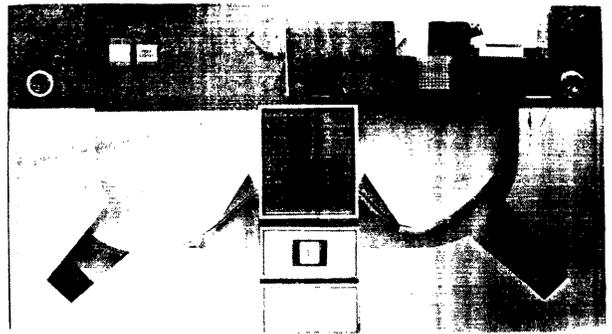


# Combination High-Speed Paper Tape Reader/Punch



- 300 CPS Read
- 75 CPS Punch
- Reader In-Line Loading

- Paper or Mylar Tape Punch
- Positive Sprocket Feed
- Extensive Error Monitoring

## GENERAL DESCRIPTION

The Combination Paper Tape Reader/Punch is a unidirectional device which allows reliable data preparation and input for an INTERDATA new series processor. The punch will punch at a rate of 75 characters per second, while the reader operates to input source or object data at a rate of 300 characters per second.

The reader and punch accept one-inch wide paper or mylar tape with the reader accepting 5, 6, 7 or 8 level punched data. The reader fanfold tanks accept up to 200 feet of paper tape while the punch has a capacity for up to 1,000 feet. The over-all compact styling of the unit is appealing and only requires 10.5 inches of vertical mounting space.

## OPERATIONAL CHARACTERISTICS

The paper tape system consists of a reader, a punch and a combination reader/punch interface. The reader and punch are physically combined as a single unit which is completely self-contained and incorporates the latest state-of-the-art features.

The reader incorporates a low-inertia sprocket feed and stepping motor mechanism to provide highly reliable tape motion control and alignment. With fewer moving parts, the sprocket feed mechanism provides much greater reliability than capstan feed mechanisms.

Conservatively designed solid state electronics are used throughout the unit with photo-electric tape sensing incorporating a derated long life line filament type lamp. A hardened steel tape guide insures proper tape alignment and minimizes tape edge wear. Simple in-line loading makes it easier for the operator to load tape and eliminates tape loading damage.

The punch features tungston alloy punch dies to allow

long life and mylar punching capability. The chad box is out of sight to eliminate unsightly conditions and a photo-electric sensor used to sense a chad box full condition for operator intervention. In addition, the unprocessed tape is hidden and a visual indication provided to signal operator intervention when the tape supply is low.

A number of up-front controls and indicators are provided on the reader/punch to enhance operator control.

SWITCH OR INDICATOR	POSITION	FUNCTION
<i>Power</i>	ON	Applies AC Power
	OFF	Removes AC Power
<i>Read Run-Load</i>	RUN	Allows reader to operate under program control
	LOAD	Places reader in a local off-line condition
<i>Reader Direction Control</i>	◁	Drives tape to left
	▷	Drives tape to right
<i>Punch Run-Load</i>	RUN	Allows punch to operate under program control
	LOAD	Places punch in a local off-line condition and allows tape loading by disengaging the pinch roller
<i>Punch Feed-Delete</i>	FEED	Causes the tape to be punched with feed holes at a rate of 75 CPS
	DELETE	Causes the tape to be punched with the delete code at a rate of 75 CPS
<i>Perf Status</i>	ILLUMINATED	Indicates the punch chad box is full or tape low condition.

The information contained herein is intended to be a general product description and should not be utilized as an explicit specification for such product.

The reader/punch is rack-mountable in a standard 19-inch RETMA cabinet. Chassis slide assemblies for mounting the reader/punch and a power cable are included with the unit.

The interface is designed to handle the reader and punch. The interface is completely housed on a single 7-inch printed circuit board which requires only half a mounting slot in any new series chassis. Interface electronics are comprised of the latest state-of-the-art circuitry employed in a highly reliable and conservative manner to insure a high degree of reliability.

Device control is exercised via command and status bytes with data transfer taking place in parallel character form. Complete control is available for interrupt, tape motion and tape read/write modes. Monitor functions include flagging for over-write of the character buffer, device unavailability and tape motion.

