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## Section 1: Summarize

### 1.1 System summarize

This series of digital video transmitter/receiver is introduced by the company in digestion and absorption of the latest international on the basis of science and technology, developed a new generation of digital optical transceiver product with full independent intellectual property rights.

This series of Digital Video/Data/Audio optical transmitter/receiver adopted the world-advanced SOC digital signal processing technology and the latest transmission technology for optical fiber communication, through non-compression and loss-less broadcasting-level transmission mode can transmit the 1-16 channels video, 2 channels two-way audio, 1-4 channels single/dual direction RS485/RS422/RS232 data and switch multiplexing data on single-core or two-core optical fibers. The product is easy to install without any adjustment in the 100Km-long distance transmission of high quality video, audio data signals.

This series of products using digital multiplexing / de-multiplexing and Gigabit fiber-optic transmission technology, the multiple one-way or two-way video signals transmit/receive with high-quality transmission and without distortion in real-time by single fiber or double fiber.

The biggest characteristic of this product is modular design, video, audio, data, switch features such as modular, standardized interface bus, can easily be combined with one or multiple functions to meet the multiple functions of the optical transmitter/receiver, maximize to meet users' ever-changing and dynamic needs. All optical interfaces are in line with international standards for a variety of different working environment; the laser modules and core circuitry are imported components with high operation stability.

Good man-machine interface makes installation and maintenance simple and easy, optical transmitter/receiver with status LED indicator, easily monitor the operation status.

This series of products can be widely used in highway monitoring system, intelligent traffic management systems, security systems, multimedia distance learning / consultation system, and other fields.

## 1.2 Product functions

- ☛ Full-digital non-compression, broadcasting level transmission, 8 digits coding;
- ☛ No cross interference from analogue frequency modulation, phase modulation and amplitude modulation;
- ☛ Compatible with PAL, NTSC and SECAM video format;
- ☛ Compatible with Video loss-less regenerative repeater;
- ☛ Support video, data, audio parallel transmission;
- ☛ Gigabit optical fiber transmission technology, large capacity and easy to be upgraded;
- ☛ WDM/CWDM/DWDM optical fiber technology;
- ☛ Single-mode/multimode optical fiber transmission, distance up to 0-100KM
- ☛ Special ASIC design and high-speed DSP technology;
- ☛ Advanced auto-negotiation technology, easy installation, adjustment free in use;
- ☛ Full surface mount technology;
- ☛ Industrial level design, high reliability;
- ☛ Independent module or rack mount, two modes are fully compatible with each other, reducing costs;
- ☛ Support user-specified customization and OEM mode.

## 1.3 Product classify

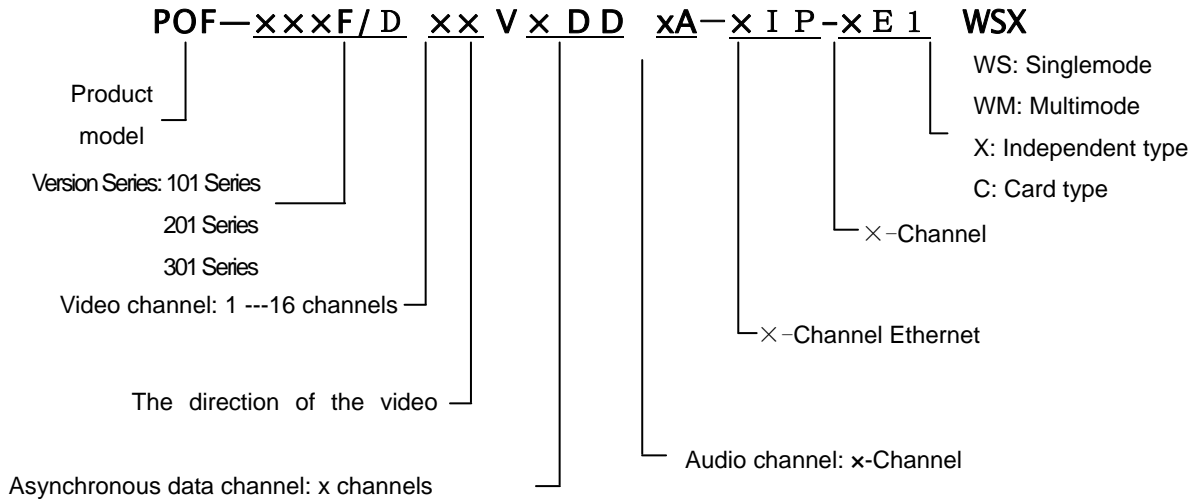
POFLink products are according to the video channels can be divided into 1 channel video, 2 channels video, 4 channels video, 8 channels video, 16 channels video. Energy transmission to multiple one-way video, one-way audio, the single(dual) direction RS485/RS422/RS232 data and switching value multiple complex function.

All of the optical transmitter/receiver can be adopt stand-alone or

19-inch standard chassis installation.

