

Analog to Fiber Optic Signal Isolation Transceiver

4-20mA to Fiber Optic Programmable Isolation Transmitter (Type-A Transceiver)
OFS U(A)-P-Q

Features:

- 4-20mA/0-10V to fiber optic signal conversion, high sensitivity, fast response.
- High linearity in the full span (non-linearity<0.5%).
- Isolation among input, output, power supply: 3KV
- Auxiliary power supply: 8V~50VDC.
- Low cost small size; international standard 35mm DIN Rail-mounted.
- High performance in anti-interference on electric-magnetic waves (EMC) and high frequency signals.
- Industrial operating temperature: - 40 ~ + 70 °C.
- Fiber optic signal transmission distance is up to 20km.

Applications:

- Analog signal transmission, isolation and remote fiber optic transmission.
- MCU, PLC remote control and frequency converter anti-interference in industrial site.
- Motors or lamplight adjustment remote control and frequency converter anti-interference in industrial site.
- Analog signal ground interference rejection and data acquisition in industrial site.
- Automatic selection and control on meter's temperature, displacement sensor signal.
- DA Converter/transmitter build based on PWM

Introduction

SunYuan OFS Series Analog Signal to Fiber Optic Signal Isolated Transceiver: OFS U(A)-O-Q, is a kind of high-tech low cost long-distance programmable transmission fiber optic isolated transmitter. It can be used to convert analog signal (from sensors, PLC/DCS, meters or transmitter) into fiber optical signal after isolated transmission and amplification. The isolated transmitter realizes sensor signal, meters/transmitter signal, and other analog signal high speed non-distorted long-distance transmission to provide convenience solution for user to do remote control.

SunYuan OFS U/A-P-Q module is designed by using analog amplification and conversion circuit, programmable MCU, signal control circuit, etc. It mainly applied to convert fiber optic signal into analog signal AD conversion. It also applied in remote data acquisition and control on MCU, CAN BUS, Ethernet, PLC/DCS Host machine system and sensors, meters signal. The internal 8-50VDC wide range DC-DC isolation power module provides power supply to internal output conditioning circuit, DA conversion circuit and output signal isolated circuit. The SMD technique and new isolation measures used enable the module withstand 3000VDC isolation among input, output, power supply and meets the standard required in high low temperature, humidity, vibration, etc severe environment.

SunYuan OFS U/A-P-Q Series module is easy to use. It realized analog to fiber optical signal isolated transmission without any external components. The module is designed with DIN35 standard DIN Rail-mounted package (or metal case) and widely used in mining, oil chemistry, electric devices, medical equipment, industrial automatic, new energy facility, etc fields; user can select it based on the actual conditions.

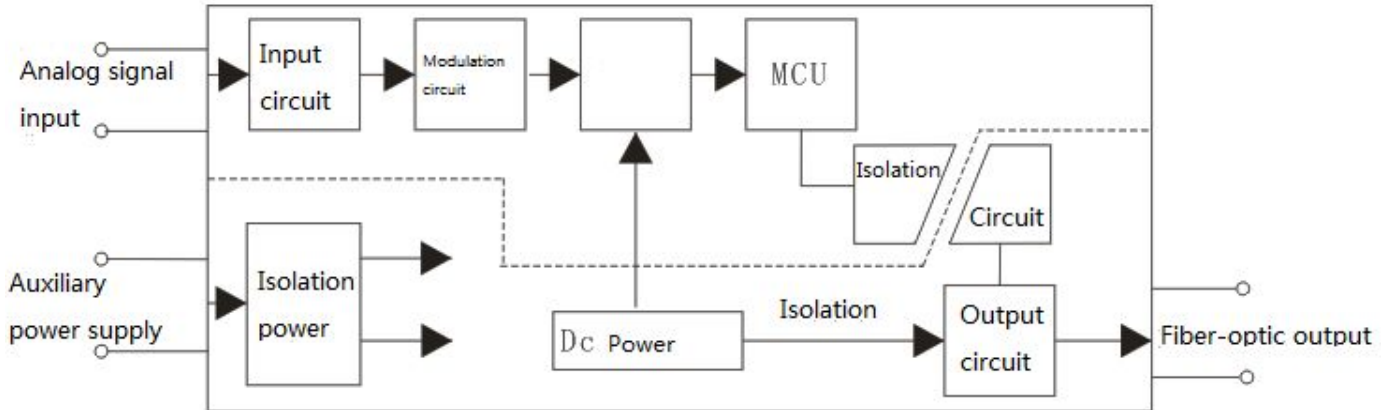
General Parameters

Accuracy ----- 0.5 % (in full measuring range)	Backlash ----- < 0.5 %
Power supply----- DC 8V~50V wide range	Isolation -----signal input/output/power supply
Operating temp. ----- -40 ~ +70°C	Insulation resistance ----- ≥20MΩ
Operating Humidity----- 10~ 90% (non-condensation)	Isolation volt. -----among signal input, output and power
Storage temp.----- -55 ~ +105°C	3000VDC, 50Hz, 1min, leakage 1mA
Storage Humidity -----10 ~ 95% (non-condensation)	Impact resistance volt.----- 1KV, 1.2/50us(peak value)

