



FBVAD1000 Series 1-64 Channels  
Video Audio Data Optical  
Transmitter/Receiver User Manual

**(Version 1.2)**

**Beijing fibrIDGE CO., LTD**

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## 1. Overview

FBVAD1000 series Video Audio Data Optical Transmitter and Receiver bases on the latest optic communication technology, provides 1-64CH video, 1-32CH bi-dir audio, 1-32CH bi-dir data RS232/RS485/RS422, 4 E1 and 100M Ethernet over a fiber optic cable. This device is compatible with NTSC, PAL and SECAM video, and can transmit high quality image and real-time signal up to 40KM. The device is widely used in CCTV, video surveillance, national defense, and etc.

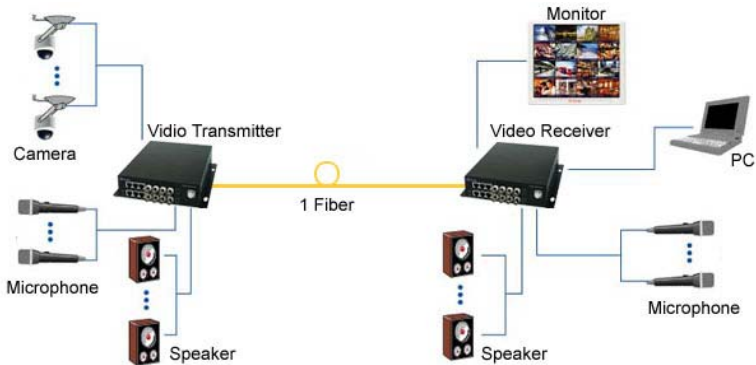
For 1-16 channel video devices, we provide two types, one is stand-alone device, and the other is chassis. For 17-64 channel video devices, there is only chassis provided. Front panel for the transmitter has “Video Transmitter” sign, for the receiver has “Video Receiver” sign.

## 2. Features

- Transports 1-64 channels of High quality video, 1-32 channels Bi-dir audio and 1-32 Bi-dir data over one optical fiber cable
- Provide optional 10/100Mbps Ethernet or 4E1 ports
- Exceed RS250C Medium Haul Specification standard
- 8MHz video bandwidth, Compatible with NTSC, PAL and SECAM

- Uncompressed video, 8/10 Bit digital encoding/decoding
- Easy installation and adjustment
- Stand alone or mount in 4U height chassis

### 3. Typical Application



The above figure describes stand-alone device to make up of point-to-point topology, you can change the stand-alone to a chassis to make up of star topology.

## 4. Specification

### 4.1. Power

Stand-alone: 220VAC /-48VDC

Chassis: 220VAC/-48VDC double hot backup powers

### 4.2. Video

Channel: 1~64

Format: PAL/NTSC/SECAM

Signal:1Vp-p, 75  $\Omega$

Digitization: 8bits/10bits digital encoding, 16M sampling

Bandwidth: 8MHz

DG: <1%

DP: <1°

SNR: >65dB

Connector: BNC

### **4.3. Audio**

Channel: 1~32

Audio input: line input, unbalanced 600Ohms

Digitization: 16bit

Frequency: 10Hz to 20KHz

SNR: >70dB

Connector: RJ45. See the chapter 6.1.3 for the detail.

### **4.4. Data**

Channel: 1~32

Rate: 0~23.04Kbps

Connector: RJ45. See 6.1.3 chapter for the detail.

RS232/485/422 Mode Selection: a jumper inside the machine.

For RS485/422, user can use 4-wire full-duplex mode or 2-wire single duplex mode.

### **4.5. Ethernet**

Rate: 10/100Mbps

Double: Auto-negotiation with half/full duplex

Connector: RJ45

### **4.6. E1 Port**

Rate: 2.048Mbps  $\pm$ 50ppm

Mode: Unframed 75ohm and 120ohm selectable

Connector: BNC (75ohm), RJ45 (120ohm)

#### **4.7. Optical Port**

Rate: 155Mbps, 1250Mbps

Distance: Up to 120Km

Connector: FC connector

#### **4.8. Size**

1-4 channels: 162 (W) x 239 (D) x 36 (H) (mm)\*

8channel: 180(W) x 239(D) x 52 (H) (mm)

16channel: 435(W) x 237 (D) x 44 (H) (mm)

4U rack: 441(W) x 340 (D) x 180 (H) (mm)

All these dimensions don't consist of lug and other connectors beyond the machine.

