



TitanHD
Operator Manual

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ABOUT

This Operator Manual describes the use of the Transvideo TitanHD.

The first Titan has been introduced to the Film Industry during year 2000.

The TitanHD is our latest contribution to the Digital Cinematography world, offering wireless digital transmission for HD-SDI, SD-SDI and Composite video without latency or compression.

This manual describes TitanHD with Software 1.17 or upper.

The products described in this book are professional equipments; they are not designed for consumer use. Utilization of these products implies knowledge of basics in video signal management, HDTV, film making concept and wireless transmission..

WARNING & CAUTION

WARNING:

This product must be used in a correct grounded electrical environment; ground defects can create severe problems to the equipment, the picture quality and even cause danger for the user.

WARNING:

Copyright law and international treaties protect this product, its design and its software. One or several international patents apply to the TitanHD.

Unauthorized reproduction or distribution of this product or its design or its software or any portion of them, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.

CAUTION:

Warranty is void if the product is opened. The unit contains electrostatic sensitive devices, which can be damaged or destroyed if you touch them. Very high voltage is present in the product and there is some risk of electric shock if opened by a non-accredited technician. Standard ESD procedures must be strictly followed during disassembly/re-assembly of the unit.

The user and/or technician assume full responsibility for any risk of bodily injury, death or property damage arising out of the use or disassembly or repair of this equipment. In no event shall Transvideo S.A. or its local representatives be liable to a user, technician or third party for any loss of income or any damage of any kind resulting from the use of or work on the said equipment.

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INTRODUCTION

Condensed Operating Instructions

- ① Connect an adapted power supply to the XLR connector or a battery if any socket available to the TitanHD Tx (transmitter) and to the TitanHD Rx (receiver).
- ② Connect a video source to the Tx video input (HD or SD)
- ③ Connect a system to the Rx video output (HD or SD)
- ④ Switch on the TitanHD Tx and Rx

For more information, please read next chapters.

Unpacking and Inspection

The TitanHD is delivered in a rugged waterproof case. Use this case for storage and transportation.

Control the content of the package accordingly to the packing list.

Visit our website <http://www.transvideo.eu>. Login or Create a new account to register your product by using "My Products" menu

Or fill up the warranty card and send it by mail or by fax to your distributor or to the factory.

Safety Inspection

Before using the transmission system be sure that the product is not damaged and that the connector do not have missing pins or foreign objects inside the housing.

The cables must be in good condition and adapted to the environment where you are working. A bad quality or wrong-wired cable may damage this equipment or other equipment attached to it and/or create interferences. Transvideo offers high quality cables for cameras, power supplies and other equipment. Contact Transvideo S.A. or its local representative in case of need.

This product must be used in a properly grounded electrical environment. Ground defects can create severe problems to the equipment and/or picture quality and may even cause danger for the user.

The video cable must be adapted for carrying HD SDI signals. Proper 75 Ω connectors must be used. Always check the connector before plugging a cable to your monitor.

The TitanHD needs to be in a ventilated area for a proper cooling. Prolonged use in confined environment without ventilation can damage the monitor.

IMPORTANT:

Do not use damaged cables with this equipment.
Damaged connectors may seriously damage your equipment.
Never seal the TitanHD in a plastic bag.

