

# **User's Manual for PBTS-500 Series**



**Oticom Corporation**

## List of Contents

|                                       |    |
|---------------------------------------|----|
| 1. General.....                       | 5  |
| 1.1 Warranty.....                     | 5  |
| 1.2 Notices.....                      | 5  |
| 2. Product Overview.....              | 6  |
| 2.1 Characteristics.....              | 6  |
| 2.2 Features.....                     | 6  |
| 3. Main Frame.....                    | 7  |
| 3.1 PBTS-500.....                     | 7  |
| 3.2 PBTS-500R.....                    | 8  |
| 3.3 Connector.....                    | 9  |
| 3.4 Main Frame Specification.....     | 10 |
| 4. SDI TRX (STR) Card .....           | 11 |
| 4.1 Overview.....                     | 11 |
| 4.2 Front Side.....                   | 11 |
| 4.3 LEDs & Terminal Description.....  | 12 |
| 4.4 Specifications.....               | 12 |
| 5. SDI TX (STX) Card .....            | 13 |
| 5.1 Overview.....                     | 13 |
| 5.2 Front Side.....                   | 13 |
| 5.3 LEDs & Terminal Descriptions..... | 14 |
| 5.4 Specifications.....               | 14 |
| 6. SDI RX (SRX) Card .....            | 15 |
| 6.1 Overview.....                     | 15 |
| 6.2 Front Side.....                   | 15 |
| 6.3 LEDs & terminal Description.....  | 16 |
| 6.4 Specifications.....               | 16 |
| 7. CBTU Card .....                    | 17 |
| 7.1 Overview.....                     | 17 |
| 7.2 Front Side-1.....                 | 17 |
| 7.3 Front Side-2(SONY Protocol).....  | 18 |
| 7.4 LEDs & Terminal Descriptions..... | 19 |
| 7.5 GPI/GPO Connector.....            | 19 |
| 7.6 Audio In/Out Connector.....       | 19 |
| 7.7 Ethernet Connector.....           | 20 |
| 7.8 Serial Data Connector.....        | 20 |
| 7.9 Specifications.....               | 21 |
| 8. ASU Card.....                      | 22 |
| 8.1 Overview.....                     | 22 |
| 8.2 ASU Front Side.....               | 22 |

# PBTS-500 Series User's Manual

---

|                                        |    |
|----------------------------------------|----|
| 8.3 LEDs & Terminal Descriptions.....  | 23 |
| 8.4 ASU Specifications.....            | 23 |
| 9. BAU Card.....                       | 24 |
| 9.1 Overview.....                      | 24 |
| 9.2 Front Side-1.....                  | 24 |
| 9.3 LEDs & Terminal Descriptions.....  | 25 |
| 9.4 Audio In/Out Connector.....        | 25 |
| 9.5 Specifications.....                | 25 |
| 10. 8ALT Card.....                     | 26 |
| 10.1 Overview.....                     | 26 |
| 10.2 Front Side.....                   | 26 |
| 10.3 LEDs & Terminal Descriptions..... | 26 |
| 10.4 Audio In Connector.....           | 27 |
| 10.5 Specifications.....               | 27 |
| 11. 8ALR Card.....                     | 28 |
| 11.1 Overview.....                     | 28 |
| 11.2 Front Side.....                   | 28 |
| 11.3 LEDs & Terminal Descriptions..... | 29 |
| 11.4 Audio Out Connector.....          | 29 |
| 11.5 Specifications.....               | 29 |
| 12. 4AMT Card.....                     | 30 |
| 12.1 Overview.....                     | 30 |
| 12.2 Front Side.....                   | 30 |
| 12.3 LEDs & Terminal Descriptions..... | 31 |
| 12.4 Mic' In Connector.....            | 31 |
| 12.5 Specifications.....               | 31 |
| 13. 4AMR Card.....                     | 32 |
| 13.1 Overview.....                     | 32 |
| 13.2 Front Side.....                   | 32 |
| 13.3 LEDs & Terminal Descriptions..... | 33 |
| 13.4 Audio Out Connector.....          | 33 |
| 13.5 Specifications.....               | 33 |
| 14. 2TWU Card.....                     | 34 |
| 14.1 Overview.....                     | 34 |
| 14.2 Front Side.....                   | 34 |
| 14.3 LEDs & Terminal Descriptions..... | 35 |
| 14.4 Audio Out Connector.....          | 35 |
| 14.5 Specifications.....               | 35 |
| 15. 4AVT Card.....                     | 36 |
| 15.1 Overview.....                     | 36 |
| 15.2 Front Side.....                   | 36 |
| 15.3 LEDs & Terminal Descriptions..... | 37 |
| 15.5 Specifications.....               | 37 |

## PBTS-500 Series User's Manual

---

|                                        |    |
|----------------------------------------|----|
| 16. 4AVR Card.....                     | 38 |
| 16.1 Overview.....                     | 38 |
| 16.2 Front Side.....                   | 38 |
| 16.3 LEDs & Terminal Descriptions..... | 39 |
| 16.5 Specifications.....               | 39 |
| 17. GEU Card.....                      | 40 |
| 17.1 Overview.....                     | 40 |
| 17.2 Front Side .....                  | 40 |
| 17.3 LEDs & Terminal Descriptions..... | 41 |
| 17.4 Specifications.....               | 41 |
| 18. ETU Card.....                      | 42 |
| 18.1 Overview.....                     | 42 |
| 18.2 Front Side .....                  | 42 |
| 18.3 LEDs & Terminal Descriptions..... | 43 |
| 18.4 Specifications.....               | 43 |
| 19. SAT Card.....                      | 44 |
| 19.1 Overview.....                     | 44 |
| 19.2 Front Side .....                  | 44 |
| 19.3 LEDs & Terminal Descriptions..... | 45 |
| 19.4 Specifications.....               | 45 |
| 20. SAR Card.....                      | 46 |
| 20.1 Overview.....                     | 46 |
| 20.2 Front Side .....                  | 46 |
| 20.3 LEDs & Terminal Descriptions..... | 47 |
| 20.4 Specifications.....               | 47 |
| 21. Ordering Information.....          | 48 |
| 21.1 Main Product.....                 | 48 |
| 21.2 Accessory.....                    | 48 |

## 1. General

### 1.1 Warranty

This Oticom product is warranted against defects in material and workmanship for a period of one year from the date of shipment. During the warranty period, Oticom will, at its option, repair or replace products that prove to be defective.

The forgoing warranty shall not apply to defects resulting from improper or inadequate maintenance by user, user-made software or interfacing, unauthorized modification or misuse, operation at outside of environmental specifications for the product, or improper site preparation or maintenance.

#### **Oticom Corporation**

Biz Center #704, SK-Technopark 190-1, Sangdaewon-dong, Jungwon-gu, Seongnam-city, Gyeonggi-do,  
Korea ( Zip-Code : 462-807 )  
Tel) +82-31-776-2880 Fax) +82-31-776-2870  
Web site : <http://www.oticom.co.kr>  
E-Mail : [info@oticom.co.kr](mailto:info@oticom.co.kr)

### 1.2 Notices

Oticom has all the rights to this document. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without prior written permission of Oticom. Making free use of or copying of all or part of this document may result in civil or criminal punishment.

All contents in this document may be changed at Oticom's option. Oticom is not legally responsible for the contents of this document and do not guarantee any error in the installation from this manual. For the use of specific purposed product or by non-guaranteed method of the product, we ask for your prior questions.

## 2. Product Overview

PBTS-500 transmits a variety of signals such as SD/HD/3G-SD, AES/EBU signal, Ethernet and Balanced Audio, required for an open air broadcasting scene, over Hybrid Cable. It can provide power supply up to 1km through hybrid cable. In addition, PBTS-500 can support 6 card slots, each of which can allow user to insert SDI TX, SDI RX, Audio, Ethernet and AES/EBU, CBTU card, and it can correspond to anywhere by making an adjustment of card in accordance with the situation of the field. And it is water-proof and easy to carry by adopting the case from Pelican-storm.

### 2.1 Characteristics

1. Supports 6 card slots.
2. Provides 3 types of system operation power supply (AC 100 ~ 240V, DC12V, Remote power).
3. Provides DC12V Power out terminals (DC12V/1A)
4. Supports Hot Swapping function.
5. Provides power supply to a remote equipment over Hybrid Cable.
6. Made up of easy-to-carry equipment in the field.

### 2.2 Features



- SD/HD/3G SDI Full Duplex
- AES/EBU Full Duplex
- 10/100/1000Mbps Ethernet
- Analog Audio In/Out
- MIC In/Line Out
- RS232/422/485
- GPI/GPO
- 10/100Mbps Ethernet
- AC 100 ~ 240V or DC 12V or Remote Power
- Remote Power In/Out Support
- DC12V/1A Out 2Ch

### 3. Main Frame

#### 3.1 PBTS-500



| No. | Name                   |
|-----|------------------------|
| 1   | Circuit Breaker        |
| 2   | DC12V Output Connector |
| 3   | DC12V Input Connector  |
| 4   | AC Input Connector     |
| 5   | Hybrid Connector       |
| 6   | Card Slots(6 ea)       |

## PBTS-500 Series User's Manual

### 3.2 PBTS-500R

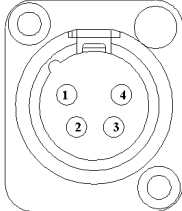


| No. | Name                  |
|-----|-----------------------|
| 1   | Card Slots(6 ea)      |
| 2   | DC12V Input Connector |
| 3   | AC Input Connector    |
| 4   | Circuit Breaker       |
| 5   | Hybrid Connector      |



### 3.3 Connector

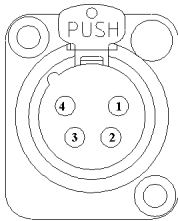
#### ➤ DC12V Input (Item No. 3)



1. GND
2. No Connection
3. No Connection
4. +12V Input

< NC4MD-LX(NEUTRIK) >

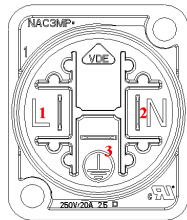
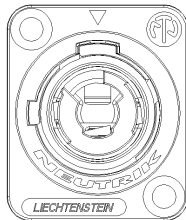
#### ➤ DC12V Output (Item No. 2)



1. GND
2. No Connection
3. No Connection
4. +12V Output

< NC4FD-LX(NEUTRIK) >

#### ➤ AC Power Input Connector (Item No. 4)



1. AC Power Input
2. AC Power Input
3. Earth

< NAC3MPA-1(NEUTRIK) >

## PBTS-500 Series User's Manual

### 3.4 Main Frame Specifications

| Item                                  |         | Specifications                                                 | Remark |
|---------------------------------------|---------|----------------------------------------------------------------|--------|
| Wave Length                           |         | 1270 ~ 1610nm with 20nm spacing (ITU-T G.694.2)                |        |
| Optical Transmission Speed            |         | 3.0Gbps                                                        |        |
| Optical Connector                     | TX      | FCS015A-FR for Optical complex camera cable (ARIB BTA-S-1005B) |        |
|                                       | RX      | FCS015A-MR for Optical complex camera cable (ARIB BTA-S-1005B) |        |
| Maximum No. of Card Slot Installation |         | 6                                                              |        |
| Card Width                            | ASU     | One Slot Size                                                  |        |
|                                       | SDI TRX | One Slot Size                                                  |        |
|                                       | SDI TX  | One Slot Size                                                  |        |
|                                       | SDI RX  | One Slot Size                                                  |        |
|                                       | GEU     | One Slot Size                                                  |        |
|                                       | CBTU    | Two Slot Size                                                  |        |
|                                       | 8ALT    | One Slot Size                                                  |        |
|                                       | 8ALR    | One Slot Size                                                  |        |
|                                       | 4AMT    | One Slot Size                                                  |        |
|                                       | 4AMR    | One Slot Size                                                  |        |
|                                       | 2TWU    | One Slot Size                                                  |        |
|                                       | 4AVT    | One Slot Size                                                  |        |
|                                       | 4AVR    | One Slot Size                                                  |        |
| External Dimensions                   |         | 300(W) x 225(D) x 132(H)                                       |        |
| Power Supply                          |         | AC100 ~ 240V or DC12V/2A or Remote Power                       |        |
| Power Consumption                     |         | Max. 25W                                                       |        |
| Operating Temperature                 |         | -20℃ ~ +60℃                                                    |        |
| Weight                                |         | 5kg or less                                                    |        |

