

4K UHD JPEG-XS ST2110 Converter

VICO-4L-XS

Manual

Rev. 2.0.1



Village Island Co., Ltd.

## Introduction

We congratulate and thank you for acquiring a VICO-4L-XS-IP Converter box. The device in your hands is the latest model in our VICO product series and can convert 4K video without visual artifacts and with ultra-low delay into a compressed data stream (between 1/8-1/60 ratio) using the state-of-the-art JPEG-XS technology from IntoPIX S.A. The compressed data stream can then be sent over IP using ST2110 technology.



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## **Safety Instructions**














### [ 1 ] Safety guidelines before using the device





- Before using your new device, please read carefully the safety guidelines below and use your device accordingly.
- This guide's target audience is anyone who will be using the device and its main purpose is to help users avoid personal injury or property damage due to erroneous handling and operation. Make sure you read this guide carefully and as many times as necessary. Please keep this guide handy.
- The guidelines presented here will explain the different levels of warning for cases where the wrong operation could cause danger of injury or damage.
- The security guidelines are classified for different degrees using the pictures below.






|   |  |
|---|--|
|  <b>Warning</b>  | Critical injuries or even death may occur if the guidelines presented with this picture are not followed properly. |
|  <b>Caution</b> | Injury may occur if the guidelines presented with this picture are not followed properly.                          |

Examples:

|   |   |
|---|---|
|  | This symbol will tell you that the content you are reading contains a warning or caution.   |
|  | This symbol will tell you that a certain operation or action is forbidden.  |
|  | <p>A blue symbol will tell you to perform a specific action.</p> <p>The symbol on the left instructs the user to unplug the device.</p> |

|  <b>Warning</b>   |   |
|--|---|
|  <p>Connect your device to a properly grounded power outlet.</p> <ul style="list-style-type: none"> <li>● Failure to do so can lead to fire or cause electric shock from short circuits or lightning strike.</li> </ul> |  <p>Never touch the unit and the power plug during thunderstorms.</p> <ul style="list-style-type: none"> <li>● Electrical shock may result.</li> </ul>   |
|  <p>Never use the product with line voltage other than indicated</p> <ul style="list-style-type: none"> <li>● Fire or electric shock may occur</li> </ul>   |  <p>Stop operation immediately in case there are fumes or abnormal sounds coming from the device.</p> <ul style="list-style-type: none"> <li>● Unplug the unit immediately and make sure there are no more fumes, etc. coming out of the unit. At this point please contact your dealer</li> </ul>           |
|  <p>The device is to be used indoors and never to be put in the vicinity of water.</p> <ul style="list-style-type: none"> <li>● Fire or electric shock may occur</li> </ul>   |  <p>Dust and dirt will accumulate at the power plug and AC outlets when left unattended for a long time, and when used in such conditions, fire or electrical shock may result. Periodically clean and check the electrical contacts.</p> <ul style="list-style-type: none"> <li>● Fire may occur</li> </ul> |
|  <p>Do not block the air vents on the cover or insert foreign objects inside.</p> <ul style="list-style-type: none"> <li>● Fire or electric shock may occur</li> </ul>  |  <p>If water or artifacts get inside, unplug the power plug.</p> <ul style="list-style-type: none"> <li>● Fire or electric shock may occur</li> </ul> <p>Please contact your dealer.</p>   |
|  <p>Do not damage, heat, pinch, or place heavy things on the power cord.</p> <ul style="list-style-type: none"> <li>● The power cord may be damaged, resulting in fire or electric shock.</li> </ul>                  |  <p>Never allow the unit to be disassembled, repaired or modified by anyone other than an authorized repair professional.</p> <ul style="list-style-type: none"> <li>● Fire or electric shock may occur</li> </ul> <p>Contact your dealer for internal inspection, maintenance and repair.</p>             |
|  <p>Do not use this product when the power cord or plug is damaged, or the power inlet is loose.</p> <ul style="list-style-type: none"> <li>● Fire or electric shock may occur.</li> </ul>                            |  <p>Do not use the unit in a damaged or broken state after having dropped it</p> <ul style="list-style-type: none"> <li>● Fire or electric shock may occur.</li> </ul> <p>Please contact your dealer.</p>  |