Product Overview

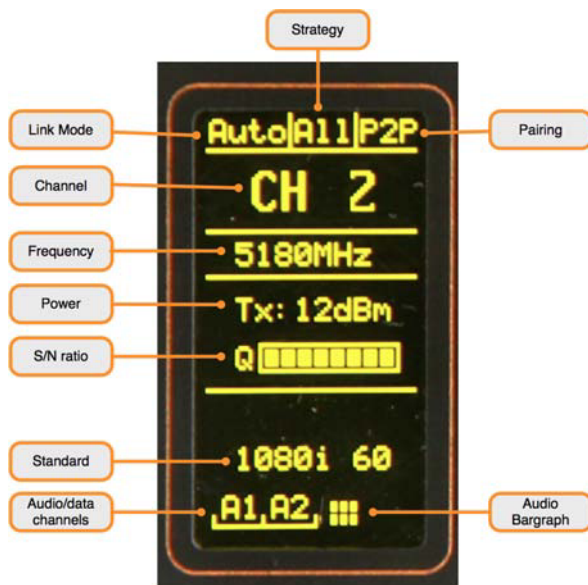


Figure 1: TitanHD Rx/Tx - Status Display

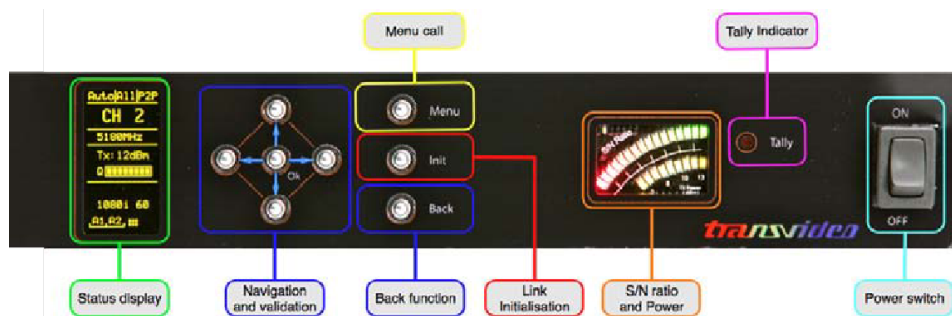


Figure 2: TitanHD Rx - Front panel

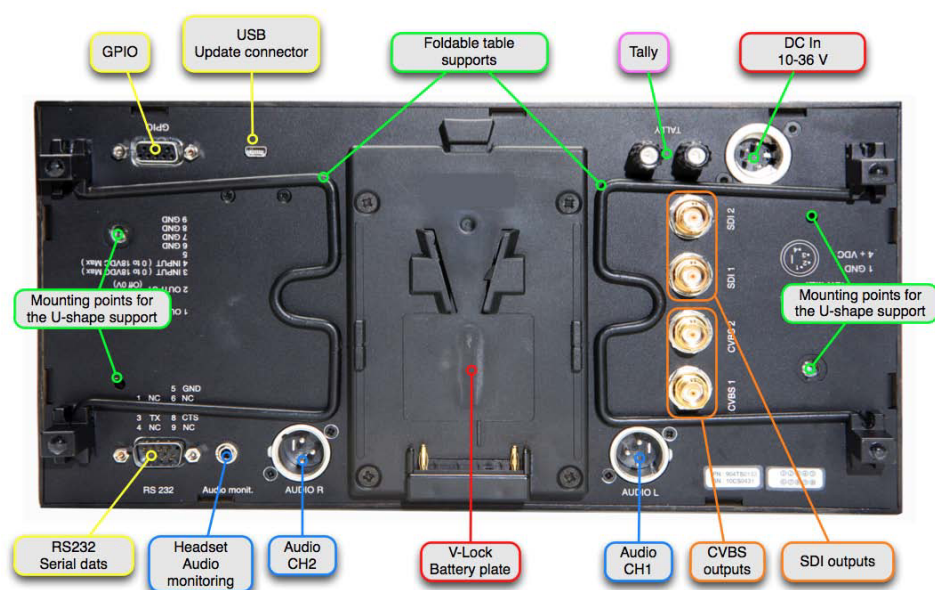


Figure 3: TitanHD Rx - Connector panel



Figure 4: TitanHD Tx – panel

Installation

The TitanHD must be securely fixed on the camera or on its location of use. The TitanHD Tx can be attached to a battery socket on the back of the camera (V-Lock or Anton Bauer).

Transvideo manufactures high quality brackets and accessories for the comfort of use and security for the equipment and user. Please contact Transvideo S.A. or its local representative in case of need or visit www.transvideo.eu.

Do not use the wireless system with loose fixation or damaged brackets for your own safety and that of others working with you.

Several mounting points are present on this equipment for a secured professional use.

Sart-Up & Power

The ON/OFF Switch are on the transmitter's side and on the receiver's front

In OFF position, the power consumption is null.

