

Instruction Manual

1T-VS-658
Video/PC/HD/HDMI Scaler
with Stereo Audio

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1.0 INTRODUCTION

Thanks for purchasing this 1T-VS-658 HDMI Scaler with Stereo Audio from tvONE. The 1T-VS-658 Video Scaler is a professional Up and Cross Converter with an HDMI output. Fully scaleable video inputs include HDMI, DVI (via DVI-to-HDMI adapter), analog RGB via an HD-15, Analog YPbPr or 480i/576i YUV Component via three RCA, YC (S-Video) and Composite Video. It handles I/O resolutions up to 1080p and WUXGA. Both digital and analog audio processing is supported and audio delays of up to 150ms can be introduced to ensure lip sync. Five analog stereo and one SPDIF coaxial digital audio input can be selected for embedding into the HDMI output. A separate coaxial digital audio output is also provided.

Our professional video conversion products have been serving the industry for over twenty years. tvONE offers a full line of high quality Seamless Switchers, Video Scalers, Up/Down/Cross Converters, Analog-Digital Converters (SD/HD-SDI, HDMI, DVI), Format Converters, Standards Converters, TBC/Frame Synchronizers, Matrix Routing Switchers, Signal Distribution Amplifiers and Cat.5/6 Transmission Systems.

1.1 Liability Statement

Every effort has been made to ensure that this product is free of errors. tvONE cannot be held liable for the use of this hardware or any direct or indirect consequential damages arising from its use. It is the responsibility of the user of the hardware to check that it is suitable for his/her requirements and that it is installed correctly. All rights reserved. No parts of this manual may be reproduced or transmitted by any form or means electronic or mechanical, including photocopying, recording or by any information storage or retrieval system without the written consent of the publisher.

tvONE reserves the right to revise any of its hardware and software following its policy to modify and/or improve its products where necessary or desirable. This statement does not affect the legal rights of the user in any way.

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1.2 Features

The 1T-VS-658 has many features that enable it to perform in a superior manner. Among those features you will find:

- HDMI Max Res: WUXGA and 1080p
- HDMI, RGB, YPbPr, YUV, YC, CV In
- Both Analog & Digital Audio Capable
- Audio Delay for Lip Sync Corrections
- HDMI I/O is fully HDCP Compliant
- Infrared Remote Control
- 3D Motion Adaptive De-Interlace
- Noise Reduction
- 3:2 Pull-Down
- 2:2 Pull-Down Recovery
- Locking DC Power Supply
- Optional Rackmount Kit (RM-220 Single/Dual)

2.0 SPECIFICATIONS

Video Inputs	
HDMI (DVI Compatible) Analog RGBHV Analog Component (YPbPr/YUV) YC (S-Video) Composite Video	1x via HDMI Connector 1x via HD-15 Connector 1x via 3x RCA Connectors 1x NTSC or PAL via 4-pin Mini Din 1x NTSC or PAL via RCA Connector
Audio Inputs	
Digital Audio (S/PDIF) Analog Audio (Stereo)	1x via RCA Connector 3x via RCA (R/L), 2x via 3.5mm Mini
Video Output	
HDMI Video (v1.2)	Via 1x HDMI Connector
Audio Outputs	
Embedded into HDMI Digital Audio (S/PDIF) Audio Delay Adjustment	Digital Per HDMI Spec 1x via RCA Coax Connector Off, 40ms, 110ms, 150ms
Control Methods	
Local Control Remote Control	Front Panel via 6x Buttons and Joystick IR and RS-232 via DB-9 Connector
Scaling Engine	
De-Interlace Pull-Down HDMI Compliance Maximum I/O Resolution	3D Motion Adaptive with Noise Reduction 3:2 + 2:2 Recovery v1.2 with HDCP WUXGA@60Hz and 1080p
Limited Warranty	
Main Unit	3 Years Parts and Labor
Mechanical	
Size (H-W-D) Weight (Net)	42 x 218 x 164mm (1.7" x 8.5" x 6.45") 1.21kg (2.68 lbs.)
Environmental	
Operating Temperature Operating Humidity	0° to +48°C (+32° to +120°F) 10% to 85%, Non-condensing
Storage Temperature Storage Humidity	-10° to +70°C (+14° to +158°F) 10% to 85%, Non-condensing
Power Requirement	
External Power Supply	5VDC@6A, twist lock connector
Regulatory Approvals	
Main Unit	FCC, CE, RoHS
Power Supply	UL, CUL, CE, PSE, GS, RoHS
Accessories Included	
1x AC Power Adapter	US, UK or Euro Type
1x Operations Manual 1x IR Remote Control	
Optional Accessories	
Rackmount Kit	RM-220 Single/Dual

