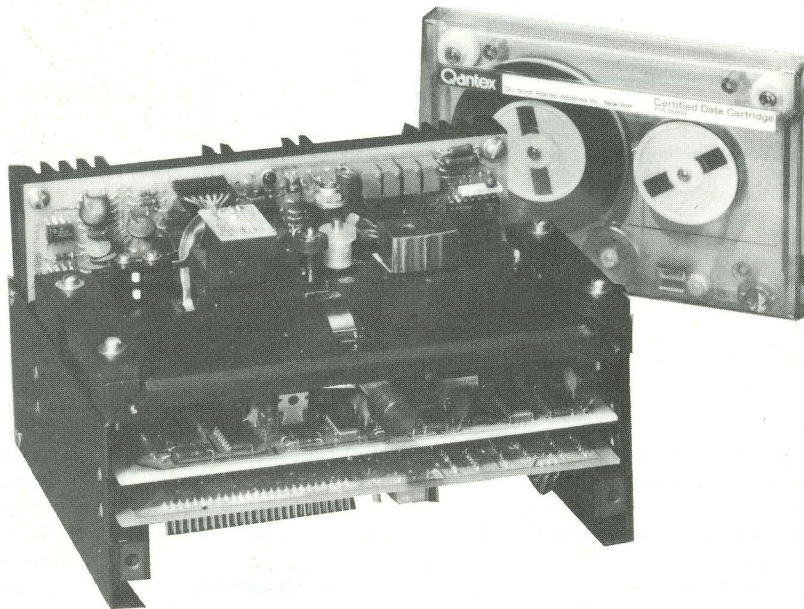


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# Qantex

# DATA SHEET

## CARTRIDGE TAPE DRIVE MODEL 400 MAXIDRIVE™



### DESCRIPTION

The Qantex Model 400 has been designed to be a highly reliable back-up device for Winchester drives, while performing all the standard functions expected of a peripheral tape drive. The drive utilizes the DC300A, DC300XL or equivalent data cartridge at a data density of 6400 bpi.

Using a 450-foot data cartridge, the device has an unformatted storage capacity of up to 17.3 megabytes per cartridge.

### ELECTRONICS

The Read/Write electronics in the Model 400 are designed for 4-track serial operation, with a data transfer rate of 192,000 bits per second.

All components, including Servo; Read/Write Data and Control Logic are located on modular PC boards. Power transistors are mounted on the rear heat sink thus heat dissipation is away from the data cartridge.

### TAPE TRANSPORT

The transport mechanism employs a uniquely simple and reliable tape drive system. Motion is imparted from the motor capstan to the cartridge via a one-to-one ratio idler. The design eliminates clumsy motor hinging systems and provides a positive position lock for the data cartridge when in place. All of the "On board" mechanisms, the Head, Tape Mark Sensor (TMS), Cartridge-in Place (CIP) Switch, and Write Protect (Safe) Switch are all mounted directly to the deck plate.

