

Lucidity TZS-1  
by  
Nel-Tech Labs, Inc.

Installation & User Manual



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## **Introduction:**

The Lucidity™ TZS-1 is a commercial grade high-performance audio and video playback device capable of decoding up to MPEG-4 video at full D1 resolution with it's state-of-the-art 32-bit RISC and 64-bit DSP processors. Files are accessed from any standard USB flash drive that plugs into the front of the player.

The Lucidity supports video processing to provide high-resolution display of videos in MPEG-1, MPEG-2, and MPEG-4 formats. The integrated NTSC/PAL encoder provides composite and S-Video output. The audio processing section provides stereo decoding for just about any mainstream audio format such as MP3, AAC, & WMA.

## **Unpacking and Inspection:**

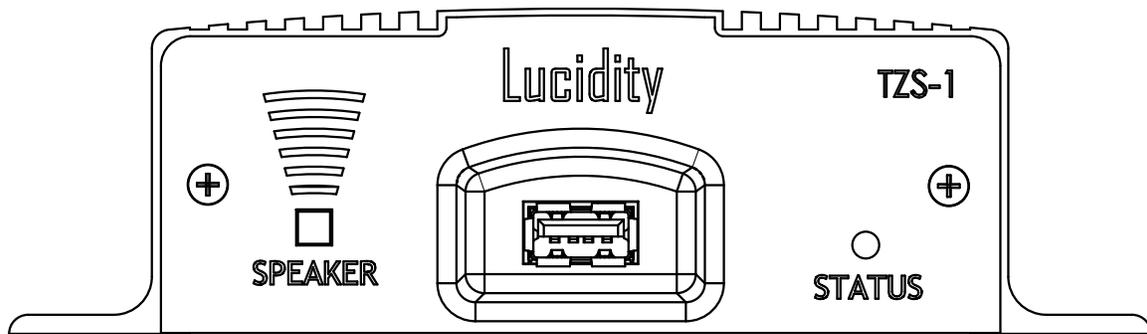
Before you begin installation, unpack and verify you have all the correct parts.

- (1) Lucidity TZS-1
- (1) USB flash drive
- (1) 6VDC @ 1.50A power supply
- (1) Instruction manual
- (1) 3.5mm to RCA (L & R Audio)
- (1) S-Video Cable
- (1) RCA to RCA (Composite Video Cable)
- (4) Wall mount screws
- (4) Rubber feet

If you are missing any of these parts STOP and call your dealer.

## Lucidity TZS-1 Layout Summary:

### Front of Unit

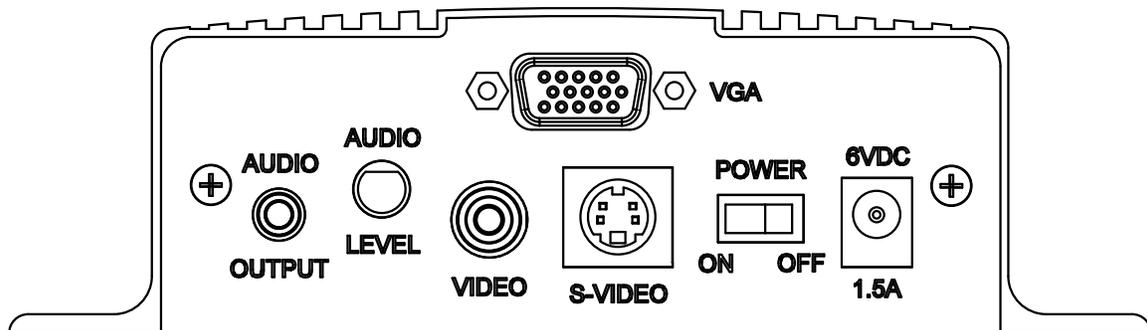


**SPEAKER** - The SPEAKER switch can be turned ON and OFF to monitor audio. The switch has no effect on the audio output connections on the rear of the unit. Switch should normally be kept OFF.

