TO CREATE COLORFUL LIFE

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TIANMA

AUTOMOTIVE DISPLAY

PRODUCT CATALOG

TO CREATE COLORFUL LIFE

ABOUT US

Tianma Microelectronics Co., Ltd. (Tianma) specializes in providing display solutions and associated support services worldwide. The company was established in 1983 and publicly listed on the Shenzhen Stock Exchange (SZ. 000050) in 1995.

Since the early1990s, Tianma has been actively involved in the automotive market and is now ranked #1 in the industry. Almost one in every four cars enjoys a Tianma Display Solution.

Looking ahead, as the automotive industry embraces vehicle networking, autonomous driving, ride-sharing, and new energy vehicles, Tianma is committed to further enhancing automotive display performance. This will be achieved through continuous research and development, advancements in automotive display technology, and a relentless focus on product quality.

Tianma aims to provide high-quality professional automotive display solutions to meet your evolving needs. Are you ready to jointly shape the future?

Data source：Omdia

COMPANY HISTORY

1983

ESTABLISHED IN SHENZHEN

1995

PUBLICLY LISTED

1983~2003

SHENZHEN TN-LCD

2006

SHANGHAI G4.5 TFT-LCD

2008

CHENGDU G4.5 TFT-LCD

2008

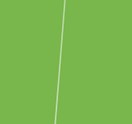
WUHAN G4.5 TFT-LCD

2009

SHANGHAI G5 TFT-LCD

2010

SHANGHAI G4.5 OLED



2011

XIAMEN G5.5 LTPS

2011

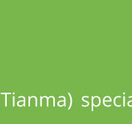
JAPAN G2/G3 TFT-LCD

2013

SHANGHAI G5.5 AMOLED

2014

XIAMEN G6 LTPS



2015

WUHAN G6 LTPS AMOLED

2018

WUHAN G6 LTPS AMOLED PHASE II

2019

HUBEI YANGTZE RIVER NEW DISPLAY INDUSTRY INNOVATION CENTER FOUNDED

2020

XIAMEN G6 AMOLED

2022

XIAMEN G8.6 a-Si/IGZO LCD

2022

WUHU NEW DISPLAY MODULE

ADVANCED TECHNOLOGIES

Flexible Automotive OLED

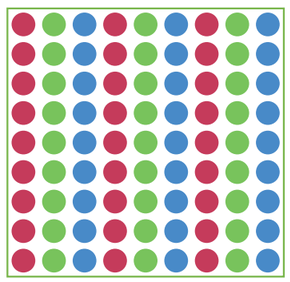
Flexible automotive OLED curved displays have broad application prospects in the smart mobile display segment, which use polyimide flexible substrate, thin film encapsulation technology, supporting narrow border and ultra thin design. It highlights the flexibility of cockpit design and greatly improves the user experience.

- Ultra thin
- Free form
- Ultra narrow border
- Bending radius

Micro-LED

Micro-LED features miniature LED arrays, with each Micro-LED functioning as a pixel, individually driven to emit light.
This enables modules to become more energy efficient, with high transmittance, high contrast, high brightness, narrow border and ultra-thin, etc.

