

The User Guide



ZS-TX1000/PS-2x6

1550nm Optical Transmitter



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1 overview

1.1 overview

ZS-TX1000/PS series optical transmitter belong to new high performance 1550nm CATV optical transmitter. The height of the transmitter is 1U, it can mount on the 19" frame conveniently. The main devices adopt AOI, XT, JDSU, Fujitsu, ORTEL DFB low noise which contains thermoelectric refrigerator, continuous wave transmitter. Because the key parts adopt international brands and system optimal control technology and SMNP network control technology by the company, then the whole technical performance indexes reach the similar imported equipment standard, supplying quality long distance transmission of images, figures or compressed digital signal to cable and telephone communications.

1.2 Product features

1.2.1) High quality: Original system optimal control technology, RF predistortion techniques make system getting largest CTB, CSO and SBS indexes when guaranteeing excellent performance.

1.2.2) Flexibility: Laser emission and RF processing circuit adopt modular design mode, then the after sales service and foreign trader import entry become more convenient.

1.2.3) Reliability: The 19 "1U standard rack, built-in high-performance switching power supply, it can work at 85 ~ 265Vac MS level automatic switch, chassis cooling can be automatic control by temperature.

1.2.4) Intuition: Laser is the most expensive machine components, machine equipped with microprocessor monitors the working state of the laser, the panel LCD window displays the operating parameters.

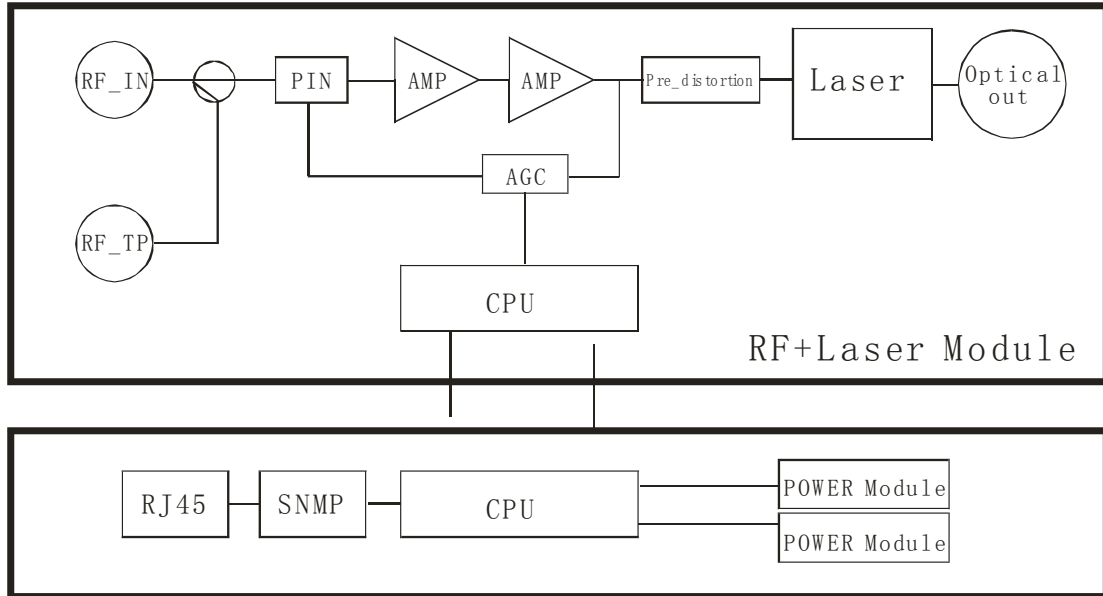
1.2.5) Network type: Select All-piece status monitoring transponder guarantees to meet the national standard and be compatible with the SCTE HMS standard, it enables network management to monitor capabilities.

1.2.6) **Double modules type:** In the 19 "1U standard rack, there are one optical emission modules integrated to save application space.

