FUJITSU, years of experience
Touch Panels

About FUJITSU Components

FUJITSU Components' Touch Panels, years of experience

FUJITSU Components is 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.

Applications

- Automotive (Car infotainment, bus, truck, taxi)
- Mobile devices (UMPC, PDA)
- Factory automation (HMI, industrial PC)
- Measuring instruments and industrial control
- Medical (blood test, dentist appliances, etc.)
- POS, cash register
- Gaming, lotto terminal
- Printer / Copier
- Educational terminal

Resistive panel features

- Dual input 4 wire panel
- Gesture recognition
- Light touch
- Flush surface
- 4, 5 and 7 wire resistive panels
- Film/Glass, Film/Film or Film/Film/Plastic resistive panels
- Pen, finger, glove input
- High optical quality:
  - *Up to 90 % transparency 5% reflection*
  - *Anti-glare, clear or anti finger print*
  - *Anti-Newton ring technology*
- High mechanical quality
  - *Sealed construction*
  - *Shock resistant option*
- High temperature and high reliability version (storage 95℃)
- Sizes from 2 to 19 inches
- Standard and customized sizes
- USB, RS232 and I2C controller

Capacitive panel features

- Automotive custom panel
- Flush surface
- Industrial version from the shelf up to 21.5" (Partner product)

Resistive and capacitive solutions

Resistive LIGHT TOUCH/ with gesture recognition
Automotive panel
Flush surface (full front face design)

Contents

Overview of touch panel types

Resistive Type	Features	Pen/Finger	Life time	Size	Transparency	Application examples
Film/Glass - **4-wire**	Industry standard Cost effective **Dual and single input**	Pen & finger	1 million touches	3.8 - 19"	80% standard 90% max.	Measuring instruments HMI / FA POS ECR
Film/Glass - **5-wire**	Long life time **Dual and single input**	Pen & finger	10 million touches	Custom size (10 - 17")	80% standard 88% max.	POS Cash register
Film/Glass - **7-wire**	Long life time Auto-calibration Temperature compensation Drift and aging	Pen & finger	10 million touches	8.4 - 17"	80% standard 88% max.	Factory automation POS
Film/Glass - **4-wire Automotive**	High temperature range	Finger	1 million touches	3 - 8"	82% standard 90% max.	GPS, car infotainment
Film/Film/Plastic **4-wire**	Unbreakable LCD screen protection	Pen & finger	1 million touches	Custom size 2 - 7"	80% standard 84% max.	Logistic terminal Smart security meter

Capacitive Type	Features	Pen/Finger	Life time	Size	Transparency	Application examples
Automotive	Custom Flush surface Glass sensor	Finger	10 million touches	up to 10.4"	90%	Car infotainment
Industrial version	Film sensor with standard or custom cover glass	Finger	10 million touches	7" to 21.5"	86%	HMI/FA Measuring instrument POS/ECR

*Note: Transparency may differ depending on size and application*

Characteristics 7-wire, 4-wire (standard touch and light touch)

Item	Description	7-wire series	4-wire series standard and light touch
Optical	Transparency Haze	80% typical 5% (anti-glare)	80% typical 5 - 8% (anti-glare)
Mechanical	Hardness Linearity Writing life Knocking life	3 H min 1.5% to 3.5% 1 million words 10 million touches	3 H min 1.5% to 3.5% 100,000 words 1 million touches
Electrical	Power supply Resolution Sampling Transmission rate Consumption Insulation resistance	+5 V or 3.3 VDC 0.1mm (0.004 in) 192 pps (variable) 9,600 bps 36 mA max. 10M Ohm	+5 V or 3.3 VDC 0.1mm (0.004 in) 192 pps (variable) 9,600 bps 36 mA max. 10M Ohm
Environmental	Operation temperature Storage temperature Operating humidity Storage humidity	-5℃ - +60℃ -30℃ - +70℃ 20% - 90% 10% - 90%	-5℃ - +55℃ -30℃ - +70℃ 20% - 90% 10% - 90%

7-wire touchpanel

4-wire touchpanel
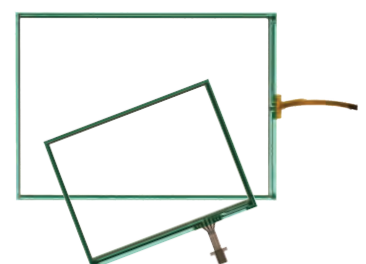
Note: Please check individual specification sheets for exact specifications of each part number

7-Wire Touch Panels, Film/Glass

Fujitsu's 7-wire touch panels can be manufactured in 5 to 17 inch.
The 7-wire touch panels can handle up to 10 million plus touches with an operating temperature from -5⁰C to +60⁰C and storage from -30⁰C to +70⁰C. This unique technology has been developed especially for highly demanding applications such as heavy industry. It combines the advantages of resistance to a high number of inputs and the compensation of temperature and aging drift.