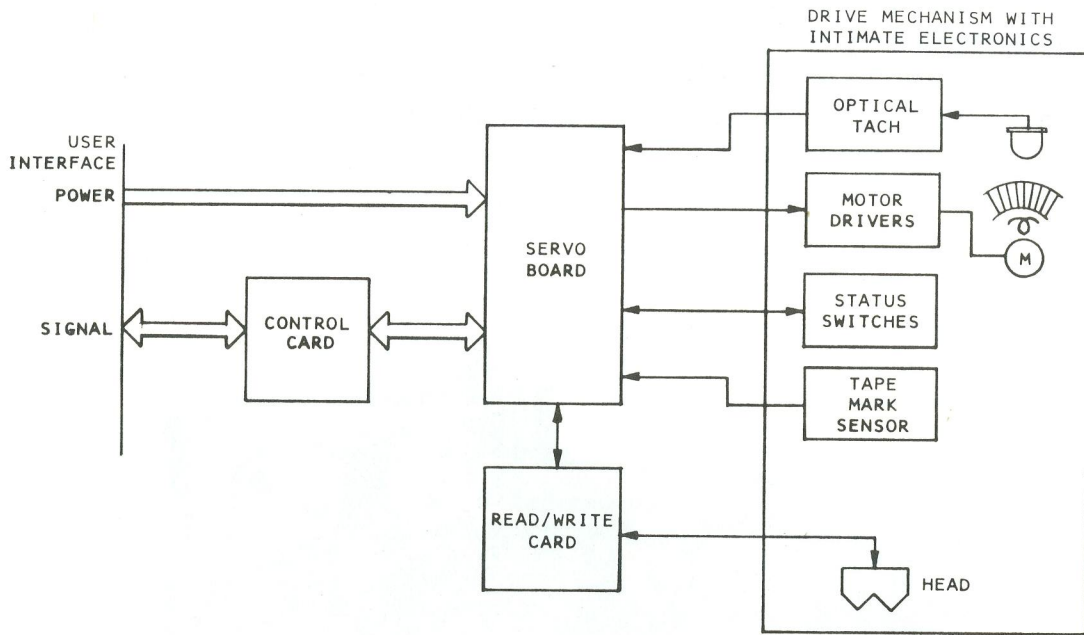
### INTERFACE

The Model 400 is fully compatible with Western Peripherals Tape Cartridge Controller TC160. Up to eight drives may be bussed using the control card.

The optional encoder/decoder card enables the user, utilizing his own formatter, to present serial NRZ Write data and Write Clock to the interface. In addition, the read circuits present NRZ Read data and Read clock as an output to the interface.

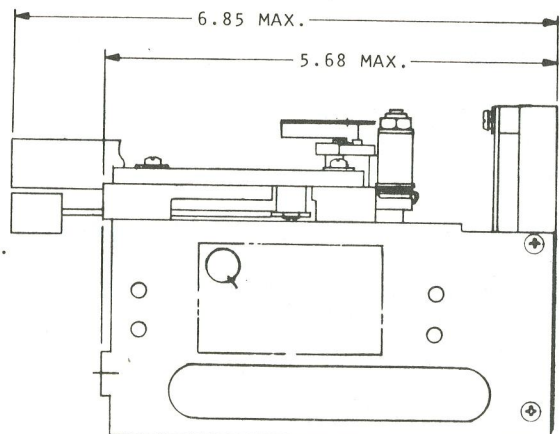
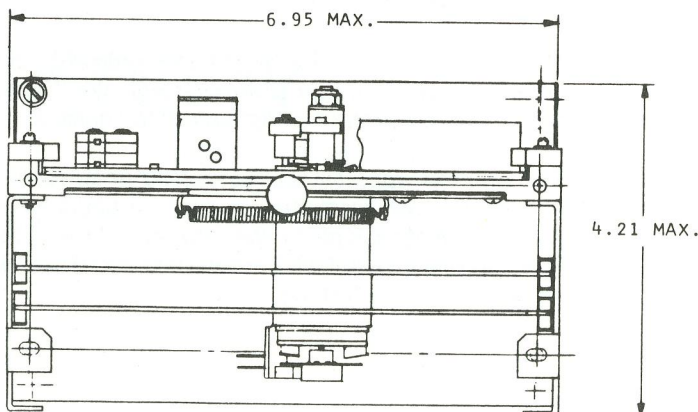