**USB PLUG** - The USB drive is inserted here to play content. If insertion of drive is difficult, turn the drive over and try reinserting. Drive should slide into jack smoothly.

**STATUS** - The STATUS indicator is a LED that during normal operation with a USB drive inserted into the unit will be SOLID BLUE. If there is a problem with the drive, is not inserted correctly or is empty, the LED will BLINK BLUE.

### Rear of Unit



**AUDIO OUTPUT** - This jack accepts a 3.5mm stereo plug that outputs both left and right audio channels.

**AUDIO LEVEL** - This pot is used to control the output level of the stored messages. Volume up is counter-clockwise, volume down is clockwise.

**VIDEO** - This connection supplies a composite video signal output over an RCA jack.

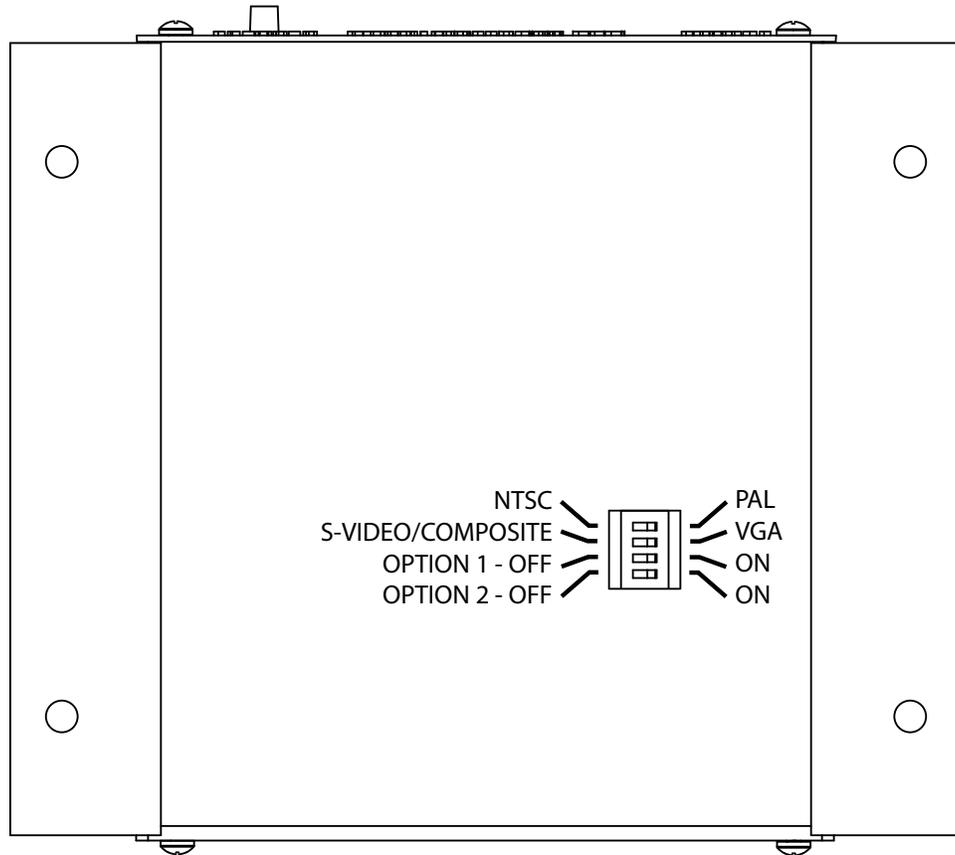
**S-VIDEO** - This connection supplies a super video signal output over a 4-pin mini-DIN jack.

**VGA** - This connection supplies a VGA signal output over a HD15 D-Sub jack.

**POWER** - Use this switch to turn the unit ON and OFF.

**6VDC** - This is where the supplied 6VDC @ 1.5A power pack is connected.

## Bottom of unit



NTSC - Sets the video encoder format to NTSC. This format is generally used in North America, Canada, Mexico & Western parts of South America.