|   |   |
|---|---|
| Please contact your dealer.   |   |
|  Do not place containers or objects containing water on the equipment. <ul style="list-style-type: none"> <li>● If water spills into the product, fire or electric shock may occur.</li> </ul> |  When replacing the fuse, unplug the power plug and be sure to use the same rating and shape. <ul style="list-style-type: none"> <li>● Using the wrong fuse may cause fire or electric shock.</li> </ul> |
|  Do not place indoor equipment in a humid or dusty place. <ul style="list-style-type: none"> <li>● Fire or electric shock may occur.</li> </ul>  |  Install in a place that can withstand the weight of the device. <ul style="list-style-type: none"> <li>● Falling may cause injury.</li> </ul>   |

|  |   |
|--|---|
|  <b>Caution</b>   |   |
|  Unplug by grabbing the power plug and pulling it until it is free from the connection. Never unplug by pulling the power cord. <ul style="list-style-type: none"> <li>● The power cord may be damaged, resulting in fire or electric shock.</li> </ul> |  Do not insert or remove the power plug with wet hands. <ul style="list-style-type: none"> <li>● It may cause an electric shock.</li> </ul>  |
|  When installing, moving, or cleaning the device, be sure to unplug the power plug from the outlet. <ul style="list-style-type: none"> <li>● Not doing this may cause injury, fire or electric shock.</li> </ul>                                      |  Be sure to unplug the power plug from the outlet when the device is not be used for a long time. <ul style="list-style-type: none"> <li>● It may cause fire or electric shock.</li> </ul> |

## [ 2 ] Safety Notes

### (1)When using the device

- Do not use the device in a dusty environment or a location with too much vibration.
- When cleaning the unit, please use a soft dry cloth.
- Do not use benzine, thinner, alcohol, detergent, etc., to clean the unit as the exterior may deteriorate.
- Do not use or store device in a place susceptible to static electricity or electrical noise.
- It may cause failure or affect device performance.
- Do not place the device near corrosive chemicals or in places where corrosive gas is generated. It may cause device failure.

### (2)Operation Environment

Use in an environment that does not deviate from the operating temperature range specified for this device. Also, be careful not to be exposed the device to sudden temperature changes. This is necessary to prevent problems such as condensation.

### (3)Heat Dissipation

This device is cooled by the flow of air using fans. Be careful not to block the exhaust or air intake. Be careful not to put your finger on the air-cooling fan during operation. It may cause injury or cause the device to breakdown. The chassis may warm up during use, but this is not a malfunction.

### (4)Grounding

Make sure the device is connected to proper grounding.