## 1.4 Model Naming

The naming for the models of digital transceivers can be described as follows:



Version Series:

101: Basic type      201: Extended type      301: Multi-service type

V: Shows transmitter video

VV: shows two-way video

D: Shows reverse data

F: Shows reverse data

DD: Shows two-way data

K: Shows switch

T: Shows phone

A: Shows audio

P: Shows Ethernet

For example: the optical transmitter with 4-Channel video+1-Channel reverse direction data+1-Channel audio can be named as the model

POF-201F/D04V1D1A-WSX

## V. Technical parameters

### 1. Video interfaces

Connector type:	BNC
Signal format:	PAL/NTSC/SECAM
Video input/output impedance:	75Ω (unbalanced)
Video input/output voltage:	1Vp-p (peak-peak)
Video bandwidth:	8MHZ
Video sampling rate:	16MHz high-speed sampling
Differential gain:	(10%-90%APL) DG<1% (typical)
Differential phase:	(10%-90%APL) DP<0.7% (typical)
Signal-to-noise ratio:	S/N≥70dB (maximum optical link loss)

### 2. Audio interface

Connector type:	Standard industrial terminals
Audio bandwidth:	32kHz
Signal-to-noise ratio:	20dB (weighter)
Input/output impedance:	600Ωbalanced/unbalanced interface
Input/output voltage:	-18dBm~+16dBm

### 3. Data interface

## Shenzhen POFLink Communication Equipment Co., Ltd.

4F,Landfeng Building Kefa Rd Hi-tech Industrial Park ,Nanshan, Shenzhen, China  
Tel: +86 755 26014656      Fax: +86 755 26532516

# POF Series Data Optical Transmitter/Receiver Video/Data/Audio/Phone/Ethernet/E1



Connector type:	Standard industrial terminals
Signal format:	RS-232, RS-422, RS485, the switching signal
Baud rate:	0~256kbps
Error rate:	$\leq 10^{-9}$
<b>4. Switch</b>	
Connector type:	Standard industrial terminals
Mode:	Normally open
Input:	Passive point of contact or TTL level
Output:	Relay
<b>5. Ethernet interface</b>	
Connector type:	Shielding surpassing-Cat.5 RJ-45 terminals
Supporting protocol	IEEE 802.3 1u 10/100M Ethernet standards
Working mode	Full duplex or semi-duplex
<b>6. Phone interface</b>	
Connector type:	Shielding surpassing-Cat.5 RJ-45 terminals
Voice bandwidth:	4KHZ
Work pattern:	Peer-to-peer hot line, PABX exchange/separating unit mode
<b>7. E1 interface</b>	
Connector type:	RJ45 or BNC
Speed rate:	2.048Mbps $\pm$ 50ppm
Work pattern:	Non-framing transparent transmission
<b>8. Optical fiber</b>	
Physical interface:	FC/UPC, FC/APC, ST/PC, SC/PC
Transmission speed:	155Mbps~2.5Gbps
Fiber kind:	Single-mode/multimode optical fiber
Reach distance:	Multimode: 0~3km; Single-mode: Up to 100km
<b>9. Power supply</b>	
Power input:	AC100V~250V 50/60Hz 1.2A
DC output:	1/2 optical DC5V/1.2A 4/8 optical DC5V/2A 16 optical DC5V/3A 2U rack DC5V/12A of dual power backup 4U rack DC5V/20A single power supply
Ripple wave:	$\leq 50\text{mV}$
Power supply safe:	Over voltage, over current
<b>10. Environment parameter</b>	
Working temperature:	-20°C---70°C
Storage temperature:	-40°C---85°C
Relative humidity:	0-95% (non condensing)
<b>11. Physical dimensions</b>	
1-Channels (101/201 independent type)	70×95×26 (L×W×H)
2-Channels (101/201 independent type)	87×117×26 (L×W×H)
4-Channels (101 independent type)	150×226×26 (L×W×H)
4-Channels (201 independent type)	160×210×26 (L×W×H)
8-Channels (101 independent type)	150×226×26 (L×W×H)
8-Channels (201 independent type)	160×210×44 (L×W×H)
16-Channels (independent type)	160×210×44 (L×W×H)
16-channel (1U chassis type)	440×230×44 (L×W×H)
Enhanced (301 independent type)	160×210×26 (L×W×H)
Enhanced (4U chassis type)	440×230×176 (L×W×H)

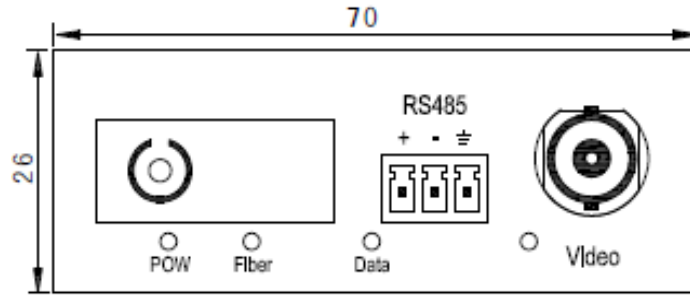
# POF Series Data Optical Transmitter/Receiver Video/Data/Audio/Phone/Ethernet/E1



