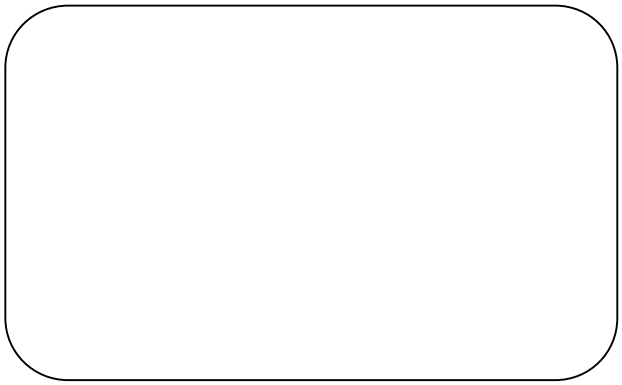
KBC
data delivered

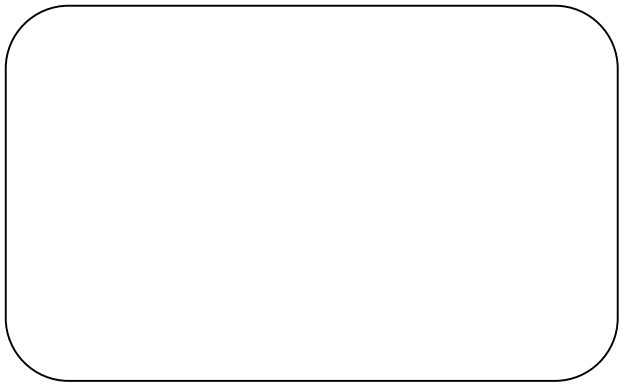
3U Chassis Transceiver



User Manual

Table of Contents

0. Product Type



Configuration

Fiber	☐ 1	☐ 2	☐ 3	☐ 4
	☐ 1310nm	☐ 1310nm/1550nm		
	☐ SM	☐ MM		
	☐ ST/PC	☐ SC/PC	☐ FC/PC	
Video	☐ 1	☐ 2	☐ 3	☐ 4
	☐ BNC	☐ DB9	☐ C3	
	☐ 8bit	☐ 10bit		
Data	☐ RS422	☐ RS232/RS422/RS485		
	☐ Return directional		☐ Bi-directional	
Contact Closure		☐ Bi-directional	☐ Forward directional	

1. Overview

1.1 Introduction

The 3U chassis series transceiver is designed using advanced ASIC and high-speed DSP technologies. This series employs multiplexing techniques to transmit and receive 1-4 channel of Video, 1-2 channel simplex or bi-directional Data over a single-mode or multi-mode optical fiber in all digital signaling with no compression; making it ideal for applications where input signal integrity and quality must be maintained and no loss should be induced. Because the series utilizes all-digital, non-compression technology, it is able to transmit signals without distortion; whereas the analog technology inherently noisy, low quality, long term instability and susceptible to electromagnetically and environmental interference. This series accepts a variety of video inputs, such as analog or digital video recorder, DVD/VCD, digital camera, and CCTV . PAL, NTSC and SECAM standards are supported. It supports standard RS232/RS422/2 wires RS485 or 4 wires RS485 data pan-tilt-zoom control signaling. Plug-and-Play design ensures ease of installation and no electrical or optical adjustment is required. LED indicators are provided for showing operating status.

The 3U chassis series is fully assembled using SMT components for stability and reliability.

1.2 Technical Specification

VIDEO		
Signal Level	1.0V_{P-P} typical, 1.5V_{P-P} max.,75Ω	
Sampling Resolution	8 bit	10 bit
Differential Gain	< 2%	< 1%
Differential Phase	< 2º	< 1º
Signal to Noise Ratio (SNR)	62dB typical	67dB typical
Connector Type	BNC / DB9/C3	

DATA	
Interface	RS232/RS422/2 wires RS485 or 4 wires RS485
RS-232 Data Rate	DC − 115.2kbps
RS-422/485 Data Rate	DC − 250Kbps
RS-422/485 Distance	0 ~ 1200m
RS-422/485 Signaling	Transparent to all RS422/RS485 signaling; Compatible to 2 wires RS485 or 4 wires RS485.
Connector Type	Terminal

CONTACT CLOSURE	
Contact Max. voltage/current	25V/0.8A(DC), 110V/0.4A(AC)
Connector Type	Terminal

OPTICAL	**SM**		**MM**	
Wavelength	1310nm	1550nm	1310nm	1550nm
Optical Out Power	≥ -13 dB	≥ -10 dB	≥ -13 dB	≥ -10 dB
Optical Sensitivity	≤ -30 dB	≤ -25 dB	≤ -26 dB	≤ -22 dB
Effective power budget	≤ 15 dB		≤ 12 dB	
Fiber Type	9/125μm		62.5/125μm	
Distance	0 ~ 25km		0 ~ 2km	

GENERAL	
Operating Temperature	-40 ~ 70˚C / -40 ~ +158ºF
Relative Humidity	0 ~ 95% non-condensing
Input Voltage	+5VDC, 1A
Mean Time Between Failure (MTBF)	> 100,000hrs
Enclosure Color	Silver
Housing	Standard 3U 19” chassis card

2. Package Contents

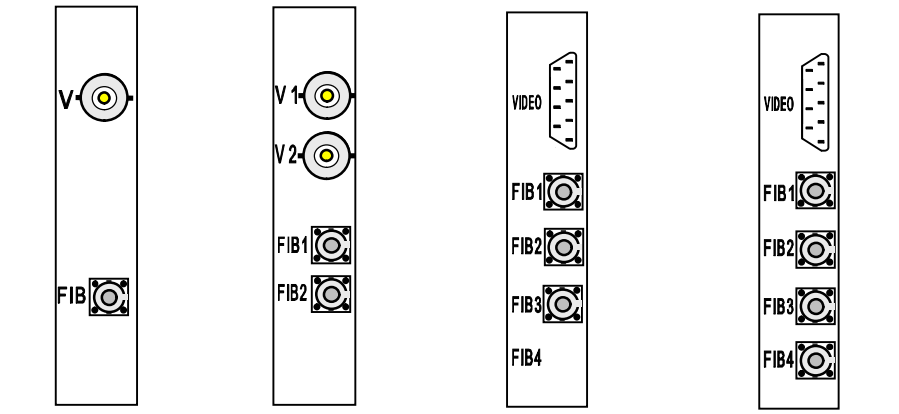
- ☐ One Transmitter
- ☐ One Receiver
- ☐ LED label for 3U Chassis Card
- ☐ One User Manual

Please contact dealer or distributor if part is missing or damaged.

3. Transmitter Enclosure

3.1 Video Transmitter

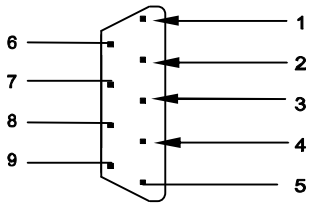
3.1.1 8 Bit Video Transmitter



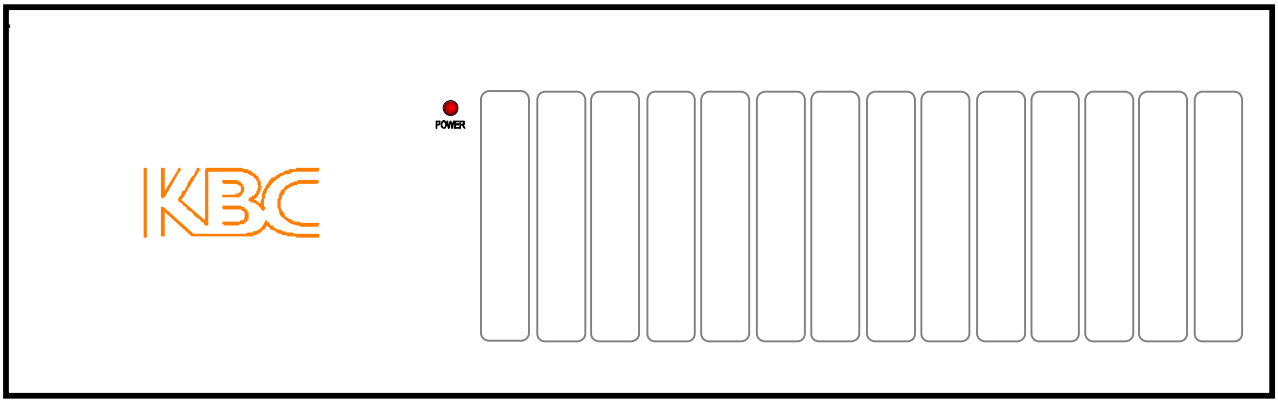
FxVA1-x1T-Bxx FxVA2-x2T-Bxx FxVA3-x3T-Bxx FxVA4-x4T-Bxx

Connectors:

FIB,FIB1-FIB4: Fiber Optic.
V,V1-V2: Video Input, BNC.
Video: Video Input, DB9. DB9 Pins assignment as below:



1	VIDEO1	Channel 1 Video, input
2	VIDEO2	Channel 2 Video, input
3	VIDEO3	Channel 3 Video, input
4	VIDEO4	Channel 4 Video, input
5	GND	Common Ground of Channel 1~4 Video



Transmitter Front View (3U chassis)

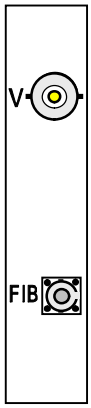
LEDs Definition:

POWER: Power Supply. **On** if power input is OK.

Off if no power present.

No other LED labels for Video Transmitter Cards.

3.1.2 10 Bit Video Transmitter



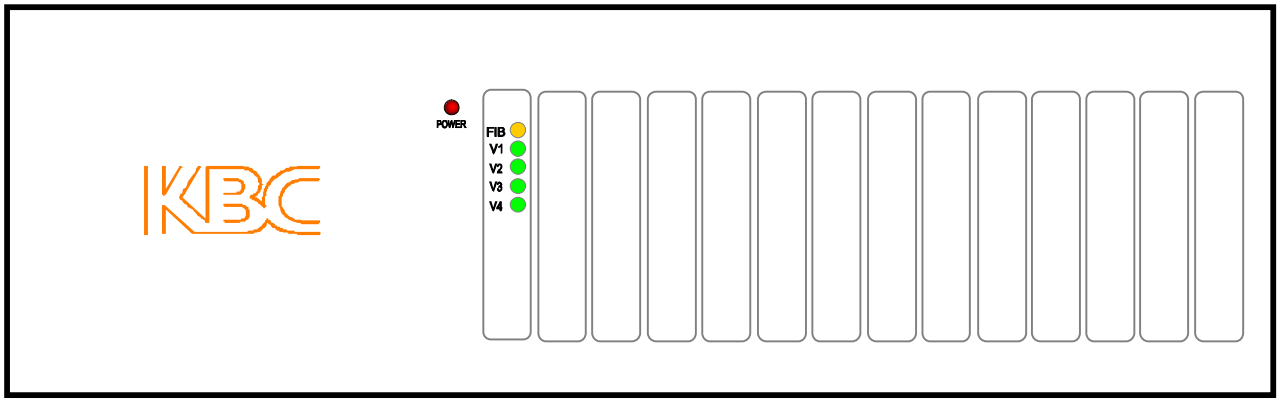
FxHA1-x1T-Bxx

Connectors:

FIB: Fiber Optic.

V: Video Input, BNC.

.

