TIP

Vishay Dale

Infrared Touch Panels
With Controller

VISHAY

TIP products are infrared touch panels designed to fit most flat panel display technologies. The touch panels are a matrix of infrared diodes and detectors, scanning electronics, micro-processor controller, bezel/optical filter assembly and hardware to mount the touch panel and controller to the flat panel display. These touch panels are ideal for many applications including medical instrumentation, machine or process controls, point of sale devices, public information displays, banking and military.

Vishay Dale® TIP touch panels have a unique patented scanning l9ogic system that makes them virtually immune to most lighting environments.

Optional PC based software (TBDriver, a DOS mouse emulator; and TWDriver, a Windows® mouse emulator) provide simple touch panel integration.

Windows® is a registered trademark of the Microsoft Corporation.

FEATURES

- Fast response time
- Flexible operating modes
- User transparent
- Rugged construction
- Sealed for environmental resistance
- Immune to high or changing ambient light
- RS-232C interface
- Pre-assembled - no assembly or disassembly required to mount display

ELECTRICAL SPECIFICATIONS

Voltage: + 12 VDC ± 5%.

Current: 400 mA typical.

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature: 0°C to + 55°C.

Storage Temperature: - 55°C to + 85°C.

Relative Humidity: 10 - 90% non-condensing.

INTERFACE SPECIFICATIONS

Type: RS-232C.

Data Rate: 300, 1200, 9600 baud and auto baud.

Word Format: 8 bits, no parity, 1 start bit, 1 stop bit.

ORDERING INFORMATION

TIP	**3216**	**FA**	**A**	**XXX**
MODEL	MATRIX	DISPLAY DESIGNATOR	FILTER *	DASH NUMBER (If Required)

TOUCH PANEL		DISPLAY					FILTER
MATRIX	TOUCH POINTS	PIXELS	TECHNOLOGY	MANUFACTURER	PART NUMBER	DESIGNATOR	
3216	63 x 31	512 x 256	ELD	Finlux Planar	MD512.256 EL6648MSS	FA PA	A = Non polarized, gray
3220	63 x 39	640 x 400	ELD	Finlux Planar Sharp	MD640.400 EL8358HR LJ640U27	FB PB SA	B = Polarized, gray C = Non polarized, amber D = Polarized, amber
3224	63 x 47	640 x 480	ELD	Sharp	LJ64ZU49	SB	S = Special - Contact factory
3526	69 x 51	640 x 480	ELD	Planar	EL7768MS	PC	

*Other user specified filters will be designated as "S". Contact factory for availability. Any "S" filter designation will require a factory assigned dash number suffix. Filters A-D are plastic. Glass filters may be available on selected models.

Note: Many additional touch panel options available to fit color LCD's and other display technologies. Please contact factory for assistance.

GENERAL DESCRIPTION

Each Vishay Dale® touch panel has infrared LED emitters and detectors along the X— and Y— axis, forming a grid of infrared light beams across the face of the display. The first two numbers of the TIP "matrix" number specify the number of vertical beams and the last two numbers specify the number of horizontal beams. The controller scans the emitter/detector pairs one at a time and determines whether both X and Y beams are blocked, indicating that a finger or stylus is present. (When beams are blocked on only one axis, they are ignored and not reported to the host.) The controller determines the coordinates of the touch point and reports them to the host computer. By interpolating a "virtual" beam between two physical beams, the number of touch points on each axis is effectively doubled. When an odd number of beams along either axis is blocked, the coordinate of the center physical beam is reported. When an even number of beams is blocked, the coordinate of the virtual beam in the center of the blocked beams is calculated and reported. The touch controller supports ENTER, EXIT, CONTINUOUS and TRACKING report modes or combinations of these modes. The controller also has a beeper output. Hardware handshaking, software handshaking, baud rates and auto-baud features are jumper selected. The user initializes the desired report modes and requests reports when needed.

