**High touch resolution
High transmissivity
Simple data link**

# TekTouch™
# The New Interactive Panel from Tektronix

## TekTouch™ Capabilities

TekTouch allows simple interactive communication between an operator and an electronic system. Versatility of the TekTouch™ system provides easy access to even the most complex data input requirements.
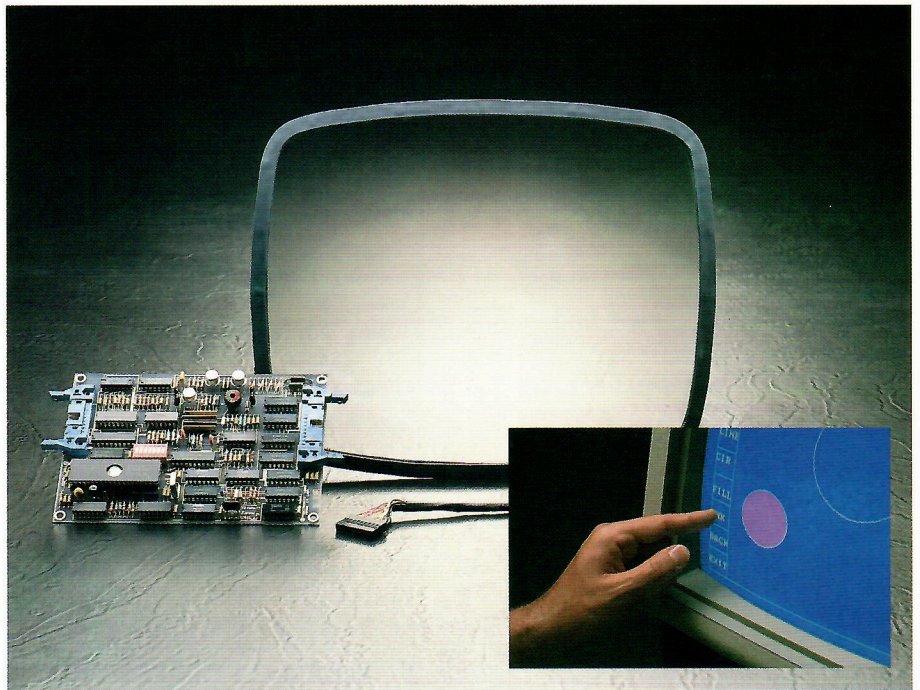
Soft keys can be defined up to 256 points per axis. TekTouch™ electronics will compute and transmit touch locations to the host system. TekTouch™ links to your computer through either RS-232C or parallel interfaces.

## The Technology

TekTouch™ consists of a thin, continuous, transparent film deposited on a glass panel. The touched position is determined by measuring changes to a small AC signal applied to the touch panel. Variation in the signal corresponds to the touch location.

TekTouch's™ panel construction eliminates many visual distortions commonly found in other touch panels. Minimum parallax error and its 85% transmissivity allow excellent optical clarity.

TekTouch™, engineered at Tektronix, provides a reliable, low cost data entry solution.



*TekTouch™ provides high transmission, has no moving parts, and is not subject to dust intrusion. It does not extend laterally past existing display CRT dimensions.*

## Installation

TekTouch™ conveniently mounts under the present CRT/monitor bezel, requiring only about 0.20 inch clearance. The controller circuitry fits on a 4 by 6 inch circuit board designed to mount directly inside the monitor. A harness connecting the panel and controller board is supplied.

## Applications

Built to withstand environments such as process control stations, automatic teller machines, and public information kiosks, TekTouch™ is also a valuable aid for many test and measurement applications. Other uses include:

- Menu selection
- Interactive graphics
- Programmable 'soft keys' for display front panel or as existing keyboard extension.

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# SPECIFICATIONS

## I. TOUCH PANEL

**Technology:** Continuous capacitive
**Touch Resolution:** Up to 256 points per axis to panel edge
**Touch Accuracy:** Standard error—nominally 1% of panel size
**Touch Sampling Rate:** 50–100 samples per second
**Touch Response Time:** 20 msec (typical)
**Transmissivity:** 85% at 520 nm (typical of antiglare-etched surface)
**Size Range:** 9 to 13 inches (228 to 330 mm) diagonal
**Active Touch Area:** Within 0.75 inch (19.05 mm) of panel edges
**Input Power:**

|        | Nom.   | Max.    |
|--------|--------|---------|
| +5 V   | 250 mA | 320 mA  |
| +12 V  | 60 mA  | 100 mA  |
| –12 V  | 60 mA  | 100 mA  |

