FW22FL-2-5V-SM-0905-L/NL

2channels 2X2F Mechanical optical switch Module

2X2 Full Pass-through Type, Single Mode 1310/1550nm, Latching/Non-latching, 5V, 0.9MM 0.5M Fiber, RS485 communication interface，135×60×20mm Box Module

FW22FL-2-SM-0905 is an optical path switching, conversion, and routing device that includes two channels of 2x2 optical switches, capable of performing direct and cross optical path switching for both groups. In fiber optic transmission systems, optical switches are used for multiple monitors, LANs, multiple light sources, detectors, and Ethernet protection conversions. Optical switches are primarily applied in: multi-channel optical monitoring in optical transmission systems, automatic switching between multiple light sources/detectors in LANs, and dynamic multi-point monitoring in optical sensing systems; fiber optic testing in optical test systems for fiber optics, optical components, networks, and field engineering optical cables; and the adjustment and alignment of optical components.

Product Features

- Low insertion loss, wide wavelength range
- Low channel crosstalk, high stability, and high reliability
- Maintains optical path when power is off
- Internal circuit design with self-diagnostic fault detection
- Simple control method, compact size, easy to integrate into systems

Product Parameters

Parameters	Specifications	Unit
Operating Wavelength	1260~1620nm	nm
Insertion Loss	≤1.0	dB
Wavelength Dependent Loss	≤0.25	dB
Polarization Dependent Loss	≤0.05	dB
Temperature Dependent Loss	≤0.25	dB
Return Loss	≥50	dB
Cross Talk	≥55	dB
Switch Time	≤15	ms
Repeat ability	≤±0.02	dB

Durability	≥10^7	times
Operating Voltage	5V, 200mA	V
Switch Type	Non-Latching/Latching	
Operating Temperature	－20~＋70	℃
Storage Temperature	－40~＋85	℃
Optical Power	≤500	mw
Dimension	135L×60W×20H	mm

Dimension
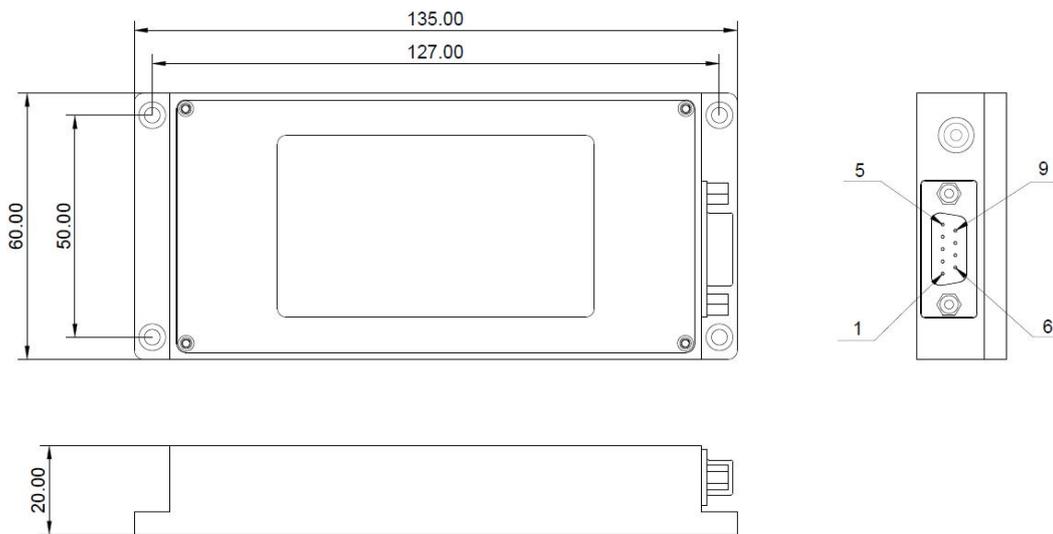
Pin definitions

DB9 male connector			
PIN	Type	Name	Function
2	Input	A+	485 communication A+
3	Input	B-	485 communication B-
8	Power	GND	Power supply ground
9	Power	VCC	Positive terminal of the power supply
1,4,5,6,7	NC	NC	/