\*Notes:the dimensions of machine don't include the machine which with the Ethernet and E1 connectors, for which the dimensions is :  
180(W) x 239(D) x 52 (H) (mm)。

#### **4.9. Environment**

Storage: -40°C ~ +70°C

Operating: -40°C ~ +85°C

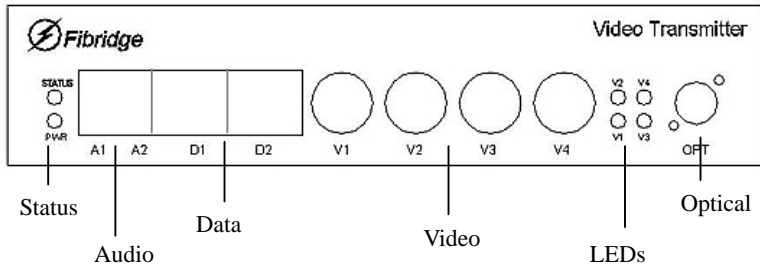
Humidity: 0-95% Non-Condensing

### **5. Appearance**

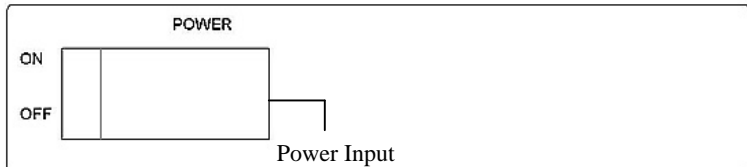
The panel of 1~16 channel Optical Video device is almost the same, except the number of connector and the dimension. So we use 4 channels as example for 1~16 channels. 17~64 channels video optical device uses rack for installation.

LED and button indicate see 5.10 and 5.11 chapter for detailed description.

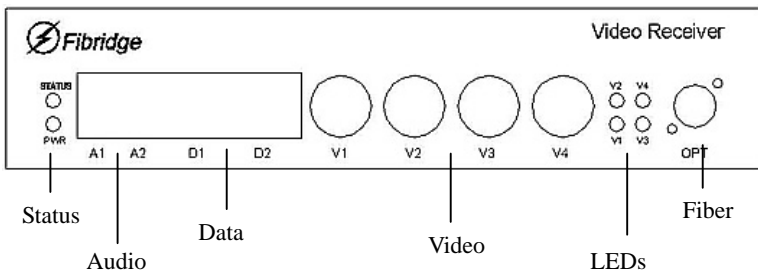
## 5.1. Front panel of 1~16 channel transmitter



## 5.2. Rear panel of 1~16 channel transmitter



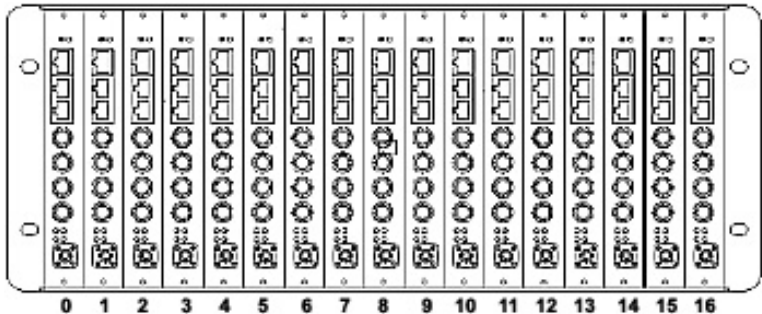
## 5.3. Front panel of 1~16 channel receiver



## 5.4. Rear panel of 1~16 channel receiver

Same with the transmitter

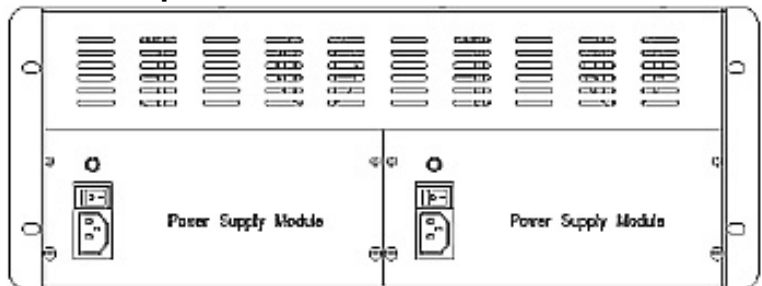
## 5.5. Front panel of 4U chassis for 17~64 channel



**NOTE:** the chassis have 17 slots. The video card, E1 Ethernet interface card and CWDM card can be installed into any of 0~16th slots. The management card can only be installed into 0 slots.

16-64 channel video Optical devices are made up of 1~8 channel video optical device and passive CWDM device.

## 5.6. Rear panel for 4U chassis



**NOTE:** The rear panel for 4U chassis has two power supply modules, which support hot swap.

## 5.7. Panel of the Module

Panel of the Module is same with the front panel of the stand-alone, see 5.1-5.3.