Glass	Part number	Size	FPC Tail	Input	Control board/chip	
1.8 mm	N010-0551-T642 N010-0551-T256 N010-0510-T236 N010-0510-T303	10.4" 12.1" 15.0" 17.0"	100 mm 100 mm 100 mm 100 mm	Pen & finger, light touch Pen & finger, light touch Pen & finger Pen & finger	**Control board** NC01850-B075RS *(Serial)* NC01850-B020RS *(USB)*	
1.1 mm	N010-0550-T345 N010-0550-T627 N010-0551-T255	8.4" 10.4" 12.1"	46 mm 100 mm 100 mm	Pen & finger Pen & finger, light touch Pen & finger, light touch	**Control chip** NC41120-0036 *(Serial)* NC41120-0051 *(USB) (PS2 optional)*	

4-Wire Touch Panels, Film/Glass

Single / dual touch - standard / light touch

Fujitsu's cost efficient 4-wire touch panels offers remarkable features:

- Panels can be used as a single or dual touch solution.
  With the use of Fujitsu's dual touch controller a single touch panel can be converted to a dual touch panel.

- Available as standard and light touch version.
  Fujitsu's light touch series, also called "feather touch", respond to 0.02-0.5N force. The light touch panels are ideal for gesturing functionality like pinch, expand, zoom/ rotate and flick/swipe.

- Fujitsu's light touch panel combines the high sensitivity technology of a capacitive panel with the characteristic features of a resistive panel; easy integration, low costs and multiple input options (finger, pen, glove, etc.).

Fujitsu's 4-wire touch panels can be manufactured in 3.8 to 19 inch and can handle up to 1 million touches with an operating temperature from -5⁰C to +60⁰C and storage from -30⁰C to +70⁰C. The 4-wire technology comes in an anti-glare finish to avoid the mirror effect. The standard transparency for these touch panels is 80%. The technology allows pen and finger inputs which make the touch panels suitable for tablets that make use of pen writing, cash registers and many other applications.

The 4-wire panels can also be offered in customized sizes and support design options, such as flush surface (flat and stylish surface).

Standard 4-Wire Resistive Panel

Diagonal in inches	Ratio	Part number ROHS compliant	Outer size mm	Glass thickness mm	Tail (Flex) length mm	Transparency %	Top coat	Control board/chip
15	4x3	N010-0554-T902A	323.5x245.2	1.1	61	80	AG	
12.1	4x3	N010-0554-T805A	261.4x198.8	1.1	75	82	AG	
10.4 10.4	4x3 4x3	N010-0554-T348A N010-0554-T347A	228.2x175.4 228.2x175.4	1.1 1.1	120 75	86 82.5	Clear AG	Control board: NC01850-B070RS *(Serial)*
8.4 8.4 8.4	4x3 4x3 4x3	N010-0554-T507A N010-0554-T511A N010-0554-T504A	182.7x142.65 182.7x142.65 182.7x142.7	1.8 1.1 0.7	75 120 75	80 80 80	AG AG/AS. AG	NCO1850-B010RS *(USB)*
6.4 6.4	4x3 4x3	N010-0554-T043A N010-0554-T048A	144x111 144x111	1.1 1.1	61 120	82 86	AG Clear	Control chip: + NC41120-0036 *(Serial)*
5.7 4.3 3.8	4x3 4x3 4x3	N010-0554-T009A N010-0554-T241A N010-0554-T703A	132.5x104.7 105x67 87.6x69.5	1.1 1.1 0.7	50 75 21	80 86 80	AG AG/AS. AG	NC41120-0051 *(USB)* NC41120-0038 *(I2C)*