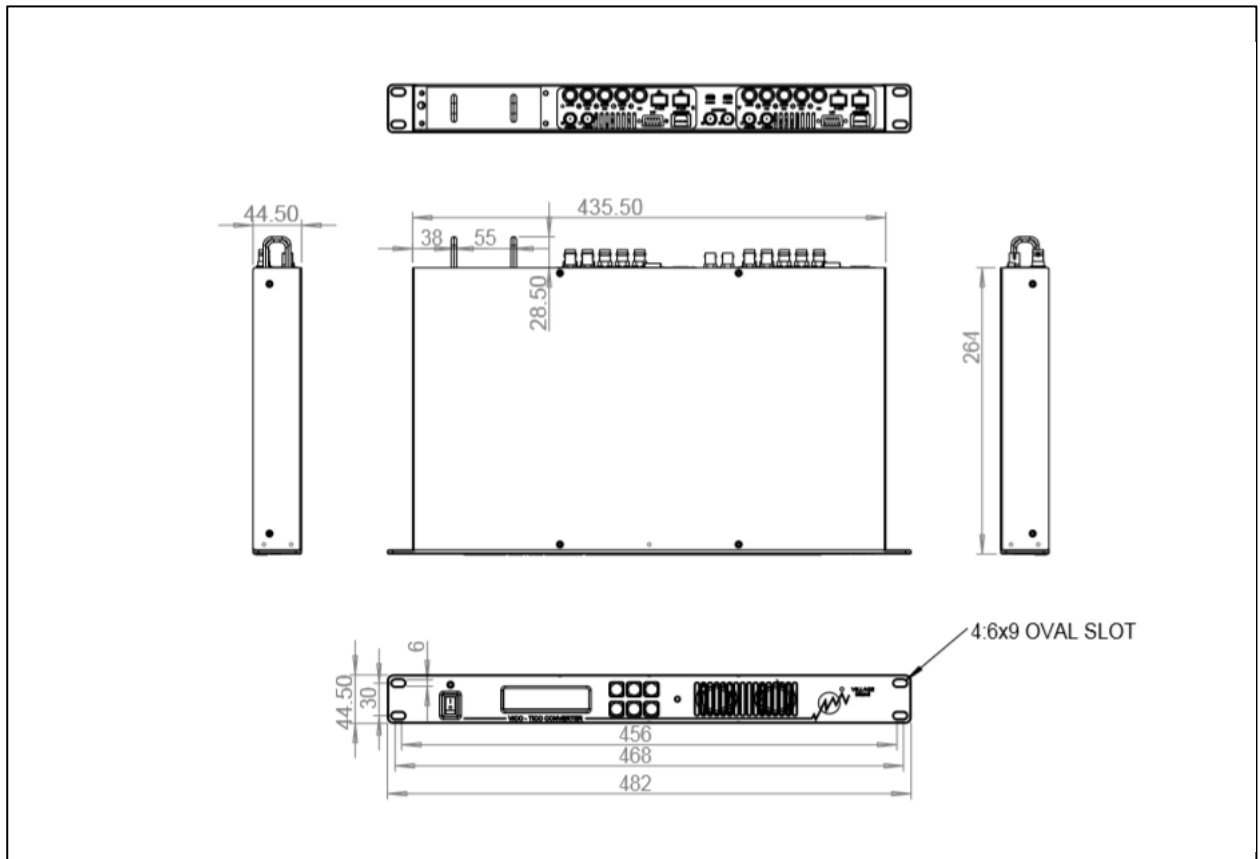
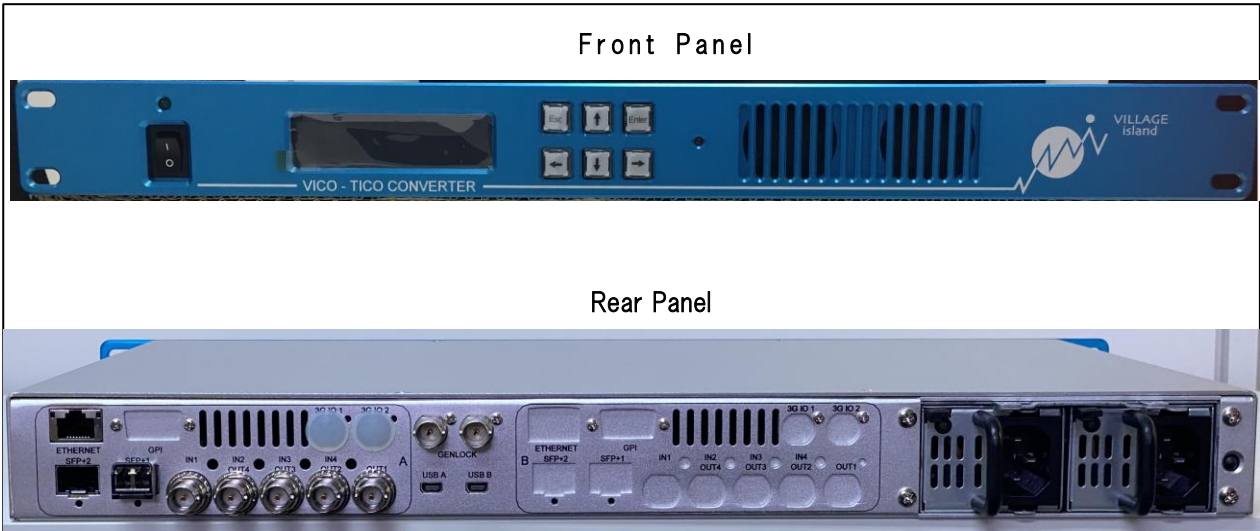
### (5)Items included with the product

