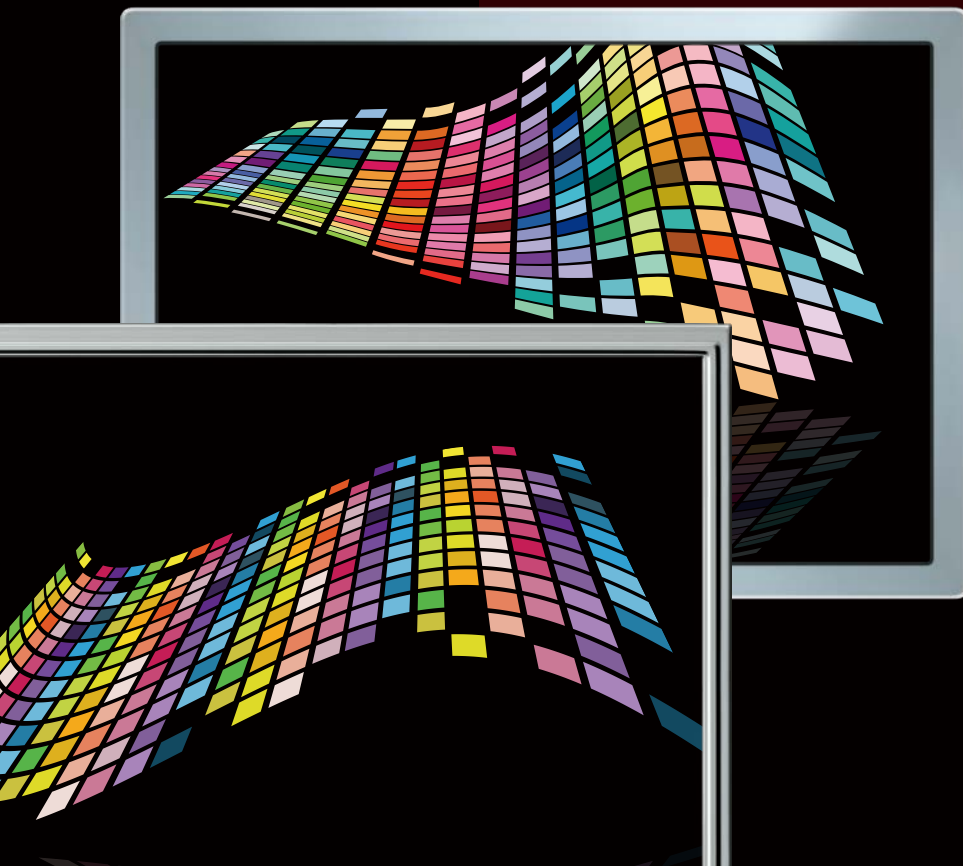


COLOR TFT-LCD MODULES

TFT-LCD Modules



True-to-life Color Reproduction & Variety of Sizes Highly Advanced TFT-LCD Modules by Mitsubishi Electric



For In-Flight Monitor

For Bank ATM

For Train Monitor

LINEUP A line-up rich in variety to match diversified customer requirements

Standard

	5.7"	6.5"	8.4"	10.4"	12.1"	15.0"	19.0"
QVGA 320x240	Standard Type						
VGA 640x480	Super High Brightness Transflective	Super High Brightness	Standard Type Super High Brightness Transflective	Standard Type Super High Brightness			
SVGA 800x600	CMOS-IF Compatible		Standard Type Super High Brightness Super Wide Viewing Angle	Standard Type Super High Brightness Super Wide Viewing Angle Tough TFT-LCD	Standard Type Super High Brightness Super Wide Viewing Angle		
XGA 1024x768			Standard Type Super High Brightness Super Wide Viewing Angle	Standard Type Super High Brightness Super Wide Viewing Angle Transflective Tough TFT-LCD	Standard Type Super High Brightness Super Wide Viewing Angle	Standard Type* Super High Brightness* Super Wide Viewing Angle*	
SXGA 1280x1024				LVDS-IF Compatible			Standard Type Super High Brightness
SXGA+ 1400x1050	Mounting Compatible					Super High Brightness Super Wide Viewing Angle	2ch LVDS-IF Compatible

*The pin assignment is compatible, but the connector model name is different.