2.1 Supported Input Formats and Resolutions

The 1T-VS-658 accepts HDMI, DVI, Analog PC, Analog Component, Composite and YC (S-Video) inputs via separate connectors. The resolutions and formats processed for these inputs are as follows:

Resolution		V. Rate/Hz	Scan	Format	Connector
CV	SDTV	60 NTSC, 50 PAL	Interlaced	NTSC/PAL	RCA
YC	SDTV	60 NTSC, 50 PAL	Interlaced	NTSC/PAL	4-Pin Mini-Din
480i	720x480	60	Interlaced	YUV NTSC	RCA, HDMI (1)
576i	720x576	50	Interlaced	YUV PAL	RCA, HDMI (1)
480p	720x480	60	Progressive	YPbPr/RGBHV (2)	HD15, HDMI, RCA
576p	720x576	50	Progressive	YPbPr/RGBHV (2)	HD15, HDMI, RCA
720p	1280x720	50, 60	Progressive	YPbPr/RGBHV (2)	HD15, HDMI, RCA
1080i	1920x1080	50, 60	Interlaced	YPbPr/RGBHV (2)	HDMI, RCA
1080p	1920x1080	50, 60	Progressive	YPbPr/RGBHV (2)	HD15, HDMI, RCA
VGA	640x480	60, 72, 75, 85	Progressive	RGBHV	HD15, HDMI
SVGA	800x600	56, 60, 72, 75, 85	Progressive	RGBHV	HD15, HDMI
XGA	1024x768	60, 70, 75, 85	Progressive	RGBHV	HD15, HDMI
SXGA	1280x1024	60, 75, 85	Progressive	RGBHV	HD15, HDMI
UXGA	1600x1200	60	Progressive	RGBHV	HD15, HDMI
WXGA	1280x800	60	Progressive	RGBHV	HD15, HDMI
WSXGA	1680x1050	60	Progressive	RGBHV	HD15, HDMI
WUXGA	1920x1200	60	Progressive	RGBHV	HD15, HDMI

2.2 Supported Output Formats and Resolutions

The 1T-VS-658 supports a large number of output resolutions as shown below:

Resolution		V. Rate/Hz	Scan	Format	Connector
480i	720x480	60	Interlaced	YUV NTSC	HDMI (1)
576i	720x576	50	Interlaced	YUV PAL	HDMI (1)
480p	720x480	60	Progressive	RGBHV	HDMI
576p	720x576	50	Progressive	RGBHV	HDMI
720p	1280x720	50, 60	Progressive	RGBHV	HDMI
1080i	1920x1080	50, 60	Interlaced	RGBHV	HDMI
1080p	1920x1080	50, 60	Progressive	RGBHV	HDMI
VGA	640x480	60	Progressive	RGBHV	HDMI
SVGA	800x600	60	Progressive	RGBHV	HDMI
XGA	1024x768	60	Progressive	RGBHV	HDMI
SXGA	1280x1024	60	Progressive	RGBHV	HDMI
SXGA+	1400x1050	60	Progressive	RGBHV	HDMI
UXGA	1600x1200	60	Progressive	RGBHV	HDMI
WXGA	1280x800	60	Progressive	RGBHV	HDMI
WXGA+	1440x900	60	Progressive	RGBHV	HDMI
WSXGA	1680x1050	60	Progressive	RGBHV	HDMI
WUXGA	1920x1200	60	Progressive	RGBHV	HDMI

Note 1 – This signal is actually 480i@30Hz doubled or 576i@ 30Hz doubled.

Note 2 – Analog YPbPr input is only available via the 3-RCA Connectors and not via the HD-15 Connector.

