



SHANTOU GOWORLD DISPLAY GERMANY GMBH

Your Partner for customer-specific LCD's, TFT-Displays
and Touch Panel Solutions

© Shantou Goworld 2020. All rights reserved.

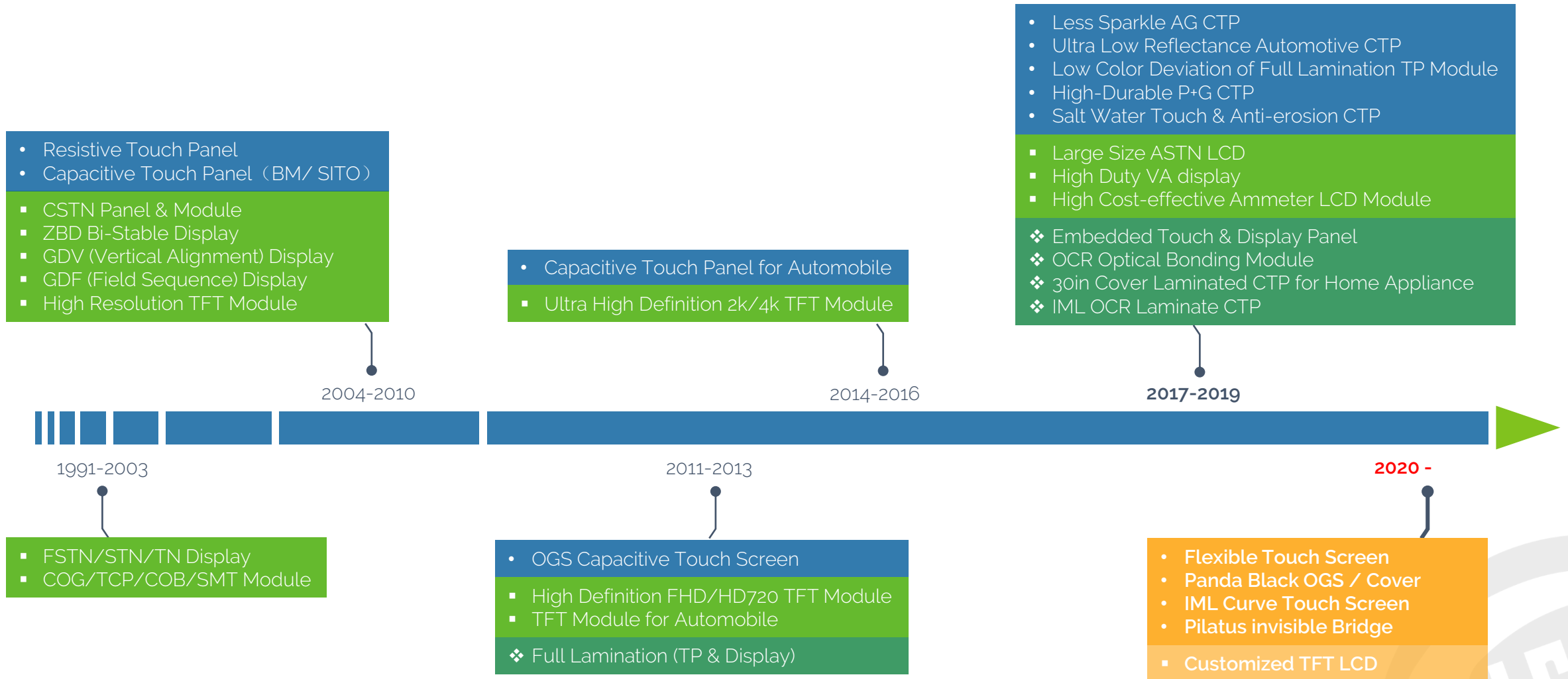
www.goworld-lcd.de

Roadmap 2020

Major Milestones - Technology

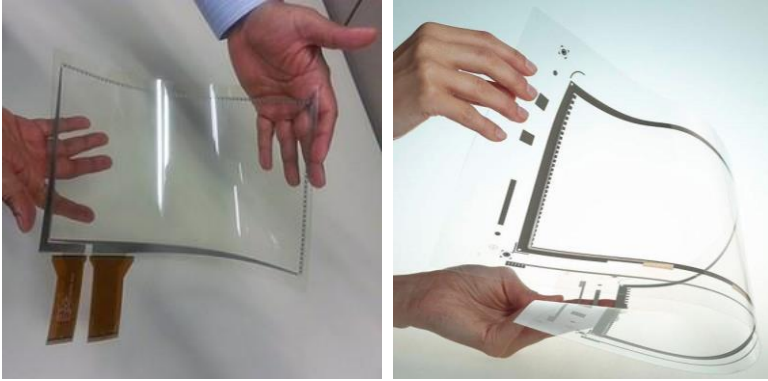
• Past - Present - Future

- Touch
- LCD
- Service



Technology Upgrade 2019/2020

In House developments



Flexible Touch Panel

- Using PI substrate with higher reliability as PET
- Same sputtering process as glass CTP
- Patents: 17 applied
- Demo building in progress: S-shaped 2 x 10in Displays
- Automotive sample: 2021 Q1; Mass production: 2022 Q2

