



TO CREATE COLORFUL LIFE

TIANMA



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Touch Display Product Catalog

January 2019



Automotive

We provide optimum solutions that meet diverse customer requirements



Industrial



Medical



Smart Device

INTRODUCTION

Tianma Microelectronics is a leading global manufacturer of small and medium size display solutions. Tianma provides a wide portfolio of liquid crystal displays (LCD) specifically designed for industrial requirements, with advanced technology and high-quality products for customers throughout the world.

In close cooperation with its customers, Tianma creates upmarket display solutions and helps to develop new markets and drive ambitious applications.

Additionally, Tianma can provide the extended user experience with a dedicated touch screen. The PCAP technology (Projected Capacitive Touch) is built into almost every smartphone or tablet computer and allows many design possibilities. Due to in-house development and manufacturing capabilities, Tianma can offer high quality, integrated PCAP solutions. Together with the LCD this makes Tianma to a One-Stop-Shop for our customers.

APPLICATION

Due to our leading role in the consumer display market, Tianma has broad experience adapting high-end touch technologies to the special display needs of the industrial display market.



Medical



HMI



POS



Financial POS



Outdoor handheld



Smart homes



VOIP



White goods



Aviation amusement



Rugged PC



Wearable device



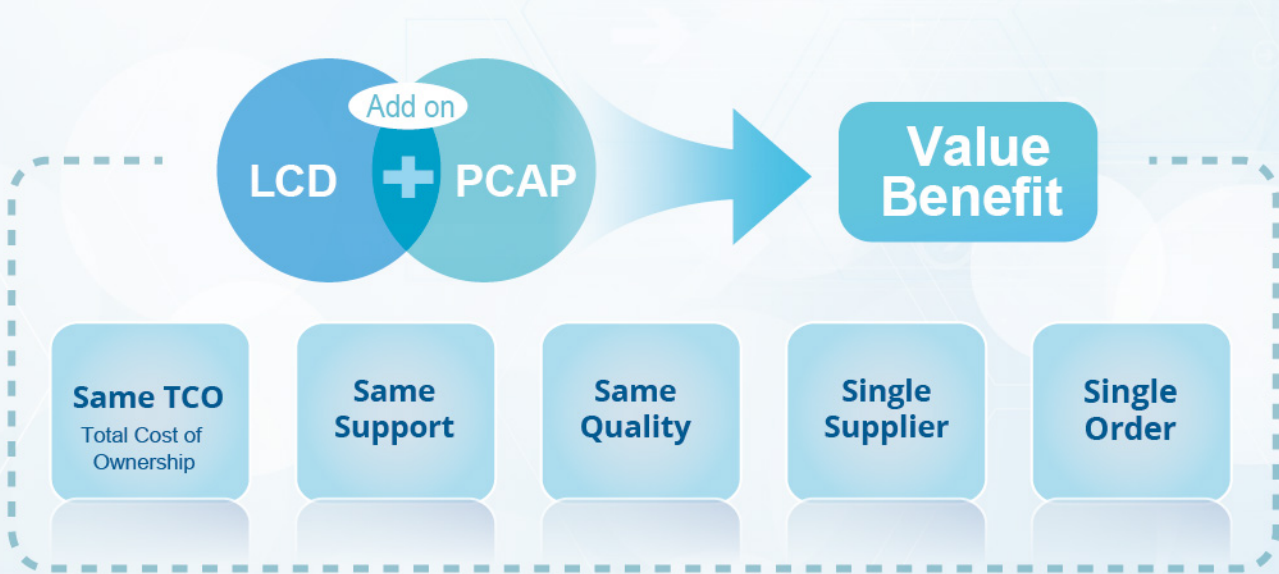
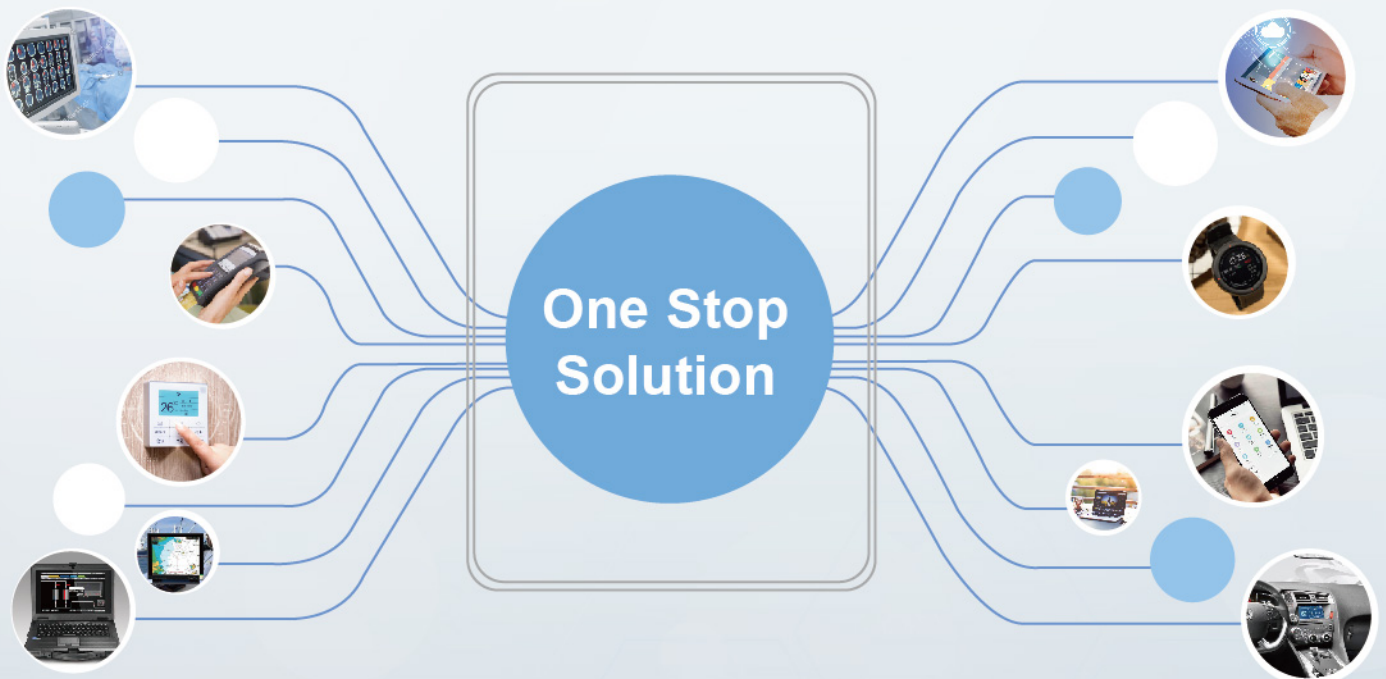
Marine

