

ZETTLER GROUP

www.zettler-group.com

www.zettlerdisplays.com

Focus on Displays



March 2017

LCD/TFT Solutions



AZ Displays, manufactures and markets a broad line of TFT panels and LCD modules, with an established reputation as a provider of top quality display solutions in a wide range of industry applications - combining sophisticated design and engineering capabilities, in standard and customized versions, and at very competitive pricing.

Why AZ Displays ?

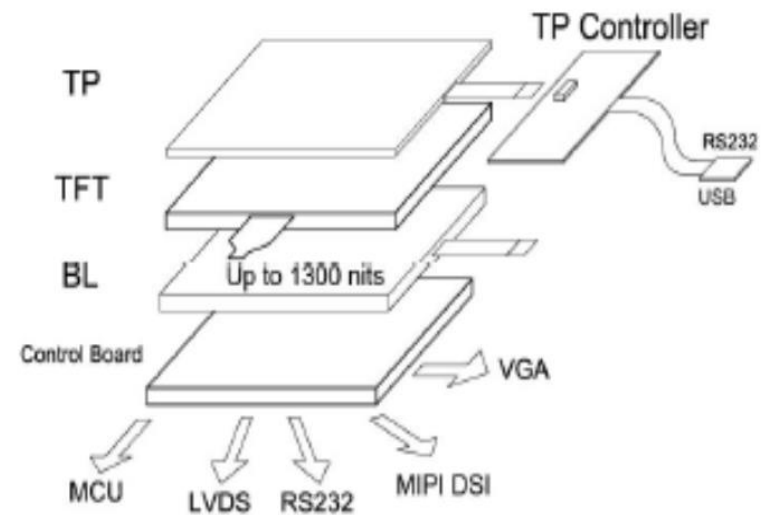
- 1. Established manufacturer of industrial display products:**
TFT's with integrated resistive/PCAP touch 7 inch and under, wide range of character and graphic LCD modules.
- 2. Fully owned China assembly manufacturing** (clean room facilities, state-of-art process and quality controls) – **vertically integrated with global sales and distribution.**
- 3. High automation level drives ability for very competitive pricing at lower volumes.**
- 4. Sophisticated design capabilities and strong engineering support focus:**
 - EMEA and China engineering and development support.
 - Designer-friendly website support with **comprehensive engineering resources** including 3D CAD, datasheets, dimensional drawings, quick-scan parameter, easy to navigate digital catalog.
 - Advanced development tools include universal development AND production board.



Click on image for link
<http://www.azdisplays.com/e-catalog/>

TFT Displays Integrated Solutions include:

- 1.77" - 10.4" TFT Glass
- Brightness range: 250 - 1300nits (Sun readable)
- MCU/RGB/LVDS/MIPI interface options to meet your application requirement
- Resistive/Capacitive TP - optional
- Control Board
- LOCA Optical Bonding (TFT+TP) - optional



Touch Panel Options

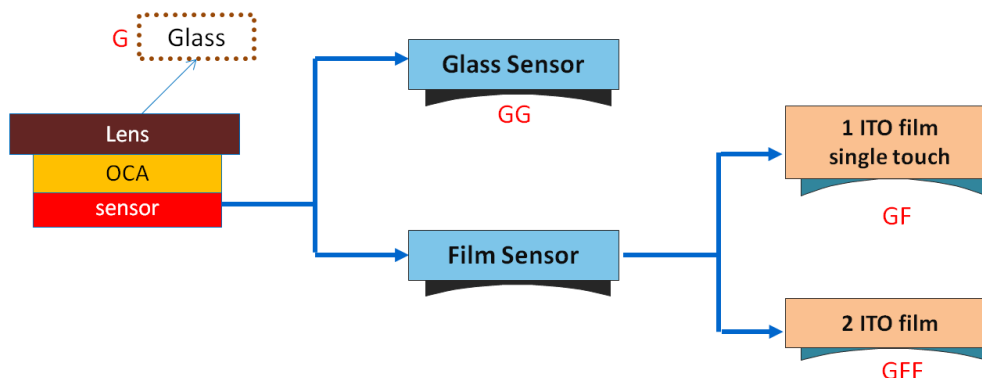
Capacitive Touch Panel

- Better touch sensitivity
- Multi-touch is available
- More precise on touch
- Longer life time
- More user-friendly
- Need to consider EMI effect of device in the design process
- 2.8" - 10.4"