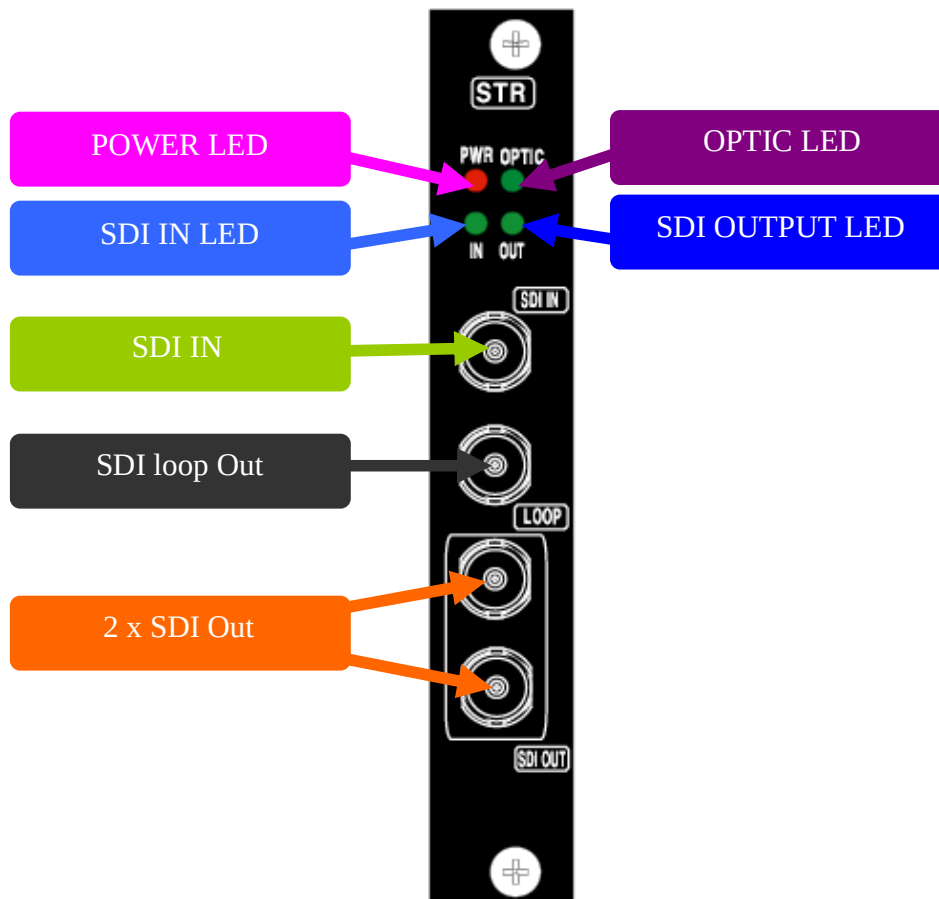
### 4. 1Ch SDI TRX (STR) Card

#### 4.1 Overview

This card has one SD/HD/3G-SDI signal input terminal and two output terminals and enables user to input and output data at the same time. Also, it has one SDI Loop output terminal that enables user to monitor the input signal.

As one card width takes up one slot, maximum 6 cards can be inserted.

#### 4.2 Front Side



## PBTS-500 Series User's Manual

### 4.3 LEDs & Terminal Description

|                                   |                                             |                                 |
|-----------------------------------|---------------------------------------------|---------------------------------|
| Power LED                         | ON                                          | Power On                        |
|                                   | OFF                                         | Power Off                       |
| Optic LED                         | ON                                          | With Optic Signal               |
|                                   | OFF                                         | Without Optic Signal            |
| SDI Input LED /<br>SDI Output LED | ORANGE                                      | SD SDI Input/Output Signal      |
|                                   | GREEN                                       | HD/3G SDI Input/Output Signal   |
|                                   | OFF                                         | Without SDI Input/Output Signal |
| SDI Input                         | SDI Signal Input Terminal                   |                                 |
| SDI Loop Output                   | Loop Output Terminal of Inputted SDI Signal |                                 |
| SDI Output                        | Output Terminal of Transmitted SDI Signal   |                                 |

### 4.4 Specifications

| Item                      |                   | Specifications   |                                       | Remark |
|---------------------------|-------------------|------------------|---------------------------------------|--------|
| Video<br>Signal<br>Input  | 3G                | Standards        | SMPTE425M, 424M                       |        |
|                           |                   | Max Cable Length | 150m                                  |        |
|                           |                   | Impedance        | 75ohm Unbalanced                      |        |
|                           | HD                | Standards        | SMPTE292M                             |        |
|                           |                   | Max Cable Length | 250m                                  |        |
|                           |                   | Impedance        | 75ohm Unbalanced                      |        |
|                           | SD                | Standards        | SMPTE259M                             |        |
|                           |                   | Max Cable Length | 480m                                  |        |
|                           |                   | Impedance        | 75ohm Unbalanced                      |        |
| Video<br>Signal<br>Output | Amplitude         |                  | 800mV <sub>p-p</sub> ±10%(75ohm Load) |        |
|                           | Impedance         |                  | 75ohm Unbalanced                      |        |
|                           | 3G                | Standards        | SMPTE425M, 424M                       |        |
|                           |                   | Jitter           | Timing Jitter : 2.0UI or less         |        |
|                           | HD                | Standards        | SMPTE292M                             |        |
|                           |                   | Jitter           | Timing Jitter : 1.0UI or less         |        |
|                           | SD                | Standards        | SMPTE259M                             |        |
|                           |                   | Jitter           | Timing Jitter : 0.2UI or less         |        |
|                           |                   |                  |                                       |        |
| Power                     | Input Volt        |                  | DC 12[V]                              |        |
|                           | Power Consumption |                  | 5[W]                                  |        |

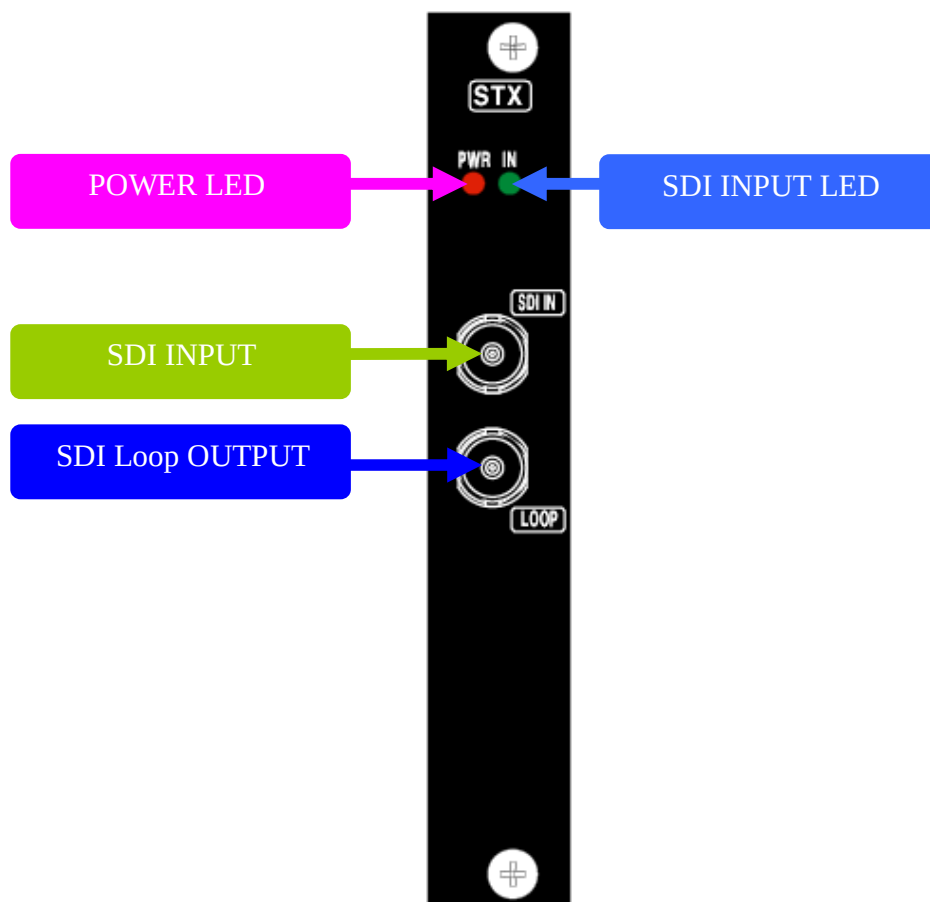
### 5. 1Ch SDI TX (STX) Card

#### 5.1 Overview

This card has one SD/HD/3G-SDI signal input terminal and it has also SDI Loop output terminal that enables user to monitor the input signal.

As one card width takes up one slot, maximum 6 cards can be inserted.

#### 5.2 Front Side



## PBTS-500 Series User's Manual

### 5.3 LEDs & Terminal Description

|                 |                                             |                          |
|-----------------|---------------------------------------------|--------------------------|
| Power LED       | ON                                          | Power On                 |
|                 | OFF                                         | Power Off                |
| SDI Input LED   | ON                                          | With SDI Input Signal    |
|                 | OFF                                         | Without SDI Input Signal |
| SDI Input       | SDI Signal Input Terminal                   |                          |
| SDI Loop Output | Loop Output Terminal of Inputted SDI Signal |                          |

### 5.4 Specifications

| Item                     |                   | Specs            |                  | Remark |
|--------------------------|-------------------|------------------|------------------|--------|
| Video<br>Signal<br>Input | 3G                | Standards        | SMPTE425M, 424M  |        |
|                          |                   | Max Cable Length | 150m             |        |
|                          |                   | Impedance        | 75ohm Unbalanced |        |
|                          | HD                | Standards        | SMPTE292M        |        |
|                          |                   | Max Cable Length | 250m             |        |
|                          |                   | Impedance        | 75ohm Unbalanced |        |
|                          | SD                | Standards        | SMPTE259M        |        |
|                          |                   | Max Cable Length | 480m             |        |
|                          |                   | Impedance        | 75ohm Unbalanced |        |
| Power                    | Input Volt        |                  | DC 12[V]         |        |
|                          | Power Consumption |                  | 5[W]             |        |

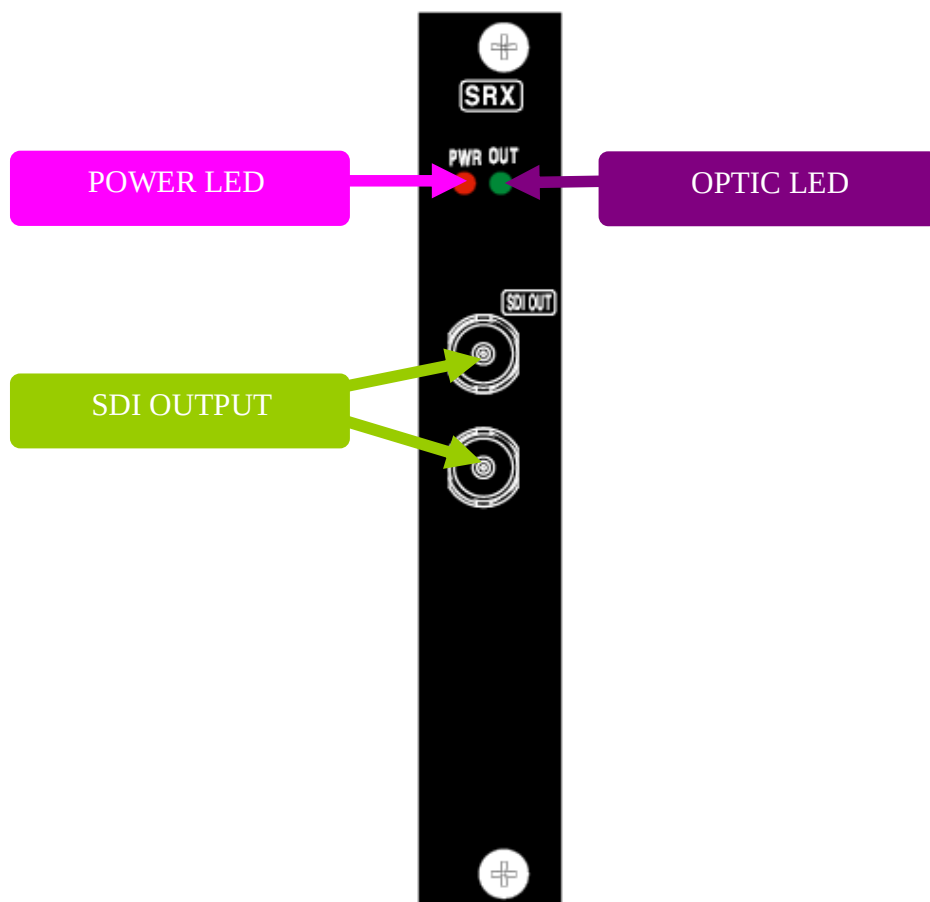
## 6. 1Ch SDI RX (SRX) Card

### 6.1 Overview

This card has two SD/HD/3G-SDI signal output terminals and transmits to two terminals at the same time.

