DMC Company Presentation

Update: Oct 2023

About DMC

- **Touch screen manufacturer established in 1973**

- **No.1 sales and production performance in Japan**

- **"At any time, stable supply first."**

DMC started its business as a manufacturer of artwork material for PCB in 1973 and since establishment, we have keep growing in the field of industrial devices. We produced various semiconductor related products following the trend of the time and started manufacturing and distributing touch screen in 1991. Now we are expanding our business globally as a touch screen manufacturer.

We stably supply our products even from small lot to meet various technical demands and continue to support the development of industry.
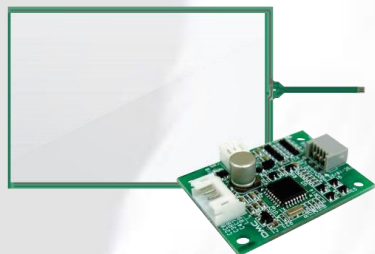
1973	Established for manufacturing and distributing artwork tapes for PCB..
1987	Established Fukushima factory in Futaba gun, Fukushima prefecture.
1991	Started operating the integrated production line of touch screen in Fukushima factory.
1996	Established PT. DMC TEKNOLOGI INDONESIA in Indonesia.
1999	Established Shirakawa Factory in Shirakawa city, Fukushima prefecture.
2013	Fukushima head office was merged with Tokyo branch office and relocated to Minato-ku, Tokyo.
2019	Expand Second Factory and integrate old Shirakawa Factory. Established a sales branch in Italy (DMC Italy)
2021	Established a subsidiary, "DMC Iwaki Co., Ltd." Took over the touch screen manufacturing department from NKK SWITCHES CO., LTD. and opened the "Iwaki Factory" in Iwaki city.
2022	Established a sales branch in Taipei (DMC Taiwan)
2023	**Merged with Seedsware Corporation and launched a new brand, "DUSH"**

PRODUCTION BASES

■ JAPAN

SHIRAKAWA FACTORY

IWAKI FACTORY

IZUMI FACTORY

■ OVERSEAS OFFICE

INDONESIA FACTORY

IZUMI Factory
- **Number of Employees: 58 (as of Jan, 2023)**
- **Main product : Touch monitor, HMI**
- **Production Volume (month): about 8k**

IZUMI Factory
Izumi-city

IWAKI Factory
Iwaki-city

INDONESIA Factory
CIKARANG BEKASI

SHIRAKAWA Factory
Shirakawa-city

IWAKI Factory
- **Number of employees :50 (as of Jan, 2023)**
- **Main product: Resistive touch screen**
- **Production Volume (month) :about 20k**

INDONESIA Factory
- **Number of Employees: 685 (as of Jan2023)**
- **Main product : Resistive touch screen (including some part of Capacitive type)**
- **Direct shipment to overseas**
- **Compliant with Japanese standard**
- **Production Volume(month) : about 220k**

SHIRAKAWA Factory
- **Number of employees :119 (as of Jan, 2023)**
- **Main product:Projected Capacitive touch screen**
- **Production Volume (month) :about 10K**

DMC's FEATURE

MARKET SHARE — 1

DMC is the only company in Japan that specializes in touch screens for the industrial use. Especially in the FA market, we have more than 60% of the market share.

WIDE RANGE OF PRODUCT LINEUP — 2

DMC has more than 160 standard product of touch screen. Easy to find fitting PCAP/Resistive touch screen for the products.
Wide range of size supported (up to 32inch)

CUSTOMIZATION — 3

DMC has supplied Japanese quality products to domestic and overseas customer more than 30 years. We are able to meet customization request from each customer.
(Over 3,000 experiences of customized products)

SUPPLY SYSTEM — 4

DMC offers long period supply to meet the request for long-life product.

TOTAL SUPPORT — 5

As we produce sensor and controller, we can support with both hardware and software approach.

ISO CERTIFICATION

Quality   Environment

◼ Republic of Indonesia ISO certification symbol

DMC has been awarded the highest gold rating for overall sustainability evaluation (CSR) by Eco Vadis in 2020.

※CSR: Corporate Social Responsibility

DMC Co., Ltd. has started to take this Eco Vadis assessment for overall sustainability from 2013 . We received Bronze rating in 2013, and Silver rating from 2015 to 2017. and gold rating since 2018
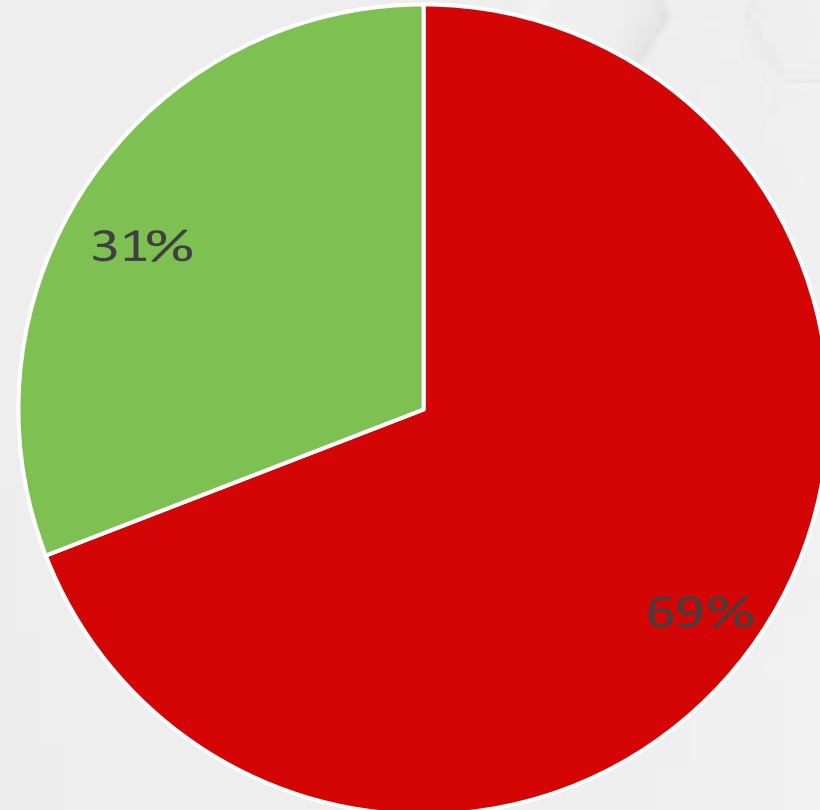
Eco Vadis assesses suppliers based in 21 standards over 4 themes. About 75,000 global companies in 160 countries and 200 industries adopt this evaluating system, and companies in top 5% rating are evaluated as "Gold".

SALES MARKET APPLICATION

FACTORY AUTOMATION

MEDICAL EQUIPMENTS

MEASURING

KIOSK

AMUSEMENT

MOBILITY

Contents

DMC
DMC Co., Ltd.

Advantage and disadvantage by type

	Advantage	Disadvantage

Resistive	· Robustness vs external noises
	· Need input force, less malfunction
	· Various input material could be used
	  (finger, gloves, stylus pen, any…..)
	· Cost advantage and easy mechanism design
		· Input force quite heavy
		  ⇒ DMC is able to offer the new Light Touch Technology (LST series)
		· Generally a Single Touch operation is allowed
		  ⇒ DMC is able to offer new Light Multi-Touch Technology (MTR-G series)
		· Less transparency and durability compared to capacitive type

Pro-Cap	· Light touch operability · Multi-touch and gesture operation are possible · High durability · Beautiful screen appearance · Flat design could be realized in operation · Suitable for outdoor use	· Easily affected by external noises · Limited input material (can be operated only by fingers, stylus pen or thin gloves) · More expensive than resistive

Resistive Light Touch Screen Sensor

LST MTR-G series

CDS
Crystal Display Systems Ltd.

