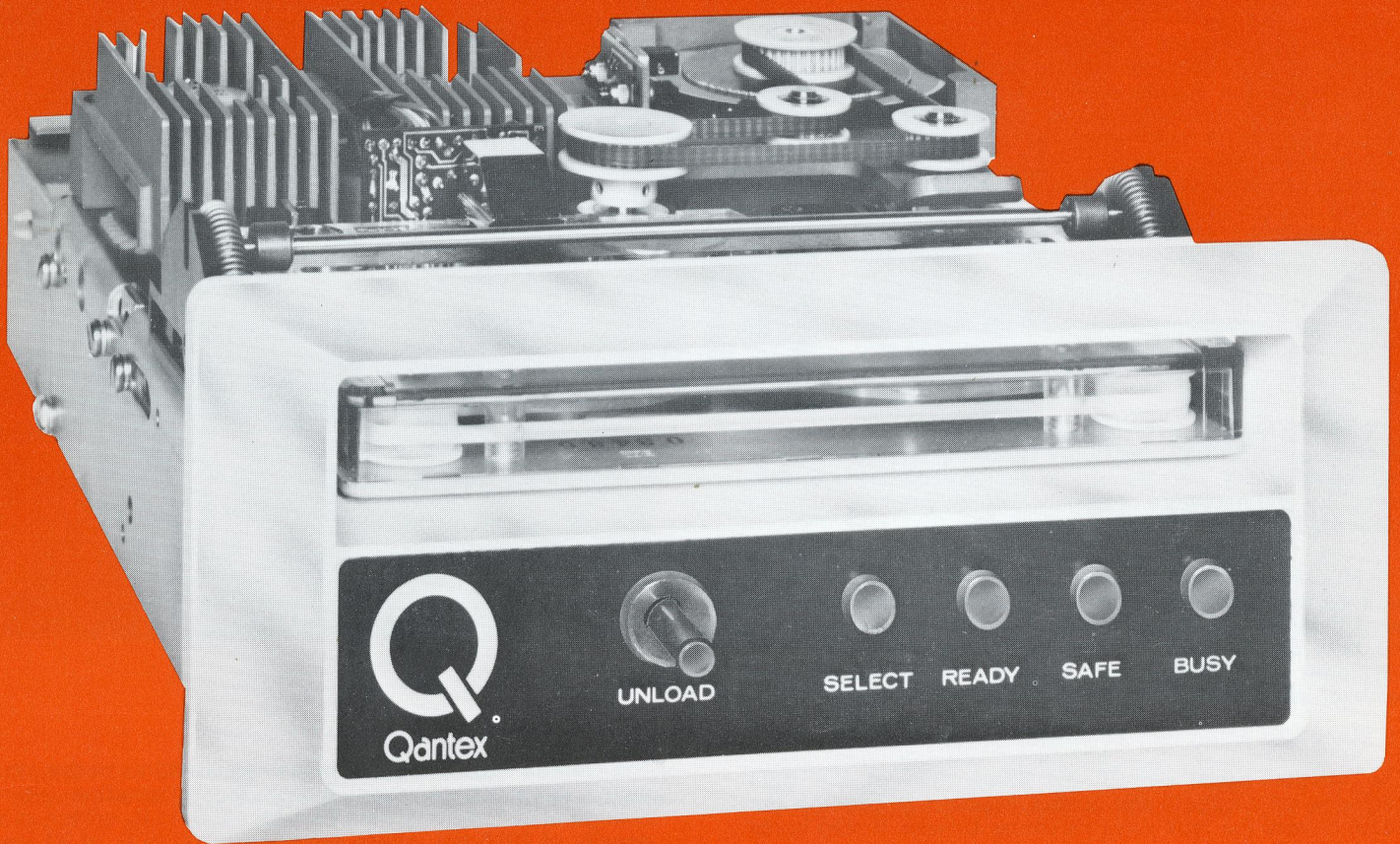


**MODEL 650
CARTRIDGE TAPE DRIVE**



- **SMALL SIZE**
- **LOW COST TAPE DRIVE**
- **USES 3M DATA CARTRIDGE**

Qantex

The Qantex Model 650 Tape Drive utilizes the 3M Data Cartridge (DC300A) to provide a magnetic tape storage capability with the performance specifications of a compatible 1/2" tape drive *but* at a fraction of the cost.