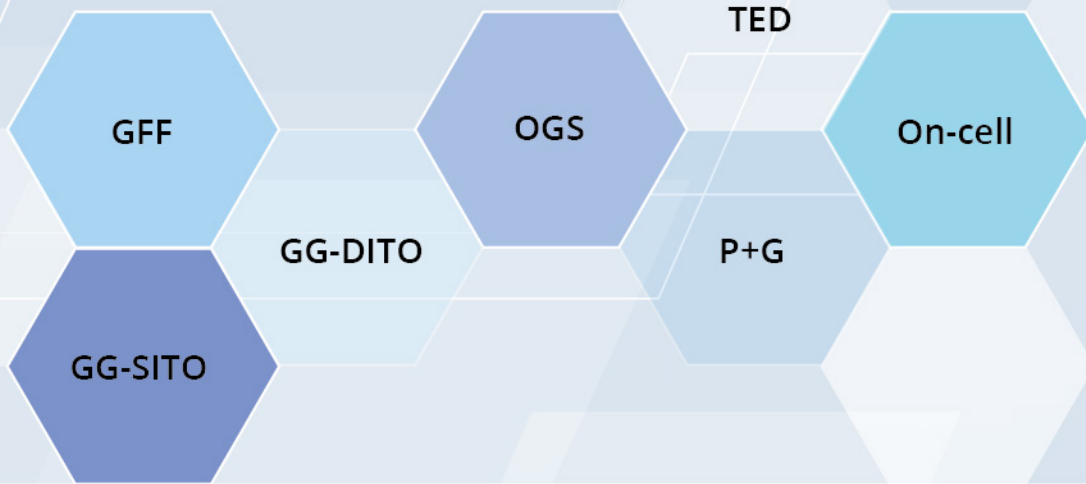
PCAP TOUCH

Tianma provides factory designed and integrated touch panels with the touch controller included. Due to our in-house design and manufacturing capabilities, we are able to offer high quality, integrated PCAP solutions direct from our factories.

