

# The Next Step in the Evolution of Displays



# 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"	17.0"	19.0"
QVGA 320x240	Standard Type							
VGA 640x480	Super High Brightness Transflective	Super High Brightness Low Reflection	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	Standard Type Super High Brightness Super Wide Viewing Angle			
XGA 1024x768			Standard Type Super High Brightness LVDS-IF Compatible	Standard Type Super High Brightness	Standard Type Super High Brightness	Standard Type* Super High Brightness* Super Wide Viewing Angle*		
SXGA 1280x1024	Mounting Compatible						Standard Type 2ch LVDS-IF Compatible	Super High Brightness

\*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**



	4.3"	5.0"	7.0"	9.0"	10.6"	12.1"	14.1"	17.5"
Wide-VGA 800x480	Standard Type	Standard Type	Super High Brightness Super Wide Viewing Angle	Super High Brightness Super Wide Viewing Angle				
Wide-XGA 1280x768				Super Wide Viewing Angle	Super High Brightness Super Wide Viewing Angle			Standard Type*
Wide-XGA 1280x800	Mounting Compatible				LVDS-IF Compatible	Standard Type Super High Brightness	Standard Type	

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

**Special**



	9.0"	19.2"
QHD 960x540	Super Wide Viewing Angle	
1/3HD 1920x360	LVDS-IF Compatible	Standard Type**

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

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

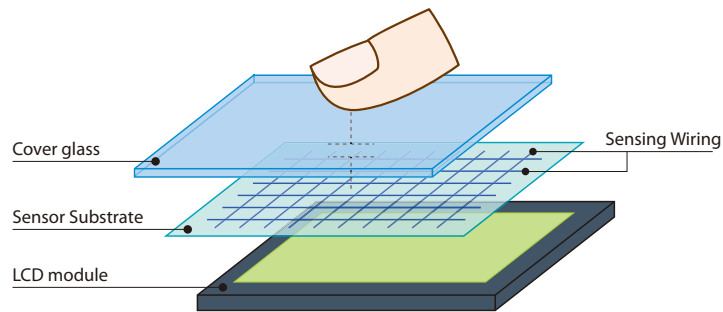
## Color TFT-LCD Modules for Industrial Use with Touch Panel

### ■ TFT-LCD Modules with PCAP\* Touch Panel **NEW**

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 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\*\*. Our proprietary detective processing technologies deliver seamless performance through a 2.8-mm-thick protective glass that's designed for superior durability. The touch panel's

sensors can detect a user's touch even if he or she is wearing gloves or water drops exist on the screen. Everything, including the LCD module's touch panel, control board, driver software, and glass bonding, 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.

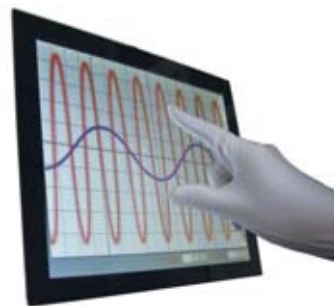
\* PCAP: Projected Capacitive \*\*ITO: Indium-tin-oxide



Simplified image of TFT-LCD PCAP Touch Panel



Intuitive touch



With gloves

### ■ TFT-LCD Modules with 4-wire resistive Touch Panel

We offer a complete line of highly versatile industrial LCD modules equipped with a 4-wire resistive touch panel designed to meet a world of industrial equipment needs. Our integrated assembly method builds reliability into every LCD module with touch panel.



Glass bonding and touch panel options are also available. Please contact our sales office.

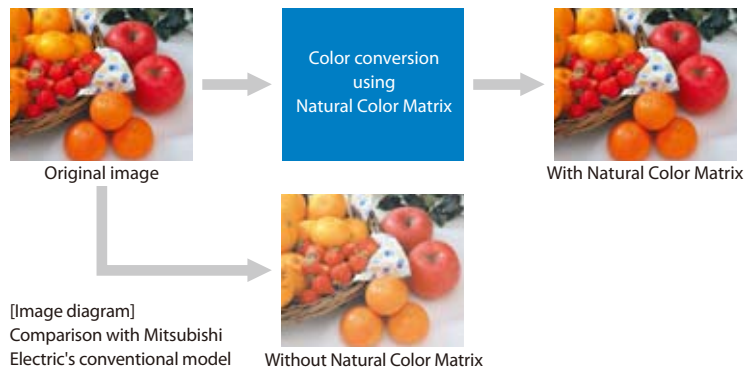
## White LED Backlighting

White light-emitting diodes (LEDs), which consume less power and have superior electrical properties compared to their conventional cold cathode fluorescent lamp (CCFL) counterparts, are increasingly being used as LCD backlights. Among pioneers in the use of white LEDs, Mitsubishi Electric was the first to complete introducing LED into industrial-use LCD line-up. White LED backlights are used in all our standard product models as well as our high-brightness products designed especially for outdoor use.



