



1. Scope :

1.1 Contents

This specification covers the requirements for product performance, test methods and quality assurance provisions of Sealing.

Applicable product description and part numbers are as shown in Appendix 1.

2. Applicable Documents:

The following documents form a part of this specification to the extent specified herein. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

2.1 AMP Specifications :

A. 109-5000 : Test Specification, General Requirements for Test Methods

B. 501-61075 : Test Report

2.2 Commercial Standards and Specifications

A. ANSI/ EIA-364 Test Method for Electronic and Electric Parts

B. Universal Serial Bus 2.0 Specification

### 3. Requirements :

#### 3.1 Design and Construction :

Product shall be of the design, construction and physical dimensions specified on the applicable product drawing.

#### 3.2 Materials :

##### A. Housing (Sealing)

Material : Silicone

#### 3.3 Ratings :

##### A. Operating Environment

Operating Temperature Rating :  $-30^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  (Including temperature rising)

Operating Relative Humidity : 95% Max. (non-condensing)

※ High Limit temperature includes Raised Temperature by Operation.

##### B. Storage Environment

Storage temperature :  $-30^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  (with Packing)

Storage Relative Humidity : 15% to 70% RH

#### 3.4 Performance Requirements and Test Descriptions :

The product shall be designed to meet the mechanical and environmental performance requirements specified in Fig. 1. All tests shall be performed in the Room Temperature ( $15\sim 35^{\circ}\text{C}$ ), Relative Humidity (25~85%), Air Pressure( $86\sim 106\text{kPa}$ ), unless otherwise specified.

3.5 Test Requirements and Procedures Summary

Para.	Test Items	Requirements	Procedures
3.5.1	Examination of Product	No physical damage	Visual inspection No physical damage
Mechanical Requirements			
3.5.2	Durability (with WP jig condition)	No physical damage and shall meet requirements of subsequent tests.	10,000 cycles with 3kgf. - Mechanically Operated : 500 cycle/hour with lubricant at the lock lever mating area - Manually Operated : 200 cycle/hour
3.5.3	Vibration (with WP jig condition)	No physical damage and shall meet requirements of subsequent tests.	Apply for 2 hours in each 3 mutually perpendicular axes(total 6 hours). Frequency=10-55-10Hz (Sweep time :1 minute max.) Amplitude=1.5mm, Current=100mA [ EIA-364-28F Condition I ]
3.5.4	Random Vibration (with WP jig condition)	No physical damage and shall meet requirements of subsequent tests.	Apply for 15 minutes in each 3 mutually perpendicular axes(total 45 minutes). Frequency=50-2,000Hz Power spectral density=0.02g <sup>2</sup> /Hz Current=100mA [ EIA-364-28F Condition V Test Letter A]
3.5.5	Shock (with WP jig condition)	No physical damage and shall meet requirements of subsequent tests.	Apply 3 successive shocks in each direction along the 3 mutually perpendicular axes(total 18 shocks) Pulse shape=half sine Peak acceleration=490m/s <sup>2</sup> (50G) Duration of pulse=11ms [ EIA-364-27B Condition I ]
Environmental Requirements			
3.5.6	Thermal Shock (change of temperature) (with WP jig condition)	No physical damage and shall meet requirement of subsequent test.	Ta=-40°C for 2 hours; then change of temp.=25°C , 5minute max.; then Tb=+85°C for 2 hours. After 20cycles, cool to ambient for 2 hours.
3.5.7	Salt spray (with WP jig condition)	No physical damage and shall meet requirement of subsequent test.	72 hours spray, At temp. 35±2 °C R/H 90~95%, Salt NaCl mist 5% After test wash parts and return to room ambient for 2 hours. [ EIA-364-26B ]

3.5.8	Waterproof IPX-5 (with WP jig condition)	Protected against water jets	Water projected at all angles through a 6.3mm nozzle at a flow rate of 12.5 liters/min at a pressure of 30kN/m <sup>2</sup> for 3 minutes from a distance of 3 meters.(Fig.8)
3.5.9	Waterproof IPX-8 (with WP jig condition)	Protected against water submersion	Submersion for 30 minutes at a depth of 1.5 meters. (Fig.8)

Fig.1(END)

The meaning of text “mechanical damage” in the table above is :

- No loosen between sealing and product / WaterProof jig.(or Set Case)
- No cracks and any deformation on sealing.

