



**Vancura Innovations, LLC**

Imagination is more important than knowledge ... until you have to build what you've imagined.

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# **Channel Talker MADI**

## **Test Tone Generator Model CT-MADI with Voice ID**

**64 Digital MADI source  
1 AES Stereo Output  
1 DARS Output  
1 48K Sync Output**

### **CT-MADI User Guide**

**Version 1.00  
January, 2014**



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It is presumed that the reader of this manual is familiar with PC computers and knows how to use the Windows operating system that will be running this software. The administrator of this machine/software may be required to set up a network connection, install programs, move files, edit text files, and run programs. This set of programs may be used as stand-alone or in conjunction with external hardware. Setup may be used to assign ID numbers and network information.

The end operator should be able to read numbers and simple text. The operator may need to understand how to use a touch screen without damaging it.

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## Product Description

The Channel Talker CT-MADI is versatile multi channel test tone generators that allow one person to set up a MADI interface with up to 64 channels of digital audio. Each channel has a voice ID to clearly identify the channel. The unit also supports adding a station ID.

Both the channel ID and station ID are WAV file recordings. The channel ID plays for .68 seconds sequentially on each channel. The voice says “one”, “two” ... “Sixty Three”, “Sixty Four”. The channel IDs are grouped in blocks of eight. A station ID is inserted after a group of IDs is voiced. This optional wav file consists of a 0 to 5.46 second message usually identifying the signal source or location, and is voiced on all channels at the same time. Both the channel and station IDs are recordable at 48K samples per second. The files can be changed to voice any message in any language as needed. The files are stored in FLASH memory and can change as many as 100,000 times.

There is one AES BNC output that that is a copy of channels 1 & 2 of the MADI sequence, and one BNC output that has DAR output reference.

A DAR/Color-Black reference input is available for phase locking the audio output to house reference. The analog video sync input supports most SD and HD formats to establish phase lock.

## Channel Talker Configuration

### *Front Panel:*

The Channel Talker front panel allows the operator to:

- 1) **TONES:** Selects one of four tones to be output on the 63 channels. The tones are:
  - a. **1000 Hz:** -20DBFS (-18DBFS Europe).
  - b. **400 Hz:** -20DBFS (-18DBFS Europe).
  - c. **SWEEP: 8 tones:** This is a 1-½ second step frequency response test. The tones are at -20dBFS (-18DBFS Europe). Outputs 50,125, 250, 500, 1000, 2000, & 4000Hz tones.
  - d. **LEVELS:** Outputs 10KHz (1KHz optional) levels at: Silence, -20, -17, -14, -11, -8, -5 DBFS. Each step being 2.73 seconds in duration
- 2) **MODE:** Selects the combination of tones and IDs output on the 16 Channels.
  - a. **MUTE:** No Tone, station ID, or Channel ID.
  - b. **ID ONLY:** Station ID and Channel ID are played, and the tone is silence.

- c. **TONE ONLY:** No station ID or Channel ID overlays. Tone is as selected.
  - d. **BOTH:** The tone and the IDs are played.
- 3) Connect to a PC using a mini 5-pin USB cable. The USB interface is a serial connection that allows the user to download wav files, using the Channel Talker MADI Wave It program, for changing the channel ID and the station ID.
- 4) There are six status LEDs:
  - a. Primary Power active ,
  - b. Secondary Power active,
  - c. USB active,
  - d. DAR/Color-Black sync lock.
  - e. 48 KHz reference lock.
  - f. External MADI input (Unused).

### ***Back Panel:***

The Channel Talker back panel has:

- 1) FIBER Optic input and output (input is not active) 1300nm multimode SC connector for MADI output.
- 2) One BNC MADI 48 KHz input for Sync,
- 3) One BNC MADI 48 KHz output for Sync,
- 4) One BNC MADI input,
- 5) Two BNC MADI outputs,
- 6) One BNC AES output equivalent to channel 1 and 2.
- 7) One BNC output for DAR signal sourcing,
- 8) One BNC input for synchronizing the digital outputs to either:
  - a. DAR reference or
  - b. Color Black, which supports most analog SD and HD formats.
- 9) Two power jacks for 5VDC input. Only one supply is required for operation. Included is a handy strain relief for the power adapter cables.
- 10) 75 Ohm termination jumper for the DAR/Color-Black reference input.

### **CT MADI Wav IT:**

CT MADI Wav IT Saver software allows one to download wave files to the CT-MADI through the front panel USB connector. Operation is simple and straight forward.

The operator must first have, or create, the necessary wav files to be downloaded. There are nine different wav files used in the CT-MADI units. They are: Station ID (ch 1-8, ch 9-16, ch 17-24, ch 25-32, ch 33-40, ch 41-48 , ch 49-56, ch 57-64, & Station ID. Each wav file is 4Mb long. That is 262,144 16-bit samples. Each channel is allocated 0.68266 seconds. The station ID may be any recorded message up to 5.4613 sec in length. The Station ID is optional, and if it is deleted, there will be no message inserted.