FEATURES:

- High reliability
- Suitable for a wide range of applications
- One stop solution

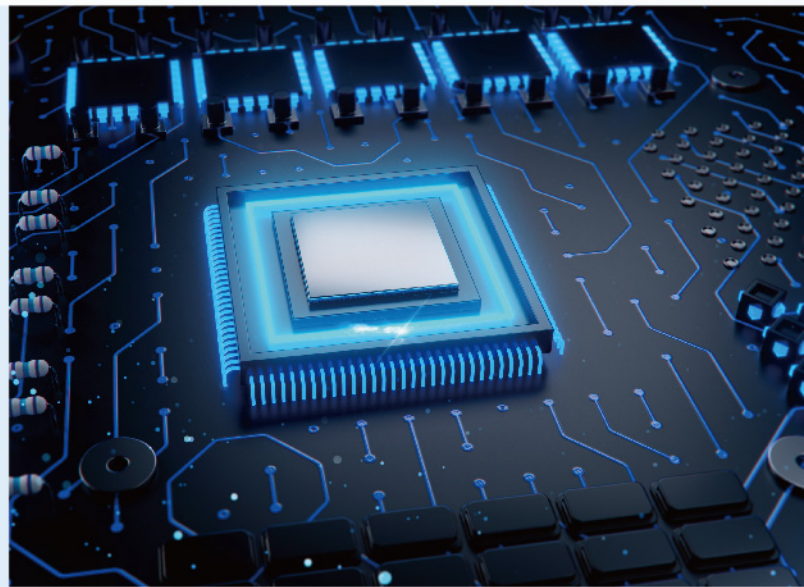




BETTER SERVICE

Touch Controller

Tianma cooperates with all major touch controller IC suppliers to individually select the best chip, so that the best possible compatibility between sensor and operating system and the optimal feature-set for your application is ensured. Tianma customizes the tuning parameters and helps you with the integration on site through the local customer support.



Cover Glass

The cover glass is the face of your product and thus a major part of brand identification. At Tianma, the customer has every imaginable option to design his cover glass according to his personal specifications: material, decoration printing, logos, different shapes and surface treatments. Tianma is maintaining good business relations with various glass manufacturers and can advise, arrange and manage to find the best overall solution. Together with the bonding and LCD, everything is carefully fine-tuned, and all come from a single source.





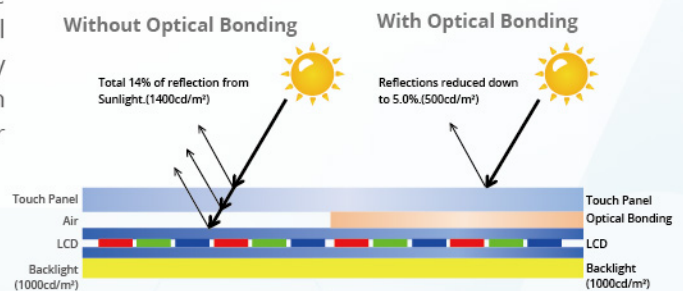
ADVANCED TECHNOLOGIES

Optical Bonding Technology

With optical bonding technology the TFT LCD module and PCAP-sensor are bonded together using an optical transparent adhesive. As a result the display readability is better than that of traditional frame bonding which leaves an air gap between TFT LCD surface and sensor glass.

FEATURES:

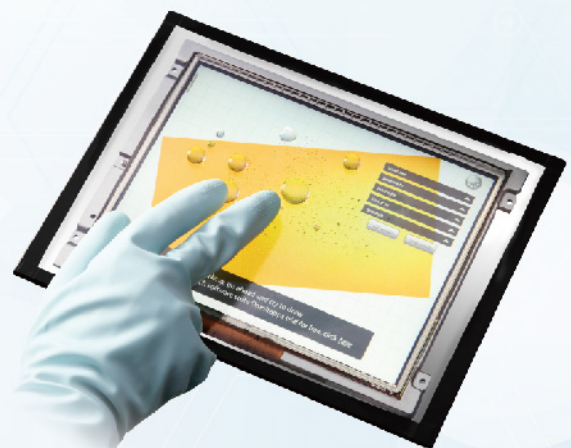
- Reduced reflection from the sun
- Isolation of water vapor and air
- Improved reliability and mechanical strength (vandalism proof)



Wet & Glove Technology

Wet & Glove PCAP displays perform even when the screen is wet and the operator is wearing gloves. For instance, by tuning the controller, the touch screen can be operated when a medical technician is using medical gels on the surface of the screen, or when an industrial operator is wearing gloves. With this technology, our PCAP touch panels support high end display devices used in challenging conditions such as construction, marine or medical applications.

It is relatively easy to detect a single touch point using our Wet & Glove technology. Two points can be simultaneously detected and the device controlled by gestures such as stretching or squeezing.



TED Technology

Touch Embedded Display (TED) technology integrates a high performance touch function sensor inside the TFT glass cell. TED creates a high quality liquid crystal display with good optical performance, good touch performance, in one display. The technology also achieves an ultra-narrow border design and slim module design. All these characteristics allow the final product designer greater design flexibility and results in an enhanced user experience.