3.0 PACKAGE CONTENTS

Before attempting to use this unit, please check the packaging and make certain the following items are contained in the shipping carton:

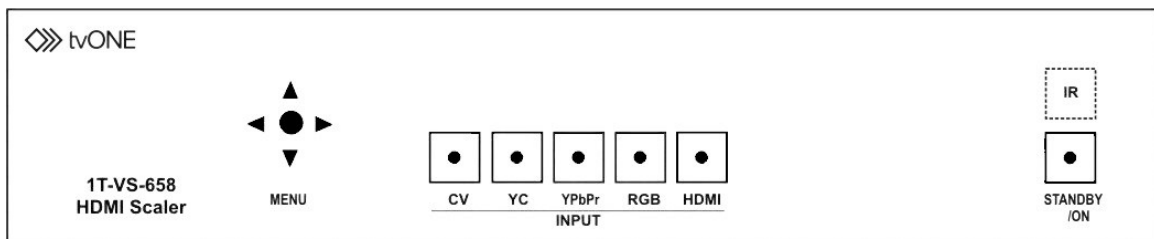
- 1x 1T-VS-658 Scaler
- 1x Power Supply
- 1x IR Remote Control
- 1x Operations Manual

Note: Please retain the original packing material should the need ever arise to return the unit. If you find any items are missing, contact your reseller or tvONE immediately. Have the Model Number, Serial Number and Invoice available for reference when you call.

4.0 CONNECTING THE HARDWARE

Referring to the drawings below, connect the proper cables and then connect the AC power adaptor.

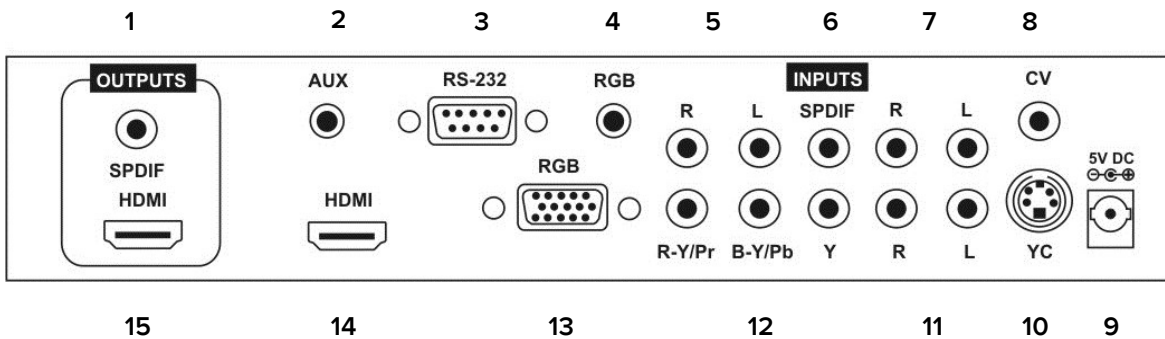
Front Panel Controls: The front panel has controls to manually control the 1T-VS-658 HDMI Scaler.



Above the word “MENU” you’ll find a joystick/switch control that allows access to and adjustment of various operational items. Pressing the top of the joystick will bring up the menu On Screen Display (OSD) and the joystick will allow you to move to, select and then adjust the various functions.

The five buttons in the middle, CV, YC, YPbPr, RGB and HDMI, allow you to select the type of input you desire. The Standby/On button is the power switch and above it is the IR sensor used with the included remote control.

Rear Panel Connectors: The rear panel has the connectors required to interface the 1T-VS-658 to the External Inputs, Outputs and Power Supply. The numbers above and below the drawing relate to the connector directly above or below the number. Refer to the corresponding number and functional description below.



- 1 S/PDIF Audio Output (Used when an HDMI Integrated Audio Stream is not desired.)
- 2 3.5mm Aux Audio Input (Used when the Video Signal is DVI using the HDMI Port.)
- 3 RS-232 Remote Control Connector
- 4 3.5mm PC Audio Input (Connects to Computer's Audio Output.)
- 5 Stereo Analog Audio Input for Component Video Input (2x RCA Connectors)
- 6 S/PDIF Audio Input
- 7 Stereo Analog Audio Input for Composite Video Input (2x RCA Connectors)
- 8 Composite Video Input (RCA Connector)
- 9 +5 VDC Input. (Connects to AC Adapter)
- 10 S-Video Input (4-Pin Mini-Din)
- 11 Stereo Analog Audio Input for S-Video Input (2x RCA Connectors)
- 12 Component Video Inputs (3x RCA Connectors)
- 13 PC Video Input (HD-15 Connector from PC's Monitor Output)
- 14 HDMI Video Input
- 15 HDMI Video Output