LED



Micro-LED

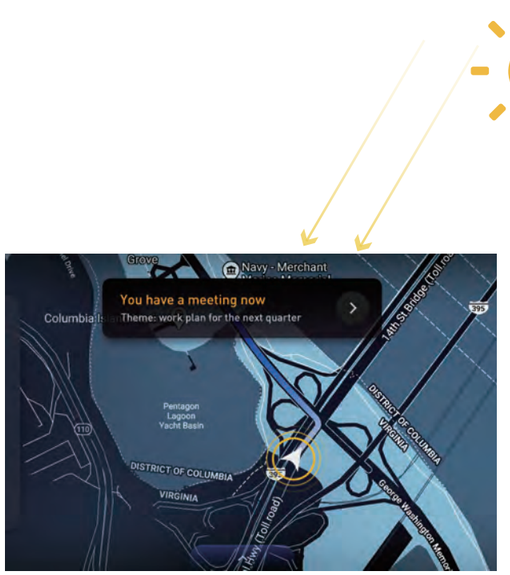
Precision in
the scale of micron

- Seamless splicing
- Narrow border
- High transparency

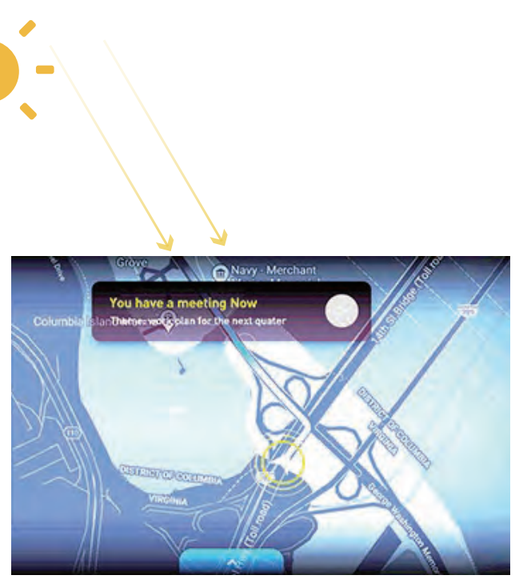
CORE TECHNOLOGIES

ARIES

In order to drive in high ambient light conditions and still meet the viewing requirements and expectations for both drivers and passengers, we use ARIES (advanced reflection invisible technology with embedded structure). The ARIES technology helps to achieve ultra-low reflection and improve contrast providing better overall display performance.



ARIES LCD



LCD

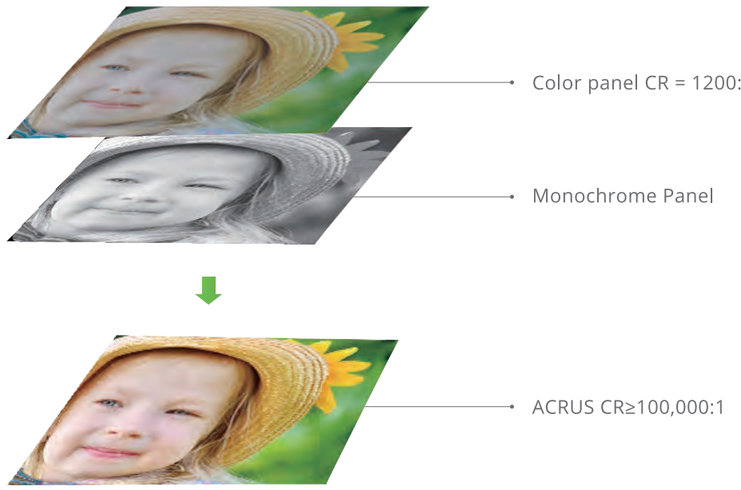
- Super low reflectance < 0.6%
- High ambient contrast ratio (ACR)
- Seamless △E < 2

✳ARIES: Advanced Reflection Invisible Technology with Embeded Structure

Local Dimming Solutions

ACRUS

The LCD uses a dual - screen dimming technology, to help achieve a contrast ratio ≥ 100,000:1 and the true black effect.

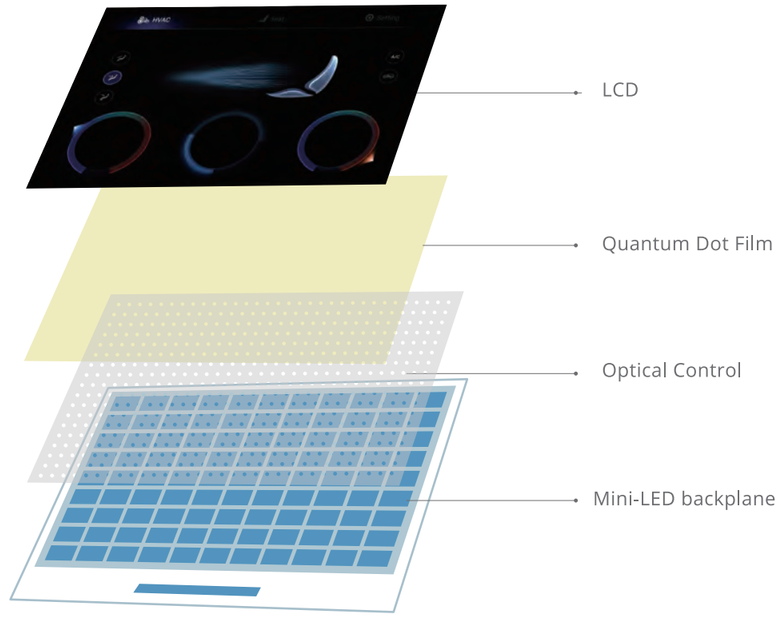


- High contrast ratio ≥ 100,000:1
- True black
- Local dimming

CORE TECHNOLOGIES

Mini-LED

Mini-LED display integrate a direct-type Mini-LED backlight with a TFT-LCD panel. Employing quantum dot film, unique optical control structure, and optimized algorithms, it can offer high contrast ratio, high color gamut, high peak brightness, and friendly halo effect, thereby delivering exceptional image quality and energy-saving performance.