PAL - Sets the video encoder format PAL. This format is generally used in Eastern parts of South America, Africa, Europe, Australia and Asia.

S-VIDEO/COMPOSITE - Sets video output to interlaced format. Video output will be displayed on the VIDEO and S-VIDEO output jacks on the rear of the unit. VGA will be disabled.

VGA - Sets video output to progressive scan format. Video output will be routed to the VGA jack on the rear of the unit. VIDEO and S-VIDEO will be disabled.

OPTION 1 - Not Used/Future Use

OPTION 2- Not Used/Future Use

If a DIP switch is not present on the bottom of unit then it is set to NTSC in S-VIDEO/COMPOSITE Mode.

## Installation :

**Step 1:** Wall or shelf mount the unit. Screws and rubber feet are supplied in the accessory kit.

**Step 2:** Verify the power switch on rear of unit is set to OFF. Attach the included power pack to a wall or power strip receptacle, then attach the other end to the jack on the rear of the unit labeled 6VDC.



**Step 3:** If connecting unit to an amplifier make sure it is turned OFF for this part of the installation.

**Step 4:** Connect a 3.5mm cable (supplied in the accessory kit) to the AUDIO OUTPUT jack on the rear of the unit. Connect the LEFT channel (white) and RIGHT channel (red) to the amplifier or monitors AUDIO INPUT jacks. These are line level outputs and will not drive a speaker directly.



**Step 5:** Depending upon the type of display used connect ONE of the following:

**a.** VIDEO jack on rear of unit > to RCA cable (supplied) > to monitors VIDEO INPUT. This is generally the yellow colored jack.



**b.** S-VIDEO jack on rear of unit > to S-Video cable (supplied) > to monitors S-VIDEO INPUT. This is the jack on your monitor with 4-pins on a circular connector.



**c.** VGA jack on rear of unit > to VGA cable (not supplied) > to monitors VGA input.



**Step 6:** Set the DIP switches on the bottom of the unit (see previous page for help).

**a.** Select NTSC or PAL for the encoder output type.

**b.** Select the type of video signal output S-VIDEO/COMPOSITE for standard TV monitors or VGA for a computer or high-resolution monitor.

**Step 7:** Insert the USB flash drive (with content) into the front of the unit. Do not force the USB flash drive - if it does not fit in one way, try turning it over and reinserting.

**Step 8:** Turn the power switch on rear of unit to the ON position. After the unit initializes the STATUS LED on the front of unit will turn solid blue. This process may take up to 15 seconds.