- VICO-4L-XS-IP : 1 set

**If any of the above is missing, please inform your dealer.**

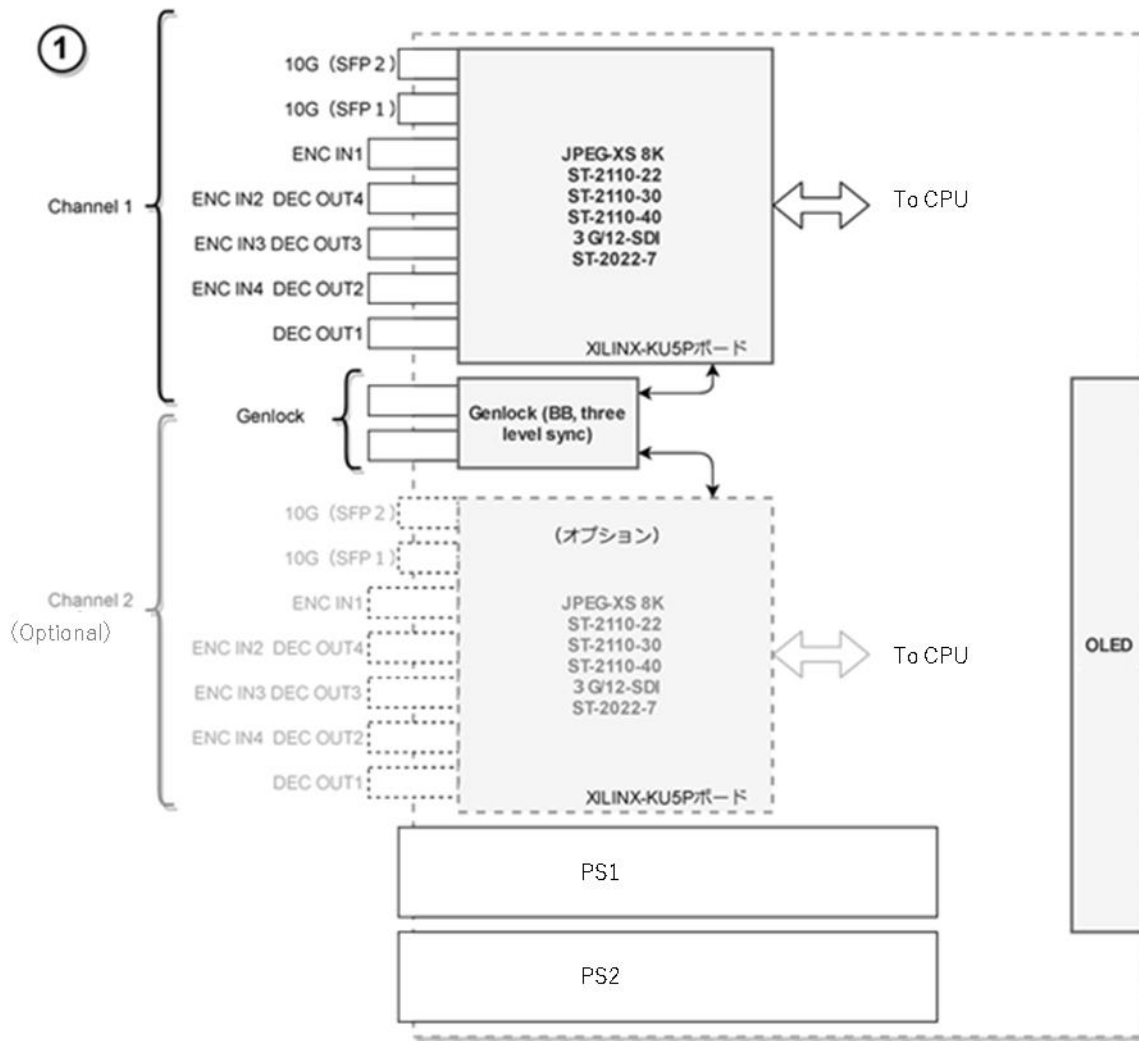
# Physical Specification

## [1] External View



# [ 1 ] Functional Specification

The block diagram below presents the general functional view.



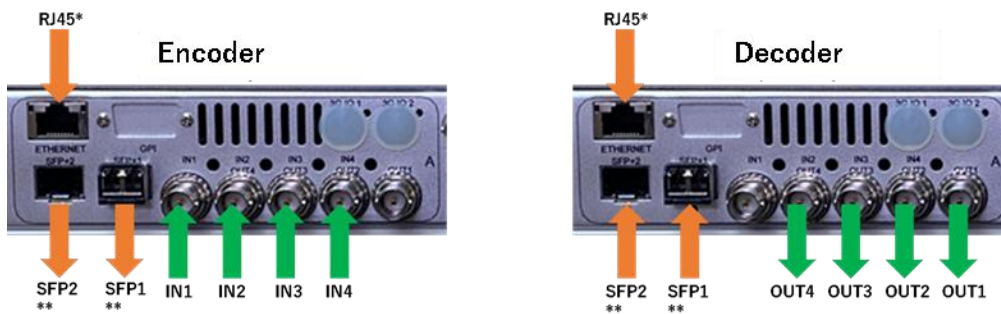
Functional Diagram

- The Encoder has a 4K input (PTP synchronized). The 4K signal can be a 1x12G-SDI input or 4x3G-SDI input. The input is compressed to the ratio range of 1/8 to 1/60. The compressed data is encapsulated into an ST211-22 RTP Stream.
- The Decoder receives the ST2110-22 RTP stream and decompresses the payload data into the original 4K video signal (1x12G-SDI output or 4x3G-SDI outputs).