Power Requirements

Only DC Voltage powers this product.

AC voltage can be used with an appropriate AC/DC converter

Recommended power adaptor: Transvideo AL30

The input power voltage range is extremely wide from 10 to 36 V DC (except specified differently). The power consumption slightly varies with the input voltage, the operating temperature and the equipment configuration.

The internal power supply is protected against reverse polarity.

Over voltage may cause severe damages to the equipment and/or to other equipment connected to it.

Important note for Steadicam® Operators:

To reduce the mass above the Steadicam® gimbal, mount the Titan HD Tx to the lower stage of the Steadicam® sled. If it is a 12V sled, the TitanHD Tx will work fine on any battery plate. However, if the sled generates 24V by switching a pair of batteries from parallel to series, you must mount the Tx only on the 'A' battery plate (the 1st of the series to generate 24V). Mounting it on the 'B' plate may cause serious equipment damage due to a floating ground issue.

To determine which battery plate is #1 or #2: switch the rig to the 24V mode and mount a single battery on the sled. If the battery is mounted on the 'A' plate, the sled will power up. One single battery will not power the sled when mounted on the 'B' plate. Never mount any accessory that draws power AND connects to the video signal on the 'B' plate.

DIRECT FUNCTIONS

MENU

Toggles between the Thumbnails

BACK

Returns to the previous screen



Thumbnail navigation (up/down)



Adjustment of an option (immediate effect if no confirmation requested)

OK

Activates the option setting within the thumbnail (if requested)

On the home page, displays a simplified spectrum analyzer showing the available channels depending of the strategy choice

INIT

A long press re-initializes the HF link

A long press in Search&Lock mode (Menu / Link / Channel), re-initializes the HF link and searches for a new channel

THUMBNAILS

LINK

Channel

CH. 1 ... X

Selection of a channel from 1 to X (varies with selected region)

Auto

TitanHD selects itself the best free channel

S&L Mode *(Tx only, Rx must be set on "Auto")*

Activates Search & Lock mode

In Search & Lock mode, TitanHD scans for the best available channel, then locks on the said channel.

Search and Lock helps to re-link faster in case of signal loss during long distance transmission.

To search for a channel push INIT.

To search for a new channel push INIT again.

It is recommended to place the transmitter and receiver in their operating position location and location before searching for a channel. Changing the location or position of the equipment may result in a different best available channel.

Strategy

All Ch

Sets all channels (default setting)

Upper Ch

Selects the upper part of the band only

Lower Ch

Selects the lower part of the band only

The same strategy must be selected on both the transmitter and.

Example using a 10 channels band:

Upper Ch mode 7,8,9,10 are available

Lower Ch mode 1,2,3,4,5 are available

Link

Selection of P2P or Broadcast mode

P2P

In P2P (Point To Point) mode the link is possible only between the paired Tx and Rx.
For more information, see the chapter "Modules Association"

Broad (Broadcast) *

Allows connecting up to 6 Rx modules to one Tx.
Each Rx must be individually paired to the Tx.
For more information, read chapter "Modules Association"

* *When operating in Broadcast mode, the bar graph display is not available*

Power (Tx only)

Allows adjusting the emitted power to 6dBm or 12dBm

Low	6 dBm / 4.0 mW
High	12 dBm / 16.0 W

SNRTrdoff (Tx only)

Allows modifying the compromise between smoothness and noise

Level 0 Low noise & Lower smoothness

Level 1 Default, average setting

Level 2 Higher noise & Better smoothness

Explanation:

Let us imagine that the center of the target is the actual value of the pixel and the black dots the values received by the receiver



On this image the smoothness of the image is good because the received value is always close to the actual value, on the other hand dispersion around the actual value is large, one thus has more noise in the image.



Here, the smoothness of the image is bad because the received value is always far away from the actual value, on the other hand dispersion around this value is low, one thus has little noise.

Region

IMPORTANT:

Only accessible by pressing arrows left and right during the startup
It is illegal to use frequencies other than allowed in the territory where you are. This function is accessible only for operators traveling to different countries and wishing to fulfill the local regulation.