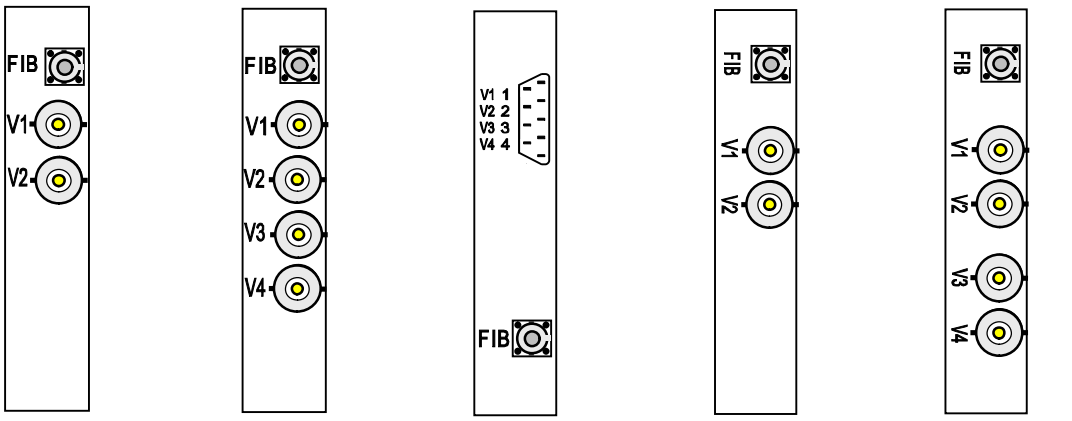


Transmitter Front View (3U chassis)

LEDs Definition:

POWER:	Power Supply.	**On** if power input is OK.
		Off if no power present.
FIB:	Fiber Optic	**Not** used.
V1:	Video.	**On** if video input is OK.
		Off if no video present.
V2-V4:	Video.	**Not** used.

3.2 Video Multiplexer Transmitter



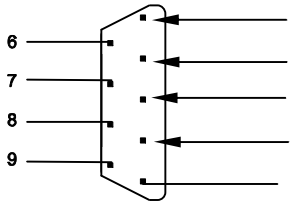
FxVA2-x1T-Bxx | FxVA4-x1T-BSx FxVA4-x1T-BFx | FxVA4-x1T-BCx | FxHA2-x1T-Bxx | FxHA4-x1T-Bxx

Connectors:

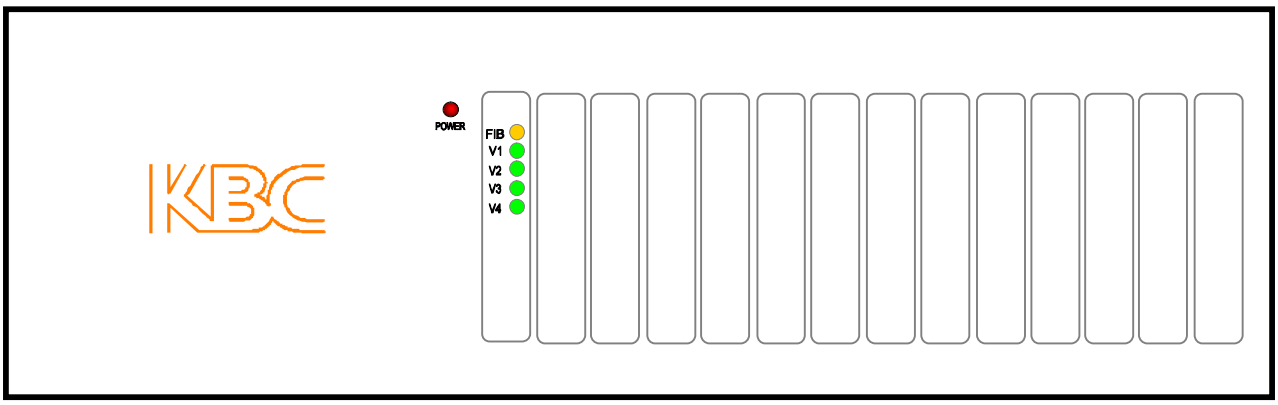
FIB: Fiber Optic.

V1-V4: Video Input, BNC.

V1-V4: Video Input, DB9. DB9 Pins assignment as below:



1	VIDEO1	Channel 1 Video, Input
2	VIDEO2	Channel 2 Video, Input
3	VIDEO3	Channel 3 Video, Input
4	VIDEO4	Channel 4 Video, Input
5	GND	Common Ground of Channel 1~4 Video



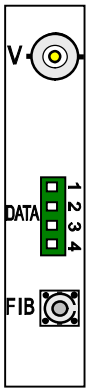
Transmitter Front View (3U chassis)

LEDs Definition:

POWER:	Power Supply.	**On** if power input is OK.
		Off if no power present.
FIB:	Fiber Optic.	**Not** used.
V1-V4:	Video.	**On** if video input is OK.
		Off if no video present.

3.3 Video Transmitter with return Data

3.3.1 8 Bit Video Transmitter with return Data



FxVA1-DC1-x1T-Bxx

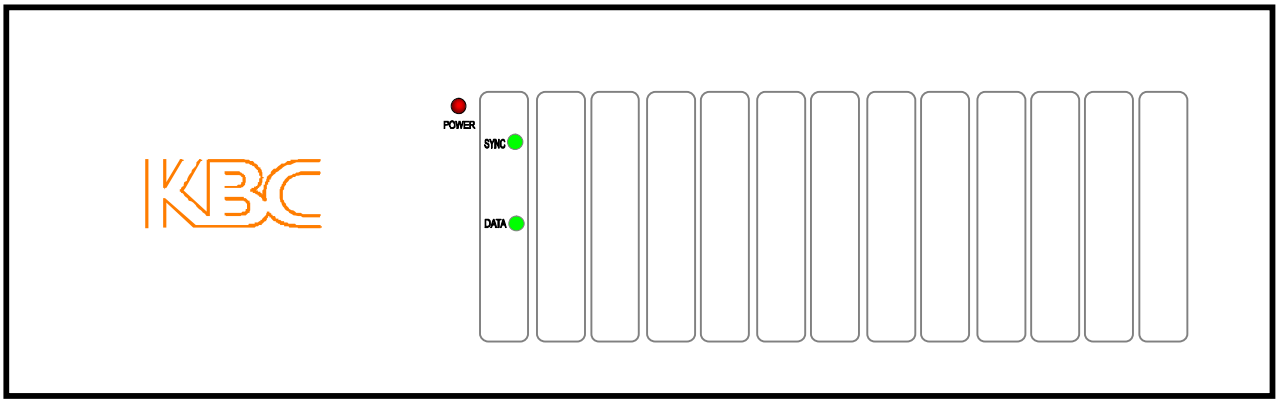
Connectors:

FIB: Fiber Optic.

V: Video Input, BNC.

DATA: RS422 Data, Terminal. Terminal pins assignment as below:

1	RXD+	Data receive signal “+”, output
2	RXD−	Data receive signal “−”, output
3	NC	
4	NC	

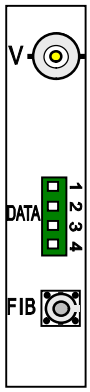


Transmitter Front View (3U chassis)

LEDs Definition:

POWER:	Power Supply.	**On** if power input is OK.
		Off if no power present.
SYNC:	Fiber Link and Video.	**Flash** if the link is not OK.
		Off if the link is OK but the video is not OK.
		On if the link and the video are OK.
DATA:	Data Receive.	**Flash** if data being received.
		Off if no data being received.

3.3.2 10 Bit Video Transmitter with return Data



FxHA1-DC1-x1T-Bxx

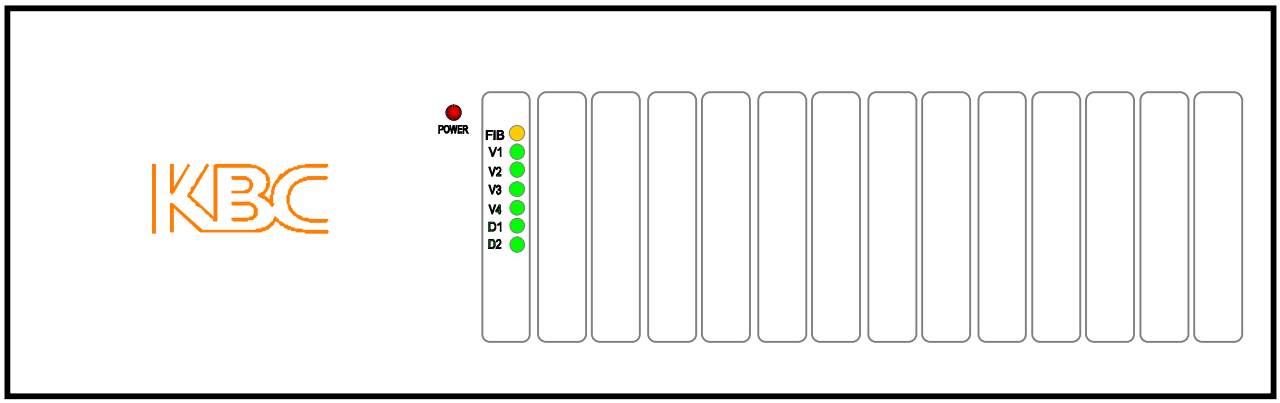
Connectors:

FIB: Fiber Optic.

V: Video Input, BNC.

DATA: RS422 Data, Terminal. Terminal pins assignment as below:

1	RXD+	Data receive signal "+", output
2	RXD−	Data receive signal "−", output
3	NC	
4	NC	



Transmitter Front View (3U chassis)

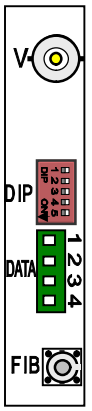
LEDs Definition:

POWER:	Power Supply.	**On** if power input is OK.
		Off if no power present.
FIB:	Fiber Link.	**Off** if link continuity is good.
		On if no link continuity.
V1:	Video.	**On** if video input is OK.
		Off if no video present.
D1:	Data Receive.	**Flash** if data being received.
		Off if no data being received.

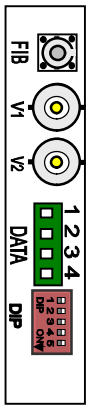
The other LEDs are not used.

3.4 Video Transmitter with Bi-directional Data

3.4.1 1 Fiber



FxVA1-DB1-x1T-Bxx
FxHA1-DB1-x1T-Bxx



FxHA2-DB1-x1T-Bxx

FxVA2-DB1-x1T-Bxx

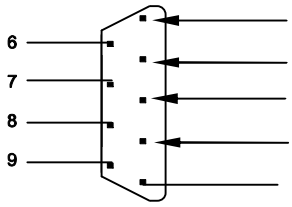
FxVA4-DB1-x1T-BSx
FxVA4-DB1-x1T-BFx

FxVA4-DB1-x1T-BCx

Connectors:

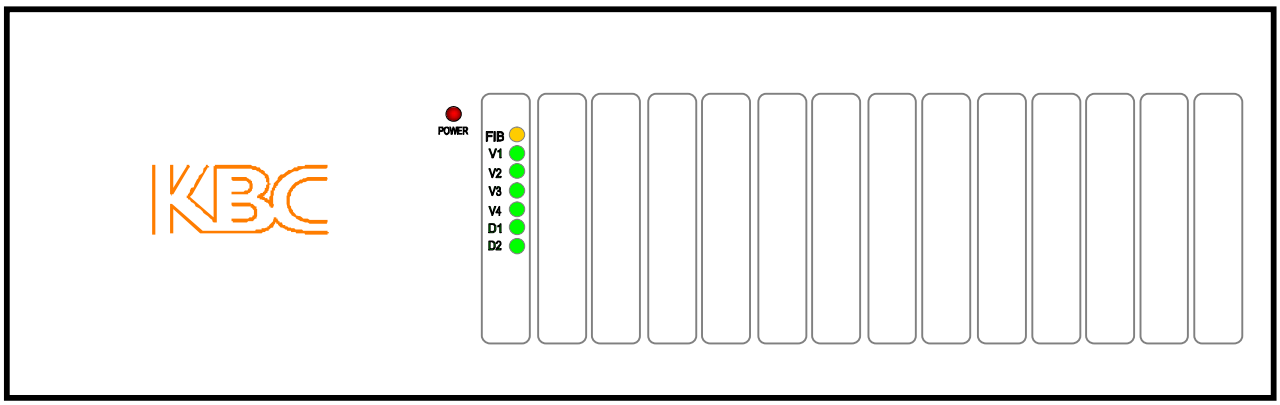
FIB: Fiber Optic.

