



FIBERSTAMP 16 Channels 3G SDI Optical Extender

+ 2 Channels Independent 1000M IP + Network Gateway

FBV3G-C45K20N

Features:

- ✓ Supports SMPTE 259M, 297M, and 305M (SDTI) standards
- ✓ Auto-adapts to SDI rates: 270 Mbps / 1.485 Gbps / 2.97 Gbps
- ✓ Built-in cable equalization and jitter reduction for stable SDI signal
- √ 1000M IP supports IEEE 802.3, 802.3u, 802.3x, and 802.1d
- ✓ Auto-negotiation for 10/100/1000 Mbps Ethernet
- ✓ LCD touch screen for status display and settings
- ✓ Complies with SMPTE 178 and passes SDI pathological test
- ✓ LED indicators for signal, optical link, and dual power status
- ✓ CWDM and TDM technology for multi-channel signal transmission



Product Model

FBV3G-C45K20N Product models are differed by transmit distance.

- ✓ 0 ~ 20 km
- ✓ 20 ~ 40 km
- ✓ 20 ~ 60 km

Description

The FIBERSTAMP FBV3G-C45K20N optical transceiver is capable of transmitting 16 channels of 3G-SDI at a bit rate of 2.97 Gbps, along with 2 independent channels of 1000M IP data. It is fully compatible with HD-SDI and SD-SDI formats. Designed with a modular structure, the FBV3G-C45K20N meets CE certification standards and complies with the SMPTE 178 protocol. It has successfully passed SDI pathological signal tests, ensuring stable and reliable signal transmission for professional video and data applications.

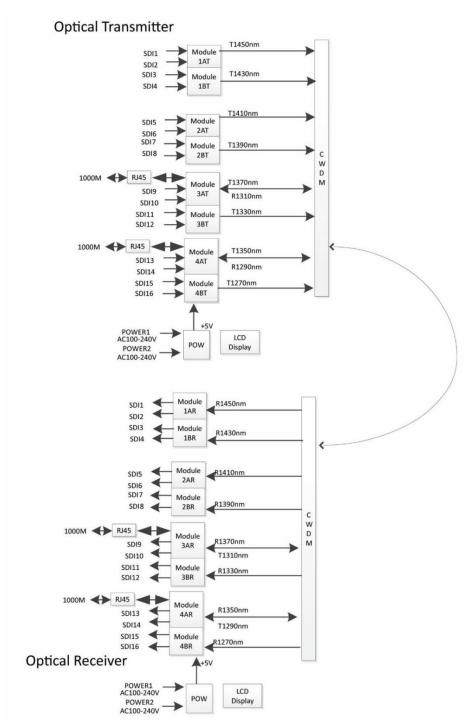




1. Working principle and operation

2.1 Working principle

Combined TDM and CWDM technology, this equipment can transmit 16 channels 3G SDI + 2 Channels 1000M IP via 1 fiber. The Structure is as follow:



Optical Transceiver Structure Flow Chart

2.2 Laser Selection

The optical transceiver of each machine is composed of receiving and transmitting two parts, the wavelength of this equipment are 1450nm, 1430nm, 1410nm, 1390nm, 1310nm, 1270nm, 1370nm, 1290nm, 1330nm, 1310nm

2.3 Power supply

This equipment adopts dual power supplies as a backup power supply mode. The power supply module adopts CE-certified AC/DC and DC/DC modules for high-frequency communication. With the advantage of wide input AC voltage range (AC100V~AC240V), small ripple, small size, low power consumption and high efficiency, it can ensure long-time stable operation of the whole machine. Recommend to make it work in indoor ventilated areas.

This equipment uses 220V 1.5A fuse. Excessive voltage (>240V) will cause damage to the high-frequency switching power supply module. We will not be responsible for the damage caused by incorrect power supply voltage.

On the front panel of the device, there are indicators (POW) for power supply, when power is connected and normal, and the POW indicator is green. If it is a dual power supply machine, there are two power supply working indicator lights on the left side of the panel, and POW1 and POW2 are on to indicate that the power supply is working.





2.4 Indicator on the panel

1) SDI signal

Transmitter:

On the right of the front panel, there are four lines indicators:

The first line are indicators of POW, S1, S2, S3, S4, the POW is indicator of power supply, S1, S2, S3, S4 correspond to input of 1^{st} to 4^{th} channel SDI signal;

The second line are indictors of S5, S6, S7, S8, correspond to input of 5th to 8th channel SDI signal

The third line are indictors of S9, S10, S11, S12, Op1, correspond to input of 9th to 12th channel SDI signal, OP1 is Optical signal indicator

The fourth line are indictors of \$13, \$14, \$15, \$16, Op2, correspond to input of 13th to 16th channel \$DI signal, OP2 is Optical signal indicator

Receiver:

On the right of the front panel, there are four lines indicators:

The first line are indicators of POW, \$1, \$2, \$3, \$4, OP1, the POW is indicator of power supply, \$1, \$2, \$3, \$4 correspond to output of 1st to 4th channel SDI signal, OP1 is Optical signal indicator.