DMC
DMC Co., Ltd.

https://www.crystal-display.com

Resistive Light Touch Technology to Aim the PCAP Feeling

Adopting smooth surface film

Smooth

Hi-speed detection and gesture detection by dedicated Controller

Adhesive

Film

ITO Layer

Spacing Dots

Glass

Connector Tail

Touch screen structure optimized to detect small pressing force

LST: Gesture Operation

with the new Controller TSC - 52 /U
and TSC - 52 /U - F & IC TSC - 52 /IC

MTR - G: Gesture Operation and

Multi Touch Input

1 Prevent operation mistakes with two-point touch
Multi Touch

2 Zooming in/out images with dual fingers
Gesture

3 Scrolling and turning pages by flick operation
Gesture

4 Rotating with turn operation
Gesture

LST, MTR-G features and options

Simple & Easy

Easy to install due to compatibility with a normal 4W Controller

Variation
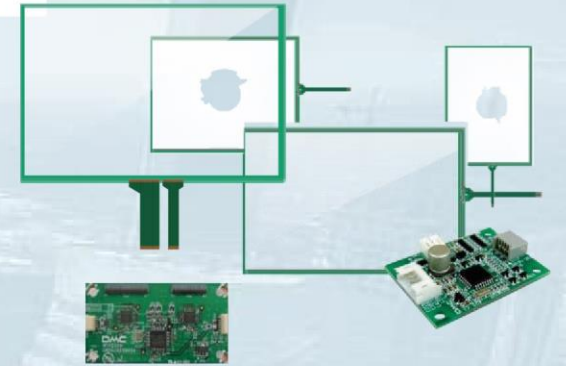
Wide range of size lineup
LST 4.3 – 21.5inW
MTR-G 5.7 – 21.5inW

Overlay Film

PCAP-like Full Flat Surface

Smooth

Smartphone-like smooth operability

Protection Film

Protect the Surface of the Sensor from Scratch, Stain

DMC Products
Resistive sizes view

Series	Type	3.8"	4.3"	4.7"	5.7"	6.2"w	6.5"	7"w	7.5"	8.4"	8.5"w	9"w	10.1"w	10.4"	10.5"	12.1"	12.1"w	15"	15.6"w	17"	18.5"w	19"	21.3"w	21.5"w
AST	4 Wire Standard	○		●	●	○	●	●	●	●				●	○	●		●		●		●	○	
QST	4 Wire High Spec				●			●		●	○			●		●		●						
FST	5 Wire Standard													●		●		●		●				
LST	Light-load 4Wire		●		●		●	●		●		●	●	●		●	●	●	LST		●	●		●
MTR-G	Light-load Multi Touch				●			●		●			●	●		●	●	●	MTR-G		●			●

● Standard Stock   ○ Produced on order   <Customized product available>

Resistive

DMC Products
Resistive Details

Series	Type	Size	Operating temperature	Operating touch life	Touch input	FPC material	Input Load	Micro Dots	Dot φ / Dot pitch	Airvent	Anti-glare coating	Anti-newtonring surface finish
AST/ATP	4 Wire Standard	3,8" – 21,3"	-20° +70°	> 10M	1	Polyester	0,05 to 0,8N	No	0.15/4mm	Yes	Yes	No
QST	4 Wire High Spec	5,7" – 15"	-20° +70°	> 10M	1	Polyimide	0,05 to 0,8N	Yes	0.05/4mm	No	Yes	Yes
FST	5 Wire Standard	10,4"-19"	-20° +70°	> 35M	1	Polyimide	0,05 to 0,8N	Yes	0.05/3mm	Yes	Yes	Yes
LST	Light-load 4Wire	5,7"- 21.5W	-20° +80°	> 10M	1	Polyester	0,03 to 0,3N	Yes	0.05/4mm	No	Yes	No
MTR-G	Light-load Multi Touch	5,7"-21,5W	-20° +70°	> 10M	2	Polyimide	0,03 to 0,3N	Yes	0.05/4mm	No	Yes	No

Series		Anti-bacterial film	Anti-finger print film	Anti-reflection film	EMI shield film	Privacy film	Protection film	UV protection film	Strengthened Glass	Size	Adhesive tape	FPC length	FPC position	Glass thickness	PMMA	Airvent	Printed Cover film	MOQ *1	NRE
		On top	On top	On top	bottom	On top	On top	On top	Bottom	-	Bottom	-	-	ITO glass	Bottom	-	On top	-	-
AST	CUSTOMIZATION	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100	Yes
QST		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100	Yes
FST		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	100	Yes
LST		Yes	NoR	NoR	Yes	NoR	NoR	NoR	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	<12,1"	100	Yes
MTR-G		Yes	NoR	NoR	Yes	NoR	NoR	NoR	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	<12,1"	100	Yes

NoR = Not Recommended   UD = Under development

*1 MOQ may vary by sizes, please check with DMC sales representative for details

DMC Products
Controller & IC – Main features

Series	Controller Board	Type	Operating Temperature	Supply Voltage	Touch Input	Tool accepted to touch the screen	Touch Coordinates Output Time	EEPROM	Host Interface	External Size	Controller IC	IC
AST		TSC-54/U-L	0 ~ 70°C	DC 3.0 ~ 5,5V	1	Indifferent	13ms	No	USB2.0	53×30(Maximum Height 4.8)		TSC-50/IC
		TSC-54/RU	0 ~ 70°C	DC 3.0 ~ 5,5V	1	Indifferent	13ms	Yes	USB2.0 RS232C	53×30(Maximum Height 4.8)		TSC-50/IC
QST		TSC-54/RU-F	0 ~ 70°C	DC 3.0 ~ 5,5V	1	Indifferent	13ms	Yes	USB2.0 RS232C	53×30(Maximum Height 4.8 :Back Surface3)		TSC-50/IC
		TSC-55/U-L	0 ~ 70°C	DC 3.0 ~ 5,5V	1	Indifferent	13ms	No	USB2.0	53x30(Maximum Height 4.8)		TSC-50/IC
FST		TSC-55/RU	0 ~ 70°C	DC 3.0 ~ 5,5V	1	Indifferent	13ms	Yes	USB2.0 RS232C	53x30(Maximum Height 4.8)		TSC-50/IC
LST		TSC-52/U TSC-52/U-F	-40 ~ 85°C	DC 4.75 ~ 5,25V	1 (2-points gesture possible)	Indifferent	10ms (typ)	Yes	USB2.0 RS232C	53x30(Maximum Height 4.8)		TSC-52/IC
MTR-G		MTR2000	-20 ~ 85°C	DC 4.75 ~ 5,25V	2	Indifferent	12.5ms (2 touch points)	No	USB UART	65 x 35(Maximum Height 4.5)		On Demand
		MTR2010	-20 ~ 85°C	DC 4.75 ~ 5,25V	2	Indifferent	12.5ms (2 touch points)	No	USB	50 x 35(Maximum Height 4.55)		On Demand

Note: Operating temperature for TSC-50/IC "-40 ～ 105 °C (no condensation)