V,V1-V4: Video Input, BNC or DB9. DB9 pins assignment as below:



1	VIDEO1	Channel 1 Video, input
2	VIDEO2	Channel 2 Video, input
3	VIDEO3	Channel 3 Video, input
4	VIDEO4	Channel 4 Video, input
5	GND	Common Ground of Channel 1~4 Video

DATA: RS232/RS422/2 wires RS485 or 4 wires RS485 compatible. Terminal pins assignment and DIP Switch setting refer to Table 1 and Table2 in section 5. Data Block Connections and DIP Switch Setting.



Transmitter Front View (3U chassis)

LEDs Definition:

POWER:	Power Supply.	**On** if power input is OK.
		Off if no power present.
FIB:	Fiber Link.	**Off** if link continuity is good.
		On if no link continuity.
V1- V4:	Channel 1-4 Video.	**On** if video input is OK.
		Off if no video present.

D1: RS232/RS422/ 4 wires RS485 Transmit Data, **Flash** if data being transmitted.
Off if no data being transmitted.

2 wires RS485 Transmit/ Receive Data, **Flash** if there is activity.

D2: RS232/RS422/ 4 wires RS485 Receive Data, **Flash** if data being received.
Off if no data being received.

2 wires RS485 Transmit/ Receive Data, **Not** used.

3.4.2 2 Fibers

FxVA2-DB2-x2T-Bxx

Connectors:

FIBa: Channel 1 Fiber Optic.

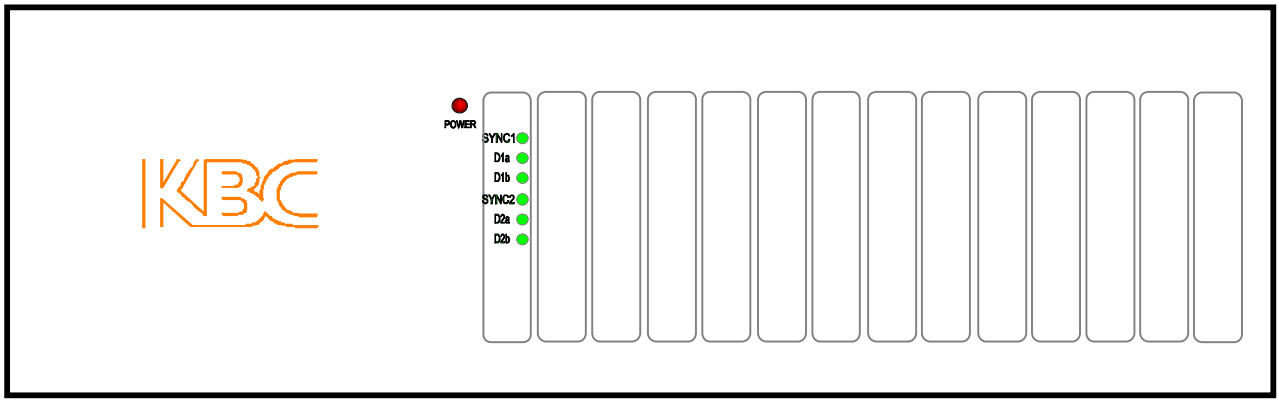
FIBb: Channel 2 Fiber Optic.

Va: Channel 1 Video input, C3.

Vb: Channel 2 Video input, C3.

Da: Channel1 Data, RS232/RS422/2 wires RS485 or 4 wires RS485 compatible. Terminal pins assignment and DIP Switch setting refer to Table 1 and Table2 in section 5. Data Block Connections and DIP Switch Setting.

Db: Channel2 Data, RS232/RS422/2 wires RS485 or 4 wires RS485 compatible. Terminal pins assignment and DIP Switch setting refer to Table 1 and Table2 in section 5. Data Block Connections and DIP Switch Setting.



Transmitter Front View (3U chassis)

LEDs Definition:

POWER: Power Supply. **On** if power input is OK.
Off if no power present.

SYNC1: Fiber Link 1 and Video 1. **Flash** if the link is not OK.
Off if the link is OK but the video is not OK.
On if the link and the video are OK.

SYNC2: Fiber Link 2 and Video 2. **Flash** if the link is not OK.
Off if the link is OK but the video is not OK.
On if the link and the video are OK.

D1a: Channel1, RS232/RS422/ 4 wires RS485 Transmit Data.
Flash if data being transmitted.
Off if no data being transmitted.

Channel1, 2 wires RS485 Transmit/ Receive Data.
Flash if there is activity.

D1b: Channel1, RS232/RS422/ 4 wires RS485 Receive Data.
Flash if data being received.
Off if no data being received.

Channel1,2 wires RS485 Transmit/ Receive Data.
Not used.

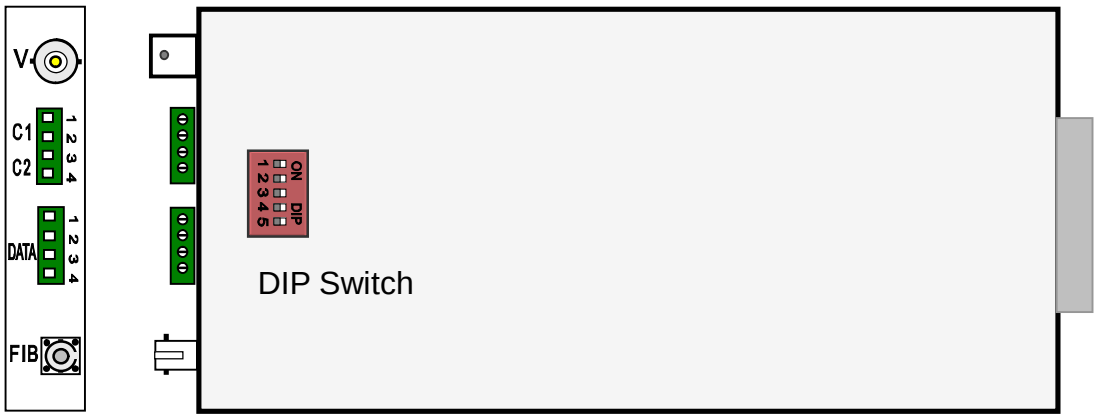
D2a: Channel2, RS232/RS422/ 4 wires RS485 Transmit Data.
Flash if data being transmitted.
Off if no data being transmitted.

Channel2, 2 wires RS485 Transmit/ Receive Data.
Flash if there is activity.

D2b: Channel2, RS232/RS422/ 4 wires RS485 Receive Data.
Flash if data being received.
Off if no data being received.

Channel2, 2 wires RS485 Transmit/ Receive Data.
Not used.

3.5 Video Transmitter with Bi-directional Data and Contact Closure



FxVA1-DB1-IB1-x1T-Bxx

Connectors:

FIB: Fiber Optic.

V: Video input ,BNC.

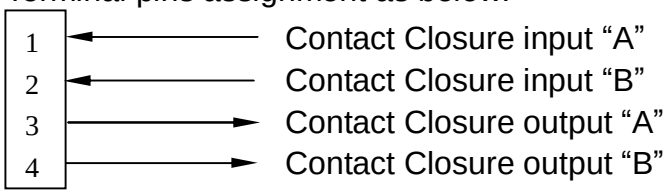
DATA: RS232/RS422/2 wires RS485 or 4 wires RS485 compatible. Terminal pins

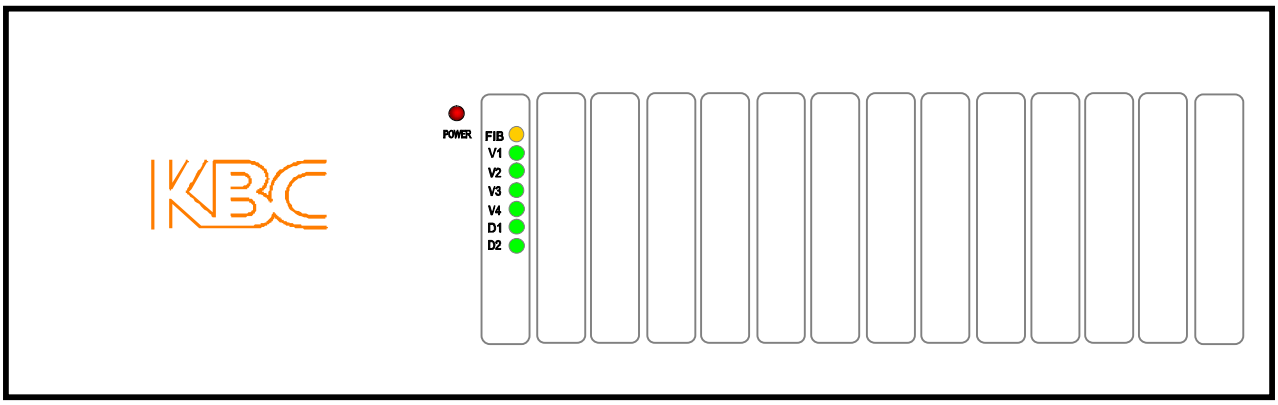
assignment and DIP Switch setting refer to Table 1 and Table2 in section 5. Data Block Connections and DIP Switch Setting.

C1: Contact Closure, input.

C2: Contact Closure, output. The Contact Closure state, Open or Close, of the contact closure on the transmitter end follows the state of the contact closure on the receiver end. i.e. if the contact on the receiver end is Close, the contact on the transmitter end is made to be Close. If the contact on the receiver end is Open, the contact on the transmitter end is made to be Open.

Terminal pins assignment as below:



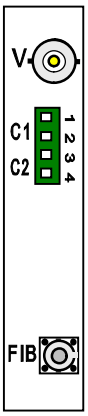


Transmitter Front View (3U chassis)

LEDs Definition:

POWER:	Power Supply.	**On** if power input is OK.
		Off if no power present.
FIB:	Fiber Link.	**Off** if link continuity is good.
		On if no link continuity.
V1:	Video.	**On** if video input is OK.
		Off if no video present.
V2-V4:	Video.	**Not** used.
D1:	RS232/RS422/ 4 wires RS485 Transmit Data.	**Flash** if data being transmitted.
		Off if no data being transmitted.
	2 wires RS485 Transmit/ Receive Data.	**Flash** if there is activity.
D2:	RS232/RS422/ 4 wires RS485 Receive Data.	**Flash** if data being received.
		Off if no data being received.
	2 wires RS485 Transmit/ Receive Data.	**Not** used.

3.6 Video Transmitter with Contact Closure

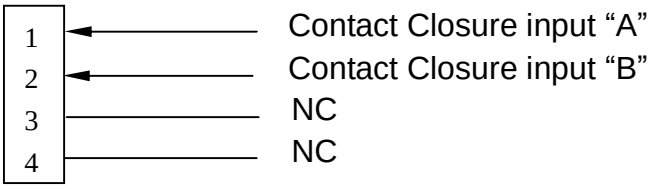


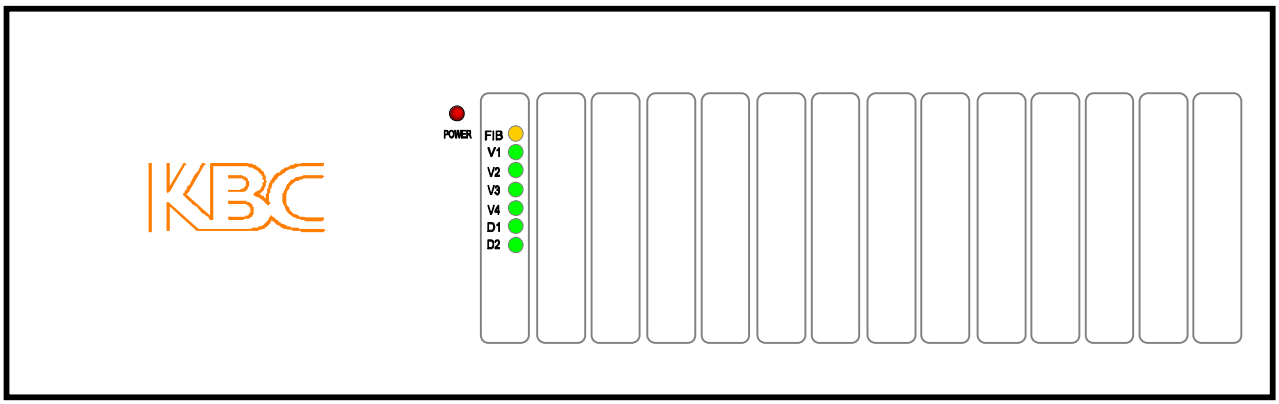
FxVA1-IA1-x1T-Bxx

Connectors:

FIB : Fiber Optic.
V: Video input ,BNC.
C1: Contact Closure ,Input.
C2: Reserved.