Allows choosing the localization USA / Europe / Japan in conformity with the following tables and local regulations.

USA (complies with the FCC standard)					
CH.1	5160	CH.4	5220	CH.7	5765
CH.2	5180	CH.5	5240	CH.8	5785
CH.3	5200	CH.6	5745	CH.9	5805
CH.10	5825				

EUROPE / JAPAN (complies with the ETSI MIC standards)					
CH.1	5160	CH.4	5220		
CH.2	5180	CH.5	5240		
CH.3	5200				

FREE					
CH.1	5160	CH.9	5320	CH.17	5560
CH.2	5180	CH.10	5340	CH.18	5580
CH.3	5200	CH.11	5360	CH.19	5600
CH.4	5220	CH.12	5460	CH.20	5620
CH.5	5240	CH.13	5480	CH.21	5640
CH.6	5260	CH.14	5500	CH.22	5660
CH.7	5280	CH.15	5520	CH.23	5680
CH.8	5300	CH.16	5540	CH.24	5700
				CH.25	5720
				CH.26	5745
				CH.27	5765
				CH.28	5785
				CH.29	5805
				CH.30	5825
				CH.31	5845
				CH.32	5862,5

Frequencies in MHz

AUDIO

Audio on TitanHD Tx

Audio Mode

Activates or deactivates the audio transmission

CH1 / Left Src

Selects SDI or Analog balanced for the left audio channel

CH2 / Right Src

Selects SDI or Analog balanced for the right audio channel

Audio on TitanHD Rx

Analog Out

Activates or deactivates the analog audio output

Monitoring

Activates or deactivates the monitoring of the audio output

Monitoring Vol

Adjusts the monitoring level of the audio from -14dB to +14dB

VIDEO

Video Src

On TitanHD Tx only

SDI

Selects the SDI input

CVBS

Selects the CVBS inout

TOOLS

Metadata Setting (Tx only)

Data Ch.

Activates or deactivates the data transmission in place of one audio channel.

Off	No data transmission
CH1/L.	Left audio channel is used for data transmission.
CH2/R.	Right audio channel is used to data transmission.

Timecode

Activates or deactivates Time-code transmission (if any embedded in the SDI datas LTC, VITC1, VITC2)

GPI State

Displays GPI (General Purpose Input) functions and states (high/low/inactive).

2 channels: GPI1 & GPI2

GPO State

Displays GPO (General Purpose Output) functions and states (high/low/inactive).

2 channels: GPO1 & GPO2

IMPORTANT:

GPIOs work in channels: GPI1 with GPO1 and GPI2 with GPO2.

2 remote controls can be sent by the Tx to the Rx, 2 others can be sent by the Rx to the Tx.

When working in Broadcast mode, GPIO from the Rx to the Tx are not available.

Tally State

Tally SRC (TitanHD Tx)

Selection of the Tally source: "Volt. In" (max 18v DC) or photo-detect.

Tally SRC (TitanHD Rx)

Displays the Tally source from the Tx.

State

Displays the Tally state (On/Inactive) depending of the Tally source.

When Tally is On, the Tally Led on the Rx comes on. To feed Tally Out of the Rx to another equipment, wire taly cable to the 2 banana connectors.

Mute Audio

Activates or deactivates the Mute Audio through the Tally remote control.

Antenna Power (Rx only)

Displays the received power (dBm) per antenna.

MODULES ASSOCIATION

Pairing can be performed in P2P mode or BROAD mode. There is no need to perform the modules association in both modes.

P2P Mode Association

Step 1

Go to Menu / Link / Link and choose P2P, both on TitanHD Tx and TitanHD Rx.

Step 2

Turn off the 2 modules

Step 3

Turn on the TitanHD Tx. During the startup, keep on pressing Back key until the message "Push OK to register" is displayed. Do the same for TitanHD Rx

Step 4

Press OK on the Tx then on the Rx. "Linking..." appears on both modules

Step 5

"Link OK" appears, then the system starts up.

Broadcast Mode Association

Step 1

Go to Menu / Link / Link and choose Broad, both on TitanHD Tx and TitanHD Rx.

