Resistive Touch Screens

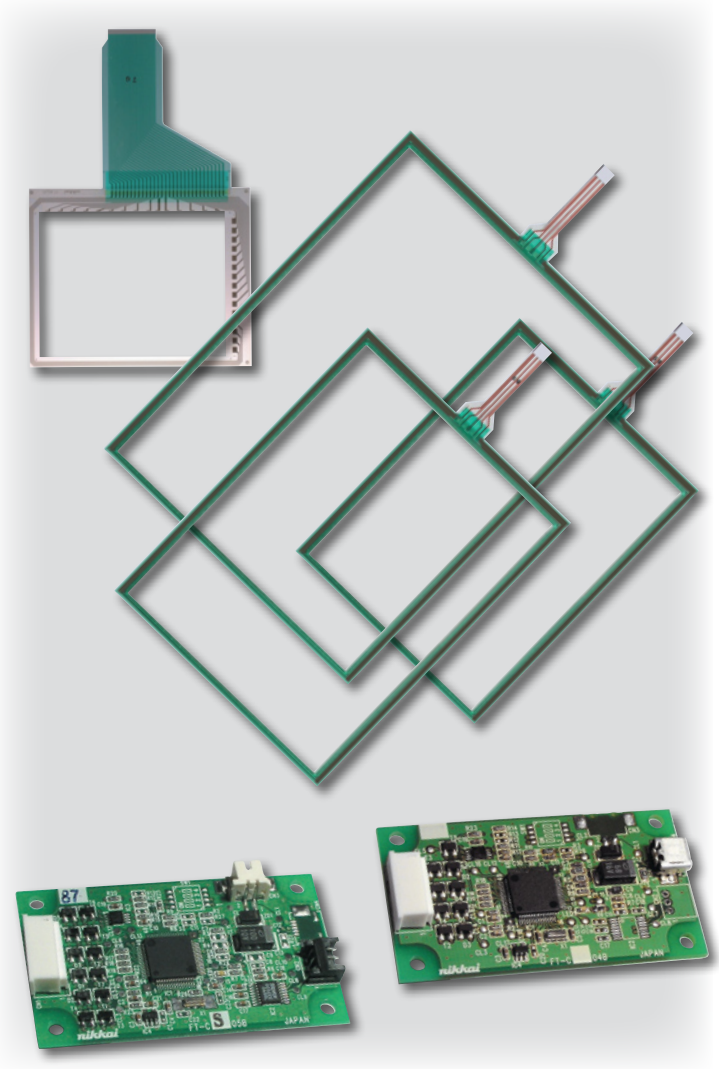
Five-Wire, Four-Wire & Digital Solutions

NKK's transparent touch screens are engineered to complement the application of choice while offering superior durability and flexibility. With options in multiple sizes, and choices of input by finger, gloved finger or stylus, we maintain a consistent focus on impeccable quality and value added solutions with the diverse needs of our customers at the forefront.

Whether an application requires the four- or five-wire technology, the features include metal tails (analog), contact reliability with a connector, and ANR film, eliminating many of the typical visual artifacts. The film surface is non-glare and hard coated for ease of use and integrity of the surface.

Additional benefits of NKK's five-wire touch screens include:

- Screens highly resistant to static electricity and noise pollution
- Drift-free operation despite any temperature fluctuation
- Greater touch point density translating to more precision and reduction of false actuations
- Quicker response time



DISTINCTIVE CHARACTERISTICS

- Wide Range of Available Sizes
- Custom Solutions a Specialty
- Digital and Analog Solutions
- Controllers Available
- Anti-Newton Ring (ANR) Technology
- Design Minimizes Visual Artifacts
- RoHS Compliant

APPLICATIONS

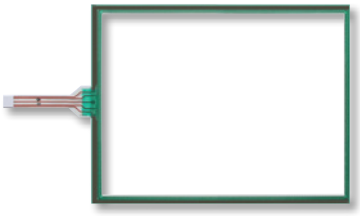
- Information Kiosks
- Industrial Automation
- Banking, Exchange Management Systems
- Broadcast
- Office Automation
- Medical Equipment
- Hand-held Devices
- Hospitality and Restaurant
- Gaming