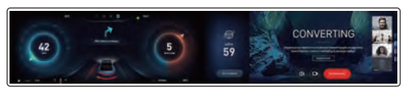
- High contrast ratio >1,000,000:1
- High color gamut >110%
- Single zone brightness 800nits
- Low power consumption: reduced by 55%
- Friendly halo

*ACRUS: (Advanced Contrast Ratio technology with the Unified display System)

*Based on LED pitch 7.5mm

Curved Display

Tianma's curved display technology enables various flexible curve radius design options for automotive displays. The curvature radius of the screen is R700~R3000, which is better suited to a person's viewing angle, and helps to meet the customized design requirements for next generation's system integration. Ultra-high contrast ratio (>100,000:1), creating a perfect visual experience.

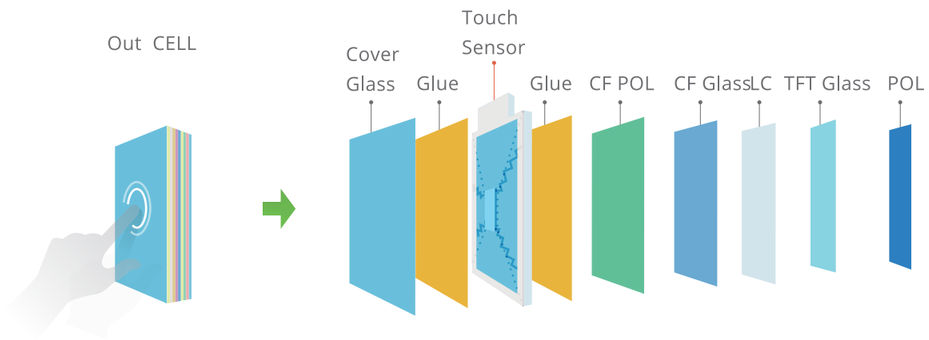
	Screen Type	Curvature
Single Curved Display		
Dual Curved Display		
Curved & Intergrated Display		
Curved & Freeform & Intergrated Display		

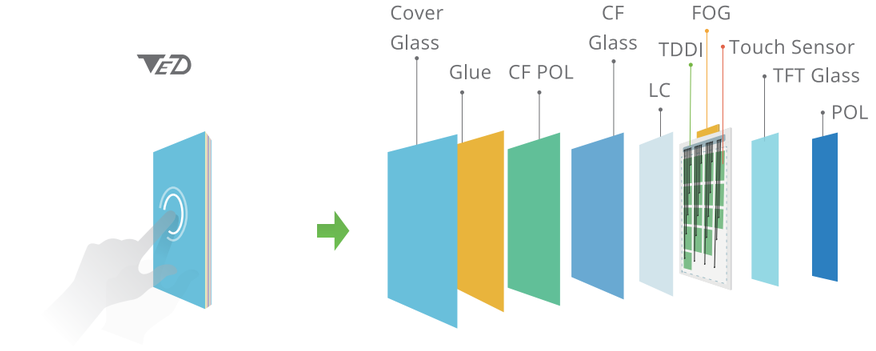
- High resolution 5432×932 (200 PPI)
- High dynamic contrast ratio >100,000:1
- Low reflectivity < 1.4% & Seamless △E < 2
- High color gamut >100%
- Full-screen multi-finger touch
- R700 (mm) ~ R3000 (mm)

Touch Solution

TED

TED (Touch Embedded Display technology) is a solution that integrates both touch and display controller functions. The common electrode of the display is designed into a number of unit arrays to realize the technology of driving display and touch simultaneously by TDDI and only one FPC.