CDS
Crystal Display Systems Ltd

PCAP Touch   Screen Sensor Glass/Glass

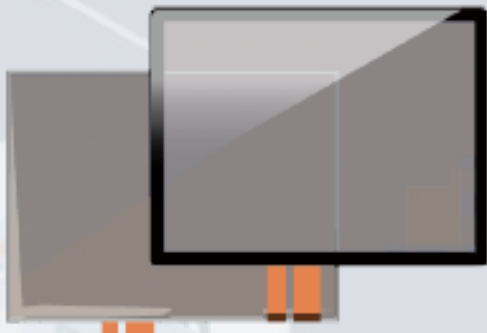## DUS-A/DUS-LA s e r i e s

DMC
Interface with Touch

/
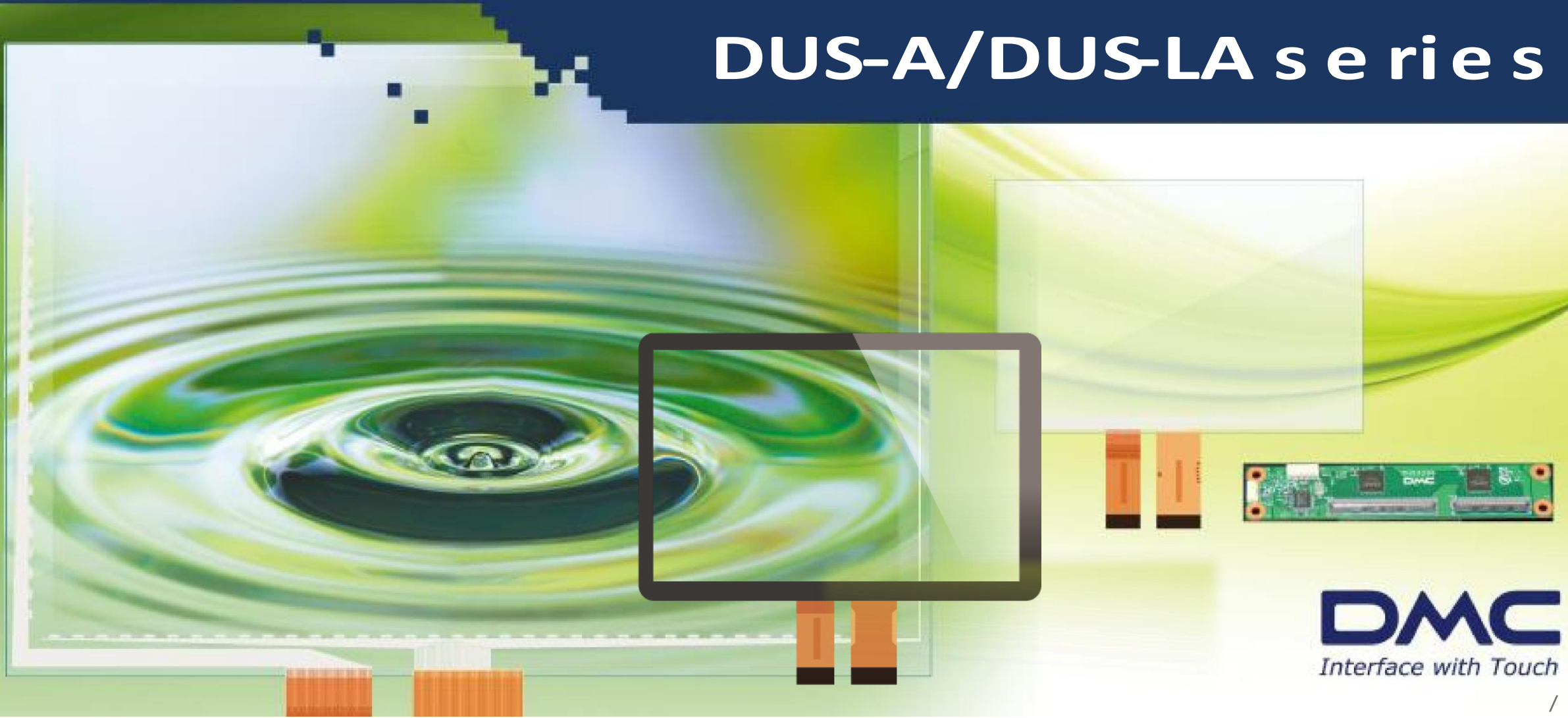
DUS -A/DUS -LA features

Glass/Glass: Robustness & Transparency

1 Electrode patterning is not visible.

2 Narrow Frame Design for easier casing design.

3 Enhance the noise-filtering function with DMC's latest controller.

4 Glass / Glass structure for environment resistance
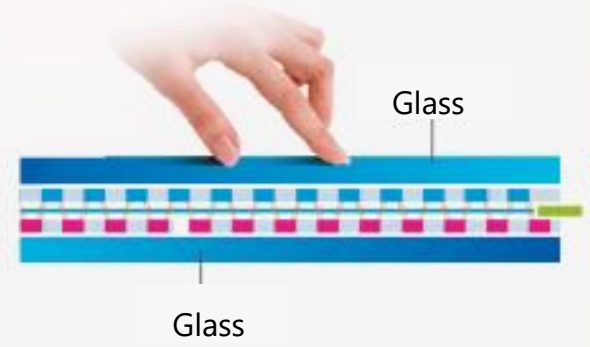
Glass

Glass

5 Wide temperature range support from -40 to 80℃

COLD -40℃

HOT 80℃
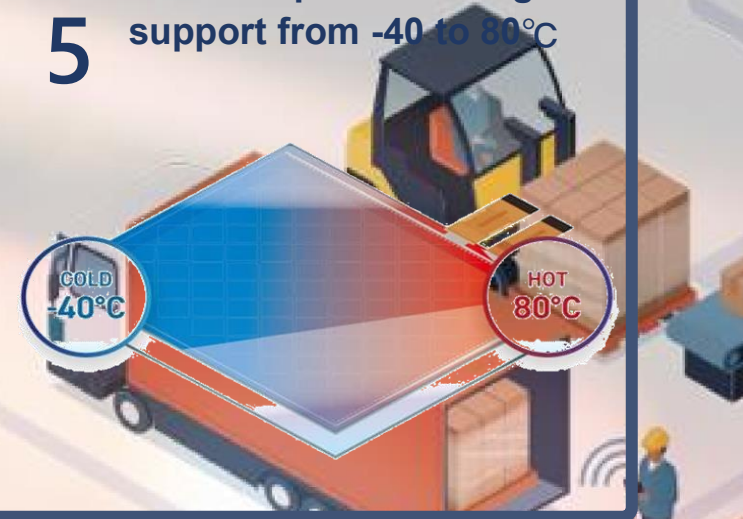
DUS-A: Without cover glass
DUS-LA: With cover glass

DUS-LA series

DUS - A series with standard

Cover Glass

No MOQ & Development cost

Since it can be selected from the standard lineup that is always in stock, it is possible to realize more freedom of choice at low cost without spending time.

- Orderable from 1 piece
- Wide variety of standard models from 7 to 21.5inch
- Bonding by OCA cover-glass onto standard touch sensor
- Stylish
- Flat surface design with low cost
- Short delivery term
- Additional customization is possible

Glass Specifications

- Black boarder printing
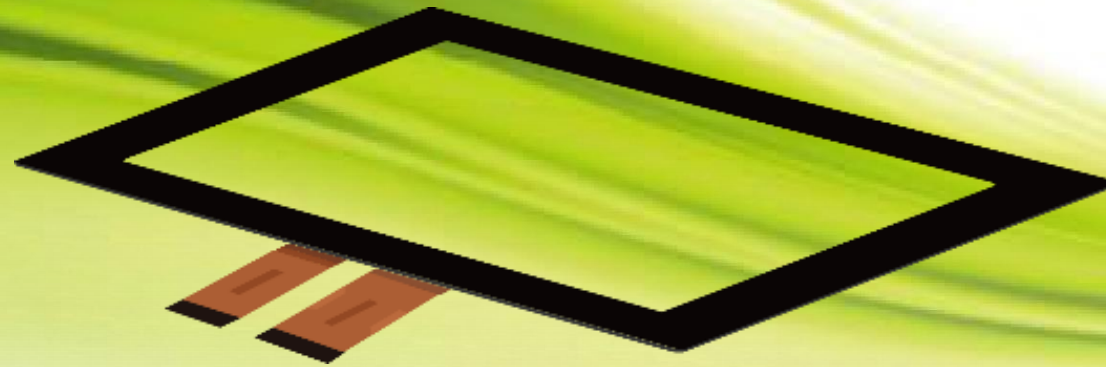- Chemically strengthened
- Several thickness available (1.1mm and 1.8mm are currently available)

CDS
Crystal Display Systems Ltd
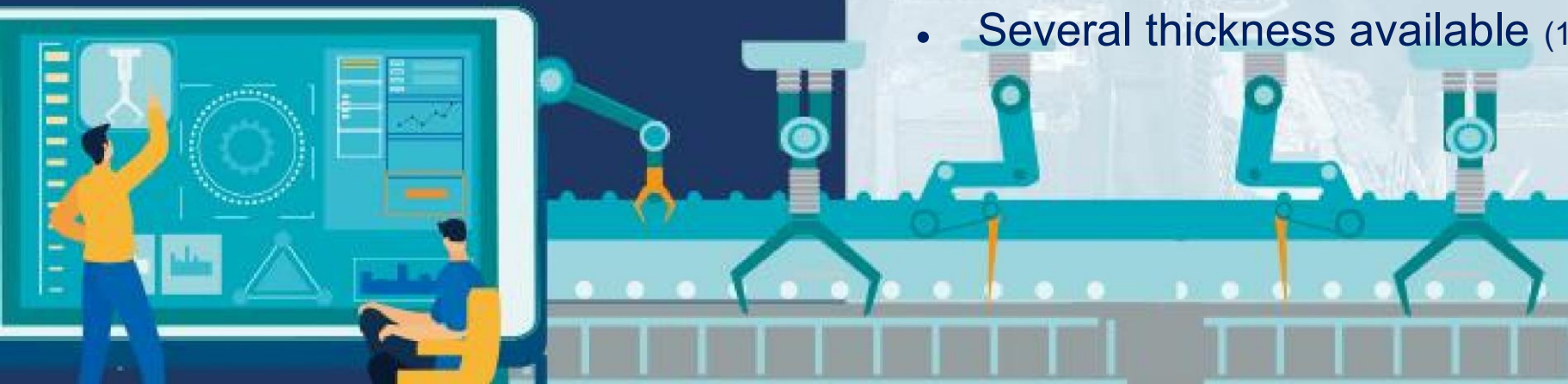
PCAP Touch   Screen Sensor Glass/Glass