The Model 650 is designed to be an OEM system component. It's flexible design offers a wide range of options to allow the system designer to choose both the control parameters and mechanical mounting configuration best suited to his system design concept and application.

The Qantex Model 650 is available in a wide variety of configurations. In its simplest form, a "mechanism only with intimate electronics" is offered. The "intimate electronics" are the optical tachometer and servo power amplifier electronics. In its most complete configuration, the Model 650 is offered with all electronics, including many house-keeping functions, status displays, and a bezel which may be readily customized with the user's logo type. Many variations between these two extremes are available to meet the OEM's most desired configuration.

A small front profile, 3-1/8" high by 7" wide (excluding customized bezel) makes the Qantex 650 Drive an ideal choice where front panel space is at a premium.

HEAVY-DUTY MECHANICAL DESIGN

The Qantex Model 650 Cartridge Drive was designed for the original equipment manufacturer. Realizing a major requirement is reliability, the mechanical design provides both data reliability and hardware reliability with all mechanical parts fabricated for strength and durability.

The Model 650 provides a true three-point suspension of the data cartridge to reference it accurately to the magnetic head, thus insuring data interchange and compatibility. Once the data cartridge is inserted into the Qantex 650, it is physically locked in place, thus preventing inadvertent removal while the tape is being driven.

APPEARANCE

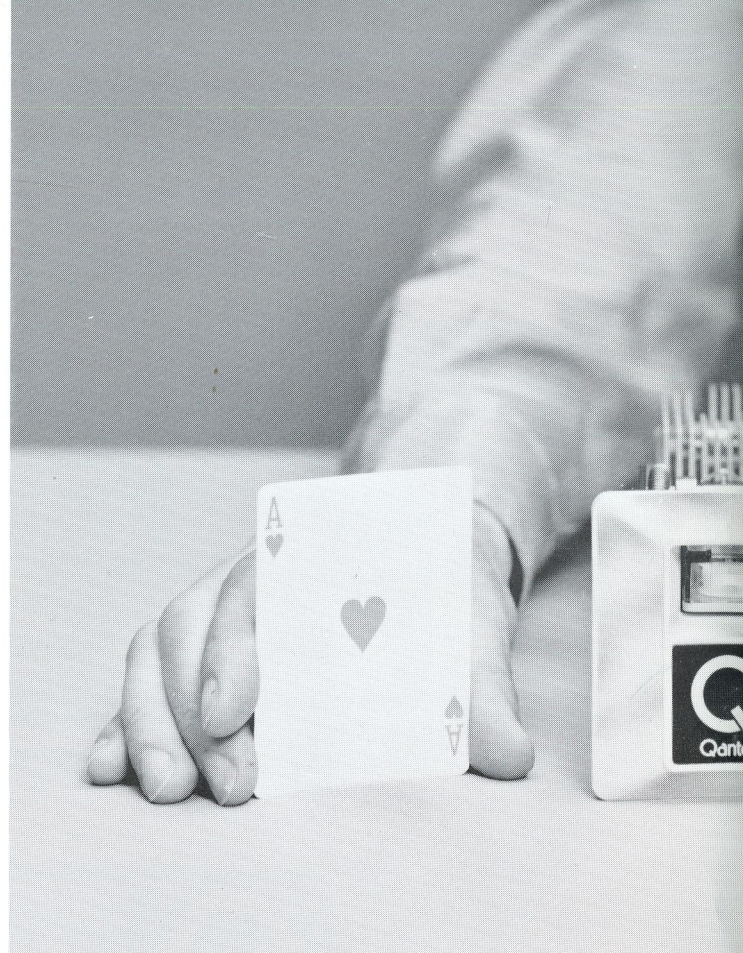
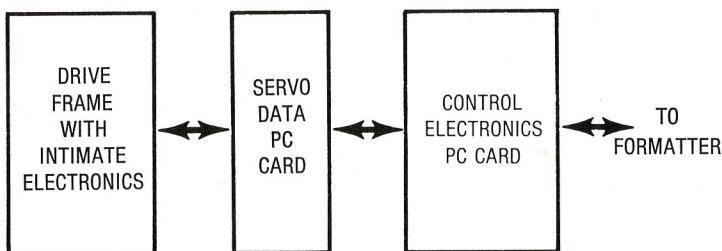
The molded bezel directs the entry path of the data cartridge for a smooth and guided insertion. In addition, the bezel covers the tape drive mounting screws. It also holds the status display.

