TEST STANDARD

IEC 60529

Degrees of protection provided by enclosures(IP code)

Report reference No.....	:	CSTH-S140215018
Tested by (name + signature)..... .:	:	Terry Lu
Approved by (+ signature)....	:	Denny Yang
Date of issue.....	:	February 17, 2014
Contents.....	:	8 Pages
Testing laboratory.....	:	Shenzhen Certification Technology Service Co., Ltd.
Address.....	:	2F, Building B, East Area of Nanchang Second Industrial Zone, Gushu 2nd Road, Bao'an District, Shenzhen 518126, P.R. China
Testing location.....	:	As above
Applicant.....	:	TTAF ELEKTRONIK SANAYİ VE TİCARET LİMİTED ŞİRKETİ
Address.....	:	İstanbul Caddesi No:21 34520 Kavaklı Beylikdüzü ISTANBUL TÜRKİYE
Standard.....	:	IEC 60529 Edition 2.1, 2001-02
Procedure deviation.....	:	N.A.
Non-standard test method....	:	N.A.
Object under test.....	:	Waterproof connector
Model/type reference.....	:	TTAF-W/XXX Series
Model difference.....	:	All models are the same in waterproof construction, only differ in appearance, length and pin quantity.
Trademark.....		N.A.
Manufacturer	:	TTAF ELEKTRONIK SANAYİ VE TİCARET LİMİTED ŞİRKETİ
Address.....	:	İstanbul Caddesi No:21 34520 Kavaklı Beylikdüzü ISTANBUL TÜRKİYE
IP degrees.....	:	IP65

APPLICATION FOR IP CODE
On Behalf of

TTAF ELEKTRONIK SANAYİ VE TİCARET LİMİTED ŞİRKETİ

Waterproof connector

Model No. : TTAF-W/XXX Series

Prepared For:	**TTAF ELEKTRONIK SANAYİ VE TİCARET LİMİTED ŞİRKETİ**
Address:	**İstanbul Caddesi No:21 34520 Kavaklı Beylikdüzü ISTANBUL TÜRKİYE**

Prepared By:	**Shenzhen Certification Technology Service Co., Ltd.**
Address:	**2F, Building B, East Area of Nanchang Second Industrial Zone, Gushu 2nd Road, Bao'an District, Shenzhen 518126, P.R. China**

Date of Test:	**February 14, 2014**
Date of Report:	**February 15, 2014**
Report Number:	**CSTH-S140215018**
Version Number:	**REV0**

Possible test case verdicts:

- test case does not apply to the test object .....: N(A)
- test object does meet the requirement .....: P(Pass)
- test object does not meet the requirement .....: F(Fail)

General remarks:

Throughout this report a point is used as the decimal separator.

The test results presented in this report relate only to the object tested.

This report shall not be reproduced except in full without the written approval of the testing laboratory.

Comments:

- The first characteristic numeral 6 indicated protection against solid foreign objects indicated. Dust chamber figure 2, with or without under pressure. Dust-tight: no ingress of dust.
- The second characteristic numeral 5 indicated protected against water jets, it means water projected in jets against the enclosure from any direction shall have no harmful effects.

  The conditions:

  internal diameter of the nozzle : 6.3mm;

  delivery rate: 12.5l/min±5%;

  water pressure: to be adjusted to achieve the specified delivery rate;

  test duration per square metre of enclosure surface area likely to be sprayed: 1min;

  minimum test duration: 3min; distance from nozzle to enclosure surface: between 2.5m and 3m.

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Procedure deviation.....	:	N.A.
Non-standard test method....	:	N.A.
Object under test.....	:	Waterproof connector
Model/type reference.....	:	TTAF-W/XXX Series
Model difference.....	:	All models are the same in waterproof construction, only differ in appearance, length and pin quantity.
Trademark.....		N.A.
Manufacturer	:	TTAF ELEKTRONIK SANAYİ VE TİCARET LİMİTED ŞİRKETİ
Address.....	:	İstanbul Caddesi No:21 34520 Kavaklı Beylikdüzü ISTANBUL TÜRKİYE
IP degrees.....	:	IP65