DUS-LD s e r i e s
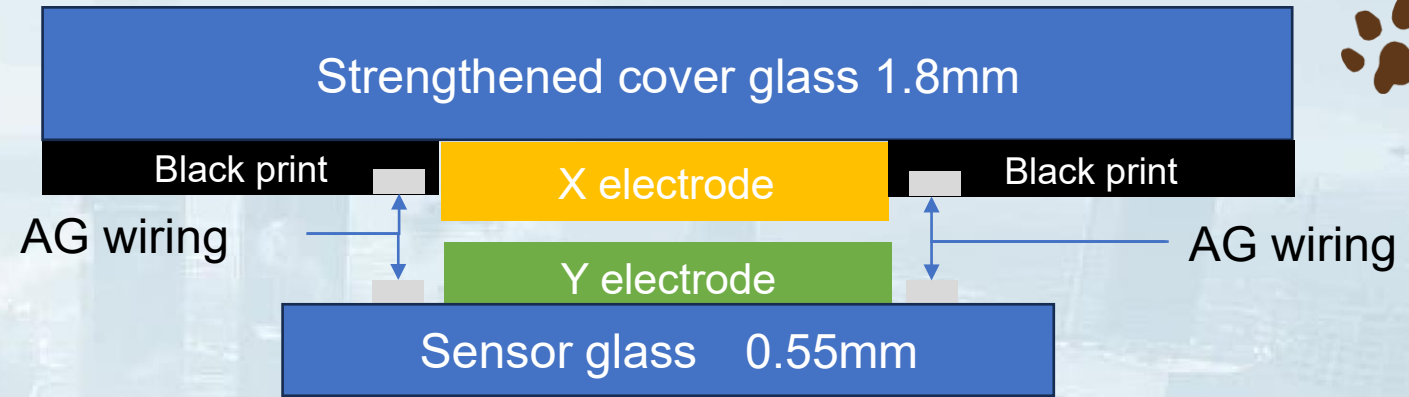Directly   - printed on Glass

DUS -LD features

Glass/Glass

Directly-printed On Glass (DOG) Structure

- **Sensor Glass + Sensor/Cover Glass**
- **Thinner and lighter than G/G/G structure**
- **Cost advantage over G/G/G structure**
- **15.6w and 21.5w are in lineup**

Directly-printed On Glass(DOG) Structure

Strengthened cover glass 1.8mm

Black print | X electrode | Black print

AG wiring | Y electrode | AG wiring

Sensor glass   0.55mm

G/G/G Structure (DUS-LA)

Cover-glass(1.8mm)

Sensor glass 1.1mm

Y electrode

X electrode

Sensor glass 1.1mm

DOG vs G/G/G

Item		G/G/G	DOG
TTL Thickness		4.3mm	2.5mm
Weight	15.6w	880g	570g
	21.5w	1,640g	994h
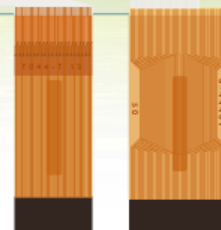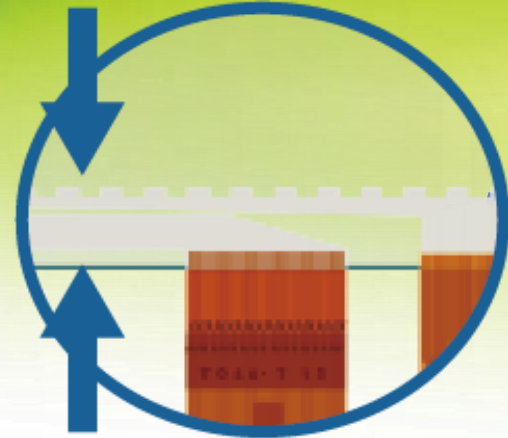
DUS -N features

Glass/Glass Narrow-edge PCPA Sensor

- Narrow-edge and more compact than DUS-A series

- Easier to embed to monitors

- Lineup: 7W〜21.5W

DUS-N Touch Sensor

Narrower

Can be bonded to LCD with narrower frame.
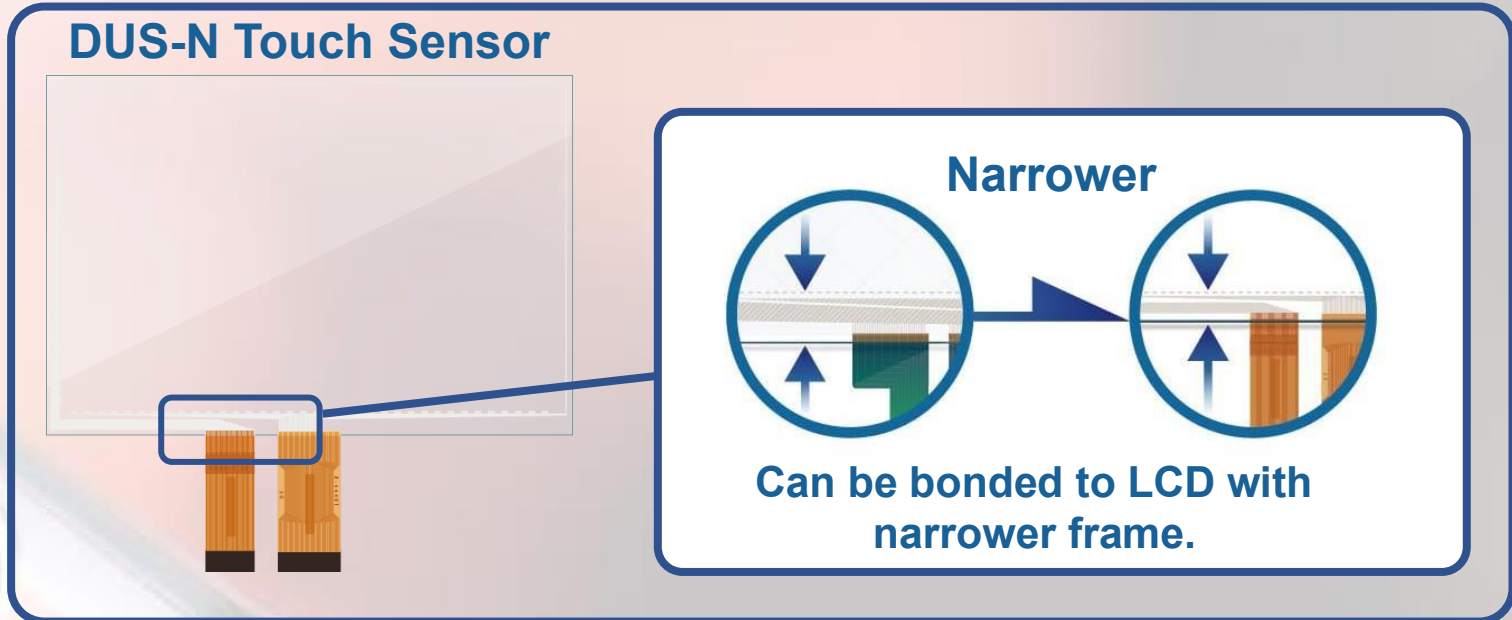
Dimensional Comparison with DUS-A

Product No.	Size	Outline	Outline Difference (DUS-N vs DUS-A)	View Area	Active Area
DUS-N070A060A	**7.0w**	**166x108**	-2.8 x -3.4	**155.7x94.35**	**152.4x91.44**
DUS-A070B060A		168.8x111.4		156.7x95.35	
DUS-N215A060A	**21.5w**	**490x285**	-5.8 x -8.6	**479.84x271.31**	476.7x268.1
DUS-A215B060A		495.8x293.6		479.9x271.3	

CDS
Crystal Display Systems Ltd

PCAP   Touch   Screen Sensor Glass/Glass

D F S   s e r i e s
For EETI Controllers

DFS Series features

Glass/Glass: Robustness & Transparency

Capacitive Touch Screen for
EETI Controllers

Designed to match with touch controllers that have world-wide popularity among industrial fields.

2 Thin Glass/Glass structure

DFS series is ideal for industrial applications. With its thin Glass/Glass structure, it is highly durable even in a harsh environment. 15" and larger sizes adopt thinner glass to lighten its weight.