The recessed area in the bezel (approximately 6-1/4" x 1-3/8") provides room for a printed insert with the OEM's logo and color choice. The standard insert is offered with horizontal or vertical legends. Bezel color may also be selected.

CONFIGURATION

The Model 650 is available in the following configurations:

- Mechanism only with intimate electronics
- Mechanism with Servo/Data electronics
- Complete tape drive with control electronics
- Rack mounted versions i.e., 2200, 2400
- Portable tape drive systems, 2710
- ANSI Formatter available, Model 86008



ANSI/ECMA COMPATIBLE

The Qantex Tape Drive meets the requirements of the proposed ANSI/ECMA specification for information interchange of 1/4", 4-track data cartridges. Data is written at a density of 1600 bpi, phase encoded (3200 FCI), at 30 ips. This results in a data transfer rate of 48,000 bps. High-speed bidirectional search is accomplished at 90 ips.

DRIVE OUTPUTS

The control and data signals from the Qantex Tape Drive are open collectors to simplify the buss wiring in a multi-drive configuration. Each bussable output is controlled by the respective SELECT signal. Up to eight Model 650 tape drives can be bussed together.

DATA ELECTRONICS

The basic data electronics provide for "transparent" operation, i.e., "data out" is a replica of "data in". The electronics have been optimized for the ANSI specification: 1600 bpi phase-encoded, 30 ips.

CARTRIDGE REMOVAL

Removal can be accomplished by energizing the EJECT line (immediate ejection) or commanding an UNLOAD operation (high-speed rewind to BOT followed by automatic ejection). The Model 650 also features a manual UNLOAD button, the operation of which can be factory-installed to provide one or more of these ways:

- *Allow data cartridge ejection only under controller command.
- *Allow manual data cartridge ejection when power is off.
- *Allow data cartridge ejection when not selected.

PROTECTIVE INTERLOCK

The motor cannot be driven unless a data cartridge has been loaded, the tape drive *SELECTED* and *READY*.



CONTROL FUNCTIONS & SEQUENCE

The Qantex 650 control electronics include all necessary circuitry to simplify the system interface. The OEM-oriented functions are:

- REWIND** The tape drive reverses to BOT (90 ips), then moves forward (30 ips) to the Load Point.
- UNLOAD** The tape drive reverses to BOT (90 ips) then automatically ejects the data cartridge.
- LOAD** The tape drive moves forward to the Load Point (30 ips)
- READY** Shows the data cartridge is in place and internal LEDs are on.
- FILE PROTECT** Shows the data cartridge file protect ring checked as "SAFE". Writing is inhibited in "SAFE" position.
- AUTO LOAD** The tape drive automatically advances to the Load Point upon data cartridge insertion. This is a programmable function.
- WRITING** This operation is automatically inhibited with the tape drive in reverse.
- BOT** After detection of BOT, the tape drive automatically advances to the Load Point (except when commanded to UNLOAD).
- EJECT** This allows user to command immediate data cartridge ejection.

PHASE DECODER OPTION

The Phase Decoder option provides a clock pulse associated with Read Data to enable the user to strobe NRZ data out of the drive. It detects and strips the preamble

and also provides ALLOW DATA and DATA PRESENT signals. This circuitry allows reading tapes whose density varies by more than $\pm 15\%$ from the standard. This option is not required when utilizing the Qantex Tape Formatter.

STATUS DISPLAY

The optional status display provides four indicators to give visual indication of the current status of the Qantex 650 tape drive:

- SELECT** Indicates the tape drive has been selected by the controller.
- READY** Indicates the data cartridge is properly inserted and internal LEDs are on.
- SAFE** Indicates an inserted data cartridge is file protected.
- BUSY** Indicates the tape drive is Writing or Reading or is performing an internal operation, i.e. Loading/Unloading, Starting/Stopping or Rewinding.

MAINTENANCE

The Model 650 is totally "connectorized" to facilitate servicing. The electronics is contained on two printed circuit cards within the drive.