As one card width takes up one slot, maximum 6 cards can be inserted.

### 6.2 Front Side



## PBTS-500 Series User's Manual

### 6.3 LEDs & Terminal Description

|                |                                           |                                                 |
|----------------|-------------------------------------------|-------------------------------------------------|
| Power LED      | ON                                        | Power On                                        |
|                | OFF                                       | Power Off                                       |
| SDI Output LED | ON                                        | With Optic Signal and SDI Output Signal         |
|                | FLASH                                     | With Optic Signal and Without SDI Output Signal |
|                | OFF                                       | Without Optic Signal and SDI Output Signal      |
| SDI Output     | Output Terminal of Transmitted SDI Signal |                                                 |

### 6.4 Specifications

| Item                      |                   | Specifications |                                                                   | Remark |
|---------------------------|-------------------|----------------|-------------------------------------------------------------------|--------|
| Video<br>Signal<br>Output | 3G                | Standards      | SMPTE425M, 424M                                                   |        |
|                           |                   | Amplitude      | 800mV <sub>p-p</sub> ±10%(75ohm Load)                             |        |
|                           |                   | Impedance      | 75ohm Unbalanced                                                  |        |
|                           |                   | Jitter         | Timing Jitter : 2.0UI or less<br>Alignment Jitter : 0.3UI or less |        |
|                           | HD                | Standards      | SMPTE292M                                                         |        |
|                           |                   | Amplitude      | 800mV <sub>p-p</sub> ±10%(75ohm Load)                             |        |
|                           |                   | Impedance      | 75ohm Unbalanced                                                  |        |
|                           |                   | Jitter         | Timing Jitter : 1.0UI or less<br>Alignment Jitter : 0.2UI or less |        |
|                           | SD                | Standards      | SMPTE259M                                                         |        |
|                           |                   | Amplitude      | 800mV <sub>p-p</sub> ±10%(75ohm Load)                             |        |
|                           |                   | Impedance      | 75ohm Unbalanced                                                  |        |
|                           |                   | Jitter         | Timing Jitter : 0.2UI or less<br>Alignment Jitter : 0.2UI or less |        |
| Power                     | Input Volt        |                | DC 12[V]                                                          |        |
|                           | Power Consumption |                | 5[W]                                                              |        |

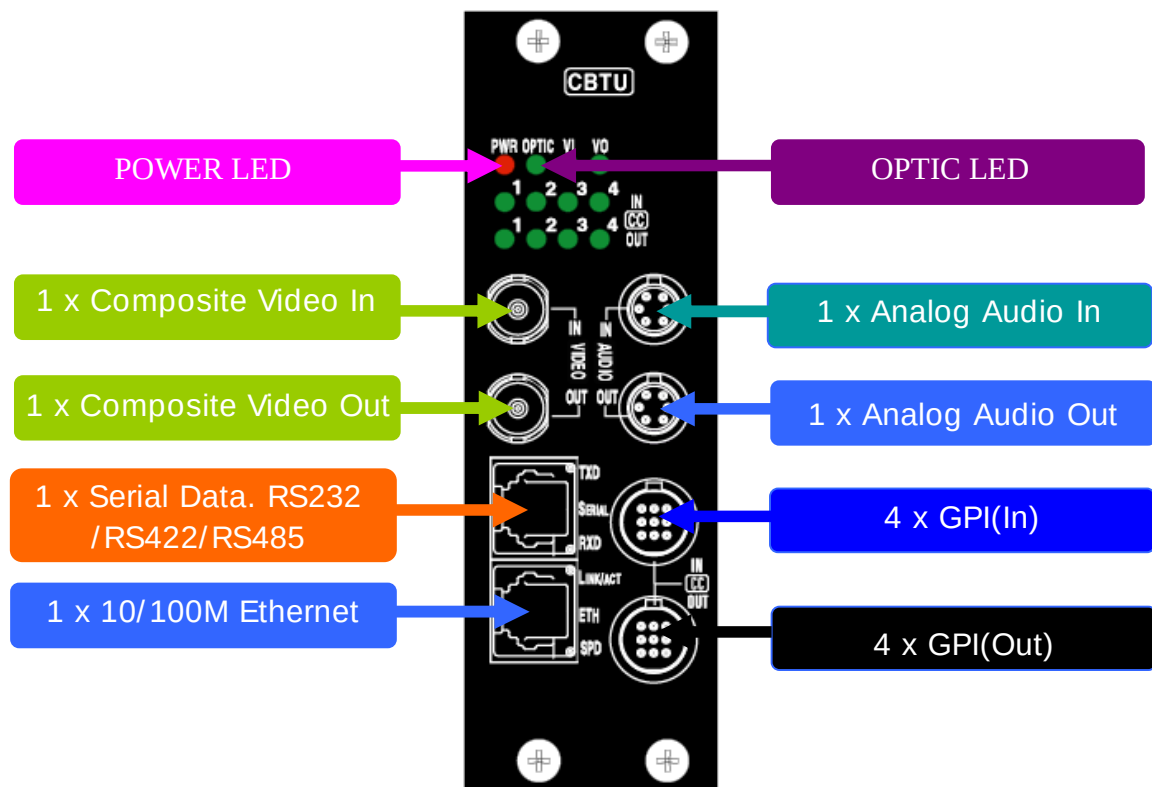


# 7. CBTU Card

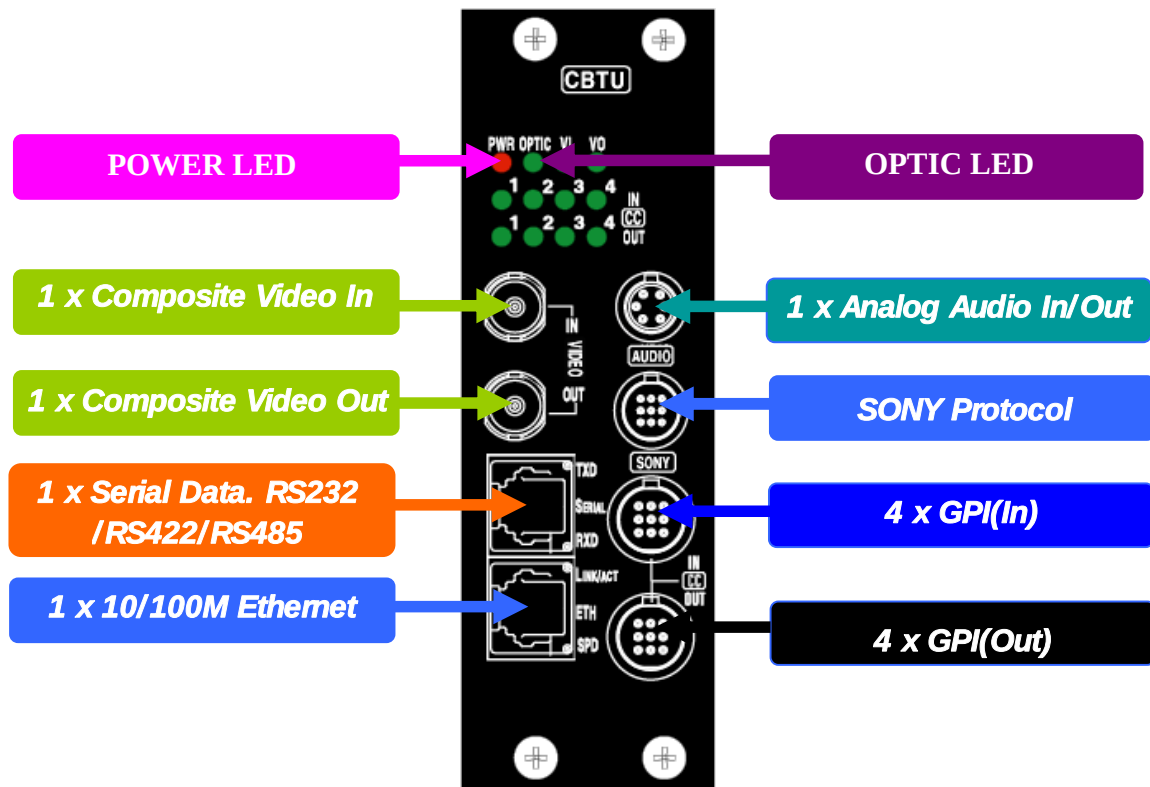
## 7.1 Overview

This card has one Composite Video input/output terminal and supports both input and output functions. It also supports one Analog Audio input and output, Serial data(RS232/422/485 and SONY Protocol), 10/100Mbps Ethernet and four GPI/GPO functions.

## 7.2 Front Side-1



### 7.3 Front Side-2(SONY Protocol)

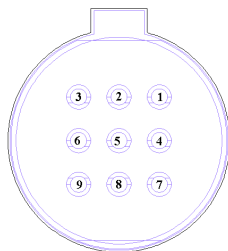


# PBTS-500 Series User's Manual

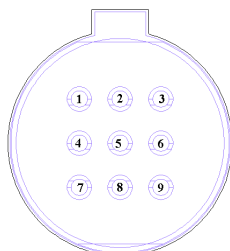
## 7.4 LEDs & Terminal Description

|                     |                                                     |                      |
|---------------------|-----------------------------------------------------|----------------------|
| Power LED           | ON                                                  | Power On             |
|                     | OFF                                                 | Power Off            |
| Optic LED           | ON                                                  | With Optic Signal    |
|                     | OFF                                                 | Without Optic Signal |
| Composite Video In  | Composite Video Signal Input Terminal               |                      |
| Composite Video Out | Composite Video Signal Output Terminal              |                      |
| Serial Data         | RS232/422/485 Serial Data Input and Output Terminal |                      |
| 10/100M Ethernet    | 10/100M Ethernet Input and Output Terminal          |                      |
| Analog Audio In     | Analog Audio Signal Input Terminal                  |                      |
| Analog Audio Out    | Analog Audio Signal Output Terminal                 |                      |
| GPI                 | 4 Channels General Purpose Input Terminals          |                      |
| GPO                 | 4 Channels General Purpose Output Terminals         |                      |

## 7.5 GPI/GPO Connector



< CBTU GPI >



< CBTU GPO >

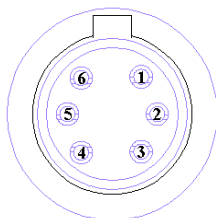
### < GPI >

1. GPI Ch1 +
2. GPI Ch1 -
3. GPI Ch2 +
4. GPI Ch2 -
5. GPI Ch3 +
6. GPI Ch3 -
7. GPI Ch4 +

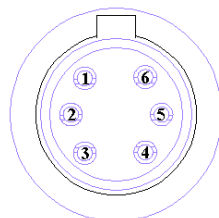
### < GPO >

- GPO Ch1 +
- GPO Ch1 -
- GPO Ch2 +
- GPO Ch2 -
- GPO Ch3 +
- GPO Ch3 -
- GPO Ch4 +

## 7.6 Audio In/Out Connector



< CBTU Audio In >

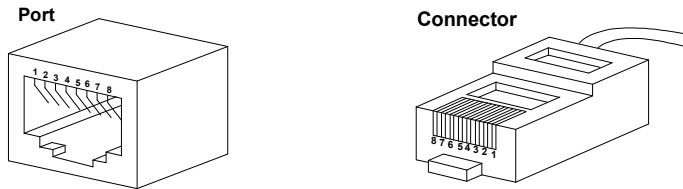


< CBTU Audio Out >

1. **GND**
2. **HOT**
3. **COLD**

# PBTS-500 Series User's Manual

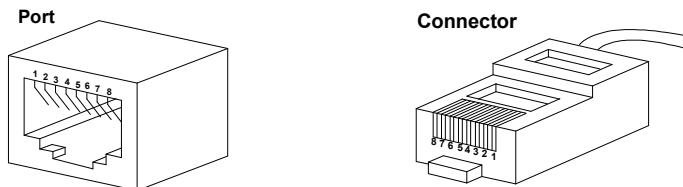
## 7.7 Ethernet Connector



< Pin Assignment of RJ-45 Connector for Ethernet Interface >

| Pin No. | Name | Description             |
|---------|------|-------------------------|
| 1       | Rx + | Receive Data(Input) +   |
| 2       | Rx - | Receive Data(Input) -   |
| 3       | Tx + | Transmit Data(Output) + |
| 4       | NC   | No Connection           |
| 5       | NC   | No Connection           |
| 6       | Tx - | Transmit Data(Output) - |
| 7       | NC   | No Connection           |
| 8       | NC   | No Connection           |