Mitsubishi Electric color thin-film transistor liquid-crystal display (TFT-LCD) modules are produced utilizing advanced imaging and color reproduction technologies and come in a variety of sizes to match diversified needs. With applications including point of sale (POS) terminals, vending and ticketing machines, bank automatic teller machines (ATMs) and monitors in vehicles and boats, our TFT-LCD modules have become an essential part of society and people's lives today. Features include excellent visibility, stylish design, simplicity of use and customer-focused product development.



For GAS POS

For Camera Monitor

For Boat Monitor

For Drive-through

Wide

	5.0"	7.0"	8.0"	9.0"	10.1"	10.6"	12.1"	14.1"	17.5"
Wide-VGA 800x480	Super Wide Viewing Angle	Super High Brightness Super Wide Viewing Angle Tough TFT-LCD	Super High Brightness Super Wide Viewing Angle Tough TFT-LCD	Standard Type Super High Brightness Super Wide Viewing Angle			LVDS-IF Compatible		
Wide-XGA 1280x768		Super High Brightness Super Wide Viewing Angle		Super Wide Viewing Angle		Super High Brightness Super Wide Viewing Angle			Standard Type* Super Wide Viewing Angle*
Wide-XGA 1280x800	Mounting Compatible				Super High Brightness Super Wide Viewing Angle		Standard Type Super High Brightness Super Wide Viewing Angle	Standard Type	

*The pin assignment is compatible, but the connector model name is different.

Special

	3.5"	7.8"	12.3"	19.2"
800x300		Super Wide Viewing Angle		
QHD 960x540	Super Wide Viewing Angle			
1/3HD 1920x360				Standard Type**
Wide-HD 1920x720			Super High Brightness Super Wide Viewing Angle	

*The pin assignment is compatible, but the connector model name is different.

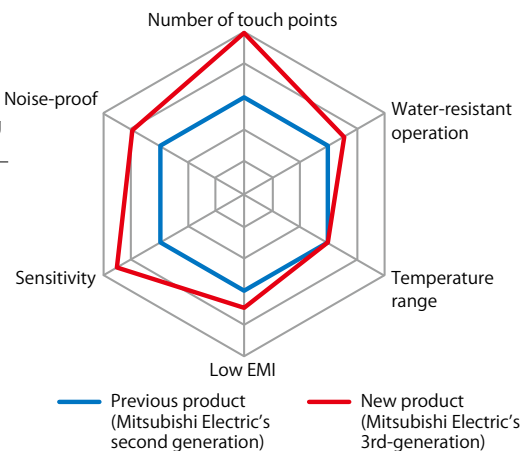
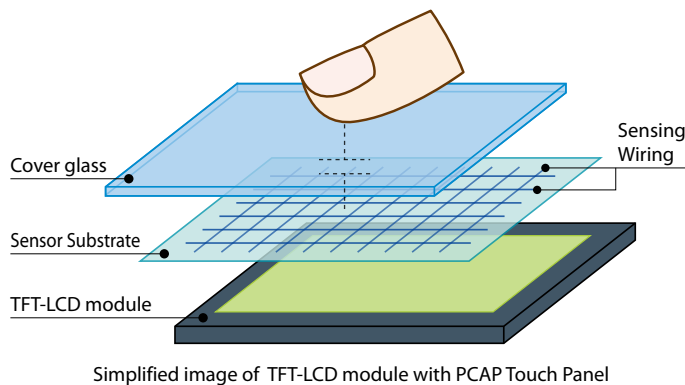
**There are Landscape(AA192AA01) and Portrait(AA192AA51).