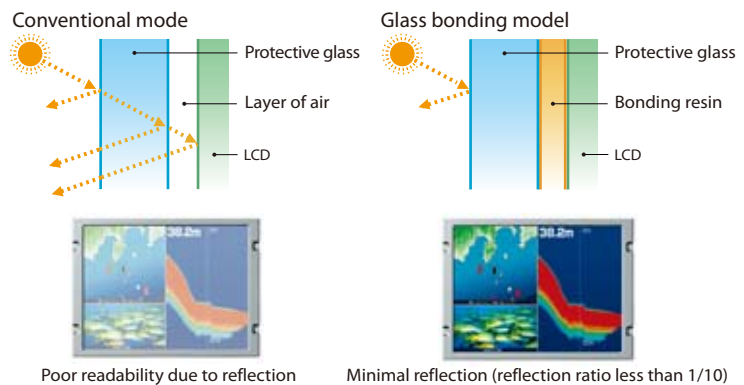
## Natural Color Matrix

Today, industrial-use LCDs are incorporated into a range of different equipment where they display a wide variety of content. An increasing number of these applications require natural color reproduction. Mitsubishi Electric's unique Natural Color Matrix color conversion technology was introduced as a standard feature in the company's industrial-use LCDs beginning from the early stages of production providing stunningly vivid color reproduction.



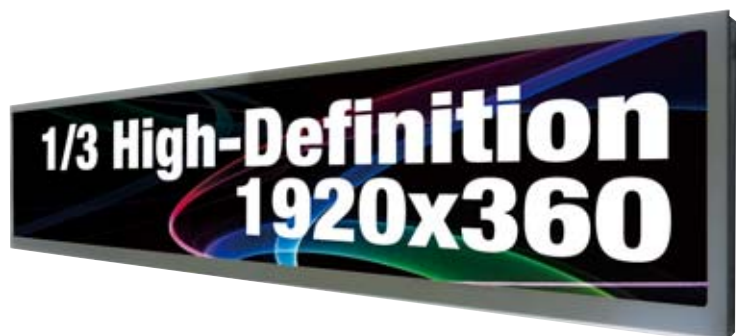
## Glass Bonding Technology

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











## Wide Product Line-up

A diverse line-up of TFT-LCD modules is available, including a full range of standard resolution displays. Examples of special industrial-use LCDs include a 9.0-inch quarter-high-definition (QHD) resolution monitor ideal for camera monitor applications and a wide 19.2-inch full high-definition monitor that is one-third the height of conventional displays.