FEATURES:

- High transmittance
- Super slim & lightweight
- Narrow border

TED Structure
Sensor mounted on top of TFT LCD



On-cell Touch Technology

ITO pattern forms mutual capacitance electrodes on the color filter.

FEATURES:

- Tx & Rx form embedded structures on the TFT side
- One IC & one FPC drive the display and the touch panel simultaneously
- Ultra-low surface reflection
- Ultra-narrow bezel, ultra thin
- Very sensitive touch

On-cell Structure

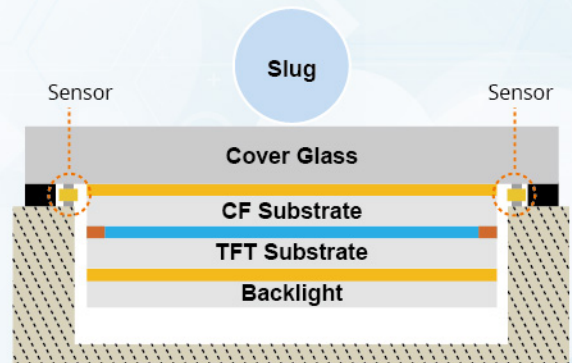


Force Touch Technology

Force Touch is a new touch sensing technology. With this technology, the sensor can distinguish between various levels of force to accommodate different corresponding functions. This provides a better and more interactive experience for the users.

FEATURES:

- Stable and reliable structure
- Allows to distinguish many different force levels
- Can be combined with various touch technologies



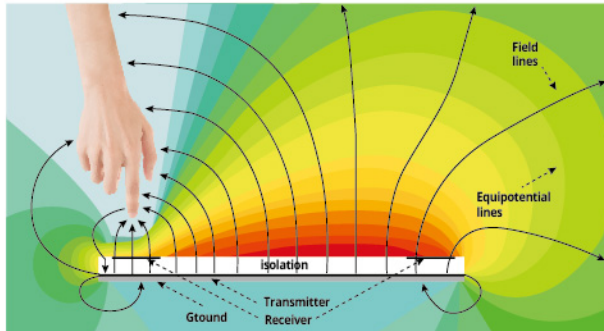
FORCE CLICK

Hover Touch Technology

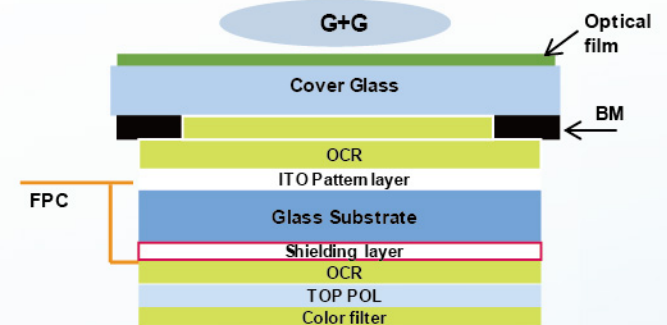
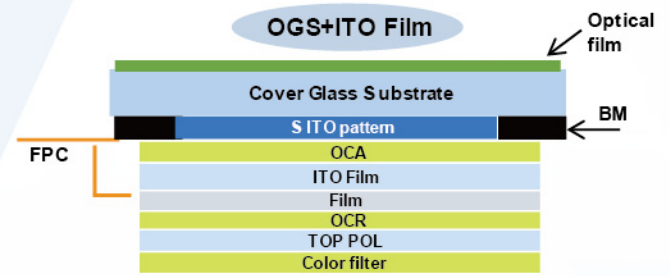
Hover Touch is a brand-new touch sensing technology. Through hover touch, the operation can be accomplished without touching the screen.

FEATURES:

- Utilizes electrical for touch sensing of the user's finger
- The touch distance can reach 50mm



- Integration of touch control technology and display technology. Support multiple TFT module structures.



Active/Passive Stylus Pen Technology

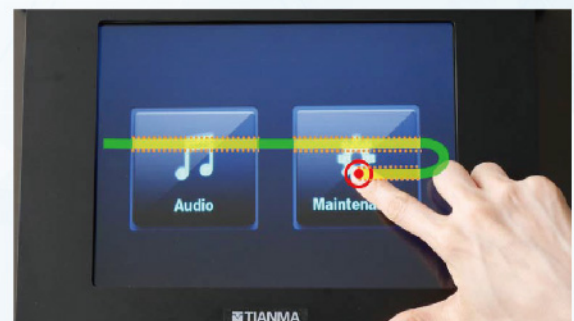
The Active/Passive Stylus Pen Technology for LCDs allows users to write directly on the the LCD screen surface of a computing device such as a smartphone, tablet computer or Ultrabook. The Active/Passive Stylus Pen technology supports inductive capability for active pens, movable pens, electro-magnetic pens and resistance pens.

