GENERAL SPECIFICATIONS FOR 5-WIRE

5-Wire Resistive Analog Touch Screens

Optical	
Light Transmission	80% standard
Film Options	Anti-glare, anti-Newton ring standard
Electrical	
Power Level	5.5V DC
X Y Resistive Value	20 ~ 80Ω
Insulation Impedance	10MΩ minimum @ 25V DC
Linearity	±2% maximum (after adjustment made by control board or device driver)
Chattering Time	10 milliseconds maximum
Mechanical	
Touch Activation Force	1.47N
Available Sizes	10.4", 12.1" and 15.0"
Durability	
Surface Hardness	2H (JIS K5600)
Expected Operational Life	Writing: 50,000 minimum operations (approximately 30mm movement with stylus)
	Tapping: 10,000,000 operations minimum (using silicon rubber)
Environmental	
Operating Temperature Range	–20°C ~ +70°C (–4°F ~ +158°F)
Storage Temperature Range	–40°C ~ +80°C (-22°F ~ +158°F)
Relative Humidity	+60°C (+140°F), humidity 90%, 240 hours

FTAS00-104A5

FTAS00-121A5

FTAS00-150A5

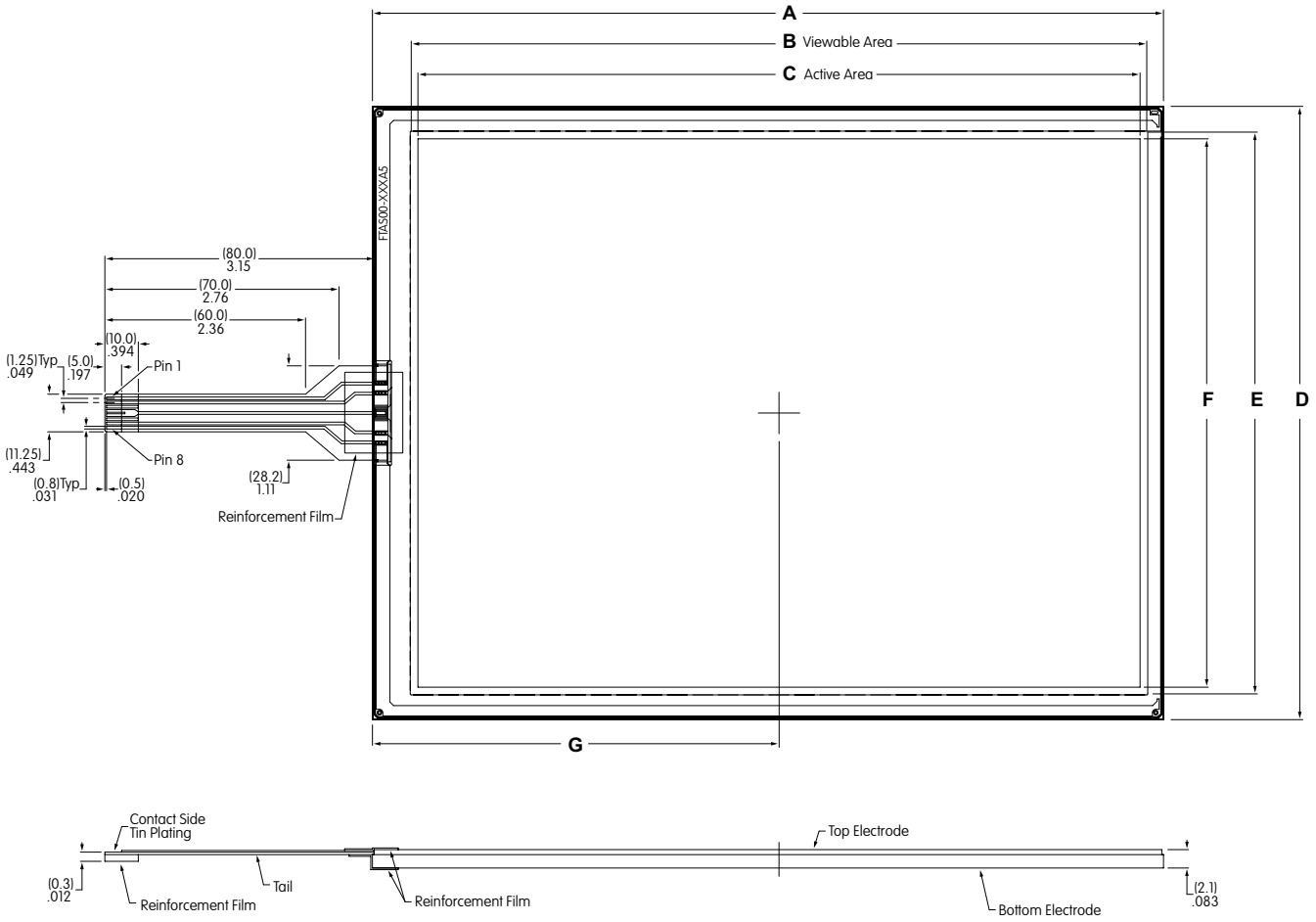
PART NUMBERS & DESCRIPTIONS FOR 5-WIRE

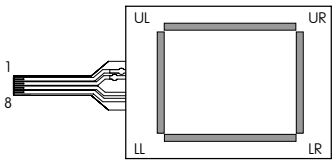
5-Wire Analog Touch Screens

Part Number	Screen Size in Inches	Key Area Dimensions	Viewing Area Dimensions	External Dimensions	Panel Thickness	Terminal Detail 8 Pin .049" (1.25mm) Pitch
FTAS00-104A5	10.4	8.5" x 6.45" (215.9mm x 163.9mm)	8.66" x 6.61" (219.9mm x 167.9mm)	9.31" x 7.22" (236.5mm x 183.3mm)	.083" (2.1mm)	Length 3.15" (80.0mm)
FTAS00-121A5	12.1	9.8" x 7.37" (249.0mm x 187.2mm)	9.94" x 7.50" (252.4mm x 190.6mm)	10.52" x 8.1" (267.1mm x 205.8mm)	.083" (2.1mm)	Length 3.15" (80.0mm)