4-Wire Light Touch Resistive Panel

	Diagonal in inches	Ratio	Part number ROHS compliant	Outer size mm	Glass thickness mm	Tail (Flex) length mm	Input	Control board/chip
New	22	4x3	FID-1111-501-A22	491.7x318.10	1.8	120	Pen & finger	
New	19	4x3	FID-1111-381-A19	398x322.7	1.8	120	Pen & finger	
	17.1	4x3	N010-0554-T442A	353.x287.5	1.8	120	Pen & finger	Control board: FID 1850-120 *(USB/dual touch)*
	15.3	Wide	NC01152-T021	358x224	1.1	61	Pen & finger	
	15	4x3	NC01111-T261	323.5x245.2	1.1	61	Pen & finger	
	12.1 12.1	Wide 4x3	NC01111-T081 NC01111-T242	275.3x178 261.4x198.8	1.1 1.1	120 75	Pen & finger Pen & finger	Development test board: NC01850-B080RS *(I2C/ dual touch)*
	10.4	4x3	NC01111-T222	228.2x175.4	1.1	75	Pen & finger	
New	10.1	wide	FID-1154-401-A10	232.3X151	1.1	50	Pen & finger	Controller MCU: FID-1860-005
	8.4	4x3	NC01111-T202	182.7x142.7	1.1	75	Pen & finger	*(USB/dual touch)*
	7	Wide	NC01152-T101	164.4x103.3	1.1	50	Finger	NC41120-0038 *(I2C/dual touch)*
	4.3 3.8	Wide 4x3	NC01111-T181 NC01111-T161	105.4x67.1 87.6x69.5	1.1 0.7	50 21	Pen & finger Pen & finger	light touch

Automotive Touch Panels, resistive and capicitive

Resitive version.
Single and dual touch – standard or light touch.
Flush surface version

The automotive film/glass touch panels can be manufactured from 3.5 to 8 inch. They are designed for finger applications and can handle 1 million finger touches. They have a high operating temperature range of -30C to +85°C and the storage temperature range is -40°C to +95°C.

The light touch version is ideal for dual touch gesture functions like zooming a map or flipping pages.

Fujitsu has developed low reflection technologies based on AR coating or polarizer for a better visibility under the sunlight. The transparency can go up to 90% and reflection down to 3%. Customized sizes, custom optical quality and the flush surface design option can be offered

Capacitive version.
Multi-input, Flushsurface

Our PCAP automotive panel are based on glass sensor technology, those capacitive panels are tailored to the needs of each customer. Custom sizes can be made up to 10.4 inches (No standard sizes).

The front cover of the panel can be designed in various material and shape and can be the front face of the infotainment device. It can integrate capacitive switches on the side of the active area as well as hole for mechanical button or USB connections.
It can include transparent Icon for LED backlight.
The controller can come as a chip on Flex (COF) or can be assembled on the PCB (COB).
The view area has a typical transparency of 90%.

This new line of product benefit from the long experience of Fujitsu in the car industry, on the development and qualification point of view, as well as on the production side where the process quality control meet the top requirement

Standard (from the shelf) Resistive automotive version

Diagonal in inches	Part number	General data
6.5 *(Light touch)*	NC01101-T021	■ Film/Glass - 4wire ■ Wide format ■ Same controller as the 4 wire panel ■ Glass is 1.1mm ■ Flex 50mm ■ Finger input ■ Operating T -30°C to +85°C ■ Storage temperature range is -40°C to +95°C
6.95 *(Light touch)*	NC01101-T001	
7 *(AA:153.1x85.6) (Light touch)*	NC01101-T041	
7 *(AA:150.4x89.4) (Light touch)*	NC01101-T061	
8 *(Light touch)*	NC01101-T081	
6.5	N010-0514-T003	
6.5 *(High transparency 87%)*	N010-0514-T005	
7	N010-0514-T101	

Example of flush surface custom possibilities

Active area

Various cover materials

Transparent icon for back LED light

Extra Buttons embedded in the panel

Menu

MODE

TEMP

A/C

Curved shape

Holes for mechanical switches

Industrial capacitive Panel Standard sizes (from the shelf) (partner product)

In collaboration with a long time Fujitsu partner, FCEU will now offer in Europe a range of projective capacitive panel (PCAP). This range of PCAP panel come in standard size from 7 to 21,5 inches. They are based on Film/Film sensor with standard Cover Glass. They are delivered with Chip On Flex (COF) controller having a USB interface. The existing standard sizes are adapted to the most popular LCD sizes, if needed the cover glass may be customized to fit customers specific design requirement.

They are adapted to a wide variety of applications, from factory automation to instrumentation, from cash register to Medical.
As they come in standard sizes, they can be used for small quantities applications.