## Section 2: Interface panels

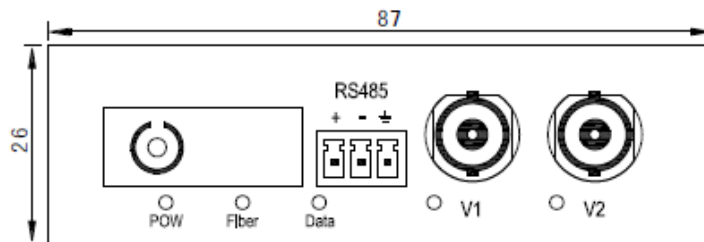
### 2.1 1-Chanel (101/201 series) panel shows

Front panel:



### II.2Channels (101/201 series) panel shows

Front panel:

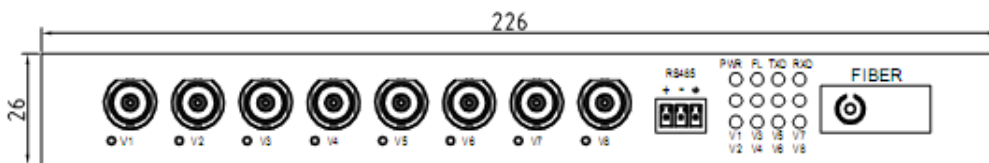


Back panel (1/2 channel):

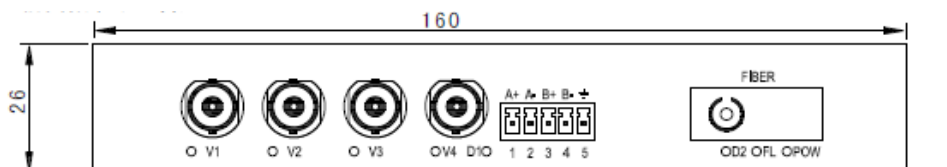


### III. 4Channels panel shows

101 series front panel (Basic type):



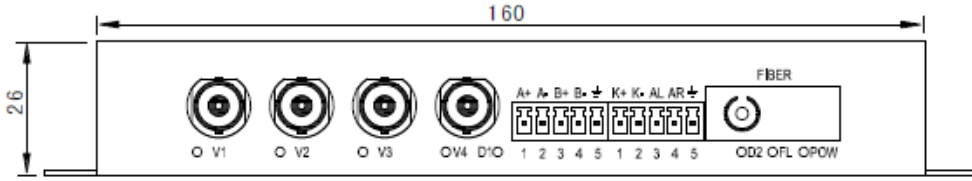
201 series front panel (Ordinary type):



# POF Series Data Optical Transmitter/Receiver Video/Data/Audio/Phone/Ethernet/E1

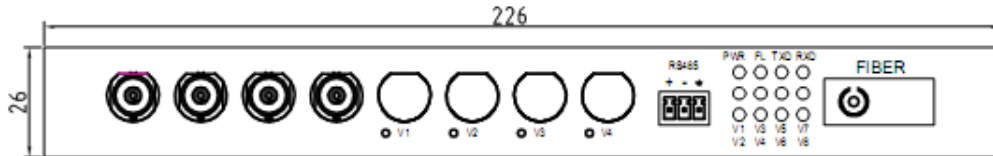


201 series front panel (Extended type):



## IV. 8Channels panel shows

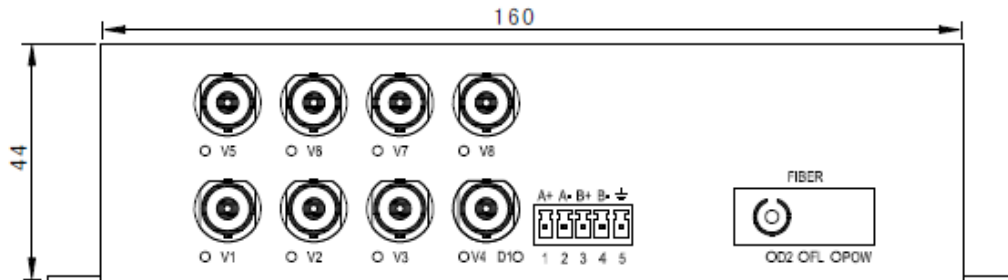
101 series front panel (Basic type):



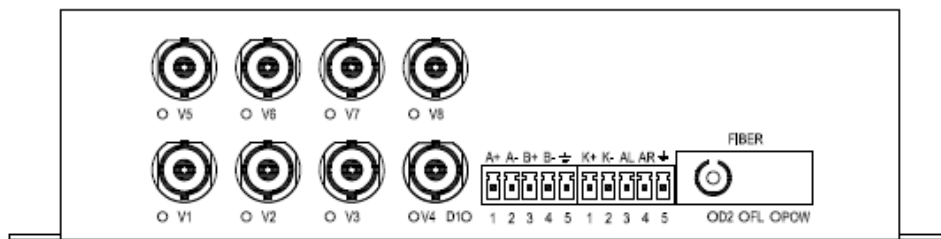
101 series back panel (4/8 pannels):