- The format of the input video is 4K, 2 sample-interleave (2SI), and it supports the following framerates: 50p, 59.94p, 60p
- The IP streams consist of 1xST2110-22 video stream, 1xST2110-30 audio stream, and 1xST2110-40 ancillary data stream.
- The decoder supports PTP or External Genlock.
- The units can be controlled via the OLED menu or a Web UI.
- Errors are signal by SNMPv1 traps or the Error LED in the front panel.
- The decoder settings can also be configured using NMOS (IS-04/-05). です。

## [2]Interface

### VICO-4L-XS-IP Back Panel



\*RJ45: Control and Monitoring  
 \*\*SFP1: ST2110 Video, Audio, Ancillary and PTP, SFP2 is for ST2022-7(no PTP)

### Encoder Configuration:

| Video       | I/O          | Contents                      |
|-------------|--------------|-------------------------------|
| IN1(A)      | Input        | 4K 12G-SDI #1 or 4K 3G-SDI #1 |
| IN2(A)      | Input        | 4K 3G-SDI #2                  |
| IN3(A)      | Input        | 4K 3G-SDI #3                  |
| IN4(A)      | Input        | 4K 3G-SDI #4                  |
| ST-2110     | I/O          | Contents                      |
| SFP1(A)     | Output       | 10GbE                         |
| SFP2(A)     | Output       | 10GbE (ST-2022-7)             |
| SNMPv1/NMOS | I/O          | Contents                      |
| RJ45        | Input/Output | 100Mbps                       |

## Decoder Configuration:

| ビデオ         | I/O          | Contents                      |
|-------------|--------------|-------------------------------|
| OUT1(A)     | Output       | 4K 12G-SDI #1 or 4K 3G-SDI #1 |
| OUT2(A)     | Output       | 4K 3G-SDI #2                  |
| OUT3(A)     | Output       | 4K 3G-SDI #3                  |
| OUT4(A)     | Output       | 4K 3G-SDI #4                  |
| ST-2110     | I/O          | Contents                      |
| SFP1(A)     | Input        | 10GbE                         |
| SFP2(A)     | Input        | 10GbE (ST2022-7)              |
| SNMPv1/NMOS | I/O          | Contents                      |
| RJ45        | Input/Output | 100Mbps                       |

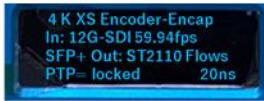
## [4] Configuration using the OLED Menu