Qantex

DIVISION

NORTH ATLANTIC
INDUSTRIES, INC.

SPECIFICATIONS

Model 650 Tape Drive

Speed	30 ips, write, bi-directional read 90 ips, bi-directional search and rewind
Recording Density	1600 bpi, phase encoded, 3200 fci
Number of Tracks	1, 2, or 4
Transfer Rate	48,000 bits/second @ 30 ips
Head Type	<i>Standard</i> —Dual gap, read after write <i>Optional</i> —Selective erase
Start-Stop Time	At 30 ips, 30ms At 90 ips, 75ms
Start-Stop Distance	At 30 ips, start = 0.58", stop = 0.16" At 90 ips, start = 3.15" nom., stop = 1.4" nom.
Long-Term Speed Variation	±3%
Interface	DTL/TTL, Low True
Power	+5VDC ±3%, 1A, max. ± 18VDC ±5% 250mA idle, 1.3A run (optionally ± 12V, changes spec.)
Note:	3.5A surge required during start and stop time from either plus or minus supply voltage, ± 18V.
Dimensions	<i>With Electronics</i> 3-1/8" H x 7" W x 10" D <i>Without Electronics</i> 3-1/8" H x 7" W x 8-1/4" D <i>Bezel Dimensions</i> 3-3/8" H x 8" W x 5/8" D

Data Cartridge (3M DC 300A, ITC TC-2000, WABASH Quadronix)

Tape	Computer grade magnetic tape—length 300' (91.44m) of useable storage
Recording Density	1600 bits per inch, phase encoded or 3200 flux reversals per inch.
Number of Tracks	4 — Data is recorded serially on one track at a time
Capacity	2,880,000 bytes (8 bit per byte) of non formatted data
Tape Position Sensing	Holes are provided in the tape for optical sensing of BOT (Beginning of Tape), Load Point, Early Warning and EOT (End of Tape)
File Protect	Screwdriver or fingernail activated window provided
Temperature	+5°C to +45°C
Humidity	20% to 80% non-condensing
Operating Life	5,000 passes (BOT to EOT) typical
Construction	High impact plastic cover over heavy gauge metal base plate
Size	4 x 6 x 0.665 in. (101.6 x 152.4 x 17 mm)
Weight	8 ounces (266.8 g)

HOW TO ORDER THE MODEL 650

For standard Cartridge Tape Drive order: Model 650

Ordering Number:

For Cartridge Tape Drive with options, review the following section and complete the ordering number with no blanks.

Model 650-XT/XXX-XPC-XE-XB/XD-XL-XS-XT-XP

-XT (Number of Tracks)

Specify **4T (std)**

2T

1T

/XXX (Type of Head)

Specify **/DGH—Dual Gap Head (std)**

/DGE—Dual Gap/Erase

/XXX—None

-XPC (Electronics)

Specify **1PC—Servo/Data PC Board**

2PC—Servo/Data & Control PC Boards (std)

XPC—None

-XE (Type of Ejection)

Specify **1E—Manual eject only**

2E—Manual and Controller eject (std)

3E—Controller eject only

-XB (Bezel)

Specify **1B—Standard Bezel (horizontal label) (std)**

2B—Standard Bezel (vertical label)

3B—Standard Bezel (horizontal label—no Q)

4B—Standard Bezel (vertical label—no Q)

5B—Standard Bezel (custom label)

XB—None

/XD (Status Display)

Specify **1D—4 Indicators (std)**

2D—3 Indicators (i.e. no *Select*)

XD—None

-XL (Auto Load)

Specify **1L—Tape to LP (std)**

XL—None

-XS (Unit Select Coding)

Specify **1S—Factory Programmed**

2S—Built-in Programming Switch (std)

XS—None (customer must jumper program)

-XT (Terminator)

Specify **1T—Terminator Socket w/Network (std)**

2T—Terminator Socket w/o Network

3T—Factory-Wired Terminator Network

-XP (Phase Decoder)

1P—Provided

XP—None

Connecting Cables:

Power Cable P/N 786009-1

Data Cable P/N 786009-2 (If Model 650 is used with Qantex Formatter, use Formatter Connecting Cables, P/N 786010-1 through -8.)

Qantex DIVISION

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