## II. MECHANICAL

**Panel Size:** See Figure 1 and Table 1
**Glass Thickness:** 0.125 inch (3.175 mm)
**Panel Mounting Accommodations:** Gasket supplied with tabs, clips or mounting tape as appropriate
**Controller Board Size:** 4 by 6 inches (101.6 by 152.4 mm) (see Figure 2)
**Mating Interface (J1) Connector:** Berg 66900-220 or equivalent
**Controller Board Mounting Accommodations:** Designed to mount within 15 inches (381 mm) of Touch Panel

## III. COMMUNICATIONS

### Format

#### – RS-232C Interface

**Selectable Baud Rate:** 1200, 9600, 19200
**Transmission Code:** asynchronous ASCII, selectable parity
**Data Structure:** X,Y,Z; 8-bits binary or 7-bit hex ASCII selectable
**J1 Pinout:** Per Table 2

#### – Parallel Interface

**Transmission Code:** Binary
**Data Structure:** 8-bit data with strobe and acknowledge lines
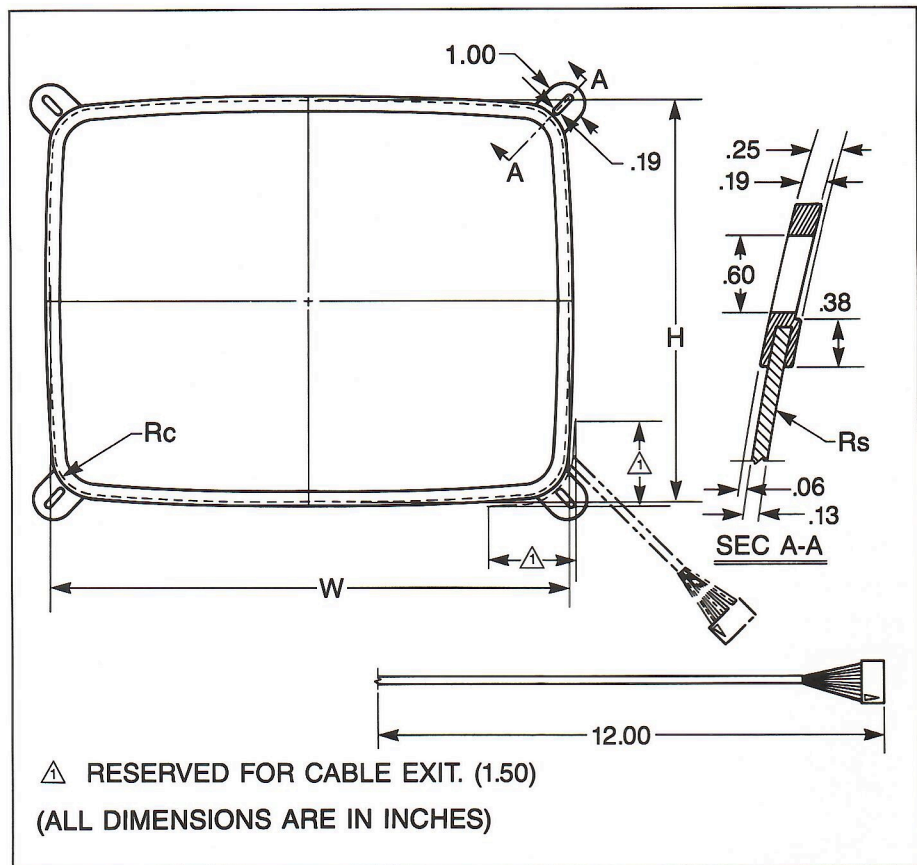**J1 Pinout:** Per Table 2



*Figure 1. Drawing of Touch Panel. See Table 1 for specific dimensions.*

### Data Format Options

Alternative data formats available. Please consult Tektronix Display Devices Operation Marketing & Sales for quotation and availability.

## IV. MODES OF OPERATION

**Data Transmission Modes:** Per Table 3 (user selectable through setting of dip switches on circuit board)

- Delta—send data on any change in x, y or z
- Make—send data on initiation of touch
- Break—send data on termination of touch
- Continuous

## V. ENVIRONMENTAL

**Operating Temperature Range:** 0 to +70°C
**Storage Temperature Range:** –62 to +85°C
**Operating Humidity Range:** Up to 95% at 55°C

**Moisture and Dust:** Resistant to high humidity environments, moisture and dust: highly resistant to the corrosive effects of beverage spills, etc.