Touch Screens

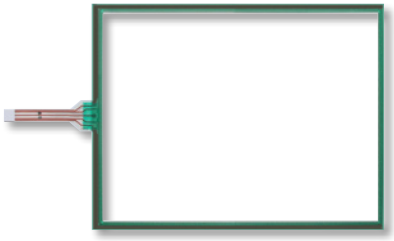
GENERAL SPECIFICATIONS FOR 5-WIRE

Five-Wire Resistive Analog Touch Screens

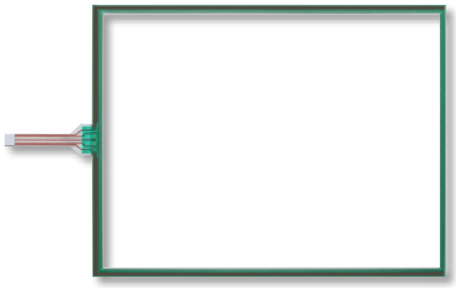
Optical	
Light Transmission	80% standard
Film Options	Anti-glare, anti-Newton ring standard
Electrical	
Power Level	5.5V DC
X Y Resistive Value	20 ~ 80Ω
Insulation Impedance	10MΩ minimum @ 25V DC minimum
Linearity	±2%
Chattering Time	10 milliseconds maximum
Mechanical	
Touch Activation Force	1.5 grams typical
Available Sizes	10.4", 12.1" and 15.0"
Durability	
Surface Hardness	2H (JIS K5600)
Expected Operational Life	Vibration: 50,000 minimum operations (approximately 30mm movement with stylus)
	Shock: 1,000,000 operations minimum (using silicon rubber with 4.9N force)
Environmental	
Operating Temperature Range	–20°C ~ +70°C (–4°F ~ +158°F)
Storage Temperature Range	–30°C ~ +70°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

Five-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)

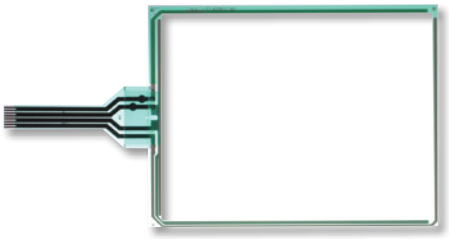
Note: See web site for dimensioned drawings for the Five-Wire Analog Touch Screens.

Touch Screens

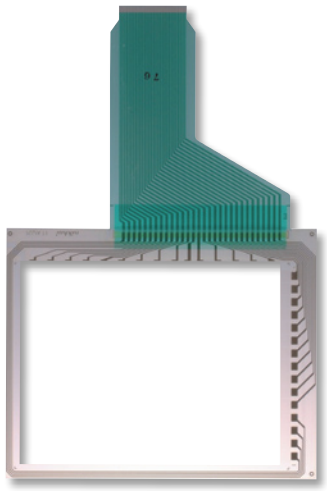
GENERAL SPECIFICATIONS FOR 4-WIRE

Four-Wire Analog or Digital Touch Screens

Optical	
Light Transmission	Analog: 80% standard Digital: 78% standard
Film Options	Anti-glare, anti-Newton ring standard
Electrical	
Power Level	1mA @ 5V DC (resistive load)
Insulation Impedance	10MΩ minimum @ 25V DC minimum
Linearity	3% maximum (analog)
Chattering Time	10 milliseconds maximum
Mechanical	
Touch Activation Force	150 grams maximum typical
Available Sizes	5.7″ ~ 15″ standard
Durability	
Surface Hardness	2H (JIS K5600)
Expected Operational Life	1,000,000 operations minimum
Environmental	
Operating Temperature Range	–10°C ~ +60°C (+14°F ~ +140°F)
Storage Temperature Range	–20°C ~ +70°C (–4°F ~ +158°F)
Relative Humidity	+60°C (+140°F), humidity 90%, 240 hours