The second line are indictors of S5, S6, S7, S8 Op2, correspond to output of 5th to 8th channel SDI signal, OP2 is Optical signal indicator.

The third line are indictors of S9, S10, S11, S12 Op3, correspond to output of 9^{th} to 12^{th} channel SDI signal, OP3 is Optical signal indicator.

The fourth line are indictors of \$13, \$14, \$15, \$16 Op4, correspond to output of 13th to 16th channel \$DI signal, OP4 is Optical signal indicator.

When there is no optical signal input (the optical signal input is less than about -16dBm), the LED of OP indicator is red, otherwise, the indicator is off. When there is SDI signal locked and output, the corresponding indicator light is green.

For SDI input: when there is SDI input, the corresponding LED indicator is green; for SDI output: when the SDI signal has been decoded, the indicator lights is green.

2) IP signal

Each Gigabit Ethernet has one RJ45 interface, and each RJ45 interface has two indicators, Green and Yellow, they indicate the connection status of the signal, as follows

	1000M	100M
Connected	Green light	Green light
Exchange data	Yellow Blinking	Yellow Blinking
Not connected	Green Yellow Off	Green Yellow OFF





2. Indicators on the panel

On the rear panel of optical transmitter, there are 32 BNC (75Ω) (each SDI input has one loop out) and 3 RJ45 for 2 channels independent 1000M IP and 1 channel for NMS, and one optic connector, two power socket with switch.



back view of transmitter

On the rear panel of optical receiver, there are 32 BNC(75Ω) (each channel SDI has dual output ports) and 3 RJ45 for 2 channels independent 1000M IP and 1 channel for NMS, and one optic connector, two power socket with switch.



back view of receiver

1.5 LCD

The optical transceiver are equipped with LCD touch screen, which can display the working status of the equipment.

When turn on the equipment, the Home page shows Company's logo, equipment's name, SN number. It is as the follow image:



Home Page of Transmitter



Home page of Receiver





Press Enter key, after release it, it will enter into the Menu page as follow:



Menu page of Transmitter



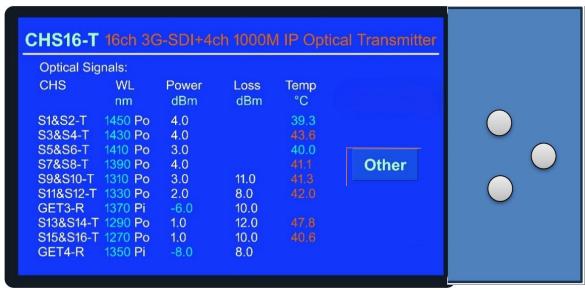
Menu page of Receiver

On the top of Menu page, it is equipment's Model, Name;

On the left, it shows fiber connector type, the Internal Temperature of the equipment, Fan's status (on or off), and the voltage of two power supply;

On the right, the cursor points to Opti button (highlighted by red lines). The others are SDI button, Gateway button and logo. Choose key can select different button by changing highlight lines. Currently the cursor is on Opti button, and press Enter key, it will enter into the Optical Signal of the equipment, Press Choose key and choose SDI button and press Enter key, it enters into SDI Signal page, Press Choose key and choose Gateway button and press Enter key, it enters into Gateway setting page, Press Return key, it will return to the Home page.

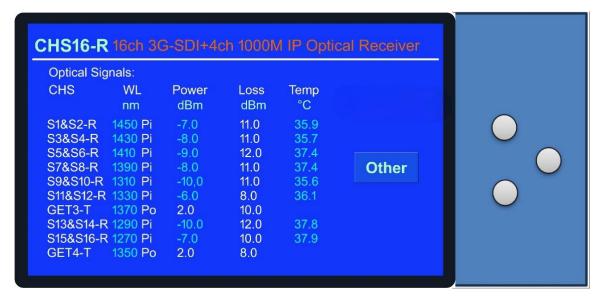
Press Enter key, after release it, it will enter into **Optical Signal** Page as follow:



Optical Page of Transmitter







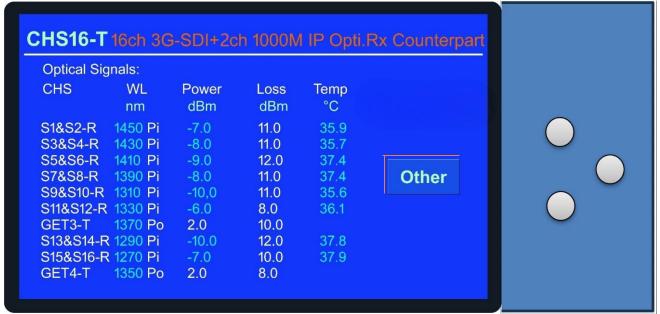
Optical Page of Receiver

On the Top of the page, it shows equipment's Model and name.