**Altitude:** Operating — Up to 15,000 ft (4.5 km)
Storage — Up to 50,000 ft (15 km)

**Vibration:** Operating — 0.025 in (0.635 mm) p-p, 10–55 Hz
Storage — 0.05 in (1.27 mm) p-p, 10–55 Hz

**Shock:** Operating — 50 g peak acceleration
Storage — 100 g peak acceleration

## VI. CERTIFICATIONS

**Safety:** UL 478, UL 1244, and UL 544 (professional, non-patient care)

**Regulatory:** FCC Class B

### Table 1. TekTouch™ Panel Dimensions

| NOMINAL DIAGONAL | $R_s$ SPHERICAL RADIUS (inches) | H HEIGHT (INCHES) | W WIDTH (INCHES) | $R_c$ CORNER RADIUS (inches) | SAMPLE MONITORS |
|---|---|---|---|---|---|
| 9 in. | 24.0 | 6.4 | 8.4 | 0.75 | IBM Portable PC |
|  | 27.0 | 6.1 | 8.1 | 0.75 | Compaq II Portable PC |
| 12 in. | 19.0 | 8.5 | 10.6 | 1.25 | IBM 5151 |
| 13 in. | 22.8 | 9.5 | 12.3 | 1.00 | IBM 5154 Zenith ZVM135 NEC Multisync |
|  | 24.0 | 9.4 | 12.3 | 1.12 | IBM 5153 |

### Table 2. J1 Connections

**a) RS-232C SERIAL INTERFACE**

| | |
|---|---|
| 1–9 | RESERVED |
| 10 | RS-232 CTS |
| 11 | $\overline{\text{RESET}}$ |
| 12 | SIGNAL GROUND |
| 13 | RS-232 RTS |
| 14 | RS-232 $\overline{\text{RXD}}$ |
| 15 | RS-232 $\overline{\text{TXD}}$ |
| 16 | RS-232 DSR |
| 17 | −12 V |
| 18 | +12 V |
| 19 | +5 V |
| 20 | GROUND |

**b) PARALLEL INTERFACE**

| | |
|---|---|
| 1 | PARALLEL $\overline{\text{STROBE}}$ |
| 2–9 | 8 BIT DATA PORT (PIN #2 LSB) |
| 10 | $\overline{\text{ACK}}$ |
| 11 | $\overline{\text{RESET}}$ |
| 12 | SIGNAL GROUND |
| 13–16 | RESERVED |
| 17 | −12 V |
| 18 | +12 V |
| 19 | +5 V |
| 20 | GROUND |

### Table 3. Dip Switch Settings

| | | | |
|---|---|---|---|
| MODE | 1 | 00 | DELTA |
|  |  | 01 | MAKE |
|  | 2 | 10 | BREAK |
|  |  | 11 | CONTINUOUS |
| COMM | 3 | 00 | PARALLEL INTERFACE |
|  |  | 01 | 1200 BAUD 2 STOP BITS |
|  | 4 | 10 | 9600 BAUD 1 STOP BIT |
|  |  | 11 | 19200 BAUD 1 STOP BIT |
| PARITY | 5 | 00 | EVEN |
|  |  | 01 | ODD |
|  | 6 | 10 | NONE |
|  |  | 11 | RESERVED |
| FORMAT | 7 | 0 | 8 BIT BINARY |
|  |  | 1 | 7 BITS ASCII |

## VII. RELIABILITY

**Diagnostics:** TekTouch™ system is self-testing

**MTBF:** 20,000 hours

**Touch Life:** More than 1 million touches in any one location and 10 million touches spread randomly over the panel surface

**Scratch Resistance:** Touch panel's conductive film is harder than glass surface. Film not scratched by gold, platinum, low carbon steel or any object with Mohs hardness of 7 or less.

**Electrostatic Discharge (Panel Surface):** 20 kV

**Cleaning:** Cleanable with commercially available non-conductive glass cleaners and laboratory solvents.
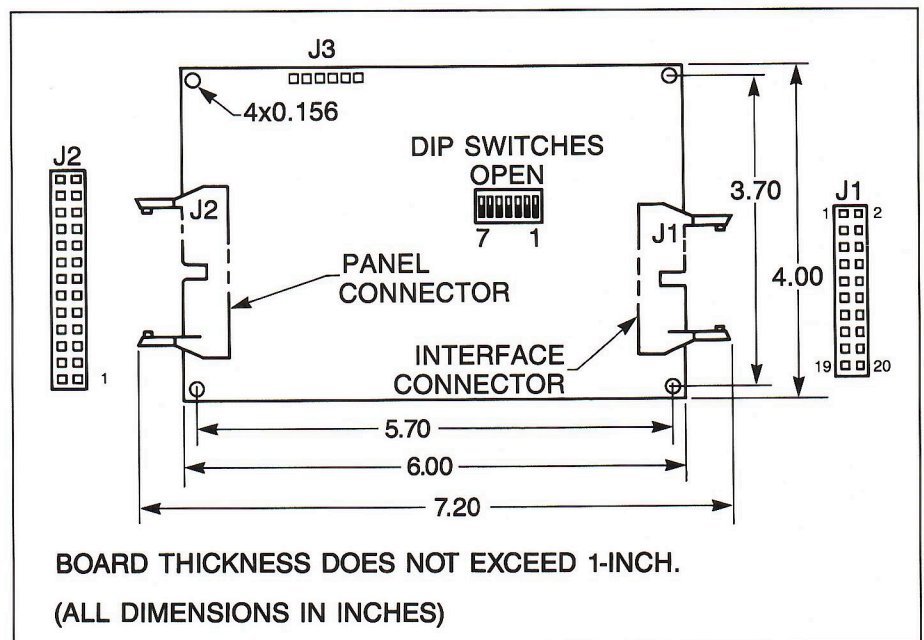