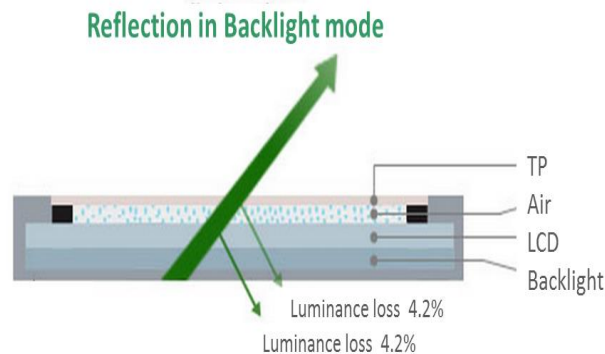
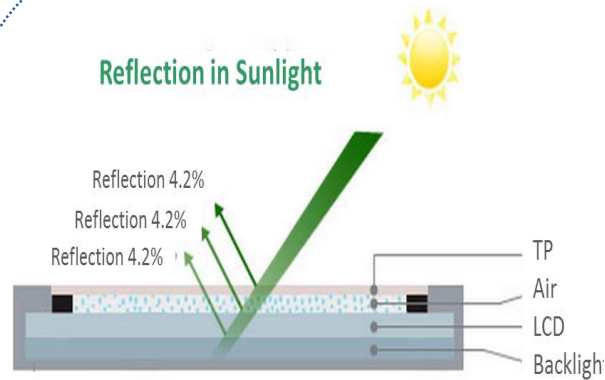
Resistive Touch Panel

- Can be touched with a pen and other substance
- Better anti-interference
- Lower Cost
- Multi-touch is not available
- Need periodical calibration
- No impact by EMI and better environment endurance
- 1.77" - 10.4"

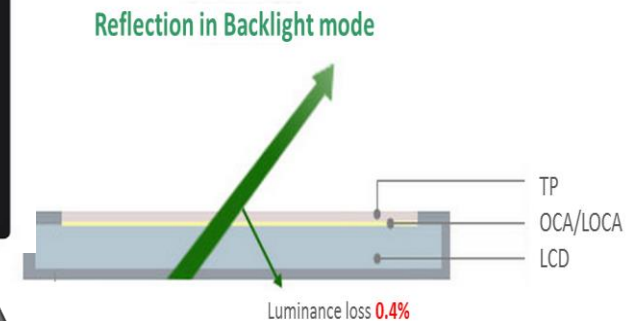
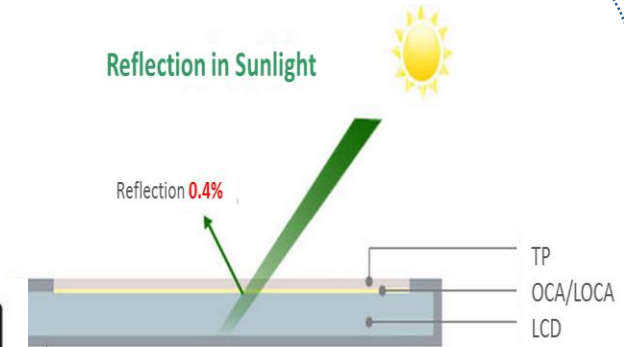
PCAP TP Technical Structure



Benefits of Value-Added Optical Bonding



VS



**Non Optical
Bonding**

**With Optical
Bonding**

Benefits of Value-Added Optical Bonding

TFT+TP without Optical Bonding

- **Readability in Sun:** Reflection of sunlight (13.6% luminance) → mirror-image on the display → Reduce readability
- **Energy efficiency:** 8.4% luminance loss (reflection) in Backlight mode → Has to increase brightness of LED
- **Application environment:** Gap between the TP and TFT glass → penetrated by moisture → fogging and reduced readability, particularly in outdoor high humidity.