Multimodal Tactile Feedback

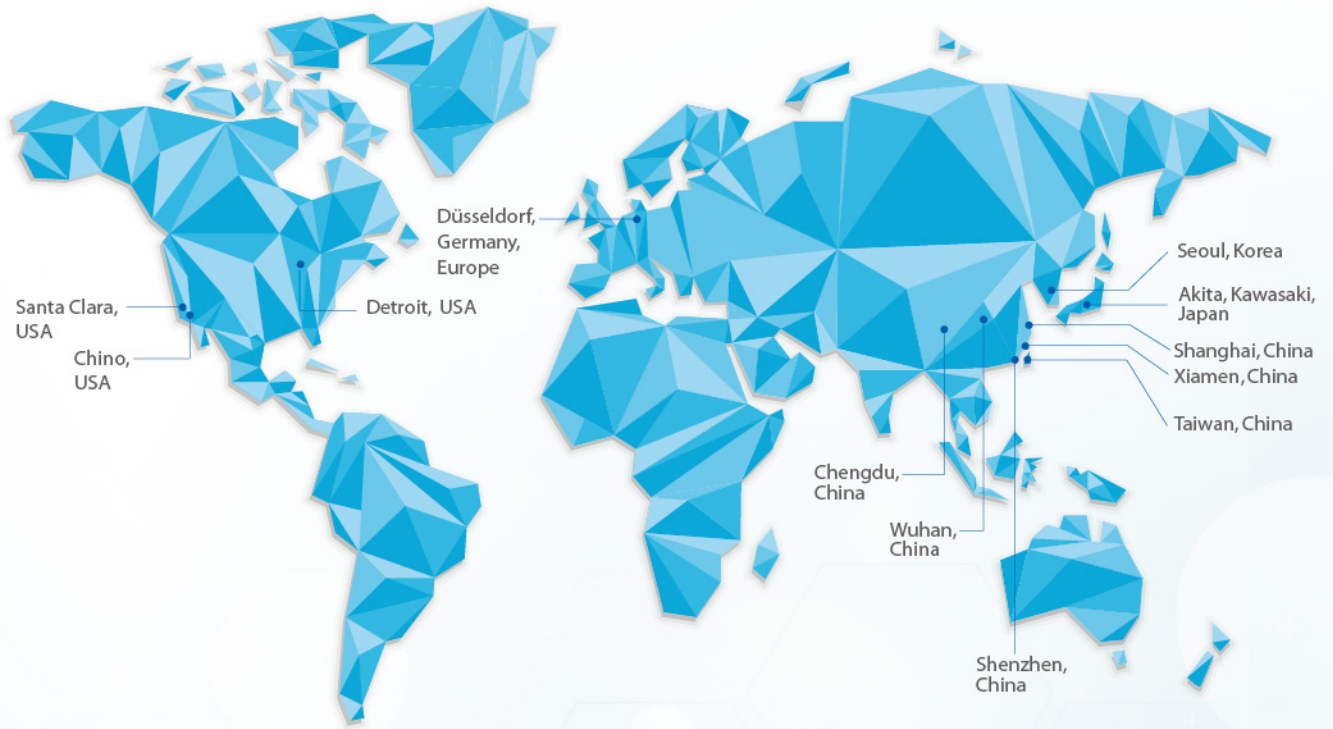
Tactile Feedback enables users to reconstruct the tactile sensation from a series of actions including force, vibration, and other Tactile commands.

FEATURES:

- Improves safety: Users can operate touch screen without looking at it!
- Improves operation: Users are able to identify which area on a display the image is shown, both visually and through tactile sensation to improve work efficiency.
- Improves sense of reality: Visual image combined with tactile feedback creates realistic experience.



- Texture sensation
- Click sensation



To support Tianma's ongoing development of PCAP touch technologies, we have established manufacturing facilities in Shenzhen, Shanghai, Wuhan, China as well as in Akita, Japan. These production lines are all capable of manufacturing PCAP products.

To ensure seamless global support to our customers we have established a global sales and technical support network that includes offices in the United States, Germany, Japan, South Korea, Taiwan, and Hong Kong.

SHANGHAI AVIC



WUHAN



AKITA



SHANGHAI



SHENZHEN





PCAP PRODUCTS

Besides the various possibilities of customized solutions, Tianma offers a range of standardized products. A wide range of sizes and resolutions is covered.