1.25mm

ITO

ITO

4 Customizations

Various customizations supported by our professional engineers, such as panel sizes, FPC modifications, covering glass addition, surface finishing, and round chamfering.
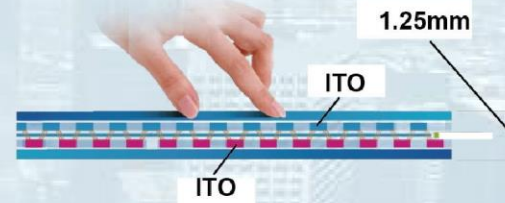
3 Abundant choices of standard lineup

9 standard models from 8.4" to 21.5" W available without any development cost.
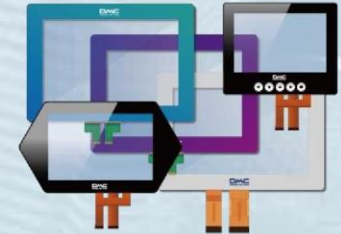
DFS series line -up

Compatible EETI Controllers' part numbers:
- 8.4"- 15"   EXC84H4254STAG
- 15.6"- 21.5"   EXC84H5680STAG

Size (inch)	For EETI	Note
8.4"	DFS-084A060A-E	
10.1" w	DFS-101WA060A-E	
10.4"	DFS-104A60A-E	
12.1"	DFS-121A060A-E	
12.1" w	DFS-121WA060A-E	
15"	DFS-150A060A-E	
15.6" w	DFS-156WA120A-E	
18.5" w	DFS-185WA120A-E	Thin glass
21.5" w	DFS-215WA120A-E	
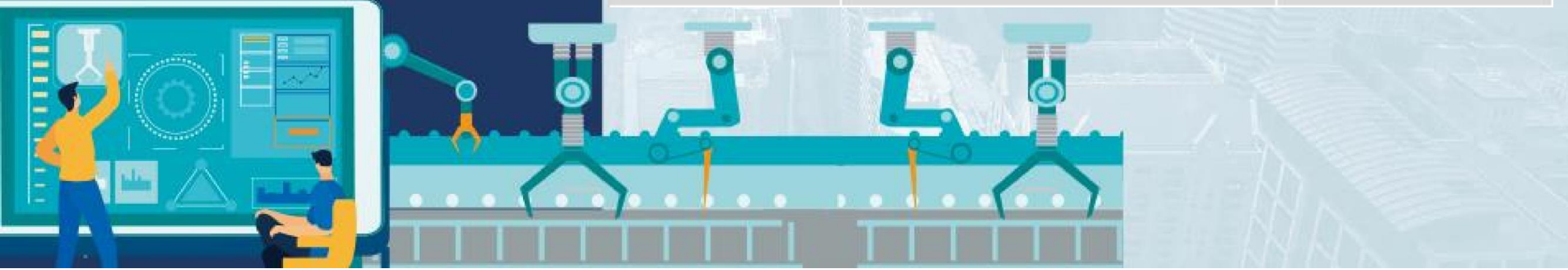
DUS -XF/DUS -F features

Film/Film: Light & Thin Solution

1 Electrode patterning is not visible.
Can be shipped with and without cover glass
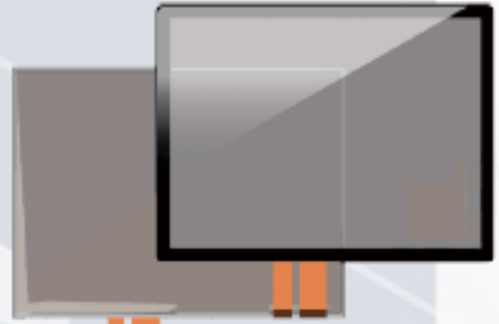
2 Narrow Frame Design for easier casing design.

3 Enhance the noise-filtering function with DMC's latest controller.

4 Film / Film structure for light and thin solution

Cover glass

Sensor (two layers of film)
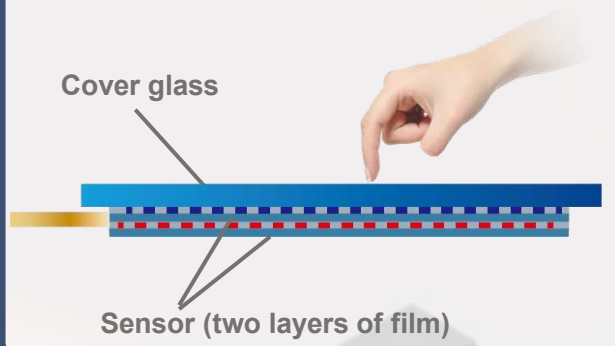
DUS-XF: Without cover glass
DUS-F: With cover glass

DUS -F series

DUS - XF series with standard

Cover Glass

No MOQ & not development cost

Since it can be selected from the standard lineup that is always in stock, it is possible to realize more freedom of choice at low cost without spending time.

- Orderable from 1 piece
- Wide variety of standard models from 7 to 21.5inch
- Bonding by OCA cover-glass onto standard touch sensor
- Stylish
- Flat surface design with low cost
- Short delivery term
- Additional customization is possible

Glass Specifications

- Black boarder printing
- Chemically strengthened
- Several thickness available (1.1mm and 1.8mm are currently available)
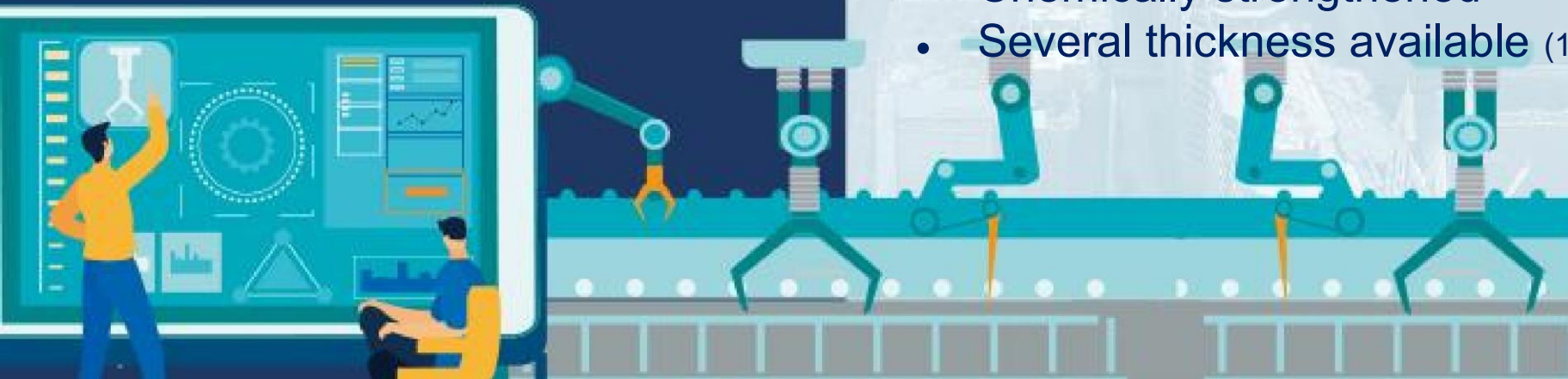
DMC Products
PCAP sizes view

PCAP

Series	Type	5.7	7w	8.4	10.1w	10.4	12.1	12.1w	13.3w	15	15.6w	17	18.5w	19	21.5w	24w	27w	32w
DUS-A	G/G		●	●	●	●	●	●	◖	●	●	●	●	●	●	●	◖	●
DUS-LA	CG/G/G		●	▲	●	●	●	●		●	●	▲	●	▲	●			
DUS-LD	CG(G)/G										●				●			
DUS-N	G/G	●	●	◖	●	◖	◖	●		◖	●	◖	●	◖	●			
DFS	G/G			●	●	●	●	●		●	●		●		●			
DUS-XF	F/F		●		●	●	●	●		●	●		●		●			
DUS-F	CG/F/F		●		●	●	●	●		●	●		●		●			

G: Glass F: Film CG: Cover Glass   ● Standard Stock   ◖ Produced on order   ▲ Under development   <Customized product available>

DMC Products
PCAP Details

Series	Type	Size	Operating temperature	Operating life	FPC material	FPC straight bonded by ACF	Index Matching	Symmetry type
DUS-A	G/G	7"W-32"W	-40°C +80°C	>50M	Polyimide	Yes	Yes	Sub-symmetry
DUS-LA	CG/G/G	7"W-21.5"W	-20°C +80°C	>50M	Polyimide	Yes	Yes	Sub-symmetry
DUS--LD	CG(G)/G	15.6W-21.5W	-40°C +80°C	>50M	Polyimide	Yes	Yes	Sub-symmetry
DUS-N	G/G	5.7"-21.5"W	-40°C +80°C	>50M	Polyimide	Yes	Yes	Sub-symmetry
DUS-XF	F/F (light weight)	7"W-21,5"W	-20°C +80°C	>50M	Polyimide	Yes	No	Sub-symmetry
DUS-F	CG/F/F							
DFS	G/G	8.4"-15"	-20°C +80°C	>50M	Polyimide	Yes	No	Sub-symmetry
	G/G (thin glass)	15.6"W-21.5"W						

Series	CUSTOMIZATION	Anti-bacterial film	Anti-reflection film	Privacy film	Covering Acrylic	Covering Glass (CG)	Size	Adhesive tape	OCA lamination	FPC length	FPC position	Glass thickness	Glass strengthened	Printing	MOQ	NRE
		On top	On top	On top	On top	On top	-	Rear side	Between	-	-	Bottom/CG	Bottom/CG	CG	-	-
DUS-A DUS-LA DUS-N		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100~300	Yes
DUS-LD		Yes	Yes	Yes	No	Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	1,000	Yes
DUS-XF DUS-F		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100~300	Yes
DFS		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100~300	Yes

*The printing color is black only.