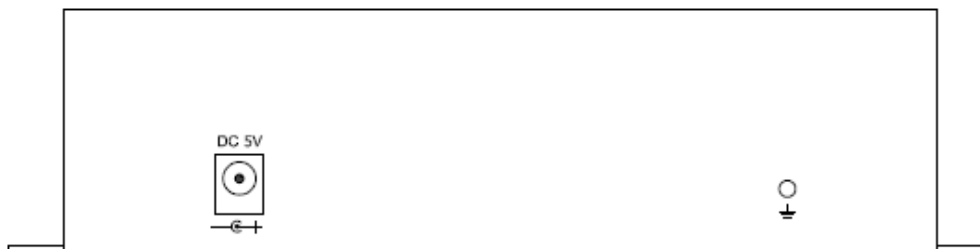
201 series front panel (Ordinary type):



201 series front panel (Extended type):



201 series back panel (4/8 pannels):

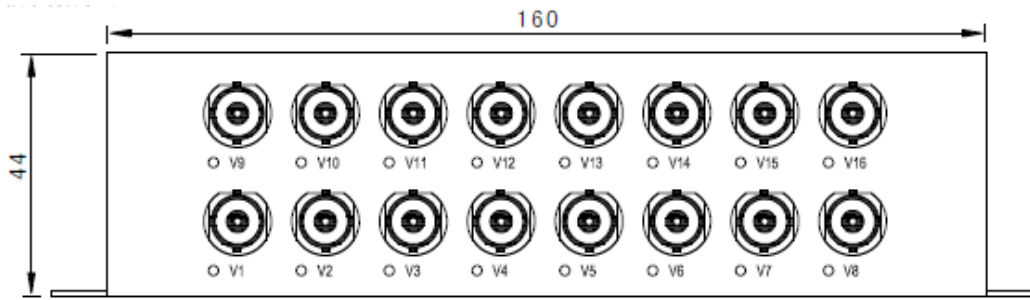


# POF Series Data Optical Transmitter/Receiver Video/Data/Audio/Phone/Ethernet/E1

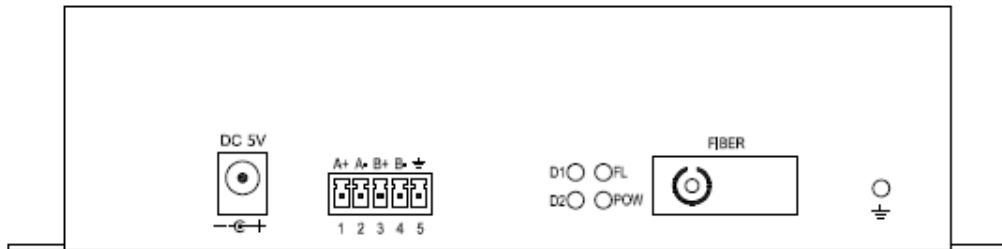


## V. 16Channels panel shows (Independent type):

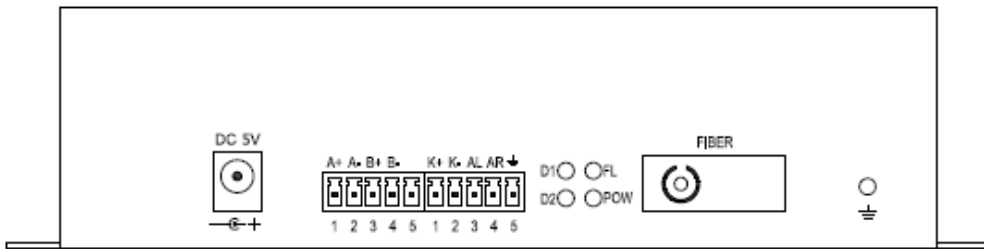
Front panel:



Back panel (Ordinary type):

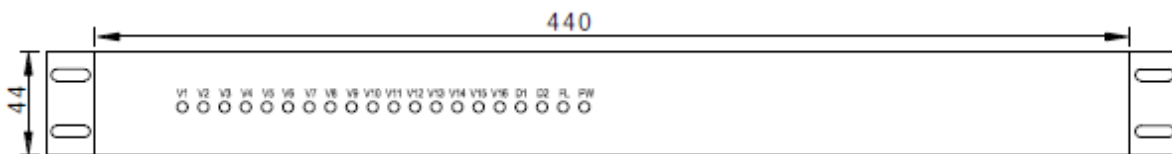


Back panel (Extended type):

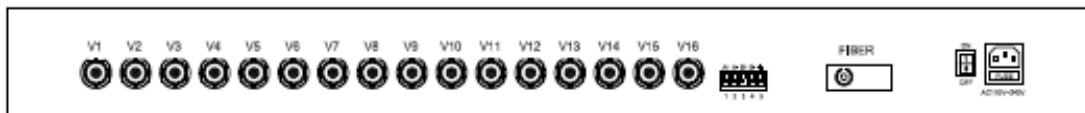


## VI. 16Channels 19" standard chassis (1U) panel shows:

Front panel:



Back panel (Ordinary type):



Back panel (Extended type):