TM Series

| Screen Size | 4.3 inch | 4.3 inch | 5.0 inch | 5.7 inch | 7.0 inch |
|---------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| Display Mode | TN | TN | TN | TN | TN |
| Resolution(pixel) | 480 x 272 | 480 x 800 | 800 x 480 | 320 x 240 | 800 x 480 |
| Module Size (W x H x D) (mm) | 113.44 x 71.46 x 1.35 | 67.50 x 117.70 x 2.58 | 123.26 x 80.06 x 1.35 | 144.00 x 104.60 x 1.35 | 171.50 x 110.30 x 1.35 |
| Active Area (mm) | 96.04 x 54.86 | 94.40 x 56.96 | 96.04 x 54.86 | 116.60 x 87.80 | 155.24 x 87.12 |
| Luminance (cd/m ²) | 350 | 300 | 330 | 400 | 300 |
| Contrast Ratio | 900:1 | 800:1 | 600:1 | 500:1 | 500:1 |
| Multi Touch | 2~5 Points | 5 Points | 2~5 Points | 2~5 Points | 2~5 Points |
| Input Type | Finger, Glove | Finger, Glove, Passive Pen | Finger, Glove | Finger, Glove | Finger, Glove |
| Cover Surface | Clear | Clear | Clear | Clear | Clear |
| Cover Glass Thickness(mm)(Max.) | 0.7 | 2 | 0.7 | 0.7 | 0.7 |
| Interface | RGB 24 bits/I ² C | RGB 24 bits/I ² C | RGB 24 bits/I ² C | RGB 18 bits/I ² C | RGB 24 bits/I ² C |
| Operating Temperature | -20°C~+70°C | -20°C~+70°C | -20°C~+70°C | -20°C~+70°C | -20°C~+70°C |
| Remark | Air Bonding | Air Bonding | Air Bonding | Air Bonding | Air Bonding |

| | | | | | |
|--|------------------------------|------------------------|------------------------|------------------------|------------------------|
| Screen Size | 7.0 inch | 7.0 inch | 7.0 inch | 10.1 inch | 10.1 inch |
| Display Mode | TN | TN | SFT | TN | SFT |
| Resolution(pixel) | 800 x 480 | 1024 x 600 | 1280 x 800 | 1280 x 800 | 1280 x 800 |
| Module Size (W x H x D) (mm) | 171.50 x 110.30 x 1.35 | 171.50 x 110.30 x 1.35 | 179.76 x 123.60 x 1.75 | 244.50 x 168.10 x 1.75 | 233.00 x 156.00 x 1.83 |
| Active Area (mm) | 155.24 x 87.12 | 155.20 x 91.40 | 150.76 x 94.60 | 218.36 x 137.00 | 218.36 x 137.00 |
| Luminance (cd/m²) | 1200 | 270 | 500 | 350 | 430 |
| Contrast Ratio | 1000:1 | 500:1 | 800:1 | 800:1 | 800:1 |
| Multi Touch | 2~5 Points | 2~5 Points | 2~5 Points | 2~10 Points | 2~10 Points |
| Input Type | Finger, Glove | Finger, Glove | Finger, Glove | Finger, Glove | Finger, Glove |
| Cover Surface | Clear | Clear | Clear | Clear | AG |
| Cover Glass Thickness(mm)(Max.) | 0.7 | 0.7 | 1.1 | 1.1 | 1.18 |
| Interface | RGB 24 bits/I ² C | LVDS/I ² C | LVDS/USB | LVDS/I ² C | LVDS/I ² C |
| Operating Temperature | -20°C~+70°C | -20°C~+70°C | -20°C~+70°C | -20°C~+70°C | -20°C~+70°C |
| Remark | Air Bonding | Air Bonding | Air Bonding | Optical Bonding | Air Bonding |

| | | | | | |
|--|------------------------|------------------------|-----------------------|-------------------------|--|
| Screen Size | 10.1 inch | 10.1 inch | 5.0 inch | 15.0 inch | |
| Display Mode | SFT | TN | HD-SFT TED | TN + CTP | |
| Resolution(pixel) | 1280 x 800 | 1024 x 600 | 720 x 1280 | 1024 x 768 | |
| Module Size (W x H x D) (mm) | 258.66 x 177.30 x 1.75 | 236.40 x 147.89 x 1.75 | 66.10 x 118.30 x 1.61 | 336.50 x 263.50 x 12.00 | |
| Active Area (mm) | 218.36 x 137.00 | 223.72 x 126.28 | 62.10 x 110.40 | 307.00 x 231.00 | |
| Luminance (cd/m²) | 850 | 360 | 300 | 300 | |
| Contrast Ratio | 700:1 | 800:1 | 900:1 | 1000:1 | |
| Multi Touch | 2~10 Points | 2~10 Points | 2~5 Points | 2~10 Points | |
| Input Type | Finger, Glove | Finger, Glove | Finger, Passive Pen | Finger, Glove | |
| Cover Surface | Clear | Clear | Clear | Clear | |
| Cover Glass Thickness(mm)(Max.) | 1.1 | 1.1 | 3 | 1.1 | |
| Interface | LVDS/USB | LVDS/I ² C | MIPI/I ² C | LVDS/USB | |
| Operating Temperature | -20°C~+70°C | -20°C~+70°C | -20°C~+70°C | -20°C~+70°C | |
| Remark | Air Bonding | Air Bonding | - | Air Bonding | |