G: Glass F: Film CG: Cover Glass COF: Chip On Flex

DMC Products
PCAP Controller & IC
Main features

Series		Type	Operating Temperature	Supply Voltage	Touch Input	Tool accepted to touch the screen	Touch Coordinates Output Time	Cover Glass Thickness	FW Option	Host Interface	External Size (mm)		IC
DUS-A DUS-LA DUS-LD DUS-N DUS-XF DUS-F	Controller Board	DUSx200 (x=1 =<10.1"W x=2 10.4-15"W x=3 15.6-32"W)	-40 ~ 85°C	DC 5V	5 points (max. 10 points) *1	Finger/ Glove/ Stylus pen 2φ	10ms (10 touch points)	10mm	Water Detection (only for USB interface), Palm Rejection	USB, I2C, I2C	x=1: 80x25x4.5 x=2: 110x25x7 X=3: 125x25x7	Controller IC	On Demand
DFS		N/A (DMC doesn't sell controller board)											N/A

*1 Depends on the thickness of cover glass and required functions such as glove and water etc.

Digital Printing on PCAP Cover Glass

InkjetPrinting

Ink-jet

DMC
Interface with Touch

Inkjet printing

## Features 1 of 2
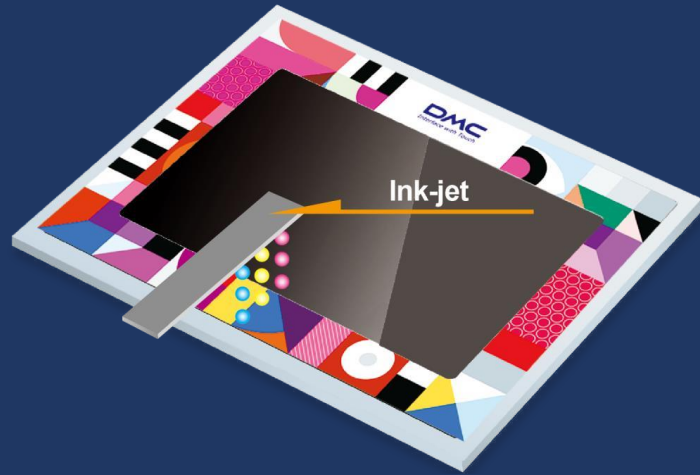
Ink-jet

What is Ink-jet printing?

Ink-jet printing is a printing method in which ink is sprayed onto glass. It is capable of printing high definition expressions and complex colors such as gradation, which are difficult to achieve with screen printing, and thus can produce designs with added value.

Creating originality and a sense of luxury

Generally, touch monitor interfaces are monochromatic black or gray, but by using ink-jet printing to create carbon patterns or wood grain patterns, it is possible to create a sense of luxury and originality.
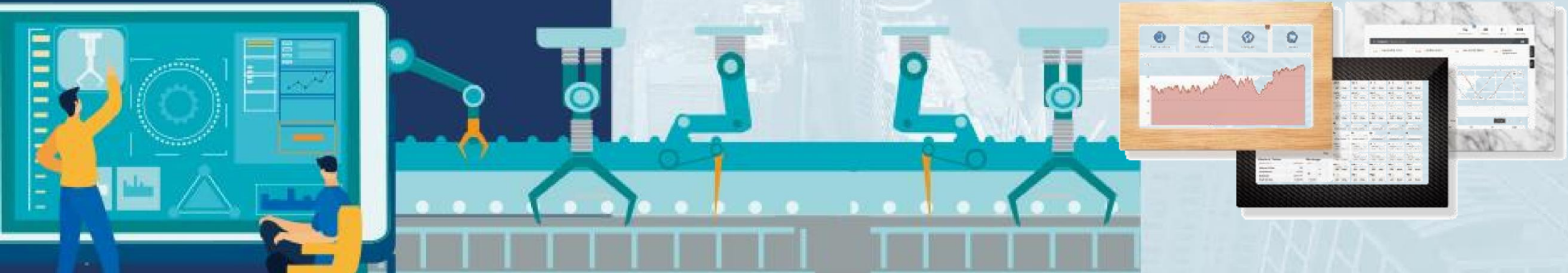
DUSx200 series

Development History

DUSx200

Automation of adjustment function
Enhance adjustability

The latest model with further performance enhancement such as automatic switching of FW parameters and noise avoiding function. Extend the possibility of capacitive touch screen such as hi-speed response, high resistance for noise, and 20-point touch, by processing capacity improved 2-3 times compared previous model, DUSx100 series.

DUSx200

Enhanced noise-canceling function
High CPU performance
(speed, storage capacity)
(over 20 point touch and larger size over 65")

DUSx100

Developed performance
Acquired expanded function

Functions were expanded to respond to market request for various application with capacitive touch screen. Corresponding to thick glass, stylus pen, gloves and water detection.
In addition, this series could be used for the large sizes over 40".

DUSx100

Uniquely developed AFE
High sensitivity (thick glass)
High processing speed
(water detection, stylus pen, larger sizes over 40")

DUSx000

Touch screen and controller
Integrated support

Uniquely developed capacitive touch screen controller by DMC. Integrated support from both aspects of hardware and software was realized by log analysis and FW adjustment.

DUSx000

Unique scanning method
Analysis support

2012   2014   2016   2018   2019

DUSx200 series
New Functions

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ADJUSTABILITY

Improved adjustability !

Adjustability is improved by auto-calibration and automatic switching function of firmware parameters. Different parameters are saved in FW and switch them automatically according to input methods such as finger, stylus pen, or gloves.

PERFORMANCE

Improved response speed and noise resistance!

High response speed is achieved with high CPU performance. Noise-cancelling function is to detect power-supply noise and avoid it automatically.
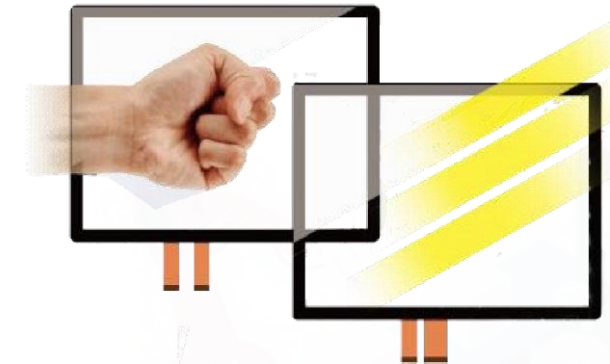
EXPANSION

Large-sized displays and thick cover glass supported to expand applications!

Larger touch screen is supported with 10-point touch. 10 mm thick cover glass can be used due to improved sensitivity.(about 2.5 times compared to DUSx000 and over 1.5 times compared to DUSx100 series)
 * Signage, Arcade game, Outdoor use, etc.

Easy Builder

Auto Calibration Software for PCAP DMC Sensors

PCAP is sensitive to ambient noise and may require adjustment of the firmware to suit the installation environment.
Easy Builder is a software tool that allows you to easily adjust the firmware of the touch controller based on the environment of the installation.

Trouble caused by environmental noise after installation

- The touch screen does not respond well.
- False input without touching the surface.
- Touch point drift

Easy Builder →

Easy Adjustment by Yourself

Significantly reduces time to solve problem and contributes to cost savings

Current →

DMC engineer adjusts the firmware on-site.

Need to adjust the schedule with DMC engineer

Additional time and expense incurred if it is outside of Japan

Approval procedures are needed if the site is closed for outsiders

Easy Builder Functions

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Sensitivity Adjustment

Easy Builder automatically adjusts sensitivity according to thickness of a cover glass.

Sensitivity

Low — High   Low — High

Cover Glass t=1.1mm → Cover glass change → Cover Glass t=3.0mm
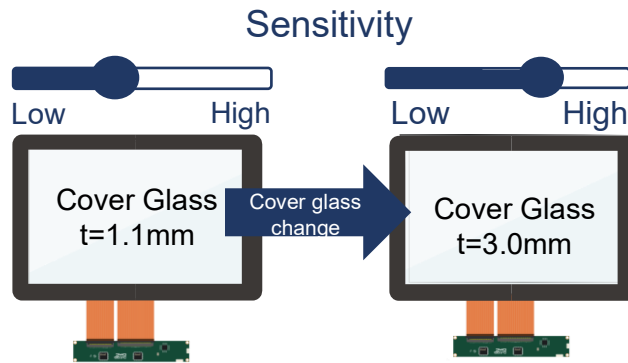
Coordinate Adjustment

Easy Builder automatically adjusts coordinate output according to TP direction.