BOARD THICKNESS DOES NOT EXCEED 1-INCH.

(ALL DIMENSIONS IN INCHES)

Figure 2. Controller board dimensions.

## TekTouch™ ORDERING INFORMATION

### Standard OEM Product

TekTouch™ comes complete with panel and controller board with either RS-232-C and parallel interface.

TekTouch™ panels are available to match CRTs in any of the standard sizes shown in Table 1. For other sizes, please consult Tektronix Display Devices Operation Marketing & Sales.

### Evaluation Kit

For a quick evaluation, TekTouch™ evaluation kit comes complete with panel, appropriate mounting scheme, controller board, external power supply, controller board cable, external interface cable (DB 15 to DB 25) and Technical Reference Guide.

### Options

**Power Supplies**
- External to monitor
- Internal to monitor

**Controller Board Cables**
- To monitor exterior
- To monitor exterior with internal or external power supply connector

**External Interface Cable**
- From monitor exterior to host system (DB 15 to DB 25)

**External Enclosure**
- For controller board and connections

For custom configurations, please consult Tektronix Display Devices Operation Marketing & Sales.

### For Further Information Contact:

Tektronix, Inc.
Display Devices Operation
Marketing & Sales
MS 46-539
P.O. Box 500
Beaverton, Oregon 97077
(503) 627-6868

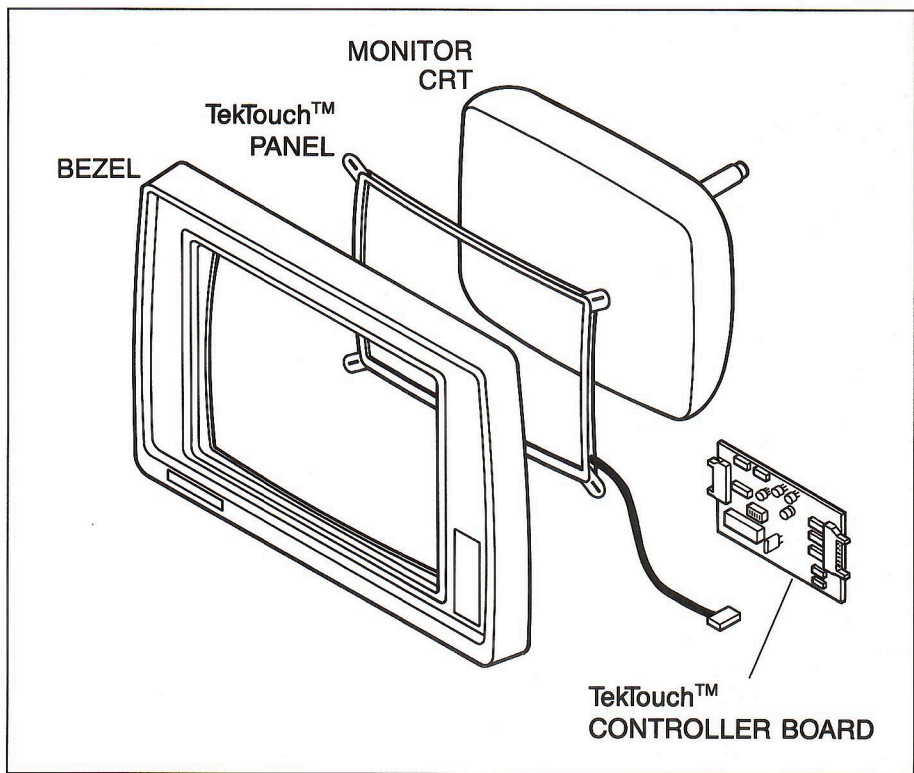Specifications subject to change without notice.

Figure 3. TekTouch™ mounts behind bezel, in front of CRT.

**Tek Display Devices:
Trusted technology
for leading edge
system integrators.**

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