Diagonal in inches	Ratio	Sensor active area	Cover glass OD	Cover glass VA	FPC length (mm)	Cover glass Thickness
21.5	4x3	481.80x272.30	505.60x310.50	480.80x271.30	70	1.8
18.5	Wide	411.80x232.40	434.8x269	410.8x231.4	70	1.8
15.6	Wide	346.16x195.59	370.0x231.71	345.26x194.59	70	1.8
15	4x3	310.20x235.23	323.5x245.2	309.20x234.23	70	1.8
12.1	4x3	248.50x187.00	281.50x228.00	247.50x186.00	69.8	1.8
12.1	Wide	257.92x166.20	274.30x178.00	256.92x165.20	100	1.1
10.4	4x3	214.20x161.40	235.80x193.40	213.20x160.40	70	1.1
10.1	Wide	219.64x138.14	243.88x156.91	218.02x136.60	72	1.1 *(Chemicaly strengthened)*
7	Wide	154.30x93.37	170.85x113.87	153.85x92.87	63	1.1

Liquid Crystal Module (LCM) and more...

Ready to use LCD and touch panel bounded together. From 4.3 to 17 inches.
For customers that don't want to worry about the assembly of the touch panel onto the LCD, Fujitsu can offer a module.
We can propose the LCD or use the LCD of your choice. We offer DSA assembly or optical bounding.
Using our flush surface solution, we can add different options to the panel and deliver the full front face of your device.
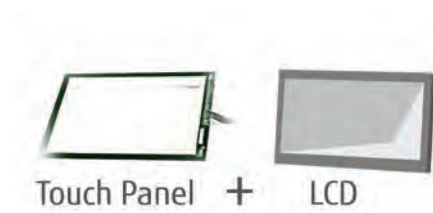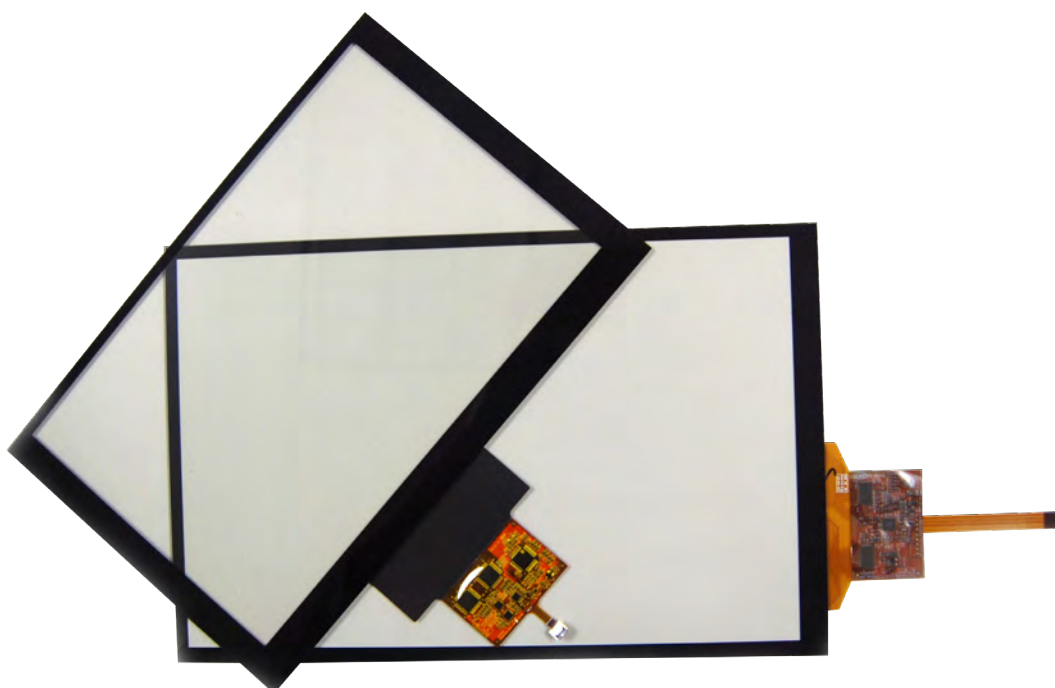

Touch Panel + LCD

Examples of Fujitsu Touch Panels

Embossed Switch

Capacitive panel

Examples of Fujitsu Touch Panels

Flush Surface

Different colors available

Notes

Thank you for making notes!

For questions or information, please refer to your supplier or contact your local Fujitsu Office.
For contact information, see the last page of this document, or **http://www.fujitsu.com/components/**

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