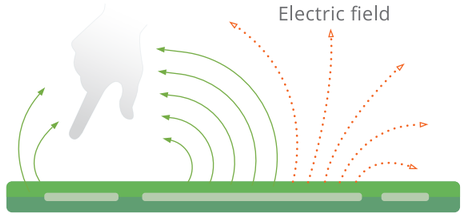


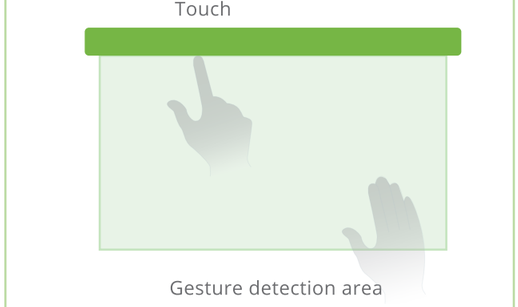
- Higher transmittance
- Super low reflectance
- High SNR & Good TP performance
- Super slim
- Narrow border

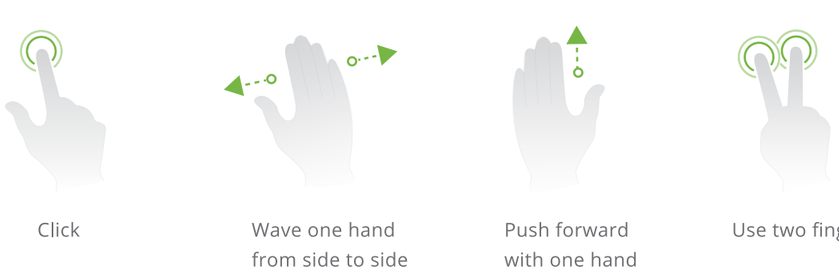
*TED: Touch Embedded Display

Gesture Touch

Tianma gesture technology allows the user to operate with gesture in a space close to the display without touching. The technology detects changes in the electrostatic capacitance when the hand approaches with the electrical field generated between the transmitting electrodes and the receiving electrodes on the sensor substrate.







Detection distance : ~15cm

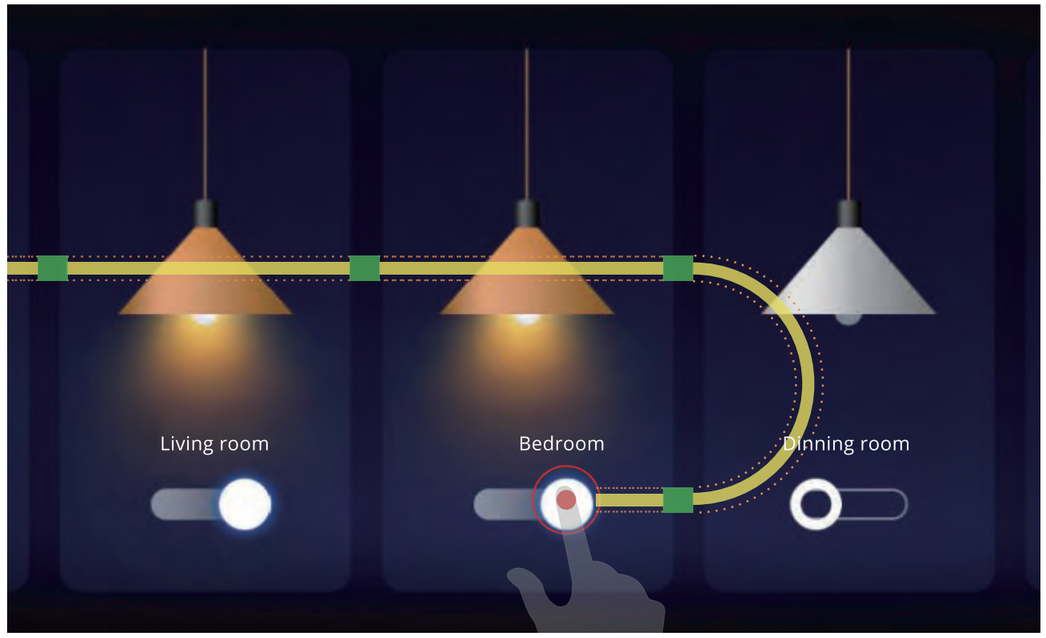
Gesture : Flick, Circular

Touch operation is available

KEY TECHNOLOGIES

Tactile Feedback

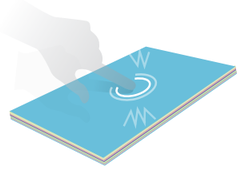
Tianma's tactile-feedback touchscreen features a capability of eyes-free interaction. Texture sensation is experienced when using the on-screen button by the electrostatic force. To locate the button with a user's finger, a click sensation is presented by lateral motions when the user presses a button. This technology enhances safety during operating or driving a machine by reducing looking-away time.