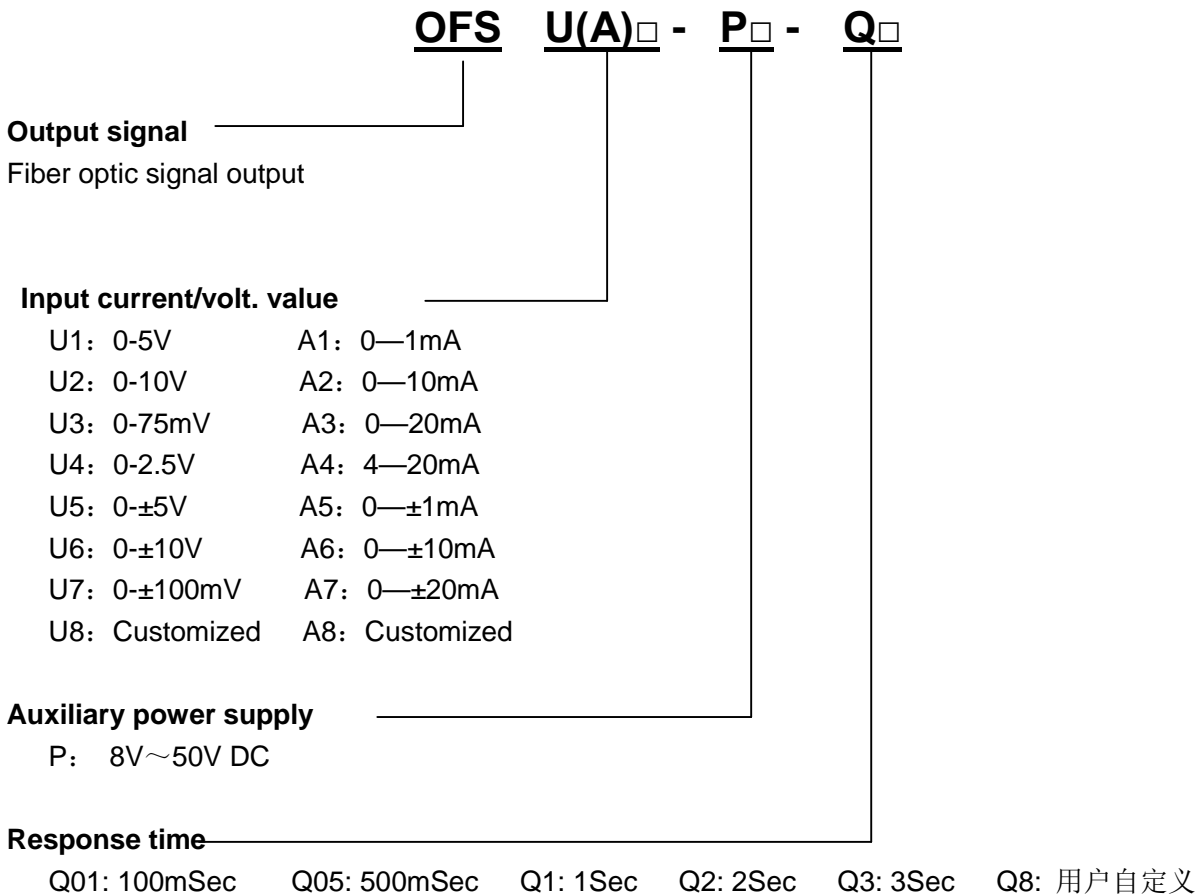
Rated max. value (Operating in max, value, may affect product performance, if exceed the max, value, may cause permanent damage.)

