

Digital Video Mixer

ODYSSEY –4H

User's manual

Precautions

- Penetration of liquid into the device may cause its failure. For prevention of fire or electrical shock do not operate or leave the device in the rain or in the places with high humidity.
- The device must be placed far from powerful sources of heat such as direct sunlight, heat radiators etc.
- Before making any connection it is necessary to switch off the power of the device and the power of all equipment connected to it.
- **This device is grounded through the ground wire of the power cable. To avoid injury of people and loss of the device operability the cable must be connected only to a socket with a grounding contact to which a grounding circuit is connected. The external equipment to be connected to the device must have connectors and cables of the corresponding types. All the equipment to be connected must be grounded without fail.**
- All cables connected to the device must be laid in such a way that excludes possibility of failure caused by their tension, bend, break etc.
- Before cleaning the device it must be disconnected from a power supply network. Use only slightly damp cotton cloths well wrung out. It is not recommended to use cleaning liquids, sprays or other chemicals.
- User must not repair the device by his/her own forces. For service and maintenance it is necessary to apply to qualified specialists.
- To prevent an electrical shock do not open the device with a connected power supply cable. Dangerous voltages are present even at switched-off power button.
- During operation and maintenance of the device it is necessary to take measures to exclude appearance of static voltages that could cause a failure of some components of the device. For this, avoid use of furniture made of polymer materials and clothes made of wool and other materials producing static electricity.

Features

- 8 inputs (Supports both SD SDI (576\50i) and HD SDI (1080\50i, 720\50p))
- 8 built-in synchronizers provide switching both synchronizing and asynchronizing sources
- Built-in multifunctional multiviewer on Full HD monitor for preview video sources, Program and Preset video signals, audio level monitoring, service information - source markers, current mode, clock etc.
- 10-bits for video, 20-bits for audio according to ANSI/SMPTI 259M and EBU Technical Recommendation R68-2000
- LUMA keyer, DSK
- Built-in two independent logo generators including the animation.
- Built-in clock on air generator
- Built-in test-pattern generator
- Built-in slides generator provide possibility to remember static images in the full resolution for each input, loaded from external PC through Ethernet,
- Two independent PIP
- Tally interfaces
- Built-in 8x2 matrix switcher
- PC remote control

This is an ideal solution for Live Mixing, Conferences, Church, Web Casting etc.

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1. Connections

1.1. Rear panel

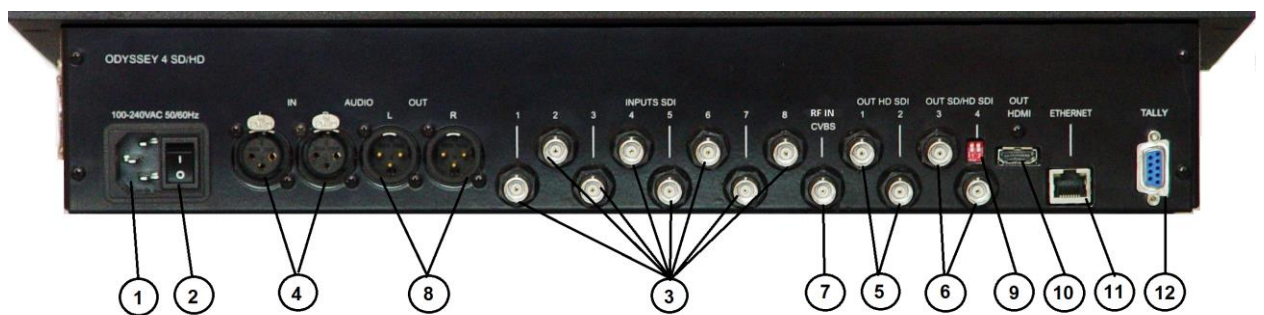


Figure 1.