# System Block Diagram



## SPECIFICATIONS

Storage medium	Scotch Brand DC300A, DC300XL, or equivalent tape cartridge	I/O circuits	Open collector TTL drivers on outputs; 220/330 terminated receivers on inputs; Read and Write data lines on differential driver receivers
Tape length	300 feet (DC300A), 450 feet (DC300XL)	Power requirements	+5Vdc $\pm$ 0.25% regulated at 1.5A max; +24Vdc, nominal unregulated (-19.2V min. to -28Vdc max.) at 1.5A, 3.2A surge for 70 ms; -24Vdc nominal unregulated (-19.2V min. to -28V max.) at 1.5A, 3.2A surge for 70 ms
Tape width	1/4 inch	Operating temperature	+5° to +45°C (media dependent)
Tape speed		Storage temperature	-30° to +60°C
Read/write	30 ips, bidirectional	Operating humidity	20% to 80% noncondensing
Search/rewind	90 ips, bidirectional	Storage humidity	0% to 95% noncondensing
Instantaneous speed variation (jitter)	$\pm$ 3% at 30 ips	Dimensions	4.25"H x 7"W x 5.75"D
Long term speed variation	$\pm$ 2% at 30 ips	Weight	5 lb. (max.), excluding tape cartridge (9 oz.)
Start/stop time			
at 30 ips	25 ms (max.)		
at 90 ips	75 ms (max.)		
Recording density	6400 BPI (MFM), 6400 flux reversals per inch (max.)		
Recording mode	MFM		
Transfer rate	192,000 bits per second, serial data		
Number of tracks	4 (used one at a time)		
Type of head	Read-after-Write with Selective Erase		



### CONTROL CARD I/O SIGNALS (J3)

Pin	Signal	Input/Output
1	SLD RET	
2	SLD (selected)	Output
3	RDY RET	
4	RDY (Ready)	Output
5	WND RET	
6	WND (Write Enabled)	Output
7	FLG RET	
8	FLG (Flag)	Output
9	LPS RET	
10	LPS (Load Point Sensed)	Output
11	FUP RET	
12	FUP (File Unprotected)	Output
13	BSY RET	
14	BSY (Drive Busy)	Output
15	EWS RET	
16	EWS (Early Warning Sensed)	Output
17	RWD RET	
18	RWD (Rewind)	Input
19	REV RET	
20	REV (Reverse)	Input
21	FWD RET	
22	FWD (Forward)	Input
23	HSP RET	
24	HSP (High Speed)	Input
25	WEN RET	
26	WEN (Write Enable)	Input
27	SL1 RET	
28	SL1 (Unit Select 2°)	Input
29	SL2 RET	
30	SL2 (Unit Select 2')	Input
31	SL4 RET	
32	SL4 (Unit Select 2°)	Input
33	SLG RET	
34	SLG (Select Gate)	Input
35	DADX (Data Detected 2)	Output
36	DAD (Data Detected 1)	Output
37	DAT RET	
38	RDAX RET	
39	RDAX (Read Data 2)	Output
40	RDA (Read Data 1)	Output
41	RDA RET	
42	WDAX RET	
43	WDAX (Write Data 2)	Input
44	WDA (Write Data 1)	Input
45	WDA RET	
46	TR2 (Track Select 2')	Input
47	TR2 RET	
48	LOGIC GND	
49	TR1 RET	
50	TR1 (Track Select 2°)	Input

### ENCODER/DECODER CONFIGURATION I/O SIGNALS

Pin	Signal	Input/Output
1	SLD RET	
2	SLD	Output
3	RDY RET	
4	RDY	Output
5	WND RET	
6	WND	Output
7	FLG RET	
8	FLG	Output
9	LPS RET	
10	LPS	Output
11	FUP RET	
12	FUP (File Unprotected)	Output
13	BSY RET	
14	BSY	Output
15	EWS RET	
16	EWS	Output
17	REW RET	
18	REW	Input
19	REV RET	
20	REV	Input
21	FWD RET	
22	FWD	Input
23	HSP RET	
24	HSP	Input
25	WEN RET	
26	WEN	Input
27	SL1 RET	
28	SL1	Input
29	SL2 RET	
30	SL2	Input
31	SL4 RET	
32	SL4	Input
33	SLG RET	
34	SLG	Input
35	RNZ RET	
36	RNZ (Read NRZ Data)	Output
37	RDS RET	
38	RDS (Read Data Strobe)	Output
39	DAD RET	
40	DAD	Output
41	WDE RET	
42	WDE (Write Data Strobe Enable)	Input
43	WNZ RET	
44	WNZ (Write NRZ Data)	Input
45	TR2 RET	
46	TR2	Input
47	WDS RET	
48	WDS (Write Data Strobe)	Output
49	TR1 RET	
50	TR1	Input