FTAS00-150A5	15.0	12.05" x 9.06" (306.1mm x 230.1mm)	12.19" x 9.19" (309.5mm x 233.5mm)	12.79" x 9.79" (324.8mm x 248.7mm)	.083" (2.1mm)	Length 3.15" (80.0mm)

Note: See web site for dimensioned drawings for all 5-Wire Analog Touch Screens.

GENERAL SPECIFICATIONS FOR 5-WIRE





UL, LL, UR, LR: Bottom Electrode Terminal
SENSE: Top Electrode Terminal

Pins	Signal
1	UR
2	UL
3	NC
4,5	SENSE
6	NC
7	LL
8	LR

5-Wire Analog Touch Screen Dimensions

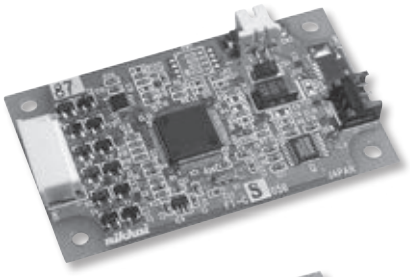
Part Number	Screen Size in Inches	Dim A	Dim B Viewable Area	Dim C Active Area	Dim D	Dim E Viewable Area	Dim F Active Area	Dim G Center of Active Area
FTAS00-104A5	10.4	9.31 (236.5) +/–0.3	8.66 (219.9)	8.50 (215.9)	7.22 (183.3) +/–0.3	6.61 (167.9)	6.45 (163.9)	4.79 (121.55)
FTAS00-121A5	12.1	10.52 (267.1) +/–0.3	9.94 (252.4)	9.80 (249.0)	8.10 (205.8) +/–0.3	7.50 (190.6)	7.37 (187.2)	5.37 (136.4)
FTAS00-150A5	15.0	12.79 (324.8) +/–0.3	12.19 (309.5)	12.05 (306.1)	9.79 (248.7) +/–0.3	9.19 (233.5)	9.06 (230.1)	6.49 (164.95)

5-Wire Touch Screen Controller Boards & Drivers

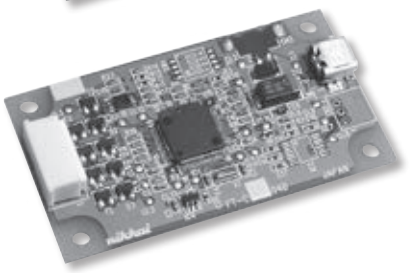
DISTINCTIVE CHARACTERISTICS

- High Quality and Reliability
- Easy Integration Replacing Mouse Functionality
- Compatible with Control Board USB/RS232C
- Device Driver Compatible with Vista and Windows XP Operating Systems

Controller Boards Available for RS232C



Controller Boards Available for USB



NKK offers controller boards compatible with USB or with RS232C. See web site or contact factory for specifications and technical data.

