

Fiber Optic Signal to Analog Signal Isolated Transceiver

OFS P-O-Q OFS Series High Accuracy Fiber Optic Signal to Analog Signal Isolated Transmitter

Features:

- Fiber optic signal to 4-20mA/0-10V conversion, high sensitivity, fast response.
- High linearity in the full span (non-linearity<0.2%).
- 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:

- Sensor signal long distance transmission via optical fiber.
- Transmit and control DCS signal to analog signal via fiber.
- MCU signal to analog signal conversion via optical fiber transmission.
- PLC 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 Fiber optic signal to analog isolated transmitter: OFS P-O-Q, is a kind of high-tech low cost long-distance transmission fiber optic isolated transmitter designed and developed by Sunyuan Technology. It can be used together with Sunyuan OFS U(A)-P-Q module to get standard 4-20mA or 0-10V analog signal after isolated transmission and amplification via optical fiber. The isolated transmitter realizes sensor signal, PLC, DCS analog signal high speed non-distorted long-distance transmission.

SunYuan OFS P-O-Q module is designed by using DC-DC isolation power module, analog amplification and conversion circuit, fiber optic isolated control circuit, etc. It mainly applied to convert fiber optic signal into analog signal DA 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 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 P-O-Q Series module is easy to use. It realized fiber optic to analog signal isolated transmission without any external components. The module is designed with DIN35 standard DIN Rail-mounted package 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.)

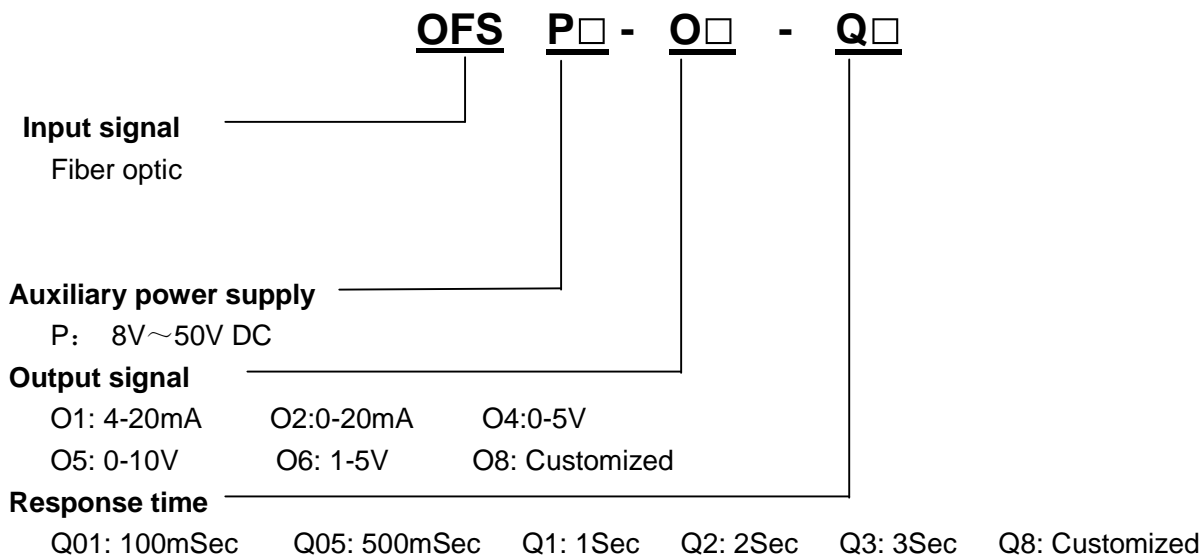
| | |
|------------------------------|-----------------|
| Continuous Isolation Voltage | 3000VDC /rms |
| Power supply range | ±10%Vdd |
| Junction Temperature. | - 40°C ~ + 70°C |
| Lead Temperature (<10S) | +260°C |

Technical parameters:

| Items | Testing conditions | Min. | Typical | Max. | Unit | |
|-----------------------|--------------------|-----------------------|---------|------|-------------------|-----|
| Isolation volt. | 1min | | 3000 | | VDC | |
| Temp. drift | -20°C ~ +70°C | | 100 | | ppm/°C | |
| None-linearity | | | 0.1% | 0.2% | %FSR | |
| Signal input | Duty cycle | 0 | | 100 | % | |
| | High level | 3.6 | 4.5 | 5 | V | |
| | Low level | 0 | 0.5 | 1.2 | V | |
| Input impedance | | | 10 | 100 | KΩ | |
| Signal output | Volt. | 0 | 10 | 12 | V | |
| | Current | 0 | | 20 | mA | |
| Load capacity | Volt. | V _{OUT} =10V | 1 | 5 | ∞ | KΩ |
| | Current | | 0 | 250 | 350 | Ω |
| Signal output ripple | No filter | | 10 | 20 | mV _{RMS} | |
| Aux. power supply | Volt. | User-defined | 3.3 | 12 | 24 | VDC |
| | Power | | | 0.5 | 1 | W |
| Operating temperature | | -40 | | 70 | °C | |
| Storage temperature | | -45 | | 85 | °C | |

* If special output load capacity is required, please enquire us for details.