## 5.8. CWDM device

There two types of passive CWDM, one is module which can be installed into any of 0~16th slots, the other is stand-alone which can put above the chassis.

CWDM can provide up to 16 different kinds of wavelength. The device makes it possible to transmit or receive 17~63 channels Video Audio Data in one fiber cable.

## 5.9. LED Indicator

Table 1 1~16 channel video transmission led indicator

LED	Color	Status	Description
PWR	Green	ON	The power supply is OK
Status	Green	ON	The device is running.
V1~Vx	Green	ON	The video transmission is ok

X : 1~16。

## 6. Installation & Maintenance

FBVAD1000 series 1-64 channels Video Optical Transmitter & Receiver is very easy to install and maintain.

### 6.1. Preparation

#### 6.1.1. Check work condition

- Make sure the device is accessible and all the cables can be connected easily
- Keep away from sources of electrical noise.
- Prevent water or moisture from entering the device

#### 6.1.2. Check Power Supply

Check the kind of the power supply is the same with the device requirement.

#### 6.1.3. Cable Connections Description

- Video Connection:

Use coaxial cable and BNC connector to connect the FBVAD1000 device and the video source, such as the camera.

- Audio Connection

We provide the private audio cable. Each cable provides 2 channel audio. Pin definition is described as below:

1 2 3 4 5 6 7 8



Table2 RJ45 pin definition for Audio

<b>Pin</b>	<b>Wire color</b>	<b>Definition</b>
1	White / Orange	Left channel IN
2	Orange	GND
3	White /Green	Right channel IN
4	Green	GND
5	White /Blue	Left channel OUT
6	Blue	GND
7	White /Brown	Right channel OUT
8	Brown	GND

- **Data Connection:**

We provide the private data cable. Each cable provides 1 channel data. Pin definition is described as below:

1 2 3 4 5 6 7 8

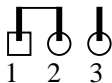


Table3 RJ45 pin assignment for data

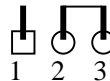
Pin	Wire color	Definition	Note
1	White /orange	TXD+	<b>RS422/485</b>
2	Orange	TXD-	
3	White /green	RXD+	
4	Green	RXD-	
5	White /blue	GND	
6	Blue	RXD	RS232
7	White /brown	TXD	
8	Brown	GND	

How to change RS232/485/422:

You can find 4 JUMPER on the board, named JP4, JP5, JP6 and JP7. If you use one shorting bar to connect Pin1 and Pin2, you get RS485/422 mode. If you connect Pin2 and Pin3, you get RS232 mode.



4-wire RS485/422 Mode



RS232 Mode

- Optical port Connection: Use standard FC fiber cable to connect the FBVAD1000 device.

#### 6.1.4. Transmitting Distance

Check the real application distance meet the requirement of the FBVAD1000 device.

## 6.2. Installation Steps

- 1) Fasten the device;
- 2) Connect video sources, such as video cameras, to transmitter using coaxial cables. Connect monitoring equipment to the corresponding video channel of receiver;
- 3) Connect audio channel as requirement;
- 4) Connect data channel as requirement;
- 5) Connect the fiber link to the FC connector.
- 6) Power up the machine.
- 7) The PWR LED will display red and Status LED will display green showing system is ready. When transmitting, video LED of transmitter and receiver is green.

## 6.3. Maintenance

### 6.3.1. Problem: PWR led isn't ON

Reason: Power supply is not OK.

Solution: Check the power supply connections

### 6.3.2. Problem: Video transmitter 's video LED isn't ON

Reason: No video source detected

Solution: Check the video source output, change the video channel, make sure the corresponding channel's video LED is displaying Green.

#### 6.3.3. Problem: Video receiver's video LED isn't ON.

Reason: No video signal is detected by the receiver.

Solution: Check the transmitter's video LED is displaying green, if not refer to previous item, or check the fiber connection.

#### 6.3.4. Problem: Status LED isn't ON.

Reason: Video transmitter fails to operate correctly

Solution: Check the PWR LED to make sure power supply is ok, otherwise contact with us for help

#### 6.3.5. Problem: Data channel can't work.

Reason: Data source or data receiver device may have problem. Data cable connection may have problem.

Data mode Configuration is error. For example, one side sets to RS232, and other side sets to RS485.

Solution: Check data source and data receiver to make sure they can work without connecting to our device.

#### 6.3.6. Problem: Audio channel can't work

Reason: Audio source or audio speaker may have problem, Audio cable connection may have problem.

Solution: Check the audio source and speaker to make sure they can work without our device. Check audio converter cable wire usage with table2.

