FUJITSU

THE POSSIBILITIES ARE INFINITE

FUJITSU, TOUCH PANELS

simple solutions in a complex world

Fujitsu touch panels feature:

- High operating temperature for automotive
- Film/Glass and Film/Film/Glass
- Transparency up to 92%
- Various coatings
- Polarizer options for sunlight readability
- Anti-Newton ring technology
- Pen and finger input
- Sizes up to 17 inch

Fujitsu Touch Panels

Fujitsu is a one of the leading touch panel manufacturers. Our production process is based on the best choice of industry materials, achieving an outstanding optical and mechanical performance.

We have developed a wide range of touch panels to fit many applications for various operating environments. We can supply touch panels suitable for heavy industrial environment, computing or the POS world. For mobile phones and PDAs we can offer panels that are shock resistant with various thicknesses, which are important factors when designing mobile applications. Fujitsu also manufactures panels that can withstand high temperatures, suitable for automotive applications.

Fujitsu offers all of their resistive touch panel products in RoHS-compliant versions.

The Benefits

Fujitsu touch panels offer various major advantages:

- **High optical quality**
  - Standard transparency 80% to 82%
  - Anti-Glare coating standard
  - Anti-Newton ring technology
  - Micro dot spacer almost invisible

- **High mechanical quality**
  - Sealed construction preventing dirt and dust entering the panel
  - Hard top coating preventing scratches

- **Customization options**
  - All sizes from 2 to 17 inch
  - Anti-Reflective coating for 87% and 92% transparency
  - Clear coating
  - Chemically strengthened glass
  - Thick glass for shock resistance
  - Linear polarizer for sunlight readability
  - Anti-Smudge coating allowing easy cleaning and avoiding fingerprints on the screen

CAPABILITY OVERVIEW
RESISTIVE TOUCH PANELS

Select The Touch Panel Type That Fits Your Needs

OVERVIEW OF TOUCH PANEL TYPES

Material	Wires	Description	Pen / finger	Life time	Size	Transparency
Film/Glass	7-wire	Long life time Auto-calibration Little aging Little temperature drift	Pen & finger	10 Million touches	5 - 17”	80% standard 90% max.
Film/Glass	4-wire	Industry standard	Pen & finger	1 Million touches	2 - 17”	80% standard 92% max.
Film/Glass automotive	4-wire	High temperature range	Finger	1 Million touches	3.5 - 8”	80% standard
Film/Film/Plastic	4-wire	Unbreakable Protecting the LCD screen	Pen & finger	1 Million touches	1 - 7”	77% standard 85% max.

All touch panels can be offered with customized sizes and optical options to fit customers’ requirements. For those looking for small quantitites or fast development Fujitsu can offer a selection of standard touch panels that can be ordered from the shelf. Furthermore controller boards and drivers are available making integration easier.

CHARACTERISTICS 7-WIRE & 4-WIRE TOUCH PANELS, FILM/GLASS

Item	Description	7-wire (550 SERIES)	4-wire (554 SERIES)
Optical	Transparency	80% - 82%	80% - 82%
	Haze	5% typical	5% typical
Mechanical	Hardness	3 H min	3 H min
	Linearity	1.5% to 3.5%	1.5% to 3.5%
	Writing life	1 million	100,000 words
	Knocking life	10 million	1 million words
Electrical	Power supply	+5 V or 3.3 VDC	+5 V or 3.3 VDC
	Resolution	0.1 mm (0.004 in)	0.1 mm (0.004 in)
	Sampling	192 pps (variable)	192 pps (variable)
	Transmission rate	9,600 bps	9,600 bps
	Consumption	20 mA max.	20 mA max.
	Insulation resistance	10M Ohm	10M Ohm
Environmental	Operation temperature	-5°C - +60°C	-2°C - +55°C
	Storage temperature	-30°C - +70°C	-20°C - +70°C
	Operating humidity	20% - 90%	20% - 85%
	Storage humidity	10% - 90%	10% - 90%

7-Wire Touch Panels, Film/Glass

Fujitsu’s 7-wire touch panels are available from 5 to 17 inch. Our 7-wire touch panels can handle up to 10 million plus touches with an operating temperature of -5°C to +60°C and storage from -30°C to +70°C. This unique technology has been developed especially for high demanding applications such as heavy industry, or car diagnostics tools. It combines the advantages of the 5- and 8-wire technologies: the resistance to a higher number of input and compensation of temperature and aging drift. Even when the top layer would be cut, our 7-wire touch panel still functions. The panels have the same high optical quality as our 4-wire touch panels, standard sizes are 8.4, 10.4, 12.1, 15 and 17 inch.

7-WIRE SERIES, FILM/GLASS

Glass	Part number	Size	FPC tail	Input
1.8 mm	N010-0551-T642	10.4”	100 mm	Pen & finger, light touch
	N010-0551-T253	12.1”	100 mm	Pen & finger, light touch
	N010-0510-T236	15.0”	100 mm	Pen & finger
	N010-0510-T303	17.0”	220 mm	Pen & finger
1.1 mm	N010-0550-T345	8.4”	46 mm	Pen & finger
	N010-0550-T627	10.4”	100 mm	Pen & finger, light touch
	N010-0551-T255	12.1”	100 mm	Pen & finger, light touch
	N010-0510-T216	15.0”	100 mm	Pen & finger

Control board:
- N16B-0558-B280 (Serial)
- N16B-0558-B740 (USB)

Control chip:
- N010-0559-V026 (Serial)
- NC41120-0017 (USB)
  (PS2 optional)

4-Wire Touch Panels, Film/Glass

Fujitsu's 4-wire touch panels are available from 2 to 17 inch and can handle up to 1 million touches with an operating temperature of -2°C to +55°C and storage from -30°C to +70°C. The 4-wire technology comes in a standard version with anti-scratch hard-top coating, an anti-glare finish avoiding the mirror effect. The standard transparency for these touch panels is 82%. The technology used allows pen and finger input making the touch panels suitable for PDA's, cash registers and many other applications.

