



TEST REPORT

Kunde: <i>Client:</i>	DIGITAL MATTER EMBEDDEDSOUTH AFRICA (PTY) LT
Adresse: <i>Address:</i>	Oval, St Georges Block, Cnr Meadowbrook Lane and Sloane Street, Bryanston, Gauteng, South Africa
Hersteller: <i>Manufacturer:</i>	DIGITAL MATTER EMBEDDEDSOUTH AFRICA (PTY) LT
Adresse: <i>Address:</i>	Oval, St Georges Block, Cnr Meadowbrook Lane and Sloane Street, Bryanston, Gauteng, South Africa
Name der Marke: <i>Brand Name:</i>	Digital Matter
Beschreibung des Produkts: <i>Product Description:</i>	OYSTER3-4G
Modelle: <i>Models:</i>	OYSTER3-4G, OYSTER-EDGE-4G, OYSTER3-LORAWAN, OYSTER3-GLOBAL, OYSTER3-2G, OYSTER3-4G-BLUETOOTH
Bewertung: <i>Rating:</i>	N/A
Verfahren: <i>Method:</i>	IEC 60529:1989+A1:1999+A2:2013
Prüfergebnis*: <i>Test result*:</i>	Pass

Datum der Prüfung:
Date of Test:

2023/11/17

Datum der Emission:
Date of Issue:

2023/11/20

Klassifizierung:
Classification:

Commission Test

Gegenstand der Prüfung:
Test item:

IP68 Test

Prüflabor (Testlabor) / Testing Laboratory:

Shenzhen Southern LCS Compliance Testing Laboratory Ltd.

101-201, No.39 Building, Xialang Industrial Zone, Heshuikou Community, Matian Street, Guangming District, Shenzhen, China

Test von/Test by:

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Rose Cao/ Project Engineer

Check von/Check by:

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Torres He/ Director

Genehmigt von/Approved by:

Jesse Liu

Jesse Liu/ Manager

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Modified Information

Version	Report No.	Revision Date	Summary
V1.0	LCSB11083051S	/	Original Version

General product information:

- All models have the same construction except for the name of the model.
- Unless otherwise specified, the model OYSTER3-4G was chosen as representative model to perform all test.

Equipment used during test:

ID Number	Instrument	Model/ Type	Calibration Date
SLCS-S-031	Sand and dust test box	SG-500	2023/5/9
SLCS-S-040	Submersible test unit	X8	2023/5/9
SLCS-S-148	Air compressor	OTS-800	/
SLCS-E-027	Temperature and humidity barometer	/	2023/4/27
SLCS-S-011	J Thermocouple	J	2023/11/2
SLCS-S-029	Temperature recorder	34970A	2023/5/9
SLCS-S-095	Test needle(1mm)	AGPCD	2023/5/10



**Test Item:**

Dust test for first characteristic numerals 6

Atmospheric conditions for water or dust tests:

Air pressure: 86 kPa to 106 kPa

Temperature range: 15°C to 35°C

Relative humidity: 25 %RH to 75 %RH

Test samples:

Clean and new sample were be tested

Test Method:

The test is made using a dust chamber incorporating the basic principles shown in figure 2 whereby the powder circulation pump may be replaced by other means suitable to maintain the talcum powder in suspension in a closed test chamber. The talcum powder used shall be able to pass through a square-meshed sieve the nominal wire diameter of which is 50 μm and the nominal width of a gap between wires 75 μm . The amount of talcum powder to be used is 2 kg per cubic metre of the test chamber volume. It shall not have been used for more than 20 tests.

Enclosures are of necessity in one of two categories: Category 1: Enclosures where the normal working cycle of the equipment causes reductions in air pressure within the enclosure below that of the surrounding air, e.g., due to thermal cycling effects. Category 2: Enclosures where no pressure difference relative to the surrounding air is present.

Category 1 enclosures:

The enclosure under test is supported inside the test chamber and the pressure inside the enclosure is maintained below the surrounding atmospheric pressure by a vacuum pump.

The suction connection shall be made to a hole specially provided for this test. If not otherwise specified in the relevant product standard, this hole shall be in the vicinity of the vulnerable parts. If it is impracticable to make a special hole, the suction connection shall be made to the cable inlet hole. If there are other holes (for example, more cable inlet holes or drain-holes) these shall be treated as intended for normal use on site.

The object of the test is to draw into the enclosure, by means of depression, a volume of air 80 times the volume of the sample enclosure tested without exceeding the extraction rate of 60 volumes per hour. In no event shall the depression exceed 2 kPa (20 mbar) on the manometer shown in figure 2.

If an extraction rate of 40 to 60 volumes per hour is obtained the duration of the test is 2 h.

If, with a maximum depression of 2 kPa (20 mbar), the extraction rate is less than 40 volumes per hour, the test is continued until 80 volumes have been drawn through, or a period of 8 h has elapsed.

Category 2 enclosures

The enclosure under test is supported in its normal operating position inside the test chamber, but is not connected to a vacuum pump. Any drain-hole normally open shall be left open for the duration of the test. The test shall be continued for a period of 8 h.