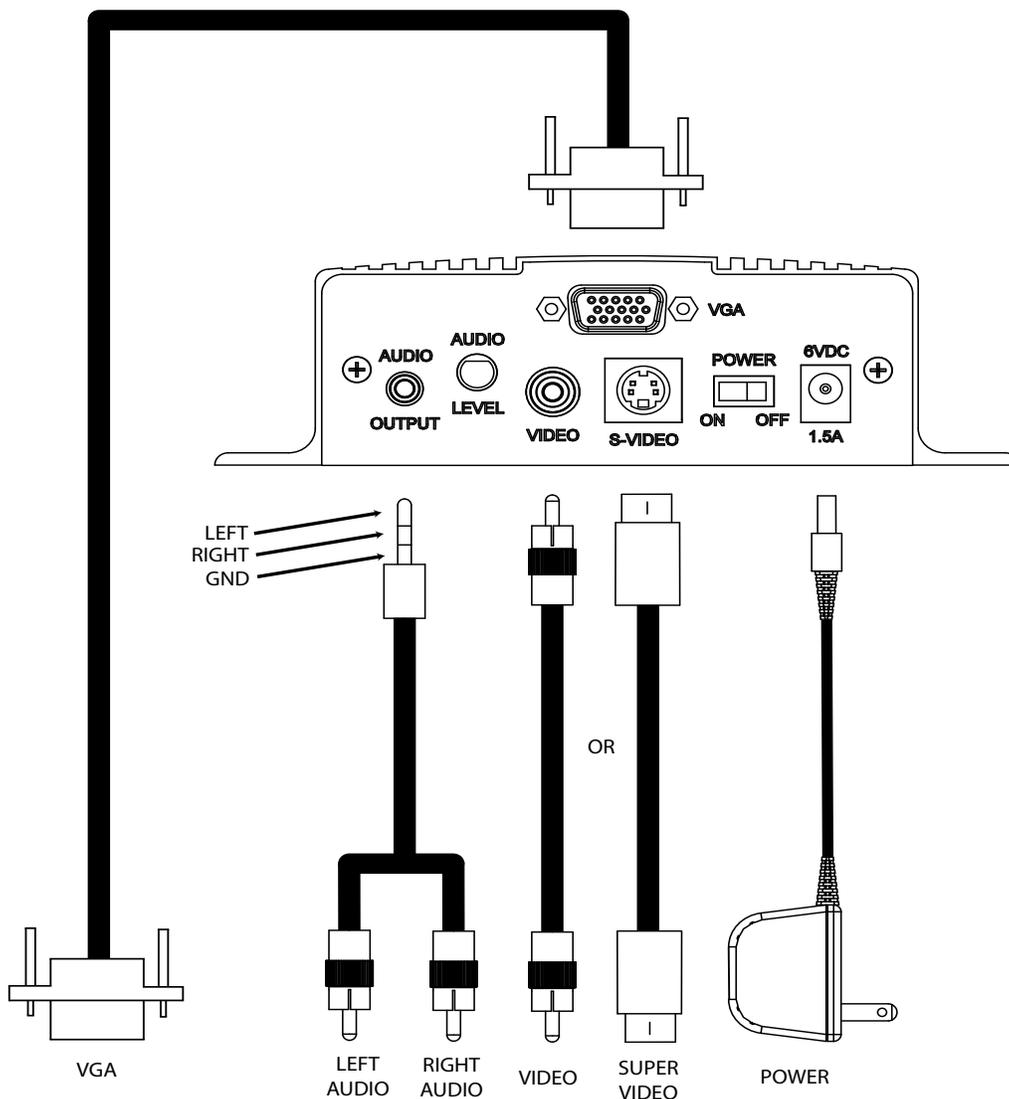
**Step 9:** Push the SPEAKER switch located on the front of the unit to the IN position. This speaker is for verifying audio playback and testing purposes only – DO NOT use this for setting the OUTPUT volume level!

**Step 10:** If any amplifiers or monitors were turned OFF during installation turn them back ON now.

**Step 11:** Adjust the volume level pot labeled AUDIO LEVEL on the rear of the unit in conjunction with the monitor or amplifiers master volume to achieve a balanced but not over driven audio level.

**Step 12:** Verify video display for picture.

**Step 13:** Push the SPEAKER switch to the OUT position and installation is complete.



**Wiring Diagram**

## **Loading Video & Audio Files to USB Flash Drive:**

All files that are available for the Lucidity TZS-1 to play are stored on an industry standard USB flash drive. Depending upon the capacity of the drive, the Lucidity can playback up to 1024 files in a continuous loop.

Files are placed onto the USB flash drive using either the “drag and drop” or “copy and paste” method.

Files are removed by selecting the file on the USB flash drive and pressing <Delete> on the computer keyboard.

If an ordered playback is required, the files should be either numbered or lettered. If numbered and lettered files are mixed then the numbered files ( 0 - 9) will play before lettered files (A - Z).

For Example:

Files dragged on to the USB flash drive in the following order . . .

Hotel\_California.mp3  
New\_Kid\_In\_Town.mp3  
Star\_Wars\_Trailer.mpg  
300\_Trailer.m4v  
Fly\_Away.aac  
Mine\_All\_Mine.wma

. . .will playback in the following order

300\_Trailer.m4v  
Fly\_Away.aac  
Hotel\_California.mp3  
Mine\_All\_Mine.wma  
New\_Kid\_In\_Town.mp3  
Star\_Wars\_Trailer.mpg

Both audio and video files can be mixed on the USB drive. If a monitor is connected to the Lucidity and the file only has audio playback then the screen will go blank.