### (1) OLED Menu Operation

The OLED menu is operated using the 6 buttons in the front panel









**OLED Display**

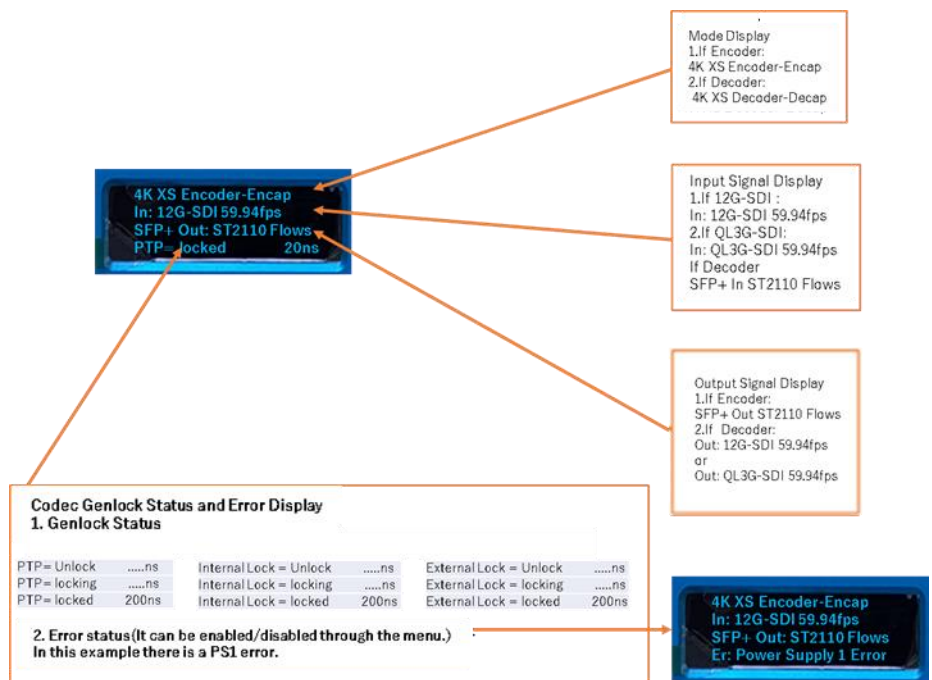


**Operation Buttons**



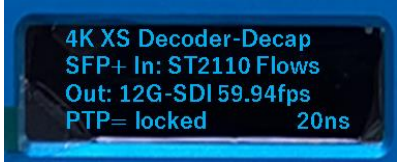
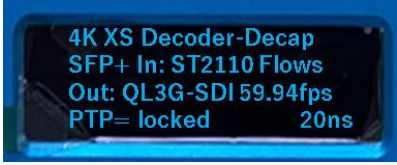
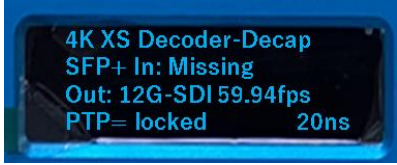
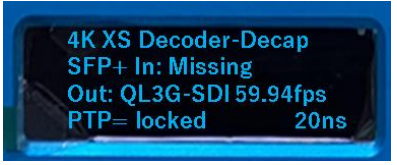
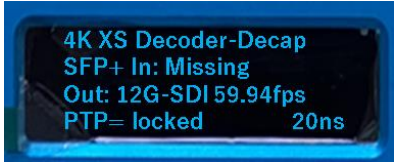
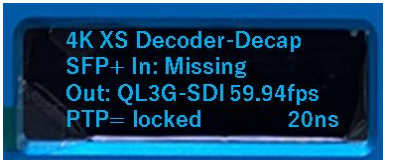
| Button  | Description      |
|---|------------------|
|  Enter | Move down / set  |
|  Esc   | Move up / cancel |
|  ↑     | Scroll up        |
|  ←     | Scroll left      |
|  ↓     | Scroll down      |
|  →     | Scroll right     |

Description of the OLED Display :



OLED Menu Displays :

| Status  | Encoder/Encap (12G-SDI) | Decoder/Encap (QL3G-SDI) |
|---|-------------------------|--------------------------|
| Input signal while in regular operation                                   |                         |                          |
| No input signal operation   |                         |                          |
| When the input of the encoder is not complete (missing SDI connection.)   |                         |                          |
| When there is an error in the encoder (e.g., missing on the power cable). |                         |                          |

| Status                                 | Decoder/Decap (12G-SDI)   | Decoder/Decap (QL3G-SDI)   |
|--|---|--|
| Normal input signal status             |  |  |
| When there is no SFP input.            |  |  |
| When there is an error in the decoder. |  |  |

## (2) OLED Menu—

OLED Menu Display :

To access the OLED menu, the first thing to do is press the “Enter” Button,



After accessing the menu, the user can see the current selected item blinking.

To access the menu items after “4”, the user needs to use the up ↑ and down ↓ arrows

To enter the selected menu, the user must press the “Enter” button. After that, a new menu will be displayed. The current settings will have an \* symbol next to them in the new menu.

The menus for the Encoder and Decoder differ.

[Example] IP Address Settings :

From the Encoder or Decoder Menu, the IP Settings can be accessed using the  $\uparrow$   $\downarrow$  buttons and by pressing the “Enter” button—IP Settings.

IP Address is displayed.



When setting the IP Address, Subnet, etc., the selected position flashes on the screen.

Change the position to select with the “←” and “→” buttons.

Change the value of the place selected by the “ $\uparrow$ ” and “ $\downarrow$ ” buttons.

\* The values that can be selected for changing the numerical value differ depending on the item and position.

\*\* ST 2110 Flow and MAC Address can be set similarly.

After making changes, press the “Enter” button to set and return to the IP Settings menu.