Texture sensation Click sensation

Tactile

when users push & release button



Rough & sticky

when sliding their finger

Friction on the surface is controlled by electrostatic forces between the electrodes and the fingers

Knob on Display

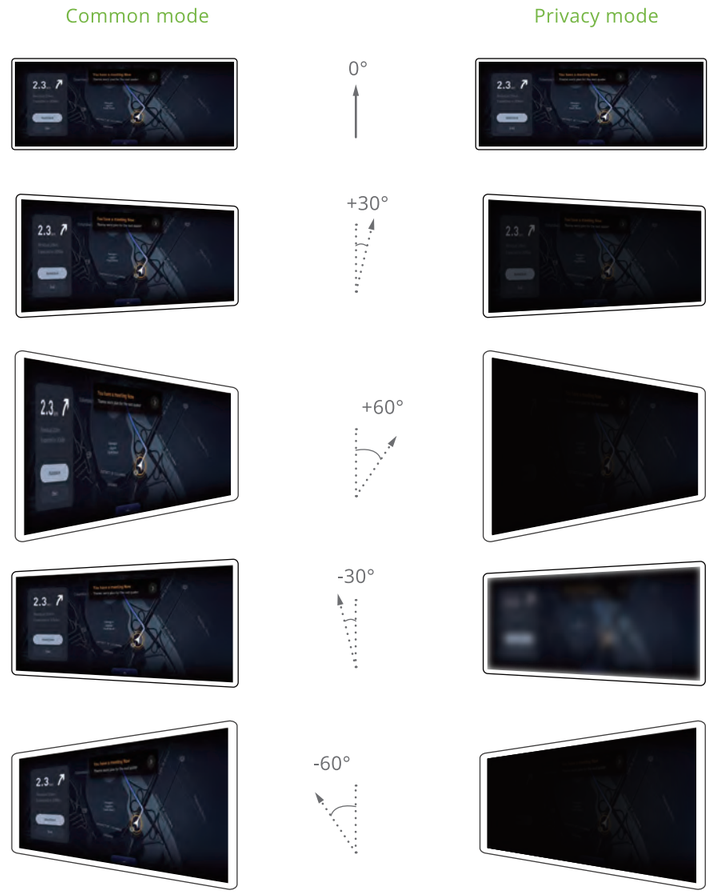
Knob on Display is the physical embodiment of a control knob, placed on a display's touchscreen, supported by a virtual knob position and movement interface.

- 18 Detents
- Auto detection function
- Push button function

KEY TECHNOLOGIES

Privacy

To comply with driver's request for safe driving, display with privacy mode is required. To support this trend, a display works in privacy mode, but also in commom mode for convenience.



- Driving safety
- Sharing/private mode switchable

InvisiVue™

The InvisiVue display features a high-transmittance decorative layer that looks like real wood in the non-operating state. The active area of the display is invisible to the user. The decorative layer is also textured to provide a tactile sensation close to the that of real wood. The combination of Mini-LED backlight and high-transmittance decorative layer yields a high-quality image for improved visual perception and user experience. Tianma's solution achieves an optimum balance of surface texture and image clarity.

Non-operating

Operating

- Perfect hidden perfmance
- High transmittance
- High resolution
- Customized decorative texture

KEY TECHNOLOGIES

Advanced Light-dimmer Film

By using dichroic dye liquid crystal to modulate light, our technology not only effectively solves the problem of non-adjustable light transmission of glass, but can also have integrated touch function. It can be applied to front windshield, side window and roof area.

Transmission

Area and Shape

Touch integrated

- Adjustable transmission
- Continuously tunable transmission
- Customized area and shape
- Fast response

COMBINATION TECHNOLOGIES

High Visual Experience

High resolution

PPI ~ 300

True-black appearance

ΔE < 2

High contrast ratio

>100,000:1

Large size

15~30 inch

High color gamut

~ 110 %

Super narrow border

~ 2.5 mm(W/O CTP)
~ 3.0 mm(W CTP)

High black uniformity

> 50 %(area scan)

Fast gray to gray response

~ 18 ms

Super Fine TFT · Ultra Wide Screen · Multi-bonding Integrates Display · Narrow Border · One-stop Touch Solution · Curve · Freeform