Then repeat **Step 2** to **Step 5** from the previous operation (P2P mode association)

IMPORTANT:

Switch off the newly paired modules before pairing another one
A maximum of 6 Rx can be paired with one Tx
The latest paired Rx works also in P2P with the Tx

SERVICE & MAINTENANCE

General

Please read carefully the chapter TRANSVIDEO EQUIPMENT LIMITED WARRANTY about the Transvideo S.A. warranty on the equipment described in this manual.

For repairs contact Transvideo S.A. or its local representative or use the RAN procedure in the chapter "SERVICE & MAINTENANCE", section "Product Return"

Useful tips

Cleaning

The painting of the TitanHD is resistant to general cleaners and solvents. Do not use abrasive products to clean your product.

Full reset

In needed, a full reset of the Tx and Rx may be performed as follows.

- ① Connect the modules to their power source (module off).
- ② Press the "Init" key
- ③ Switch on the module while keeping pressed the "Init" key until the display shows "FULL RESET"

The equipment is back to its factory default settings. This procedure totally erases all user setup in the memories.

Software and Firmware

The software and firmware versions are indicated during the startup on the display. This information is useful to write down if trouble-shooting becomes necessary.

Updating your TitanHD

Firmware and software updates are possible by the user with a USB key and a USB cable.

Firmware update

Step 1

Get the last firmware version for your TitanHD. It can be downloaded on our website for registered users by visiting www.transvideo.eu/software_updates. You can also ask for it directly to your local Transvideo representative.

Step 2

Copy the firmware file on a USB key. The files must be renamed on the key:

FTHD.bit for the TitanHD Tx firmware

FRHD.bit for the TitanHD Rx firmware

Step 3

Connect the USB key on the module with a USB adapter (included with the equipment).

Step 4

Switch on the module pressing the OK key.

The update starts automatically. The following messages appear:

Firmware update > USB Key detected > Clear Flash >

Program. Flash > Verify Flash > Flash OK

Step 5

Restart the module

Software update

Step 1

Launch the Atmel Flip application

This application is needed to update the TitanHD software. This is a freeware that you can download on your PC by visiting www.transvideo.eu/software_updates.

Step 2

Switch on the module pressing the MENU key until "Software update" prompts on the screen

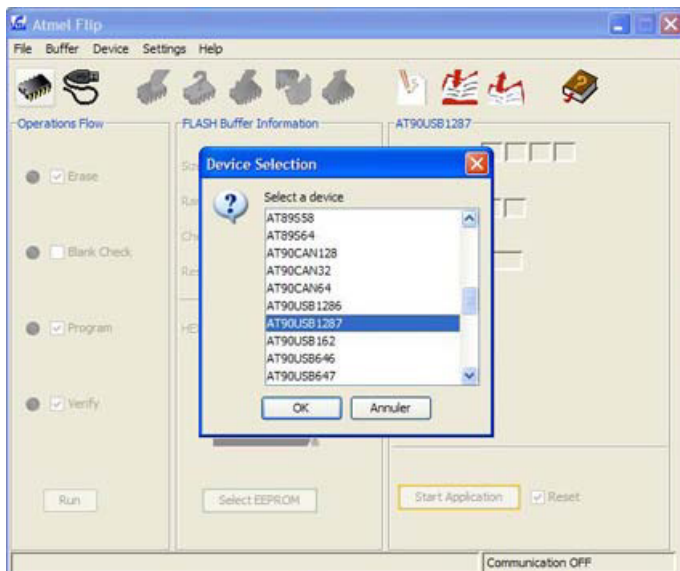
Then connect the module to the PC with a USB cable