VS

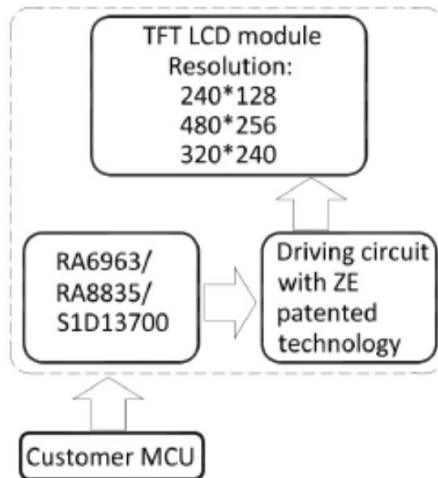
TFT+TP with Optical Bonding (OCA /LOCA)

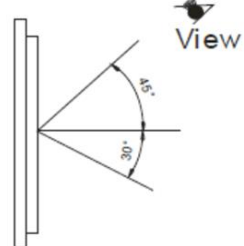
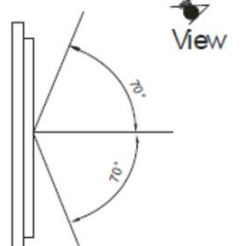
- **Readability in Sun:** Reflection of sunlight only 0.4% luminance → Significant improvement on readability in sun (300%+)
- **Energy efficiency:** 0.4% luminance loss only in Backlight mode → Lower LED brightness and lower energy
- **Application environment:** OCA between the TP and TFT glass → Eliminate moisture penetration → Much better Readability, particularly high humidity outdoors applications
- **Improved durability:** Higher resistance to dirt & moisture and strengthened product structure

High Contrast Graphic Module (TFT displays)