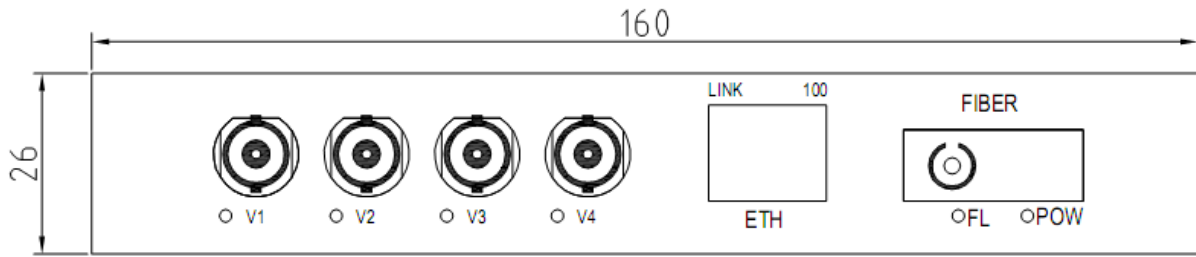


# POF Series Data Optical Transmitter/Receiver Video/Data/Audio/Phone/Ethernet/E1

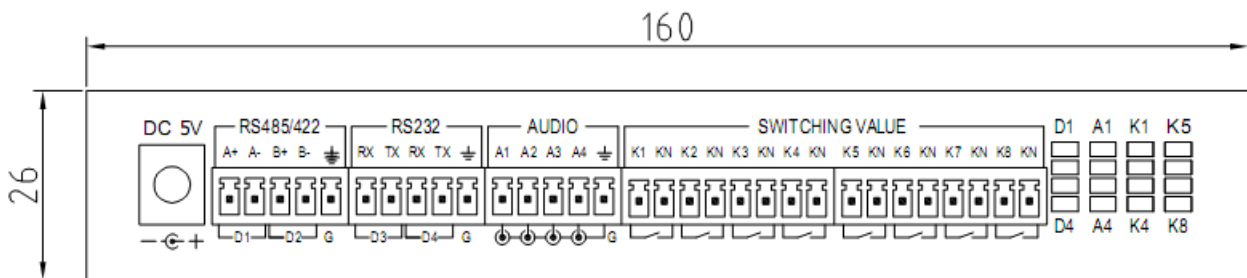


## VII. Multi-service type panel shows:

301 series front panel (Multi-functional type):

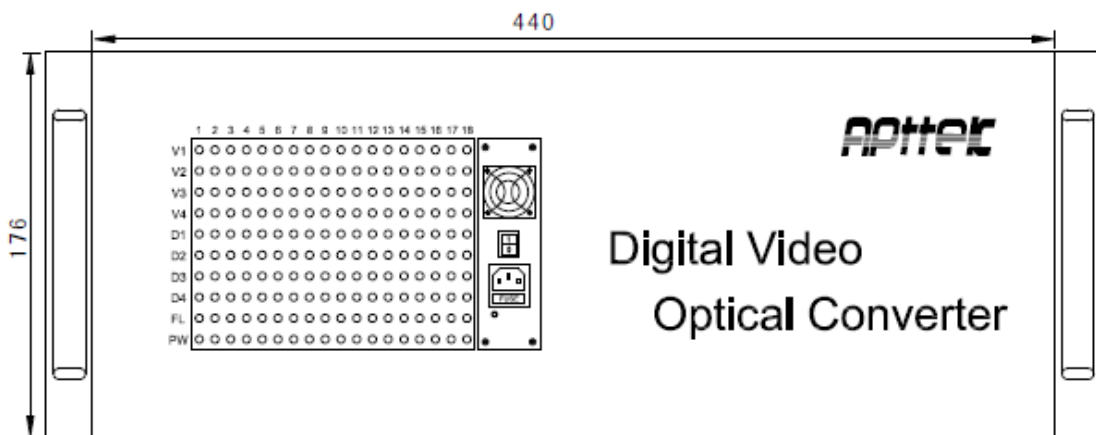


301 series back panel (Multi-functional type):

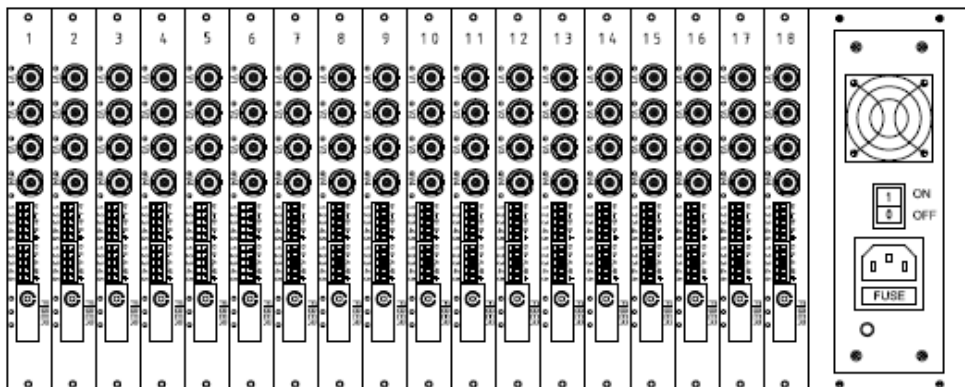


## VIII. 19" standard chassis (4U) panel shows:

Front panel:



Back panel:



**Section 3: Installation**

The product is easy to be installed and can work normally without any extra adjustment from the users.