1.2. Destination of connectors (Fig. 1)

1	POWER 220V	220 V power supply connector
2	I/O	power supply switch
3	INPUT SDI	SD/HD SDI video inputs
4	AUDIO IN (L/R)	analog audio inputs
5	HD SDI OUTPUT	HD SDI video outputs
6	SD/HD SDI OUTPUT	SD/HD SDI video outputs
7	RF IN	input of external reference signal
8	AUDIO OUT	analog audio outputs
9		mode switcher
10	HDMI OUT	multiviewers HDMI preview output
11	ETHERNET	Ethernet connector
12	TALLY	socket for Tally interface

1.3. Connection to a power supply network

Is made through the power supply connector **POWER 220V** on the rear panel (1 on Fig. 1). Connection must be made to a socket with a ground contact. Before this, it is necessary to make sure that the power switch button (2 on Fig. 1) is in **O (OFF)** position .

1.4. Connection of signal sources

It is possible to connect 8 non-synchronous sources of HD or SD SDI video signals (BNC connectors - **3** on Fig. 1) . On SD mode it is possible to mix between SD and HD video signals. It is possible to use synchronous sources also. In this case mixer is passes to the slave mode from a signal of external synchronization through **RF IN** (socket **7**, fig. 1) from the BBG (Black Burst Generator, PAL) for SD mode or three-level for HD mode. As sources of video it is possible to use slides (loaded earlier from external PC static images), color **BARS** (**4**, fig. 2) and black field (**BLACK**) (**3**, fig. 2), presented by separate buttons on mixers buses.

The sources of audio soundtrack signals can be embedded audio in SDI or analogue signals from an external audiomixer. There is a possibility to assign any of sound channels to any of video inputs.

Connection of analogue audio sources (two mono or one stereo.) is carrying out through **AUDIO IN (L/R)** sockets (two XLR sockets - **4**, fig. 1).

1.5. Output connections

There are four video outputs (**HD SDI OUTPUT** , **SD/HD SDI OUTPUT**) (BNC sockets -5 and 6, Fig. 1). Two of them (5, Fig.1) are use only in HD mode. The rest (**6**. Fig.1) can be SD or HD –reassign in menu.

Each of 4 SDI video outputs can be renominated in the menu to output one of 6 signals:

- program output (PGM)
- program output without logos and titles (Titles Free),
- preview output (PVW),
- program output without logos (Logo Free),
- output of internal switcher 1 (Aux1),
- output of internal switcher 2 (Aux2)

The group of embedded audio signals are assign for each of SDI output

Output of the generated analogue program audio signals (two mono or one stereo) is carried out through **AUDIO OUT** sockets (8, fig. 1)

The Preview FullHD monitor connected through **HDMI OUT** socket (10, Fig.1) working in multiviewer mode for preview video sources, Program and Preset video signals, audio level monitoring, service information - source markers, current mode, clock etc.

ETHERNET socket (11, fig. 1) is used for connection with Ethernet network for loading and updating of new firmware, loading of pictures (slides) and logos from external computer, systems configuration, installations of not operative parametres, installations of system time, remote control from external computer through the virtual keyboard and also in playout systems etc.

Through the **TALLY** socket (12, fig. 1) (8 keys) the alarm Tally bulbs are connected for displaying which active videocamera on air .

Attention! All connections should to make only at the switched off Power Supply of the connected equipment!

