

FAT-I-29 Optical Fiber Distribution Box Technical Datasheet

Version:1.0



FAT-I-29 Fiber Optic Distribution Box Technical Specification



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Revision Record

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1 Purpose and Scope of Application

1.1 Purpose

This Product Technical Requirement is a controlled document that describes the production of the product within the company and acts as:

The basis for the material procurement department to purchase raw materials;

The basis for the production department to assemble the product;

The basis for the quality department to conduct spot check and routing inspection;

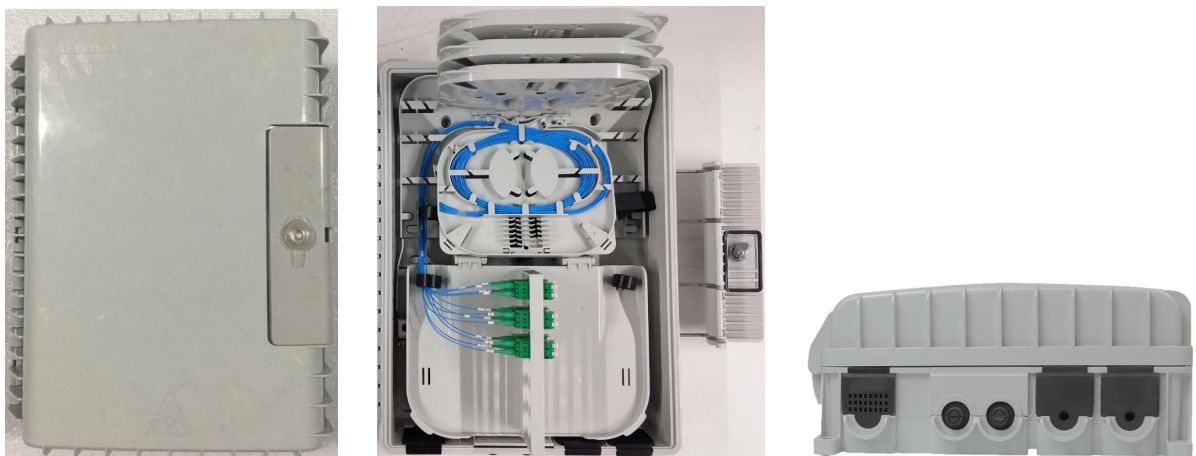
The basis for the sales department to promote the product externally.

1.2 Scope of Application

This technical requirement is applicable to the production, assembly and inspection of FAT- I -29 type fiber optic distribution box of Zhantong, and to the products independently developed by Zhantong. The pictures in this specification are only typical configurations of the product, not specific configurations of a certain model. If there is no special description, the pictures are only for configuration reference.

2 Appearance and Components

2.1 Appearance



2.2 Components

Components:

NO.	Components Names	Type	Quantity	Remarks
1	Main body box structural parts	FAT- I -29.asm	1PCS	/
2	Splitter	/	As per specific circumstances	Not involved
3	Adaptor	/	24 PCS	SC/APC
4	Pigtail	Not involved	Non	Not involved
5	Accessory Packages	/	1 bag	See details of packing list
6	Packing List	/	1 sheet	papery
7	Installation Manual	/	1 PC	/

2.3 Drawings of the Main Box Structural Parts

For structural parts, please refer to FAT- I -29.asm drawing, version number A. If there is any conflict between drawing and specification, you need to confirm with R&D to update it.

3 Product Overview

3.1 Specification Requirement

List of Product Specifications

NO.	Items	Requirements Specification
1	Applicable environment	Indoor/outdoor working environment, the detailed requirements are as follows: Operating temperature: -40°C~+85°C. Storage temperature: -40°C~+85°C. Relative humidity: ≤93% (+40°C). Atmospheric pressure: 70~106Kpa
2	Dimension H×W×D(mm)	365(H)×270(W)×112(D)
3	Mounting Ways	Wall/pole mounting
4	Capacity	24 cores spliced, 24 cores wired
5	Material	shell: PC
6	Color	RAL 7035
7	Environmental Protection	Meet RoHS and REACH requirements