**If the machine is still not working, turn off the power and contact our professional technical support for help.**

## 7. Order Information

### 7.1. Model

**FBVAD1000** 1-64 channels Video/Audio/Data Optical Transmitter/Receiver

For detailed order information, please check the Part Number.

### 7.2. Part Number (P/N)

#### Video Transmission

F7-64V	64Ch Video
F7-32V	32Ch Video
F7-16V	16Ch Video
F7-8V	8Ch Video
F7-4V	4Ch Video
F7-2V	2Ch Video
F7-1V	1Ch Video

#### Video+audio transmission

F7-64V-32ATR	64 Ch Video, 32Ch bi-dir audio
F7-32V-16ATR	32Ch Video, 16Ch bi-dir audio
F7-16V-16ATR	16Ch Video, 16Ch bi-dir audio
F7-8V-4ATR	8Ch Video, 4Ch bi-dir audio
F7-4V-2ATR	4Ch Video, 2Ch bi-dir audio
F7-2V-2ATR	2Ch Video, 2Ch bi-dir audio
F7-1V-2ATR	1Ch Video, 2 Ch bi-dir audio

**Video + data transmission**

F7-64V-32DTR	64Ch Video, 32Ch Bi-dir Data
F7-32V-16DTR	32Ch Video, 16Ch Bi-dir Data
F7-16V-16DTR	16Ch Video, 16Ch Bi-dir Data
F7-8V-4DTR	8Ch Video, 4Ch Bi-dir Data
F7-4V -2DTR	4Ch Video, 2Ch Bi-dir Data
F7-2V -2DTR	2Ch Video, 2Ch Bi-dir Data
F7-1V -1DTR	1Ch Video, 1Ch Bi-dir Data

**Audio + data transmission**

F7-2ATR-2DTR	2Ch bi-dir audio, 2Ch Bi-dir Data
F7-2ATR-1DTR	2Ch bi-dir audio, 1Ch Bi-dir Data

**Video + audio + data transmission**

F7-64V-32ATR-32DTR	64Ch Video, 32Ch bi-dir audio, 32Ch Bi-dir Data
F7-32V-16ATR-16DTR	32Ch Video, 16Ch bi-dir audio, 16Ch Bi-dir Data
F7-16V-16ATR-16DTR	16Ch Video, 16Ch bi-dir audio, 16Ch Bi-dir Data
F7-8V-4ATR-4DTR	8Ch Video, 4Ch bi-dir audio, 4Ch Bi-dir Data
F7-4V -2ATR-2DTR	4Ch Video, 2Ch bi-dir audio, 2Ch Bi-dir Data
F7-2V -2ATR-2DTR	2Ch Video, 2Ch bi-dir audio, 2Ch Bi-dir Data
F7-1V -2ATR-1DTR	1Ch Video, 2ch bi-dir audio, 1Ch Bi-dir Data

**Video + audio + data + Ethernet transmission**

F7-16V-8ATR-8DTR-100M

16Ch Video, 8Ch bi-dir audio, 8Ch Bi-dir Data, One 100M Ethernet

F7-8V-4ATR-4DTR-100M

8Ch Video, 4Ch bi-dir audio, 4Ch Bi-dir Data, One 100M Ethernet

F7-4V-2ATR-2DTR-100M

4Ch Video,2Ch bi-dir audio,2Ch Bi-dir Data, One 100M Ethernet  
F7-2V-2ATR-2DTR-100M

2Ch Video,2Ch bi-dir audio,2Ch Bi-dir Data, One 100M Ethernet  
F7-1V-2ATR -1DTR-100M

1Ch Video,2Ch bi-dir audio,1Ch Bi-dir Data, One 100M Ethernet

**Video + audio + data + 4E1 + Ethernet transmission**

F7-64V-32ATR-32DTR-100M-4E1

64Ch Video,32Ch bi-dir audio,32Ch Bi-dir Data , One 100M  
Ethernet ,4E1

F7-32V-16ATR-16DTR-100M-4E1

32Ch Video,16Ch bi-dir audio,16Ch Bi-dir Data , One 100M  
Ethernet ,4E1

F7-16V-8ATR-8DTR-100M-4E1

16Ch Video,8Ch bi-dir audio,8Ch Bi-dir Data , One 100M  
Ethernet ,4E1

F7-8V-4ATR-4DTR-100M-4E1

8Ch Video,4Ch bi-dir audio,4Ch Bi-dir Data , One 100M  
Ethernet ,4E1

F7-4V-2ATR-2DTR-100M-4E1

4Ch Video,2Ch bi-dir audio,2Ch Bi-dir Data, One 100M Ethernet,  
4E1

**\* Above list is the basic P/N, Please contact us for more models, such as CWDM.**

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