TFT-LCD Modules with PCAP*1 Touch Panel

There is a growing demand in the industrial equipment market for intuitive touch interfaces like those on smartphones and tablet PCs. Mitsubishi Electric has responded to that demand with new TFT-LCD modules employing PCAP touch panel technology for superior visibility and durability. Our unique TFT array processing technology coupled with low-resistance material has paved the way to a breakthrough development in microfine sensing wires for touch panels. You can now say goodbye to color shift and hello to superior visibility without the need for any transparent conductive film like ITO*2. Mitsubishi Electric's original detection control treatment technology enables use with protective glass thicknesses up to 2.8mm, realizing enhanced durability. Operation while wearing gloves and detection with water drops

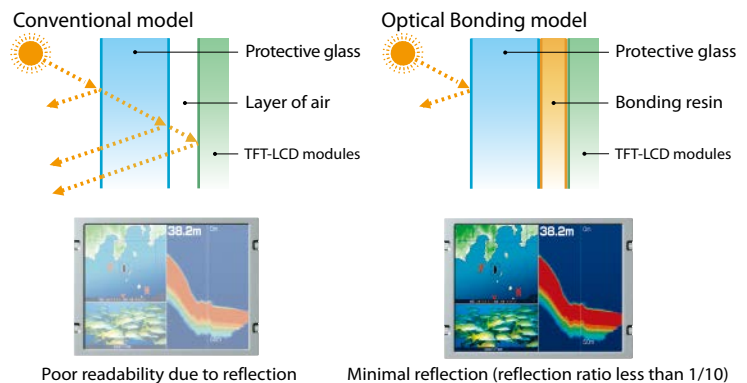
on the screen are now possible. Additionally, the new 3rd-generation PCAP product lineup, with units larger than the 6.5-inch model, is equipped with enhanced detection sensitivity including multi-touch*3 compatibility up to a maximum of 10 points, and can be used with a protective glass over 5.0mm-thick and when wearing thick heart-resistant gloves. Everything, including the TFT-LCD modules touch panel, control board, and driver software has been integrated during manufacturing to deliver all its outstanding features in one neat package. This integrated assembly process ensures a highly reliable user interface environment that delivers steady performance in the toughest industrial or outdoor environments.

*1 PCAP: Projected Capacitive *2 ITO: Indium-tin-oxide *3 Operation touching more than two points at the same time



Optical Bonding Technology

Outdoor-use equipment incorporating TFT-LCD modules often comes equipped with a glass panel to protect the TFT-LCD modules surface. However, the reflection of sunlight off the surface of the TFT-LCD modules can adversely affect visibility. As a solution, Mitsubishi Electric has introduced bonding of the TFT-LCD modules and protective glass with resin. This minimizes the reflection of sunlight and realizes superior visibility for products with protective glass.



Curved TFT-LCD Modules

LCDs have found their way into many applications, including consumer electronics for products like smartphones and tablets, and a plethora of commercial uses such as for railways, ships, aircraft, automobiles, construction machinery, machine tools, and ticket vending machines. Mitsubishi Electric has developed curved (concave) TFT-LCD modules with a curvature radius*1 between 700 and 1,000 mm, and

mass-production technologies to support future demand. The modules are manufactured for use in display equipment installed in automotive and ships; applications that require resistance to harsh environments as well as the ability to design the appearance to match diverse interiors. All TFT-LCD modules in the lineup deliver high visual recognition matching their flat counterparts, and provide vivid, easy to see imagery.



*1 The value represents the degree of a curve in terms of the radius of a circle, part of which forms the curve. The smaller the value, the sharper the curvature.