# Specification

Screen Size (inch)	Resolution (pixel)	Model Name	Features*								Electric Interface	Brightness (cd/m <sup>2</sup> )	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% 	Low Reflection 	Transflective 	Super High Brightness 	Super Wide Viewing Angle 	Feed Forward Driving (Motion Improvement Technology) 						
4.3	Wide-VGA (800x480)	AA043MA01		✓							CMOS	200	400:1	45/65, 65/65	262K/16.7M	103.0x67.5x5.3
5.0	Wide-VGA (800x480)	AA050ME01									CMOS	420	450:1	65/45, 65/65	16.7M	118.5x77.8x3.5
		AA050MG01							✓		CMOS	800	900:1	85/85, 85/85	16.7M	118.5x84.7x3.9
5.7	QVGA (320x240)	AA057QD01	✓								CMOS	450	800:1	80/60, 80/80	262K	144.0x104.6x8.8
	VGA (640x480)	AA057VF12 <b>NEW</b>	✓	✓				✓			CMOS	1100	600:1	80/60, 80/80	262K	135x104.6x8.85
		AA057VG12 <b>NEW</b>	✓	✓			✓				CMOS	500* <sup>2</sup>	185:1* <sup>2</sup>	50/65, 80/80* <sup>2</sup>	262K	135x104.6x8.85
6.5	VGA (640x480)	AA065VE11 <b>NEW</b>		✓				✓			LVDS	1300	600:1	80/60, 80/80	262K/16.7M	154.0x121.0x11.0
		AA065VE13 <b>NEW</b>		✓		✓		✓			LVDS	1300	600:1	80/60, 80/80	262K/16.7M	154.0x121.0x11.0
7.0	Wide-VGA (800x480)	AA070MC01 <b>NEW</b>	✓	✓				✓	✓		LVDS	1000	1000:1	85/85, 85/85	262K/16.7M	169.8x109.7x8.9
		AA070MC11 <b>NEW</b>		✓				✓	✓		LVDS	1300	1000:1	85/85, 85/85	262K/16.7M	169.8x109.7x8.9
		AA070ME01 <b>NEW</b>	✓	✓				✓			LVDS	1000	800:1	60/80, 80/80	262K/16.7M	169.8x109.7x8.9
8.4	VGA (640x480)	AA084VJ01 <b>NEW</b>	✓	✓							LVDS	800	800:1	80/60, 80/80	262K/16.7M	199.5x149.0x9.7
		AA084VJ11 <b>NEW</b>		✓				✓			LVDS	1500	800:1	80/60, 80/80	262K/16.7M	199.5x149.0x9.7
		AA084VL01 <b>NEW</b>		✓			✓				CMOS	300* <sup>2</sup>	200:1* <sup>2</sup>	(50/70), (80/80) <sup>**2</sup>	262K	199.5x149.0x11.5
	SVGA (800x600)	AA084SC01 <b>NEW</b>	✓	✓	✓				✓		LVDS	600	1000:1	85/85, 85/85	262K/16.7M	199.5x149.0x9.7
		AA084SD01 <b>NEW</b>	✓	✓							LVDS	600	600:1	80/60, 80/80	262K/16.7M	199.5x149.0x9.7
		AA084SD11 <b>NEW</b>		✓				✓			LVDS	1200	600:1	80/60, 80/80	262K/16.7M	199.5x149.0x9.7
XGA (1024x768)	AA084XE01 <b>NEW</b>	✓	✓							LVDS	500	600:1	80/60, 80/80	262K/16.7M	199.5x149.0x9.7	
	AA084XE11 <b>NEW</b>		✓				✓			LVDS	1000	600:1	80/60, 80/80	262K/16.7M	199.5x149.0x9.7	
9.0	Wide-VGA (800x480)	AA090ME01		✓	✓				✓		LVDS	400	900:1	85/85, 85/85	262K/16.7M	219.0x136.2x9.5
		AA090MF01		✓							LVDS	800	800:1	80/60, 80/80	262K/16.7M	219.0x136.2x9.5
		AA090MF11 <b>NEW</b>		✓				✓			LVDS	1500	800:1	80/60, 80/80	262K/16.7M	219.0x136.2x9.5
	QHD (960x540)	AA090AA01	✓		✓				✓	✓	LVDS	400	1000:1	85/85, 85/85	262K/16.7M	217.0x130.0x9.5
Wide-XGA (1280x768)	AA090TA01 <b>NEW</b>		✓					✓		LVDS	800	1000:1	85/85, 85/85	262K/16.7M	219.0x136.2x9.5	
10.4	VGA (640x480)	AA104VJ02 <b>NEW</b>	✓	✓							LVDS	800	800:1	80/60, 80/80	262K/16.7M	230.0x180.2x9.5
		AA104VJ12 <b>NEW</b>		✓				✓			LVDS	1500	800:1	80/60, 80/80	262K/16.7M	230.0x180.2x9.5
	SVGA (800x600)	AA104SJ02 <b>NEW</b>	✓	✓	✓				✓		LVDS	600	1000:1	85/85, 85/85	262K/16.7M	230.0x180.2x9.5
		AA104SL02 <b>NEW</b>	✓	✓							LVDS	700	700:1	80/60, 80/80	262K/16.7M	230.0x180.2x9.5
		AA104SL12 <b>NEW</b>		✓				✓			LVDS	1200	700:1	80/60, 80/80	262K/16.7M	230.0x180.2x9.5
	XGA (1024x768)	AA104XF02 <b>NEW</b>	✓	✓							LVDS	600	700:1	80/80, 80/80	262K/16.7M	230.0x180.2x9.5
AA104XF12 <b>NEW</b>			✓				✓			LVDS	1000	700:1	80/80, 80/80	262K/16.7M	230.0x180.2x9.5	









\*1 White LED backlights are used in all models.

