



digital

pdp10

## RM10B HIGH SPEED FIXED HEAD DRUM

The RM10B High Speed Fixed Head Drum provides PDP-10 time-sharing and real-time systems with a fast access, high transfer rate swapping device which greatly enhances system performance and load handling capacity.

The RM10B provides 345,600 36-bit words of fast access storage available for swapping and for storage of program libraries. With zero positioning time, an average latency time of 8.3 ms, and a transfer rate of 4.1  $\mu$ sec per 36-bit word, the swapping drum can swap a typical 4 K user job in or out of core memory in as little as 27 msec.

To provide reliable operation and prevent costly head crashes, the RM10B uses a "flying head" construction and tapered drum design. Operating on the principle of a fly-ball governor, the drum automatically retracts from the read-write heads whenever rotation drops below 65% of the device's operational speed. This design provides better reliability by eliminating the hydraulic, pneumatic, or electrical drive units required by other systems.

Control for the swapping drum is provided by an RC10 Controller which is interfaced to both the input/output bus and to a DF10 Data Channel which is, in turn, interfaced directly to one port in each of the PDP-10 system's memory modules. The same RC10 Controller can operate up to four swapping drums, making possible a total swapping capacity of 1,382,400 words.

The DF10 Data Channel allows data transfers between the drum and core memory to take place simultaneously with central processor computation, as long as the channel and the processor are not accessing the same memory module. The DF10 also provides gather-read and scatter-write operations so that data buffers in core need not be contiguous.

For further efficiency, the RC10 controller contains sector counters which allow the system programmer to minimize the effective rotational latency in a multi-drum system. To reduce latency, the programmer queues multi-drum requests in a "minimum time to go" order.

### RM10B FEATURES

- High transfer rate (1.2 million char/sec)
- High reliability
- Increased time-sharing performance
- Four swapping drums per controller
- Over 1.3 million words of total storage
- Latency minimization capability

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## RM10B SPECIFICATIONS \*

Type of memory	Rotating fixed head drum	Electrical	60 HZ $\pm 1\%$ , 208 V ac $\pm 10\%$
Drum Capacity	345,600 36-bit words		line-to-line, 3 phase neutral
No. drums per controller	4		return or 50 HZ $\pm 1\%$ , 416 V ac
Capacity with 4 drums	1,382,400 36-bit words		$\pm 10\%$ line-to-line
Method of transfer	6-bit parallel	Surge Current	15 AMPS/phase
Positioning time	None (fixed head)	Power Consumption	1100 Watts
Latency	8.3 ms at 60 HZ 10 ms at 50 HZ	Heat Dissipation	4000 BTU/hr
Minimum word transfer time	4.1 $\mu$ s at 60 HZ 5.0 $\mu$ s at 50 HZ	Humidity	20% to 80%
Maximum word transfer time	240 K words/sec at 60 HZ 200 K words/sec at 50 HZ	Temperature	60F to 95F (15C to 35C)
Character type	7 bit USASCII	ORGANIZATION	
Maximum character transfer rate	1.2 million char/sec at 60 HZ 1.0 million char/sec at 50 HZ	Number of heads	540
Rotational Speed	3600 RPM (+0% —6%) at 60 HZ 3000 RPM (+0% —6%) at 50 HZ	Number of tracks	90
		Number of sectors per track	60
		Sector size	64 words

\* Performance figures for 60 HZ are based on a rotational speed of 3600 RPM; figures for 50 HZ are based on 3000 RPM.

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