## **USB Flash Drive Formatting:**

If the USB drive ever needs to be erased completely then it can be formatted using your computer. Drives smaller than 512MB can be formatted using FAT, and drives 512MB or larger can use FAT32.

## Troubleshooting:

Problem	Possible Reason
Status LED - OFF	Power on rear of unit OFF Power pack not plugged in or on a switched outlet
Status LED blinks	USB drive is not inserted USB drive is empty Files on drive are not compatible with unit
Status LED solid - no audio	File does not have a valid audio track Volume is turned down Monitor or amplifier volume muted or turned down
Status LED solid - no video	File does not have a valid video track NTSC or PAL switch not set correctly S-VIDEO/COMPOSITE or VGA switch not set correctly Monitor VIDEO INPUT not selected
Playback in wrong order	Check naming of files
Skipping over files	File not compatible with unit
Video fuzzy, pixillated, or distorted	File was encoded using too low of a bit-rate File was encoded using too low of a resolution File was encoded using low quality encoder NTSC or PAL switch not set correctly Display can not handle resolution Display can not handle scan rate
Video not fitting on screen	Display can not handle resolution of file File encoded wrong format (4:3, 16:9, 1.33) NTSC or PAL switch not set correctly
Popping audio	File was encoded using too high of a bit-rate Video and audio files combined are too high of a bit rate File incompatible with unit
MPEG-1 playback issue	File was encoded using too high of a bit-rate
MPEG-2 playback issue	File was encoded using too high of a bit-rate
MPEG-4 playback issue	File was encoded using too high of a bit rate Only MPEG-4 ASP (Advanced Simple Profile) is supported
MP3 playback issue	File was encoded using too low of a bit rate
AAC playback issue	File was encoded using too low of a bit rate File has DRM (Digital Rights Management) enabled
WMA playback issue	File was encoded using too low of a bit rate File has DRM (Digital Rights Management) enabled

Attention : Most video and audio problems are a result of using the wrong encoder, using too low of a bit rate, or using a combination of high bit rate audio and video files.

Please check <http://www.nel-techlabs.com/lucidity.htm> for compatibility charts

## **Lucidity TZS-1 Specifications:**

### **Audio/Video Decoding : Maximum Ratings**

MPEG-1 video playback : 352 x 240 (NTSC), 352 x 288 (PAL)

MPEG-2 video playback : 720 x 480 (NTSC), 720 x 756 (PAL)

MPEG-4 ASP video playback : 720 x 480 (NSTC), 720 x 576 (PAL)

MP3 audio playback : Up to 320Kbps, CBR and VBR, up to 48KHz sample rate

AAC audio playback : Up to 320Kbps, Low Complexity (LC), up to 48KHz sample rate

WMA 9.2 music playback : Up to 320Kbps, CBR and VBR, up to 48KHz sample rate

### **Memory Type**

USB Flash Drive

### **Memory Capacity**

16MB to 4GB

### **File Capacity**

Up to 1024 files (depending on size of files)

### **Video Output**

Composite via RCA jack (interlaced scan)

S-Video via 4-pin S-Video jack (interlaced scan)

VGA via 15HD jack (progressive scan)

### **Audio Output**

3.5mm stereo jack, 3.2V p-p @ 5Kohm (signal level)

### **Message Loading**

USB Flash Drive (using PC or MAC)

### **Message Playback**

Continuous

### **Power Requirements**

6VDC @ 1.50A, typical

### **Environmental**

0°C to 50°C, 5% to 95% relative humidity, non-condensing

### **Size**

6.00" x 6.00" x 1.50" (H x W x D)