- NOTES: 1. All signals are low true except DAD, WDA, and RDA.  
 2. RDAX and RDA, DADX and DAD are differential signals from line driver.  
 3. All other outputs are open-collector drivers requiring 220/230 ohm terminators.  
 4. Input signals WDAX and WDA are differential signals from line driver and are terminated with 100 ohm to ground at the tape drive.  
 5. All other input signals are terminated with 220/330 ohm termination at the tape drive.  
 6. Mating connectors — 3M, part no. 3425-0000.  
 7. Maximum cable length - 10 feet maximum.

- NOTES: 1. Description of Mnemonics same as in control card I/O table except where mentioned.  
 2. Mating Connector: 3M part number 3425-0000.  
 3. Outputs are open-collector driver requiring 220/330 ohm termination.  
 4. Inputs are terminated with 220/330 ohm terminator.  
 5. Cable length 10 feet maximum.



## NO CONTROL CARD CONFIGURATION I/O SIGNALS

## NO CONTROL CARD CONFIGURATION I/O SIGNALS (continued)

Pin	Signal	Input/Output
1	SL2 (Select Unit 2)	Input
2	SL2 RET	
3	SL1 (Select Unit 1)	Input
4	SL1 RET	
5	FLP (File Protected)	Output
6	FLP RET	
7	BLB (Bulb On)	Output
8	BLB RET	
9	LTH (Lower Tape Hole)	Output
10	LTH RET	
11	CIP (Cartridge in Place)	Output
12	CIP RET	
13	UTH (Upper Tape Hole)	Output
14	UTH RET	
15	RDA (Read Data 1)	Output
16	RDA (Read Data 2)	Output
17	RDA RET	
18	DAD RET	
19	DAD (Data Detected 1)	Output
20	DADX (Data Detected 2)	Output
21	DADX RET	
22	TRI RET	
23	TR1 (Track Select 2 <sup>0</sup> )	
25	TR2 (Track Select 2 <sup>1</sup> )	Input
26	TR2 RET	
27	No connection	
28	WDA RET	
29	WDA (Write Data 1)	Input
30	WDAX (Write Data 2)	
31	WEN (Write Enable)	Input
32	WEN RET	
33	No connection	
34	LOGIC GND	
35	FWD (Forward)	
36	FWD RET	
37	REV (Reverse)	Input
38	REV RET	
39	HSP (High Speed)	Input
40	HSP RET	

- NOTES: 1. All input/output signals are low true except RDA, DAD, WDA.  
 2. Mating Connector: 3M part number 3417-0000  
 Cable: 3M part number 3350-40 conductor  
 3. Inputs and outputs are standard TTL levels.  
 4. Cable length 3 feet maximum.

### POWER CONNECTIONS (J5)

Pin	Signal	Input/Output
1	Key plug	
2, 10	+24 VDC $\pm$ 4V	Input
3, 11	-24VDC $\pm$ 4V	Input
4, 12	Key plug	
5, 13	24V RET	Output
6, 14	+5VDC $\pm$ .25 V	Input
7, 15	+5V RET	Output
8, 16	CHASSIS GND	
9	-5V DC	Output

- NOTES: 1. Power Requirements  
 +24V DC ( $\pm$  15%, +28V DC max.) at 1.8 A, 3.4 A surge  
 -24V DC ( $\pm$  15%, -28V DC max.) at 1.9 A, 3.5 A surge  
 +5V DC ( $\pm$  5%) at 1.4 A, 2.6 max.  
 2. Mating Connector:  
 Connector: AMP part number 2-86256-2  
 Contacts: AMP 86016-4  
 Key plugs: AMP 86286-1  
 3. 24V RET and +5V RET should be commoned on power supply only.  
 4. Recommended wire size 20 AWG minimum. Maximum length of power cable 3 ft. @ 20GA, 6 ft. @ 18 GA.

All specifications are subject to change without notice.

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