Command byte definition (refer to Figure 1)

- DISABLE — When bit 8 is set, the processor will not respond to an interrupt from the reader or punch but will queue the interrupt request.
- ENABLE — When bit 9 is set, the processor will respond to interrupts from the reader or punch.
- DISARM — When bits 8 and 9 are set simultaneously the reader or punch cannot interrupt the processor.
- STOP — When bit 10 is set, the reader stops tape motion with the next character to be read positioned over the photo-electric read head.
- RUN — When bit 11 is set, the reader will move the tape forward if in the SLEW mode.
- INCR — When bit 12 is set, the reader will move the tape forward and one character is read; the tape stops on the next character. This command requires the

RUN mode also be active and will execute when a Read Data instruction is executed.

- SLEW — When bit 13 is set, the reader will move the tape in a forward direction until stopped by a STOP command.
- WRITE — When bit 14 is set, the punch has been selected for activity (disables reader).
- READ — When bit 15 is set, the reader has been selected for activity (disables punch).

Status Byte definition (refer to Figure 2)

- OV — When bit 8 is set (overflow), the reader has loaded a new character into the input buffer register before the previously loaded character has been transferred to the processor bus. This status can only occur in the SLEW mode.
- NMTN — When bit 11 is set, it signals that the tape in the reader is not in motion after a STOP command has been issued.
- BSY — When bit 12 is set it signals:
  1. That the buffer register is empty, waiting for the next character from the reader or that the reader power has not stabilized, or the RUN/LOAD switch is in the LOAD position.
  2. The tape in the punch is in the process of advancing in a punch cycle.
- EX — When bit 13 is set, it signals that the OV or NMTN bit has been set by the reader.
- DU — When bit 15 is set, the reader or punch is not available due to voltage not stabilized, power off, RUN/LOAD Switch in the LOAD position or, for the reader only, the feed hole was not sensed in 10 milliseconds or an out-of-tape condition occurred.

BIT	8	9	10	11	12	13	14	15
COMMAND	DISABLE	ENABLE	STOP	RUN	INCR	SLEW	WRITE	READ

DISARM

Figure 1. COMMAND BYTE

BIT	8	9	10	11	12	13	14	15
STATUS	OV			NMTN	BSY	EX		DU

Figure 2. STATUS BYTE

## **SPECIFICATIONS**

### **INTERFACE**

*Power Requirement* +5 VDC, 1 Ampere

*Environmental* 0 to 50° C operational  
- 40 to 85° C storage  
0 to 90% Relative Humidity  
(without condensation)

*Dimensions* 7" x 15" Printed Circuit Board

*Weight* 1 Pound

*Commands* Disable Interrupt  
Enable Interrupt  
Disarm Interrupt  
Stop  
Run  
Increment  
Slew Mode  
Write  
Read

*Status* Overflow  
Device Unavailable  
Tape Not in Motion  
Device Busy  
Examine Status

### **PAPER TAPE READER/PUNCH**

*Read Speed* 300 Characters per second

*Punch Speed* 75 Characters per second

*Tape Speed* 10 inches per second

*Read Modes* Continuous (slew)  
Asynchronous (stop)

*Feed Mechanism* Sprocket (reader)  
Capstan (punch)

*Tape Loading* In-Line (reader)  
Thread (punch)

*Tape Thickness* .0027 to .0045 inch (reader)  
.003 to .0043 inch (punch)

*Tape Width* 1 inch

*Type Tape* Oiled or unoled paper tape  
or mylar tape

*Tape Level* 5, 6, 7 or 8

*Fanfold Storage Capacity (maximum)* 200 feet (reader)  
1,000 feet (punch)

*Punch Density* 10 Characters per inch

*Punch Die Life* Approximately  $8.4 \times 10^7$  characters when used with oiled or unoled paper tape

*Tape Leader Requirement* 24 inches

*Environmental* 0 to 55° C operational  
- 55 to 85° C storage  
0 to 90% Relative Humidity  
(without condensation)

*Dimensions* 10.5 inches high  
19 inches wide  
12 inches deep (from mounting surface)

*Weight* 60 pounds

*Power* 115 VAC, single phase,  
47-63 Hz, 3 Amperes  
230 VAC, single phase  
47-63 Hz, 1.5 Amperes

## **INTERDATA PRODUCT NUMBERS**

M46-250 Combination Paper Tape Reader/Punch Interface with direct connect cable.

M46-242 Combination Paper Tape Reader/Punch, 300/75 CPS, Rack-Mountable with Fanfold Bins, 115 VAC, 60 Hz.

M46-243 Combination Paper Tape Reader / Punch, 300/75 CPS, Rack-Mountable with Fanfold Bins, 230 VAC, 50 Hz.

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