Controller Boards		
Type	**Part No.**	**Communication Protocol**
5-Wire	**FTCS05B**	RS232C
5-Wire	**FTCU05B**	USB

See web site for dimensioned drawings or technical data for any of the controller boards and drivers.

IC & Accessories

DISTINCTIVE CHARACTERISTICS

- Interface: USB and RS232C
- High Speed and Accuracy
- Built-in Calibration Function
- Data Function Removal Built In to Eliminate Noise

IC FTCSU564

The IC is for use with the 5- and 4-wire transparent touch screens, and is available for those who prefer to design their own controller boards. When the screen is touched, it recognizes the position of the touch by the level of analog voltage detected by the A/D. The A/D converter receives the value and sends a set of coordinate values as serial data or USB.

See web site or contact factory for IC specifications.

OPTIONAL ACCESSORIES

AT713 Receptacle Connector

This Receptacle Connector with code connects to RS232C communication of the controller boards.

AT714 Receptacle Connector

AT714 is a Receptacle Connector with code to connect to power source of the control boards.

For more details and dimensioned drawings of the accessories, go to the web site or call our engineering support personnel.

Below are some general precautions for the 5-wire & 4-wire touch screen devices. Please check web site for complete documentation.

Installation (4-wire, 5-wire)

- Do not pull on the tail. Do not apply stress to the tail area.
- Avoid vibration or shock.
- The touch screen mounting should not be loose.
- Ensure there are no burrs around the edges of the case or housing that can cause false actuation. The edges of the case or housing should not enter the keying area.
- The case or housing and upper electrode should have a space of about 0.5 mm to accommodate expansion or shrinkage due to humidity variances. If a shock barrier is used do not press hard on the upper electrode area. Any shock barrier should be installed more than 0.6 mm above the screen.
- To secure the touch screen, secure the lower portion with an item such as the LCD display panel. Do not secure the upper electrode with double-sided tape or similar items to avoid stress that can damage the upper or lower electrode.
- In order to balance upper and lower pressure, an air vent may be installed. Ensure that no liquid or oil will enter into the device.

Handling Precautions (4-wire, 5-wire)

- When opening product, take precaution with up/down and front/back directions. Glass edges are not chamfered, corners or edges can be sharp. Wear gloves when handling the product.
- Do not pick up the product by the tail or pull the tail area.
- Use gloves or finger cots to prevent fingerprints on surface.
- When handling the product, hold it outside of the viewing area.
- Avoid stacking multiple products or placing other items on the product.
- Remove protective film after installation is completed.

Operating Precautions (4-wire, 5-wire)

- Only operate with fingers or a touch screen stylus.
- Do not press hard with pen or similar objects between viewing area and key area.

Design Precautions (4-wire, 5-wire)

- With analog type, resistive value change can dislocate the input area. Input area can be calibrated with software.
- When installing on top of a LCD, noise from the display device can create misoperation. To avoid noise, implement actions such as grounding the display device frame.
- Do not create software for simultaneous touch points as analog type will read the center point between two touch points.
- When used to draw a line, analog type will have a break at dot spacer. Compensate for this with software.

Other Precautions (4-wire, 5-wire)

- Clean with a soft cloth and ethanol. Do not use any cleaning agents other than ethanol.
- Store product in original package and store at the temperature and humidity range specified.
- Do not store in an environment with acids or other corrosive gases or dew.
- Not suited for use in critical control systems such as nuclear power, aerospace, medical or transportation equipment, without proper failsafe design consideration.

Handling Precautions (5-wire)

- NKK warranties the 5-wire touch panel when it is used with the NKK control board and driver. Do not use third party control boards.
- 5-wire devices can misalign cathode position or touch position even after calibration. See web site for details.
- Create a larger input area. If you have the input button at the edge of a screen, it might not operate properly.
- Complete 9 point calibration with NKK driver. If more precision is desired, 25 point calibration is recommended.

Handling of Controller Board (5-wire)

- Warranty for one year after delivery. We do not warranty the controller board unless used with NKK touch panel.
- Use arc prevention to protect device from static electricity.
- Power source should be activated after host and touch panel are connected.
- When inserting connector CN1 and touch panel tail, be sure the slider of connector CN1 is pulled. Do not pull more than 10 times.
- Do not alter the product.
- Do not use any commands other than the ones specified in specifications.
- Place the product away from noise source (such as inverter from LCD operation) since tail can be affected by noise.
- If device driver (USB) does not work after installation, reboot the host computer while connected to the controller board.
- This product does not support suspended mode (USB).
- Protocol of USB transmission is one frame per one transaction.
- Contact factory if not using protocol above.