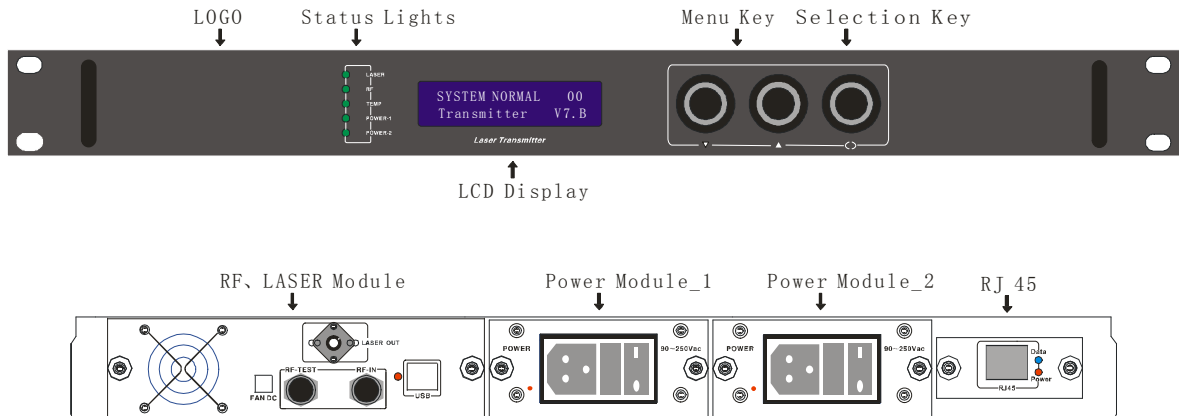
1.2.7) Plug is draw-out type: switching power supply is draw-out type with aluminum profile structure, it helps greatly to cooling and replacement. Besides it can make dual supply cold-heat backup.

2 product structure diagram

2.1 electrical block diagram



2.2 Transmitter front panel, back panel diagram



3 Modules main technical indexes

Serial number	Project	Unit	Parameter	Remark
1	Laser model		DFB	
2	Optical wavelength	nm	1550±10	if it is from the wavelength, please marking before order
3	Optical modulation modes		Intensity modulation	
4	Optical output power	mW	4 ~ 10	
5	Optical connector form		FC/APC, SC/APC optionally	Please marking before order
6	Frequency range	MHz	45~1000	
7	Carrier to Noise ratio	dB	≥52.0	According to GY/T143-2000 6.2.3.5
8	Flatness	dB	±0.75	According to GY/T143-2000 6.2.4
9	RF input signal level	dBuV	75~85	AGC automatic control
10	C/CTB	dB	≥65.0	According to GY/T143-2000 6.2.5
11	C/CSO	dB	≥65.0	According to GY/T143-2000 6.2.5
12	RF input impedance	Ω	75	
13	RF input reflection loss	dB	>16(47~550)MHz >14 (550~1G)MHz	According to GB/T11381.1 4.2.2.2.5
14	Power supply	V	90~265 mains	
15	power consumption	W	≤50	Single power source
16	Power source			Plug-fuse double power backup
17	Operating temperature	°C	0~50	Automatic chassis controls temperature
18	Storage temperature	°C	-20~85	
19	Working relative humidity	%	20%~85%	
20	Size	"	19"×11"×1.75"	(W) x (D) x (H)
21	Network management interface		RJ45	Support browser and SNMP