IEC 60529			
Clause	Requirement – Test	Result - Remark	Verdict
11	General requirements for tests		P
11.1	Atmospheric conditions for water or dust tests	25.5-26.3ºC,45.1-51.8%R.H.	P
11.2	Test samples		P
11.3	Application of test requirements and interpretation of test results		P
11.4	Combination of test conditions for the first characteristic numeral	IP6X	P
11.5	Empty enclosures		N
12	Test for protection against access to hazardous parts indicated by the fist characteristic numeral		P
12.1	Access probes		P
12.2	Test conditions		P
12.3	Acceptance conditions		P
12.3.1	For low-voltage equipment. (Rated voltage not exceeding 1000V a.c. and 1500V d.c.)		P
12.3.2	For high-voltage equipment (Rated voltage exceeding 1000V a.c. and 1500V d.c.)		N
12.3.3	For equipment with hazardous mechanical parts		N
13	Test for protection against solid foreign objects indicated by the first characteristic numeral		P
13.1	Test means		P
	Test means and the main test conditions are given in table 7		P
13.2	Test conditions for first characteristic numerals 1, 2, 3, 4		N
13.3	Acceptance conditions for first characteristic numerals 1, 2, 3, 4		N
13.4	Dust test for first characteristic numerals 5 and 6	IP6X	P
13.5	Special conditions for first characteristic numeral 5		N
13.5.1	Test conditions for first characteristic numeral 5		N
13.5.2	Acceptance conditions for first characteristic numeral 5		N
13.6	Special conditions for first characteristic numeral 6		P
13.6.1	Test conditions for first characteristic numeral 6	Category 1 enclosure	P
13.6.2	Acceptance conditions for first characteristic numeral 6	No ingress of dust	P

IEC 60529			
Clause	Requirement – Test	Result - Remark	Verdict
14	Test for protection against water indicated by the second characteristic numeral		P
14.1	The test means and the main test conditions are given in table 8	IPX5	P
14.2	Test conditions		P
	Test means and main test conditions are given in table 8		P
	During the tests for IPX1 TO IPX6 the water temperature should not differ by more than 5K from the temperature of the specimen under test		P
	For IPX7 details of the water temperature are given in 14.2.7		N
	Test for second characteristic numeral 8, the test conditions are subject to agreement between manufacturer and user, but they shall be more severe than those prescribed in 14.2.7 and they shall take account of the condition than the enclosure will be continuously immersed in actual use		N
14.2.1	Test for second characteristic numeral 1 with the drip box		N
14.2.2	Test for second characteristic numeral 2 with the drip box		N
14.2.3	Test for second characteristic numeral 3 with oscillating tube or spray nozzle		N
14.2.4	Test for second characteristic numeral 4 with oscillating tube or spray nozzle		N
14.2.5	Test for second characteristic numeral 5 with the 6.3mm nozzle	Water flow: 12.5 L/min±5% Test time: 3 min	P
14.2.6	Test for second characteristic numeral 6 with the 12.5mm nozzle		N
14.2.7	Test for second characteristic numeral 7: temporary immersion between 0.15m and 1m		N
	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		N
	a) the lowest point of enclosures with a height less than 850mm is located 1000mm below the surface of the water		N
	b) the highest point of enclosures with a height equal to or greater than 850mm is located 150mm below the surface of the water		N
	c) the duration of the test is 30min		N
	d)the water temperature does not differ from that of the equipment by more 5K		N

IEC 60529			
Clause	Requirement – Test	Result - Remark	Verdict
14.2.8	Test for second characteristic numeral 8: continuous immersion subject to agreement		N
14.3	After testing in accordance with the appropriate requirements of 14.2.1 to 14.2.8 the enclosure shall be inspected for ingress of water	No ingress of water	P
	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		N
	In general, if any water has entered, it shall not:		N
	–be sufficient to interfere with the correct operation of the equipment or impair safety		N
	deposit on insulation parts where it could lead to tracking along the creepage distances		N
	–reach live parts or windings not designed to operated when wet		N
	–accumulate near the cable end or enter the cable if any		N
	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		N
	For enclosure without drain-holes, the relevant product standard shall specify the acceptance conditions if water can accumulate to reach live parts		N

15	Test for protection against access to hazardous parts indicated by the additional letter		N
15.1	Access probes	No additional letter	N
	The access probe are given in table 6		N
15.2	Test conditions		N
	The access probe is pushed against any openings of the enclosure with the force specified in table 6		N
15.3	Acceptance conditions		N
	Test for the additional letter B		N
	Test for the additional letter C and D		N

Photo documentation

Photo 3

View: dust proof equipment (IP6X)

[√] front

[ ] rear

[ ] right side

[ ] left side

[ ] top

[ ] bottom

[ ] internal

Photo 4

View: equipment of water proof testing (IPX5)

[√] front

[ ] rear

[ ] right side

[ ] left side

[ ] top

[ ] bottom

[ ] internal

Photo documentation

Photo 5

View: after testing

[√] front

[ ] rear

[ ] right side

[ ] left side

[ ] top

[ ] bottom

[ ] internal

Photo 6

View: after testing

[ ] front

[ ] rear

[ ] right side

[ ] left side

[ ] top

[ ] bottom

[√] internal