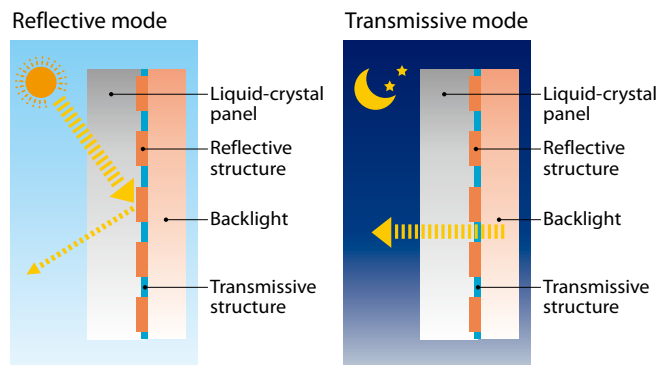
Tough TFT-LCD Modules

Recently, there is an increasing demand for thinner, lighter industrial-use TFT-LCD modules. However, the work environment where they are used is often harsh, requiring robust operating characteristics that are contradictory to the features demanded. Mitsubishi Electric provide a product lineup of TFT-LCD modules for use in harsh work environments. Features include higher vibration resistance capable of withstanding acceleration of up to 6.8G, and a wider operating and storage temperature range, -40 to 85°C.



Transflective TFT-LCD Modules

Transflective TFT-LCD modules have both “transmissive” and “reflective” modes, which utilize a backlight or ambient light as a light source respectively. Transmissive mode provides high visibility in dark environment, and reflective mode helps to maintain high visibility under strong sunlight without booting up the backlight brightness. Thus, transflective TFT-LCD modules can save power consumption and are suitable for mobile devices. Mitsubishi Electric commercialized the 4.3-inch, 5.7-inch, 8.4-inch and 10.4-inch models, and continues to expand its product lineup.



TFT-LCD Modules for Automotive Use

In recent years, the demand for onboard LCDs continues to rise along with ongoing digitization of vehicle. In the meantime, manufacturers' development costs are on the rise as they work to provide the higher levels of reliability and safety required for automotive parts. In addition, the in-car environment means the high optical performance together with the ability to withstand exposure to sunlight and a wide range of temperatures are imperative. Mitsubishi Electric TFT-LCD modules for automotive use offer superior luminosity and high contrast performance combined with a wide viewing angle, and the ability to operate in a wide range of temperatures*1. Choose from three standard models developed in compliance with international standards for automotive parts. Standardized resolutions and interfaces provide customers with more freedom of choice to match application and installation requirements. This product can be used for industrial equipment that requires onboard automotive grade features.



*1: Operating temperatures -40 to +85°C, Storage temperatures -40 to +90°C

Specification

Screen Size (inch)	Resolution (pixel)	Model Name	Features*2							Surface*3	LCD interface	Brightness (cd/m ²)*4	Contrast Ratio	Viewing Angle (°) <U/D><L/R>	Number of Colors	Outline Dimensions (mm) <W><H><D>
			LED Driver	Natural Color Matrix	Color Saturation 72%	Transflective	Super High Brightness	Super Wide Viewing Angle	Comply with IATF							
10.25	Wide-HD (1920x720)	AA103AE01 NEW	✓	✓	✓	✓	✓	✓	AG	LVDS	1000	1000:1	88/88,88/88	16.7M	259.1x106.9x6.2 ^{±5}	
12.3		AA123AF01 NEW	✓	✓	✓	✓	✓	AG	LVDS	1000	1000:1	88/88,88/88	16.7M	305.3x127.9x7.4 ^{±5}		
15.0		AA150AC01 NEW	✓	✓	*6	✓	✓	✓	AG	LVDS	1000	1000:1	88/88,88/88	16.7M	374.5x154.5x11.6 ^{±5}	

*2 White LED backlights are used in all models. *3 AG = antiglare treatment *4 Transmissive mode *5 W/O FPC *6 Color Saturation 70%

COLOR TFT-LCD MODULES

Mitsubishi Electric Semiconductors & Devices Website

www.MitsubishiElectric.com/semiconductors/



Keep safety first in your circuit designs!

●Mitsubishi Electric Corporation puts the maximum effort into making TFT-LCD Modules better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with TFT-LCD Modules may lead to personal injury, fire or property damage. Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of non-flammable material and (iii) prevention against any malfunction or mishap.

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