Step 3

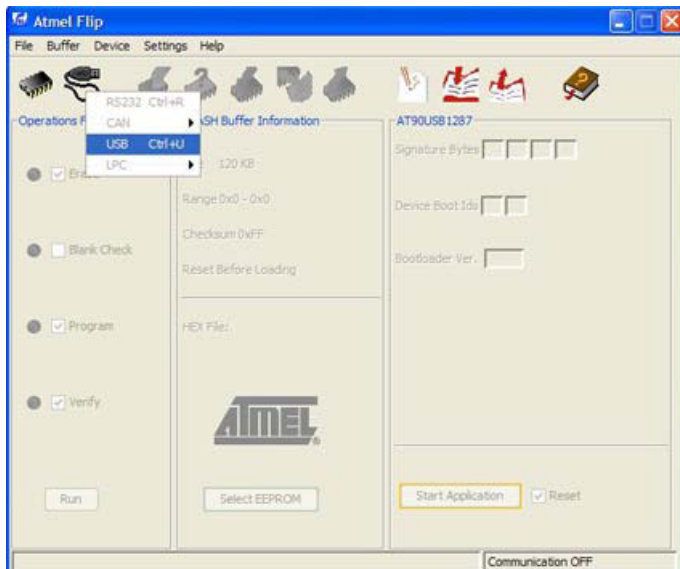


Click on

Choose AT90USB1287 and click on OK

**Step 4**

Click on
Choose "USB", then click on "Open"



Step 5

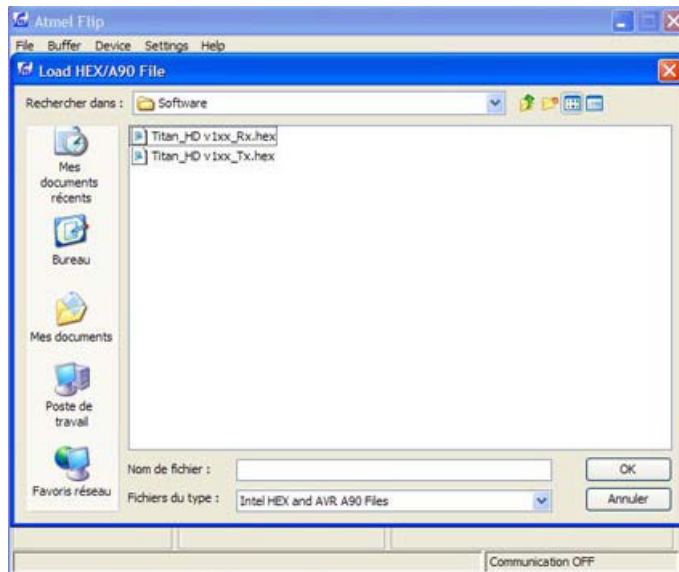
Click on

Then browse and select the appropriate file:

TitanHD_Rx_v1xx.hex for the TitanHD Rx Software

TitanHD_Tx_v1xx.hex for the TitanHD Tx Software

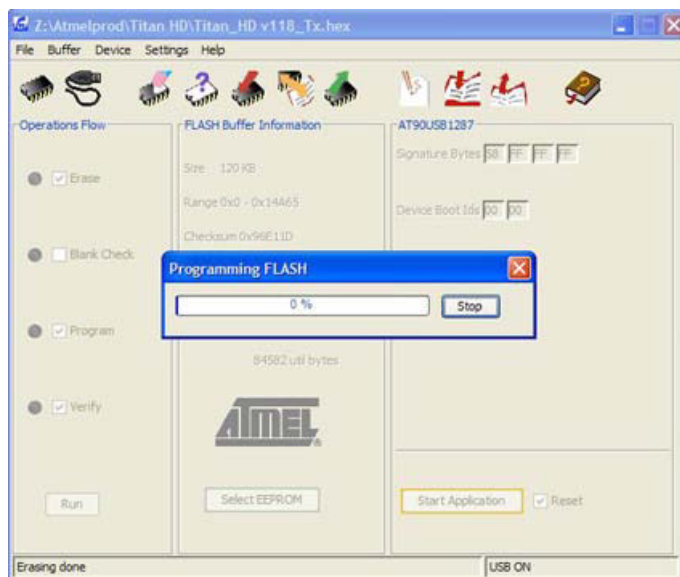
And click on OK



Step 6

Click on "Run"

The programming starts.

**Step 7**

Verify that the mention PASS appears in the bottom bar of the window.

Remove the USB cable and restart the device.