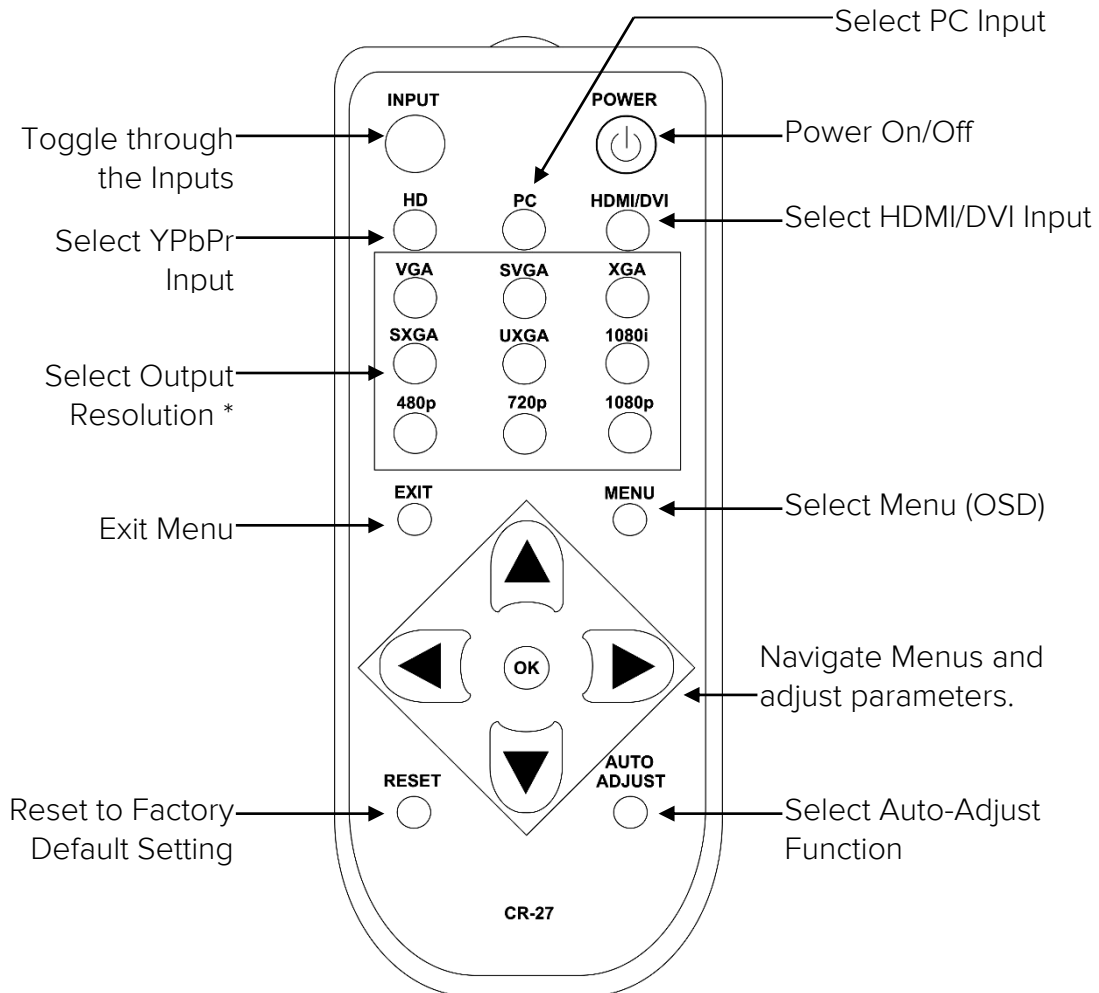
Connect the furnished AC Adaptor to the 1T-VS-658. (Use only the furnished adaptor to avoid the possibility of equipment damage due to over-voltage or under-current from generic AC Adapters). Next, connect the appropriate cables to the Input(s) and Output and turn on the source and destination devices.

Plug the AC Adapter into the AC wall outlet and press the Power "On" button. Verify that the LED above the switch lights which indicates that power has been applied to the 1T-VS-658.

Note: To realize maximum quality and performance, use only the highest quality cables with the 1T-VS-658. Low quality cables will cause degradation of the signal quality and limit the distance between both the source and destination devices and the 1T-VS-658.