**3.1 Preparation**

1. Installation place: The equipment should be installed in places where convenient operation, wiring and plugging can be available. The wiring should be kept away from the strong noise source. The installation place should also be dry and kept away from rain.
2. Installation conditions: Video optical should be used in pairs which one is transmitter (LED gives off red) and the other one is receiver (LED gives off green). The transmitter is installed on the far side to receive camera video signal and the receiver on the near side connected to the monitor or DVR will send optical fiber transmission of video signal to a monitor or DVR
3. Power supply: Please prepare the power supply and relevant interfaces matching the requirements of the equipment.
4. Connecting wires: Use 75ohm coaxial cable for video signals, with the interface as unbalanced standard BNC, others business Data (Data/audio) adopt standard industrial terminals. The pin is defined as follows:

101 series Basic type:

RS485			
PIN	1	2	3
Definition	+	-	GND
Illustration	Data+	Data-	Ground

201 series Ordinary type

RS485/422 Data interface					
PIN	1	2	3	4	5
Definition	A+	A-	B+	B-	GND
Illustration	Data +	Data -	Data +	Data -	Ground

201 series Extended type

RS485/422 Data interface						Switch interface		Audio interface		Ground
PIN	1	2	3	4	5	1	2	3	4	5
Definition	A+	A-	B+	B-	GND	K+	K-	AL	AR	GND
Illustration	Data +	Data -	Data +	Data -	Ground	Switch+	Switch-	Audio(1)	Audio(2)	Ground

301 series Multi-functional type

RS485/422 Data interface						RS232 Data interface				
PIN	1	2	3	4	5	1	2	3	4	5
Definition	A+	A-	B+	B-	GND	RX	TX	RX	TX	GND
Illustration	Data +	Data -	Data +	Data -	Ground	receiver	transmitter	receiver	transmitter	Ground
Audio interface						Switch interface 1 (keep open)				
PIN	1	2	3	4	5	1	2	3	4	5
Definition	A1	A2	A3	A4	GND	K1	KN	K2	KN	K3
Illustration	Audio1	Audio2	Audio3	Audio4	Ground	Switch +	Switch -	Switch +	Switch -	Switch +

# POF Series Data Optical Transmitter/Receiver Video/Data/Audio/Phone/Ethernet/E1



Switch interface 1 (keep open)			Switch interface 1 (keep open)							
6	7	8	1	2	3	4	5	6	7	8
KN	K4	KN	K5	KN	K6	KN	K7	KN	K8	KN
Switch	Switch	Switch	Switch	Switch	Switch	Switch	Switch	Switch	Switch	Switch
-	+	-	+	-	+	-	+	-	+	-

- Note:
- 1) Data port:
    - 1.1 101 series basic type Data port: +, - are one channel.
    - 1.2 201 series Ordinary/Extensible type 485 Data interface: A+,A- are 1st channel, B+,B- are 2nd channel
    - 1.3 301 series Multi-functional type 485 Data interface: A+,A- as the 1st channel, B+,B- as the 2nd channel. 232 Data interface: RX, TX as one channel and also two-way data.
  - 2) Audio port:
    - 2.1 201 series Ordinary/Extensible type audio interface: AL and AR as audio input 1( Left channel ) and audio input 2( Right channel ).
    - 2.2 301 series Multi-functional type audio interface: A1,A2,A3,A4 are individually four-channel audio and GND common ground .
  - 3) Switch port:
    - 3.1 201 series Ordinary/Extensible type Switch interface: K+, K- as one channel.
    - 301 series Multi-functional type Switch interface: K1, KN as one channel.
  - 4) Service interface configured according to customer orders. Some of function can not used cause of different order.
  - 5) Fiber port: Standard interface is single modes optical FC interface, ST Connecticut for multimode, customers should choose right connecting cable based on the specific interface configuration, any other questions please contact us.
  - 6) Reach distance: Should make sure that the actual transmittal distance according to application environment, and the purchased products to adapt to the maximum transmission distance.

### 3.2 Connect complex functions port

#### 1) Connect data port:

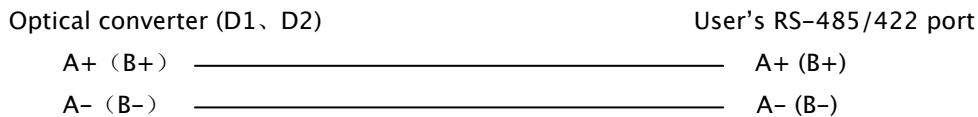
101 series optical video data interface +, - as the 1st channel.

201 Sceptical video data interface A+, A- as the 1st channel D1, B+, B- as the 2nd channel D2.

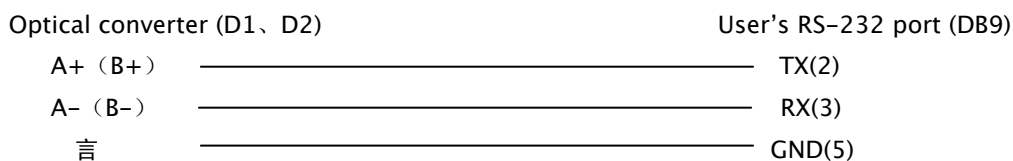
The data cables of RS-485/422 transmitter / receiver are connected to the same way of the parallel connection.

