

- Commitment to environmental preservation

ISO14001

- **ORTUS TECHNOLOGY KOCHI Plant: Certified in 1998**
- **ORTUSTECH (MALAYSIA) SDN.BHD.: Certified in 2014**

Environmentally Friendly Products

Toppa group established the Toppa Standards for Environmentally Friendly Products and only the products which meet all of the criteria in this Standard can be certified and registered as "Environmentally Friendly Products". All ORTUSTECH brand products proudly gain this certification.

Prevention of Global Warming

■ Reduction of Greenhouse Effect Gases

- Usage of NF3 (nitrogen trifluoride) in TFT-LCD manufacturing process was abolished in 2005
- Usage of SF6 (sulfur hexafluoride) in TFT-LCD manufacturing process was abolished in 2012
- The first factory in the world to replace above greenhouse gases into COF2 (carbonyl fluoride) which has a highly effect to prevent global warming

■ Ozone Layer Protection

- Awarded the Jury's Special Award of "9th Protect the Ozone Layer, Prevent Global Warming Grand Prizes" (2008)

■ Actions for Energy Saving

Continuous activities for energy saving; including, central supply of Clean Dry Air (CDA) to the whole factory and renewal to high-efficiency motors.

Recycling of Resources

■ Reduction and Recycling of waste

- Zero-Emission manufacturing system (ZE accomplished in 2014)
- Zero-Emission: Landfilled waste shall be <1% of total amount of generated waste (ORTUSTECH definition)

■ Prevention of Water and Land Pollution

- The water used in manufacturing process is cleaned up to the drinkable level and then throw into local rivers.



The Toppa Group Declaration on the Global Environment

As responsible members of international society, we who work within the Toppa Group strive to realize a sustainable society through forward looking corporate activities with consideration for the conservation of the global environment.

Basic Principles

1. We observe all laws, regulations and in-company rules relating to the environment.
2. For the future of the Earth, we strive for the effective utilization of limited resources and the reduction of all types of environmental burden.
3. With foresight, we promote the development and widespread use of products that show consideration for the environment, and contribute to the environmental activities of customers.
4. We engage in communication related to the environment with a wide range of peoples both inside and outside the company, and strive for mutual understanding.
5. We also take a proactive approach to environmental conservation in corporate activities in international society.

Established in April 1992 Revised in April 2009

Cautions for Use

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ORTUSTECH

ORTUS TECHNOLOGY Liquid Crystal Display



ORTUSTECH
ORTUS TECHNOLOGY CO., LTD.

Product information

<http://www.ortustech.co.jp/english/>



The contents of this catalog are accurate as of September 2018.

**Sunlight Readable
Low Power
Consumption**

Wide variety of sunlight readable and low power consumption TFT-LCD lineup to meet the diverse needs and applications.

**Long-term Stable
Supply**

Long-term continuous product supply by a selective use of long-term available components/materials.

**High-Mix/Low-
Volume Production**

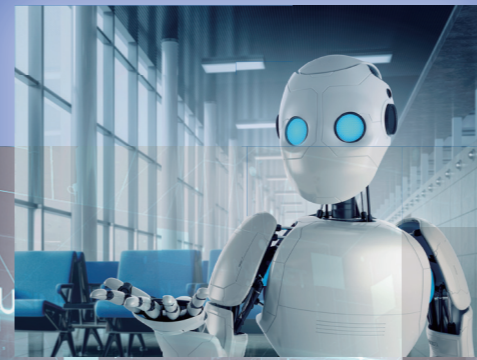
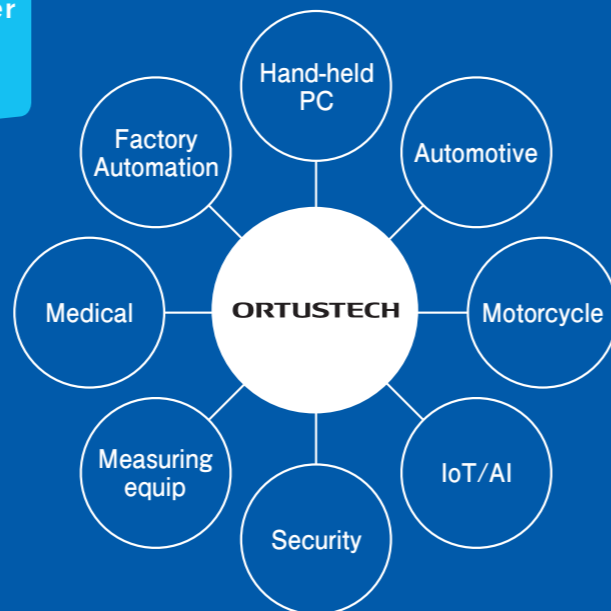
Flexible high-mix/low-volume production system to meet customer's various demands.