5.0 OPERATING THE UNIT

The 1T-VS-658 can be operated from either the front panel controls or via the included Infrared Remote Control. Since Infrared is the control method used most often by the majority of users, please take the time to familiarize yourself with the location and function of the various control buttons on the Controller.



** For resolutions not accessible from the Remote, Use the OSD capability.*

5.1 Using the On Screen Display Menus

Regardless of whether you operate the 1T-VS-658 from the front panel or using the Remote Controller, you will need to become familiar with the OSD (On Screen Display) menu structure if you wish to take full advantage of the capability of the product.

5.1.1 Using the On Screen Display Menus

If you are using the front panel control method, you can select the desired function by pressing the top of the Joystick immediately above the MENU legend to bring up the On Screen Display and then move the Joystick to navigate to the desired function. Once at the desired function, press the top of the Joystick to make the selection and then move

the Joystick (left or right) to make the actual adjustment. Once you've made the adjustment, press the top of the Joystick a last time to save your adjustment. Escape from the OSD menu modes is accomplished by positioning the cursor over the word "Exit" in any menu and then pressing over the top of the Joystick.

From the IR remote controller, press the menu key to activate the OSD, use the arrow buttons to navigate to the selection you want and then use the arrow buttons and the "OK" button to make your adjustment or selection. Press the "Exit" button to escape from the OSD mode.

5.1.2 Menu Structure

The main structure is as follows. The 1T-VS-658 OSD (On Screen Display) Menu structure is a two tier display. You first select the high level portion of the menu (Video, Color, Output, OSD Characteristics, Audio, Information or Exit) and then, with the exception of the Exit function; a secondary menu will appear where specific adjustments or operational selections can be made.

High Level	Second Level	Adjustment
Video	Picture Mode	User / Standard / Vivid / Movie
	Contrast	0-100 Contrast Adjustment
	Brightness	0-100 Brightness Adjustment
	Hue	0-100 Hue Adjustment
	Saturation	0-100 Color Level Adjustment
	Sharpness	0-100 Picture Sharpness Adjustment
	Scale	Follow Aspect / Overscan / Underscan / Letterbox / Panscan / Full
	Noise Reduction	Low / Middle / High / Off
	Exit	Return to High Level Menu
Color	Color Tone	User / Normal / Warm / Cool
	Red	0-100 Relative Red Color Level
	Green	0-100 Relative Green Color Level
	Blue	0-100 Relative Blue Color Level
	Exit	Return to High Level Menu
Output¹	-	NATIVE / VGA / SVGA / XGA / SXGA / SXGA+ WXGA+ / WSXGA / UXGA / WUXGA 480i/480p/720p@60Hz/1080i@60Hz/1080p@60Hz 576i/576p/720p@50Hz/1080i@50Hz/1080p@50Hz
OSD Control²	H Position	0-100 Relative L-R Position
	V Position	0-100 Relative U-D Position
	Display Select	INFO / OFF / ON
	Timer	0-100 Relative OSD Show Time (Sec)
	Transparency	0-100 Relative OSD Text Transparency
	Exit	Return to High Level Menu

Audio³	Source	HDMI / L-R / Coaxial
	Delay	OFF / 40MS / 110 MS / 150 MS
	Sound	On / Mute
	Exit	Return to High Level Menu
Information⁴	-	Source (Input Interface) Input (Input Resolution) Output (Output Resolution) Version (Firmware Version)
Exit	-	Close the OSD Menu

OSD Menu Notes:

*Note 1: The Output sub-menu allows you to specify the resolution you want the 1T-VS-658 to produce. Keep in mind that setting the resolution can cause an apparent malfunction if you select a resolution that your display device cannot reproduce. **Make certain your display device can reproduce the resolution you select BEFORE you select it.***

Note 2: The OSD sub-menu allows you to customize the way the On Screen Display appears when it has been accessed. This is a personal preference matter. You can change the default if you wish or simply leave it at the factory setting.

Note 3: Since Video and Audio Lip Sync can be lost in Digital Television, the 1T-VS-658 provides a secondary menu item called "Delay" under the Audio high level menu selection where audio delay can be introduced to restore lip sync. Use this function if you hear audio before the video portion of the program appears to make the sound.

Note 4: The Info sub-menu contains technical information. If you have problems with the 1T-VS-658 and require assistance, the technician may ask you to read information from this menu to him as part of the troubleshooting process.