## 7.7 Serial Data Connector



< Pin Assignment of RJ-45 Connector for Serial Data Interface >

| Pin No. | Name               | Description                                          |
|---------|--------------------|------------------------------------------------------|
| 1       | RS485 +/- 422 TXD+ | RS485 Positive and RS422 Positive Transmit Data(I/O) |
| 2       | RS232 RXD          | RS232 Receive Data(Input)                            |
| 3       | RS232 TXD          | RS232 Transmit Data(Output)                          |
| 4       | RS485 -/ 422 TXD-  | RS485 Negative and RS422 Negative Transmit Data(I/O) |
| 5       | GND                | GND                                                  |
| 6       | RS422 RXD+         | RS422 Positive Receive Data(Input)                   |
| 7       | NC                 | No Connection                                        |
| 8       | RS422 RXD-         | RS422 Negative Receive Data(Input)                   |

## PBTS-500 Series User's Manual

### 7.8 Specification

| Item                         | Specifications     |                                  | Remark |
|------------------------------|--------------------|----------------------------------|--------|
| Composite Video Input/Output | Max Channel        | 1                                |        |
|                              | Amplitude          | 1V <sub>p-p</sub> NTSC/PAL/SECAM |        |
|                              | Connector          | BNC                              |        |
|                              | Impedance          | 75ohm                            |        |
|                              | Differential Gain  | <1%                              |        |
|                              | Differential Phase | <1°                              |        |
| Audio Input/Output           | Amplitude          | 2.2V <sub>p-p</sub> (Max. +8dBm) |        |
|                              | Bandwidth          | 20Hz ~ 20KHz                     |        |
|                              | Impedance          | Hi- Impedance                    |        |
|                              | IN/OUT Connector   | SN-8-6R/ SN-8-6P                 |        |
| Contact Closure              | Max Channel        | 4                                |        |
|                              | Response Time      | Max. 0.5msec                     |        |
|                              | Input              | Dry Contact Closure              |        |
|                              | Output             | PhotoMos Relay, 400V/0.1A        |        |
|                              | IN/OUT Connector   | SN-10-9R/ SN-10-9P               |        |
| Serial Data                  | Input Connector    | RJ-45/MXR-8RA-8S(SONY)           |        |
|                              | Data Rate          | Max. 200Kbps                     |        |
|                              | Data Format        | RS232/RS422/RS485/SONY           |        |
|                              | Bit Error Rate     | <10 <sup>-9</sup>                |        |
| Ethernet                     | Input Connector    | RJ-45                            |        |
|                              | Speed              | 10/100Mbps                       |        |
|                              | Duplex Mode        | Half/Full Duplex,                |        |
| Power                        | Input Volt         | DC 12[V]                         |        |
|                              | Power Consumption  | 10[W]                            |        |
| Optical                      | Output Levels      | -5dbm                            |        |
|                              | Min Input Levels   | -27dbm                           |        |
|                              | Data Rate          | 1.25Gbps                         |        |

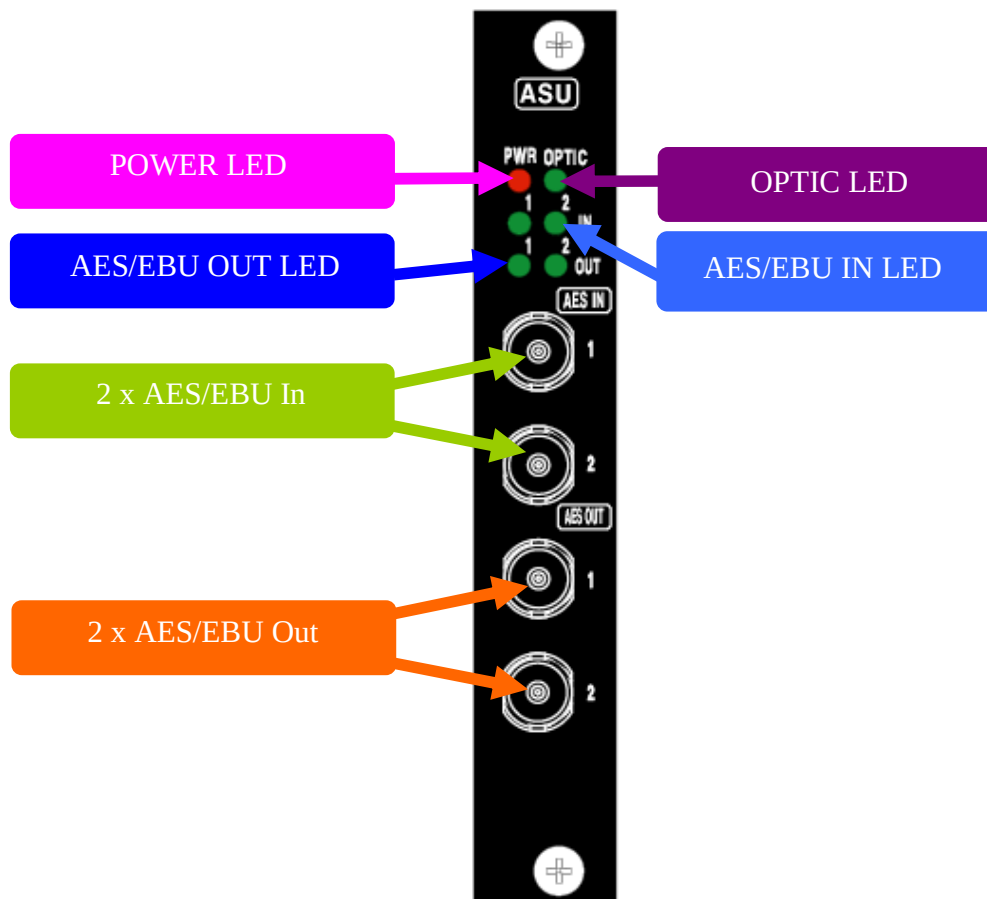
## 8. ASU Card

### 8.1 Overview

This card has two AES/EBU signal output terminals.

As one card width takes up one slot, maximum 6 cards can be inserted.

### 8.2 Front Side



## PBTS-500 Series User's Manual

---

### 8.3 LEDs & Terminal Description

|                 |                                            |                               |
|-----------------|--------------------------------------------|-------------------------------|
| Power LED       | ON                                         | Power On                      |
|                 | OFF                                        | Power Off                     |
| Optic LED       | ON                                         | With Optic Signal             |
|                 | OFF                                        | Without Optic Signal          |
| AES/EBU In LED  | ON                                         | With AES/EBU Input Signal     |
|                 | OFF                                        | Without AES/EBU Input Signal  |
| AES/EBU Out LED | ON                                         | With AES/EBU Output Signal    |
|                 | OFF                                        | Without AES/EBU Output Signal |
| AES/EBU In      | 2 Channels AES/EBU Signal Input Terminals  |                               |
| AES/EBU Out     | 2 Channels AES/EBU Signal Output Terminals |                               |

### 8.4 Specifications

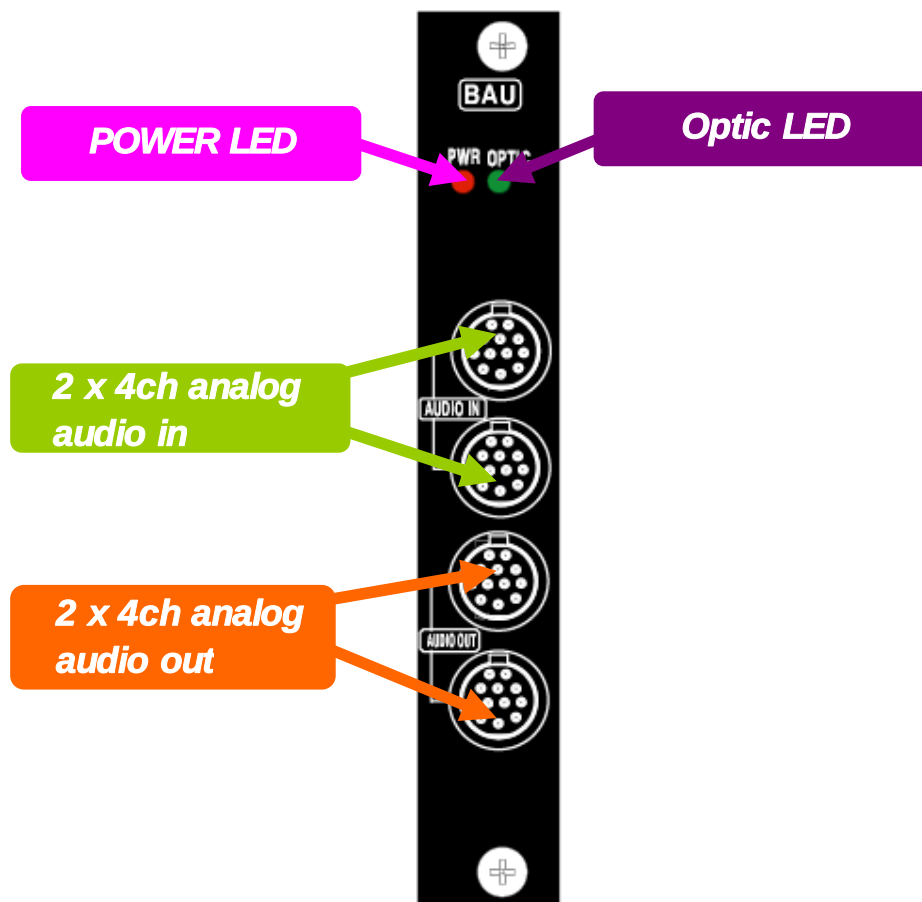
| Item          | Specifications    |                                    | Remark |
|---------------|-------------------|------------------------------------|--------|
| Digital Audio | Standard          | AES/EBU                            |        |
|               | Data Rate         | 6Mbps                              |        |
|               | Amplitude         | 1V <sub>p-p</sub> ±10%(75ohm Load) |        |
|               | Max Channel       | In : 2ea, Out : 2ea                |        |
| Power         | Input Volt        | DC 12[V]                           |        |
|               | Power Consumption | 5[W]                               |        |

## 9. BAU Card

### 9.1 Overview

This card has eight channels Analog Audio signal input/output terminals. As one card width takes up one slot, maximum 6 cards can be inserted.

### 9.2 Front Side



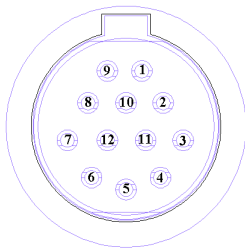


# PBTS-500 Series User's Manual

## 9.3 LEDs & Terminal Description

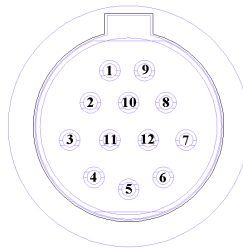
|                  |                                                 |                      |
|------------------|-------------------------------------------------|----------------------|
| Power LED        | ON                                              | Power On             |
|                  | OFF                                             | Power Off            |
| Optic LED        | ON                                              | With Optic Signal    |
|                  | OFF                                             | Without Optic Signal |
| Analog Audio In  | 4 Channels Analog Audio Signal Input Terminals  |                      |
| Analog Audio Out | 4 Channels Analog Audio Signal Output Terminals |                      |

## 9.4 Audio In/Out Connector



< BAU Audio In >

1. **GND**
2. HOT(Ch1)
3. COLD(Ch1)
4. **GND**
5. HOT(Ch2)
6. COLD(Ch2)



< BAU Audio Out >

7. **GND**
8. HOT(Ch3)
9. COLD(Ch3)
10. **GND**
11. HOT(Ch4)
12. COLD(Ch4)

## 9.5 Specification

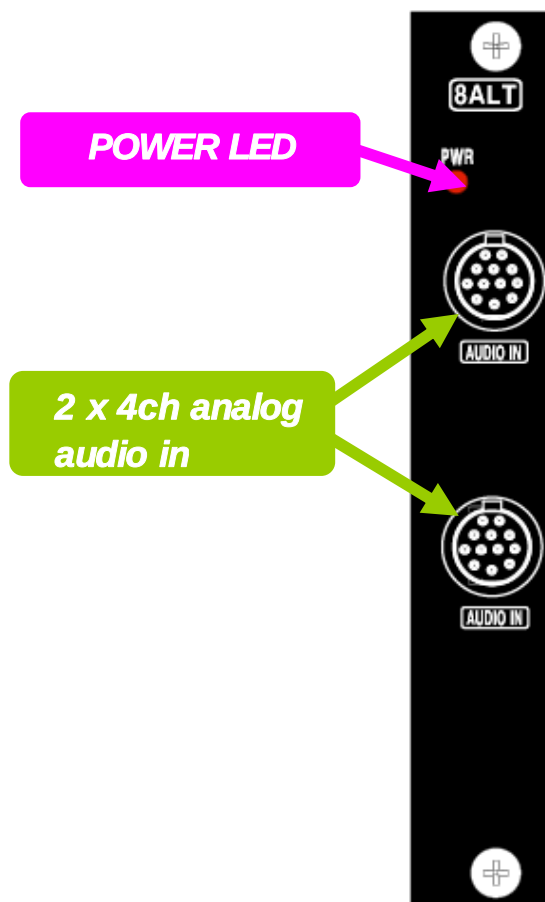
| Item               | Specifications    |                      | Remark |
|--------------------|-------------------|----------------------|--------|
| Audio Input/Output | No. of Channel`   | TX: 8ch' / RX:8ch'   |        |
|                    | Level             | Max. +8dBm           |        |
|                    | Bandwidth         | 20Hz ~ 20KHz         |        |
|                    | Impedance         | Hi- Impedance        |        |
|                    | IN/OUT Connector  | SN-10-12R/ SN-10-12P |        |
| Power              | Input Volt        | DC 12[V]             |        |
|                    | Power Consumption | 5[W]                 |        |

# 10. 8ALT Card

## 10.1 Overview

This card has eight channels Analog Audio signal input terminals.  
As one card width takes up one slot, maximum 6 cards can be inserted.