	PI
Minimum thickness	15μm
Bending test	R 6.5mm, 200k times
CTE	15
Transmission	>90%
Haze	<0.5
High temp	-40°C~90°C, 1000h
High temp/High humidity	85°C/85%, 1000h
Thermal shock	40°C~90°C, 240h



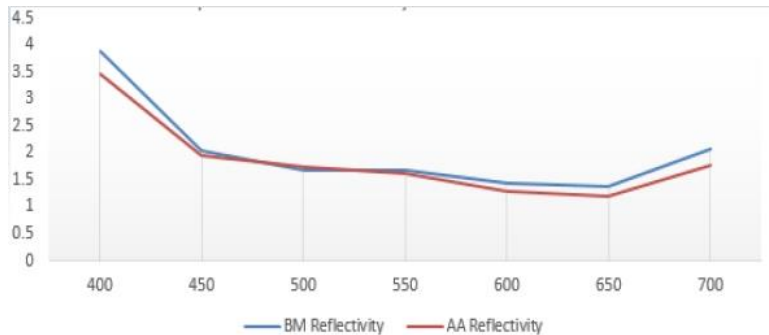
Technology Upgrade 2019/2020

In House developments



Panda Black OGS 3.0 Touch Panel

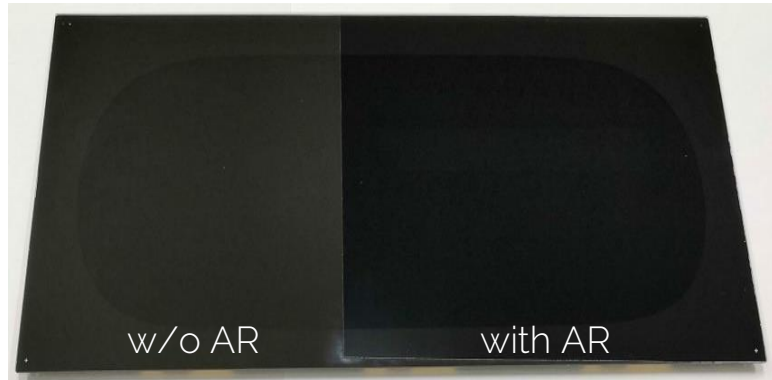
- Using multilayer index matching to reduce reflection
- Optimized for TFT, OCR and surface treatment
- ΔE between BM and VA under 1,7%
- Reflection lower than 1,7%
- Using AR film Dexerials



	BM	AA
Reflection	1,63	1,45
L*	13,43	12,29
a*	0,31	-0,61
b*	-4,72	-3,96
ΔE	1,65	1,65

Technology Upgrade 2019/2020

In House developments



Panda Black cluster lens

- Same Technology as Panda Black OGS but for clusters or incell TFT
- BM coating instead of ink printing
- $\Delta E < 1$ without AR film
- $\Delta E < 2$ with AR film
- Surface AGAR treatment is optional

	ΔE	Δa	Δb	ΔE
w/o AR film	0,35	0,25	0,47	0,64
with AR film	0,85	0,83	0,95	1,52

Base on OCR bonding unit

Color of TFT: L=28,65 / a=-0,46 / b=-0,29

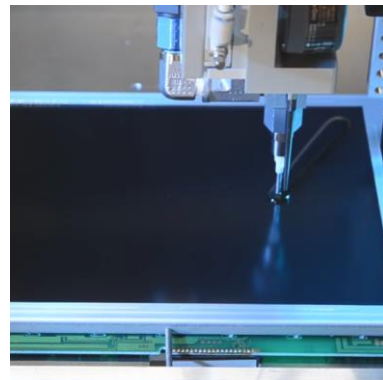
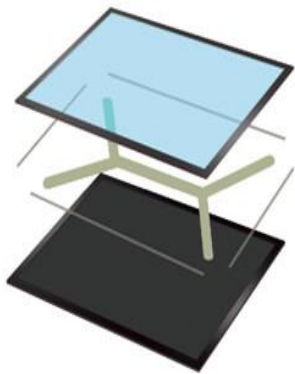


Technology Upgrade 2019/2020

In House developments



Note: Test light, HG-Q08, Distance:35cm, Luminance:50k lux;



“Pilatus” automotive touch screen

- Bridge and ITO invisible technology
- no bridge reflection under strong light
- new index matching design reduce the reflectance between ITO pattern and gaps
- New bridge design reduces shining issue

OCR Optical Bonding line

- OCR bonding for the big size LCD
- Gel like bonding
- Up to 30in Cover lens bonding