8	Flammibility	UL94-HB (Sample bar thickness is 2.0mm)
9	Salt Fog	Meet 240 hours neutral salt fog (box closed)
10	IP Protection	IP55
11	Number of Adapters	24 pcs SC/APC
12	Splitter	1:16 or less blockless or cassette type PLC optical splitters, configured according to customer requirements
13	Size and Number of Optical Cable Ports	3 pcs branch cable inlet/outlet ports, max. diameter: $\phi 18\text{mm}$; 2 pcs mid-span port, max. diameter: $\phi 18\text{mm}$ 2416 pcs 2x3mm drop cables
14	Cable in-and-out Mode	Cable inlet-and-outlet ports are at lower end (Ordinary fiber optic cables enter from below end, drop cables enter from above end)
15	Mid-span	Supporting one mid-span

4 Technical Requirements of the Product

4.1 Basic Requirements for Structures

- (1) The appearance of the product refers to the "Inspection Standard for Injection Molded Parts ZT-JZZG-01".
- (2) All plastic products, flashes and injecting holes that affect the appearance (first-class surface) and function, must be removed thoroughly. The flashes that do not affect functions are acceptable, and the approval sample shall prevail.
- (3) For mosaic nuts, incoming inspection shall be carried out according to Zhantong Standard ZT-JZZG-028 for Incoming Inspection Standard of Copper Inserts.
- (4) All exposed structures are not allowed to have sharp corners to avoid injuring people.

4.2 Basic Requirements for Materials

- (1) All plastic parts and raw materials of Zhantong products, should meet the latest requirements of "Plastic Raw Material Incoming Inspection Standard ZT-JZZG-027". If new materials are selected, they need to be tested and certified by Zhantong, and all certification information and reports should be submitted.
- (2) The material and surface treatment of all sheet metal parts and small hardware parts (such as screws, nuts, gaskets, springs, locks, keys, etc.) used in the product shall be strictly produced according to the requirements of the drawings and meet the corresponding salt spray test requirements.
- (3) After the neutral salt spray test of the whole box sealed, the installed sheet metal parts and small

hardware (such as screws, nuts, gaskets, springs, etc.) shall not show any visible rust under visual inspection, including the location of cutting edges and threads. **(Note: The metal fittings are available in three types: 304#stainless steel, 201#stainless steel and ordinary iron galvanized. The time of salt spray test is different for different materials.)**

- (4) The metal structural components processed by coating treatment, its coating and the substrate should have good adhesion, and the adhesion should not be less than the 2-level requirement in table 1 of GB/T 9286-1998 standard.

4.3 Requirements for Mechanical Performance

The product should meet the following mechanical property test requirements:

List of Mechanical Performance Test

Items	Test Method	Evaluation Criteria	Reference Standard
Axial Tension of Drop Cables	<ol style="list-style-type: none"> Apply 60N axial tension to the drop cable (2 * 3mm); 10 times per cable, 1min each time 	<ol style="list-style-type: none"> The displacement of the fixed point of the drop cable $\leq 3\text{mm}$; The sample is not damaged under visual inspection. 	ODN Test Specification
Impact Test (IK08)	<p>Impact location: facade center</p> <p>Ambient temperature of test: $(-15\pm 2)^{\circ}\text{C}$, $(23\pm 2)^{\circ}\text{C}$ (The test is performed after reaching temperature plateau)</p> <p>A 1-kg ball is used to impact six surfaces with an impact energy of 5 J by releasing it at a height of 0.5 m from the surface of the box.</p>	<ol style="list-style-type: none"> The internal and external surfaces of the impacted location are free from damage and cracks; 	IEC 61300-2-12
Free Drop Test	<p>Test Procedure:</p> <p>Ambient temperature of test: $(23 \pm 2)^{\circ}\text{C}$ (The test is performed after reaching temperature plateau)</p> <p>Severity: drop height 75 cm;</p> <p>Number of drops: 1.</p> <p>Drop method: Install 2 meters of optical cable, clamp the end of the optical cable, release the sample to make it drop</p>	<ol style="list-style-type: none"> No damage, cracking, detachment of internal components (allowing for re-installation); No external damage affecting the product function and appearance; 	IEC 61300-2-12

4.4 Requirements for Environmental Performance

The product should meet the following test requirements of environmental performance.