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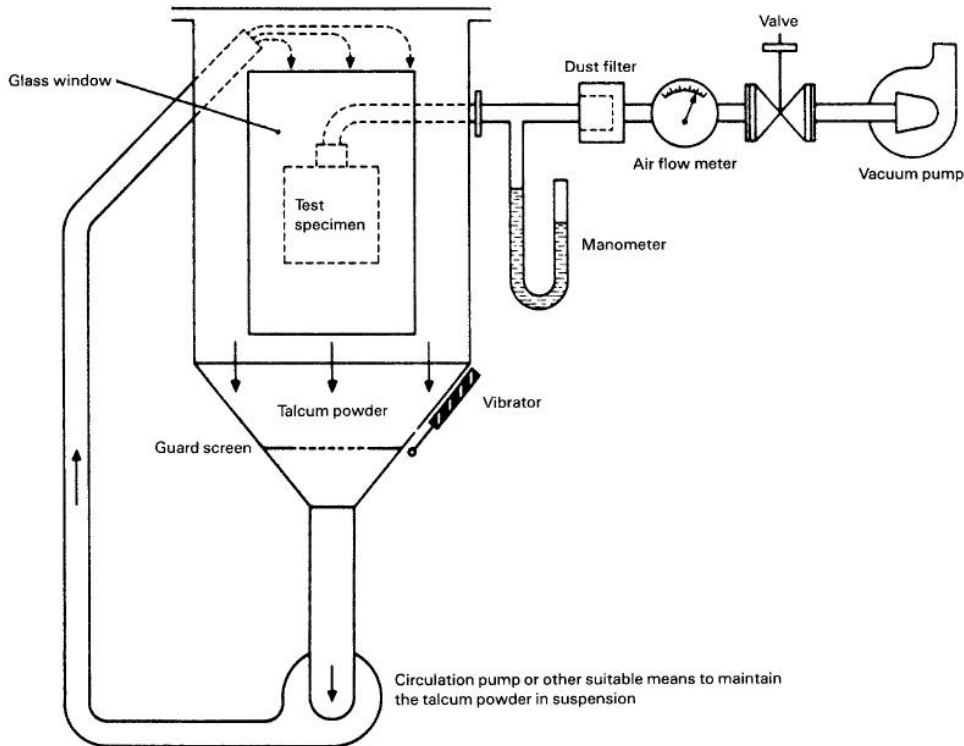
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**Acceptance Conditions:**

The protection is satisfactory if no deposit of dust is observable inside the enclosure at the end of the test.
The protection is satisfactory if the test wire of 1,0 mm ϕ shall not penetrate and adequate clearance shall be kept.

Test Result:

☒ Pass ☐ Fail

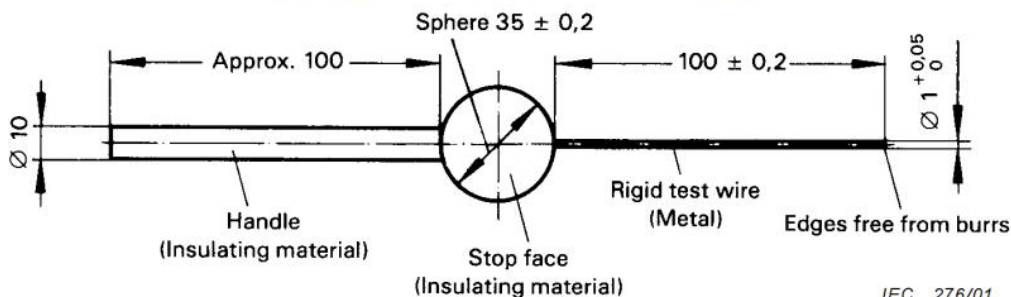


IEC 280/01

NOTE See IEC 60068-2-68, figure 2 valid for La2 only.

Figure 2 – Test device to verify protection against dust (dust chamber)

Test wire 1,0 mm diameter, 100 mm long



IEC 276/01



**Test Item:**

Test for second characteristic numeral 8

Atmospheric conditions for water or dust tests:

Air pressure: 86 kPa to 106 kPa

Temperature range: 15°C to 35°C

Relative humidity: 25 %RH to 75 %RH

Test samples:

Clean and new sample were be tested

Test Method:

The test is made by completely immersing the enclosure in water in its service position as specified by the manufacturer so that the following conditions are satisfied:

- a) the lowest point of enclosures with a height less than 850mm is located 1000mm below the surface of the water;
- b) the highest point of enclosures with a height equal to or greater than 850mm is located 150mm below the surface of the water;
- c) the duration of the test is 1 H;
- d) the water temperature does not differ from that of the equipment by more than 5 K.

However, a modified requirement may be specified in the relevant product standard if the tests are to be made when the equipment is energized and/or its parts in motion.

Acceptance Conditions:

It is the responsibility of the relevant Technical Committee to specify the amount of water which may be allowed to enter the enclosure and the details of a dielectric strength test, if any. In general, if any water has entered, it shall not:

- be sufficient to interfere with the correct operation of the equipment or impair safety;
- deposit on insulation parts where it could lead to tracking along the creepage distances;
- reach live parts or windings not designed to operate when wet;
- accumulate near the cable end or enter the cable if any.

If the enclosure is provided with drain-holes, it should be proved by inspection that any water which enters does not accumulate and that it drains away without doing any harm to the equipment.

For enclosures without drain-holes, the relevant product standard shall specify the acceptance conditions if water can accumulate to reach live parts.

Test Result:

☒ Pass ☐ Fail



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**Photo Documentation:**

Photo 1: Overall view of model OYSTER3-4G



Photo 2: Overall view of model OYSTER3-4G





Photo Documentation:

Photo 3: IP6X test of model OYSTER3-4G



Photo 4: IPX8 test of model OYSTER3-4G





Photo Documentation:

Photo 5: Test result of IP6X and IPX8 test



Photo 6: Test result of IP6X and IPX8 test



----- End of Test Report -----



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