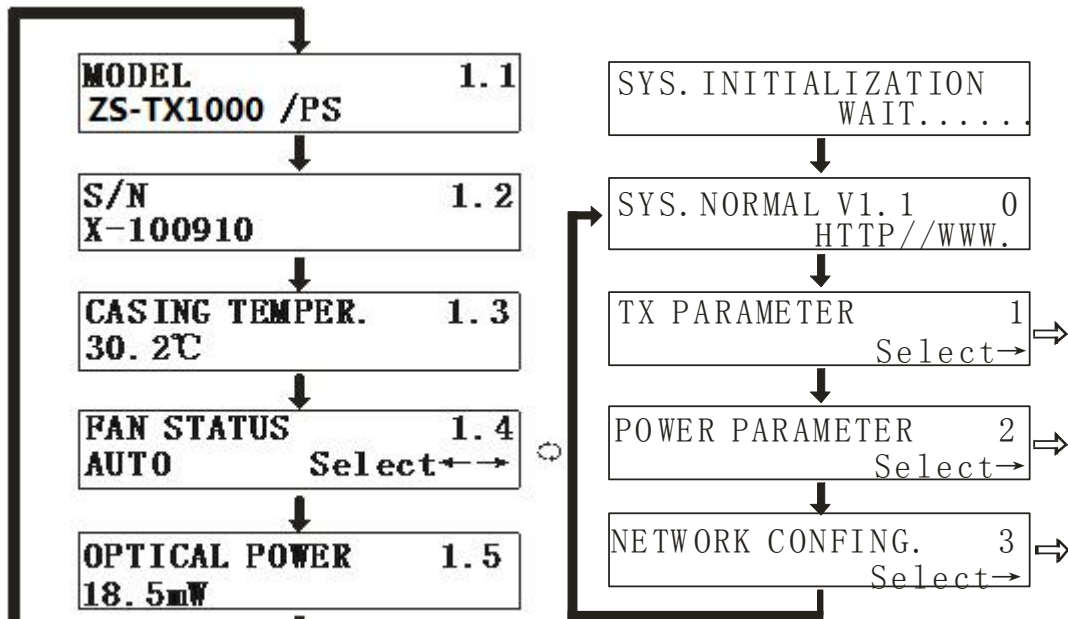


图 (1)

4 Operation instructions

4.0) Boot show: Please put the plug in the outlet with AC220V, and the LCD panel will show “SYS_INITIALIZATTING Wait.....”, after system initialization, the LCD panel will show as Figure (1) in page “0”. When the show in the LCD panel stays in the initial image and only the “.....” flickers, when the “TEMP” light is red, it means there are some problems in the process of initialization, commonly temperature is quite different from rating. (Note: If the LCD panel goes black after it is on standby a period of time, just click “▲,▼” to awaken it.)

4.1) Query the parameters of transmitters: Figure (1) in page “1”. In the current page click the button “○” to query the parameters of transmitters. As shown in Figure (2).

4.1.1) Product Type: Figure (2) in page “1.1”.

4.1.2) Product serial number: Figure (2) in page “1.2”.

4.1.3) Transmitters temperature: Figure (2) in page “1.3”.

4.1.4) fan status: Figure (2) in page “1.4”. the fan, a total of three kinds of working state can be adopted. In the current page, click the “○” key to change the working state, while in the "AUTO" state, when the device internal temperature is higher than 35 °C, the SCM will automatically open the chassis fan to cool, and it will not close until the temperature dropped to 30 °C.

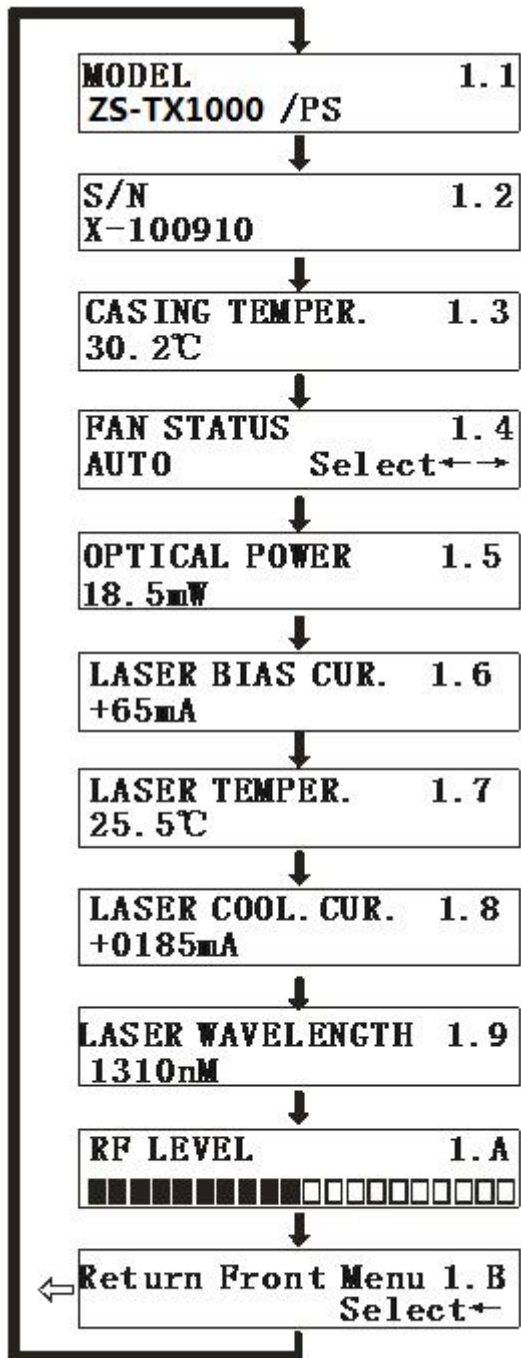


图 (2)

4.1.5) The current output real time optical power of equipment group: Figure (2) in page "1.5".