Continuous Isolation Voltage	3000VDC /rms
Power supply range	±10%Vdd
Junction Temperature.	- 40°C ~ + 70°C
Lead Temperature (<10S)	+260°C

Functional block



Model selection & definition



***Installation methods:**

DIN: Standard 35mm DIN Rail-mounted **DIN 1X1:** 1-channel signal standard 35mm DIN Rail-mounted

Model selection examples

E.g. 1: Signal input: 0-5V; signal output: fiber optic; 100mSec response time

Model No.: OFS U1-P-Q01

E.g. 2: Signal input:4-20mA; signal output: fiber optic; 500mSec response time

Model No.: OFS A3-P-Q05

Technical parameters:

Items		Testing	Min.	TYP	Max.	Unit
Isolation voltage		1min		3000		VDC
Temperature drift		-20℃ ~ +70℃		100		ppm/℃
Non-linearity			0.1	0.2	0.5	%FSR
Signal input	Volt.		0		15	VDC
	Current		0		30	mA
Input offset voltage				2	5	mV
Input impedance	Volt.			1		M
	Current			250		Ω
Signal output	Duty cycle		0		100	%
	Output high level		3.6	5	6	V
	Output low level		0	0.5	1.2	V
Signal output ripple		No filter		10	20	mVRM
Signal voltage temperature ripple					0.2	mV/℃
Auxiliary power supply	Voltage	Customized	7	12	60	VDC
	Power			0.5	1	W
Operating ambient temperature			-40		70	℃
Storage temperature			-45		85	℃

Fiber interface parameters

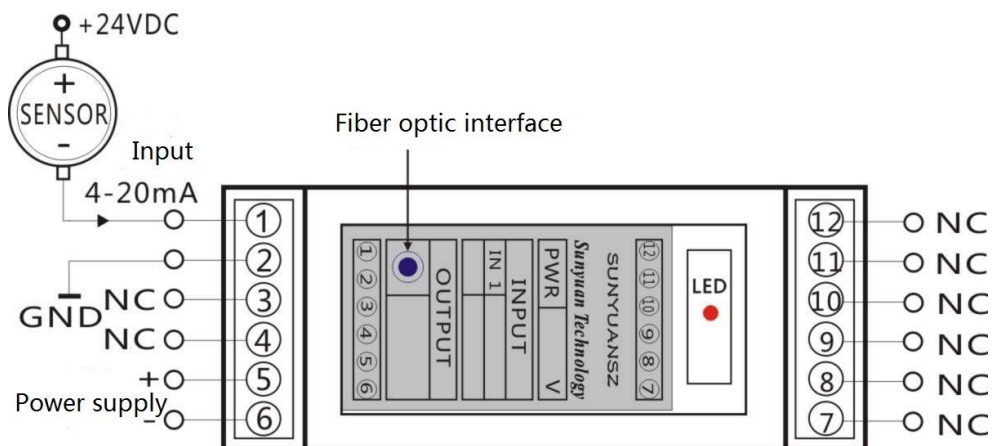
Fiber wave length: multimode 850nm, 1310 nm; singlemode: 1310 nm, 1550nm.

Transmission fiber: multimode 50/125 um, 62.5/125 um, 100/140um; singlemode: 8.3/125 um, 9/125um, 10/125um.

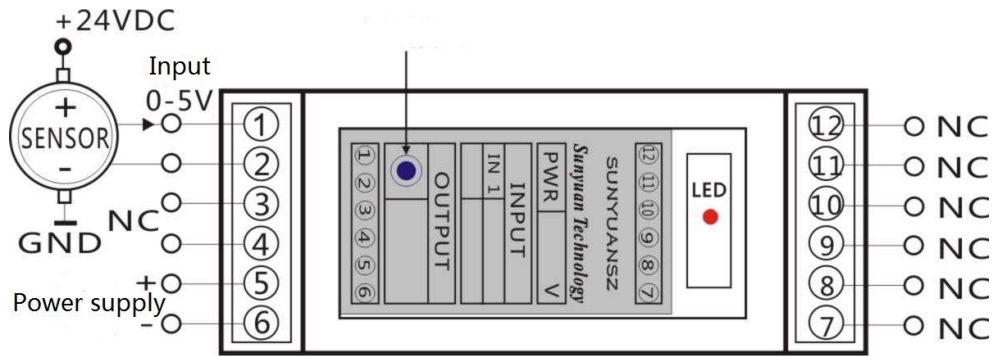
Transmission distance: multimode 2Km, singlemode 20Km.

Interface type: FC fiber interface.