**Customer-oriented
Support System**

Responsive communication/feedback and flexible customer support.

**Customized Product
Support**

ORTUSTECH will propose a customized LCD design with incorporating customer's specific requirements.



ORTUSTECH Creative technology will open up the way for new Display world

202X

Ultimate Next Generation Display
High-quality display to go bending, floating and more...

2018

Blanview-R
Superior sunlight readability with high reflection performance

2016

Hybrid Blanview
Monochrome and Full-color switchable display

2012

New-Blanview (2nd Gen. Blanview)
Further advanced Low Power & Sunlight Readability

2010

Ultra High Definition LCD
4.8"-size World's smallest FHD (as of 2010)

2008

Blanview LCDLCD (1st Gen. Blanview)
Low Power Consumption + Sunlight Readability

2002

High-reliability LCD
Aircraft cockpit display

1994

HAST (high aperture ratio, High transmittance) LCD
Low-power LCD for Portable TV, Digital Camera, Camcorder, etc

Blanview is ORTUSTECH's original TFT-LCD technology to realize high-quality display performance in any brightness circumstances (indoor / outdoor) with overwhelming low power consumption

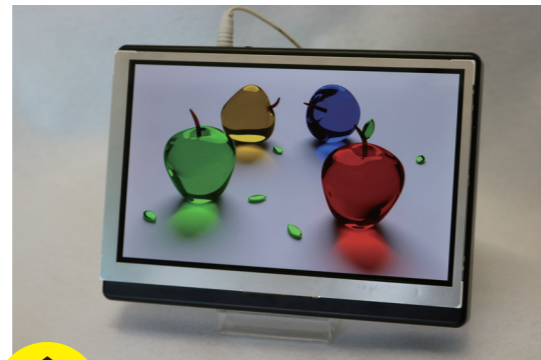
Unique High Reflection Panel Design

Superior Outdoor Readability

Ultra Low Power Consumption



Outdoor (Under Sunlight)



Indoor



Indoor

Transmissive TFT-LCD

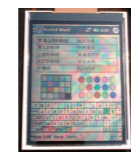
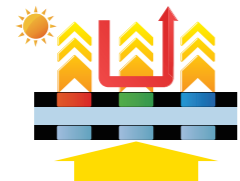
Crispy and bright display created by a backlight



Outdoor

Transmissive TFT-LCD

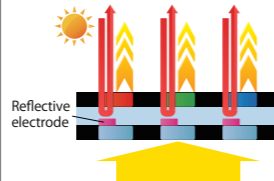
Display performance deteriorate by a sunlight reflection at LCD surface



Outdoor

Transflective TFT-LCD

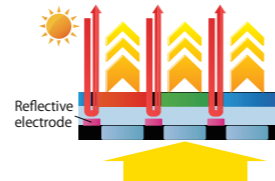
Reflection area works to improve outdoor display quality but leads to large power consumption in indoor usage



Outdoor

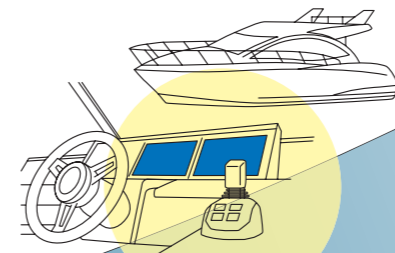
New-Blanview

High light reflection panel design along with low power consumption functionality; Good display performance in any surrounding situations



Evolution of Blanview

Blanview technology keeps on evolving its display performance (sunlight readability and low power consumption) with expanding the variety of Blanview products. Blanview family will provide additional values to your next generation product.