If DHCP is enabled in the IP menu, “IP Address From DHCP” will be displayed, and it will not be possible to set it manually.



### (3)Decoder and Encoder Manus

- Outline of the menu:

| Decoder Menu     |                       |   |
|------------------|-----------------------|---|
| 1.Input          | 1.ST2110 SFP Port 1   | * |
|                  | 2.ST2022-7 SFP Port 2 | * |
|                  | 3.ST2022-7 Class      | * |
| 2.Output         | 1.Video Format        | * |
| 3.XS Compression | 1.AUTO                |   |
|                  | 2.1:8                 |   |
|                  | 3.1:10                |   |
|                  | 4.1:12                |   |
|                  | 5.1:16                |   |
|                  | 6.Selectable          | * |
|                  | 7.Status              | * |
| 4.IP Settings    | 1.RJ45 Port           | * |
|                  | 2.SFP Port 1          | * |
|                  | 3.SFP Port 2          | * |
|                  | 4.IGMP Version        | * |
| 5.Genlock Mode   | 1.Mode                | * |
|                  | 2.Parameters          | * |
| 6.Mode           | 1. 4K XS Enc-Encap    |   |
|                  | 2. 4K XS Dec-Decap    |   |
| 7.System         | 1.Enc-Encap Board     | * |
|                  | 2.Control Board       | * |
|                  | 3.Error Management    | * |
|                  | 4.Power Supply Alarm  | * |
|                  |                       |   |

| Encoder Menu                                     |                       |   |
|--|-----------------------|---|
| 1.Input  | 1.12G-SDI 2160p 60    |   |
|  | 2.12G-SDI 2160p 59.94 |   |
|  | 3.12G-SDI 2160p 50    |   |
| 2.Output   | 1.ST2110 SFP Port 1   | * |
|  | 2.ST2110 SFP Port 2   | * |
| 3.XS Compression                                 | 1.1:8                 |   |
|  | 2.1:10                |   |
|  | 3.1:12                |   |
|  | 4.1:16                |   |
|  | 5.Selectable          | * |
| 4.IP Settings                                    | 1.RJ45 Port           | * |
|  | 2.SFP Port 1          | * |
|  | 3.SFP Port 2          | * |
|  | 4.IGMP Version        | * |
| 5.Genlock Mode                                   | 1.Genlock Mode        | * |
|  | 2.PTP Settings        | * |
|  | 3.Ext. Lock Settings  | * |
| 6.Mode   | 1. 4K XS Enc-Encap    |   |
|  | 2. 4K XS Dec-Decap    |   |
| 7.System   | 1.Enc-Encap Board     | * |
|  | 2.Control Board       | * |
|  | 3.Error Management    | * |
|  | 4.Power Supply Alarm  | * |
| * 詳細は別途書類 (VI_4k-XS_MENU_20210916.xls) でご確認ください。 |                       |   |

### Menu Items:

| Item           | Encoder  | Decoder                                    |
|----------------|--|--|
| Input          | Encoder Input Signal   | Decoder Input Signal                       |
| Output         | Encap Output Signal (10G)  | Decoder Output signal: 12G-SDI or 4x3G-SDI |
| XS Compression | JPEG-XS Compression Ratio  |  |
| IP Settings    | VICO-4L-XS-IP Network and SNMP Trap Settings   |  |
| Genlock Mode   | Encoder Genlock Settings (PTP or Genlock)  | Decoder Genlock Settings(PTP or Genlock)   |
| Codec Mode     | VICO-4L-XS-IP Mode of operations settings. The unit can be set as either Encoder or Decoder. |  |
| System         | System settings, version, licensing information, and error status.                           |  |

- Common Menu

- IP RJ45Port Menu:

| IP Settings (RJ45 Port)   |                       |
|---------------------------|-----------------------|
| 1. DHCP                   | 1. Enable             |
|                           | 2. Disable            |
| 2. IP Address             | IP Address            |
|                           | XXX.XXX.XXX.XXX       |
| 3. MAC Address            | MAC Address           |
|                           | XX.XX.XX.XX.XX.XX     |
| 4. IP Subnet Mask         | IP Subnet Mask        |
|                           | XXX.XXX.XXX.XXX       |
| 5. IP Gateway             | IP Gateway            |
|                           | XXX.XXX.XXX.XXX       |
| 6. SNMP Trap Enable       | 1. SNMP Trap On       |
|                           | 2. SNMP Trap Off      |
| 7. SNMP Trap IP Addresses | Trap Dest. IP Address |
|                           | XXX.XXX.XXX.XXX       |
| 8. SNMP Trap Port         | Trap Dest Port        |
|                           | XXX                   |

\* X represents a numerical value.