5.2 RS-232 Protocol

The connection between 1T-VS-658 and controller with RS-232 modem cable.

1T-VS-658	
PIN	Assignment
1	NC
2	Tx
3	Rx
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

Remote Control	
PIN	Assignment
1	NC
2	Rx
3	Tx
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

RS-232

Transmission Format:

Baud Rate: 19200bps

Data Bit: 8 bits

Parity: None

Stop Bit: 1bit

Flow Control: None

(A) Set Commands

Command Code	Response	Description
S POWER 0	> POWER OFF	POWER OFF
S POWER 1	> POWER ON	POWER ON
S SOURCE 0	> SOURCE CV	CV INPUT
S SOURCE 1	> SOURCE SV	SV INPUT
S SOURCE 2	> SOURCE COMP	COMPONENT INPUT
S SOURCE 3	> SOURCE PC	PC INPUT
S SOURCE 4	> SOURCE HDMI	HDMI INPUT
S OUTPUT 0	> OUTPUT NATIVE	NATIVE RESOLUTION OUTPUT
S OUTPUT 1	> OUTPUT VGA	VGA RESOLUTION OUTPUT
S OUTPUT 2	> OUTPUT SVGA	SVGA RESOLUTION OUTPUT
S OUTPUT 3	> OUTPUT XGA	XGA RESOLUTION OUTPUT
S OUTPUT 4	> OUTPUT SXGA	SXGA RESOLUTION OUTPUT
S OUTPUT 5	> OUTPUT UXGA	UXGA RESOLUTION OUTPUT
S OUTPUT 6	> OUTPUT 480I	480I RESOLUTION OUTPUT
S OUTPUT 7	> OUTPUT 480P	480P RESOLUTION OUTPUT
S OUTPUT 8	> OUTPUT 720P	720P 60HZ RESOLUTION OUTPUT
S OUTPUT 9	> OUTPUT 1080I	1080I 60HZ RESOLUTION OUTPUT
S OUTPUT 10	> OUTPUT 1080P	1080P 60HZ RESOLUTION OUTPUT
S OUTPUT 11	> OUTPUT 576I	576I 60HZ RESOLUTION OUTPUT
S OUTPUT 12	> OUTPUT 576P	576P 60HZ RESOLUTION OUTPUT
S OUTPUT 13	> OUTPUT 720P	720P 50HZ RESOLUTION OUTPUT
S OUTPUT 14	> OUTPUT 1080I50	1080I 50HZ RESOLUTION OUTPUT
S OUTPUT 15	> OUTPUT 1080P50	1080P 50HZ RESOLUTION OUTPUT
S OUTPUT 16	> OUTPUT WXGA	WXGA RESOLUTION OUTPUT
S OUTPUT 17	> OUTPUT WSXGA	WSXGA RESOLUTION OUTPUT
S OUTPUT 18	> OUTPUT WUXGA	WUXGA RESOLUTION OUTPUT
S OUTPUT 19	> OUTPUT WXGA+	WXGA+ RESOLUTION OUTPUT
S SIZE 0	> SIZE FULL	SCALER FULL OUTPUT
S SIZE 1	> SIZE OVERSCAN	SCALER OVERSCAN OUTPUT
S SIZE 2	> SIZE UNDERSCAN	SCALER UNDERSCAN OUTPUT
S SIZE 3	> SIZE LETTERBOX	SCALER LETTERBOX OUTPUT
S SIZE 4	> SIZE PANSKAN	SCALER PANSKAN OUTPUT
S SIZE 5	> SIZE FOLLOW INPUT	SCALER FOLLOW ASPECT
S OSDNOTICE 0-2	> OSDNOTICE INFO/OFF/ON	0:INFO, 1:OFF, 2:ON [0]
S PICTUREMODE 0-3	> PICTUREMODE STANDARD/ MOVIE/VIVID/USER	0:STANDARD; 1:MOVIE; 2:VIVID; 3:USER, PICTURE MODE OUTPUT
S CONTRAST 0-100	> CONTRAST [VALUE]	CONTRAST 0-100 ADJUST [50]