Smart Cockpit Display

Screen Size	27 "	23.6 "
Display Mode		
Aspect Ratio	16:3	16:3
Resolution (pixel)	4032*756	3840*720
Display Color	16.7M	16.7M
Interface	eDP	2-ports LVDS
Operating Temperature	-30°C~+85°C	-30°C~+85°C
Storage Temperature	-40°C~+95°C	-40°C~+95°C
Features		

Screen Size	13.2"Multiple Display with One Cover	12.3"Multiple Display with One Cover
Display Mode		
Aspect Ratio	32:9	8:3
Resolution (pixel)	2560*720	1920*720
Display Color	16.7M	16.7M
Interface	2-ports LVDS	2-ports LVDS
Operating Temperature	-30°C~+85°C	-30°C~+85°C
Storage Temperature	-40°C~+95°C	-40°C~+95°C
Features		

AUTOMOTIVE PRODUCTS

Super Fine TFT · Narrow Border · Signal Feedback Anomaly · Hight Resolution · Ultra-low Reflectivity · Freeform · Cluster

Cluster Display

Full-LCD Cluster

Screen Size	12.3 "	10.25 "	10.25 "
Display Mode			
Aspect Ratio	8:3	8:3	8:3
Resolution (pixel)	1920*720	1920*720	1280*480
Display Color	16.7M	16.7M	16.7M
Interface	2-ports LVDS	2-ports LVDS	1-port LVDS
Operating Temperature	-30°C~+85°C	-30°C~+85°C	-30°C~+85°C
Storage Temperature	-40°C~+95°C	-40°C~+95°C	-40°C~+95°C
Features			

Long Shape Cluster

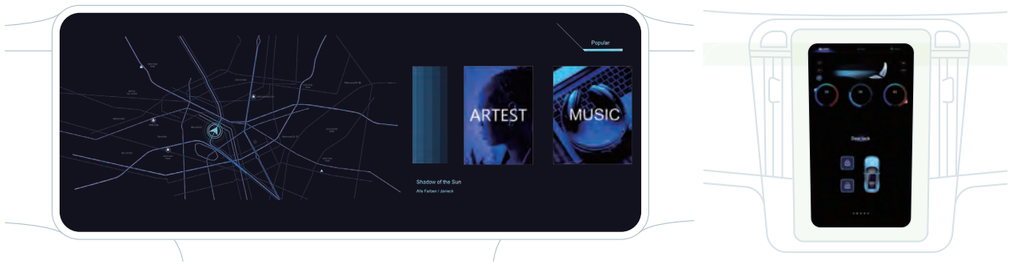
Screen Size	10.2 "	9.2 "	8.88 "	6.0 "
Display Mode				
Aspect Ratio	11:3	15:3	12:3	11:3
Resolution (pixel)	1920*532	1920*384	1920*480	1024*274
Display Color	16.7M	16.7M	16.7M	16.7M
Interface	1-port LVDS	1-port LVDS	1-port LVDS	1-port LVDS
Operating Temperature	-30°C~+85°C	-30°C~+85°C	-30°C~+85°C	-30°C~+85°C
Storage Temperature	-40°C~+95°C	-40°C~+95°C	-40°C~+95°C	-40°C~+95°C
Features				

Semi-LCD Cluster

Screen Size	7.0 "	7.0 "	4.2 "	3.5 "	3.5 "
Display Mode					
Aspect Ratio	3:4	15:9	16:9	3:4	3:4
Resolution (pixel)	240*320	800*480	480*272	240*320	240*320
Display Color	262K	16.7M	262K/16.7M	262K	mono
Interface	RGB I/F	1-port LVDS	RGB I/F	RGB I/F	MCU I/F
Operating Temperature	-30°C~+85°C	-30°C~+85°C	-30°C~+85°C	-30°C~+85°C	-30°C~+85°C
Storage Temperature	-40°C~+95°C	-40°C~+95°C	-40°C~+95°C	-40°C~+95°C	-40°C~+95°C
Features					