Terminal pins assignment:





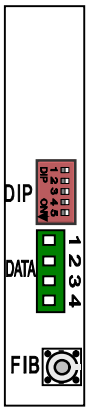
Transmitter Front View (3U chassis)

LEDs Definition:

POWER:	Power Supply.	**On** if power input is OK.
		Off if no power present.
FIB:	Fiber Link.	**Not** used.
V1:	Video.	**On** if video input is OK.
		Off if no video present.
D1:	Contact Closure.	**On** if the contact closure is closed.
		Off if the contact closure is open.

The other LEDs are not used.

3.7 Bi-directional Data Transmitter

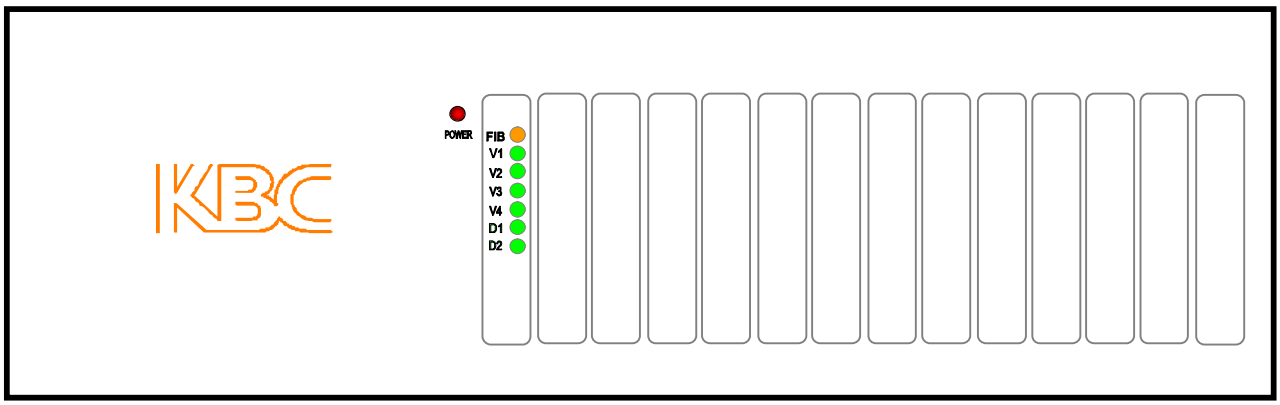


FxDB1-x1T-Bxx

Connectors:

FIB: Fiber Optic.

DATA: RS232/RS422/2 wires RS485 or 4 wires RS485 compatible, Terminal. Terminal pins assignment and DIP Switch setting refer to Table 1 and Table2 in section 5. Data Block Connections and DIP Switch Setting.



Transmitter Front View (3U chassis)

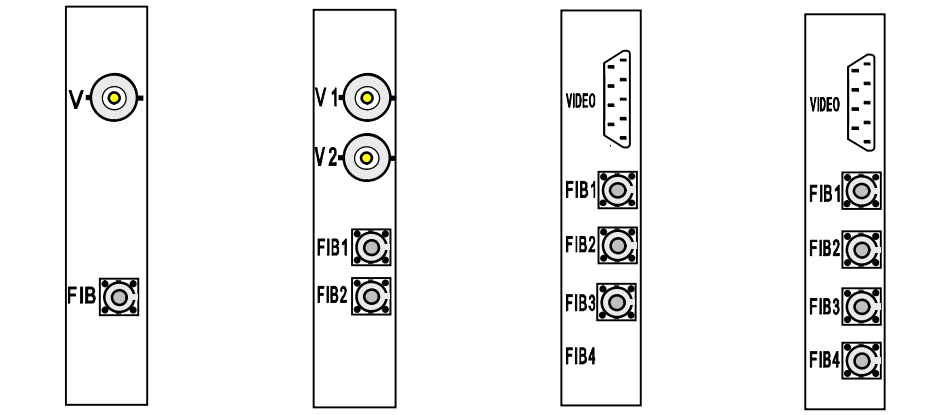
LEDs Definition:

POWER:	Power Supply.	**On** if power input is OK.
		Off if no power present.
FIB:	Fiber Link.	**Off** if link continuity is good.
		On if no link continuity.
V1-V4:	Video.	**Not** used.
D1:	RS232/RS422/ 4 wires RS485 Transmit Data.	**Flash** if data being transmitted.
		Off if no data being transmitted.
	2 wires RS485 Transmit/ Receive Data.	**Flash** if there is activity.
D2:	RS232/RS422/ 4 wires RS485 Receive Data.	**Flash** if data being received.
		Off if no data being received.
	2 wires RS485 Transmit/ Receive Data.	**Not** used.

4. Receiver Enclosure

4.1 Video Receiver

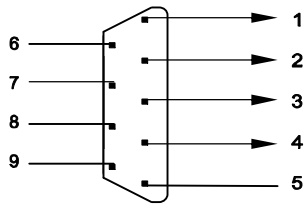
4.1.1 8 Bit Video Receiver



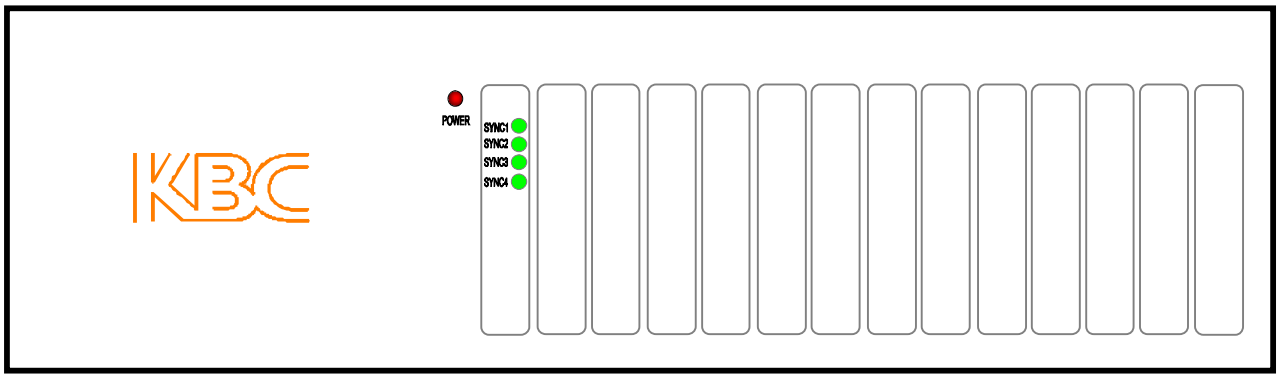
FxVA1-x1R-Bxx FxVA2-x2R-Bxx FxVA3-x3R-Bxx FxVA4-x4R-Bxx

Connectors:

FIB,FIB1-FIB4: Fiber Optic.
V,V1-V2: Video Output, BNC.
Video: Video Output, DB9. DB9 Pins assignment as below:



1	VIDEO1	Channel 1 Video, output
2	VIDEO2	Channel 2 Video, output
3	VIDEO3	Channel 3 Video, output
4	VIDEO4	Channel 4 Video, output
5	GND	Common Ground of Channel 1~4 Video



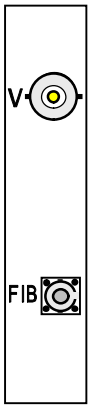
Receiver Front View (3U chassis)

LEDs Definition:

POWER: Power Supply. **On** if power input is OK.
Off if no power present.
SYNC1: Fiber Link 1 and Video 1. **Flash** if the link is not OK.
Off if the link is OK but the video is not OK.

		On if the link and the video are OK.
SYNC2:	Fiber Link 2 and Video 2.	**Flash** if the link is not OK.
		Off if the link is OK but the video is not OK.
		On if the link and the video are OK.
SYNC3:	Fiber Link 3 and Video 3.	**Flash** if the link is not OK.
		Off if the link is OK but the video is not OK.
		On if the link and the video are OK.
SYNC4:	Fiber Link 4 and Video 4.	**Flash** if the link is not OK.
		Off if the link is OK but the video is not OK.
		On if the link and the video are OK.

4.1.2 10 Bit Video Receiver

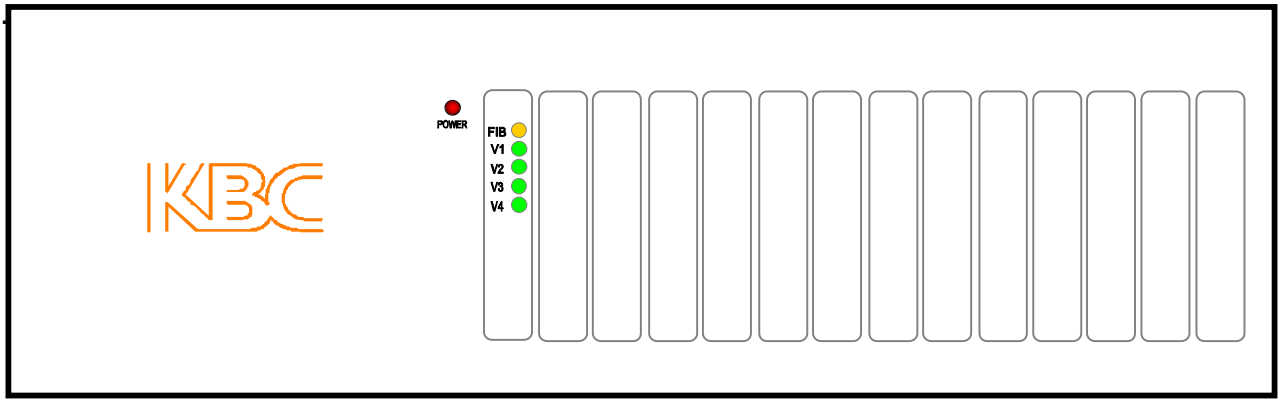


FxHA1-x1R-Bxx

Connectors:

FIB: Fiber Optic.

V: Video Output, BNC.



Receiver Front View (3U chassis)

LEDs Definition:

POWER:	Power Supply.	**On** if power input is OK.
		Off if no power present.
FIB:	Fiber Link.	**Off** if link continuity is good.

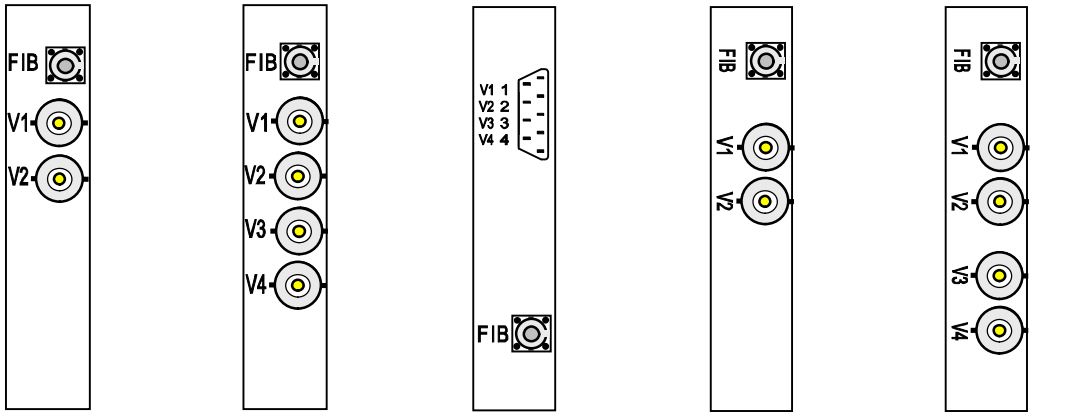
On if no link continuity.