## 10.2 Front Side

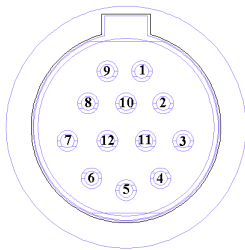


# PBTS-500 Series User's Manual

## 10.3 LEDs & Terminal Description

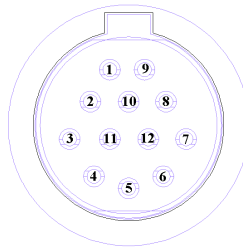
|                 |                                                |           |
|-----------------|------------------------------------------------|-----------|
| Power LED       | ON                                             | Power On  |
|                 | OFF                                            | Power Off |
| Analog Audio In | 4 Channels Analog Audio Signal Input Terminals |           |

## 10.4 Audio In Connector



< 8ALT Audio In >

1. GND
2. HOT(Ch1)
3. COLD(Ch1)
4. GND
5. HOT(Ch2)
6. COLD(Ch2)



< 8ALT Audio In > >

7. GND
8. HOT(Ch3)
9. COLD(Ch3)
10. GND
11. HOT(Ch4)
12. COLD(Ch4)

## 10.5 Specification

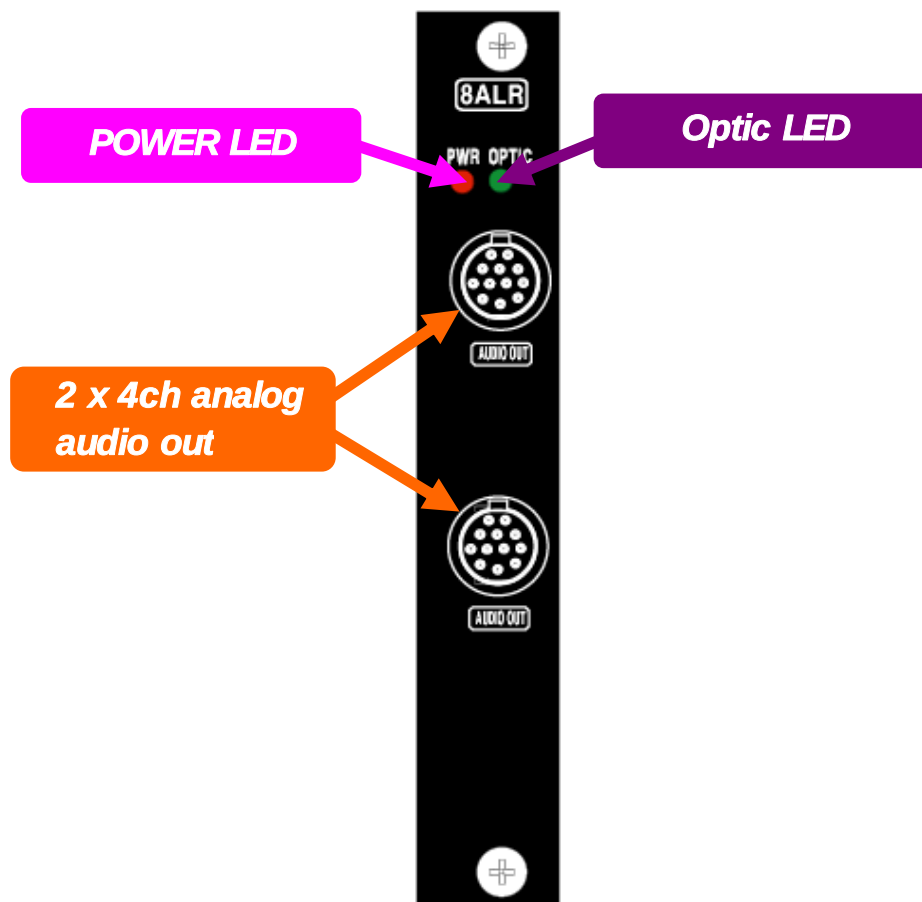
| Item        | Specifications    |               | Remark |
|-------------|-------------------|---------------|--------|
| Audio Input | No. of Channel`   | TX: 8ch`      |        |
|             | Level             | Max. +18dBm   |        |
|             | Bandwidth         | 20Hz ~ 20KHz  |        |
|             | Impedance         | Hi- Impedance |        |
|             | IN/OUT Connector  | SN-10-12R     |        |
| Power       | Input Volt        | DC 12[V]      |        |
|             | Power Consumption | 5[W]          |        |

# 11. 8ALR Card

## 11.1 Overview

This card has eight channels Analog Audio signal output terminals.  
As one card width takes up one slot, maximum 6 cards can be inserted.

## 11.2 Front Side

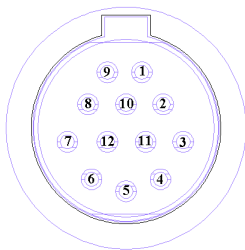


# PBTS-500 Series User's Manual

## 11.3 LEDs & Terminal Description

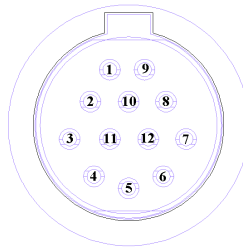
|                  |                                                 |                      |
|------------------|-------------------------------------------------|----------------------|
| Power LED        | ON                                              | Power On             |
|                  | OFF                                             | Power Off            |
| Optic LED        | ON                                              | With Optic Signal    |
|                  | OFF                                             | Without Optic Signal |
| Analog Audio Out | 4 Channels Analog Audio Signal Output Terminals |                      |

## 11.4 Audio Out Connector



### < 8ALR Audio Out >

1. GND
2. HOT(Ch1)
3. COLD(Ch1)
4. GND
5. HOT(Ch2)
6. COLD(Ch2)



### < 8ALR Audio Out >

7. GND
8. HOT(Ch3)
9. COLD(Ch3)
10. GND
11. HOT(Ch4)
12. COLD(Ch4)

## 11.5 Specification

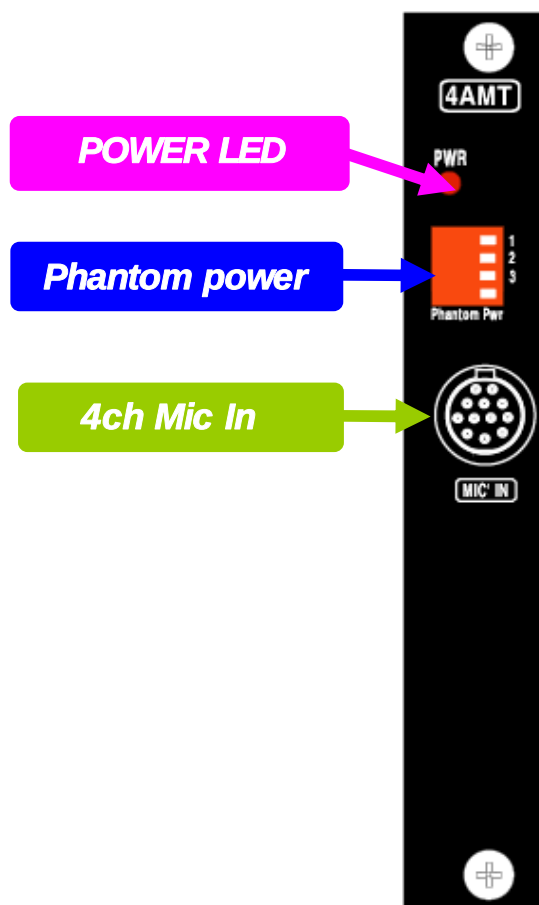
| Item         | Specifications    |               | Remark |
|--------------|-------------------|---------------|--------|
| Audio Output | No. of Channel`   | RX:8ch`       |        |
|              | Level             | Max. +8dBm    |        |
|              | Bandwidth         | 20Hz ~ 20KHz  |        |
|              | Impedance         | Hi- Impedance |        |
|              | IN/OUT Connector  | SN-10-12P     |        |
| Power        | Input Volt        | DC 12[V]      |        |
|              | Power Consumption | 5[W]          |        |

# 12 4AMT Card

## 12.1 Overview

This card has four channels Analog Mic' signal input terminals.  
As one card width takes up one slot, maximum 6 cards can be inserted.

### 122 Front Side

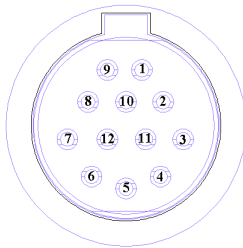


# PBTS-500 Series User's Manual

## 12.3 LEDs & Terminal Description

|               |                                        |           |
|---------------|----------------------------------------|-----------|
| Power LED     | ON                                     | Power On  |
|               | OFF                                    | Power Off |
| Phantom Power | Phantom power On/Off switch            |           |
| MIC' In       | 4 Channels Mic' Signal Input Terminals |           |

## 12.4 Mic In Connector



<4AMT Mic' In >

- |              |               |
|--------------|---------------|
| 1. GND       | 7. GND        |
| 2. HOT(Ch1)  | 8. HOT(Ch3)   |
| 3. COLD(Ch1) | 9. COLD(Ch3)  |
| 4. GND       | 10. GND       |
| 5. HOT(Ch2)  | 11. HOT(Ch4)  |
| 6. COLD(Ch2) | 12. COLD(Ch4) |

## 12.5 Specification

| Item        | Specifications    |               | Remark |
|-------------|-------------------|---------------|--------|
| Audio Input | No. of Channel`   | TX: 4ch`      |        |
|             | Gain Level        | 30dbm         |        |
|             | Bandwidth         | 20Hz ~ 20KHz  |        |
|             | Impedance         | Hi- Impedance |        |
|             | IN/OUT Connector  | SN-10-12R     |        |
| Power       | Input Volt        | DC 12[V]      |        |
|             | Power Consumption | 5[W]          |        |

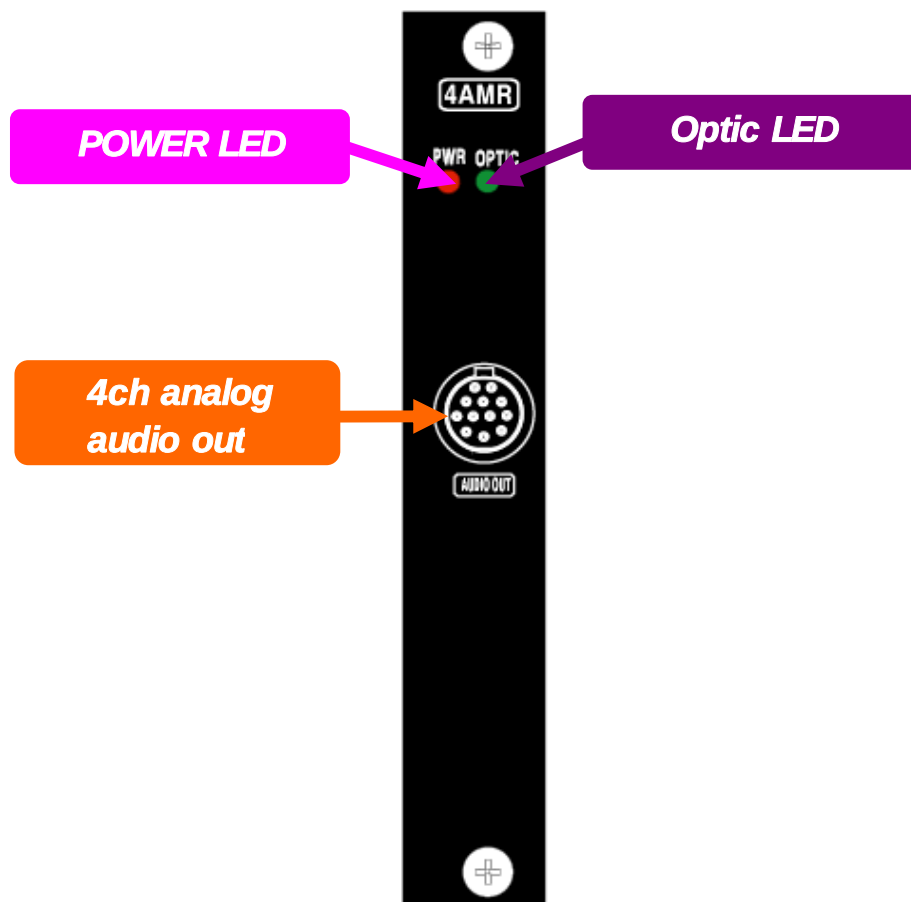
### 13. 4AMR Card

#### 13.1 Overview

This card has four channels Mic signal output terminals.