4.1.6) Laser deviation: Figure (2) in page "1.6". Laser diode has a rated current, when operating current is more than 130% of the rated current, the life of laser is affected, more serious, the laser will be damaged. So when detected operating current is more than 130% of the rated current, the hardware circuit in the equipment has limited the range.

4.1.7) Laser Temperature: Figure (2) in page "1.7". Lasers work properly at 15 °C ~ 35 °C temperature range. LCD displays the actual temperature of laser, such as "25.5 °C".

4.1.8) laser cooling current: Figure (2) in page "1.8". In order to ensure the internal temperature of laser range from 20 °C to 30 °C, we should provide Thermoelectric cooling device a certain amount of operating current.

4.1.9) Transmitters output laser wavelength: Figure (2) in page "1.9".

4.1.A) RF level indicates: Figure (2) "1.A". The machine default RF control mode is AGC, it cannot be chosen. It has been set according to standard in the factory, only input to optical transmitter a level between 75dBuV and 85dBuV (80dBuV suggested), the optical transmitter is standard modulation meter. Lighted LCD square is about in the center point in the current page.

4.1.B) Back to front menu

4.2) Query the parameters of power: Figure (1) in page "2". In the current page click the

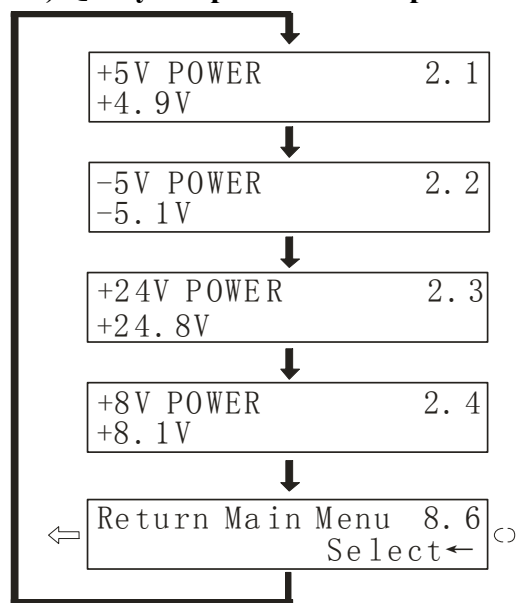


图 (3)

prerequisite. So the additional microprocessor in the machine monitors the circuit, when detecting power is in the normal range, the LCD displays normal value of every power.

4.3) Setting IP address: Figure (1) page "3". In the current page click the button "○" to search and configuration net (if you didn't purchase the network transponders, you can skip this step)

button "○" to query the parameters of power. As shown in Figure (3):

The supply voltage testing the circuit (+5V,-5V,+24V,+8V): Laser is a more expensive device, in order to ensure it can operate safely and reliably, the normal circuit supplied by power is a

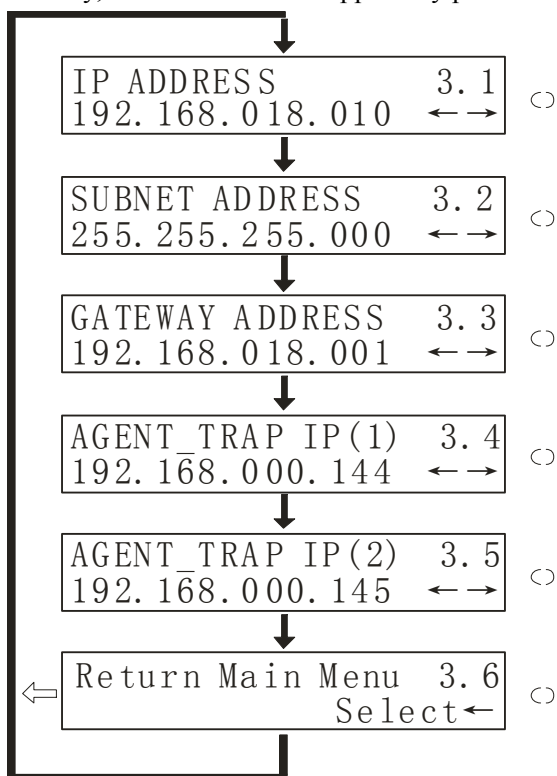


图 (4)

In the LAN, this machine should be assigned an IP address and related information. Click "▼" to enter "NETWORK CONFING. A" and click "○" to enter in Figure (4) The Flowchart shown in page 3.1.