Analog to fiber optical signal isolation transceiver application (DIN35 rail-mounted)

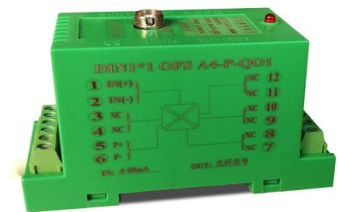
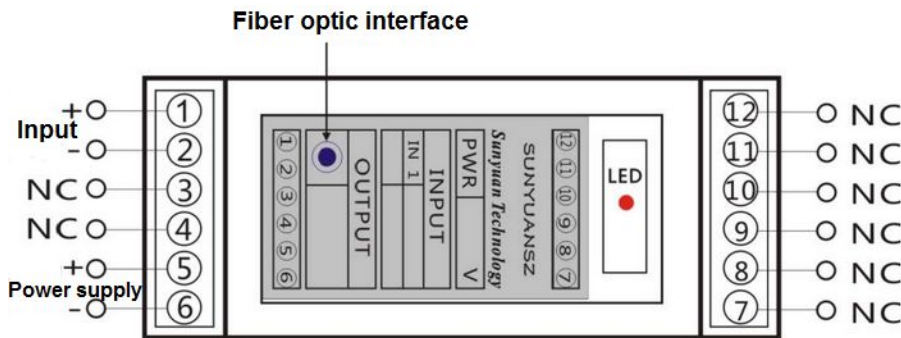


4-20mA输入光纤信号输出接线图



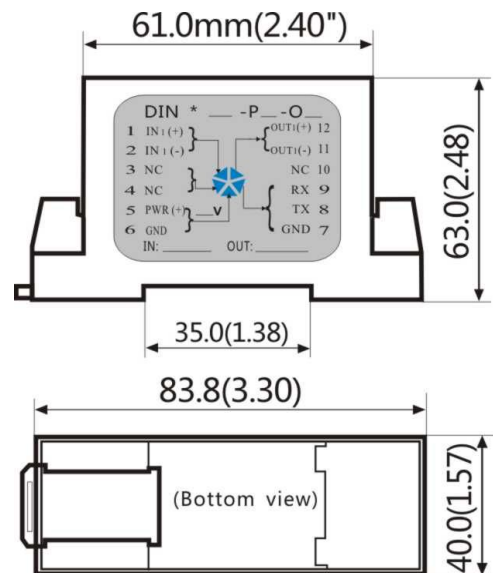
0-5V输入光纤信号输出接线图

Analog to fiber optical signal isolation transceiver wiring (DIN35 rail-mounted)



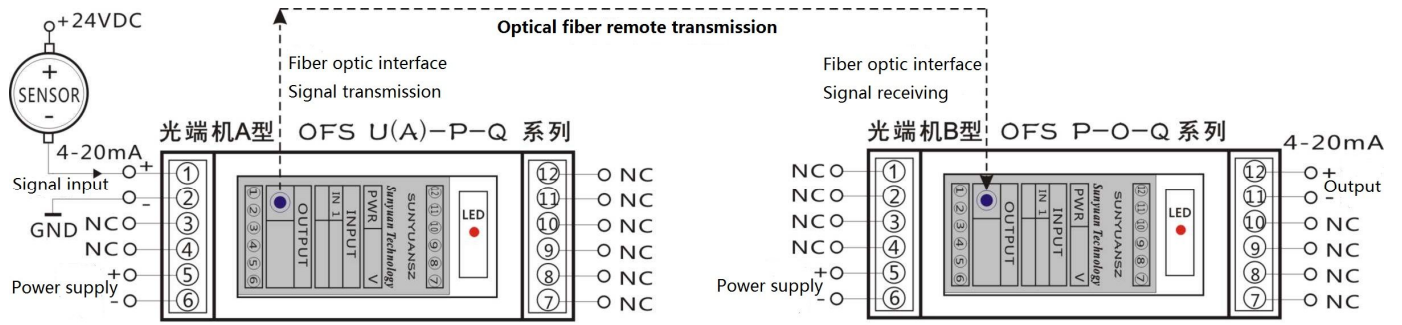
Dimension & Pin definition:

Pin	Pin function description	
1	IN1(+)	Signal input +
2	IN1(-)	Signal input -
3	NC	No connection
4	NC	No connection
5	PWR(+)	Power supply input +
6	GND1	Power supply input -
7	NC	No connection
8	NC	No connection
9	NC	No connection
10	NC	No connection
11	NC	No connection
12	NC	No connection



4-20mA Analog signal remote transmission transceiver typical application: (DIN35 rail-mounted)

Converting PLC/DCS, sensors (temperature sensor, displacement sensor, pressure sensor, level sensor, frequency sensor, speed sensor), transmitters analog signal output into fiber optic signal by OFS U(A)-P-Q module and transmit it via fiber in long distance without distortion. Then restore it into 4-20mA analog signal by using OFS P-O-Q to control it remotely.



传感器/PLC/变送器 模拟信号通过光纤远程传输典型应用图

*The specification is subject to change without notice.