S BRIGHTNESS 0-100	> BRIGHTNESS [VALUE]	BRIGHTNESS 0-100 ADJUST [45]
S HUE 0-100	> HUE [VALUE]	HUE 0-100 ADJUST [50]
S SATURATION 0-100	> SATURATION [VALUE]	SATURATION 0-100 ADJUST [60]
S SHARPNESS 0-100	> SHARPNESS [VALUE]	SHARPNESS 0-100 ADJUST [32]
S NR 0-3	> NR OFF/LOW/MIDDLE/HIGH	0:OFF ; 1:LOW ; 2:MIDDLE ; 3:HIGH, NR CONTROL
S PCHPOSITION 0-100	> PCHPOSITION [VALUE]	H POSITION 0-100 ADJUST
S PCVPOSITION 0-100	> PCVPOSITION [VALUE]	V POSITION 0-100 ADJUST
S PCCLOCK 0-100	> PCCLOCK [VALUE]	PC MODE CLOCK 0-100 ADJUST
S PCPHASE 0-63	> PCPHASE [VALUE]	PC MODE PHASE 0-63 ADJUST
S COLORTEMP 0-3	> COLORTEMP NORMAL/WARM/ COOL/USER	0:NORMAL; 1:WARM; 2:COOL; 3:USER , COLOR TEMP SETTING
S RED 0-100	> RED [VALUE]	COLOR TEMP "RED" ADJUST [47]
S GREEN 0-100	> GREEN [VALUE]	COLOR TEMP "GREEN" ADJUST [47]
S BLUE 0-100	> BLUE [VALUE]	COLOR TEMP "BLUE" ADJUST [47]
S OSDHPOSITION 0-100	> OSDHPOSITION [VALUE]	OSD H POSITION 0-100 ADJUST [50]
S OSDVPOSITION 0-100	> OSDVPOSITION [VALUE]	OSD V POSITION 0-100 ADJUST [50]
S OSDTIMEOUT 0-100	> OSDTIMEOUT [VALUE]	OSD TIMEOUT 0-100 SETTING [10]
S OSDBACKGROUND 0-8	> OSDBACKGROUND [VALUE]	OSD OSDBACKGROUND 0-8 ADJUST [5]
S AUDIOMUTE 0-1	> AUDIOMUTE OFF/ON	0:OFF ; 1:ON, AUDIO MUTE CONTROL
S AUDIODELAY 0-3	> AUDIODELAY [VALUE]	0:OFF ; 1:40MS ; 2:110MS ; 3:150MS, AUDIO DELAY SETTING
S RESET 1	> RESET ON	RESET ACTION

Note: Items in **BOLD** brackets [] are the default values for those settings.

(B) Status Commands

Command Code	Response	Description
R POWER	> POWER ON	SHOW POWER STATUS
R SOURCE	> SOURCE [VALUE]	SHOW SOURCE STATUS
R OUTPUT	> OUTPUT [VALUE]	SHOW OUTPUT STATUS
R SIZE	> SIZE [VALUE]	SHOW SIZE STATUS
R OSDNOTICE	> OSDNOTICE INFO/OFF/ON	SHOW OSD STATUS
R PICTUREMODE	> PICTUREMODE STANDARD/ MOVIE/VIVID/USER	SHOW PICTURE MODE STATUS
R CONTRAST	> CONTRAST [VALUE]	SHOW CONTRAST STATUS
R BRIGHTNESS	> BRIGHTNESS [VALUE]	SHOW BRIGHTNESS STATUS
R HUE	> HUE [VALUE]	SHOW HUE STATUS
R SATURATION	> SATURATION [VALUE]	SHOW SATURATION STATUS
R SHARPNESS	> SHARPNESS [VALUE]	SHOW SHARPNESS STATUS
R NR	> NR OFF/LOW/MIDDLE/HIGH	SHOW NR STATUS
R PCHPOSITION	> PCHPOSITION [VALUE]	SHOW PC H-POSITION STATUS
R PCVPOSITION	> PCVPOSITION [VALUE]	SHOW PC V-POSITION STATUS

