



*If* you have been out of touch with touch screens lately, get in touch with NKK Switches! NKK's gallery of touch screens has just been updated, and is now more extensive than ever.

NKK has expanded their selection in the most popular sizes, while you can continue to expect competitive pricing and unsurpassed customer service.

In this brief overview, the ZE Series and FT Series are featured. The FT Touch Screens have several versions; and the newly introduced ZE Series focuses on the multi-touch resistive touch screen. Each product type assures quality and durability along with the reliability of solid solutions and support.

## *Inside*

### **ZE Series**

Multi-Touch Resistive  
Touch Screens



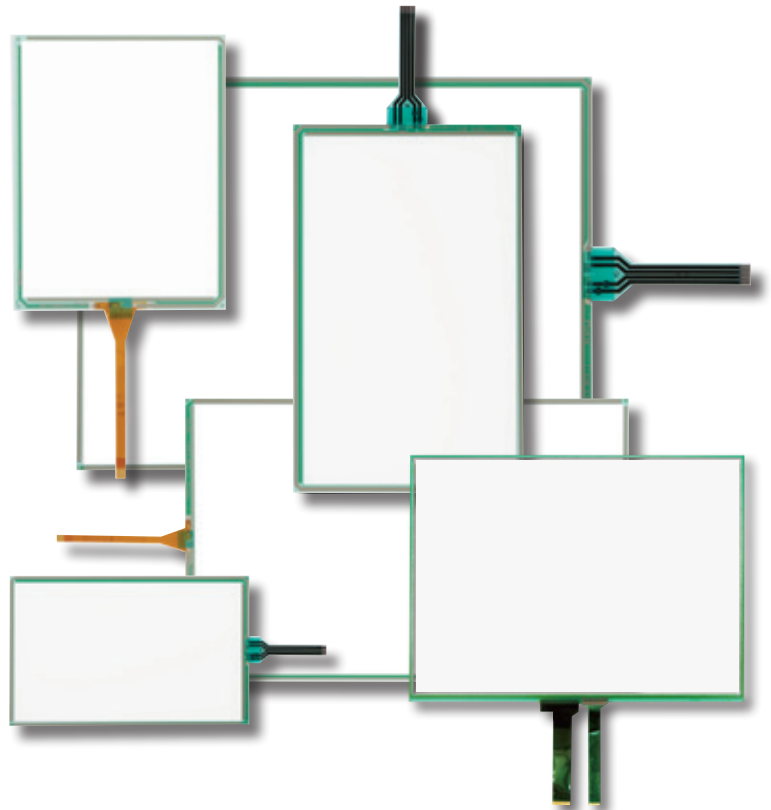
### **FT Series**

4-Wire Resistive Touch Screens

- With FPC Tails
- With Printed Tails

5-Wire Resistive Touch Screens

- With FPC Tails



# Touch Screens

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## ZE Series Multi-Touch Resistive Touch Screens 4-Wire Solutions

Benefits of multi-touch touch screens include:

- Light touch operation similar to a smartphone
- Highly resistant to noise; exceptional durability; 10,000,000 operations minimum
- Dual touch controller boards available, specifically designed for ZE Series
- Popular sizes in line with trending wide screens

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## FT Series Resistive Touch Screens 4-Wire & 5-Wire Solutions

Benefits of 4-wire touch screens include:

- Quicker response time
- Options in multiple sizes; choices of input by finger, gloved finger or stylus
- Anti-Newton Ring (ANR) film minimizes visual artifacts. Film surface is non-glare and resin coated for ease of use and integrity of surface
- Wide range of size options. Controller boards, drivers, connectors and accessories available.