Model selection & definition:



Model selection examples:

E.g. 1: Signal input: fiber optic; signal output: 4-20mA; 100mSec response time
Model No.: OFS P-O1-Q01

E.g. 2: Signal input: fiber optic; signal output: 0-5V; 3Sec response time

Model No.: OFS P-O4-Q3

Fiber interface parameters:

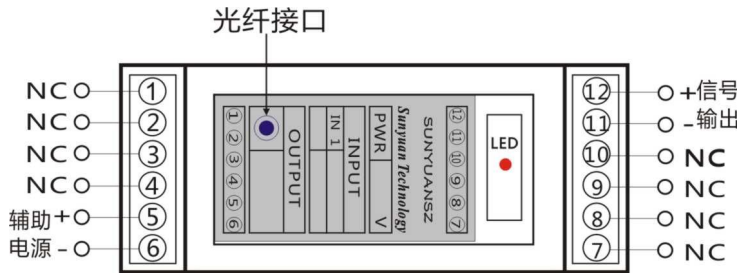
Fiber wave length: multimode 850nm, 1310 nm; singlemode: 1310 nm, 1550nm.

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.

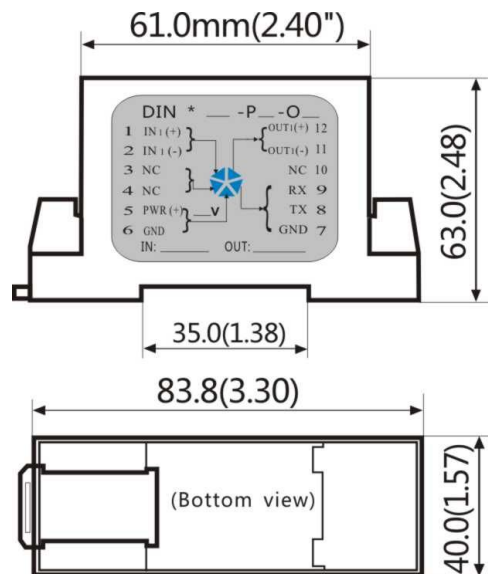
Interface type: FC fiber interface.

Fiber interface to analog signal isolation transceiver wiring (DIN35 rail-mounted)



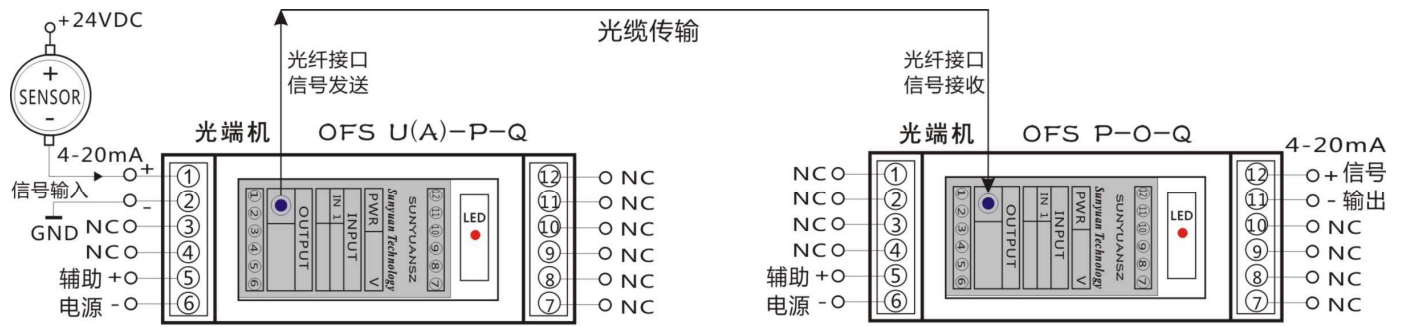
Dimension & Pin definition:

| Pin | Pin function description | |
|-----|--------------------------|-----------------|
| 1 | NC | No pin |
| 2 | NC | No pin |
| 3 | NC | No pin |
| 4 | NC | No pin |
| 5 | PWR(+) | Power supply + |
| 6 | GND1 | Power supply - |
| 7 | NC | No pin |
| 8 | NC | No pin |
| 9 | NC | No pin |
| 10 | NC | No pin |
| 11 | IN(-) | Signal output - |
| 12 | IN(+) | Signal output+ |



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.