The TitanHD automatically performs a full reset, then starts normally. Verify on the screen that the correct SW number appears.

Product Return

For repairs and technical operation you may return the product to the factory. Please use the following procedure:

① Ask for a RAN (Return Authorization Number)

Log in to our website using your user account and visit the Support section www.transvideo.eu/support

Or contact us by:

Email service@transvideo.eu

Fax +33 2 3260 1479

Tel +33 2 3232 2761

You will need to provide part number & serial number (found on the back of your product) and to briefly describe the reason for the return.

② Then send the product to the following address:

TRANSVIDEO
RAN # _____
ZI - Rue Francois Arago
27130 Verneuil sur Avre
France

User is responsible for shipping and insurance of the equipment as well as for any damage that may occur during transit.

It is strongly recommended to inform us of the Tracking Number of your shipment and the RAN so we may track your return while in transit.

SPECIFICATIONS

Common Characteristics

Supported HD standards *	720p 1080p, 1080i, 1080psf
Supported SD standards *	NTSC-M / NTSC-J / NTSC-443 PAL-M / PAL-BG / PAL-N SECAM SD SDI 525 / 625
Modulation	OFDM MiMo
Compression	None
Latency	2 ms
Weight	Tx: 1100g / 2.42lbs Rx: 1450g / 3.19lbs (without antennas)
Power	10 – 36 VDC Tx: 22W max, Rx: 18W max
Storage temperature	-40°C +80°C
Operating temperature	-20°C + 55°C

* HD and SD standards may vary with video input. Please refer to the following complete list of standards per input

Connections

Video inputs & outputs	1 x HD/SD SDI in (BNC) 1 x HD/SD SDI Rck out (BNC) 1 x CVBS in (BNC) 1 x CVBS out (BNC)		
Power In / XLR4	XLR4 connector (-1, +4) 10 - 36v DC		
Audio / XLR3	+22 dBm (load 600Ω)		
GPIO Tx / Sub-D9 F GPIO Rx / Sub-D9 M	1 & 2 Output: On 12V 250mA max, Off 0V 3 & 4 Input (0 - 18v DC): low<1.5V, high>5V 5 NC 6 to 9 GND		
RS232 Tx / Hirose HR25 1start/8bits/1stop 9600 Baud max	1 RX 2 CTS	3 RTS 4 TX	5 GND 6 +12V out
RS232 Rx / Sub-D9 F 1start/8bits/1stop 9600 Baud max	1 NC 2 RX 3 TX	4 NC 5 GND 6 NC	7 RTS 8 CTS 9 NC
Tally Rx	Banana Sockets Panel Mount Tally on: the 2 sockets are in short-circuit		
Tally Tx	Jack 2.5 F		

List of Standards per Input

HD SDI (SMPTE 292M)	1280x720p @ 24, 25, 29.97, 30 Hz (SMPTE 296M) 1280x720p @ 50, 59.94, 60 Hz (SMPTE 296M) 1920x1080i @ 50, 59.94, 60 Hz (SMPTE 274M) 1920x1080psf @ 23.98, 24, 25, 29.97, 30 Hz (SMPTE 274M) 1920x1080p @ 23.97, 24, 25, 29.94, 30 Hz (SMPTE 274M)
SD SDI (SMPTE 259M-C)	720x487i @ 60 Hz (SMPTE 125M) 720x576i @ 50 Hz (ITU-R BT.601)
CVBS	NTSC-M, NTSC-J, NTSC 4.43 PAL B/G H I D, PAL M, PAL N SECAM

TRANSDVIDEO EQUIPMENT LIMITED WARRANTY

Transvideo S.A gives the warranty set forward below.

The limited warranty is only effective upon presentation of your Bill of Sale or other proof of purchase.

Transvideo equipment is warranted under normal use, against defective materials or workmanship as follows:

Parts: Defective parts will be exchanged for new parts or comparable rebuilt parts for a period of TWO YEARS from the date of original purchase.

Labor: For a period of TWO YEARS from the date of original purchase, labor will be provided free of charge by our factory service centers or designated service facilities located in country where the product have been purchased, or by the factory.

