

DMC Co., Ltd.

**Projected Capacitive Type Touch Screen
DUS-XF Series Product Specifications**

No. DEP-S0028A

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1. Product Specifications

1.1 Product Applicable

This specification is applied to the F/F(Film-Film) type touchscreen DUS-XF Series.

1.2 Outline dimensions / Structure

Refer to the Outline dimension drawing in separate.

1.3 Environmental Specification

| Item | Specification |
|-----------------------|---|
| Operating Temperature | -20°C to 80°C (no condensation) |
| Operating Humidity | 20%RH~90%RH (no condensation) Not guaranteed under the environment having both high temperature and high humidity. |
| Storage Temperature | -40°C to 80°C (no condensation) |
| Storage Humidity | 20%RH~90%RH (no condensation) Not guaranteed under the environment having both high temperature and high humidity. |

※The above specifications are not meant for use in all combination of humidity and temperature.

1.4 Mechanical Characteristics

| Item | Testing Condition | Specification |
|-------------------------|--|---------------|
| Electrode Matrix Pitch | — | About 5~7mm |
| FPC Bending Resistivity | R=1mm bended at 180 degrees, See Figure 1 No bendable area, See Figure 2 | ≤ 10 times |



Figure 2. FPC Bending

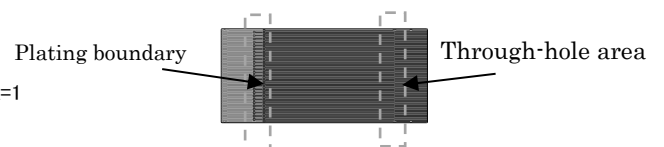


Figure 3 No bendable area

1.5 Electrical Characteristics

Check with the applicable controller specifications since electrical characteristics are determined by the matching between the controller used and the touch screen.

Controller used: DUSx200 Series(x: 1, 2, 3, 4)

1.6 Optical Characteristics

| Item | Testing Condition | Unit | Min. | Typ. | Max. |
|---------------------|-------------------|------|------|------|------|
| Light Transmittance | JIS K 7361 | % | 85 | 86 | — |

※Values are measured with a cover-glass (1.8mm=t) attached on the surface.

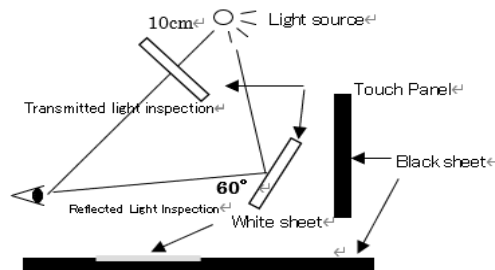
2. Visual Inspection

2.1 Inspection Standard

- Temperature: 15~30°C •Illuminance: 1000~3000 lx
- Inspection distance/angle: 30cm •Transmitted/reflected light inspection (Angle is non limited)

This specification is for Film + Film (without Cover Glass) projection type capacitive touch panel with OCA. Visual Inspection must be done without peeling off the protective tape film that covers the touch panel. Inspection of products shall be conducted from above the protective film. Regarding the lint defects in the protective film,; it does not matter.

Inspection method for scratches / foreign matter / dirt



2.2 Appearance standard (Visual Area of Touch Panel)

| Items | Width(mm) | Length(m m) | Acceptable Number | Total number |
|--|---|------------------------------------|--|---|
| Linear Defect(Foreign Particles, Scratches,Transparent defects) Thickness exceeding 0.2 mm is judged as a circular defect. Transparent defects are considered bubbles, ※1 lint etc | $0.15 < W \leq 0.2$ | $L \leq 10$ | Up to 1 per Product | 【10"≤size】 1 product less than 7 pcs. |
| | $0.1 < W \leq 0.15$ | $L \leq 20$ | Within φ25mm Up to 1 pc. Defect only | |
| | $W \leq 0.1$ | $L \leq 30$ | Allowable /Considerd OK | |
| $0.5 < D \leq 0.7$ | | Only 1 per product | 【Size < 10"】 1 Product less Than 5 pcs. | |
| $0.3 < D \leq 0.5$ | | Within φ25mm Up to 1 pc. defect | | |
| $D \leq 0.3$ | | Allowable/Considered OK | | |
| D: Average Diameter = (Length + Width)/2 | | | | |
| Dirt | It is acceptable if the outline is not clear and conspicuous. | | | |

※1 Lint is a defect in which the appearance is different from other transparent parts due to the partial change in thickness with foreign matter as the core.

※2: Regarding the lint defects in the protective film,; it does not matter.