R PCCLOCK	> PCCLOCK [VALUE]	SHOW PC CLOCK STATUS
R PCPHASE	> PCPHASE [VALUE]	SHOW PC PHASE STATUS
R COLORTEMP	> COLORTEMP NORMAL/WARM/ COOL/USER	SHOW COLOR TEMP STATUS
R RED	> RED [VALUE]	SHOW COLOR TEMP RED STATUS
R GREEN	> GREEN [VALUE]	SHOW COLOR TEMP GREEN STATUS
R BLUE	> BLUE [VALUE]	SHOW COLOR TEMP BLUE STATUS
R OSDHPOSITION	> OSDHPOSITION [VALUE]	SHOW OSD H-POSITION STATUS
R OSDVPOSITION	> OSDVPOSITION [VALUE]	SHOW OSD V-POSITION STATUS
R OSDTIMEOUT	> OSDTIMEOUT [VALUE]	SHOW OSD TIMEOUT STATUS
R OSDBACKGROUND	> OSDBACKGROUND [VALUE]	SHOW OSD BACKGROUND STATUS
R AUDIOMUTE	> AUDIOMUTE OFF/ON	SHOW AUDIO MUTE STATUS
R AUDIODELAY	> AUDIODELAY [VALUE]	SHOW AUDIO DELAY STATUS

6.0 TROUBLESHOOTING

If the 1T-VS-658 Scaler does not appear to be functioning, be certain that the source and all other devices connected to the unit are functioning correctly by connecting each device currently connected to the 1T-VS-658's outputs directly to the source using a short length of cable. (In other words, bypass the 1T-VS-658 to insure that the problem is not with the source or destination devices.) If the signal is present under those conditions, make certain that the power is present to the 1T-VS-658. If it is, check all cables for damage. Cables should be undamaged, as short as possible and should be premium quality.

Note: It is strongly recommended that you use premium cables in order to achieve maximum distance cable runs and the best performance possible.

As a final step before contacting technical support, use the IR remote and press the RESET button which will return the unit to the default settings.

After trying the above suggestions should the problem still persist, contact your dealer for additional suggestions before contacting tvONE. Should the dealer's technical personnel be unable to assist you, contact tvONE via our support website:

<http://tvone.crmdesk.com>. Create a technical support request on the site and our support team will respond within a short period of time.

7.0 LIMITED WARRANTY

tvONE warrants the original purchaser that the equipment it manufactures or sells will be free from defects in materials and workmanship for a fixed term from the date of purchase. The warranty term for specific product lines is defined below.

1. tvONE branded products based on tvONE's CORIO technology are warranted for a period of five years from the date of purchase. This includes products with the model number prefix of C2, 1T-C2, CX, A2 or S2.
2. tvONE products, other than those based on tvONE's CORIO technology mentioned above, are warranted for a period of three years from the date of purchase. This includes products with the model number prefix of 1T, with the exception of 1T-C2.
3. LCD Monitors are warranted for a period of three years from the date of purchase, with the exception of the LCD panels integrated into the monitors that are supplied by third parties. LCD panels are limited to the term and conditions of the warranty offered by the respective LCD panel manufacturer. Such specific LCD panel warranties are available upon request to tvONE.

Should a product, in tvONE's opinion, prove defective within this warranty period, tvONE, at its option, will repair or replace this product without charge. Any defective parts replaced become the property of tvONE. This warranty does not apply to those products which have been damaged due to accident, unauthorized alterations, improper repair, modifications, inadequate maintenance and care, or use in any manner for which the product was not originally intended.

If repairs are necessary under this warranty policy, the original purchaser must obtain a Return Authorization Number from tvONE and return the product to a location designated by tvONE, freight prepaid. After repairs are complete, the product will be returned, freight prepaid.

LIMITATIONS - All products sold are "as is" and the above Limited Warranty is in lieu of all other warranties for this product, expressed or implied, and is strictly limited to the stated number of years from the date of purchase. tvONE assumes no liability to distributors, resellers or end-users or any third parties for any loss of use, revenue or profit.

tvONE makes no other representation of warranty as to fitness for the purpose or merchantability or otherwise in respect of any of the products sold. The liability of tvONE with respect to any defective products will be limited to the repair or replacement of such products. In no event shall tvONE be responsible or liable for any damage arising from the use of such defective products whether such damages be direct, indirect, consequential or otherwise, and whether such damages are incurred by the reseller, end-user or any third party.

8.0 REGULATORY COMPLIANCE

The 1T-VS-658 Scaler has been tested for compliance with the appropriate FCC and CE rules and regulations. The power adaptor/supply has been tested for compliance with appropriate UL, CUL, CE, PSE, GS Rules, regulations and/or guidelines. This product is RoHS compliant.

9.0 CONTACT INFORMATION

Should you have questions or require assistance with this product in areas not covered by this manual, please contact tvONE at the appropriate location shown below.

tvONE USA

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End of Manual