Super Fine TFT · Dead front · Narrow Border · In-Cell Touch

Center Information Display



Landscape

Portrait

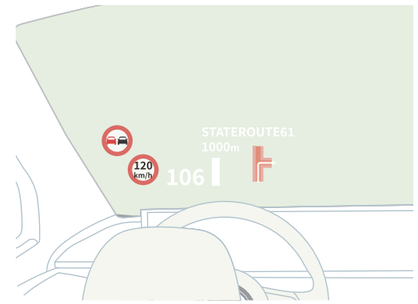
Screen Size	17.3 ”	15.6 ”	15.6 ”	15.4 ”	14.6 ”	14.6 ”	12.9 ”
Display Mode	SFT	SFT	SFT	SFT	SFT	SFT	SFT
Aspect Ratio	16:9	16:9	16:9	16:10	16:9	16:9	16:9
Resolution (pixel)	2880*1620	2560*1440	1920*1080	2560*1600	2560*1440	1920*1080	1920*1080
Display Color	16.7M	16.7M	16.7M	16.7M	16.7M	16.7M	16.7M
Interface	eDP	eDP	2-ports LVDS	eDP	eDP	2-ports LVDS	2-ports LVDS
Operating Temperature	-30°C~+85°C	-30°C~+85°C	-30°C~+85°C	-30°C~+85°C	-30°C~+85°C	-30°C~+85°C	-30°C~+85°C
Storage Temperature	-40°C~+95°C	-40°C~+95°C	-40°C~+95°C	-40°C~+95°C	-40°C~+95°C	-40°C~+95°C	-40°C~+95°C
Features	Dead front, In-Cell Touch, Narrow Border	Dead front, In-Cell Touch, Narrow Border	Dead front, In-Cell Touch, Narrow Border	Dead front, In-Cell Touch, Narrow Border	Dead front, In-Cell Touch, Narrow Border	Dead front, In-Cell Touch, Narrow Border	Narrow Border

Screen Size	12.3 ”	10.25”	10.1 "	9.0 ”	8.0 ”	7.0 ”	13.2”(Portrait)
Display Mode	SFT	SFT	SFT	SFT	SFT	SFT	SFT
Aspect Ratio	8:3	8:3	16:9	16:9	16:9	15:9	3:4
Resolution (pixel)	1920*720	1920*720	1280*720	1280*720	1280*720	800*480	1440*1920
Display Color	16.7M	16.7M	16.7M	16.7M	16.7M	16.7M	16.7M
Interface	2-ports LVDS	2-ports LVDS	1-port LVDS	1-port LVDS	1-port LVDS	1-port LVDS	2-ports LVDS
Operating Temperature	-30°C~+85°C	-30°C~+85°C	-30°C~+85°C	-30°C~+85°C	-30°C~+85°C	-30°C~+85°C	-30°C~+85°C
Storage Temperature	-40°C~+95°C	-40°C~+95°C	-40°C~+95°C	-40°C~+95°C	-40°C~+95°C	-40°C~+95°C	-40°C~+95°C
Features	In-Cell Touch, Narrow Border	In-Cell Touch, Narrow Border	In-Cell Touch	In-Cell Touch	In-Cell Touch		Dead front, In-Cell Touch, Narrow Border

AUTOMOTIVE PRODUCTS

Super Fine TFT · Wide Temperature · Higher Transmittance · Adjustable Reflectivity · FOG · High Brightness · Freeform

Head-up Display



Screen Size	5.1”	4.1”	3.14”	2.6”	1.8”
Display Mode	SFT	SFT	SFT	SFT	SFT
Aspect Ratio	3:1	2:1	15:9	15:9	2:1
Resolution (pixel)	1440*480	1280*640	800*480	800*480	480*240
Display Color	16.7M	16.7M	16.7M	16.7M	262K
Interface	LVDS 24 bits+SPI	LVDS 24 bits+SPI	LVDS 24 bits+SPI	LVDS 24 bits+SPI	RGB 18bits
Operating Temperature	-40°C~+105°C	-40°C~+105°C	-40°C~+105°C	-40°C~+105°C	-40°C~+105°C
Storage Temperature	-40°C~+105°C	-40°C~+105°C	-40°C~+105°C	-40°C~+105°C	-40°C~+105°C
Features	Higher Transmittance, High Brightness	Higher Transmittance, High Brightness	Higher Transmittance, High Brightness	Higher Transmittance, High Brightness	Higher Transmittance, High Brightness