Several optical filters are standard to provide the most cost effective filter for each application. "Non-standard" filters may be specified as well. The filter increases the contrast ratio of the display and protects the display face and electronics. Vishay Dale® can assist in recommending the optimum filter based on years of experience as a display manufacturer. The perimeter of the filter is bonded to the bezel and a bezel to front panel gasket is includedto provide a splash proof seal.

MATING CONNECTORS

	DALE	OTHER
J1	280105-02	AMP 746288-1
J5, J6	280108-07	MOLEX 22-01-3027 housing, 08-50-0114 terminals
J4	280108-06	MOLEX 22-01-3037 housing , 08-50-0114 terminals

PIN DESCRIPTION

J1 DATA CONNECTOR

PIN	SIGNAL	PIN	SIGNAL
1	RD (to touch panel)	2	Ground
3	+ 12 (optional)	4	+ 12 (optional)
5	CTS	6	Reserved
7	RTS	8	Reserved
9	Ground	10	TD (from touch panel)

J5, J6 POWER CONNECTOR

PIN	SIGNAL
1	+ 12 VDC
2	GND

J4 AUDIO FEED BACK CONNECTOR

PIN	SIGNAL
1	GND
2	Beeper Signal (active low)
3	+ 5 VDC

COMMAND SET (A bridged)

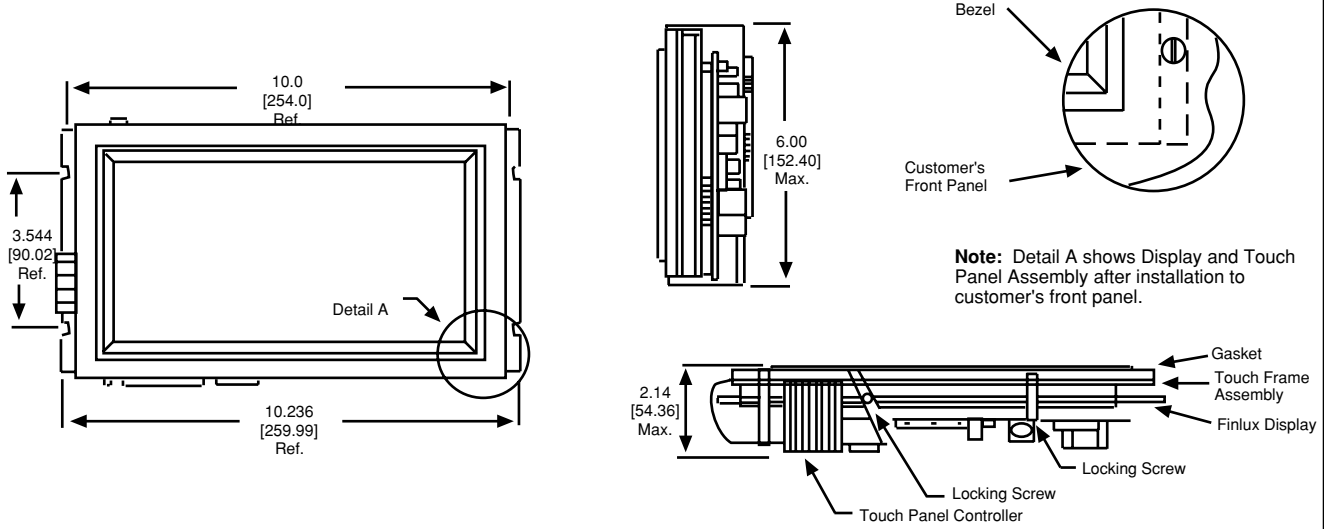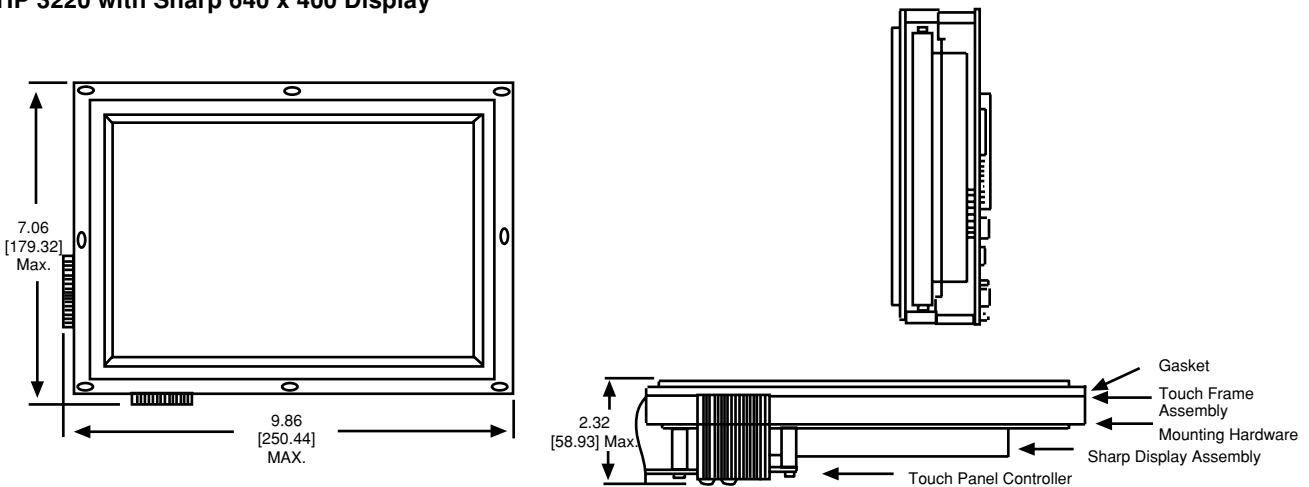|	
11H	DC1, Ctl Q, XON Software handshaking
13H	DC3, Ctl S, XOFF, Software handshaking
20H	Enable EXIT point mode
21H	Disable EXIT point mode (default)
22H	Enable ENTER point mode
23H	Disable ENTER point mode (default)
24H	Enable CONTINUOUS mode/disable TRACKING
25H	Disable CONTINUOUS mode (default) and TRACKING
26H	Enable touch panel
27H	Disable touch panel (default)
28H	Request Failed beam report
29H	Enable automatic report transfer
2AH	Disable automatic report transfer (default)
2BH	Request one coordinate report
2CH	Reset touch panel
2EH	Disable beeper (default)
2FxxH	Sound beep, xx = duration (00H to FFH)
34H	Enable TRACKING mode/disable CONTINUOUS