4.3.1) Setting IP address: Press key "○" to enter the first in paragraph 1 of IP address, click "▲" the number increases, click "▼" number decreases, after the number is selected well ,press "○" key to enter the second setting, and so on. If there is only one paragraph, the front figures are 0.

4.3.2) mask: Click "▼" to enter the following sequence flow chart on page A.2, general equipment has been set "255.255.255.000" in the factory, so adjustment is unnecessary.

4.3.3) Default Gateway: Setting method ibid.

4.3.4) the preferred DNS settings: Setting method ibid.

4.3.5) alternate DNS settings: Setting method ibid.

5 Network management applications

HFC network management system, has always been a difficulty that concerned by users and manufacturers. Imported equipment is generally claimed with a network management system which is based on industry standard RS232 or RJ45 interface. In order to achieve the network management, the users need to purchase high-cost private network management software. And each manufacturer's software is not compatible with each other. To achieve network management is very difficult. At present there are no news reports about available network management in Domestic system. If adopt the SNMP, the users also need to purchase specialized network management software and there are incompatible issues between manufacturers. Many domestic manufacturers also claim that their equipments have a network management system or are compatible with the AM company network management system. but the device's RJ45 or RS232 interface is basically vacant and cannot achieve the network management functions.

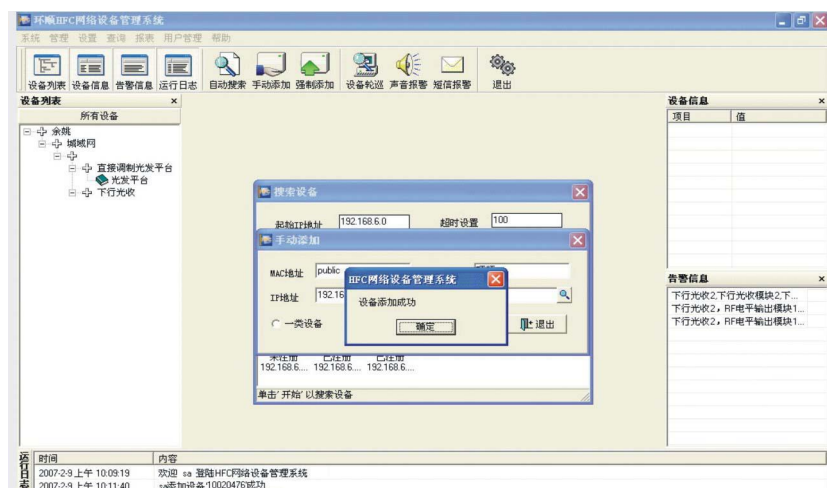
Our company is the well-known manufacturers in the cable broadband optical transmission system. We have been concerned about how to use the most economical and most convenient way to achieve the network management in the cable broadband networks. Now the ESV6.0 network management system launched by our company is a new network management concepts based on the SNMP / TCP / IP protocol.

5.1) Interface of integrated work of the monitor server

After plugging the optional transponder, the machine has the function of network management, just need to connect the RJ45 interface signals to the LAN, and connect to the main server from any of the LAN Ethernet port., then set up IP addresses, according to the method in 4.A etc. so we can monitor the machine's running conditions at real time when the network management system is running.



5.2) Search interface of the equipment



6 The notes about optical connection

6. 1) before you connect them, carefully cleaning all the fiber optic connectors and connectors

Cleaning Guide:

6.1.1) Fiber Optic jumper

- ✧ Remove the dust cap of fiber optic connector, pay attention to confirm the optical connector is a APC surface;
- ✧ The tips of cleaning fiber optic connector is to use a dedicated and dry cloth without velveteen (the company 5Kimwipes ®'s fine cloth); In addition, preferably adopt special microscope (at 100 times, 200 times) to check the cleanliness of fiber optic connector surface or blemish.