TP rotated by 180°
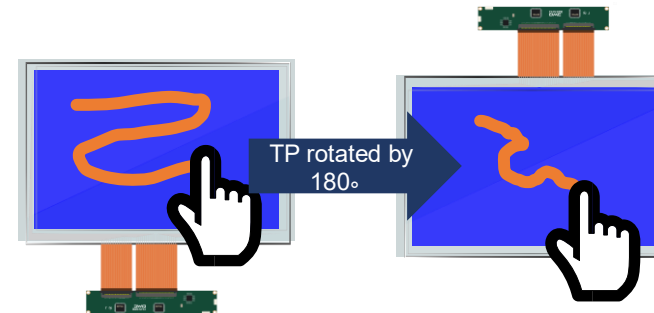
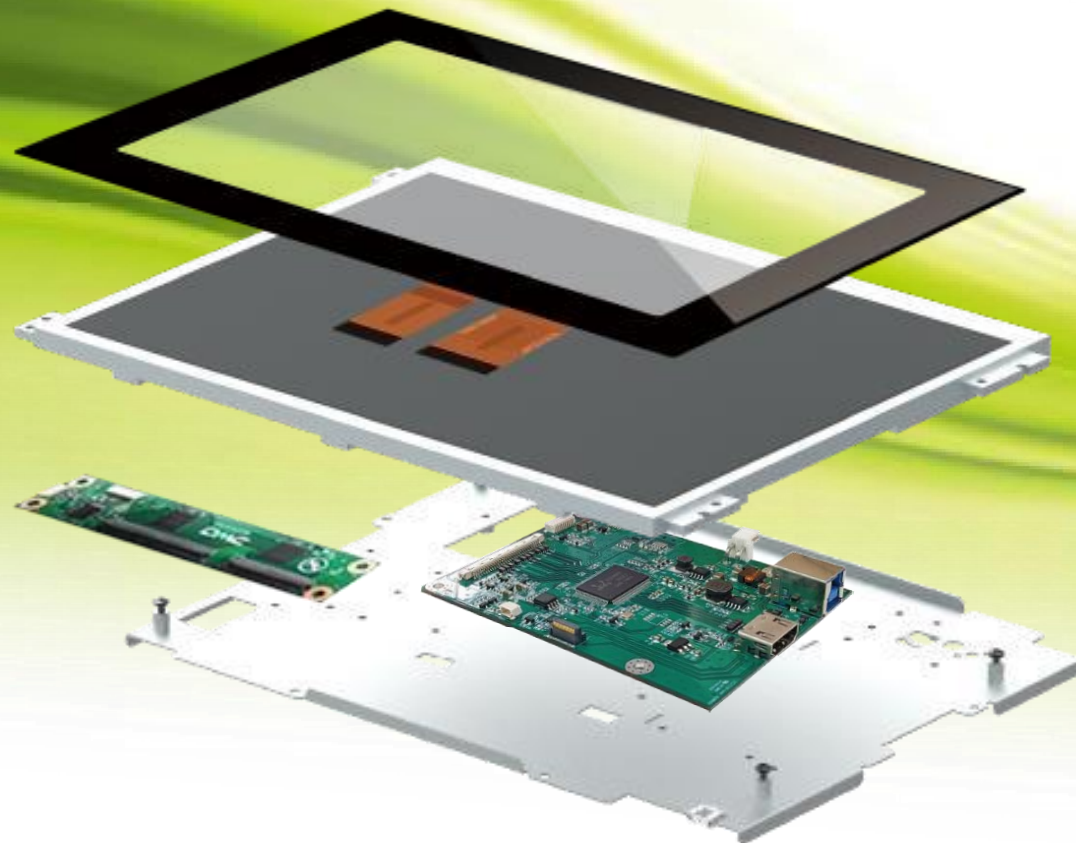**Noise Filter Adjustment**

Easy Builder can increase noise filters to improve touch operation under a noise environment.

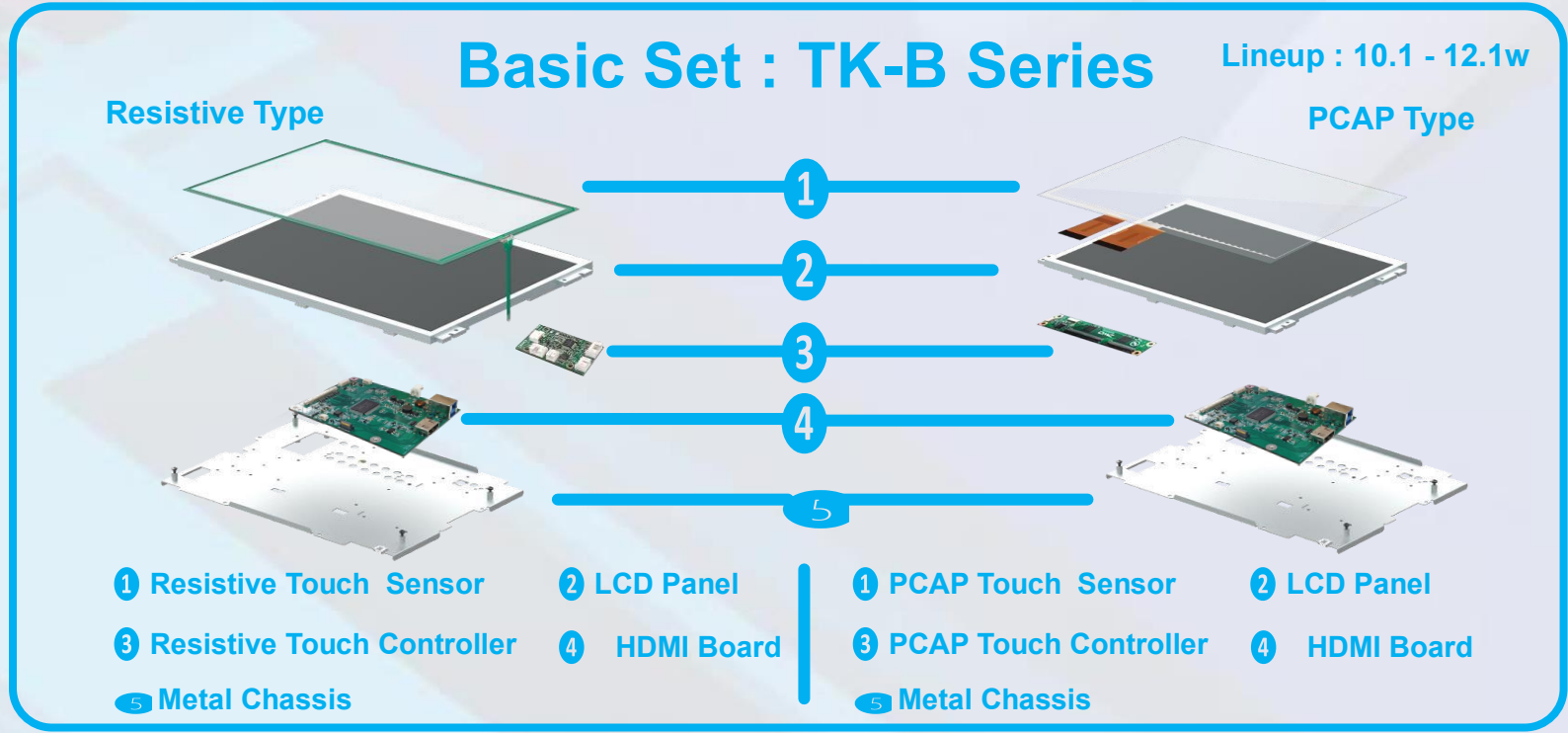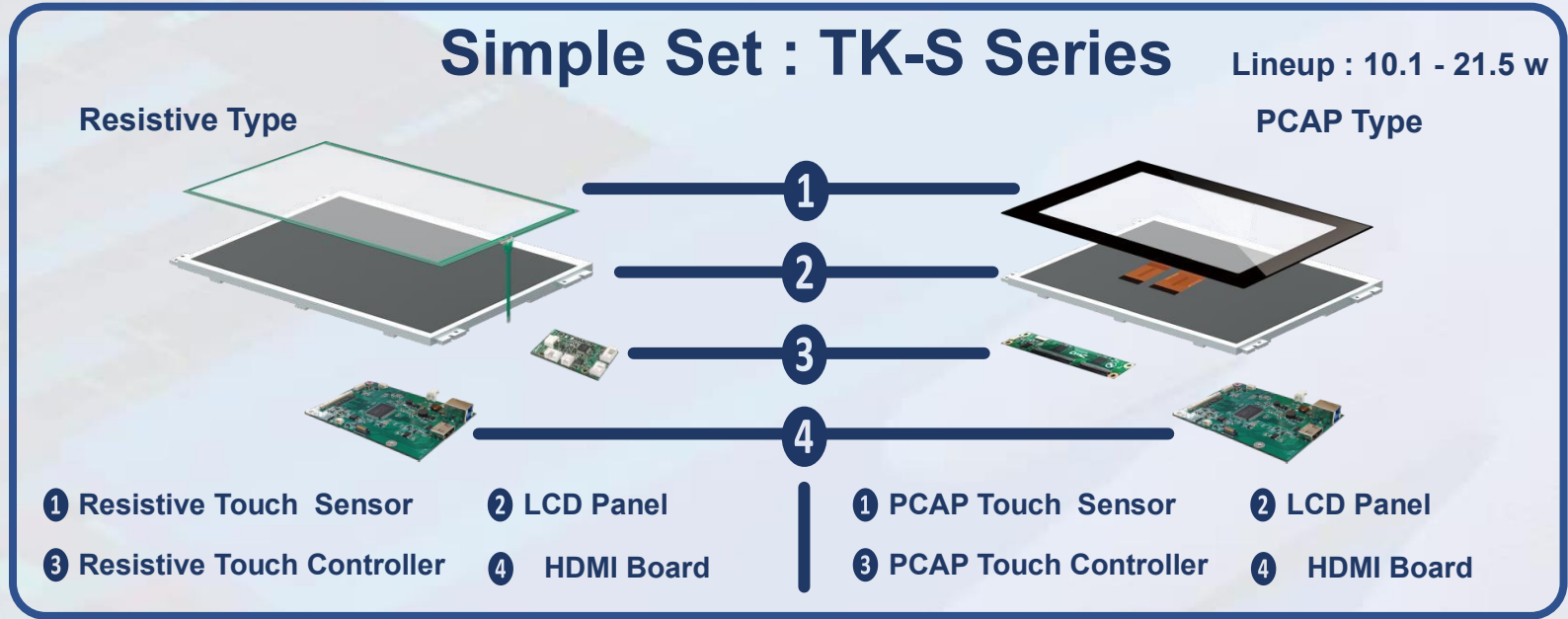Noise Filters