3. Standard Testing Condition

Temperature: 20~30°C

Humidity: 20~80%RH

4. Reliability Testing Result

| Item | Sample Number | Condition | Criteria | Result (NG/Sample) |
|--|---------------|---|---|--------------------|
| Low temperature storage | 5 | -40°C, 240H | To pass Electric Characteristic and Appearance Criteria | 0/5 |
| High temperature storage | 5 | 80°C, 240 H | | 0/5 |
| High temperature & High humidity storage | 5 | 60°C, 90%RH, 240H | | 0/5 |
| Cycle Test | 5 | - 30°C, 1H →25°C, 0.5H →70°C, 1H→25°C, 0.5H 1 cycles Repeat 5 cycles | | 0/5 |

※Values are measured with a cover-glass (1.8mm=) attached on the surface.

5. Attention in Handling

5.1 Precautions

This product is intended for use in standard applications such as computers, office automation, industrial, communication, measurement, and home appliance equipment, etc. Avoid using this product in application where failure or malfunction of the systems which incorporate the touch screen may lead to the danger of human lives, physical injury, property damage, or in application where extremely high levels of reliability are required such as aerospace, vehicle operating control, and atomic energy control, medical devices for life support, etc.

5.2 Handling Notes

- Do not apply force or scratch the product with a sharp-edged tool or pointed object.
- Do not forcibly bend or fold the product.
- When the product is stored, make sure it is packed in a packing box and stored in a storage temperature range, eliminating any outside load.
- Do not use or store the product under the condition where the product can be exposed to water, organic solution or acid.
- Do not use the product under direct sunlight.
- Do not disassemble, take apart, or alter the product.
- When handling the product, hold the product with its main body. Do not hold by the tail.
- Clean the product with a soft cloth or a soft cloth with neutral detergent or alcohol. When contaminated by chemicals, wipe them off immediately with caution not to cause injury to human body.
- The edge of the glass may not be rounded and may cause injury.

5.3 Attention on Function & Performance

- The Environmental specifications, Mechanical and Optical characteristics are only applicable to the Active Area.
- Do not use the product when condensation may occur.

5.4 Attention on Electrical characteristics & Software

Projected Capacitive Touch screen was designed to work with our controller board.

If a driver software is to be developed by the client, please grasp the characteristics of touch screen and controller before development.

5.5 Attention on Mounting

In designing installation mechanism, please refer to the separate document, [Film/Film structure Projected Capacitive Touch Screen, Mounting Guidance], and ensure to avoid external factors may affect the touch screen performance.

6. Warranty

6.1 Warranty Period

- The warranty period is limited to one(1) year from the date of shipping. However, the warranty for the OCA part which is for bonding cover glass to the sensor is limited to six(6) months. The warranty for the initial deflection such as appearance deflection is limited to one(1) month.
- Any supposedly defected parts under proper use will be examined by the supplier and replaced with new parts if alleged deflection is determined to be caused by the supplier.
- The replacement may be subject to be included in the next production lot.

6.2 Warranty Scope

- The warranty only covers the product itself and does not cover any secondly damage caused by using the concerned product. Onsite repair or replacement is not supported.
- We will sincerely respond to delivery problem and product defections, but the warranty for the client's production lines is not covered.
- Capacitive touch screens are structurally not repairable. All defected parts are subject to be replaced.

6.3 Warranty Exceptions

Following conditions are not covered with the warranty and subject to charge.

- Any malfunctions and damages during transportation and transfer by the user.
- Any malfunctions and damages caused by a natural disaster or force majeure.
- Any malfunctions and damages caused by static electricity.
- Any malfunctions and damages caused by the failure of the associated equipment.
- In the case the product is remodeled, disassembled or repaired by the user.
- In the case the product is uninstalled after glued onto equipment.
- Any malfunctions and damages caused by an improper usage and handling against the clauses in this specifications.

6.4 Tools

All the tools and designing information, such as CAD data, printing screens, and die-cut plates are not to be provided the client from proprietary and/or administrative reasons.

6.5 Changes

Circuit pattern and the materials that do not affect the environmental, electrical, and mechanical characteristics such as glass, ink and glue are subject to change for the supplier's reason or for improvement within the specifications.

6.6 RoHS Compliance

This product complies with RoHS.

7. Revision History

| Rev | Date | Description |
|-----|------------------|--|
| 1 | May. 12, 2020 | Newly released |
| 2 | Sept 8, 2020 | 6.1 Warranty Period The warranty period for the OCA part (6 months) is added. |
| 3 | Feb 3, 2023 | Website address change Change of the document number. |
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