### **Shipping Weight**

3 pounds

# Limited Warranty

**TERMS:** Nel-Tech Labs warrants to the original purchaser (“Buyer”) that the Product sold is free from defects in material and workmanship at the time of purchase. The warranty period begins at the time of Product’s original purchase by the first end-user. The warranty applies for five (5) year from the original date of purchase, or as long as the product is owned by the original purchaser, whichever comes first. Included in the warranty are parts and labor. Buyer must provide written notice to Nel-Tech Labs of any defective part or conditions within the warranty period. If the defect is not the result of improper use, service, maintenance or installation, and if the equipment has not been otherwise damaged or modified after shipment, Nel-Tech Labs or its authorized representative shall either replace or repair the defective Product at Nel-Tech Labs’s option. No credit shall be allowed for work performed by Buyer or unauthorized parties. Out-of-warranty repairs are invoiced at the current Nel-Tech Labs hourly rate plus the cost of parts, shipping and handling. In the event that the product serial number is missing or has been tampered with in any way, the foregoing warranty is void and without effect and Nel-Tech Labs shall have no liability whatsoever on account of defects to such product.

**LIMITATIONS:** Except as stated above, there are no warranties, express or implied, that extend beyond the specifications for the product. Nel-Tech Labs expressly disclaims any warranty, express or implied, that equipment sold hereunder is of merchantable quality or that it can be used, or is fit for any particular purpose. Buyer purchases and accepts equipment solely on the basis of the warranty here in above expressed. Under no circumstances shall Nel-Tech Labs be liable by virtue of this warranty or otherwise for any special indirect, secondary or consequential damages to any person or property arising out of the use or inability to use the product.

**REPAIRING OR REPLACING PRODUCT:** Buyer may obtain the repair or replacement of any eligible part or equipment covered under this warranty through a Nel-Tech Labs dealer only. Buyer is responsible for all shipping and handling charges in connection with the performance of this warranty. Products returned to Nel-Tech Labs must be securely packaged to prevent damage in transit, freight prepaid, and insured for replacement value. A return authorization number assigned by Nel-Tech Labs must be clearly marked on the outside of the shipping container. Proof of purchase must accompany shipment. Items delivered to Nel-Tech Labs without a return authorization clearly marked on the outside of the shipping container, and/or without proof of purchase is refused.

**CONTACT:** Please contact Nel-Tech Labs at the address and phone number below to receive a return authorization number and to arrange for the repair or replacement of a flawed part covered by this warranty. Please indicate the Product’s serial number in all correspondence or a RMA authorization number in the absence of a serial number. Nel-Tech Labs, 4 Ash Street Extension, Derry, NH 03038, Phone: 1.603.425.1096.

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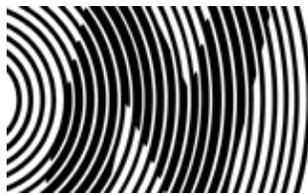
**FCC Part 15 :** This equipment has been tested and found to comply within the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of the equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct interference at his own expense. In order to maintain compliance with FCC regulations shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio & television reception.

Changes or modifications not expressly approved by Nel-Tech Labs could void the users’ authority to operate the equipment.

**IC ES 003 :** This Class A digital apparatus complies with Canadian ICES-003 C et appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

**CE CONFORMITY :** The Nel-Tech Labs Lucidity TZS-1 conforms with the following standards, in accordance with the EU Safety, EMC Emissions, & EMC Immunities : EN 60950-1:2001, EN 55022:1998 for Class A, EN 55024:1998 + A1:2001 + A2:2003, EN 61000-4-2:1995 + A1:1998, EN 61000-4-3:1995, EN 61000-4-4:1995, EN 61000-4-5:1995, EN 61000-4-6:1996, EN 61000-5-11:1994.





Nel-Tech Labs, Inc.  
4 Ash Street Extension  
Derry, NH 03038

1.800.344.4685  
[www.nel-techlabs.com](http://www.nel-techlabs.com)

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