NL Series

| Screen Size | 6.5 inch | 6.5 inch | 7.0 inch | 7.0 inch | 7.0 inch | 8.4 inch |
|------------------------------------|----------------------|----------------------|-----------------------------|-----------------------------|----------------------|-----------------------------|
| Part Number | NL6448BC20-30JF | NL10276BC13-01JA | NL8048AC19-14KH | NL8048AC19-13KD | NL8048AC19-13BD | NL8060AC21-21KD |
| Display Mode | TN | TN | TN | TN | TN | TN |
| Resolution (pixel) | 640 x 480 | 1024 x 768 | 800 x 480 | 800 x 480 | 800 x 480 | 800 x 600 |
| Module Size W x H x D (mm)(D: max) | 153.0 x 118.0 x 10.0 | 153.0 x 118.0 x 10.7 | 170.0 x 111.0 x 11.2 | 170.0 x 111.0 x 11.2 | 170.0 x 111.0 x 11.2 | 200.0 x 152.0 x 10.9 |
| Display Area (mm) | 132.48 x 99.36 | 132.096 x 99.072 | 152.4 x 91.44 | 152.4 x 91.44 | 152.4 x 91.44 | 170.4 x 127.8 |
| Luminance (cd/m ²) | 950 | 480 | 950 | 470 | 430 | 370 |
| Viewing Angle (U/D/L/R) | 80/80/80/80 | 80/60/80/80 | 80/80/80/80 | 80/80/80/80 | 80/80/80/80 | 80/80/80/80 |
| Multi Touch | Available | Available | Available | Available | Available | Available |
| Cover Surface | Clear + AFP | Clear | AG + AFP | AG + AFP | AG + AFP | AG + AFP |
| Cover Glass Thickness(mm)(Max.) | - | - | 0.7 | 0.7 | 0.7 | 0.7 |
| Operating Temperature | -30°C ~ +80°C | -20°C ~ +70°C | -30°C ~ +80°C | -30°C ~ +80°C | -30°C ~ +80°C | -30°C ~ +80°C |
| Remarks | Optical Bonding | Optical Bonding | Optical Bonding Wet & Glove | Optical Bonding Wet & Glove | - | Optical Bonding Wet & Glove |

| Screen Size | 8.4 inch | 8.4 inch | 10.4 inch | 10.4 inch | 10.4 inch | 10.4 inch |
|------------------------------------|-----------------------------|-----------------------------|-----------------------------|----------------------|----------------------|-----------------------------|
| Part Number | NL8060BC21-11KG | NL10276BC16-06KD | NL8060BC26-56KD | NL8060BC26-35BD | NL8060BC26-35BA | NL10276BC20-18KH |
| Display Mode | TN | SFT | TN | TN | TN | TN |
| Resolution (pixel) | 800 x 600 | 1024 x 768 | 800 x 600 | 800 x 600 | 800 x 600 | 1024 x 768 |
| Module Size W x H x D (mm)(D: max) | 200.0 x 152.0 x 10.8 | 200.0 x 152.0 x 10.9 | 243.0 x 185.1 x 13.2 | 243.0 x 185.1 x 12.7 | 243.0 x 185.1 x 12.5 | 228.0 x 178.5 x 11.4 |
| Display Area (mm) | 170.4 x 127.8 | 170.496 x 127.872 | 211.2 x 158.4 | 211.2 x 158.4 | 211.2 x 158.4 | 210.432 x 157.824 |
| Luminance (cd/m ²) | 750 | 580 | 380 | 350 | 350 | 760 |
| Viewing Angle (U/D/L/R) | 80/80/80/80 | 88/88/88/88 | 80/80/80/80 | 80/80/80/80 | 80/80/80/80 | 80/80/80/80 |
| Multi Touch | Available | Available | Available | Available | Available | Available |
| Cover Surface | AR | AG + AFP | AG + AFP | AG + AFP | Clear | AG + AFP |
| Cover Glass Thickness(mm)(Max.) | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |
| Operating Temperature | -30°C ~ +80°C | -20°C ~ +70°C | -30°C ~ +80°C | -30°C ~ +80°C | -30°C ~ +80°C | -30°C ~ +80°C |
| Remarks | Optical Bonding Wet & Glove | Optical Bonding Wet & Glove | Optical Bonding Wet & Glove | Wet & Glove | Wet & Glove | Optical Bonding Wet & Glove |