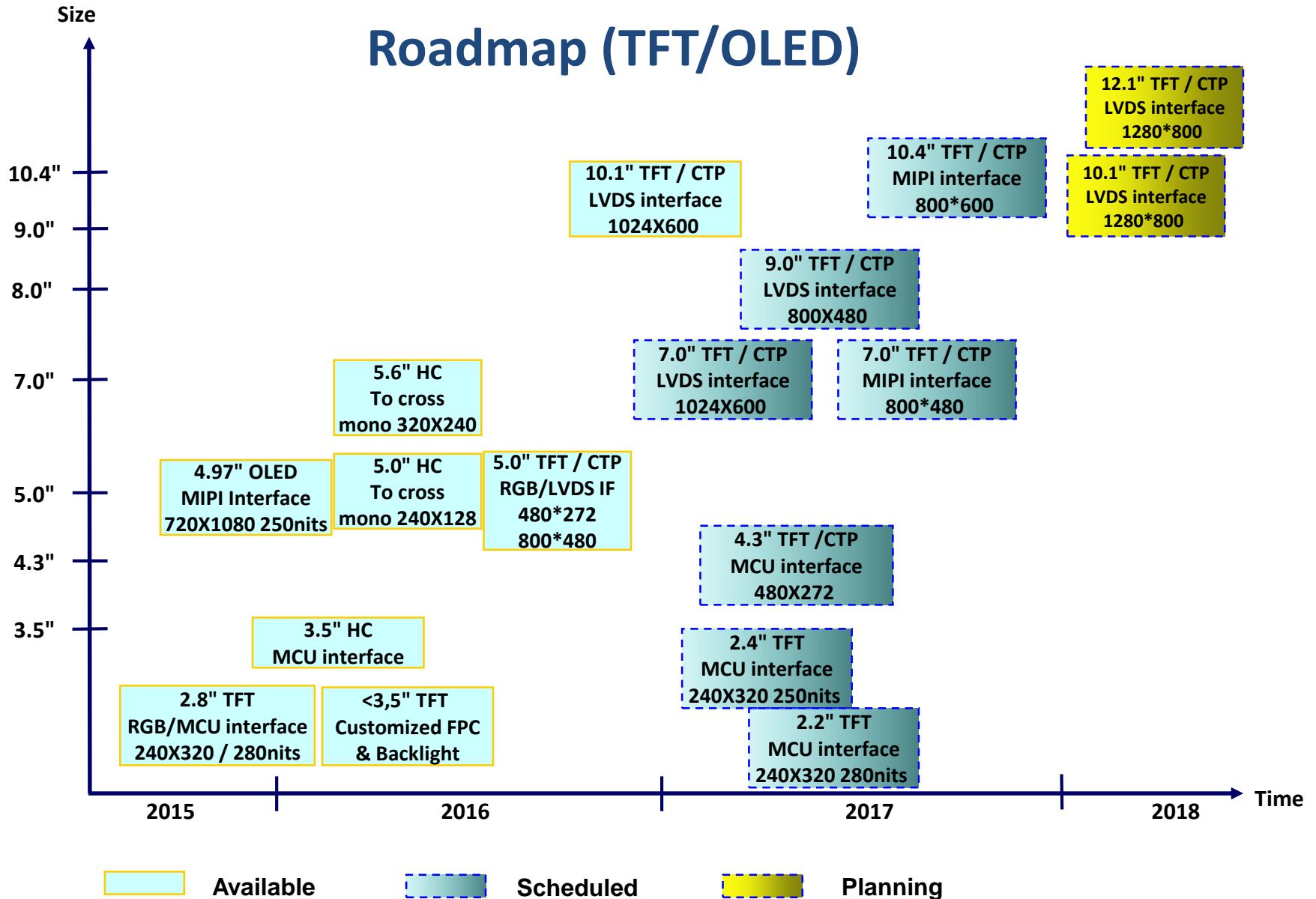
Features of HC Graphic Module

- High quality TFT Display
- High contrast –better for outdoor applications
- Wide viewing angle
- Mono LCD controller, simple connection
- Free options for background/font color
- **Zettler patented technology** / Software compatible with mono LCM (easy and direct product replacement)
- 3.5" / 5" / 5.6" TFT glass



		MONO DISPLAYS	HC DISPLAYS
Display Effect (3 O'clock angle)		ZETTLER DISPLAYS Lower Contrast Ratio Narrower Viewing Angle HW/SW Compatible Operating Temp. -20~70°C	ZETTLER DISPLAYS Higher Contrast Ratio Wider Viewing Angle HW/SW Compatible Operating Temp. -30~85°C
Viewing Angle			
Display Color	Background	White, Blue, Yellow/Green, Black	Free option
	Font	White, Black	Free option
Contrast Ratio (typ.)		Not more than 10:1	Higher than 400:1
Operating Temperature °C		-20 ~ 70	-30 ~ 85
Storage Temperature °C		-30 ~ 80	-30 ~ 85

Roadmap (TFT/OLED)



LCD/TFT Solutions

Sample Applications

Security Monitoring Systems

[ATM0500D12-T](#)



Electronic Test Equipment

[ATM0700D6C-T](#)



Climate Controls

[Custom Glass](#)



Sample Applications

Fitness Equipment

[ATM0700D6B](#)



Automotive/Engine Controls

[ATM0700D6J-CT](#), [ATM0700L6L-CT](#)



Credit Card Reader

[ATM0430D12-CT](#)



Sample Applications

Irrigation Controls

[ATM0430D19A](#)



Modular HMI control/visualization systems

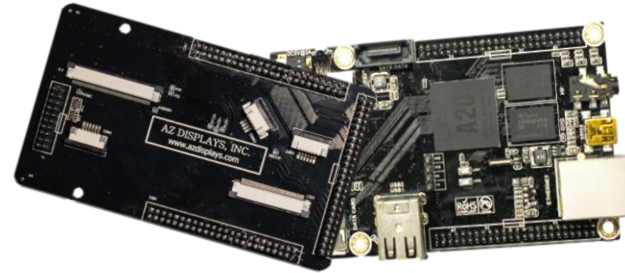
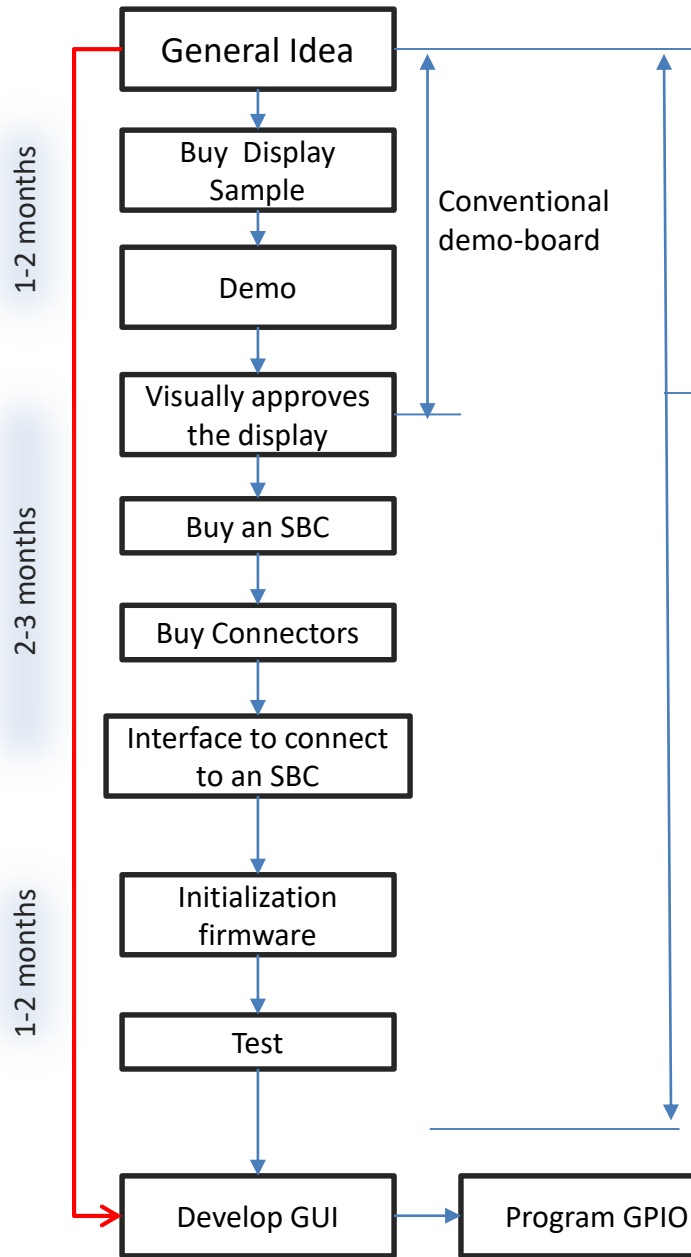
[ATM0700L6L-CT](#)