Optical Path Diagram
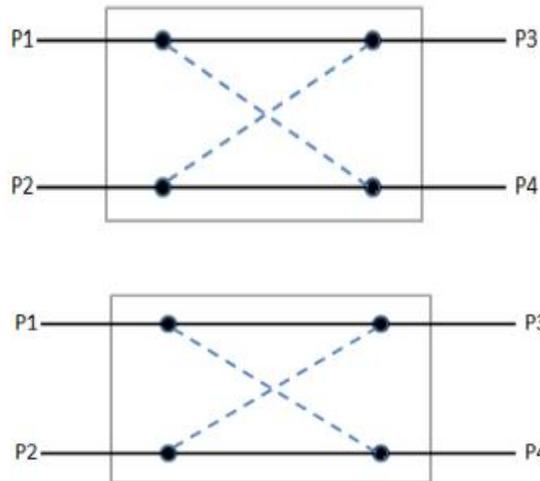
Control schematic

USB TO 485
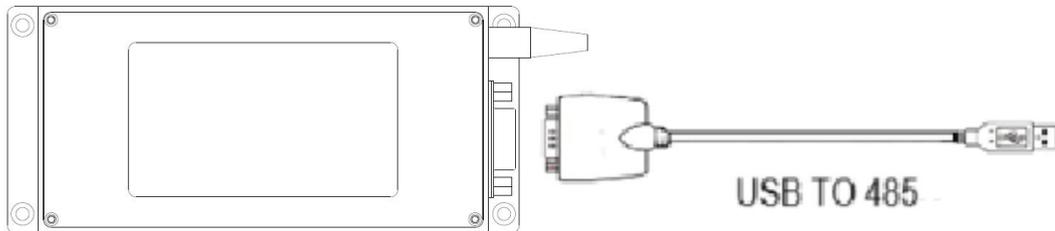
RS-485 control command set

● "_"represents an underscore

● All letters in the communication protocol are uppercase.

● This module can only execute one command at a time. Typically, you need to wait for the program to return a corresponding value before entering the next command.

● In practice, use the less-than symbol "<" as the start marker and the greater-than symbol ">" as the end marker.

Name	Instruction	Description
Set up the optical switch channel	Command:<OSW_OUT_XX_YY >	The command sets the selection of the optical switch channel. XX sets the first optical switch, and YY sets the second optical switch. When XX is 01, it switches to P1 connected to P3 and P2 connected to P4. When XX is 02, it switches to P1 connected to P4 and P2 connected to P3. A successful setting returns response 1. If XX exceeds the number of optical switch channels, it returns response 2. Response 3 indicates an optical switch switching failure or error.
	response1:<OSW_OUT_OK> response2:<OSW_OUT_OVERFLOW> response3:<OSW_OUT_FAULT>	
Check optical switch Current channel	Command:<OSW_OUT_?>	The command indicates querying the current channel of the optical switch. A successful query returns the response command, where XX and YY represent the current channel. 01: P1 is connected to P3, P2 is connected to P4 02: P1 is connected to P4, P2 is connected to P3
	response:<OSW_OUT_XX_YY>	
Query optical switch information	Command:<OSW_TYPE_?>	The command indicates querying information about the optical switch, and the response indicates the result.： Module model：OSW-2-2X2F-SM operating wavelength：1260~1650nm Fiber optic types：9/125um Optical fiber protective tubing：0.9mm Fiber optic cable length：1m Control interface：RS-485 Connector：FC/APC
	response:<OSW_TYPE_OSW-2-2X2F-SM_1260~1650_9/125_90_10_R4>	

Note: The module's serial port baud rate is 9600, data bits are 8, stop bits are 1, and no parity is used. If an incorrect command is sent, the optical switch responds with <OSW_ERROR>

Order Information

Part No.	Specification
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