V1: Video. **On** if video output is OK.

Off if no video present.

V2-V4: Video. **Not** used.

4.2 Video Multiplexer Receiver



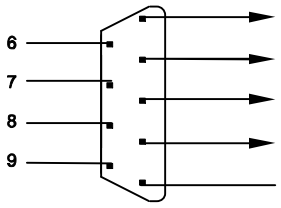
FxVA2-x1R-Bxx | FxVA4-x1R-BSx FxVA4-x1R-BFx | FxVA4-x1R-BCx | FxHA2-x1R-Bxx | FxHA4-x1R-Bxx

Connectors:

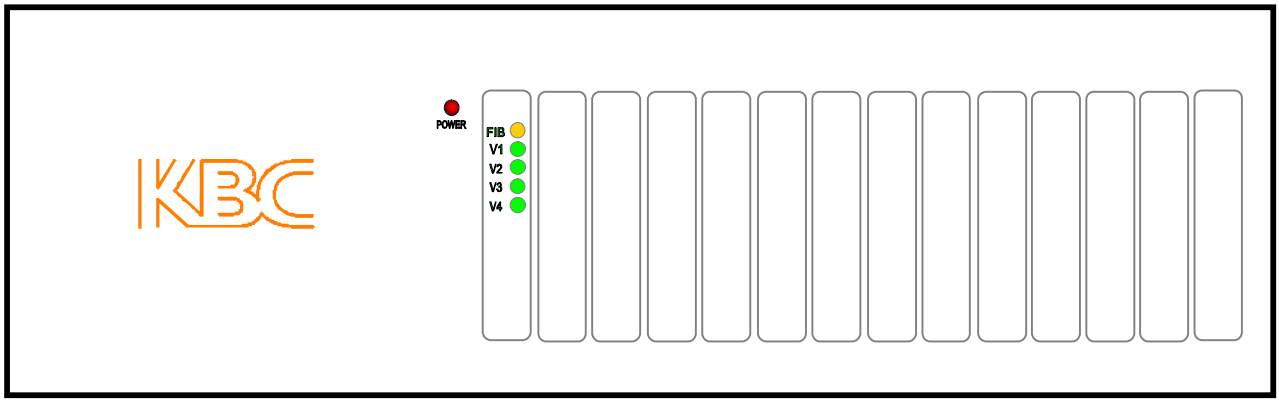
FIB: Fiber Optic.

V1-V4: Video Output, BNC.

V1-V4: Video Output, DB9 . DB9 Pins assignment as below:



1	VIDEO1	Channel 1 Video, output
2	VIDEO2	Channel 2 Video, output
3	VIDEO3	Channel 3 Video, output
4	VIDEO4	Channel 4 Video, output
5	GND	Common Ground of Channel 1~4 Video.



Receiver Front View (3U chassis)

LEDs Definition:

POWER: Power Supply. **On** if power input is OK.

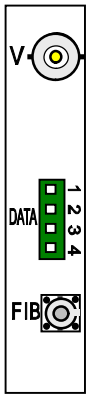
Off if no power present.

FIB: Fiber Link. **Off** if link continuity is good.

		On if no link continuity.
V1-V4:	Video.	**On** if video output is OK.
		Off if no video present.

4.3 Video Receiver with return Data

4.3.1 8 Bit Video Receiver with return Data



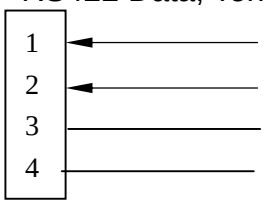
FxVA1-DC1-x1R-Bxx

Connectors:

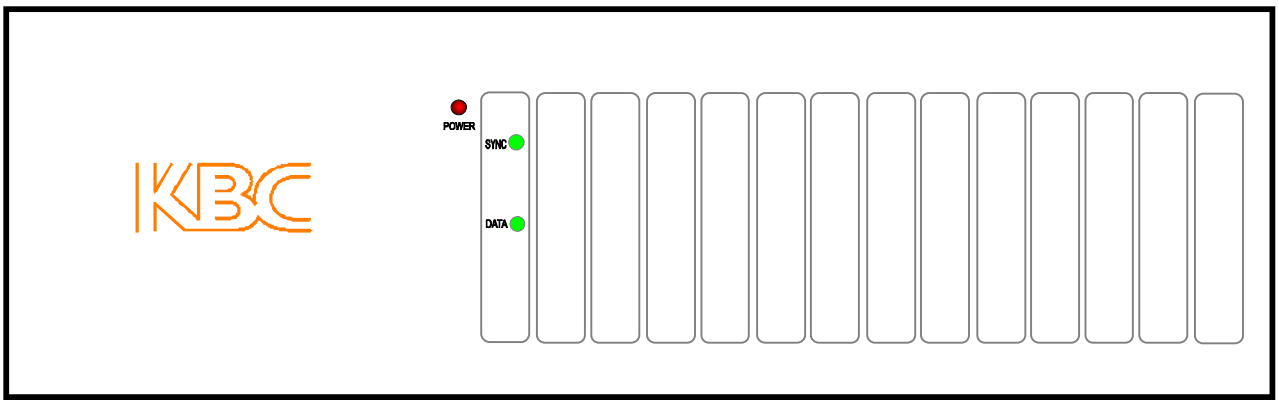
FIB: Fiber Optic.

V: Video Output, BNC.

DATA: RS422 Data, Terminal. Terminal pins assignment as below:



1	TXD+	Data transmit signal “+”, input
2	TXD−	Data transmit signal “−”, input
3	NC	
4	NC	



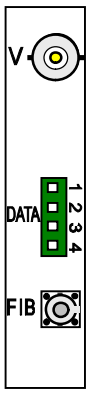
Receiver Front View (3U chassis)

LEDs Definition:

POWER:	Power Supply.	**On** if power input is OK.
		Off if no power present.
SYNC:	Fiber Link and Video.	**Flash** if the link is not OK.
		Off if the link is OK but the video is not OK.

		On if the link and the video are OK.
DATA:	Data Transmit.	**Flash** if data being transmitted.
		Off if no data being transmitted.

4.3.2 10 Bit Video Receiver with return Data



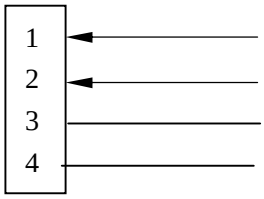
FxHA1-DC1-x1R-Bxx

Connectors:

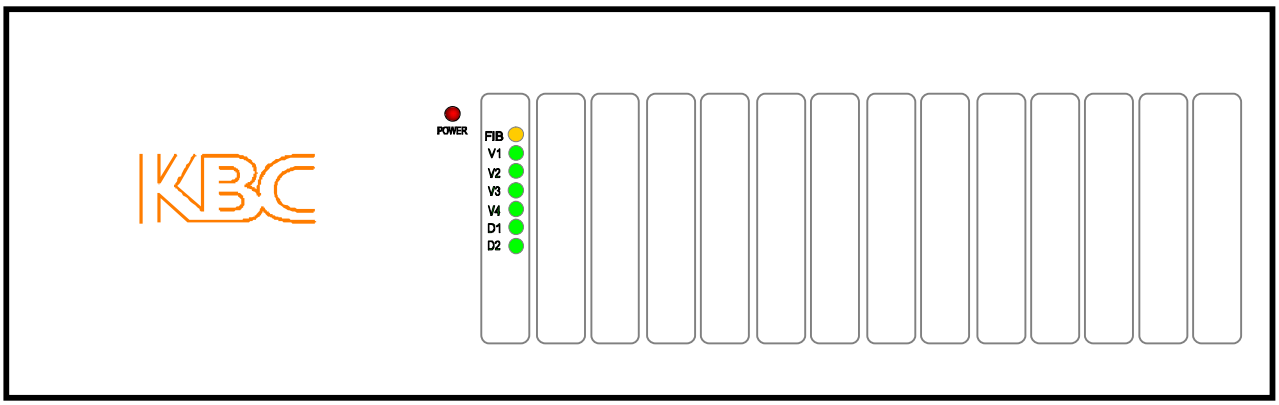
FIB: Fiber Optic.

V: Video Output, BNC.

DATA: RS422 Data, Terminal. Terminal pins assignment as below:



1	TXD+	Data transmit signal “+”, input
2	TXD−	Data transmit signal “−”, input
3	NC	
4	NC	



Receiver Front View (3U chassis)

LEDs Definition:

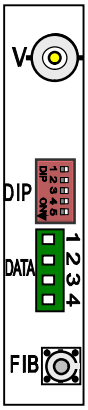
POWER:	Power Supply.	**On** if power input is OK.
		Off if no power present.
FIB:	Fiber Link.	**Off** if link continuity is good.
		On if no link continuity.

V1:	Video.	**On** if video output is OK. **Off** if no video present.
D1:	Data Transmit.	**Flash** if data being transmitted. **Off** if no data being transmitted.

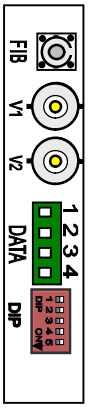
The other LEDs are not used.

4.4 Video Receiver with Bi-directional Data

4.4.1 1 Fiber



FxVA1-DB1-x1R-Bxx
FxHA1-DB1-x1R-Bxx



FxHA2-DB1-x1R-Bxx

FxVA2-DB1-x1R-Bxx

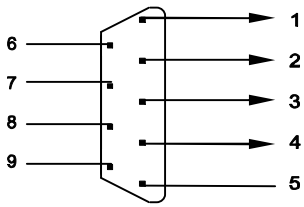
FxVA4-DB1-x1R-BSx
FxVA4-DB1-x1R-BFx

FxVA4-DB1-x1R-BCx

Connectors:

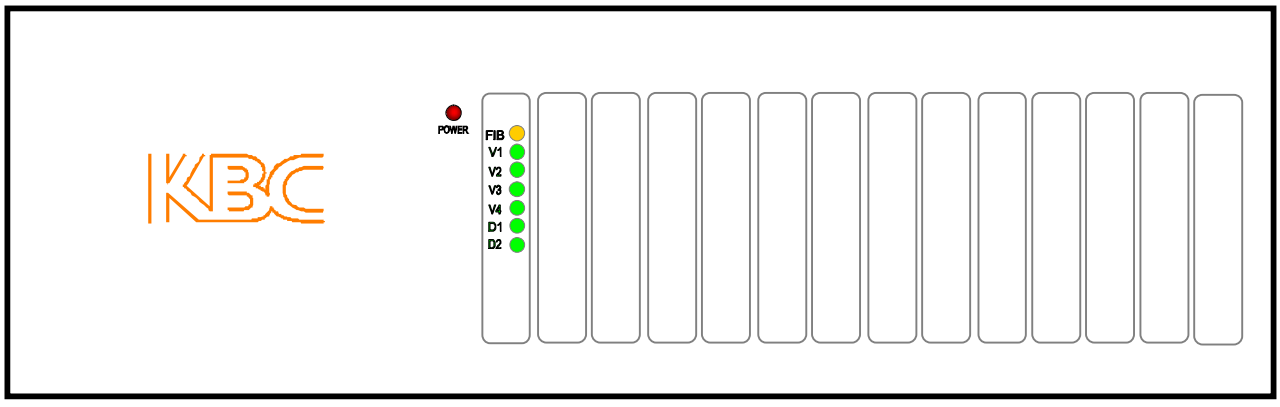
FIB: Fiber Optic.