4. Product Qualification Test Sequence

Para.	Test Examination	Test Group			
		1	2	3	4
		Test Sequence (a)			
3.5.1	Examination of Product	1,5	1,7	1,5	1,5
3.5.2	Durability	2			
3.5.3	Vabration		2		
3.5.4	Random Vabration		3		
3.5.5	Shock		4		
3.5.6	Thermal Shock				2
3.5.7	Salt spray			2	
3.5.8	Waterproof IPX-5	3	5	3	3
3.5.9	Waterproof IPX-8	4	6	4	4

a) Numbers indicate sequence in which the tests are performed.

Fig.2

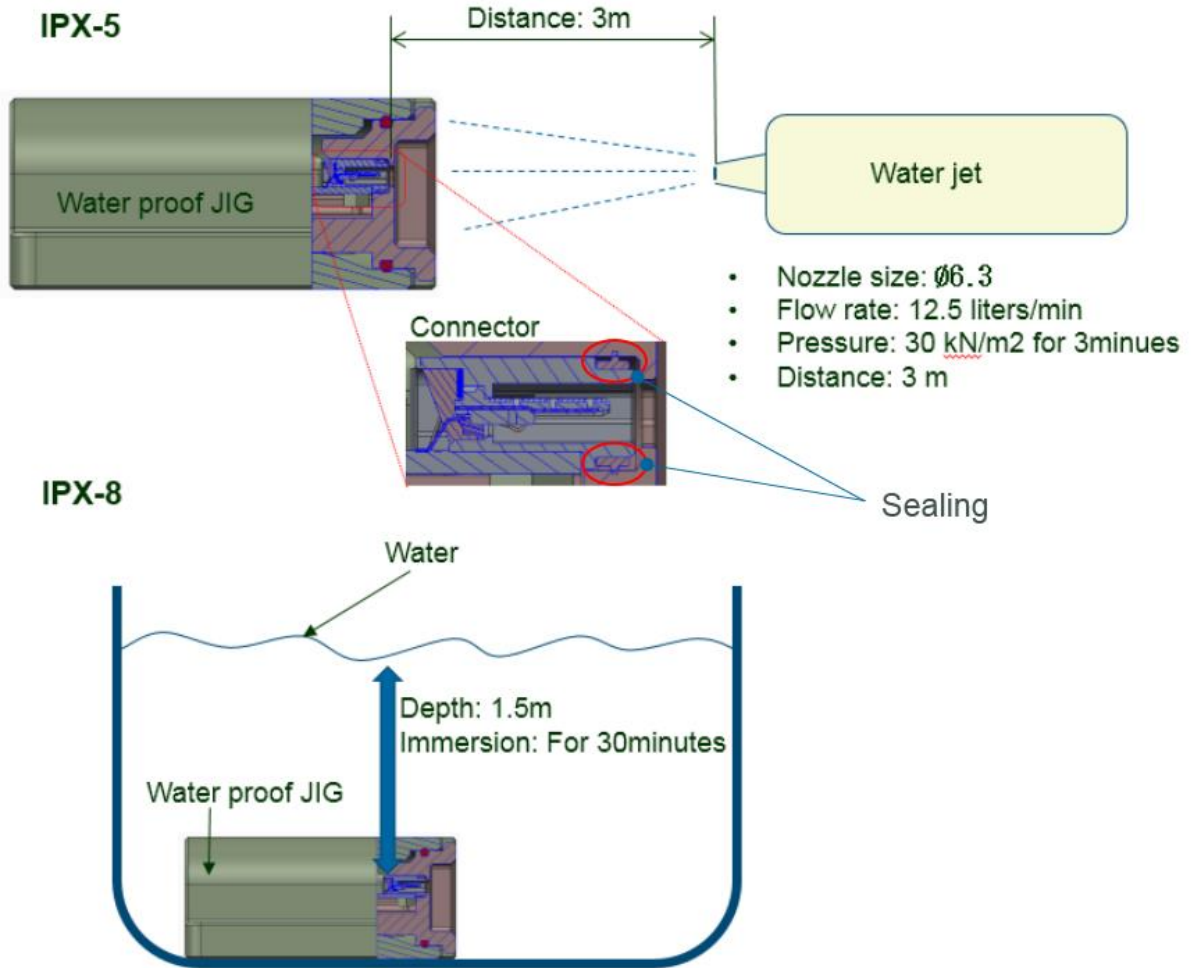


Fig.8 Waterproof test

The applicable product descriptions and part numbers are as shown in Appendix.1.

Water Proof Sealing	
Description	Part Number
Sealing	2108883-1
Mating Product	
Description	Part Number
Water Proof Receptacle 5pos. Standard/Onboard	2108877-1

Appendix.1|