XH-FSW-1X32-U

1×32 Rack Optical Switch

USER MANUAL

Introduction

1×32 rack-mounted optical switch is a kind of functional device,with the ability of controlling and switching optical route. It can be manually selected from front panel or controlled via RS232 port, Ethernet port and auto-scanned on certain frequency. In optical fiber transmission   system, it is used for multi-channel fiber monitoring, multi light source/ detector selection, and optical fiber path protection etc. Besides, it is also used in optical fiber test system for optical fiber and its component test, outdoor cable test and multi-spot optical sensors monitoring system.

Features

●Low insertion loss, Fast switching

●SerialNet, High Reliability, High Stability

●LCD display panel. Visual display, Convenient operation

●Transparent transmission signal. High stability and reliability

●Channel and time interval of automatic scanning can be set up

● RS232 Control and RJ45 Ethernet Remote Management

Applications

● FITL

● Automatic Measurement

● Optical Network Remote Monitoring

● Cable Monitoring and Maintaining system

Specifications

Parameters	Unit	Indicators
Unit Type		XH-FSW-1X32-U
Wavelength Range	nm	1260~1650nm
Test Wavelength	nm	1550nm
Insertion Loss	dB	Typ. ≤0.8dB,Max.≤1.5 dB
Repeatability	dB	≤ 0.02
Return Loss	dB	≥ 50
Crosstalk	dB	≥ 70
WDL	dB	≤ 0.25
PDL	dB	≤ 0.05
Optical Power	mW	≤ 500
Switching Time	ms	12 ms（adjacent channel）
Fiber Type	um	9/125
Connector		FC/PC
Monitoring Port		RJ45 & RS-232
Working Power Supply（Plug-type）	V	AC:100～240 (50/60Hz)
Power Consumption	W	＜ 10
Operating Temperature		-10 ～ 60
Size	mm	2U:483 x 230 x 89

Panel to Explain

Front Panel
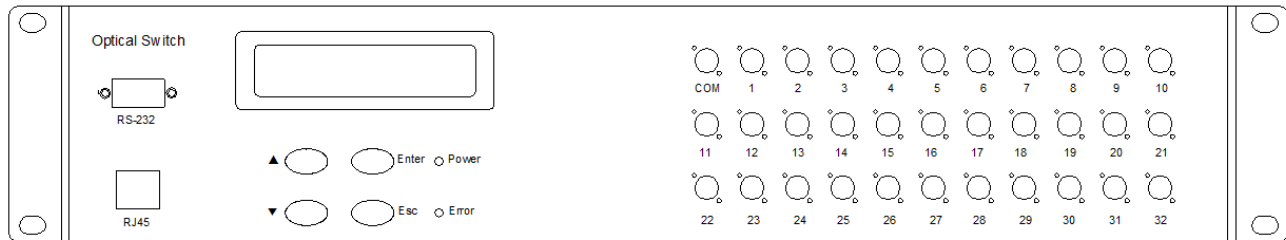
●**RJ45:**Communications network management interface ;

●**RS-232:** Rs- serial interface ; RS232 serial communication interface;

●**LCD:**Devices that display information directly;

● **▲:** Key to move up; **▼:** Key to move down;   **Enter:** Key to determine;

   Esc: Key to cancel;

●**Power:** Power light ; **Error:** Error or failure indicator optical switch

●**com,1~32:**Fiber interface;

Back Panel

   AC:100~240V: Power cord interface;

   ON/OFF: Master switch of power supply

Default Setting

   Address：01

   RS-232：Baud rate:9600; Data bits:8 bit; Stop bit: 1 bit;   Parity bit:NONE;

   RJ45: IP：192.168.1.100 ;   PORT：5000; TCP/IP:TCP Server and UDP

 （Fixed port：18888）

LCD function display description

```
A.Manual Control
B.Automatic Control
```

Manual Control：This function is used to manually control the optical switch channel.

```
B.Automatic Control
C.Switching Interval
```

Automatic Control：This function is used to set up start and end channels under automatic control

```
C.Switching Interval
D.Special Setup
```

Switching Interval:This function is used for how long the dwell time after channel switching under automatic control is between the time of switching to the next channel and setting the dwell time for re cycling

```
D.Special Setup
E.Device Address
```

Special Setup:This function is used to quickly set the switching channel. You can directly switch the channel by pressing the up and down keys in the main interface

```
E.Device Address
F.SET Communication
```

Device Address:This function is used to set the device address

```
F.SET Communication
G.SET the Keys
```

SET Communication :This function is used to set RJ45 communication and RS-232 communication parameters

```
G.SET the Keys
H.SET the LCD
```

SET the Keys:This function is used to set whether the key press makes sound and the lock key is not available

```
H.SET the LCD
I.Query Information
```

SET the LCD:This function is used to set the status of LCD backlight

```
I.Query Information
J.Query version
```

Query Information:This function is used to query the optical switch information

```
I.Query Information
J.Query Version
```

Query Version :This function is used to query the device version

Communication Protocol

"_":A underline;

Communication protocol all in uppercase characters;

The device executes an instruction each time;

"<" As the start instruction; ">" As an end instruction;

Instruction set

Name	Instructions	Describe
Set Optical Switch Channel	Send:<OSW01_OUT_02> Return1:<OSW01_OUT_OK> or return2:<OSW01_OUT_E1> (go beyond) or Return3:<OSW01_OUT_E2>(fault)	Set the optical switch with address 01 to channel 02 ,Successfully set return;
Query Optical Switch Channel	Send:<OSW01_OUT_?> Return:<OSW01_OUT_02>	Query the optical switch channel at address 01, Successfully Query return; 02: optical switch channel to 2
Set Automatic Switching of Optical Switch Channel	Send:<OSW01_S01_E08> Return:<OSW01_S_E_OK>	Set the optical switch with address 01 to start channel 01 and end channel 08 in automatic control,returned successfully;