- ✧ pay attention to maintaining the fiber optic connectors is clean;
- ✧ fiber optic connectors (flange) is clean;
- ✧ you can use a dedicated compressed gas to clean the surface of fiber optic connector;
- ✧ you can remove the dust which is less than 0.2 microns, better without residue;
- ✧ hold the tank of compressed air from the connector about 6 inches, alignment flange, and press the nozzle switch shortly times, so you can clean the connector completely;
- ✧ if there is no dedicated compressed air, the 2.5 mm cotton swab for cleaning can also be used to clean the optical transmitter connectors, or remove the flange and clean the other side of the optical fiber jumper connector directly ;

Note: When handling fiber optic connectors must be very careful to avoid damage.

6.1.2) using the optical fiber jumper to connect the output of optical transmitter to the optical power meter;

6.1.3) Using the optical power meter to check the output of the transmitter optical power is within normal limits;

7 Other notes

7.1) The machine should have a good grounding, grounding resistance should be smaller than 4Ω . According to international standards, 220Vac line adopt three-wire system, the midline is grounding wire.

7.2) The machine should be set up in a anti-hot, anti-cold, anti-wet environment, so as to avoid excessive temperature and humidity affect the use life of machine.

7.3) The machine adopts high-performance, highly reliable switching power supply with constant voltage and over-current protection. In the right of switching power supply, there is 1A imported fuse that can be work at 85Vac ~ 265Vac electrical line.

7.4) To ensure the optical return loss $\geq 45\text{dB}$, this machine's optical connectors adopt FC / APC, other models (such as FC / PC) could not be picked. The connector should be installed to keep clean. You should use ethanol and defatted cotton wool to wipe after plug repeatedly.

7.5) Once the laser transmitter enter the work state, because the light signal input(pump light input) is quite high light output for pump light, the eye cannot look directly at the light input from the back panel of the machine in order to avoid the laser beam burning the human eye retina.

8 The scope of the product warranty

The company's quality assurance system includes equipment testing and inspection of operational procedures to ensure the reliability of product quality. Prior to the product exporting from the Company, we adopt all possible measures to make the electrical, optical, mechanical and other indicators of products reached the standards promulgated. The Company requires the user to monitor on-site inspection and assembly; the testing personnel should carry out related operations in strict accordance with the preventive measures formulated when they operate and test optical static sensitive devices.

8.1) Warranty Rules

For users' first-hand products, the company repairs them in the area of materials and manufacturing processes free in a year since users pick up them.

Using this product, please follow the requirements on the instructions strictly, do not arbitrarily change. In the warranty period, the user can not break the seal, and the internal circuitry cannot be changed. If the product fails to reach the quality requirements or experience problems to be solved, please return the products to the company, which will handle according to the warranty provisions.

In the warranty period, users have the right to repair or replace the defective product confirmed by the company. However, the above provision is considered invalidly to change ownership, or the irregularities caused by use, storage, transport, assembly or accidents.

8.2) Assurance for specific product and guide to repair

All products are produced according to high-quality standards to ensure that avoid the failures in technology, materials and external framework, etc. If requests maintenance or return faulty equipment, the user should raise within 30 days on receipt of goods or in the warranty period, please follow the following principles:

8.2.1) You shall return them after you receive the Recycling Single issued by the company's sales department. When you apply return, please attach the device model, serial number and return reasons, and requested prepay return shipping. If you do not pay the freight in advance nor recycling single, the Company will not receive.

8.2.2) Before the repair, the Company will inform the user about the equipment test results and maintenance costs (generally about the failure caused by the users or issues which do not meet the warranty conditions). If the returned facilities fully meet the quality requirements and don't need to repair, or the user does not require repairs outside of warranty service, users have to pay the basic fee. Only when the user acknowledges all the costs of maintenance, the company will carry out repairs. Similarly, only with the user's consent, the company will be able to replace equipment parts (such as connectors), which is very necessary to the company's testing and repair.

8.2.3) Maintained product has the same guarantee, and has guarantee benefit within 90 days after picking up the purchase.