Hybrid Blanview



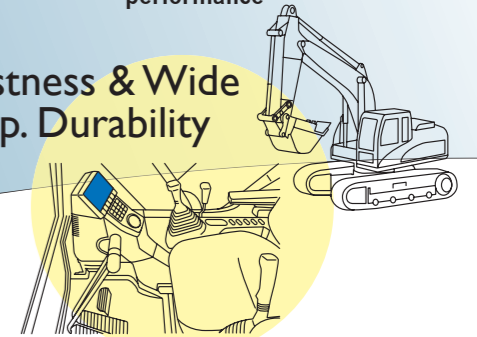
Blanview-R

Next generation Blanview with further improved light reflection performance

New-Blanview
Contrast, Reflectance & Color Purity improved

Robustness & Wide Temp. Durability

Blanview



Robustness-improved New Blanview
- Wide Temp. Operation (-30°C to +85°C)
- Strong Vibration Durability (6.8G)

Giantplus Technology - ORTUSTECH Group Company

ORTUSTECH







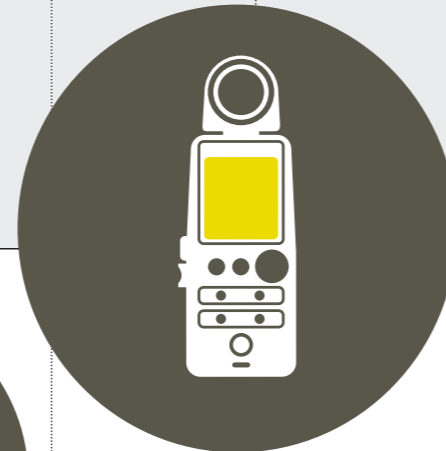
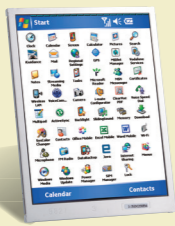

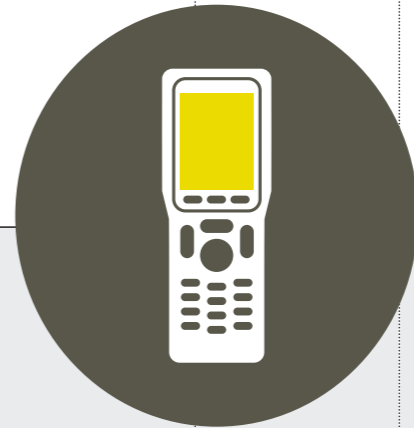


ORTUSTECH and Toppan Printing (parent company of ORTUSTECH) announced that both parties jointly acquired the shares of Giantplus Technology Co., Ltd. and Giantplus became a subsidiary of ORTUSTECH in March 2017. The group will leverage both ORTUSTECH's unique display technologies and Giantplus's volume production technologies effectually to expand business and presence worldwide.

Giantplus Technology Profile

- Headquarters No.15 Industrial Rd., Toufen, Miaoli, Taiwan
- Chairman Jin Endo
- President Chia-Chuan Pu
- Industry LCD Products Manufacturing and Sales
- Capital 4,415 Million NTD
- Founded December 15th, 1997
- Main Factories Taoyuan (TW), Shenzhen (CN), Kunshan (CN)



Portrait Type LCD

	2.0"	2.2"	2.4"	2.7"	3.2"	3.5"	3.7"	4.0"	4.3"	4.8"	5.0"
HD 720xRGBx1280 										COM48H4N22 New-Blanview NTSC 50 VA	COM50H5N03 New-Blanview NTSC 50 VA
WVGA 480xRGBx800 					COM32H3N89 Blanview VA	COM32H3P25 Blanview VA		COM40H4N40 New-Blanview NTSC 50 VA	COM43H4M85 New-Blanview VA		
VGA 480xRGBx640 							COM35H3P29 New-Blanview NTSC 50 VA				
QVGA 240xRGBx320 	COM20T2P31 Transmissive VA	COM22H2P16 New-Blanview VA	COM24H2P39 New-Blanview NTSC 50 VA	COM27H2P37 New-Blanview NTSC 50 VA			COM35H3P17 New-Blanview NTSC 50 VA				