The data cables of RS232 transmitter/receiver are not connected to the same way which one is the parallel connection and the other one is the cross connection.

#### ◆RS485/RS-422



#### ◆RS-232 (Data transmitter):



#### ◆RS-232 (Data receiver):

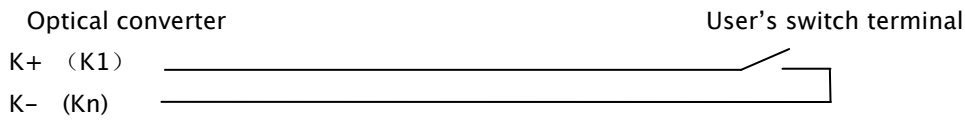


言 \_\_\_\_\_ GND(5)

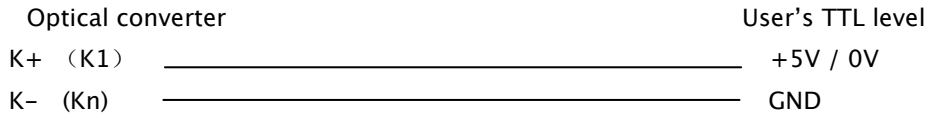
Note: Reverse the data of the data transmitter as the video receiver, the data receiver as the video transmitter

## 2) Switch interface connector:

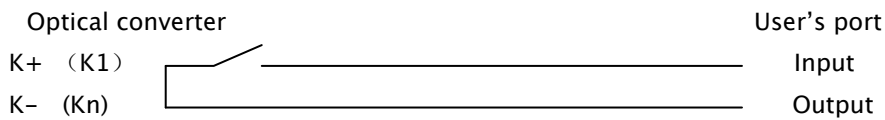
### ◆Switch transmitter:



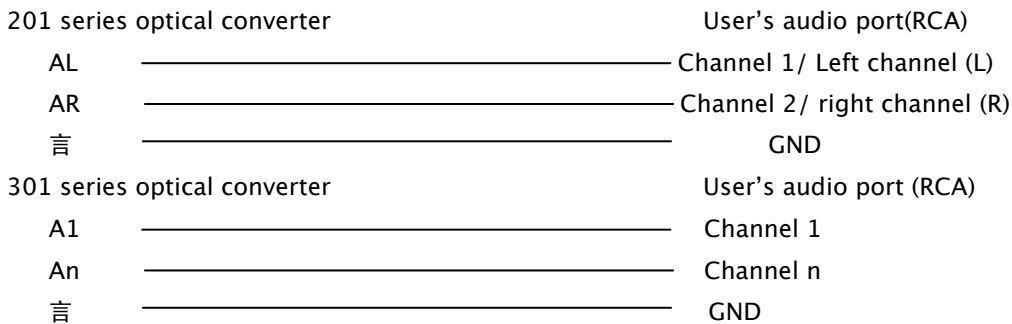
Or



### ◆Switch receiver:



## 3) Audio interface connector:



## 3.3. Installation and power-on

1. Fix the optical transceiver on the rack or place it on the steady platform.
2. Connect the video input/output cable, audio cable, data cable and pay attention the correct connecting method.
3. Connect the optical fiber patch cord to the optical fiber Port.
4. Connect to power and Turn on the power.
5. Make sure the equipment works normally. PW, FL and corresponding indicator Vn, Dn are ON. (n represents the number 1, 2, 3...).

## 3.4 LED indicators define

indicator	Status	Meaning
Video、 V1~ Vn	OFF	Video not connect or no signal
	ON	Video connected or video output normal
Data、 D1~ Dn	OFF	Data wire not connect or connected OK
	ON	Data wrie revers connection
	FLASH	Data Transmitting
Fiber、 FL、 Optical、 OL	OFF	Fiber not connect
	ON	Fiber connected
Power、 POW、 PW	OFF	Power not connect
	ON	Power connected

Note: 1. LED indicators give off red light is transmitter, give off green light is receiver.

2. Receiver's video indicator light on when transmitter detect video signal. 3. "n" means number 1.2.3

## 3.5 Trouble shooting

1) **Failure phenomenon:** Power indicator POW can't be on.

**Analysis of causes:** AC power supply or power adapter has failure.

**Terms of settlement:** Check to see if the power supply's voltage, the wiring and socket have contact failures. Check the power adapter output.

2) **Failure phenomenon:** Optical fiber indicator FL can't be on.

**Analysis of causes:** optical fiber link is blocked or the power adapter is abnormal.

**Terms of settlement:** Check to see if the fiber link is normal, if the flange and patch cord and so on are intact, if the fiber link attenuation is too big, patch cord model match up the fiber or not and check the power adapter output is in normal or not.

3) **Failure phenomenon:** Video indicator V of transmitter can't be on.

**Analysis of causes:** No video signal is detected.

**Terms of settlement:** Check to see if the video source is normal or not. If the video wiring connecting is well or not, other channels should be used for video input so as to determine the equipment failures.