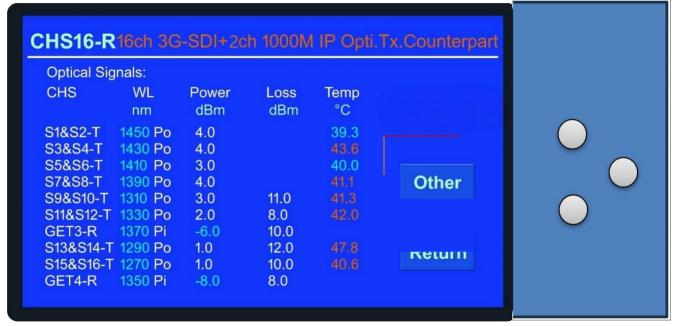
On the left, it shows Optical Signal's information including Channels, Optical module wavelength, Optical Power, link loss, Temperature of Optical Module.

On the right, there are logo and Other button, when press Return key, it will go to Menu page. Press Enter key, it will enter into Counterpart's Optical signal page (for the receiver, it has all Optical Transmission channels, so, all transmitter's information can be showed on the LCD of receiver; for transmitter, due to \$1~\$8 has no transmitting back Optical channel, so \$1~\$8's information of Receiver can't be showed on the LCD of Transmitter). Press Return key, it will go to Menu page. Press Enter key again, it will go to Optical page.

Press Enter key will enter into Counterpart page as follow:



Counterpart's Optical page of Transmitter

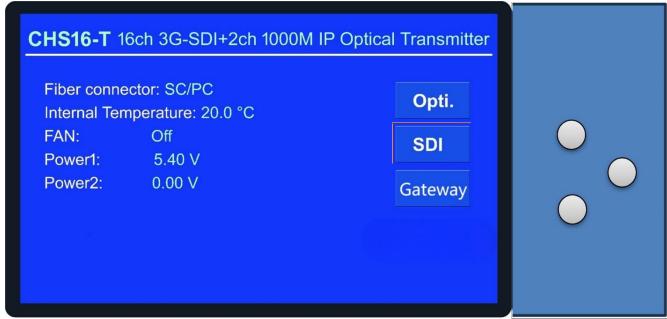


Counterpart's Optical page of Receiver

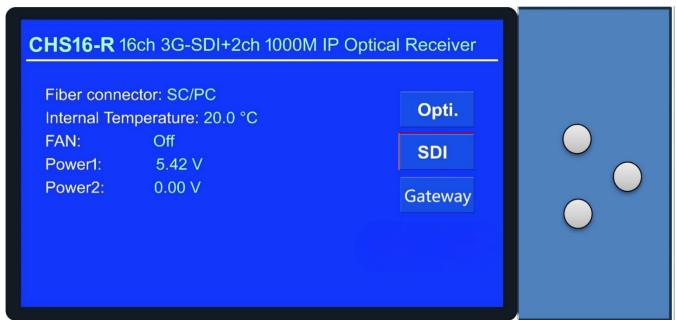




Press **Return** key on **Optical page** will return to the **Menu page** as follow:

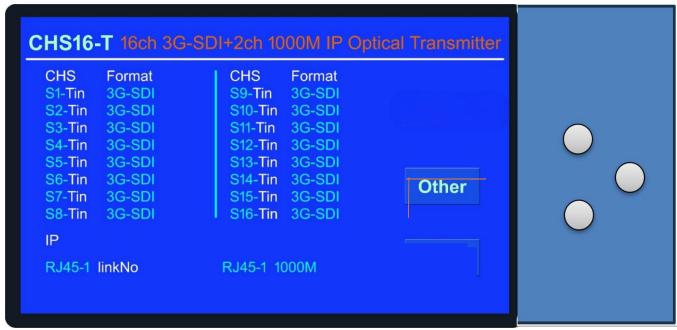


Menu page of Transmitter



Menu page of Receiver

On Menu page, press Choose key and switch the cursor to SDI button. Then press Enter key, it will enter to the SDI Signal page as follow:



SDI Signal page of Transmitter







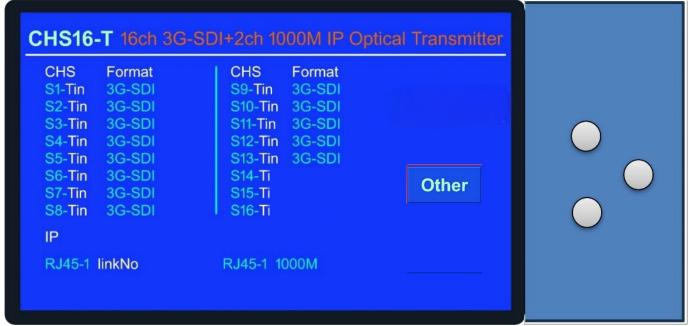
SDI Signal page of Receiver

On top of the page, it shows equipment's Model, name.

On the left, it shows the channels (in or out), Signal's format (3G-SDI, HD-SDI or SD-SDI), Optic's status. On the blow, it shows IP's status.

On the right, there are logo and Other button. when press Return key, it will go to Menu page, press Enter key, it will enter into counterpart's SDI signal page (for the receiver, it has all Optical Transmission channels, so, all transmitter's SDI information can be showed on the LCD of receiver; for transmitter, due to there is no transmitting back Optical channel, SDI information of Receiver can't be showed on the LCD of Transmitter). Press Return key, it will go to Menu page. Press Enter key, it will go to SDI signal page.

Press Enter key and it will enter into Counterpart's SDI Signal Page as follow:



Counterpart's SDI Signal page of Optical Transmitter



Counterpart's SDI Signal page of Optical Receiver

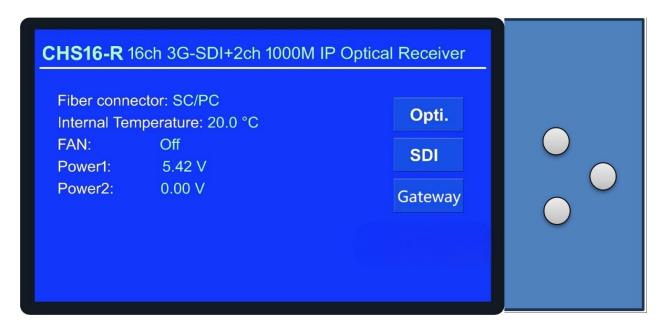




Press Return key on SDI signal page will Return to the Menu page as follow:

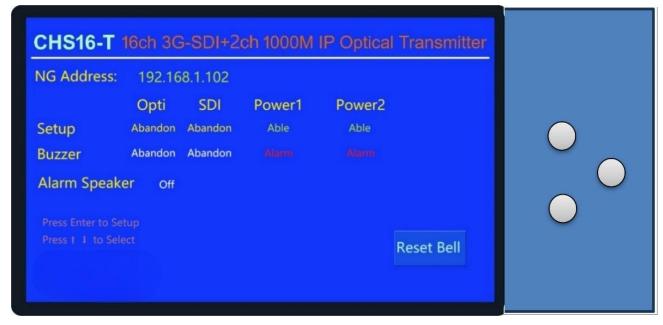


Menu page of Transmitter



Menu page of Receiver

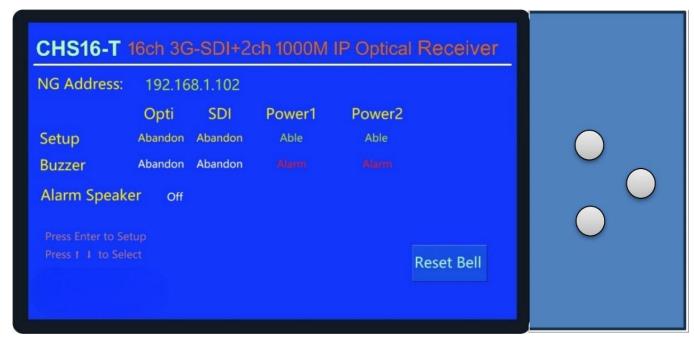
On Menu page, press Choose key and switch the cursor to Gateway button. Then press Enter key, it will enter to the Gateway setting page as follow:



Gateway setting page of Transmitter (Display mode)







Gateway setting page of Receiver (Display mode)

On the Top of the page, it shows equipment's Model and name.

On the left, it shows Gateway setting information including Network Gateway address(NG), Setup status, Buzzer status and Alarm speaker status.

On the bottom, there are logo, Other button, when press Return key, it will go to Menu page. Press Enter key, it will enter into Network setup mode. Press Return key, it will go to Menu page. Press Enter key again, it will go to Network display mode.