V,V1-V4: Video Output, BNC or DB9. DB9 pins assignment as below.



1	VIDEO1	Channel 1 Video, output
2	VIDEO2	Channel 2 Video, output
3	VIDEO3	Channel 3 Video, output
4	VIDEO4	Channel 4 Video, output
5	GND	Common Ground of Channel 1~4 Video

DATA: RS232/RS422/2 wires RS485 or 4 wires RS485 compatible, Terminal pins assignment and DIP Switch setup refer to Table 1 and Table2. in section 5. Data Interface and DIP Setup.



Receiver Front View (3U chassis)

LEDs Definition:

POWER:	Power Supply.	**On** if power input is OK.
		Off if no power present.
FIB:	Fiber Link.	**Off** if link continuity is good.
		On if no link continuity.
V1- V4:	Channel 1-4 Video.	**On** if video output is OK.
		Off if no video present.

D1: RS232/RS422/ 4 wires RS485 Transmit Data, **Flash** if data being transmitted.

		Off if no data being transmitted.
	2 wires RS485 Transmit/ Receive Data.	**Flash** if there is activity.
D2:	RS232/RS422/ 4 wires RS485 Receive Data.	**Flash** if data being received.
		Off if no data being received.
	2 wires RS485 Transmit/ Receive Data.	**Not** used.

4.4.2 2 Fibers

FxVA2-DB2-x2R-Bxx

Connectors:

FIBa: Channel 1 Fiber Optic.

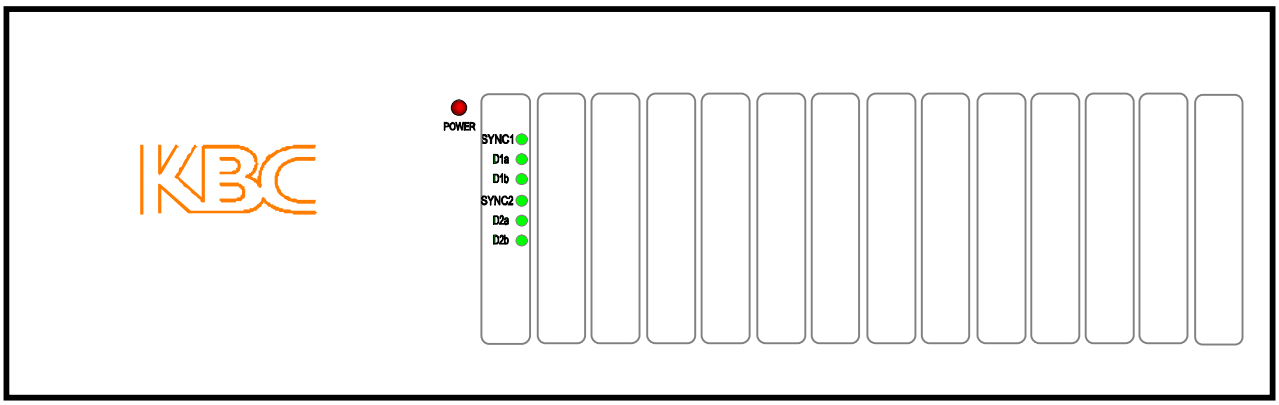
FIBb: Channel 2 Fiber Optic.

Va: Channel 1 Video output ,C3.

Vb: Channel 2 Video output ,C3.

Da: Channel1 Data, RS232/RS422/2 wires RS485 or 4 wires RS485 compatible. Terminal pins assignment and DIP Switch setting refer to Table 1 and Table2 in section 5. Data Block Connections and DIP Switch Setting.

Db: Channel2 Data, RS232/RS422/2 wires RS485 or 4 wires RS485 compatible. Terminal pins assignment and DIP Switch setting refer to Table 1 and Table2 in section 5. Data Block Connections and DIP Switch Setting.



Receiver Front View (3U chassis)

LEDs Definition:

POWER: Power Supply. **On** if power input is OK.

Off if no power present.

SYNC1: Fiber Link 1 and Video 1. **Flash** if the link is not OK.

Off if the link is OK but the video is not OK.

On if the link and the video are OK.

SYNC2: Fiber Link 2 and Video 2. **Flash** if the link is not OK.

Off if the link is OK but the video is not OK.

On if the link and the video are OK.

D1a: Channel1, RS232/RS422/ 4 wires RS485 Transmit Data.

Flash if data being transmitted.

Off if no data being transmitted.

Channel1, 2 wires RS485 Transmit/ Receive Data.

Flash if there is activity.

D1b: Channel1, RS232/RS422/ 4 wires RS485 Receive Data.

Flash if data being received.

Off if no data being received.

Channel1,2 wires RS485 Transmit/ Receive Data.

Not used.

D2a: Channel2, RS232/RS422/ 4 wires RS485 Transmit Data.

Flash if data being transmitted.

Off if no data being transmitted.

Channel2, 2 wires RS485 Transmit/ Receive Data.

Flash if there is activity.

D2b: Channel2, RS232/RS422/ 4 wires RS485 Receive Data.

Flash if data being received.

Off if no data being received.

Channel2, 2 wires RS485 Transmit/ Receive Data.

Not used.

4.5 Video Receiver with Bi-directional Data and Contact Closure

FxVA1-DB1-IB1-x1R-Bxx

Connectors:

FIB: Fiber Optic.

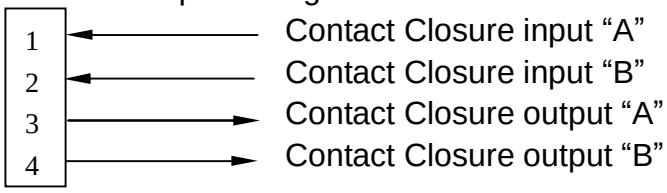
V: Video Output, BNC.

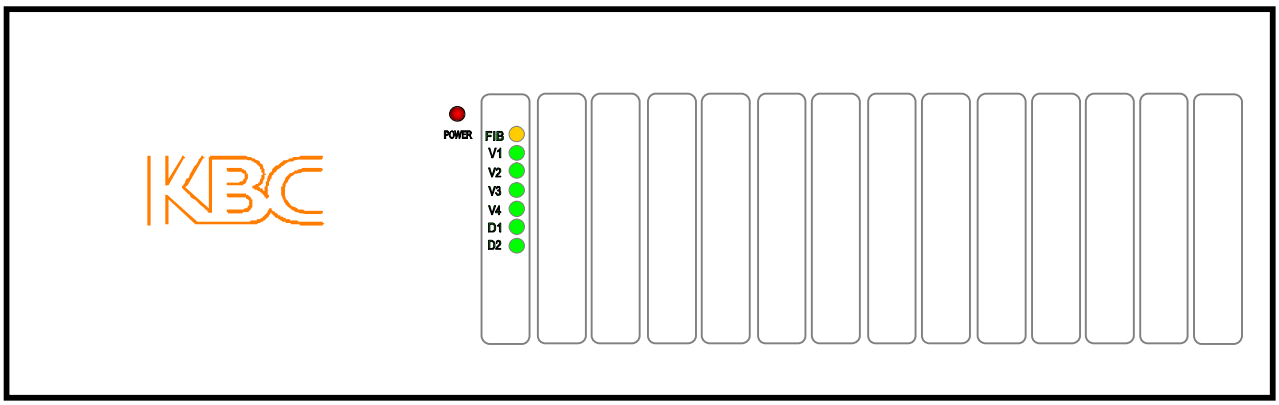
DATA: RS232/RS422/2 wires RS485 or 4 wires RS485 compatible. Terminal pins assignment and DIP Switch setting refer to Table 1 and Table2 in section 5. Data Block Connections and DIP Switch Setting.

C1: Contact Closure, input.

C2: Contact Closure, output. The Contact Closure state, Open or Close, of the contact closure on the receiver end follows the state of the contact closure on the transmitter end. I.e. if the contact on the transmitter end are Close, the contact on the receiver end is made to be Close. If the contact on the transmitter end is Open, the contact on the receiver end is made to be Open.

Terminal pins assignment as below:



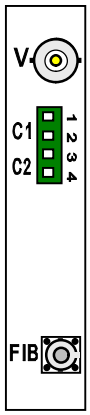


Receiver Front View (3U chassis)

LEDs Definition:

POWER:	Power Supply.	**On** if power input is OK.
		Off if no power present.
FIB:	Fiber Link.	**Off** if link continuity is good.
		On if no link continuity.
V1:	Video.	**On** if video output is OK.
		Off if no video present.
V2-V4:	Video.	**Not** used.
D1:	RS232/RS422/ 4 wires RS485 Transmit Data.	**Flash** if data being transmitted.
		Off if no data being transmitted.
	2 wires RS485 Transmit/ Receive Data.	**Flash** if there is activity.
D2:	RS232/RS422/ 4 wires RS485 Receive Data.	**Flash** if data being received.
		Off if no data being received.
	2 wires RS485 Transmit/ Receive Data.	**Not** used.

4.6 Video Receiver with Contact Closure

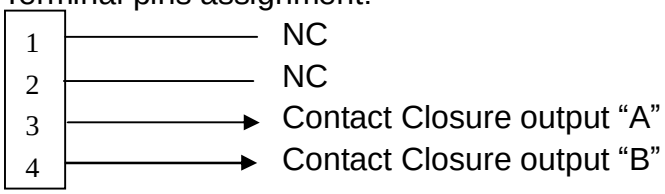


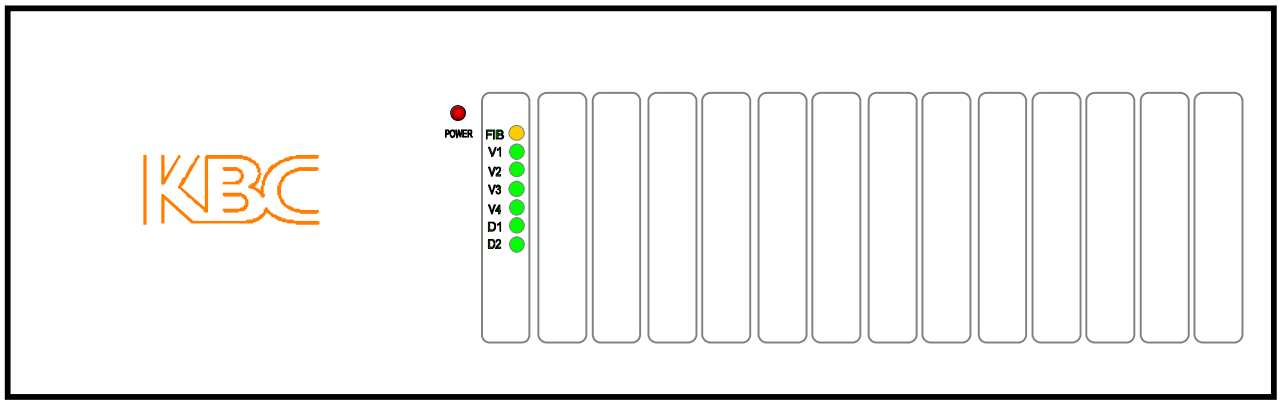
FxVA1-IA1-x1R-Bxx

Connectors:

FIB: Fiber Optic.
V: Video Output ,BNC.
C1: Reserved.
C2: Contact Closure output. The Contact Closure state, Open or Close, of the contact closure on the receiver end follows the state of the contact closure on the transmitter end. I.e. if the contact on the transmitter end are Close, the contact on the receiver end is made to be Close. If the contact on the transmitter end is Open, the contact on the receiver end is made to be Open.

Terminal pins assignment:





Receiver Front View (3U chassis)

LEDs Definition:

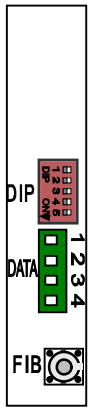
POWER: Power Supply. **On** if power input is OK.
Off if no power present.
FIB: Fiber Link. **Off** if link continuity is good.
On if no link continuity.