Technology Upgrade 2019/2020

Developments with our partners



Salt Water Touch & Anti-corrosion CTP

- Operation under 5% salt water spraying
- IC software with special algorithm
- Cover lens with additional coating layers



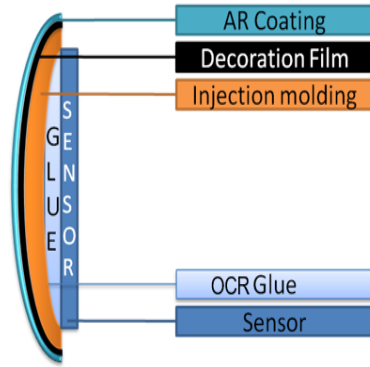
High-Durable Plastic Cover Lens

- High Adhesion, High-Endurable, Low reflectance AR coating
- Good for Anti-shattering and head-impact performance.



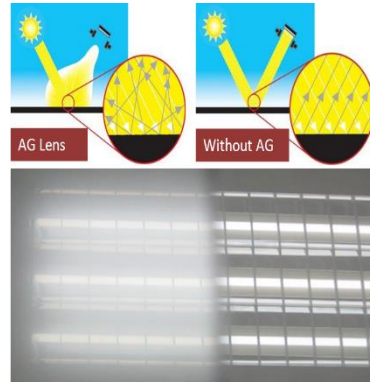
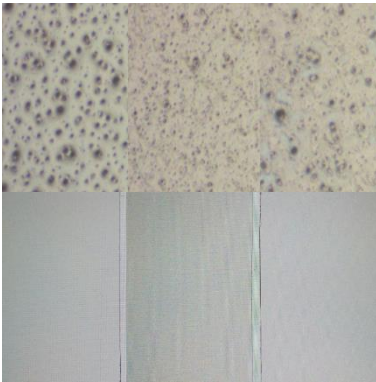
Technology Upgrade 2019/2020

Developments with our partners



IML Curve Cover Lens

- Cold shaping
- Achieve 135-180° angle
- Suitable for optical bonding



Less Sparkle AG Cover

- Less Sparkle through Moth-eye treatment (hexagonal pattern coating)
- Less Sparkle by reducing the surface glare
- Haze: $\leq 20\%$
- Surface Roughness: $< 0.1\mu\text{m}$
- Transmission: $\geq 87\%$



New available Products

Touch / Cover / Lamination - Developments

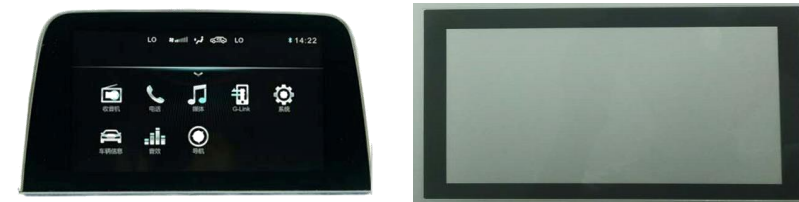
Double 12.3in Touch Module

- Full black for cluster and CID
- Uniformity black with & without TP
- Ultra low reflectance



BM Cover Lens

- Processing @ high accuracy yellow pattering line
- Full black with LCD & TP module assembled



Panda Black Low Color Deviation Modules

- Sputtering treatment under sensor pattern
- Uniform black for viewing area and black mask
- Color deviation ΔE to be less than 1,7%



New available Products

LCD - Developments

High Duty VA Display

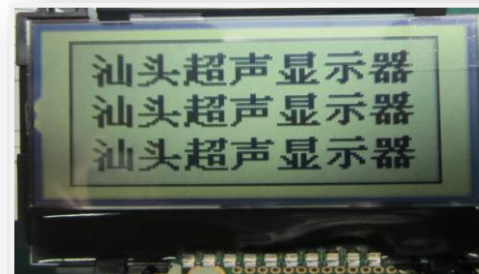
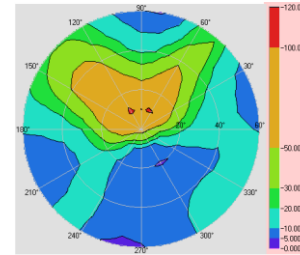
- Driving: up to 128*128 (1/128 duty)
- Contrast: Vertical view >50:1
- Response: <300ms

Large size ASTN LCD

- for outdoor application
- VA area: 9.51in
- Contrast: 150:1

High Cost-Effective Ammeter LCD Module

- Reliability: 60°C *90% RH*1000H
- High temperature storage: 90°C, 500H
- Low temperature storage: -40°C, 1000H
- Radiation: 1120W/m²



Contact

Get in touch with us

SHANTOU GOWORLD DISPLAY GERMANY GMBH

Kelterstrasse 69
73265 Dettingen unter Teck

Tel: +49 7021 738 305-0
Fax: +49 7021 738 305-21
info@goworld-lcd.de
www.goworld-lcd.de