WV Wide viewing angle
TN mode




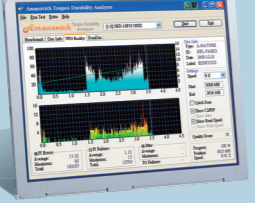
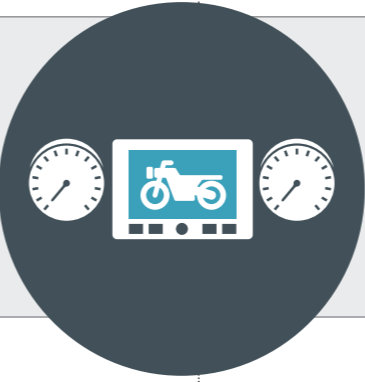






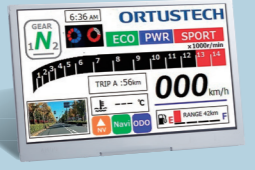


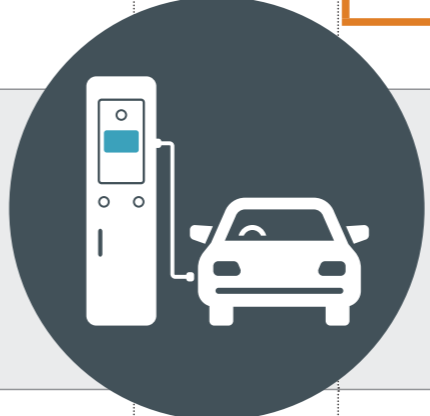
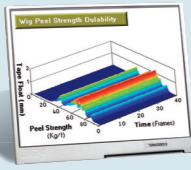

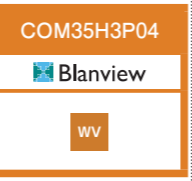
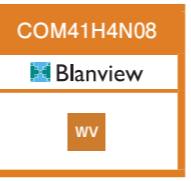
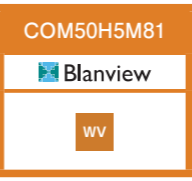


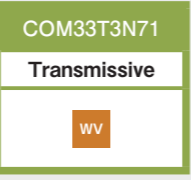


VA Wide viewing angle
High image quality
VA mode








All in One All-in-One

NTSC 50 NTSC 50%

※The pictures shown in the screens are simulated images.

Landscape Type LCD

	2.2"	3.3"	3.5"	4.1"	4.3"	5.0"	5.7"	6.0"	6.5"	7.0"~
WVGA 800xRGBx480 										
VGA 640xRGBx480 										
HVGA 640xRGBx240 										
WQVGA 480xRGBx272 										
QVGA 320xRGBx240 										
HQVGA 120xRGBx320 										

 Long-life LED 70KH
  Wide viewing angle TN mode
  Wide viewing angle High image quality VA mode
  All-in-One
  NTSC 50%
  Wide temperature range Top=-30°C~+85°C Tstg=-40°C~+95°C
  Vibration resistance

※The pictures shown in the screens are simulated images.

