 bytes

120K bytes/sec (30K words/sec)
- 240K bytes/sec (60K words/sec)
Any operation at a given transport can occur simultaneously with rewind on the other transports.

**OPTION DESIGNATIONS:**

- TC10-CA
- TC10-CB

60 Hz Version
- 50 Hz Version

*Designations in parentheses are 50 Hz versions.

**Specifications are subject to change without notice.
### TC10-PN

**MECHANICAL:**  
- Enclosure: Rack-mounted  
- Dimensions: 5-1/4 in. h, 19 in. w, 24 in. d  
- Weight: 25 lb  
- Front Panel Access: Controls, Indicators

**ELECTRICAL:**  
- Input Power: 115/230 Vac ± 10%, Single-Phase  
- Line Frequency: 60 or 50 Hz  
- Logic: Integrated Circuitry

**OPERATIONAL:**  
- Formatting: NRZI or Phase-Encoded  
- Expansion: Up to 4 drives  
- Switch Selections: Any number (0, 1, 2, 3) assigned to any drive (A, B, C, D)

### TSU-43

**MECHANICAL:**  
- Enclosure: Cabinet  
- Dimensions: 67 in. h, 30.5 in. w, 29.5 in. d  
- Weight: 900 lb (approx)  
- Reel Size: 10.5 in. or 8.5 in.  
- Tape Length: 2400 ft or 1200 ft  
- Tape: IBM Series/500 Dynexcel, IBM heavy duty or equivalent

**ELECTRICAL:**  
- Input Power: 208/230 Vac, Three-Phase  
- Line Frequency: 60 or 50 Hz

**OPERATIONAL:**  
- Tape Speed: 150 ips  
- Packing Density: 800 cpi  
- NRZI: 1600 cpi  
- PE: 9  
- Tracks Recorded: ± 3%  
- Speed Variation: 500 ips

**OPTION DESIGNATIONS:**  
- TSU43-A: 60 Hz Version  
- TSU43-B: 50 Hz Version

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