DIMENSIONS in inches [millimeters]

Touch Frame
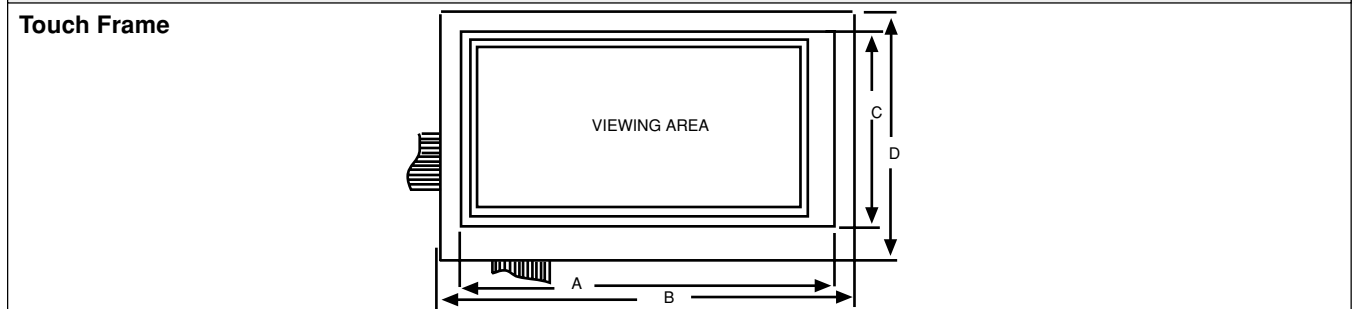
MODEL	B	C	D	VIEWING AREA
3216	9.608 [244.04]	4.86 [123.44]	5.67 [144.02]	7.9 x 4.1 [200.66 x 104.14]
3220	9.748 [247.60]	6.238 [158.45]	6.950 [176.53]	8.0 x 5.2 [203.20 x 132.08]
3224	9.680 [246.0]	6.687 [169.85]	7.086 [179.98]	7.8 x 5.9 [198.12 x 149.86]
3526	10.404 [264.26]	7.311 [185.70]	7.532 [191.31]	8.6 x 6.4 [218.44 x 162.56]