2. Destination of control elements

2.1. Control panel

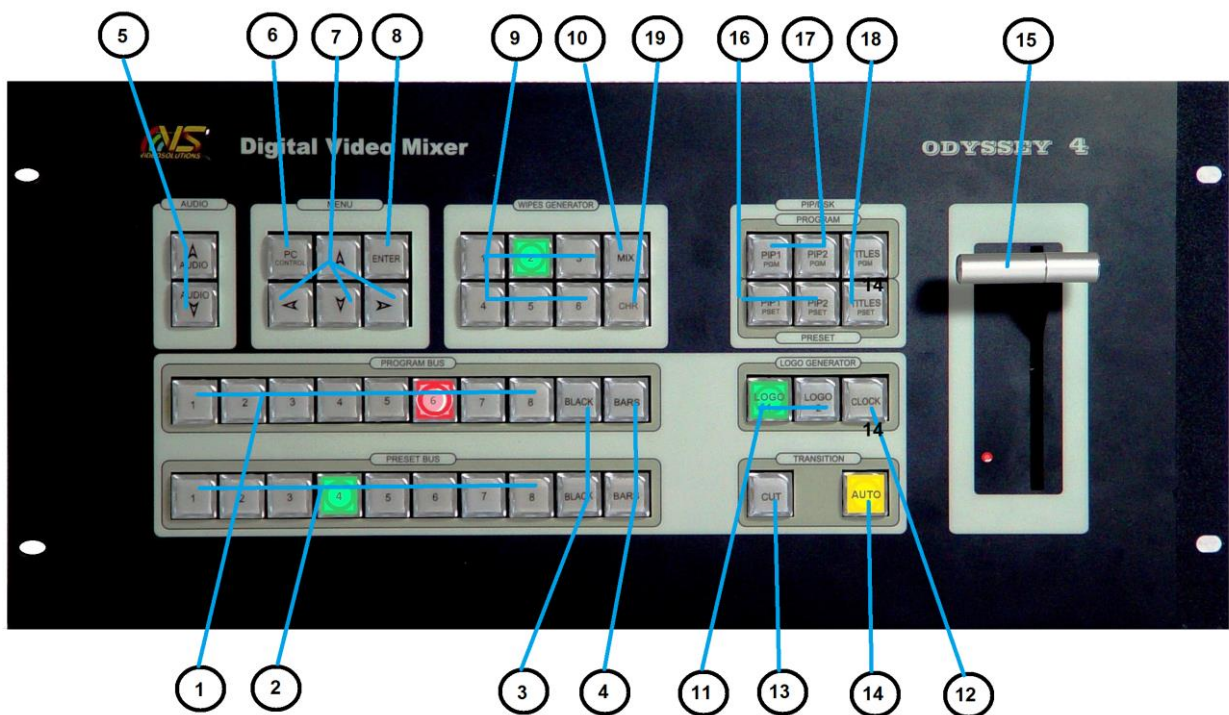




Figure 2.

2.2. Destination of control elements (Fig. 2)

- | | | |
|---|---|-------------------------------------|
| 1 | PROGRAM BUS | buttons of program bus of mixing |
| 2 | PRESET BUS | buttons of preset (preparation) bus |
| 3 | BLACK | fade to black buttons |
| 4 | BARS | color BARS buttons |
| 5 |  | audio level control buttons |
| 6 | PC control | pass to PC control button |

7		cursor menu buttons
8	ENTER	enter of chosen mode
9	1,2,3,4,5,6	choice of wipes buttons
10	MIX	choice of the video transition -wipes or mixing (dissolve)
11	LOGO 1,LOGO 2	switching of logotypes
12	CLOCK	switching of the clock on air
13	CUT	cut transition from Preset to Program
14	AUTO	performance of a video transition with a preset speed
15		transition manual controller, T-fader
16	PIP 1, PIP 2 PSET	PIP buttons on Preview monitor (rehearsal mode)
17	PIP 1, PIP 2 PGM	switching of PIP into Program output
18	TITLE PGM/ PSET	switching of titles on Preset (rehearsal mode)or into the Program output
19	CHR	Chroma key (option)

3. Basic operations

3.1. Mixer switching on/off

Set the power button on the rear panel (**2** on Fig.1) to the **I** position to switch on the mixer. The mixer operation system (**OS**) begins to loading. During the OS loading (about 20 seconds) it is not recommended to perform any operations.

** After power switching off, the settings made during operation will be saved in mixer's memory.*

3.2 Preparation for work

The mixer is a complicated hardware and software complex; therefore it is necessary to familiarize with this User's Manual thoroughly before switching it on. Study the destination of connectors on the rear panel and operating controls on the front panel.

Assemble the system in its minimum configuration: the mixer, the HDMI monitor, video and audio sources.

4. Main functions

4.1 Wipes

The mixer has a set from 16 possible wipes. For each from 6 Wipes (**9** Fig.2) buttons on the control panel chosen type of wipe are assigned. There are 5 possible values of transitions speed in **AUTO** mode. There are 3 gradation of blur of wipes border and 5 possible color of border.