Remote Alarm Monitoring System

[ACM1602K-FL-YBS](#)





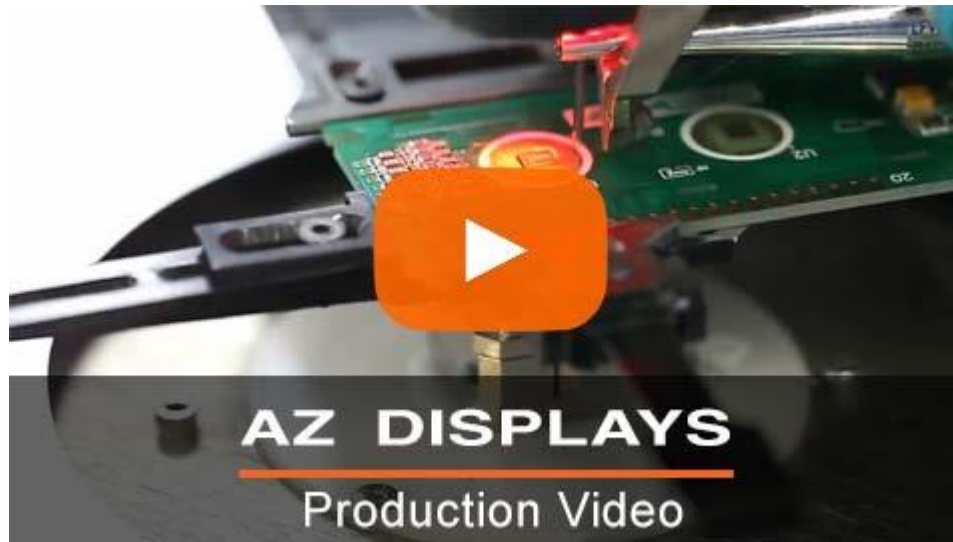
Click image for product details

AZ Displays development and 'production' board

- A technically robust and versatile engineering tool.
- Provides engineers with seamless integration of visual approval/display selection process and application programming/GUI development.
- Multiple evaluation options for TFT sizes 4.3", 5.0", 7.0", brightness 200-1000 nits, resistive or PCAP touch.
- Does not require separate SBC/connectors/interfaces and avoids time consuming initialization coding for smaller to medium industrial applications/programming tasks.
- Ideal for applications with limited complexity and limited programming resources, smaller production runs.

Display Manufacturing

- ❑ ZETTLER Displays manufacturing division in Xiamen, China has implemented sophisticated process and quality standards including ISO 9001:2008.
- ❑ Key quality tools include APQP / DFMEA & PFMEA / SPC / MSA / PPAP, and testing on a 100% basis. Our production processes are lead free and RoHS compliant and feature clean room facilities (class 1,000 and 10,000 rooms).



(Click image for VIDEO link)

<http://www.azdisplays.com/az-displays-production-video/>