Portrait Type LCD

Screen size	Resolution	Model name	Specifications										
			LCD Type	Viewing Angle	Color NTSC	Surface Finishing	Touch Panel	IF	Typ. Brightness	High Brightness Operation	Backlight Lifetime (Exp.)	Typ. Power Consumption	
			Transmissive Blan NEWBlan	L/R/U/D (°)		HC Hard Coat AG Anti-glare			(cd/m ²)	750 (cd/m ²)	(hr)	LCD (mW)	BL (mW)
2.0"	QVGA 240RGB×320	COM20T2P31ILC	■	80/80/80/80	35%	HC		16bit CPU /6bit RGB	450	Yes	10,000	19	77
		COM22H2P16ULC	■	80/80/80/80	35%	HC		18bit CPU	400	Yes	10,000	25	49
		COM24H2P39ULC	■	80/80/80/80	50%	HC		18bit CPU	300	Yes	50,000	23	41
		COM27H2P37ULC	■	80/80/80/80	50%	HC		6bit RGB	350	Yes	50,000	28	56
		COM27H2P38UTC	■	80/80/80/80	50%	HC	Yes	6bit RGB	280	Yes	50,000	28	56
		COM27H2P40ULC	■	80/80/80/80	50%	HC		18bit CPU	350	Yes	50,000	27	56
		COM27H2P41UTC	■	80/80/80/80	50%	HC	Yes	18bit CPU	280	Yes	50,000	27	56
3.2"	WVGA 480RGB×800	COM32H3N89ULC	■	80/80/80/80	35%	HC		8bit RGB	380	Yes	20,000	32	119
		COM32H3P25ULC	■	80/80/80/80	35%	HC		8bit MIPI	380	Yes	20,000	38	119
3.5"	QVGA 240RGB×320	COM35H3P17ULC	■	80/80/80/80	50%	HC		6bit RGB	250		50,000	36	104
		COM35H3P18UTC	■	80/80/80/80	50%	HC	Yes	6bit RGB	200		50,000	36	104
3.5"	VGA 480RGB×640	COM35H3P29ULC	■	80/80/80/80	50%	HC		6bit RGB	330		50,000	36	163
		COM35H3P30UTC	■	80/80/80/80	50%	HC	Yes	6bit RGB	265		50,000	36	163
		COM35H3N82ULC	■	80/80/80/80	50%	HC		8bit MIPI	900	Yes	10,000	76	348
3.7"	WVGA 480RGB×800	COM37H3N83ULC	■	80/80/80/80	22%	HC		6bit RGB	320	Yes	50,000	36	129
		COM37H3N84UTC	■	80/80/80/80	22%	HC	Yes	6bit RGB	270		50,000	36	129
4.0"	WVGA 480RGB×800	COM40H4N40ULC	■	80/80/80/80	50%	HC		8bit MIPI	490	Yes	50,000	47	193
		COM43H4N10ULC	■	80/80/80/80	50%	HC		8bit MIPI	300	Yes	20,000	47	132
4.3"	WVGA 480RGB×800	COM43H4M85ULC	■	80/80/80/80	35%	HC		8bit RGB	400	Yes	50,000	36	196
		COM43H4M86UTC	■	80/80/80/80	35%	HC	Yes	8bit RGB	320		50,000	36	196
4.8"	HD 720RGB×1280	COM48H4N22ULC	■	80/80/80/80	50%	HC		8bit MIPI	300	Yes	20,000	107	248
		COM50H5N03ULC	■	80/80/80/80	50%	HC		8bit MIPI	400	Yes	50,000	118	220