Few — many
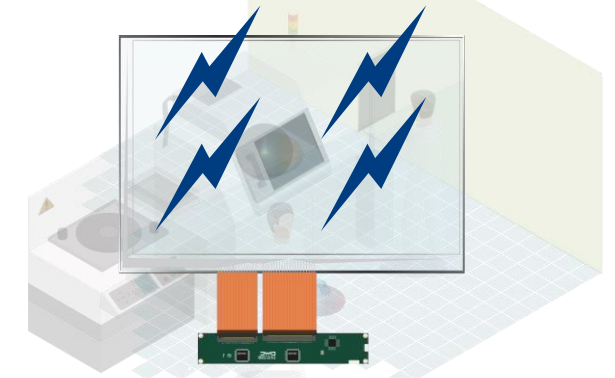
LCD Module with Touch Sensor

TK series

TK -Series features

- Open frame LCD module with touch sensor suitable for embedded applications.

- PCAP and resistive models in lineup

- Simple Set
  - Touch sensor and LCD only
  - HDMI image board available

- Basic Set
  - Touch sensor, LCD, HDMI board, and metal chassis

- DMC can also bond the touch sensor on an LCD customers pick other than the standard lineup.

Simple Set : TK-S Series

Lineup : 10.1 - 21.5 w

Resistive Type   **PCAP Type**

① Resistive Touch Sensor	② LCD Panel
③ Resistive Touch Controller	④ HDMI Board

① PCAP Touch Sensor	② LCD Panel
③ PCAP Touch Controller	④ HDMI Board

Basic Set : TK-B Series

Lineup : 10.1 - 12.1w

Resistive Type   **PCAP Type**

① Resistive Touch Sensor	② LCD Panel
③ Resistive Touch Controller	④ HDMI Board
⑤ Metal Chassis	

① PCAP Touch Sensor	② LCD Panel
③ PCAP Touch Controller	④ HDMI Board
⑤ Metal Chassis	

TK Series Lineup

Series	Product No.	Size	Display Resolution	Display I/F	LCD Manufacturer	HDMI Board	Touch Controller	Bezel Chassis	Touch Sensor	Status
TK-S	TK-SRA101WS-01	10.1W	1024 x 600		AUO	✓	✓		Resistive (F/G)	On sale
	TK-SRA101WS-01A13									On sale
	TK-SPA101WS-01						✓		PCAP(CG+F/F)	On sale
	TK-SPA101WS-11A3					✓	✓		PCAP(G/G)	On sale
	TK-SRA121WX-01	12.1w	1280 x 800		Innolux				Resistive (F/G)	On sale
	TK-SRA121WX-01A3					✓	✓			On sale
	TK-SPA121WX-01						✓		PCAP(CG+G/G)	on sale
	TK-SPA121WX-11A3					✓	✓		PCAP(G/G)	On sale
	TK-SRA156HD-01	15.6w	1366 x 768	LVDS	AUO				Resistive (F/G)	
	TK-SPA156HD-01								PCAP(CG+G/G)	On sale
	TK-SRA156FH-01				Data Image				Resistive (F/G)	
	TK-SRA156FH-01A3					✓	✓			On sale
	TK-SPA156FH-01		1920 x 1080				✓		PCAP(CG+G/G)	On sale
	TK-SPA156FH-11A3					✓	✓		PCAP(G/G)	On sale
	TK-SRA215FH-02	21.5w			Innolux				Resistive (F/G)	On sale
	TK-SRA215FH-02A3					✓	✓			On sale
	TK-SPA215FH-02						✓		PCAP(CG+G/G)	On sale
	TK-SPA215FH-12A3					✓	✓		PCAP(G/G)	On sale
TK-B	TK-BRA101WS-01A1	10.1w	1024 x 600		AUO	✓	✓	✓	Resistive (F/G)	
	TK-BPA101WS-11A1			LVDS		✓	✓	✓	PCAP(G/G)	
	TK-BRA121WX-01A1	12.1w	1280 x 800		Innolux	✓	✓	✓	Resistive (F/G)	On sale
	TK-BPA121WX-11A1					✓	✓	✓	PCAP(G/G)	

Stylish Touch Monitor

TM Series

Stylish Touch Monitor

features

1 **Its slim and simple design makes the monitor stylish and fit wide range of applications.**

2 **You may choose either capacitive or resistive models according to applications.**

PCAP

- Multi-touch
- Rugged
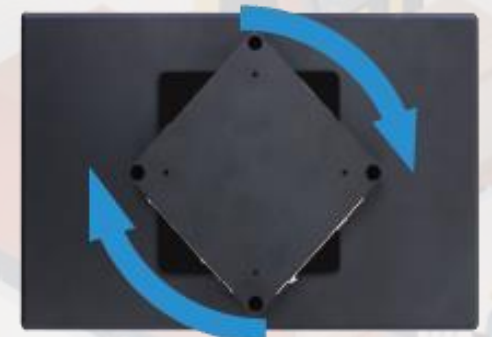- Clear Visibility

Touch Technologies Selectable

Light-touch Resistive

- Gesture operation
- Safety
- Reliability

3 **Back of the monitor can be rotated so that it is easy to change the orientations. The monitor can be used either in horizontal or vertical orientations due to its wide viewing angles in 4 directions.**

Viewing angle: 170° (vertical & horizontal)

TM Series Lineup

Product No.	External Dimension(mm)	Size (in)	Resolution	Viewing Angle(°) (U/D/L/R)	Luminance (cd/m2)	Display Interface	USB Interface Upstream	USB Interface Downstream	Touch Sensor	Number of touch point	Operating Temperature (°C)	Operating Humidity(%RH)	Rated Voltage(V)
TMG-156FH01-01	245(W)x390(H)x48(D)	15.6		85/85/85/85	390				PCAP	5			
TMH-156FH01-01					340				Resistive	1 (multi-touch gesture possible)			
TMG-215FH01-01			FullHD		350	HDMI (HDCP not supported)	USB3.0 (type-B)	None	PCAP	5	0 - 40	10 -80 (No condensation, wet-bulb temperature 39°C or lower)	DC12
TMH-215FH01-01	325(W)x527(H)x60(D)	21.5		89/89/89/89	310				Resistive	1 (multi-touch gesture possible)			
TMG-215FH03-01					350			USB3.0 (type-A) x 2	PCAP	5			
TMH-215FH03-01					310				Resistive	1 (multi-touch gesture possible)			

CDS Service

DMC Proposes Safe and Reliable Products

Integrated Support

Support usage in severe environments by integrated support of both touch screen (hardware) and controller (software)

We offer the products supporting severe environments in terms of both hardware and software aspects by supporting touch screen and controller.

Customization

We offer various customizations

Our professional engineers support customers to meet the demands of various customizations such as panel sizes, FPC specification, adding or printing covering glass, surface finishing, and round chamfering.

Thank you

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