4.2 PIP

Two independent windows of PIP are possible. It is possible for each windows to change size and place on the screen through menu. During manipulations with PIP's options the windows on program output are switched off till the using of buttons **16,17** (fig. 2).

Choice of a source for PiP is carried out by pressing of the corresponding button **16** (fig. 2) and simultaneous pressing of the button of the chosen input on **PRESET BUS** (**2**. A Fig. 2).

4.3 Titles

Two ways of Title input into the program signal are possible:
-**Luma Key** mode.

Title images prepared on the external Title generator takes from chosen input which assigned by pressing **TITLE preset** (18. Fig.2) and simultaneous pressing the button of a corresponding input on **PRESET BUS** (2. A Fig. 2).

- **TITLE+a channel** mode (DSK).

Title images prepared on the external Title generator with a-channel takes from chosen two inputs. Possible variants: 1+2, 3+4, 5+6 inputs. Main difference from **Luma Key** mode, the choice of the corresponding pair inputs is carried out from external PC

TITLE Preset button (18. Fig.2) carries out of preliminary viewing mode of Titles (rehearsal mode).

TITLE Programm button carries out input of Titles into the Program signal

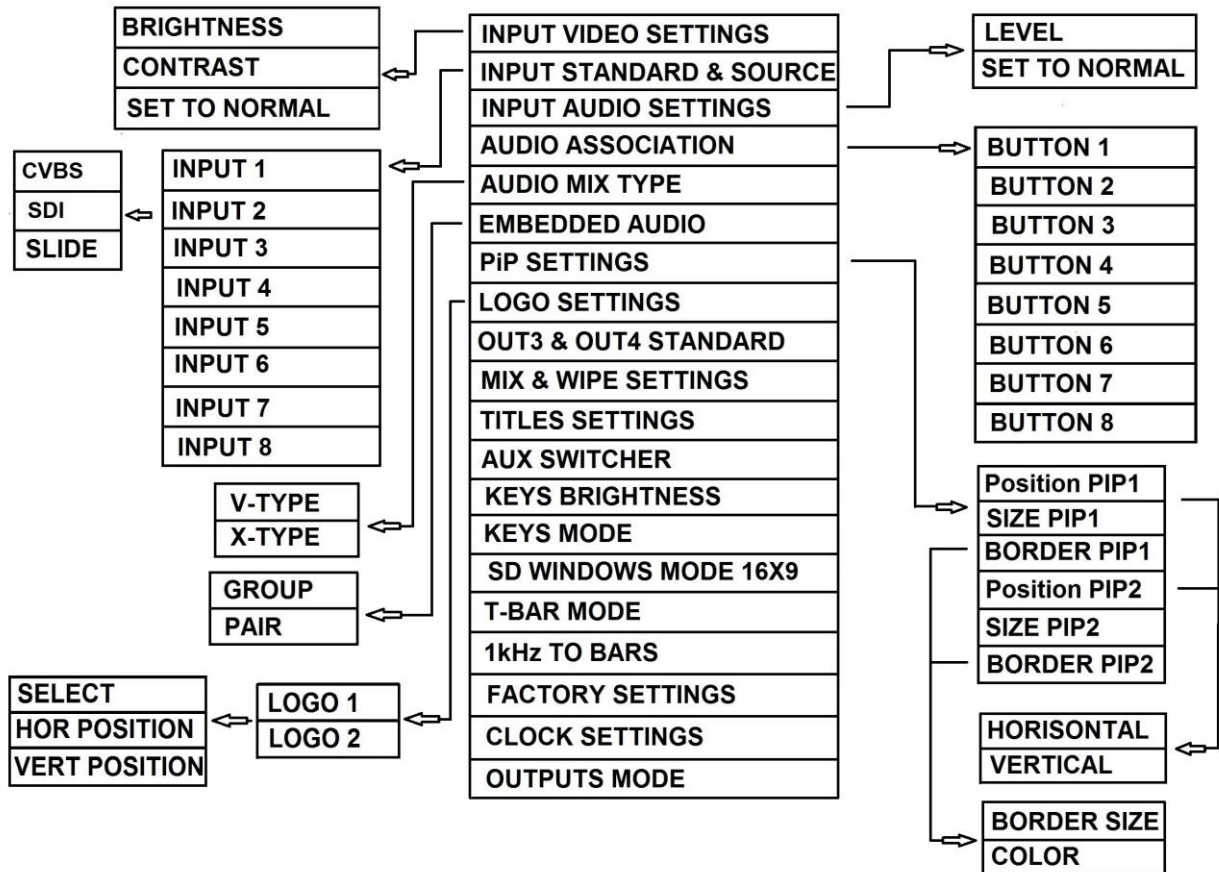


Figure 3.

4.4. Management of the screen menu

There is menu map on Figure.3, Figure.4.

There are three possible levels of control of mixer:

- Operative control - buttons of the keyboard,
- Not operative control - through the screen menu,
- Seldom used installations - from the external computer

To input into the screen menu it is enough to press any of buttons 7 (fig. 2) with cursors.

The exit from the menu is carrying out by pressing of any button of a mixer, except menu buttons.

The menu allows to carry out:

- to adjust parameters of video inputs (contrast, brightness),
- to instal of a format of the resolution (SD/HD) for each input,
- to instal of the chosen slide on exact input,