Landscape Type LCD

Screen size	Resolution	Model name	Specifications										
			LCD Type	Viewing Angle	Color NTSC	Surface Finishing	Touch Panel	IF	Typ. Brightness	High Brightness Operation	Backlight Lifetime (Exp.)	Typ. Power Consumption	
			Transmissive Blan NEWBlan	L/R/U/D (°)		HC Hard Coat AG Anti-glare			(cd/m ²)	750 (cd/m ²)	(hr)	LCD (mW)	BL (mW)
2.2"	QVGA 320RGB×240	COM22T2P21XLC	■	80/80/80/80	50%	HC		6/8bit RGB	500		50,000	24	116
		COM22H2P22DLC	■	40/40/15/45	22%	HC		6/8bit RGB	300	Yes	50,000	24	29
3.3"	HQVGA 120RGB×320	COM33T3N71ZLC	■	80/80/80/80	50%	HC		6bit RGB	625		50,000	25	162
		COM33T3N46ZTC	■	80/80/80/80	50%	AG	Yes	6bit RGB	500		50,000	25	301
3.5"	QVGA 320RGB×240	COM35T3N94GLC	■	35/40/15/70	50%	AG		6/8bit RGB	400		50,000	24	108
		COM35T3N95GTC	■	35/40/15/70	50%	AG	Yes	6/8bit RGB	320		50,000	24	108
		COM35T3N54ZLC	■	80/80/80/80	50%	AG		6/8bit RGB	500		50,000	24	174
		COM35T3N55ZTC	■	80/80/80/80	50%	AG	Yes	6/8bit RGB	400		50,000	24	174
		COM35H3P04XLC	■	80/80/80/80	22%	HC		6/8bit RGB	300		50,000	24	57
		COM35H3P05XTC	■	80/80/80/80	22%	HC	Yes	6/8bit RGB	240		50,000	24	57
		COM41T4N05GLC	■	35/35/20/50	50%	AG		6/8bit RGB	450		50,000	27	179
4.1"	WVGA 480RGB×272	COM41T4N06GTC	■	35/35/20/50	50%	HC	Yes	6/8bit RGB	360		50,000	27	179
		COM41H4N08XLC	■	80/80/80/80	22%	HC		6/8bit RGB	350		50,000	27	86
		COM43T4M71ZLC	■	80/80/80/80	50%	AG		8bit RGB	450		70,000	56	499
4.3"	WVGA 480RGB×272	COM43T4M81ZTC	■	80/80/80/80	50%	AG	Yes	8bit RGB	360		70,000	56	499
		COM43H4N02XLC	■	80/80/80/80	22%	HC		8bit RGB	450	Yes	20,000	56	157
		COM43H4N03XTC	■	80/80/80/80	22%	AG	Yes	8bit RGB	350	Yes	20,000	56	157
		COM43H4M43KLC	■	80/80/80/80	19%	HC		8bit RGB	550	Yes	50,000	56	344
		COM43H4N44ULC	■	80/80/80/80	50%	HC		8bit RGB	550/ (1100)	Yes	50,000	(99)	(535)
5.0"	QVGA 320RGB×240	COM50T5M78GLC	■	35/35/20/50	50%	AG		6/8bit RGB	500		50,000	29	472
		COM50T5M80GTC	■	35/35/20/50	50%	AG	Yes	6/8bit RGB	400		50,000	29	472
		COM50H5M81XLC	■	80/80/80/80	22%	HC		6/8bit RGB	450	Yes	50,000	29	227
5.7"	WVGA 800RGB×480	COM50H5N01ULC	■	80/80/80/80	50%	HC		8bit LVDS	430/ (900)	Yes	100,000	113	548
		COM57T5M14GLC	■	40/40/15/70	B/W	AG		6bit	300		70,000	33	336
	QVGA 320RGB×240	COM57T5M15GLC	■	40/40/15/70	50%	AG		6/8bit RGB	600		70,000	46	1500
		COM57T5M21ZLC	■	80/80/60/80	50%	AG		6/8bit RGB	600		70,000	46	1500
		COM57H5M59KTC	■	80/80/60/80	22%	HC	Yes	6/8bit RGB	500		70,000	43	840
		COM57T5M26ZSC	■	80/80/60/80	50%	AG		6/8bit RGB	600		70,000	46	1500
		COM57T5M95ZLC	■	80/80/60/65	50%	AG		6bit RGB	400		50,000	194	608
		COM57H5M86KLC	■	80/80/60/65	22%	HC		6bit RGB	550	Yes	50,000	194	500
		COM57H5M87KTC	■	80/80/60/65	22%	HC	Yes	6bit RGB	450	Yes	50,000	194	500
		COM57T5M54ZSC	■	80/80/55/80	50%	AG		6bit RGB	440		70,000	462	1500
COM57T5M61ZRC	■	80/80/55/80	50%	AG	Yes	6bit RGB	350		70,000	462	1500		
6.0"	HVGA 640RGB×240	COM60H6M10DRC	■	35/35/15/60	22%	HC	Yes	6bit RGB	500		50,000	396	480
6.5"	VGA 640RGB×480	COM65T6M14KLC	■	80/80/80/80	50%	AG		6bit RGB	400		50,000	194	1083
		COM65T6M13KSC	■	80/80/80/80	50%	AG		6bit RGB	400		50,000	545	1272
7.0"	WVGA 800RGB×480	COM70T7M17ZLC	■	80/80/80/80	45%	AG		6bit RGB	530		50,000	389	1344
		COM70T7M18ZTC	■	80/80/80/80	45%	AG	Yes	6bit RGB	430		50,000	389	1344
		COM70H7M24ULC	■	80/80/80/80	50%	HC		8bit LVDS	400/ 800	Yes	100,000	(119)	(876)



Blanview, the combination of high transmittance panel with HAST technology and optimized optical design to make use of incident lights, realizes superior outdoor readability and low power consumption together.



Color purity, reflectance and transmittance improvements enables to further upgrade outdoor readability, large number of pixels and ultra low power functionality. New-Blanview extend Blanview product family to high resolution/high definition display field.