**System Settings menu:**

The main items available to users in the system menu are:

- Restore Factory Defaults: Restore factory default settings
- Version Information: Display the CPU's FW version and serial number (ID), FPGA, etc.
- Device Information: Information display for FPGA
- System Monitor: Fan speed, internal temperature, power status information display
- Error Management: Top screen error display settings, last three error logs, error log deletion function
- SDI Signal Status: Status display of input/output SDI signals
- IP Packets Statistic: IP input packet reception status display
- Key Locking: Front panel key lock setting
- Power Supply Alarm: Alarm sound output setting when redundant power input error occurs

## [5]Front panel LED

The lighting/blinking of the LED indicates the status of the device.

**When turning on the unit this LED will turn green**



**In case of an error, this LED will blink**

In an abnormal event, the red LED blinks:

- Overall Error
- Power Supply 1 Error
- Power Supply 2 Error
- FAN Error
- FPGA Abnormal Temperature Error
- No Input Error
- JPEG-XS Codec Error
- SFP1 Input Error
- SFP2 Input Error
- Ancillary Error
- Genlock Error

## Interface Specifications

### Encoder Mode

|               |  |
|---------------|--|
| SDI Input     | ST-2082 /12G-SDI 1 Channel<br>OR<br>ST 424 / 3G-SDI 4 Channels                             |
| Colorimetry   | YCBCR 422  |
| Bit Depth     | 10bits   |
| Frame Rate    | 50p 59.94p 60p   |
| Resolution    | 3840× 2160   |
| IP Outputs x2 | SFP+ (10GbE) 2Channels<br>ST-2110-10/22/30/40<br>ST-2059v1/v2 (SFP1 only)<br>SFP2:ST2022-7 |
| IP I/O x1     | RJ45 100MbE IEEE 802.3<br>SNMPv1、HTTP(Web GUI)   |

### Decoder Mode

|              |  |
|--------------|--|
| SDI Output   | ST-2082 /12G-SDI 1 Channel<br>OR<br>ST 424 / 3G-SDI 4 Channels                               |
| Colorimetry  | YCBCR 422  |
| Bit Depth    | 10ビット  |
| Frame Rate   | 50p 59.94p 60p   |
| Resolution   | 3840× 2160   |
| IP Inputs x2 | SFP+ (10GbE) 2 Channels<br>ST-2110-10/22/30/40<br>ST-2059 v1/v2 (SFP1 Only)<br>SFP2:ST2022-7 |
| IP I/O x1    | RJ45 1GbE IEEE 802.3<br>SNMPv1、HTTP(Web GUI)   |

| Name                    | Description   |
|-------------------------|---|
| Dimensions(mm)          | 1RU 432(W) x 262(D) x 44.0(H) (Excluding protrusions) |
| Power Supply (AC)       | AC 100V-240V  |
| Power Consumption       | 70W or less   |
| Operational Temperature | - 10°C ~ 40°C   |
| Operational Humidity    | 10%RH~90%RH However, there should be no condensation  |

## Support

In case of problems or malfunctions, please contact us using the information below.

|                          |   |
|--------------------------|---|
| Village Island Co. Ltd.. |   |
| Address                  | 3-19-1-5F, Shirokanedai, Minato-ku, Tokyo, 108-0071 |
| Phone Number             | +81-3-6409-6206<br>+81-3-6409-6207 (FAX)            |
| Email                    | support@village-island.com                          |

You can find additional information and news regarding this and other products by accessing our website.

<http://www.village-island.com/>

## License

VICO-4L-XS is a product released by Village Island Ltd.

TICO-XS(JPEG-XS) is a proprietary technical product of intoPIX S.A (Belgium)

### PATENT MARKING NOTICE

Notice under 35 U.S.C. §287(a):

This product or service includes JPEG XS-compliant features covered by patents in the United States and other jurisdictions owned by intoPIX SA (“intoPIX”) and Fraunhofer-Gesellschaft zur Foerderung der angewandten Forschung E.V. (“Fraunhofer”) and listed at [www.jpegxspool.com](http://www.jpegxspool.com). Additional patents may be pending in the United States and elsewhere.

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September 27, 2024.

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