Query Automatic Switching of Optical Switch Channel	Send:<OSW01_S_E_?>	Query the optical switch start channel and end channel of address 01, Successfully Query return; 01: Starting channel 08:End channel
	Return:<OSW01_S01_E08>	
Set Optical Switch Channel Switch Interval	Send:<OSW01_TCH_00_01_02>	Setup the optical switch channel switch interval for in automatic mode;interval to 0 hours 1 second for 2 seconds ,Successfully set return;
	Return:<OSW01_TCH_OK>	
Query Optical Switch Channel Switch Interva	Send:<OSW01_TCH_?>	Query the optical switch channel switch interval for in automatic mode; returned successfully; 00_01_02:interval to 0 hours 1 second for 2 seconds
	Return:<OSW01_TCH_00_01_02>	
Set Residence Time of The Cycle	Send:<OSW01_TCI_00_01_02>	Setup the residence time of the cycle; residence time to 0 hours 1 second for 2 seconds, Successfully set return;
	Return:<OSW01_TCI_OK>	

	Send:<OSW01_TCI_?>	Query the residence time of the cycle;returned successfully 00_01_02:residence time to 0 hours 1 second for 2 seconds
Query Residence Time of The cycle	Return:<OSW01_TCI_00_01_02>	
Starting to Automatic Mode	Send:<OSW01_START>	Setup the starting to automatic mode,returned successfully
	Return:<OSW01_OUT_01> (Starting channel) intervals... Return:<OSW01_OUT_02> (Starting channel+1)	
Stop to Automatic Mode	Send:<OSW01_END>	Setup the stop to Automatic mode ,Successfully set return;
	Return:<OSW01_END_OK>	
Sets Device Address	Send:<OSW01_ADD_02>	Setup the device address 01 to 02,Successfully set return;
	Return:<OSW02_ADD_OK>	
Query Device Address	Send:<OSW_ADD_?>	Query the device address, returned successfully 01:device address to 01
	Return:<OSW01_OK>	

Set the IP Addresse	Send:<OSW01_IP_192.168.1.100>	Setup the IP addresse to 192.168.1.100,Successfully set return;
	Return:<OSW01_IP_OK>	
Query IP Address	Send:<OSW01_IP_?>	Query the IP address, returned successfully 192.168.1.100:IP address to 192.168.1.100
	Return:<OSW01_IP_192.168.1.100>	
Set the Port Number	Send:<OSW01_PORT_5000>	Setup the port number to 5000,Successfully set return;
	Return:<OSW01_PORT_OK>	
Query Port Number	Send:<OSW01_PORT_?>	Query the port number ,returned successfully 5000:port number to 5000
	Return:<OSW01_PORT_5000>	
Set the Subnet Mask	Send:<OSW01_SM_255.255.255.0>	Setup the subnet mask to 255.255.255.0,returned successfully
	Return:<OSW01_SM_OK>	

	Send:<OSW01_SM_?>	Query the subnet mask ,Successfully set return; 255.255.255.0:subnet mask to 255.255.255.0
Query Subnet Mask	Return:<OSW01_SM_255.255.255.0>	
Set the Default Gateway	Send:<OSW01_GW_192.168.1.1>	Setup the default gateway to 192.168.1.1,returned successfully
	Return:<OSW01_GW_OK>	
Query Default Gateway	Send:<OSW01_GW_?>	Query the default gateway, returned successfully 192.168.1.1:default gateway to 192.168.1.1
	Return:<OSW01_GW_192.168.1.1>	
Set the Baud Rate	Send:<OSW01_BAUD_9600>	Set the baud rate to 9600,Successfully set return;
	Return:<OSW01_BAUD_OK>	
Query Baud Rate	Send:<OSW01_BAUD_?>	Query the baud rate ,returned successfully 9600:baud rate to 9600
	Return:<OSW01_BAUD_9600>	

	Send:<OSW01_KEY_OFF>	Setup the Lock keys to Lock(OFF),Successfully set return;
Lock Keys	Return:<OSW01_KEY_OK>	
Unlocking Keys	Send:<OSW01_KEY_ON>	Setup the Unlocking keys to Unlocking(ON) ,Successfully set return;
	Return:<OSW01_KEY_OK>	
Query Keys State	Send:<OSW01_KEY_?>	Query the keys state , returned successfully ON:Unlocking OFF:Lock
	Return:<OSW01_KEY_ON> or Return:<OSW01_KEY_OFF>	
Device Restarts	Send:<OSW01_RESET>	Setup the device restarts , Successfully set return;
	Return:<OSW01_RESET_OK>	
Query Device Information	Send:<OSW01_TYPE_?>	Query the device information ,returned successfully; Model： XH-FSW-1X32-U Wavelength Range：1260~1650nm Fiber Type：9/125um Connector：FC/PC Working Power Supply ：AC:100~240V
	Return:<OSW01_TYPE_FSW-1X32-U_1260~1650 _9/125 _ FP_A>	

	Send:<OSW01_VERSION_?>	Query the version, returned successfully
Query Version		Hardware version：V1.0.2
	Return:<OSW01_VERSION_HARDWARE:V1.0.2SOFTWARE:V1.0.2>	SOFTWARE： V1.0.2

Matters need attention

Return "<OSW01_ER>" is command syntax error occurred.

Return "<OSW01_E2>" is not operating properly.

Return "<OSW01_E1>",The channel of setting up are outside the scope of this article

 "OSW01"， Indicate that the device address is 01

Send arbitrary the Instructions in automatic mode, Stop to Automatic mode

In RS-232 serial port communication, the system require that the baud rate of dispatcher and sink should keep consistent

Refer to software control chart