As one card width takes up one slot, maximum 6 cards can be inserted.

#### 13.2 Front Side



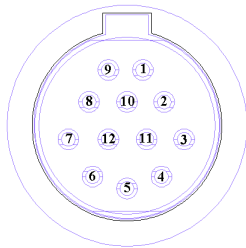


## PBTS-500 Series User's Manual

### 13.3 LEDs & Terminal Description

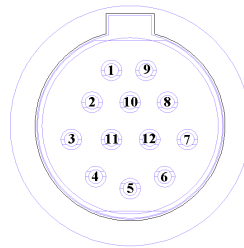
|                  |                                         |                      |
|------------------|-----------------------------------------|----------------------|
| Power LED        | ON                                      | Power On             |
|                  | OFF                                     | Power Off            |
| Optic LED        | ON                                      | With Optic Signal    |
|                  | OFF                                     | Without Optic Signal |
| Analog Audio Out | 4 Channels Mic' Signal Output Terminals |                      |

### 13.4 Audio Out Connector



< 4AMR Audio Out>

1. GND
2. HOT(Ch1)
3. COLD(Ch1)
4. GND
5. HOT(Ch2)
6. COLD(Ch2)



< 4AMR Audio Out>

7. GND
8. HOT(Ch3)
9. COLD(Ch3)
10. GND
11. HOT(Ch4)
12. COLD(Ch4)

### 13.5 Specification

| Item         | Specifications    |               | Remark |
|--------------|-------------------|---------------|--------|
| Audio Output | No. of Channel`   | RX:4ch'       |        |
|              | Level             | Max. +18dBm   |        |
|              | Bandwidth         | 20Hz ~ 20KHz  |        |
|              | Impedance         | Hi- Impedance |        |
|              | IN/OUT Connector  | SN-10-12P     |        |
| Power        | Input Volt        | DC 12[V]      |        |
|              | Power Consumption | 5[W]          |        |

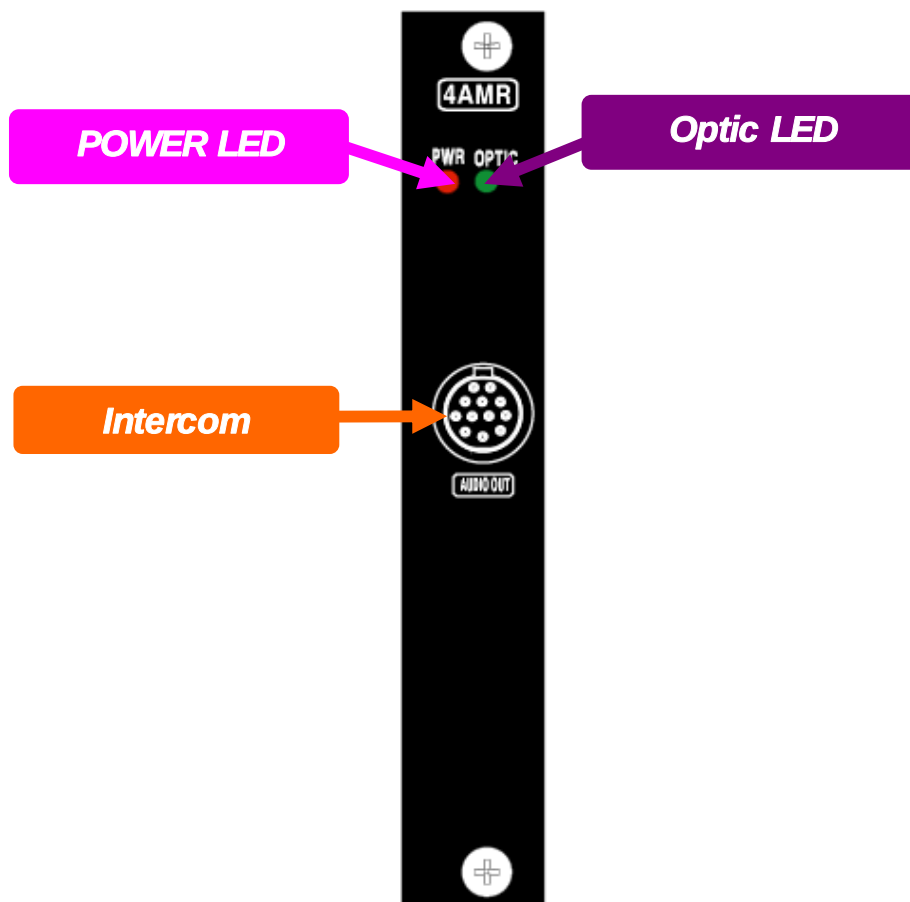
# 14. 2TWU Card

## 14.1 Overview

This card has 2-wire intercom signal interface terminals.

As one card width takes up one slot, maximum 6 cards can be inserted.

## 14.2 Front Side

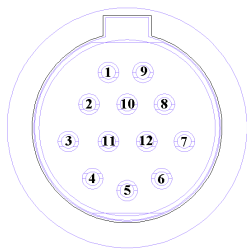


## PBTS-500 Series User's Manual

### 14.3 LEDs & Terminal Description

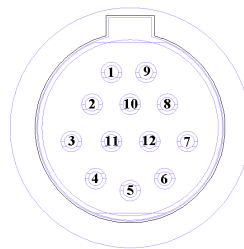
|           |                                             |                      |
|-----------|---------------------------------------------|----------------------|
| Power LED | ON                                          | Power On             |
|           | OFF                                         | Power Off            |
| Optic LED | ON                                          | With Optic Signal    |
|           | OFF                                         | Without Optic Signal |
| Intercom  | 2 Channels 2-wire Intercom signal Terminals |                      |

### 14.4 Intercom Connector



< TWB BELTPACK >

1. GND
2. Channel 1 (DC + Intercom)
3. Channel 2 (Intercom)



< TWS STATION >

1. GND
2. Channel 1 (Intercom)
3. Channel 2 (Intercom)

### 14.5 Specification

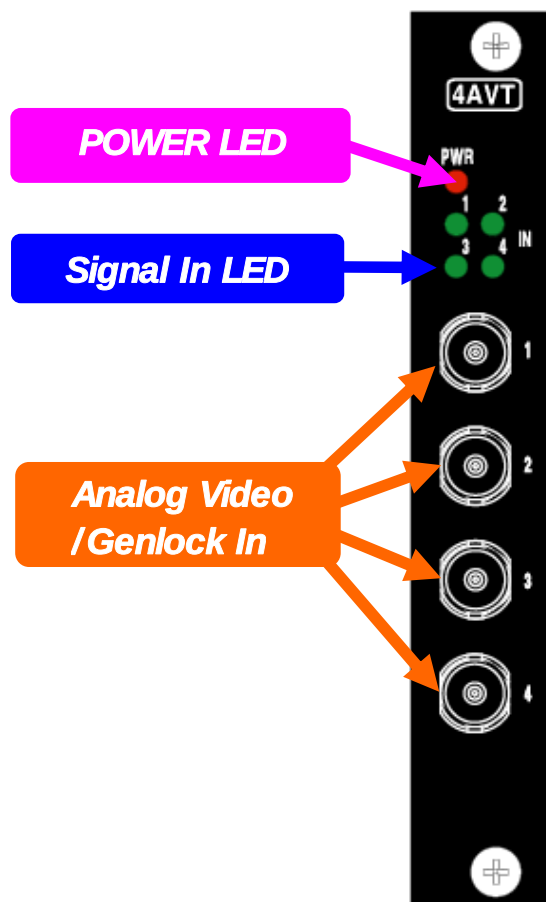
| Item     | Specifications    |               | Remark |
|----------|-------------------|---------------|--------|
| INTERCOM | No. of Channel`   | 2ch`          |        |
|          | Level             | Max. +18dBm   |        |
|          | Bandwidth         | 20Hz ~ 20KHz  |        |
|          | Impedance         | Hi- Impedance |        |
|          | IN/OUT Connector  | SN-10-12P     |        |
| Power    | Input Volt        | DC 12[V]      |        |
|          | Power Consumption | 5[W]          |        |

# 15. 4VAT Card

## 15.1 Overview

This card has 4ch analog video and Genlock signal input terminals.  
As one card width takes up one slot, maximum 6 cards can be inserted.

## 15.2 Front Side



## PBTS-500 Series User's Manual

---

### 15.3 LEDs & Terminal Description

|                       |                                                           |                                        |
|-----------------------|-----------------------------------------------------------|----------------------------------------|
| Power LED             | ON                                                        | Power On                               |
|                       | OFF                                                       | Power Off                              |
| Signal LED            | ON                                                        | With Analog video or Genlock Signal    |
|                       | OFF                                                       | Without Analog video or Genlock Signal |
| Analog Video /Genlock | 4 Channels Analog Video or Genlock signal Input Terminals |                                        |

### 15.4 Specification

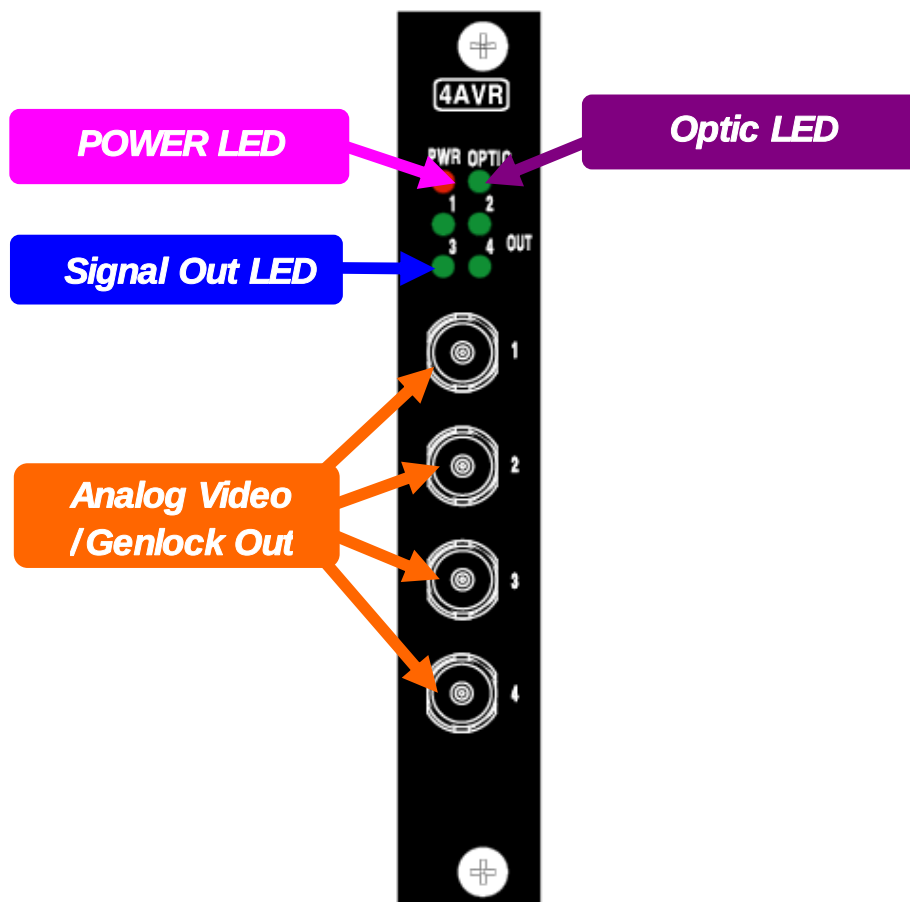
| Item                           | Specifications     |                                  | Remark |
|--------------------------------|--------------------|----------------------------------|--------|
| Composite Video /GenLock Input | Max Channel        | 41                               |        |
|                                | Amplitude          | 1V <sub>p-p</sub> NTSC/PAL/SECAM |        |
|                                | Connector          | BNC                              |        |
|                                | Impedance          | 75ohm                            |        |
|                                | Differential Gain  | <1%                              |        |
|                                | Differential Phase | <1°                              |        |
|                                | GenLock            | NTSC/PAL/Tri-Sync                |        |

### 16. 4VAR Card

#### 16.1 Overview

This card has 4ch analog video and Genlock signal output terminals.  
As one card width takes up one slot, maximum 6 cards can be inserted.