When returning equipment under this warranty, you must pre-pay the shipping charges, and you must enclose the Bill of Sale or other proof of purchase with a complete explanation of the problem. During your TWO-YEAR warranty period, repairs will be made and the equipment return-shipped to you free of charge. After your warranty period is over, you will be given an estimate of the cost of repair and an opportunity to approve or disapprove of the repair expense before it is incurred. If you approve, repairs will be made and the equipment return shipped to you. (shipping charges apply). If you disapprove, we will return-ship the equipment at no charge to you. (shipping charges apply). Non-Transvideo brand peripheral equipment and software which may be distributed with Transvideo products are sold "AS IS" without warranty of any kind by Transvideo, including any implied warranty regarding merchantability or fitness for a particular purpose. The manufacturer or producer gives the sole warranty with respect to such non-transvideo brand items

Thereof :

Transvideo shall have no responsibility under this limited warranty for use of Transvideo product in conjunction with incompatible equipment or peripheral equipment.

In order to obtain warranty service, contact the authorized Transvideo retail dealer from whom you purchased the product or contact the factory :

By phone +33 2 3232 2761

By fax +33 2 3260 1479

By email service@transvideo.eu

You will be directed to the nearest service facility for your product.

If there is no service facility in your region, you will receive a RAN (Return Authorization Number) and instruction to return your product to the factory.

This Limited Warranty covers all defects encountered in normal use of the equipment and does not apply in the following cases:

Loss or damage to the equipment due to abuse, mishandling, accident, improper maintenance, or failure to follow operating instructions;

If the equipment is defective as a result of leaking batteries, sand, dirt or water damage; If defects or damages are caused by the use of unauthorized parts or by service other than our authorized agent.

This Limited Warranty does not cover cabinet (exterior finish).

This warranty does not cover units sold to military operations or avionics. These uses are covered only by such specific warranty as Transvideo may issue with such sales.

This Limited Warranty does not apply to accessories or consumables for the product, which are sold "AS IS", without warranty of any kind by Transvideo.

Please retain this warranty card and your Bill of Sale as a permanent record of your purchase. This card is most important in order to be sure you are contacted right away should there be a safety inspection, modification or product recall under applicable laws or regulations.

NO IMPLIED WARRANTY, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE APPLIES TO THIS EQUIPMENT AFTER THE APPLICABLE PERIOD OF EXPRESS WARRANTY OR GUARANTY, EXCEPT AS MENTIONED ABOVE, GIVEN BY ANY PERSON, FIRM OR CORPORATION WITH RESPECT TO THIS EQUIPMENT SHALL BIND THE UNDERSIGNED.. TRANSDVIDEO SHALL NOT BE LIABLE FOR LOSS OF REVENUES OR PROFITS, EXPENSE FOR SUBSTITUTE EQUIPMENT OR SERVICE, STORAGE CHARGES, LOSS OF DATA, OR ANY OTHER SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES CAUSED BY THE USE, MISUSE OR INABILITY TO USE THE PRODUCT, REGARDLESS OF THE LEGAL THEORY ON WHICH THE CLAIM IS BASED, AND EVEN IF TRANSDVIDEO HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. NOR SHALL RECOVERY OF ANY KIND AGAINST TRANSDVIDEO BE GREATER THAN THE PURCHASE PRICE OF THE P>RODUCT SOLD BY TRANSDVIDEO AND CAUSING THE ALLEGED DAMAGE. WITHOUT LIMITING THE FOREGOING, YOU ASSUME ALL RISK AND LIABILITY FOR LOSS, DAMAGE OR INJURY TO YOU AND YOUR PROPERTY AND TO OTHERS AND THEIR PROPERTY ARISING OUT OF USE, MISUSE OR INABILITY TO USE THE PRODUCT NOT CAUSED DIRECTLY BY THE NEGLIGENCE OF TRANSDVIDEO. THIS WARRANTY SHALL NOT EXTEND TO ANYONE OTHER THAN THE ORIGINAL PURCHASER OF THIS EQUIPMENT.



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