4-WIRE SERIES, FILM/GLASS

Glass	Part number	Size	FPC tail	Input
0.7 mm	N010-0554-T703	3.8"	21 mm	Pen & finger
	N010-0554-T504	8.4"	75 mm	Pen & finger
1.1 mm	N010-0554-T009	5.7"	50 mm	Pen & finger
	N010-0555-T043	6.4"	61 mm	Pen & finger
	N010-0555-T943	7.9"	61 mm	Pen & finger
	N010-0554-T347	10.4"	75 mm	Pen & finger
	N010-0554-T805	12.1"	75 mm	Pen & finger
	N010-0554-T902	15.0"	61 mm	Pen & finger

Control board:
- N16B-0558-B270 (Serial)
- N16B-0558-B730 (USB)

Control chip:
- N010-0559-V036 (Serial)
- NC41120-0018 (USB)
  (PS2 optional)

Automotive 4-Wire Touch Panels, Film/Glass

The automotive film/glass touch panels are available from 3.5 to 8 inch, they can handle 1 million finger touches (not made for intensive pen application) and have a high operating temperature range of -30°C to +85°C, the storage temperature range is -40°C to +95°C. Our standard product sizes are 6.5 and 7 inch in 16/9 format. They have the same optical quality as our standard 4-wire products including an anti-scratch hard top coating with an anti-glare finish avoiding mirror effect. To solve the problem of sunlight decreasing legibility, experienced in the automotive applications, Fujitsu developed a linear polarizer that significantly reduces sunlight reflection.

SPECIFICATION AUTOMOTIVE TOUCH PANELS, FILM/GLASS

Item		Transparency 82%	Transparency 88%	Linear Polarizer
Minimum frame size (one side of film side Electrode is an object)		2.5mm and 4.0mm	2.5mm and 4.0mm	4.4mm
Flex tail side		7.0mm	7.0mm	7.0mm
Optical	Transparency	82% typical*	88% typical*	-
	Transparency (luminance)	-	-	77% typical*
	Reflection	18%	10%	
		at 550 nm: 13%	at 550 nm: 8%	at 550 nm: 8%
	Haze	5.5%	5.5%	7%
Mechanical	Operation force	initial: 0.05 - 0.78N	initial: 0.05 - 0.78N	initial: 0.05 - 0.78N
		after the test: 0.05 - 1.49N	after the test: 0.05 - 1.49N	after the test: 0.05 - 1.96N
	Surface Hardness	≥ 3H	≥ 3H	≥ 3H
	Linearity	initial: ≤ 1.5%	initial: ≤ 1.5%	initial: ≤ 1.5%
		after the test: ≤ 3.0%	after the test: ≤ 3.0%	after the test: ≤ 3.0%
	Chattring	≤ 20m sec	≤ 20m sec	≤ 20m sec
	Insulation resistance	≥ 10M Ohm	≥ 10M Ohm	≥ 10M Ohm
Environmental (maximum wet bulb temperature 38°C)	Operating temperature	-30° - 85°C	-30° - 85°C	-30° - 80°C
	Operation humidity	10% - 90% RH	10% - 90% RH	10% - 90% RH
	Storage temperature	-40° - 95°C	-40° - 95°C	-40° - 85°C
	Storage humidity	10% - 90% RH	10% - 90% RH	10% - 90% RH
Reliability	High temperature storage	95°C,192hrs	95°C,192hrs	85°C,192hrs
	Low temperature storage	-40°C,192hrs	-40°C,192hrs	-40°C,192hrs
	High humidity storage	2.5mm: 60°C,90% RH,192hrs	2.5mm: 60°C,90% RH,192hrs	60°C,90% RH,192hrs
		4.0mm: 85°C,85% RH,192hrs	4.0mm: 85°C,85% RH,192hrs	

Note: *JIS K-7105

4-WIRE AUTOMOTIVE SERIES, FILM/GLASS

Glass	Part number	Size	Transparency	Size ratio	Input
1.1 mm	N010-0514-T003	6.5"	82%	16/9	Finger
	N010-0514-T005	6.5"	88%	16/9	Finger
	N010-0514-T101	7.0"	82%	16/9	Finger

Control board:
- similar to 4-wire series (film/glass)

Control chip:
- similar to 4-wire series (film/glass)

4-Wire Touch Panels, Film/Film/Plastic

Fujitsu has developed special film/film/plastic touch panels. Available in sizes from 1 to 7 inch operating from -10°C to 60°C. The panels are flexible and cannot break even when dropped. The film/film/plastic touch panels are based on strong polycarbonate plate, offering the additional advantage to protect the LCD in case of shock.

Control Engineering's Editors' Choice Award

Fujitsu's line of high-transparency touch panels was awarded the 2005 Editors' Choice Award in the Human-Machine Interface category by Control Engineering magazine. Fujitsu's high-transparency touch panels were among 45 products from various categories selected as the most significant innovations from the thousands featured in the 2005 North American print edition of Control Engineering, in its monthly and weekly e-mailed newsletter, and on its www.controleng.com website. Editors judged the products based on service to the industry, technological advancement and market impact.

About Fujitsu Components Europe B.V.

Fujitsu Components Europe B.V. is responsible for managing the sales, marketing and distribution of its connectors, relays, KVM switches, touch panels, thermal printer mechanisms, keyboards, and pointing and input devices, in Europe, Middle East and Africa.

ASK FUJITSU COMPONENTS

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