#### 16.2 Front Side



## PBTS-500 Series User's Manual

---

### 16.3 LEDs & Terminal Description

|                       |                                                            |                                        |
|-----------------------|------------------------------------------------------------|----------------------------------------|
| Power LED             | ON                                                         | Power On                               |
|                       | OFF                                                        | Power Off                              |
| Optic LED             | ON                                                         | With Optic Signal                      |
|                       | OFF                                                        | Without Optic Signal                   |
| Signal LED            | ON                                                         | With Analog video or Genlock Signal    |
|                       | OFF                                                        | Without Analog video or Genlock Signal |
| Analog Video /Genlock | 4 Channels Analog Video or Genlock signal Output Terminals |                                        |

### 16.4 Specification

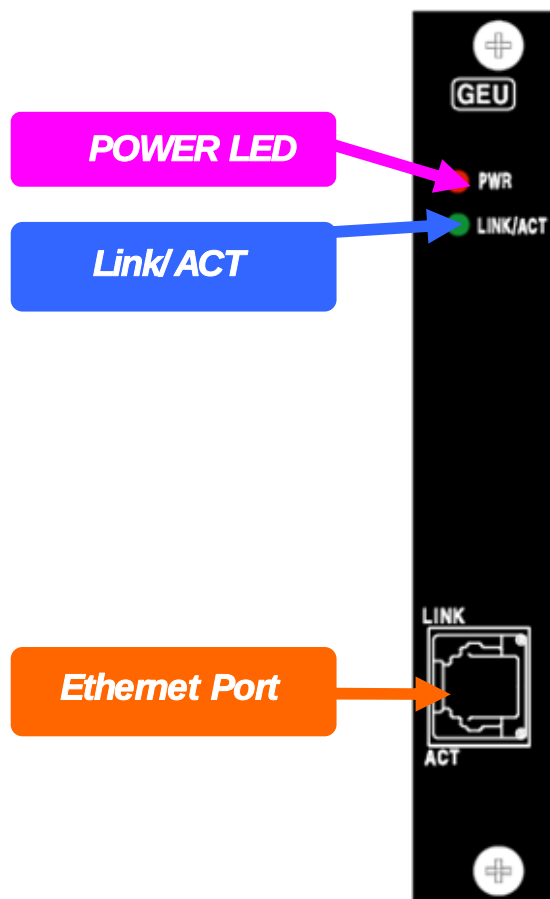
| Item                            | Specifications     |                                  | Remark |
|---------------------------------|--------------------|----------------------------------|--------|
| Composite Video /GenLock Output | Max Channel        | 4                                |        |
|                                 | Amplitude          | 1V <sub>p-p</sub> NTSC/PAL/SECAM |        |
|                                 | Connector          | BNC                              |        |
|                                 | Impedance          | 75ohm                            |        |
|                                 | Differential Gain  | <1%                              |        |
|                                 | Differential Phase | <1°                              |        |
|                                 | GenLock            | NTSC/PAL/Tri-Sync                |        |

# 17. GEU Card

## 17.1 Overview

This card transmits one channel/ 10/100/1000Mbps Ethernet Data.  
As one card width takes up one slot, maximum 6 cards can be inserted.

## 17.2 Front Side





## PBTS-500 Series User's Manual

---

### 17.3 LEDs & Terminal Description

|               |                                              |                                                 |
|---------------|----------------------------------------------|-------------------------------------------------|
| Power LED     | ON                                           | Power On                                        |
|               | OFF                                          | Power Off                                       |
| LINK/ACT LED  | ON                                           | With Optic Signal                               |
|               | FLASH                                        | Normal Transmission or Receipt of Ethernet Data |
|               | OFF                                          | Misconnection of Optic Signal                   |
| Ethernet Port | 10/100/1000Mbps Ethernet Connection Terminal |                                                 |

### 17.4 Specifications

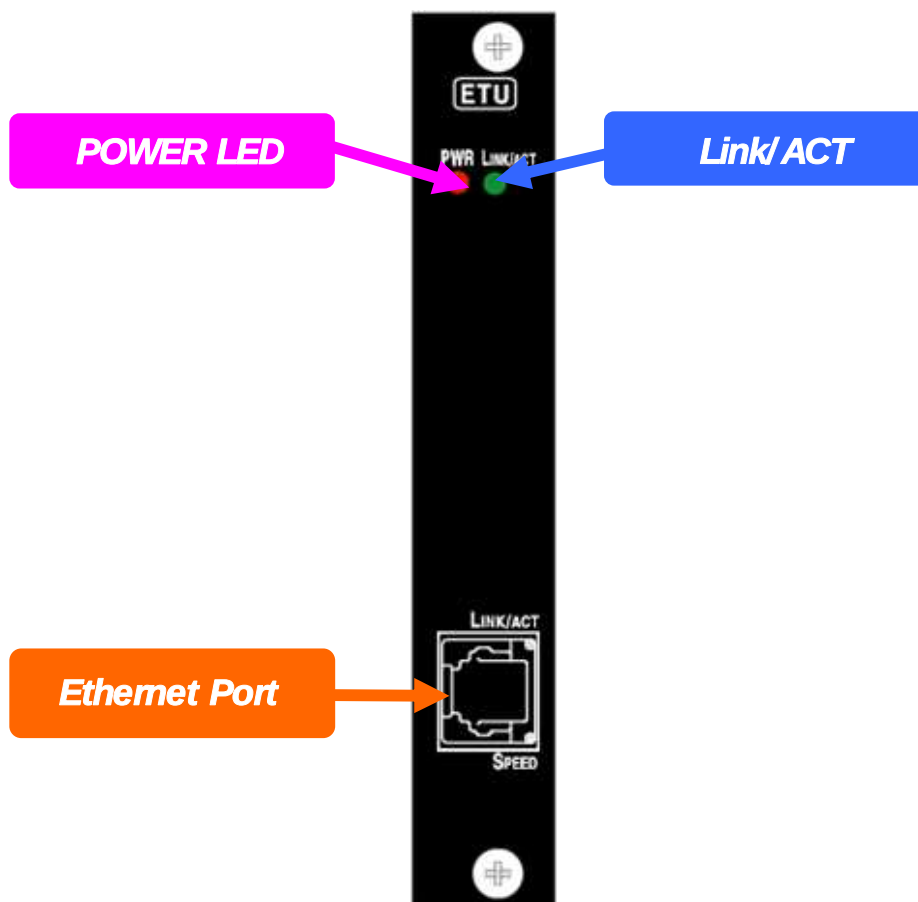
| Item             | Specifications                |                 | Remark |
|------------------|-------------------------------|-----------------|--------|
| Speed            | UTP                           | 10/100/1000Mbps |        |
|                  | Fiber                         | 1000Mbps        |        |
| Duplex Mode      | Half/Full Duplex Mode Support |                 |        |
| Auto-Negotiation | Auto-Negotiation Support      |                 |        |
| MDI/MDIX         | Auto MDI/MDIX Support         |                 |        |
| Max. Mac Address | 8192(8K)                      |                 |        |
| Power            | Input Volt                    | DC 12[V]        |        |
|                  | Power                         | 5[W]            |        |

# 18. ETU Card

## 18.1 Overview

This card transmits one channel/ 10/100Mbps Ethernet Data.  
As one card width takes up one slot, maximum 6 cards can be inserted.

## 18.2 Front Side



## PBTS-500 Series User's Manual

---

### 18.3 LEDs & Terminal Description

|               |                                         |                                                 |
|---------------|-----------------------------------------|-------------------------------------------------|
| Power LED     | ON                                      | Power On                                        |
|               | OFF                                     | Power Off                                       |
| LINK/ACT LED  | ON                                      | With Optic Signal                               |
|               | FLASH                                   | Normal Transmission or Receipt of Ethernet Data |
|               | OFF                                     | Misconnection of Optic Signal                   |
| Ethernet Port | 10/100Mbps Ethernet Connection Terminal |                                                 |

### 18.4 Specifications

| Item             | Specifications                |            | Remark |
|------------------|-------------------------------|------------|--------|
| Speed            | UTP                           | 10/100Mbps |        |
| Duplex Mode      | Half/Full Duplex Mode Support |            |        |
| Auto-Negotiation | Auto-Negotiation Support      |            |        |
| MDI/MDIX         | Auto MDI/MDIX Support         |            |        |
| Max. Mac Address | 2048(2K)                      |            |        |
| Power            | Input Volt                    | DC 12[V]   |        |
|                  | Power                         | 5[W]       |        |

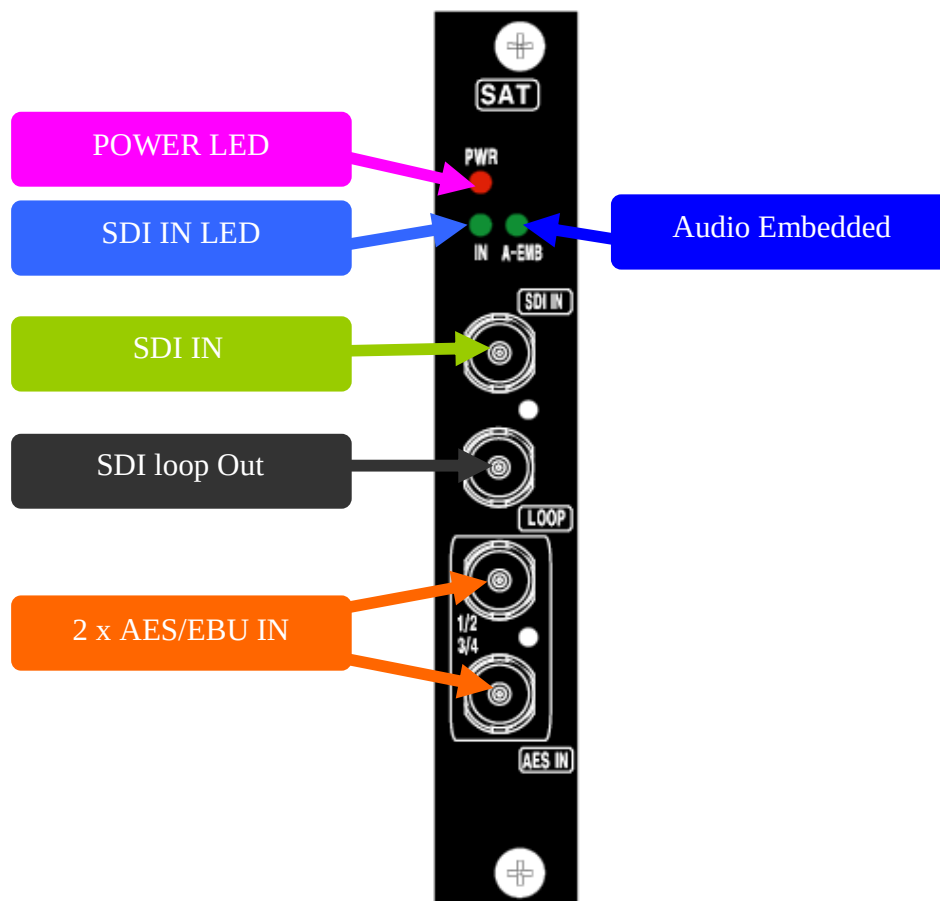
# 19. SAT Card

## 19.1 Overview

This card has one SD/HD/3G-SDI signal input terminal and two AES/EBU signal input terminals. Also, it has one SDI Loop output terminal that enables user to monitor the input signal. This card has AES/EBU signal embedded function.