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DIMENSIONS in inches [millimeters]

TIP 3216 with Finlux 512 x 256 Display

10.0 [254.0] Ref

3.544 [90.02] Ref.

Detail A

10.236 [259.99] Ref.

6.00 [152.40] Max.

Bezel

Customer's Front Panel

Note: Detail A shows Display and Touch Panel Assembly after installation to customer's front panel.

2.14 [54.36] Max.

Gasket

Touch Frame Assembly

Finlux Display

Locking Screw

Locking Screw

Touch Panel Controller

TIP 3220 with Sharp 640 x 400 Display

7.06 [179.32] Max.

9.86 [250.44] MAX.

2.32 [58.93] Max.

Gasket

Touch Frame Assembly

Mounting Hardware

Sharp Display Assembly

Touch Panel Controller

TIP 3220 with Planar 640 x 400 Display

7.06 [179.32] Max.

10.60 [269.24] Max.

2.00 [50.80] Max.

Gasket

Touch Frame Assembly

Planar Display Assembly

Touch Panel Controller

Display DC/DC Converter
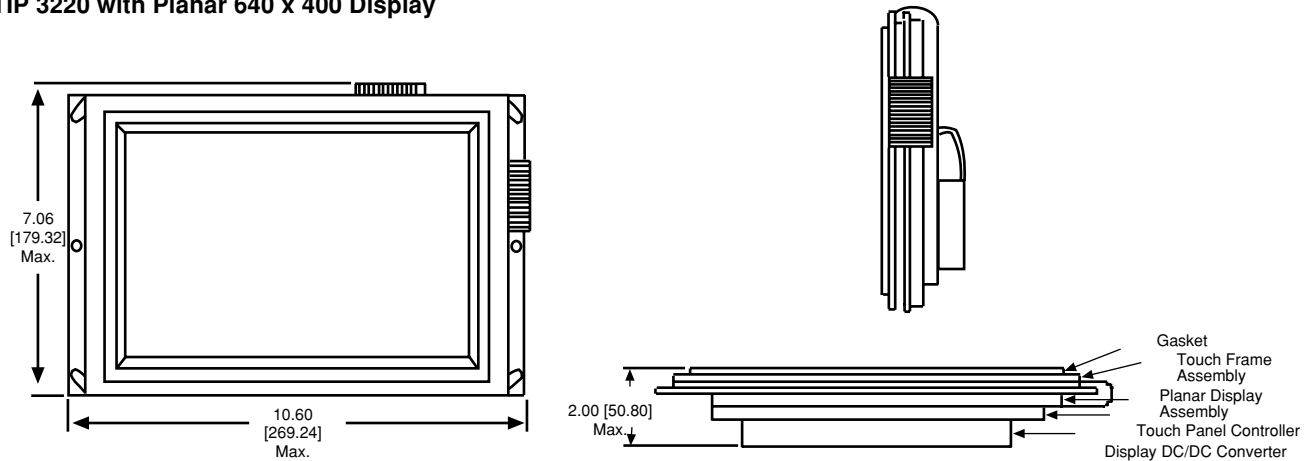
Contact Factory for Models not Shown.