

Test Certificate

CERTIFICATE No: TRA033581CC04

ISSUE: A

DATE: 13/02/2017

PURPOSE OF TEST: Ingress Protection

CLIENT ORDER No: P37645

CLIENT: FT Technologies (UK) Ltd, Church Lane, Teddington, Middlesex, GB. TW11 8PA.

EQUIPMENT UNDER TEST: Wind Sensor
Serial No.: 9001-002
Part Number FT742-D-SM
Element Stores Number TRA-033581-S24

Serial No.: 9000-349
Part Number FT742-A-DM
Element Stores Number TRA-033581-S21

Receipt date: 14/11/2016

TEST SPECIFICATIONS: In accordance with Element quotation TRA-033581-01 dated 10th October 2016, also in accordance FT Technology Document No. A9450, Issue 1 BS EN 60529:1992

TEST DATE: 7th December to 8th December 2016

TEST LOCATION: Element Materials Technology, Rothwell Road, Warwick, Warwickshire, CV34 5JX

WRITTEN BY:



Sam Bannan
Environmental Test
Engineer

APPROVED BY:

Rob Sutton
Verification
Controller

The results herein relate only to the particular samples of equipment tested and the specific tests performed, as detailed above, and in accordance with the contract. Full details of test results, modifications and marginal results are held by Element Materials Technology Warwick Ltd. The quality control arrangements are in accordance with our UKAS accreditation. No representation or warranty is given that the tests performed under the terms of contract constitute, in themselves, a sufficient programme for the client's purpose, nor that the client's equipment is suitable for any particular purpose, nor that any approval has or will be granted by Element Materials Technology Warwick Ltd or any other body. The contents of this certificate shall not be reproduced, except in full, without the written approval of Element Materials Technology Warwick Ltd.

1 of 3

EMTEACC02

TESTS CARRIED OUT:**IP4X - Protected Against Access to Hazardous Parts and Against Solid Foreign Objects**

Probe: 1.0^{+0.05}₋₀ mm diameter x 100mm wire
Force: 1N ± 10%

There were no components which were removable without the use of a tool.
The 100mm access probe was applied to assess if the 1mm diameter probe could gain access to the openings of the enclosure at a force of 1N.

IP6X - Protected Against Access of Solid Foreign Objects - Dust Tight

Tested in accordance with FT Technologies Document No. A9450, Issue 1, Section 10.1, which refers to BS EN 60529:1992+A2:2013

Duration: If extraction rate is 40-60 volumes per hour, duration is 2 hours.
If extraction rate is less than 40 volumes per hour at a depression of ≤ -20mbar, test is continued until 80 volumes have been drawn through or 8 hours elapsed.

Maximum Flow rate: 60 times the volume of the specimen per hour
Maximum Vacuum: ≤ -20mbar

Note: All enclosures with first characteristic numeral 6 shall be deemed category 1.

IPX7 – Temporary Immersion in Water

Tested in accordance with FT Technologies Document No. A9450, Issue 1, Section 10.2, which refers to BS EN 60529:1992+A2:2013

Water Level: 1 metre above lowest point of enclosure
Duration: 30 minutes
Configuration: Non-Operational.
Water Temperature: Within ±5°C of equipment temperature

IPX6 - Protected Against Powerful Water Jets

Tested in accordance with FT Technologies Document No. A9450, Issue 1, Section 10.3, which refers to BS EN 60529:1992+A2:2013

Nozzle: 12.5 mm diameter
Flow Rate: 100 litres per minute ± 5%
Duration: 1 minute per m² of surface area of enclosure from all practicable directions (3 minutes each)
Distance: 2.5 to 3 metres
Water Temperature: Within ±5°C of equipment temperature

TEST RESULTS:**IP4X - Protected Against Access to Hazardous Parts and Against Solid Foreign Objects**

The specimen was found to have no openings that could be penetrated by the access probe of 1 mm Ø reducing adequate clearance between the access probe and hazardous parts.