List of Environmental Performance Test

Items	Test Method	Evaluation Criteria	Reference Standard
IP Protection	<p>IP5X</p> <p>Wire diameter of metal square mesh sieve: 50μm</p> <p>Mesh size: 75μm</p> <p>Talcum powder dosage: 2 kg per cubic meter of test chamber</p> <p>Number of talc uses: Not more than 20 times</p> <p>Test duration: 8 hours</p>	No dust can get in.	IEC60529/GB4208
IP Protection	<p>IPX5</p> <p>Test samples in the shipping state</p> <p>1. Before test, inspect the appearance and shell of the sample;</p> <p>2. Simulate installation according to the actual use and installation environment to prevent water from entering directly from the installation holes. For example, wall mounted equipment requires the installation plate to simulate the wall.</p> <p>IPX5 water sprayer(sprayer diameter is 6.3mm)</p> <p>The central part of the main water flow: Circle about 40mm in diameter at 2.5m from the nozzle</p> <p>Flow rate: 12.5(1\pm5%)L/min</p> <p>Distance: 2.5~3m</p> <p>Spray time: 1min/m², min. 3min</p> <p>3. The direction of water spray should be aimed at the weak waterproof locations such as sealing lines, door hinges, door handles, door locks, and air inlet/outlet ports of the box. Allow the bottom surface to be impacted</p>	<p>No seepage inside the box</p> <p>(Be careful not to apply water-indicating creams, which can corrode the shell.)</p>	IEC60529/GB4208

	<p>from bottom to up at a standard distance;</p> <p>4. After the test, carefully open the box and inspect the inside of the casing. It is necessary to pay attention to preventing water droplets from external gaps from entering the interior of the box when opening the box.</p>		
Salt Fog Test	<p>1. The mass percentage concentration of sodium chloride (NaCl) solution is $(5 \pm 1)\%$</p> <p>2. The pH value of the salt solution is 6.5~7.2 (at $20^{\circ}\text{C} \pm 2^{\circ}\text{C}$)</p> <p>3. The temperature of spray is 35°C</p>	<p>Clean and inspect the tested sample after 10 days of salt fog test in the closed box. There should be no visible rust on the appearance;</p> <p>(Note: The metal parts of this test are 304# stainless steel after passivation.</p> <p>The 201# stainless steel or ordinary iron galvanized materials will suffer different salt fog test time.)</p>	IEC 68-2-52
Temperature Cycling Test	<p>1. Place the test sample in the middle of the temperature cycling chambers;</p> <p>2. Keep the temperature 25°C for 10 minutes;</p> <p>3. Raise the temperature to 80°C at a temperature change rate of $1^{\circ}\text{C}/\text{min}$, and then keep the temperature 80°C for 4 hours;</p> <p>4. Cool down to -40°C by 120 min and keep the -40°C for 4 h;</p> <p>5. Then heat up to 80°C by 120 minutes and maintain the 80°C for 4 hours;</p> <p>6. Repeat steps 3~5 for 20 times;</p> <p>7. Cool down the temperature to 25°C at a rate of change of $1^{\circ}\text{C}/\text{min}$ and recover the closure for 2 hours;</p> <p>8. Inspect the product.</p>	<p>1. Non-metallic components should not be discolored, cracked, degummed, etc;</p> <p>2. The surface coating of non-metallic and metallic components should have no peeling, cracking, wrinkling, separation, etc;</p> <p>3. The deformation of non-metallic components should not affect the normal assembly, or cause loss of the specified function;</p>	ODN Test Specification
Storage in High Temperature	<p>1. Before testing, inspect the appearance, mechanical properties and optical properties of the samples;</p> <p>2. Test conditions:</p>	<p>1. Non-metallic components should not be discolored, cracked, degummed, etc.;</p> <p>2. The surface coating of</p>	ODN Test Specification

	<p>+85°C, 48h, 1°C/min</p> <p>3. Record transient optical values, and after returning to room temperature, record static optical values;</p> <p>4. Check sample appearance</p>	<p>non-metallic and metallic components should have no peeling, cracking, wrinkling, separation, etc;</p> <p>3. The deformation of non-metallic components should not affect the normal assembly, or cause loss of the specified function;</p> <p>4. During test: $\Delta IL \leq 0.5$ dB; After test: $\Delta IL \leq 0.2$ dB;</p>	
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4.5 Basic Requirements for Adapters

The demand specification of the adapter should meet the specific requirements of the customer.



4.6 Basic Requirements for Splitters

The demand specification of the splitter should meet the specific requirements of the customer.



4.7 Basic Requirements for Labels

The specification and affixing location can be customized according to the specific requirement of customers.