Benefits of 5-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
- Superior durability and flexibility
- Controller boards and accessories available

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*Find complete dimensioned drawings and specifications at [NKK Switches/Products/Touch Screens](http://NKK Switches/Products/Touch Screens).*



## ZE Series: Multi-Touch Resistive Touch Screens

### General Specifications

#### Electrical Capacity (Resistive Load)

**Power Level:** 6V DC maximum  
**Maximum Current:** Upper electrode 100mA/division number; lower electrode 100mA/division number; between upper and lower electrodes 0.5mA

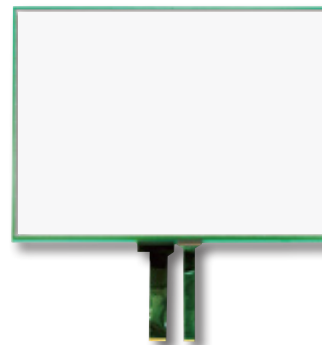
#### Other Ratings

**Linearity:** ±2.5% max. (4-pt. calibration)  
**Expected Operational Life:** Input (finger): 10,000,000 operations min.; Character (stylus): 100,000 operations min.  
**Touch Activation Force:** 0.03 ~ 0.3N maximum  
**Chattering Time:** 10 milliseconds max. at ON/OFF  
**Light Transmission:** 79% typical (value at full wavelength)  
**Surface Hardness:** 3H minimum (JIS K5400)

#### Environmental Data

**Operating Temp. Range:** -20°C ~ +80°C (-4°F ~ +176°F)  
**Operating Humidity Range:** -20°C ~ +60°C (-4°F ~ +140°F)  
 Less than 90% RH. Exceeding 60°C 133.8g/m<sup>3</sup>  
**Storage Temp. Range:** -40°C ~ +80°C (-40°F ~ +176°F)  
**Storage Humidity Range:** -40°C ~ +60°C (-40°F ~ +140°F)  
 Less than 95% RH. Exceeding 60°C 142.9g/m<sup>3</sup>

Screen Sizes	Also Available
7.0"	<ul style="list-style-type: none"> <li>• Controller Boards for USB</li> <li>• Controller Boards &amp; Drivers</li> <li>• Controller Cable</li> </ul>
10.1"	
15.6"	



#### Applications

- Industrial Automation
- Communication Systems
- POS, Cash Registers
- ATMs
- Medical Equipment
- Gaming/Entertainment
- Broadcast
- Food Service

## FT Series: 4-Wire Resistive Touch Screens with FPC Tails

### General Specifications

#### Electrical Capacity (Resistive Load)

**Power Level:** 1mA @ 5V DC

#### Other Ratings

**XY Resistive Value:** 250 ~ 850Ω; Wide: 120 ~ 1,500Ω  
**Linearity:** ±1.5% maximum  
**Insulation Impedance:** 10MΩ minimum @ 25V DC  
**Expected Operational Life:** Writing: 50,000 operations minimum (approximately 30mm movement with stylus). Tapping: 1,000,000 operations minimum (pressing force 4.9N using silicone rubber, hardness 60°)  
**Touch Activation Force:** 1.47N maximum  
**Chattering Time:** 10 milliseconds maximum  
**Light Transmission:** 80% typical (Touch Panel portion)  
**Surface Hardness:** 2H minimum (JIS K5600)

#### Environmental Data

**Operating Temp. Range:** -20°C ~ +70°C (-4°F ~ +158°F)  
**Storage Temp. Range:** -40°C ~ +80°C (-40°F ~ +176°F)  
**Relative Humidity:** +60°C (+140°F), humidity 90%, 240 hours

Screen Sizes	Also Available
5.7"	<ul style="list-style-type: none"> <li>• Controller Board for RS232C</li> <li>• Controller Board for USB</li> <li>• Controller Boards &amp; Drivers</li> <li>• IC Chip &amp; Accessories</li> <li>• Receptacle Connector &amp; Wire Assembly for RS232C</li> <li>• Receptacle Connector &amp; Wire Assembly for Power Supply</li> </ul>
6.5"	
8.4"	
10.4"	
10.6"	
12.1"	
15"	
15.6"	
19"	



#### Applications

- Industrial Automation
- Office Automation
- Gaming/Entertainment
- Medical Equipment
- Broadcast