Analog
FTAS00-57AS4



Digital
FTAS225-57AN

PART NUMBERS & DESCRIPTIONS FOR 4-WIRE

Four-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
FTAS00-57AS4	5.7	4.54″ x 3.40″ (115.2mm x 86.4mm)	4.76″ x 3.61″ (121.0mm x 91.6mm)	5.16″ x 3.98″ (131.0mm x 101.0mm)	.055″ (1.4mm)	Length 2.56″ (65.0mm)
FTAS00-65AS4	6.5	5.20″ x 3.90″ (132.0mm x 99.0mm)	5.43″ x 4.13″ (138.0mm x 105.0mm)	5.91″ x 4.57″ (150.0mm x 116.0mm)		Length 2.56″ (65.0mm)
FTAS00-84AS4	8.4	6.73″ x 5.10″ (170.9mm x 129.6mm)	6.95″ x 5.33″ (176.5mm x 135.4mm)	7.34″ x 5.69″ (186.5mm x 144.4mm)	.083″ (2.1mm)	Length 3.15″ (80.0mm)
FTAS00-104AS4	10.4	8.32″ x 6.24″ (211.2mm x 158.4mm)	8.47″ x 6.39″ (215.0mm x 162.4mm)	8.88″ x 6.75″ (225.6mm x 171.4mm)		Length 3.15″ (80.0mm)
FTAS00-104AV4	10.4	8.35″ x 6.28″ (212.2mm x 159.4mm)	8.52″ x 6.43″ (216.4mm x 163.4mm)	8.92″ x 7.21″ (226.5mm x 183.0mm)		Length 3.15″ (80.0mm)
FTAS00-121A4	12.1	9.72″ x 7.30″ (246.76mm x 185.32mm)	10.04″ x 7.53″ (255.0mm x 191.32mm)	10.67″ x 8.07″ (271.0mm x 205.0mm)		Length 3.15″ (80.0mm)
FTAS00-121AS4	12.1	9.69″ x 7.26″ (246.0mm x 184.5mm)	9.84″ x 7.42″ (250.0mm x 188.5mm)	10.28″ x 7.80″ (261.0mm x 198.0mm)		Length 3.15″ (80.0mm)
FTAS00-150A4	15.0	12.05″ x 9.06″ (306.1mm x 230.1mm)	12.21″ x 9.25″ (310.0mm x 235.0mm)	12.91″ x 9.84″ (328.0mm x 250.0mm)		Length 3.15″ (80.0mm)

Note: Input methods are finger or stylus.

* 4 pin available with 1.0mm or 1.25mm pitch. Contact factory for details.

Digital Touch Screen

Part Number	Screen Size in Inches	Key Area Dimensions	Viewing Area Dimensions	External Dimensions	Panel Thickness	Terminal Detail 30 Pin .039″ (1.0mm) Pitch
FTAS225-57AN	5.7	4.54″ x 3.39″ (115.2mm x 86.04mm)	4.80″ x 3.62″ (122.0mm x 92.0mm)	5.51″ x 4.45″ (140.0mm x 113.0mm)	.083″ (2.1mm)	Length 3.94″ (100.0mm)

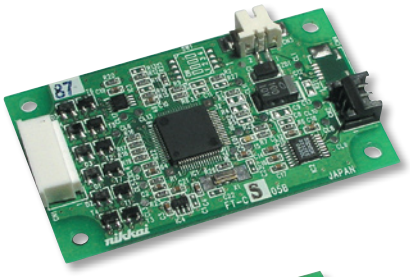
Notes: Input method is finger. Number of keys for Digital Touch Screen: 15 x 15.
See web site for dimensioned drawings for the Four-Wire Analog or Digital Touch Screens.

Touch Screen Controller Boards & Drivers

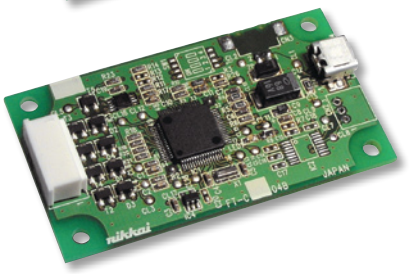
DISTINCTIVE CHARACTERISTICS

- High Quality and Reliability
- Easy Integration Replacing Mouse Functionality
- Compatible with Control Board USB/RS2
- 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, and for both the 5- and 4-wire touch screens. See web site or contact the factory for specifications and technical data.

Controller Boards		
Type	**Part No.**	**Communication Protocol**
5-Wire	**FTCS05B**	RS232C
5-Wire	**FTCU05B**	USB
4-Wire	**FTCS04B**	RS232C
4-Wire	**FTCU04B**	USB

Notes: Controller Board for Digital Touch Screen user supplied.

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

Five- or Four-Wire Touch Screen ICs & Accessories

DISTINCTIVE CHARACTERISTICS

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

IC for 5-Wire or 4-Wire 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 the 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 the factory for IC specifications.

OPTIONAL ACCESSORIES

AT713 Receptacle Connector

This Receptacle Connector with code connects to RS232C communication of the controller boards. It is compatible with FTCS04B and FTCS05B (5-wire) or FTCS04A and FTCS04A2 (4-wire).

AT714 Receptacle Connector

AT714 is a Receptacle Connector with code to connect to power source of the control boards FTCS04B and FTCS05B (5-wire).

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

www.nkkswitches.com
1.877.2BUYNKK (228.9655)

0409
Rev1009