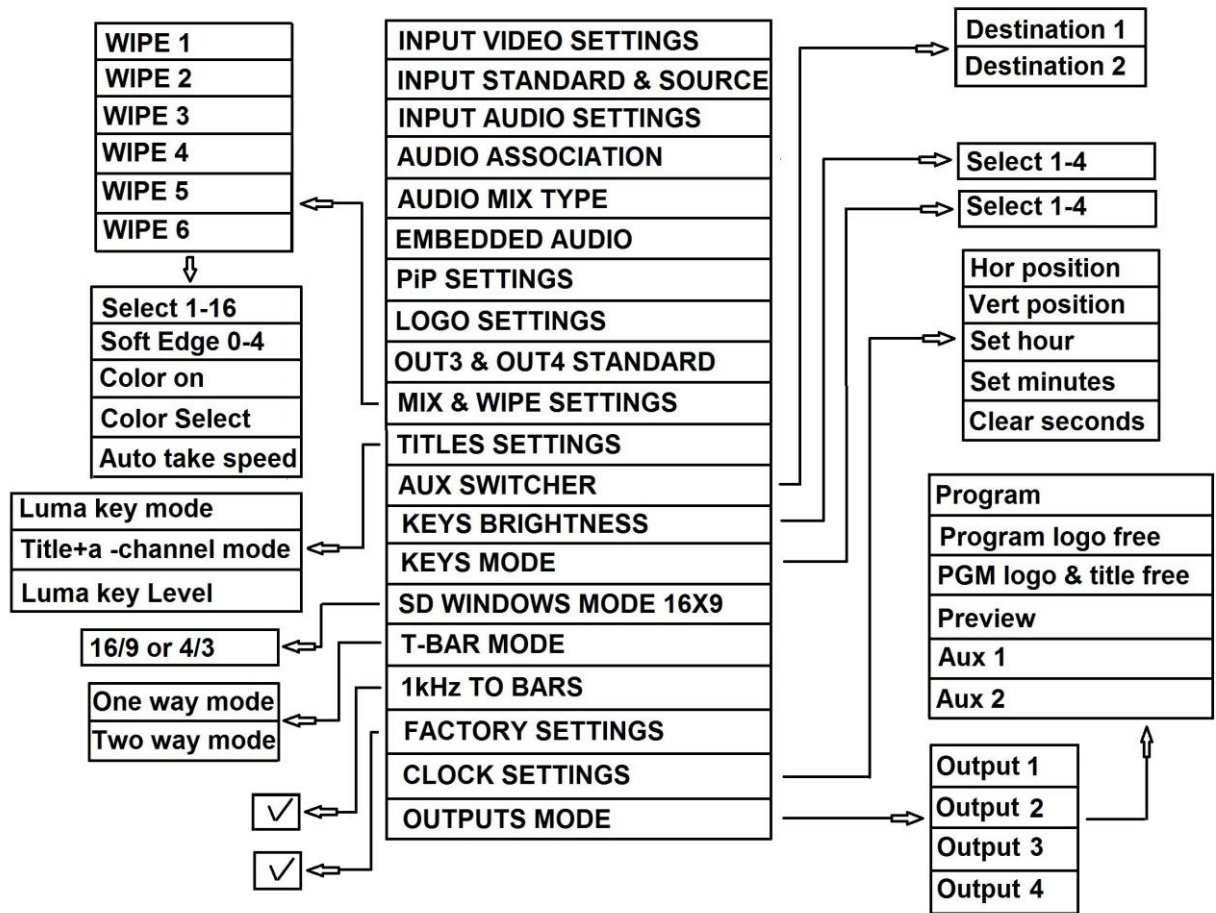


Figure.4

- to adjust audio levels,
- to reassign audio sources,
- to choose audio transition mode (V or X) ,
- to choose embedded audio (Group or Pair),
- to adjust the place and size of PIP,
- to adjust the place of Logos and Clock,
- to install output resolution (SD or HD) for 3 and 4 video outputs,
- to install transitions modes, choose of wipes for each of 6 buttons, choose the wide, color and speed of transition (**BOARDER**) in **AUTO TAKE** mode,
- to install the **Titles** mode (**Luma Key** or DSK), to adjust the level of **Luma Key** cutting,
- to choose inputs for AUX1 and AUX2,
- to adjust of brightness of buttons illumination,
- to install of variants of buttons illumination,
- to choose output format in SD mode (16/9 or 4/3),
- to choose T-fader mode (one way or two way)
- to install audio test signal (1khz, 0 dB) with color Bars
- to install mode of video outputs
- to install mode clock output (place on the screen, correction, reset of seconds)
- reset to default-**RESET**,

4.5 Control from external computer

Mixers set include specialized software CONFIG which allows to carry out:

- loading the logo images,
 - loading slides,
 - multiviewer decoration,
 - mixers control from virtual keyboard,
 - mixers control in playout systems,
 - to install SD or HD mode
 - to install embedded audio channels on SDI outputs,
 - to install Titles mode (Luma or DSK),
 - to choose pair of chosen of DSK inputs,
 - to assign audio sources for video inputs,