5 Inspection Rules

This inspection rule is applicable to incoming inspection of Zhantong Company, and the inspection shall conform to the regulations of Quality Department of Zhantong Technology Co., Ltd. For products not specified, batch inspection shall be adopted, and the inspection method shall adopt the single sampling scheme in GB/T 2828.1-2003 Lot-by-Lot Inspection.

Product verification methods and receiving requirements:

Items	Inspection Criteria or Methods	Receiving Requirements
Appearance	According to "Injection molding parts	Inspect each batch.

	inspection standard ZT-JZZG-01" surface appearance defect definitive standard	
Packaging & Labeling	According to the basic technical requirements of Zhantong material packaging, or the customer's specified packaging requirements	Inspect each batch.
Structure	According to the specifications, the product structure shall refer to the physical drawings, and the interfaces that need to be assembled on the Zhantong and customer sides shall be subject to adaptation inspection.	Meet the requirements of the specification and inspect each batch.
Optical Device Light Transmission Inspection	Red Pen or other detection equipment for light transmission	Meet the requirements of the light transmission test and inspect each batch.
Optical Device Insertion Loss Inspection	According to the requirements of the specification	Meet the requirements of the specification and inspect each batch
Reliability Inspection:		
Salt Spray Test	Inspect according to the requirements and inspection standards in the specifications	Inspect each batch.
IPX5 Waterproof Test	Inspect according to the requirements and inspection standards in the specifications	Inspect each batch.
IP5X Dust Test	Inspect according to the requirements and inspection standards in the specifications	Inspect randomly 2PCS every six months
IK Impact	Inspect according to the requirements and inspection standards in the specifications	Inspect once per batch
Free Drop	Inspect according to the free drop test requirements and inspection standards in the specifications	Inspect randomly 2PCS every six months
Temperature Cycling	Inspect according to the temperature cycle requirements and inspection standards in the specifications	Test once every six months
Storage in High Temperature	Inspect according to the temperature cycle requirements and inspection standards in the specifications	Test once every six months
Plastic Material Test	Inspect the melt index, spectrum or other parameters, according to the requirements of the material physical properties table.	Raw materials are inspected at the time of arrival of each batch, and finished products/parts are inspected according to the delivery lot.

6 Packaging, Transportation and Storage

6.1 Packaging

(1) Requirements for package dimensions:

Outer dimensions of cartons: 415x325x190mm(for reference only), Tolerance: -5~+5mm.

(2) Packing instruction:

When the product is packed into the bag, the product should be put into the same direction, and the packing style should be unified (the size of the open pocket and the direction of the product is subject to the approval sample, and it should not be changed after the determination of the approval sample); in the process of packing, it should be operated carefully, and the surface of the product is prohibited from obvious scratches and dirt, etc.; wrap the product in place with a bubble column and pay attention to expelling the gas from the packaging bag. The breakage of the gas column in the bubble column should be less than 20%.



(3) Packaging Requirements for Accessory:

The expansion plug and expansion screws are screwed together, the cable ties are packed separately, and each accessory is placed in a large PE bag. The packing list is also placed in the bag with the accessories. After the key to the box is put into the ziplock bag separately, the ziplock bag containing the key and the large PE bag are nailed together with a staple:



(4) Packing List

Optional Accessories List for FAT-I-29 Fiber Optic Distribution Box

NO.	Name	Unit	Quantity	Remarks
1	Heat Shrinkable Protective Sleeve for Fiber Splice	pc	As per capacity	40mm long, 1mm diameter steel needle
2	Nylon Tie	pc	As per capacity	2.5*100 mm
3	Label Paper	pc	As per capacity	optional
4	Insulation Tape	roll	1	
5	Sealing Tape	roll	1	
6	Wall Mounting Kit + Expansion Screw	set	As per requirement	wall mounting kit +4-ST4.8*35mm plastic expansion screws
7	Pole Mounting Kit	set	As per requirement	The diameter of the hose clamp is according to customer requirements
8	Fixing Hose Clamp	pc	As per requirement	
9	Installation Specification	pc	1	One English Manual
10	Key to the Box	pc	1	



FAT- I -29
Distribution Box

6.2 Transportation

- (1) Products with proper packing can withstand the test requirements for transportation;
- (2) The packing of this product should be suitable for any transportation tools. And the packed products should avoid collision, falling, direct rain, snow and sun exposure during transportation.

6.3 Storage

The product should be stored in a well-ventilated and dry warehouse, with no corrosive gases around it. The storage temperature should refer to list of product specification requirements.