\*2 Transmissive mode

Screen Size (inch)	Resolution (pixel)	Model Name	Features*								Electric Interface	Brightness (cd/m <sup>2</sup> )	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%	Low Reflection	Transflective	Super High Brightness	Super Wide Viewing Angle	Feed Forward Driving (Motion Improvement Technology)								
10.6	Wide-XGA (1280x768)	AA106TA01 <b>NEW</b>	✓	✓					✓	✓		LVDS	1000	1000:1	85/85, 85/85	262K/16.7M	250.0x157.0x8.9	
		AA106TA11 <b>NEW</b>		✓					✓	✓		LVDS	1000	1000:1	85/85, 85/85	262K/16.7M	250.0x157.0x8.9	
12.1	SVGA (800x600)	AA121SU01 <b>NEW</b>	✓	✓								LVDS	800	600:1	80/80, 80/80	262K/16.7M	260.5x203.0x9.5	
		AA121SU11 <b>NEW</b>		✓					✓			LVDS	1500	600:1	80/80, 80/80	262K/16.7M	260.5x203.0x9.5	
		AA121ST01 <b>NEW</b>	✓	✓	✓						✓		LVDS	600	1000:1	85/85, 85/85	262K/16.7M	260.5x203.0x9.5
	XGA (1024x768)	AA121XN01 <b>NEW</b>	✓	✓									LVDS	700	600:1	80/80, 80/80	262K/16.7M	260.5x203.0x9.5
		AA121XN11 <b>NEW</b>		✓						✓			LVDS	1300	600:1	80/80, 80/80	262K/16.7M	260.5x203.0x9.5
	Wide-XGA (1280x800)	AA121TD01	✓	✓									LVDS	800	700:1	80/60, 80/80	262K/16.7M	283.0x185.1x9.7
AA121TD11 <b>NEW</b>			✓						✓			LVDS	1500	700:1	80/60, 80/80	262K/16.7M	283.0x185.1x9.7	
14.1	Wide-XGA (1280x800)	AA141TC01		✓								LVDS	800	700:1	80/60, 80/80	262K/16.7M	326.0x216.5x16.0	
15.0	XGA (1024x768)	AA150XS02			✓					✓		LVDS	350	1000:1	85/85, 85/85	262K/16.7M	326.0x255.0x16.6	
		AA150XS11		✓	✓				✓	✓		LVDS	1100	1000:1	85/85, 85/85	262K/16.7M	326.0x255.0x16.6	
		AA150XT01		✓								LVDS	800	800:1	60/80, 80/80	262K/16.7M	326.0x255.0x16.6	
		AA150XT11		✓					✓			LVDS	1500	800:1	60/80, 80/80	262K/16.7M	326.0x255.0x16.6	
17.0	SXGA (1280x1024)	AA170EC01 <b>NEW</b>		✓	✓							LVDS	600	800:1	80/60, 80/80	262K/16.7M	358.5x296.5x16.9	
17.5	Wide-XGA (1280x768)	AA175TD01		✓								LVDS	700	700:1	80/60, 80/80	262K/16.7M	404.0x258.0x16.2	
19.0	SXGA (1280x1024)	AA190EA01		✓					✓			LVDS	1500	800:1	80/80, 80/80	262K/16.7M	404.2x330.0x14.9	
19.2	1/3HD (1920x360)	AA192AA01	✓	✓								LVDS	500	700:1	80/60, 80/80	262K/16.7M	496.0x109.2x13.9	
		AA192AA51 <b>NEW</b>	✓	✓								LVDS	650	700:1	80/80, 60/80	262K/16.7M	496.0x109.2x13.9	

\*1 White LED backlights are used in all models.

\*2 Transmissive mode

 LED Driver	 Natural Color Matrix	 Color Saturation 72%
 Low Reflection	 Transflective	 Super High Brightness
 Super Wide Viewing Angle	 Feed Forward Driving (Motion Improvement Technology)	

Other available features are grass bonding type and touch panel type. Please contact our sales office.

Please see here in detail.  
<http://www.MitsubishiElectric.com>

#### Keep safety first in your circuit designs!

●Mitsubishi Electric Corporation puts the maximum effort into making LCD products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with LCD 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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## JONHON

«JONHON» (основан в 1970 г.)

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(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

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