

DMC Co., Ltd.

**Projected Capacitive Type Touch Screen
DFS Series Product Specifications**

No. DEP-S0004A

Table of Contents:

1. Product Specifications	2
1.1 Product Applicable	2
1.2 Outline dimensions / Structure.....	2
1.3 Environmental Specification	2
1.4 Mechanical Characteristics	2
1.5 Electrical Characteristics	3
1.6 Optical Characteristics	3
2. Standard Testing Condition	3
3. Reliability Testing Result	3
4. Attention in Handling	4
4.1 Precautions	4
4.2 Handling Notes.....	4
4.3 Attention on Function & Performance.....	4
4.4 Attention on Electrical characteristics & Software	4
4.5 Attention on Mounting.....	4
5. Warranty	5
5.1 Warranty Period	5
5.2 Warranty Scope	5
5.3 Warranty Exceptions	5
5.4 Tools.....	5
5.5 Changes.....	5
5.6 RoHS Compliance.....	5
6. Revision History	6

1. Product Specifications

1.1 Product Applicable

This specification is applied to the G/G(Glass-Glass) type touch screen DFS 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.
Chemical Resistivity (Applied to sensor surface)	Toluene, Trichloroethylene, Acetone, Methanol, Ethanol IPA, Gasoline, Ammonia, Glass Cleaner, Machine oil(oil designated by DMC) Testing condition : Attach the above chemical on the surface of the touch screen for 12 hours and wipe it up with a cloth. Judgement criteria : No change in appearance.

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

1.4 Mechanical Characteristics

Item		Testing Condition	Specification
Operating Life	Input (finger)	Testing rod: See Figure 1 Voltage: 5V DC Load: 3N Cycle: 2 hits/sec 50,000,000 hits	Must satisfy Electrical Characteristics
Surface Hardness		Pencil hardness testing, complying with JIS K5600-5-4	≥5H
Electrode Matrix Pitch		—	About 5~7mm
FPC Bending Resistivity		R=1mm bended at 180 degrees, See Figure 2 No bendable area, See Figure 3	≤10 times

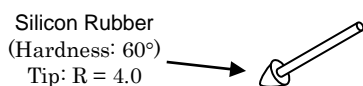


Figure 1. Testing rod



Figure 2. FPC Bending

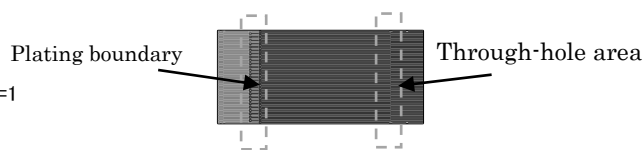


Figure 3 No bendable area

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.

Product No. (suffix)	Specification	Controller No.	Size	Max. FPC electrode※	
				X(RX)	Y(TX)
-E	EETI compatible	EXC84H4254STAG	≤ 15.0inch	47	36
		EXC84H5680STAG	≥ 15.6inch W	77	44

※“Max. FPC electrode” indicates number of electrodes for the largest product in the applicable size in table.
For number of electrodes for a specific product, check the drawing.

1.6 Optical Characteristics

Item	Testing Condition	Unit	Size	Min.	Typ.	Max.
Light Transmittance	JIS K 7361	%	≤ 12.1inch W	87	89	—
			≥ 15.0inch	89	91	—

2. Standard Testing Condition

Temperature: 20°C to 30°C

Humidity: 20%RH to 80%RH

3. Reliability Testing Result

Item	Sample Number	Condition	Criteria	Result (NG/Sample)
Low temperature storage	4	-40°C, 240H	To pass Electric Characteristic and Appearance Criteria	0/4
High temperature storage	4	80°C, 240 H		0/4
High temperature & High humidity storage	4	60°C, 90%RH, 240H		0/4
Cycle Test	4	-30°C, 1H → 25°C, 0.5H → 70°C, 1H → 25°C, 0.5H 1 cycles Repeat 5 cycles		0/4

4. Attention in Handling

4.1 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.

4.2 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.

4.3 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.

4.4 Attention on Electrical characteristics & Software

DFS Series is designed to work with controller board by EETI.

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

4.5 Attention on Mounting

Please consult the controller manufacturer for how to assemble the touch screen into the system at the structural design stage.

5. Warranty

5.1 Warranty Period

- The warranty period is limited to one(1) year from the date of shipping. 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.

5.2 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 deflections, 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.

5.3 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.

5.4 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.

5.5 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.

5.6 RoHS Compliance

This product complies with RoHS.

6. Revision History

Rev	Date	Description
1	April. 3, 2020	Newly released
2	March. 9, 2021	<ul style="list-style-type: none"> • 1.5 Electrical Characteristics: -Deleted -I model • 1.6 Optical Characteristics: Corrected writing errors of size. • 4.4 Attention on Electrical Characteristics & Software : Modified the description due to deletion of -I model • 4.5 Attention on Mounting: Changed the description
3	February 3, 2023	<p>Website address change</p> <p>Change of the document number.</p>

DMC Co., Ltd.

<https://www.dush.co.jp/english>

11F Takanawa Sengakuji Ekimae Bldg., 2-18-10 Takanawa, Minato-ku, Tokyo 108-0074, Japan

Phone: +81-3-6721-6731 (Japanese), 6736 (English) Fax: +81-3-6721-6732