V1: Video. **On** if video output is OK.
Off if no video present.

D1: Contact Closure. **On** if the contact closure is closed.
Off if the contact closure is open.

The other LEDs are not used.

4.7 Bi-directional Data Receiver

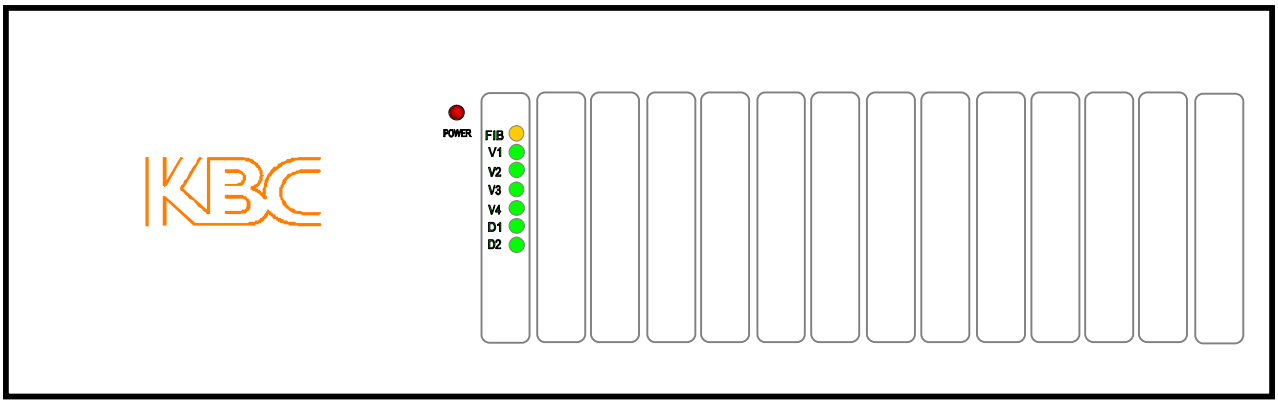


FxDB1-x1R-Bxx

Connectors:

FIB: Fiber Optic.

DATA: RS232/RS422/2 wires RS485 or 4 wires RS485 compatible, Terminal. Terminal pins assignment and DIP Switch setting refer to Table 1 and Table2 in section 5. Data Block Connections and DIP Switch Setting.



Receiver Front View (3U chassis)

LEDs Definition:

POWER: Power Supply. **On** if power input is OK.
Off if no power present.

FIB: Fiber Link. **Off** if link continuity is good.
On if no link continuity.

V1-V4: Video. **Not** used.

D1: RS232/RS422/ 4 wires RS485 Transmit Data. **Flash** if data being transmitted.

		Off if no data being transmitted.
	2 wires RS485 Transmit/ Receive Data.	**Flash** if there is activity.
D2:	RS232/RS422/ 4 wires RS485 Receive Data.	**Flash** if data being received.
		Off if no data being received.
	2 wires RS485 Transmit/ Receive Data.	**Not** used.

5. Data Block Connection and DIP Switch Setting

Table 1:

Pin Name / Data	1	2	3	4
RS232	**TXD** Data transmit signal; input	**RXD** Data receive signal; output	**GND** GND of RS232 data	**NC** （not connected）
RS422	**TXD+** Data transmit signal “+”, input	**TXD-** Data transmit signal “−”, input	**RXD+** Data receive signal “+”, output	**RXD-** Data receive signal “−”, output
4 wires RS485	**485 TX+** Data transmit signal “+”, input	**485TX-** Data transmit signal “−”, input	**485RX+** Data receive signal “+”, output	**485RX-** Data receive signal “−”, output
2 wires RS485	**NC** （not connected）	**NC** （not connected）	**485+** Data signal “+”	**485-** Data signal “−”

Table 2:

DIP Switch pin name	RS-232	RS-422	4wire RS-485	2wire RS-485
D1(RS422/4 wires RS485 input terminator 120Ω **)**	**OFF**	**ON/OFF ②**	**ON/OFF ②**	**OFF**
D2(2 wires RS485, RS422 or 4 wires RS485 output terminator 120Ω **)**	**OFF**	**ON/OFF ②**	**ON/OFF ②**	**ON/OFF ②**
D3(2 wires RS485 or 4 wires RS485 output Pull-up/Pull-down resistance **)**	**OFF**	**OFF**	**ON/OFF ①**	**ON/OFF ①**
D4(RS232/RS422/2 wires RS485 or 4 wires RS485 select **)**	**OFF**	**OFF**	**ON**	**ON**
D5(RS232/RS422/2 wires RS485 or 4 wires RS485 select **)**	**ON**	**OFF**	**OFF**	**ON**

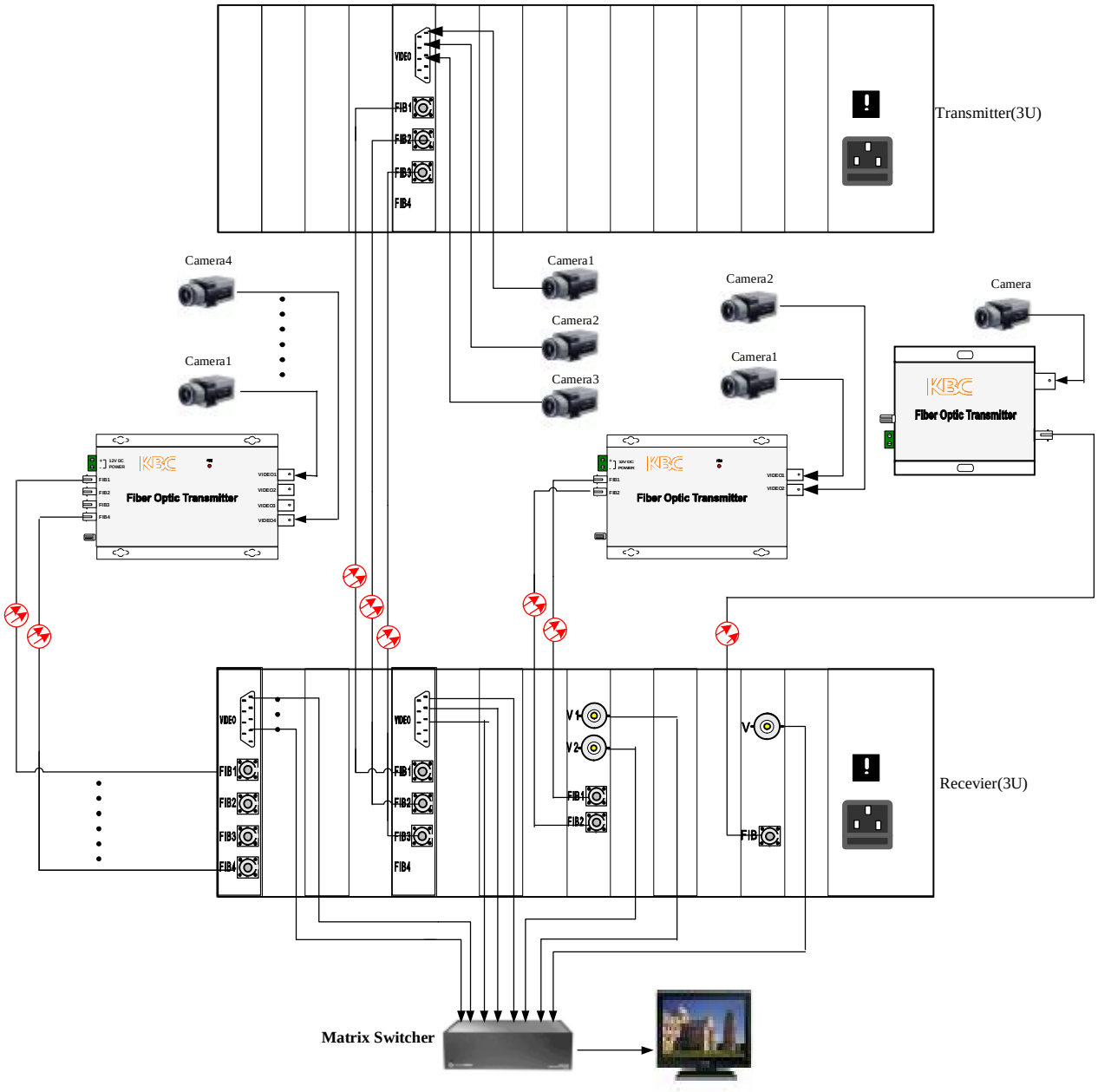
① The 2 wires RS485 OR 4 wires RS485 output bus pull-up and pull-down resistance usually should be switched on. But if there are several fiber transmitters or receivers, 2 wires RS485 or 4 wires RS485 output interfaces are connected together, only one of the 2 wires RS485 or 4 wires RS485 output Pull-up and Pull-down resistance should be switched on, the others should be switched off.

② The terminators can be switched on or off according to the RS485 bus connection. When the fiber transmitter or receiver is placed at the end point of bus, the terminators are usually switched on, but not be must, so the same as RS422.

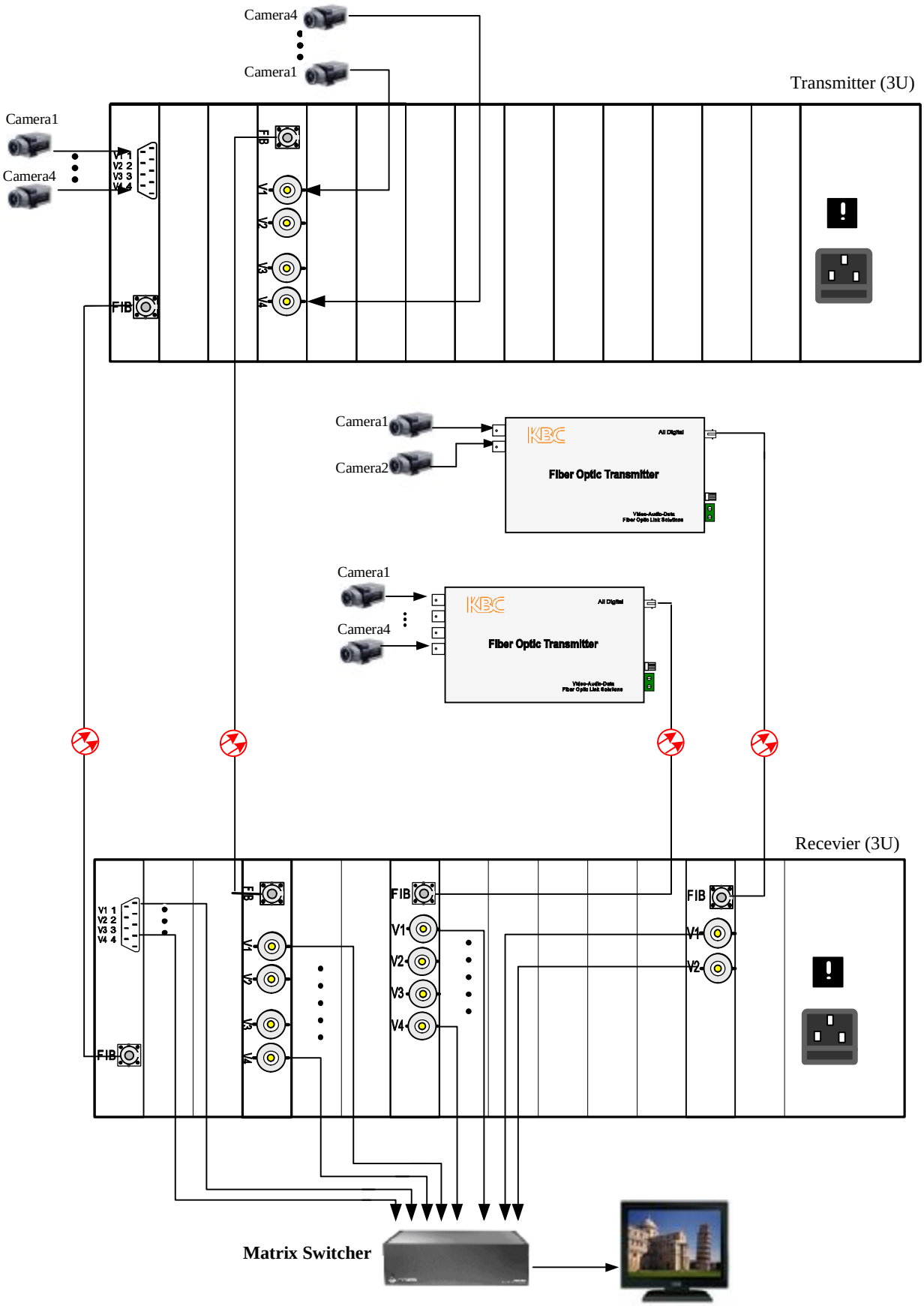
6. Caution

- Switch off all power supply before installation.
- Ensure fiber is properly aligned to the Fiber connector.
- Do NOT stare at the fiber core.