Press Enter key, it will enter into Network setup mode. The highlight area is green font with black background. Press Choose key, it will switch the setting item from Power2 -> Power1 -> SDI -> Opti. Press Return key, it will switch setting from Able to Abandon and vice versa. Press Enter key again, the setting is finished and will return to Network display mode.



Gateway setting page of Transmitter (Setting mode)



Gateway setting page of Receiver (Setting mode)





${\rm IV}.$ Technical Parameter

4.1 Performance Parameter

3G-SDI Input			
Input channels	16(one loop output f	or each ch	annel)
Input automatical	>80m (2970Mbps) (BELDEN8281 cable)		
cable balance	>250m (270Mbps) (BELDEN8281 cable)		
Input reflection loss	>16dB (270MHz)		>12dB (2970MHz)
Impedance	75Ω (connector	BNC
3G-SDI Output			
Output channels	16 (dual output ports for each channel)		
Output level	800mV _{P-P} ±10%		
Ascent/ descent	<0.8ns		
Max. Jitter	<0.1UI (2970Mbps) (100% color bar)		
	<0.2UI (2970Mbps) (SDI pathology signal)		
Impedance	75Ω	connect	or BNC
IP		'	
Channels	2		
Standard	1000BASE-T, 100BASE-TX , IEEE802.3Z/AB		
Bit rate	10M/100M/1000M self-adapt		
Connector	RJ45		
Optical parameter			
wavelength	1450nm, 11430nm, 1410nm, 1390nm, 1310nm, 1330nm, 1370nm, 1290nm, 1350nm, 1270nm		
Optical transmission power	-5±3dBm		0±3dBm
Optical receiving power	-22∼-3 dBm		-16~-3 dBm
Optical transmission distance	0~10km		
Connector	SC/UPC		
Power supply	AC100~245V <15W		
Size	19" 2U chasis, 430mm x 230mm x 86mm		





V. Notice

- **5.1** Fiber connector: this equipment's finer connector is SC/UPC, if misused, the output optical power will be reduced, maybe can affect the signal quality.
- **5.2** the fiber connector should be kept clean, to avoid dust block the fiber channel, and affect normal transmission.
- **5.3** receiver optical power should be within the distance scale, could not be too large of too small, do not more than $500\mu W$ eg. -3dBm, to avoid to burned the fiber receiving tube.
- **5.4** The input and output of optical transceiver are BNC, $75\Omega_{\circ}$

VI: Other notices

- 1, open the package, and keep all the material, in case of using for returning to prepare in the future.
- 2. check the package see if there is damage, if the package has been damaged, please check and confirm according to clause on shipment, then open the package and take out the packing list from the side, open the package and check each item according the packing list see if it is the whole goods, if anyone has been damaged, or lost, please contact with us...
- 3. During connect the cable of lightning and power supply surge protection, the protection method should be taken consideration, we will not be responsible for the damage by lightning or high power surge.
- 4. the chassis temperature of installed equipment could not be more than 65° C, in order to ensure the transmission index, the temperature in chassis should maintain at 25° C±25°C.
- 5. Install the front panel off frame

The electro-coating panel which factor have made holes, 19" chassis can be installed in 19" standard frame.

6. how to connect fiber and connector

Check fiber connector, when insert connector into the flange plate, Ceramic core of connector should insert into the flange and feel the activity spiral of spring is tight, and locked the connector fully, don't know insert the connector violently; when feel the is block in flange plate, then exit connector, and check the ceramic core and spring, insert the connector into the flange plate violently will lead to break the optical window.

We will be not responsible for repairing any broken of optical window.

All fiber connector should be capped by protection cap to avoid the dust and other dirt contaminated it when it will not be used.

WI:Maintain Service

7.1 Regarding of the equipment with trouble

For the equipment with trouble, it can be sent back to our company, we will repair or replace the equipment according the damaged situation. If the equipment is not under the guarantee, we will charge according to the material and labor cost.

Before repairing the equipment, it must be confirmed by us

7.2 The package of the equipment for repairing

When you ship the equipment, it is necessary to re-pack it, please according to the follow method, please put a label on it and write down your company's name, address and telephone, as well as the equipment's model, SN number, the description of the trouble

ACAUTION:

Use of controls or adjustment or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Important Notice:

Performance figures, data and any illustrative material provided in this data sheet are typical and must be specifically confirmed in writing by FIBERSTAMP before they become applicable to any particular order or contract. In accordance with the FIBERSTAMP policy of continuous improvement specifications may change without notice.

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Revision History

Revision	Date	Description
VO	July-8, 2025	Advance Release.