As one card width takes up one slot, maximum 6 cards can be inserted.

## 19.2 Front Side



## PBTS-500 Series User's Manual

### 19.3 LEDs & Terminal Description

|                 |                                          |                                  |
|-----------------|------------------------------------------|----------------------------------|
| Power LED       | ON                                       | Power On                         |
|                 | OFF                                      | Power Off                        |
| A-Emb LED       | ON                                       | Not used Audio Embedded Function |
|                 | OFF                                      | Used Audio Embedded Function     |
| SDI Input LED   | ORANGE                                   | SD SDI Input Signal              |
|                 | GREEN                                    | HD/3G SDI Input Signal           |
|                 | OFF                                      | Without SDI Input Signal         |
| SDI Input       | SDI Signal Input Terminal                |                                  |
| SDI Loop Output | Loop Output Terminal of Input SDI Signal |                                  |
| AES Input       | AES/EBU Signal Input Terminal            |                                  |

### 19.4 Specifications

| Item                      |                  | Specifications   |                  | Remark |
|---------------------------|------------------|------------------|------------------|--------|
| Video<br>Signal<br>Input  | 3G               | Standards        | SMPTE425M, 424M  |        |
|                           |                  | Max Cable Length | 150m             |        |
|                           |                  | Impedance        | 75ohm Unbalanced |        |
|                           | HD               | Standards        | SMPTE292M        |        |
|                           |                  | Max Cable Length | 250m             |        |
|                           |                  | Impedance        | 75ohm Unbalanced |        |
|                           | SD               | Standards        | SMPTE259M        |        |
|                           |                  | Max Cable Length | 480m             |        |
|                           |                  | Impedance        | 75ohm Unbalanced |        |
| Digital<br>Audio<br>Input | Standard         |                  | AES/EBU          |        |
|                           | Max Cable Length |                  | 200M(5C2V)       |        |
|                           | Data Rate        |                  | 6Mbps            |        |
|                           | Impedance        |                  | 75ohm Unbalanced |        |
|                           | Channel          |                  | 4                |        |

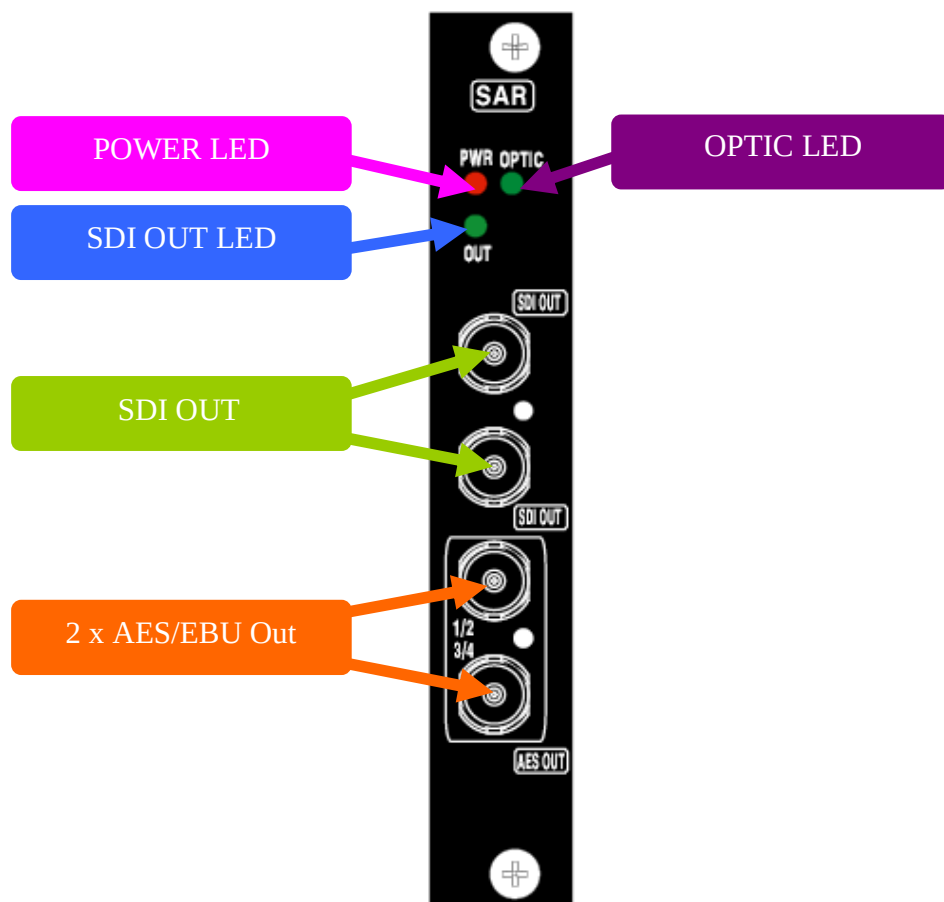
## 20. SAR Card

### 20.1 Overview

This card has two SD/HD/3G-SDI signal output terminal and two AES/EBU signal output terminals. This card has AES/EBU signal De-embedded function.

As one card width takes up one slot, maximum 6 cards can be inserted.

### 20.2 Front Side



## PBTS-500 Series User's Manual

### 20.3 LEDs & Terminal Description

|                |                                |                           |
|----------------|--------------------------------|---------------------------|
| Power LED      | ON                             | Power On                  |
|                | OFF                            | Power Off                 |
| Optic LED      | ON                             | With Optic Signal         |
|                | OFF                            | Without Optic Signal      |
| SDI Output LED | ORANGE                         | SD SDI Output Signal      |
|                | GREEN                          | HD/3G SDI Output Signal   |
|                | OFF                            | Without SDI Output Signal |
| SDI Output     | SDI Signal Output Terminal     |                           |
| AES Output     | AES/EBU Signal Output Terminal |                           |

### 20.4 Specifications

| Item                       |           | Specifications |                                                                   | Remark |
|----------------------------|-----------|----------------|-------------------------------------------------------------------|--------|
| Video<br>Signal<br>Output  | 3G        | Standards      | SMPTE425M, 424M                                                   |        |
|                            |           | Amplitude      | 800mV <sub>p-p</sub> (75ohm Load)                                 |        |
|                            |           | Impedance      | 75ohm Unbalanced                                                  |        |
|                            |           | Jitter         | Timing Jitter : 2.0UI or less<br>Alignment Jitter : 0.3UI or less |        |
|                            | HD        | Standards      | SMPTE292M                                                         |        |
|                            |           | Amplitude      | 800mV <sub>p-p</sub> (75ohm Load)                                 |        |
|                            |           | Impedance      | 75ohm Unbalanced                                                  |        |
|                            |           | Jitter         | Timing Jitter : 1.0UI or less<br>Alignment Jitter : 0.2UI or less |        |
|                            | SD        | Standards      | SMPTE259M                                                         |        |
|                            |           | Amplitude      | 800mV <sub>p-p</sub> (75ohm Load)                                 |        |
|                            |           | Impedance      | 75ohm Unbalanced                                                  |        |
|                            |           | Jitter         | Timing Jitter : 0.2UI or less<br>Alignment Jitter : 0.2UI or less |        |
| Digital<br>Audio<br>Output | Standard  |                | AES/EBU                                                           |        |
|                            | Data Rate |                | 6Mbps                                                             |        |
|                            | Amplitude |                | 1V <sub>p-p</sub> (75ohm Load)                                    |        |
|                            | Impedance |                | 75ohm Unbalanced                                                  |        |
|                            | Channel   |                | 4                                                                 |        |

# PBTS-500 Series User's Manual

## 21. Ordering Information

### 21.1 Main Product

| Constituent Parts                     | Specification                                            | Part Name             | Part Number |
|---------------------------------------|----------------------------------------------------------|-----------------------|-------------|
| PBTS-500 Main Frame<br>(Pelican Case) | Optical Multiplexing Unit                                | Main Frame            | OP-500      |
|                                       | Remote Power IN/OUT function support                     |                       |             |
|                                       | DC12V IN/OUT                                             |                       |             |
|                                       | Max. 6Ch Card Slots Installation                         |                       |             |
| PBTS-500R Main<br>Frame(2RU Rack)     | Max. 6Ch Card Slots Installation                         |                       | OP-500R     |
|                                       | 19inch 2RU Rack                                          |                       |             |
| OPTION 1                              | Fiber plate with SMPTE Female connector                  | Fiber Plate           | OP-FP-1     |
| OPTION 2                              | Fiber plate with SMPTE Male connector                    |                       | OP-FP-2     |
| OPTION 3                              | Fiber plate with Neutrik opticalCON DUO connector        |                       | OP-FP-3     |
| OPTION 4                              | Fiber plate with SC/APC connector and Neutrik PowerCON   |                       | OP-FP-4     |
| OPTION 5                              | Fiber plate with SC/UPC connector and Neutrik PowerCON   |                       | OP-FP-5     |
| OPTION 6                              | Fiber plate with LC/UPC connector and Neutrik PowerCON   |                       | OP-FP-6     |
| OPTION 7                              | Fiber plate with ST connector and Neutrik PowerCON       |                       | OP-FP-7     |
| OPTION 8                              | Fiber plate with FC connector and Neutrik PowerCON       |                       | OP-FP-8     |
| TRX Card                              | 1Ch SD/HD/3G-SDI TRx Card                                | 1Ch SDI TRX Card      | OP-23-1STR  |
| TX Card                               | 1Ch SD/HD/3G-SDI Tx Card                                 | 1Ch SDI TX Card       | OP-23-1ST   |
| RX Card                               | 1Ch SD/HD/3G-SDI Rx Card                                 | 1Ch SDI RX Card       | OP-23-1SR   |
| GEU Card                              | 10/100/1000Mbps Ethernet Card                            | Gigabit Ethernet Card | OP-23-1GE   |
| ETU Card                              | 10/100Mbps Ethernet Card                                 | 10/100M Ethernet Card | OP-23-1ET   |
| BAU Card                              | 8Ch Analog Audio IN/OUT Card, Bi-directional             | Analog Audio Card     | OP-23-8ATR  |
| ASU Card                              | 2Ch AES/EBU IN/OUT Card, Bi-directional                  | Digital Audio Card    | OP-23-2DATR |
| 8ALT Card                             | 8Ch Analog Audio IN Card                                 | Analog Audio Card     | OP-23-8ALT  |
| 8ALR Card                             | 8Ch Analog Audio OUT Card                                | Analog Audio Card     | OP-23-8ALR  |
| 4AMT Card                             | 4Ch Mic' Signal IN Card                                  | Analog Audio Card     | OP-23-4AMT  |
| 4AMR Card                             | 4Ch Mic' Signal OUT Card                                 | Analog Audio Card     | OP-23-4AMR  |
| 2TWU Card                             | 2Ch 2-Wire Intercom                                      | Analog Audio Card     | OP-23-2TWU  |
| 4AVT Card                             | 4Ch Analog Video/GenLock IN Card                         | Analog Video Card     | OP-23-4AVT  |
| 4AVT Card                             | 4Ch Analog Video/GenLock OUTCard                         | Analog Video Card     | OP-23-4AVR  |
| SAT Card                              | 1Ch SD/HD/3G-SDI Tx Card with Audio Embedded Function    | 1Ch SDI TX Card       | OP-23-SAT   |
| SAT Card                              | 1Ch SD/HD/3G-SDI Rx Card with Audio De-Embedded Function | 1Ch SDI RX Card       | OP-23-SAR   |
| CBTU Card                             | 1Ch Composite Video IN/OUT                               | Multi Signal Card     | OP-23-CBTU  |
|                                       | 1Ch Analog Audio IN/OUT                                  |                       |             |
|                                       | 1Ch Serial Data and SONY Protocol                        |                       |             |
|                                       | 1Ch 10/100M Ethernet,                                    |                       |             |
|                                       | 4Ch GPI/GPO                                              |                       |             |

### 21.2 Accessory

| Items                | Specification | Part Name               | Part Number          |
|----------------------|---------------|-------------------------|----------------------|
| Cables for PBTS-2300 | CBTU          | Analog Audio In         | CBTU Audio In Cable  |
|                      |               | Analog Audio Out        | CBTU Audio Out Cable |
|                      |               | 4Ch General Purpose In  | CBTU GPI Cable       |
|                      |               | 4Ch General Purpose Out | CBTU GPO Cable       |
|                      | Audio         | 4Ch Analog Audio In     | 4Ch Audio In Cable   |
|                      |               | 4Ch Analog Audio Out    | 4Ch Audio Out Cable  |