 - to install Tally configuration (8 PGM or 4 PGM & 4 PVW),
 - to system upgrade,
 - to install video outputs mode from the next 6 variants :
 - program output (PGM)
 - program output without logos and titles (Titles Free),
 - preview output o (PVW),
 - program output without logos (Logo Free),
 - output of internal switcher 1 (Aux1),
 - output of internal switcher 2 (Aux2)
- All users' adjustments are saved in memory

4.6 Management of 8 X 2 internal Matrix Switcher

- select two specific outputs of the four available on the rear panel (menu item "Output mode") and assign function Aux1 or Aux2 from the list.
- select the desired input number In the menu item "Aux switcher" to proposed two directions and Destination1 Destination2.

5. Specifications

Input signals:

Video

SD SDI (576\50i) (10 bit, 270 mbt\s) according to recommendation of SMPTI-259M
 HD SDI (1080\50i, 720\50p) according to recommendation of SMPTE 292M / HDTV (1.485/1.001Gbps)

Audio: SDI embedded - 20 bits according to ANSI/SMPTI 259M and EBU Technical Recommendation R68-2000

Analogue audio inputs- balanced 1v,10kom

Output signals:

SD SDI (576\50i) (10 bit, 270 mbt\s) according to recommendation of SMPTI-259M
 HD SDI (1080\50i, 720\50p) according to recommendation of SMPTE 292M / HDTV
 Analogue audio outputs- balanced 1v,10kom

Power Consumption 35 VA

Power Supply: 90-260V~, 50/60 Hz

Dimention: 483x22x80mm

Weight: 4.5 kg

Connections

VIDEO in/Out 12 BNC

Audio in/out

4 XLR

Set:

Video mixer ODYSSEY

Power Supply cord

Owner manual

Software CONFIG