4) **Failure phenomenon:** Video indicator V of receiver can't be on.

**Analysis of causes:** No video signal is detected. Fiber link failure or power adapter output abnormally.

**Terms of settlement:** Check to see fiber link is work in normal or not. Check the power adapter output.

5) **Failure phenomenon:** Transmitter (not link to camera) or receiver video indicator bright all the time

**Analysis of causes:** Video transmitter/receiver laser module failure.

**Terms of settlement:** Open the box to confirm the video transmitter/receiver laser module become flexible or not.

6) **Failure phenomenon:** Data transferring with different data, data indicator D can't be on

**Analysis of causes:** The data transmit/receive wires are not properly connected, the data control equipment has failures.

**Terms of settlement:** Make sure the data wiring transmit/receive connected correct, port correspond, data control equipment works in normal.

7) **Failure phenomenon:** Audio signals can't be transmitted.

**Analysis of causes:** No audio signal be detected; the audio channels for both transmitting and receiving are not correctly correspond.

**Terms of settlement:** Make sure the audio source work in normal or not; don't use non-audio source input; make sure the transmitting and receiving channels are correctly correspond.

Please contact us or send device back if the problems can not be solved as introduction of trouble shooting, don't open metal shell without our technical staff

## Section 4: Service and guarantee

### 4.4 guarantee life

Products implement a limited liability guarantee from the date of purchase by the customer. If purchase was not indicate the date, subject to the date of manufacture.

### 4.2 Products guarantee service terms

1) Maintenance on free of normal used under warranty. Dealers will send products and quality guarantee back to our company for fixing.

- 2) Users must use our power adapter according to the instruction of operation and install, any other problem cause of human damage or improper use will not be included in warranty terms, and charge for fixing is extra.
- 3) Damage and failure due to shipping, shipper is responsible for calling to account.
- 4) Property damage or personal injury caused by products due to improper use. Our company assumes no responsibility.
- 5) Product quality assurance of the product model, product bar code with the purchased of the product model must match.
- 6) Product quality assurance must possess a direct distributor seal, and fill in relevant information, please send back for our company's seal is there is no one..

## Section 5: Others

### 5.1 Attention:

- 1) Do not directly watch the optical transmitting interface with naked eyes when the equipment is electrified so as to avoid hurting.
- 2) When the equipment is not used, please cover the optical fiber interface with dirt shroud.
- 3) Do not connect the interface of power supply of this equipment with the interfaces of other equipment.

### 5.2 Check list

Please check packing list very carefully before you start installation.

#### ◆ 1/2-channels optical converter:

- 1) 1/2-channel optical converter 1pair (Module mark at label) (TX and RX).
- 2) AC110~220V power adapter 2pcs.
- 3) User's guide 1pcs (with: Warranty 1pcs).
- 4) Certificate of quality 1pcs.

#### ◆ 4/8-channels optical converter:

- 1) 4/8-channel optical converter 1pair (Module mark at label) (TX and RX).
- 2) AC110~220V power adapter 2pcs (with power cord 2pcs).
- 3) User's guide 1pcs (with: Warranty 1pcs).
- 4) Certificate of quality 1pcs.

#### ◆ 16-channels optical converter:

- 1) 16-channel optical converter 1pair (Module mark at label) (TX and RX).
- 2) AC110~220V power adapter 2pcs (with power cord 2pcs).
- 3) User's guide 1pcs (with: Warranty 1pcs).
- 4) Certificate of quality 1pcs.

#### ◆ 19" 4U classis:

- 1) 18-slot optical converter chassis 1pcs.
- 2) 4U chassis power supply 1pcs (with power cord 1pcs).
- 3) 1-slot dummy bezel 6pcs, 6-slot dummy bezel 2pcs.
- 4) User's guide 1pcs (with: Warranty 1pcs).
- 5) Certificate of quality 1pcs.

Note: Some parts maybe as semble to classis.

### 5.3 Company Statements

- 1) We new technology to change the design, structure, function and parameters on the product in any case without further notice to you.
- 2) The company will not be responsible for improper use of the product caused damage to equipments or

person.

3) The final interpretation of the specifications belongs to the company.

## Warranty Card

### To end user:

The warranty card is the end user's import voucher, please keep appropriate keep it.

### To sales agency:

The warranty card must be after write down clarity, signature and stamp from sales agency help to end user, please write down purchase data

### Guarantee notice:

1 Guarantee life: All of our brand optical converter productions, support 2 years free guarantee form sale date.

2 Guarantee period note:

- a. Guarantee period since shipping date by the sticker label.
- b. Maintenance on free of normal used under warranty.
- c. Not guarantee on free which man-made sabotage even in guarantee life.

3 No-maintenance for under case:

- a. Over warranty life.
- b. Sticker label broken or can not recognition.
- c. Take apart by oneself and without permission.

4 We reserve the rights of final explanations.

(Keep this sheet and cut out the under sheet return to our company)

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User Name		Telephone	
Sale Date		Fax	
Product Model (PN)			
Serial Number (SN)			
Fault description:			

The warranty card is the end user's import voucher for post, please appropriate to keep it