Center Rear View Mirror Display

Screen Size	9.3 "	9.3 ”	9.2 ”	8.6 ”
Display Mode	SFT	SFT	SFT	SFT
Aspect Ratio	24:5	25:5	25:5	25:5
Resolution (pixel)	1920*400	1600*320	1920*384	1280*260
Display Color	16.7M	16.7M	16.7M	16.7M
Interface	1-port LVDS	1-port LVDS	1-port LVDS	1-port LVDS
Operating Temperature	-30°C~+85°C	-30°C~+85°C	-30°C~+85°C	-30°C~+85°C
Storage Temperature	-40°C~+95°C	-40°C~+95°C	-40°C~+95°C	-40°C~+95°C
Features	Freeform, FOG	Freeform, FOG	High Brightness, Adjustable Reflectivity, Freeform	High Brightness, Freeform

AUTOMOTIVE PRODUCTS

Super Fine TFT | Dead front | Narrow Border | SeamTouch Embedded Displayless | Signal Feedback Anomaly | One-stop Touch Solution | Low Temperature Heating

Side Rear View Mirror Display

Screen Size	7"	6.7"
Display Mode	SFT	ZFT
Aspect Ratio	15:9	16:9
Resolution (pixel)	1280*768	1280*720
Display Color	16.7M	16.7M
Interface	1-port LVDS	1-port LVDS
Operating Temperature	-30°C~+85°C	-30°C~+85°C
Storage Temperature	-40°C~+95°C	-40°C~+95°C
Features		

Rear Seat Entertainment Display

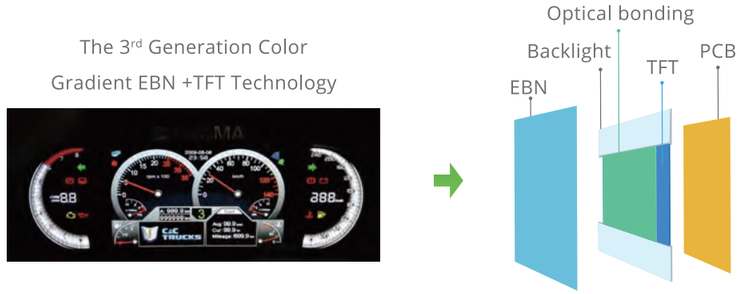
Screen Size	17.3 "	15.6 "	15.6 "	12.9 "
Display Mode	SFT	SFT	SFT	SFT
Aspect Ratio	16:9	16:9	16:9	16:9
Resolution (pixel)	2880*1620	2560*1440	1920*1080	1920*1080
Display Color	16.7M	16.7M	16.7M	16.7M
Interface	eDP	eDP	2-ports LVDS	2-ports LVDS
Operating Temperature	-30°C~+85°C	-30°C~+85°C	-30°C~+85°C	-30°C~+85°C
Storage Temperature	-40°C~+95°C	-40°C~+95°C	-40°C~+95°C	-40°C~+95°C
Features				

PASSIVE PRODUCTS

EBN + TFT

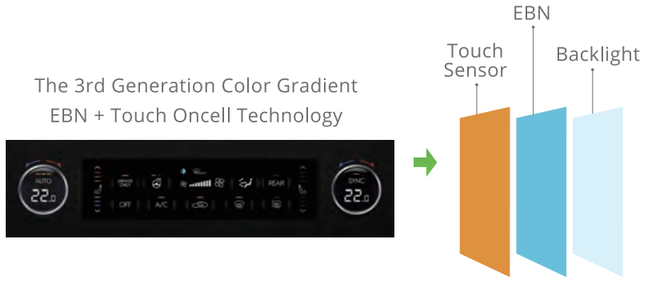
The 3rd Generation Color Gradient EBN + TFT

Tianma can use EBN (Enhanced Black Nematic) + small size TFT technology to produce a display with same performance and content as a traditional TFT display but much more cost effectively, which can achieve multi-color gradient display and be customized per specific requirements. This technology can be used on dashboard displays.



The 3rd Generation Color Gradient EBN +Touch Oncell

EBN (Enhanced Black Nematic) + Touch Oncell technology intergrates touch functions and is thinner and more cost effective than the traditional external TP. The product appearance and color can be customized. This techonolgy can be used on the display of air conditioner control panels.



Duty	1/1		
CR (at -30°C)	1000:1	Transmittance (%)	20%
CR (at 22°C)	2000:1	Operating Temperature	-30°C-+85°C
CR (at 85°C)	1000:1	Storage Temperature	-40°C-+95°C
Ton+Toff (-30°C)(s)	1.5	Vertical (CR>100)	-40°/+60°
Ton+Toff (22°C)(ms)	25	Horizontal (CR>100)	-60°/+60°
Ton+Toff (85°C)(ms)	10		