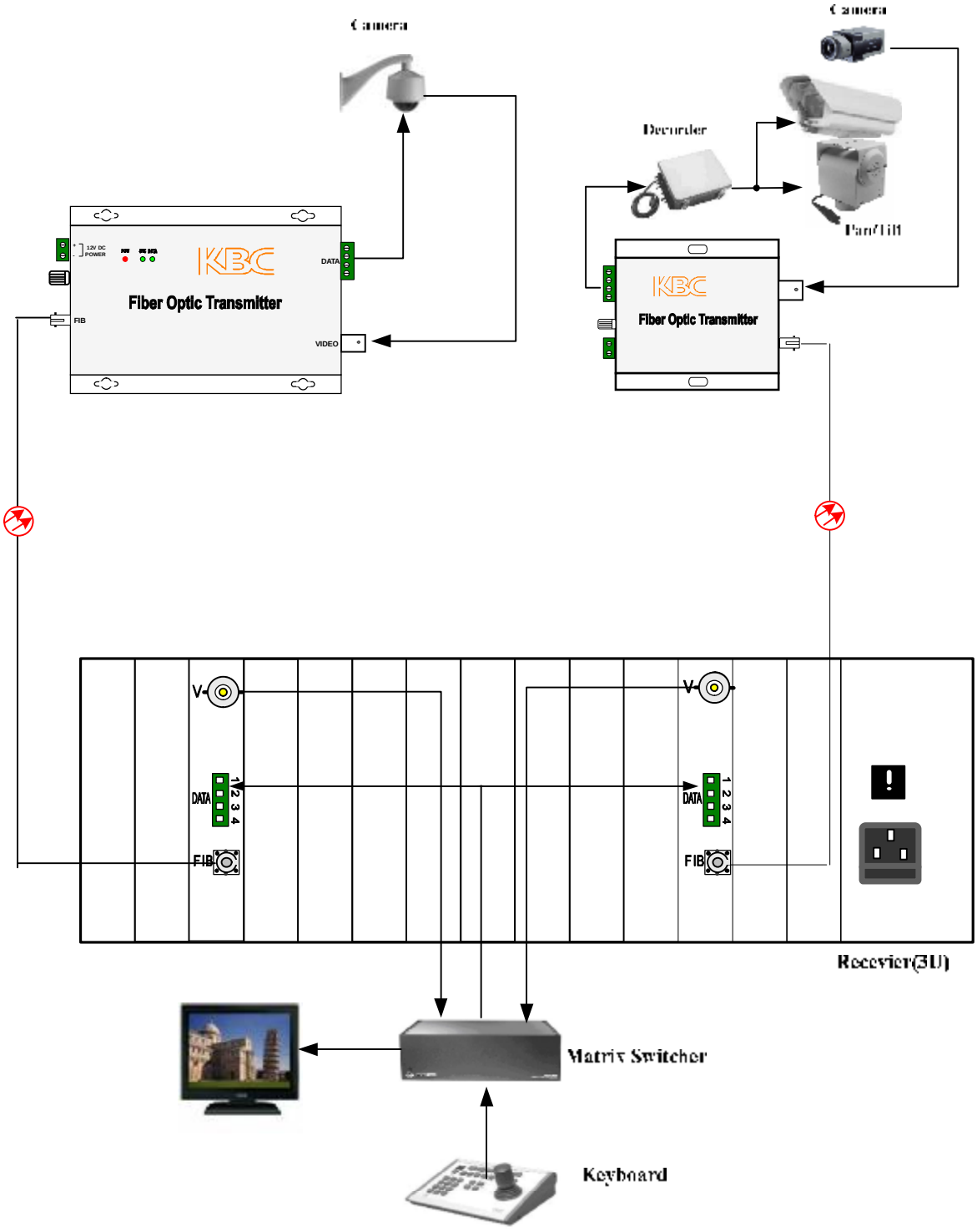
7. Typical Application



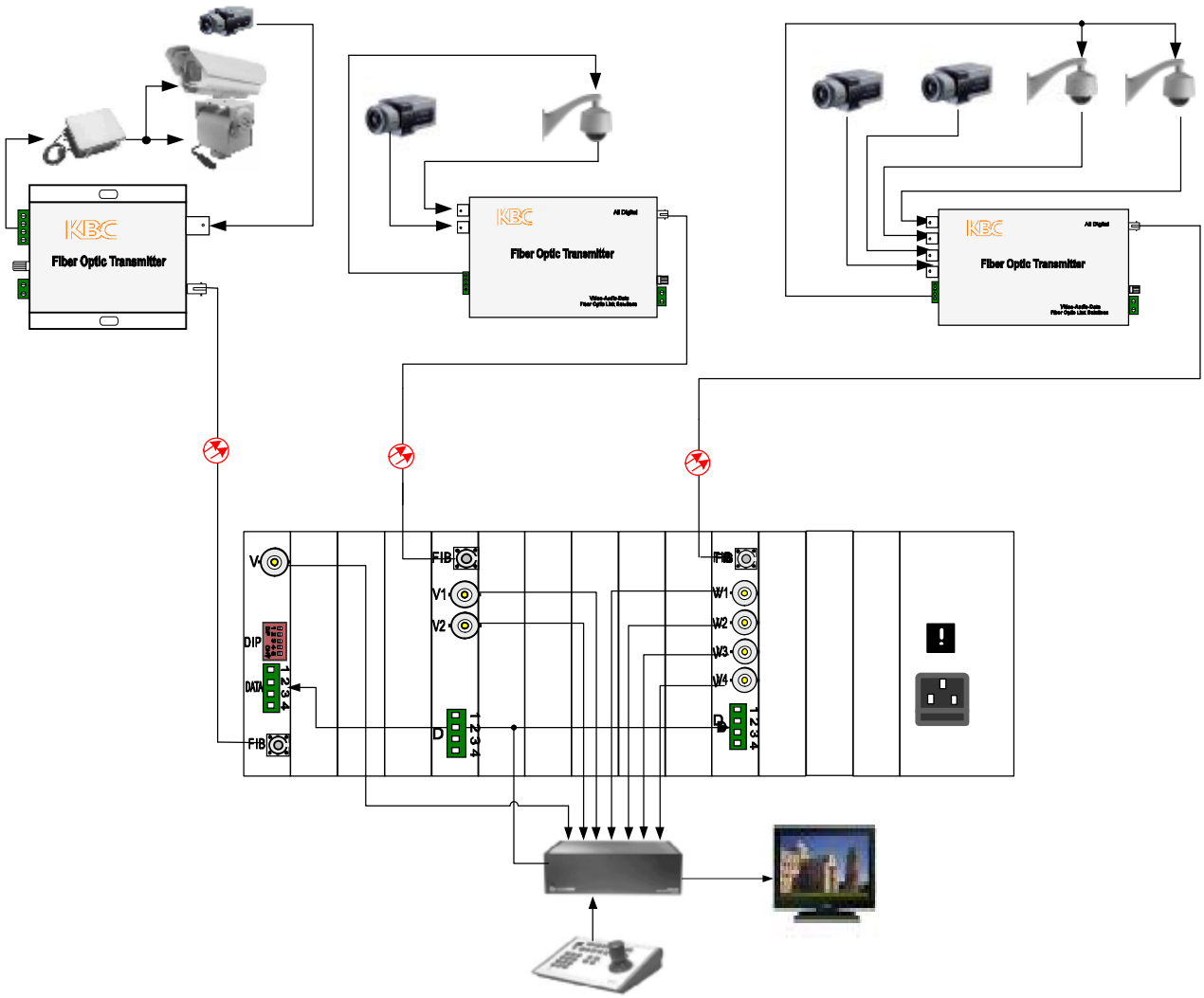
Typeical Application 1



Type Application 2



Type Application 3



Type Application 4

8. FR3 Series – Chassis Card Cage

PRODUCT DESCRIPTION

The KBC FR3xx series is a standard 19 inch rack mounted card cage that accommodates 3U chassis card products. Different models, such as transmitters and receivers, may be co-located in the same rack. All modules located within the rack are hot-swappable so that it is not necessary to power down the rack when removing or replacing modules. Rear card insertion provides an attractive appearance to the front panel.

☐ US Power Plug

☐ UK Power Plug

☐ Euro Power Plug

☐ Australian Power Plug

☐ 100-120VAC Input

☐ 100-240VAC Input

☐ 200-240VAC Input

SPECIFICATONS	
Input Voltage	☐ Input:100~240VAC, 2.5A, 50/60Hz Output:+5VDC, 16A
	☐ Input:100~120VAC, 3.15A, 50/60Hz Output:+5VDC, 20A
	☐ Input:100~120VAC, 3.0A, 50/60Hz Output:+5VDC, 26A
	☐ Input:200~240VAC, 1.5A, 50/60Hz Output:+5VDC, 20A
	☐ Input:200~240VAC, 2.0A, 50/60Hz Output:+5VDC, 26A
Slots	14 one-inch slots accommodating up to 14 single width modules.
Dimensions (L×W×H)	482.8mm×313.6mm×133mm
MTBF	> 100,000 Hours
Operation Temperature	-40º ~+70ºC, ambient
Storage Temperature	-40º ~+75ºC, ambient
Relative Humidity	0~95% (non-condensing)

9. Warranty

- **n** Repair
  - ¨ Please contact your local distributors when product is defective. Please apply RA in advance and prepay shipping cost when returning the defective product to us. We will pay the cost for sending it back to you.
  - ¨ Please attach a statement clearly describing the problem.
- **n** We will repair defective product under warranty free of charge to our customer.
- **n** 5 years warranty for product only.
- **n** Any unauthorized modification of hardware and software voids the warranty.
- **n** Warranty does not cover mishandling and/or abuse of the product.

Products comply with the following Safety Label for International Fiber Communication Equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful Interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at this own expense.

Warning
This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

10. Instruction of Disassembly

Instruction of Disassembly of KBC Product
(For EU Directive 2002/95/EEC—WEEE)

Tools Required:

1) 5 mm flat tip screwdriver
2) Φ3 cross tip screwdriver
3) Φ5 cross tip screwdriver
4) Size small snip nose pliers
5) 15 mm spanner

Steps for Disassembly:

1) Remove tightening screws of box cover (1 or 4-8 screws in general).
2) Remove lock nut for BNC with spanner.
3) Remove cover plate.
4) Remove tightening screws for printed circuit board (PCB).
5) In case the assembly has more than one PCB then continue removing the remain tightening screws until none left.
6) Use snip nose pliers to loose the nut of flange and then remove optic cable connector (jump wire).
7) Snip off power conducting cable and remove power switch /jack/etc..
8) Take out all PCBs.
9) Disassembly of product completed.

Notice：When a product reaches the end of it's life—return to KBC

Version 3.0

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