# Touch Screens

## FT Series: 4-Wire Resistive Touch Screens with Printed Tails

### General Specifications

#### Electrical Capacity (Resistive Load)

Power Level: 1mA @ 5V DC

#### Other Ratings

XY Resistive Value: 250 ~ 850Ω; Wide: 120 ~ 1,500Ω

Linearity: ±1.5% maximum

Insulation Impedance: 10MΩ minimum @ 25V DC

Expected Operational Life: Writing: 50,000 operations minimum (approximately 30mm movement with stylus). Tapping: 1,000,000 operations minimum (pressing force 4.9N using silicone rubber, hardness 60°)

Touch Activation Force: 1.47N maximum

Chattering Time: 10 milliseconds maximum

Light Transmission: 80% typical (Touch Panel portion)

Surface Hardness: 2H minimum (JIS K5600)

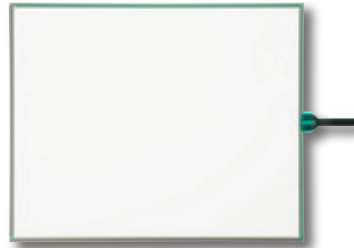
#### Environmental Data

Operating Temp. Range: -20°C ~ +70°C (-4°F ~ +158°F)

Storage Temp. Range: -40°C ~ +80°C (-40°F ~ +176°F)

Relative Humidity: +60°C (+140°F), humidity 90%, 240 hours

Screen Sizes	Also Available
5.7"	<ul style="list-style-type: none"> <li>• Controller Board for RS232C</li> <li>• Controller Boards &amp; Drivers                             <ul style="list-style-type: none"> <li>• IC Chip &amp; Accessories</li> </ul> </li> <li>• Receptacle Connector &amp; Wire Assembly for RS232C</li> <li>• Receptacle Connector &amp; Wire Assembly for Power Supply</li> </ul>
6.5"	
8.4"	
10.4"	
10.6"	
12.1"	
15"	
15.6"	
19"	



#### Applications

- Medical Equipment
- Hospitality & Restaurant
- Hand-held Devices
- Broadcast
- Industrial Automation
- Banking

## FT Series: 5-Wire Resistive Touch Screens with FPC Tails

### General Specifications

#### Electrical Capacity (Resistive Load)

Power Level: 1mA @ 5.5V DC

#### Other Ratings

XY Resistive Value: 20 ~ 80Ω

Linearity: ±2.0% maximum

Insulation Impedance: 10MΩ minimum @ 25V DC

Expected Operational Life: Writing: 50,000 operations minimum (approximately 30mm movement with stylus) Tapping: 10,000,000 operations minimum (pressing force 4.9N using silicone rubber, hardness 60°)

Touch Activation Force: 0.05 ~ 0.8N

Chattering Time: 10 milliseconds maximum

Light Transmission: 80% typical (Touch Panel portion)

Surface Hardness: 2H minimum (JIS K5600)

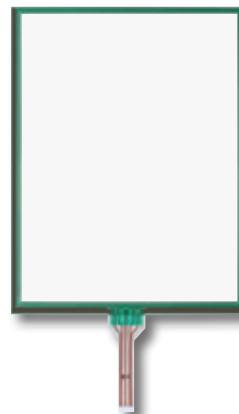
#### Environmental Data

Operating Temp. Range: -20°C ~ +70°C (-4°F ~ +158°F)

Storage Temp. Range: -40°C ~ +80°C (-40°F ~ +176°F)

Relative Humidity: +60°C (+140°F), humidity 90%, 240 hours

Screen Sizes	Also Available
10.4"	<ul style="list-style-type: none"> <li>• Controller Boards &amp; Drivers                             <ul style="list-style-type: none"> <li>• IC Chip &amp; Accessories</li> </ul> </li> <li>• Receptacle Connector &amp; Wire Assembly for RS232C</li> <li>• Receptacle Connector &amp; Wire Assembly for Power Supply</li> </ul>
12.1"	
15"	



#### Applications

- Information Kiosks
- Industrial Automation
- Banking/Exchange Management Systems
- Gaming/Entertainment
- Medical Equipment
- Hospitality & Restaurant
- Hand-held Devices
- Office Automation