| Screen Size | 10.4 inch | 10.4 inch | 10.4 inch | 10.6 inch | 12.1 inch | 12.1 inch |
|------------------------------------|-----------------------------|-----------------------------|----------------------|-----------------------|-----------------------------|-----------------------------|
| Part Number | NL10276BC20-18KE | NL10276BC20-18KD | NL10276BC20-18BD | NL12876AC18-07DC | NL10276BC24-36KD | NL10276BC24-21KH |
| Display Mode | TN | TN | TN | SFT | TN | TN |
| Resolution (pixel) | 1024 x 768 | 1024 x 768 | 1024 x 768 | 1280 x 768 | 1024 x 768 | 1024 x 768 |
| Module Size W x H x D (mm)(D: max) | 228.0 x 178.5 x 11.2 | 228.0 x 178.5 x 11.4 | 228.0 x 178.5 x 10.9 | 267.8 x 174.2 x 9.2 | 260.5 x 203.0 x 11.6 | 260.5 x 203.0 x 11.6 |
| Display Area (mm) | 210.43 x 157.82 | 210.43 x 157.82 | 210.43 x 157.82 | 230.40 x 138.24 | 245.76 x 184.32 | 245.76 x 184.32 |
| Luminance (cd/m ²) | 770 | 380 | 350 | 250 | 390 | 750 |
| Viewing Angle (U/D/L/R) | 80/80/80/80 | 88/88/88/88 | 88/88/88/88 | 88/88/88/88 | 88/88/88/88 | 88/88/88/88 |
| Multi Touch | Available | Available | Available | Available | Available | Available |
| Cover Surface | Clear | AG + AFP | AG + AFP | AR | AG + AFP | AG + AFP |
| Cover Glass Thickness(mm)(Max.) | 0.7 | 0.7 | 0.7 | 1.1 Chemical strength | 0.7 | 0.7 |
| Operating Temperature | -30°C ~ +80°C | -30°C ~ +80°C | -30°C ~ +80°C | -20°C ~ +70°C | -30°C ~ +80°C | -30°C ~ +80°C |
| Remarks | Optical Bonding Wet & Glove | Optical Bonding Wet & Glove | Wet & Glove | - | Optical Bonding Wet & Glove | Optical Bonding Wet & Glove |

| Screen Size | 12.1 inch | 12.1 inch | 12.1 inch | 15.0 inch | 15.0 inch | 15.3 inch |
|------------------------------------|-----------------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|
| Part Number | NL12880BC20-13ND | NL12880BC20-05BD | NL12880BC20-05BA | NL10276KC30-50DD | NL10276KC30-43DD | NL12876BC26-33NA |
| Display Mode | SFT | SFT | SFT | TN | TN | SFT |
| Resolution (pixel) | 1280 x 800 | 1280 x 800 | 1280 x 800 | 1024 x 768 | 1024 x 768 | 1280 x 768 |
| Module Size W x H x D (mm)(D: max) | 298.7 x 200.8 x 11.5 | 277.7 x 180.6 x 11.2 | 277.7 x 180.6 x 11.2 | 326.5 x 253.5 x 15.0 | 326.5 x 253.5 x 15.0 | 385.0 x 251.4 x 17.3 |
| Display Area (mm) | 261.12 x 163.20 | 261.12 x 163.20 | 261.12 x 163.20 | 304.12 x 228.09 | 304.12 x 228.09 | 334.08 x 200.45 |
| Luminance (cd/m ²) | 430 | 400 | 400 | 450 | 450 | 470 |
| Viewing Angle (U/D/L/R) | 88/88/88/88 | 88/88/88/88 | 88/88/88/88 | 88/88/88/88 | 88/88/88/88 | 88/88/88/88 |
| Multi Touch | Available | Available | Available | Available | Available | Available |
| Cover Surface | AG Etching | AG + AFP | Clear | AG + AFP | AG + AFP | Clear |
| Cover Glass Thickness(mm)(Max.) | 0.95 | 0.7 | 0.7 | 1.8 Chemical strength | 1.8 Chemical strength | 1.1 Chemical strength |
| Operating Temperature | -20°C ~ +70°C | -20°C ~ +70°C | -20°C ~ +70°C | -20°C ~ +70°C | -20°C ~ +70°C | -20°C ~ +70°C |
| Remarks | Optical Bonding Wet & Glove | - | - | Wet & Glove | Wet & Glove | Optical Bonding |