IP6X - Protected Against Access of Solid Foreign Objects - Dust Tight**IPX7 – Temporary Immersion in Water****IPX6 - Protected Against Powerful Water Jets**

Upon completion of all of the tests, the specimens were inspected. There was no water or dust ingress found. The specimens S21 and S24 therefore satisfies the requirements of BS EN 60529:1992+A2:2013, IP66 and IP67.



IP X6



IP X7



IP 6X



IP6X



IP Ingress Protection Testing

Test Specification:	ISO 20653:2013 IPX6K
Test House:	Particle Technology Ltd
Equipment Supplier:	FT Technologies (UK) Ltd
Customer Number:	P43745
Test Engineer(s):	Steve Sandland
Report Author:	Greg Spicer
Equipment Under Test (EUT):	High Speed Wind Sensor Digital 50mm Direct Mount
Date of Tests:	20 August 2019
Report Number:	19002/01 Issue 01



1 Report Summary

1.1 Introduction

The aim of this test is to ascertain the compliance of the equipment supplied by FT Technologies (UK) Ltd to ISO 20653:2013. The tests intend to determine the enclosure's protection against ingress from water.

IPX6K - Protected against high velocity water jets with increased pressure.

1.2 Brief Summary of Results

Table 1-1

Specific Clause	Test Description	Result
IPX6K	Protected against high velocity water jets. Water ingress shall not be in a quantity or location that impairs the proper operation or safety of the equipment.	The Wind Sensor showed no visible water ingress into the electrical housing.

1.3 Deviations from the standard

No deviations from the applicable test standard were made during testing.

1.4 Modification Record

The EUT was not modified prior to or during testing.

2 Test House Details

Particle Technology Ltd
Station Yard Industrial Estate
Hatton
Derbyshire
DE65 5DU

3 Customer Address

FT Technologies (UK) Ltd
Sunbury House
Brooklands Close
Sunbury On Thames
TW16 7DX

4 Equipment List

4.1 Test Equipment

Table 4-1 Test Equipment Used

Equipment used			
Inventory Number	Description	Make/Model	Calibration Due
1029	Digital Thermometer	Digitron / 2029T	09/01/2020
1036	Tape Measure	Buildbase / 5m	14/01/2020
1051	Stopwatch	RS Stopwatch	14/05/2020
1096	Turbine Flow Meter	Trimec/Type 050	12/07/2019
1245	IPX5/ IPX6K Nozzle	PTL Design - Drawing No - PTLIH-IP5NFMK2	03/04/2020

4.2 Equipment Under Test (EUT)

Table 4-2 – Equipment Under Test

Description	Serial Number	Model Number	PTL ID	Date Rec
High Speed Wind Sensor Digital 50mm Direct Mount	9007-041	FT742-D-DM50	28931	20/08/2019

5 Test Details

5.1 Ingress Protection, Water (IPX6K)

5.1.1 Specification Reference

ISO 20653:2013 IPX6K

5.1.2 Date of Test

20 August 2019

5.1.3 Test Method



Figure 1 – EUT in IPX6K water test area.

The unit was sprayed with a stream of water from a standard test nozzle as described below:-

Duration:	>3 minutes (3 minutes 30 Seconds)
Nozzle:	As per Figure 2 (6.3mm Nozzle)
Delivery rate:	75 litres/minute
Nozzle Pressure	>10 bar (approximately)
Distance from nozzle to test surface:	2.5 – 3.0 meters
Water temperature:	17.1°C
Test item temperature:	19.2°C

5.1.5 Test Results – IPX6K

The EUT had excess water removed externally to allow for an internal inspection, there was no visible water ingress into the enclosure

The EUT conformed to the standard required by ISO 20653:2013 IPX6K

6 Approval

The preceding report is an accurate account of the testing performed at Particle Technology Ltd, UK.

Approved by 

Greg Spicer, MEng
Managing Director
Date: 16 September 2019

7 Accreditation, disclaimers and copyright



This report relates only to the actual item/items tested.

Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation.

Results of tests not covered by our UKAS Accreditation Schedule are marked NUA
(Not UKAS Accredited).

This report must not be reproduced, except in its entirety, without the written permission of Particle Technology Limited

© 2019 Particle Technology Limited