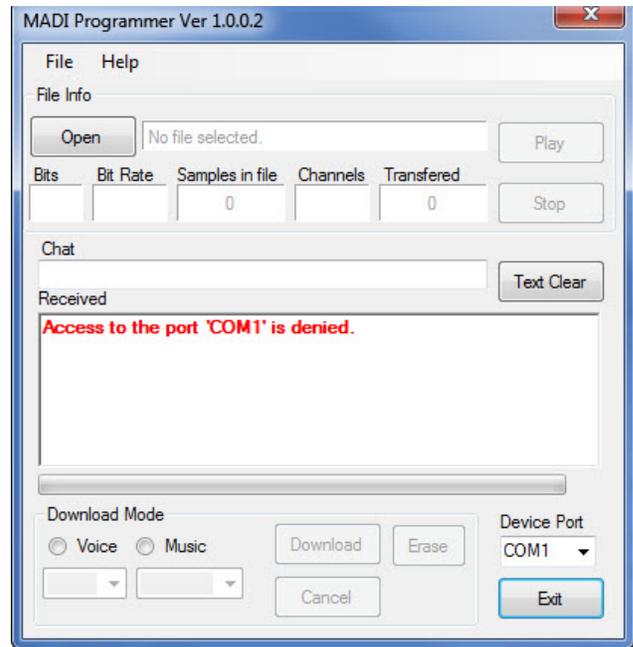
To program the unit, a USB connection to a pc computer is required using a USB-A to USB mini 5-pin cable. The USB interface creates a standard virtual serial connection. Drivers for this unit are available on the Vancura-innovations.com web site. The most recent serial drivers may be downloaded at: <http://www.ftdichip.com/Drivers/VCP.htm>

## Channel Talker Wave Saver Operation

Channel Talker Wave Saver was designed with simplicity in mind.

### 1) Initial Setup:

- a) Download the software from the Vancura-innovations.com web site.
- b) Install the software.
- c) Connect the Channel Talker (CT-MADI) unit to the PC with the USB cable, and install drivers if necessary.
- d) Connect power to the Channel Talker unit. Verify that a power LED is illuminated on the front panel. The PC should recognize the new hardware and will ask to install the drivers. Install the drivers.



### 2) Start the Channel Talker Wave Saver program.

### 3) Operation:

- a) **Open** button: Click and select a wav file to download to the CT.
- b) **Play** button: Will play the selected file to verify selecting the desired file
- c) **Stop** button: Aborts the play button.
- d) **Bits, Bit Rate, Samples in File, Channels, & Transferred** boxes: Shows selected wav file statistics.
- e) **Chat** window: Typing here will send text to the CT-MADI after click on <enter>
- f) **Text clear** button: clears the Received box text.
- g) **Received** box. Shows information received from the CT-MADI.
- h) **Download Mode**: Selects either voicing music portion of FLASH MEMORY.
- i) **Voice** radio button: Selects one of 8 memory blocks to record voicing.
- j) **Music** Radio button: Selects one of 8 memory blocks to record music.
- k) **Download** button: Erases selected FLASH memory segment and transfers the wav file to the CT\_MADI FLASH memory.
- l) **Erase** button: Erases selected FLASH memory segment.
- m) **Cancel** button: Attempts to abort file transfer to CT-MADI. This may leave Memory blank or corrupted, but not damaged.
- n) **Device Port** drop-box. Selects serial port for the CT-MADI to establish communication. The easiest way to determine the serial port number is to disconnect the USB cable, open the "Device Port" drop box, select "Refresh", reconnect the USB, "Refresh" again, then note and select the new port. The port does not require a BAUD rate setting.
- o) **Exit** button: Closes the MADI WAV IT program.

Note: Always verify that the downloaded message sounds correct.

Note: Station ID and Channel ID may only be recorded at 48 KHz sample rate.

## ***Wave File Specifications***

Wav files are used to program the channel ID and Station ID. They must be properly structured to obtain proper results. The Channel ID plays sequentially for all 8 channels in each group.

- 1) Each wav file is 4Mbit long.
- 2) One wav file will play 5.46133 sec
- 3) Each Channel is allocated 0.68266 seconds (8 voiced channels per file).
- 4) Wav files are formatted as 16-bit, monaural, 48Ksmp/sec.
- 5) Music files are identical to the voice files except they are Stereo and are 8Mbit long

The Station ID file may be any length up to 4Mb (262144 16-bit samples @ 48 KHz). The CT-MADI unit automatically detects the end-of-file and switches back to the tone without leaving undesired dead air.

## **CT-MADI Specifications**

**64 Tone Channels:** Digitally generated, exactly -20dBFS, 1000 Hz tone with sequential voice markers on all channels (1 digital MADI stream), 19-Bit resolution, and 20-bit compatible. All matching tones are in phase.

**1 SC Fiber MADI Output:** Output is 1300 nm multimode MADI compatible.

**2 BNC MADI Output:** Output is MADI compatible 75 ohm.

**1 48 KHz Sync Input:** MADI compatible 75 Ohm BNC.

**1 48 KHz Sync Output:** MADI compatible 75 Ohm BNC.

**1 AES Channel Output BNC:** Output is AES/EBU compatible (1.0Vp-p into 75 Ohm). Signaling is identical to channel 1 & 2

**1 DAR BNC Output:** One Digital Audio Reference output (DAR). Audio output Left and Right = 0.00 volts (minus infinity db – dead silence). Class 1 reference signal.

DAR/Color Black Input: Locks to external DAR reference 48 KHz data stream, or standard house reference black analog video. Video reference supports most SD and HD formats.

**Channel ID:** Sequential voice channel ID overlay on all channels for ease of identification. Natural voice wav file. Unit is pre-programmed with generic sequencing 0.68 sec phrases (“One”, “Two”, “Three”, etc.).

**Station ID:** Voice station/unit ID overlay on all channels. The file supports up to a 5.46 second message. Default: No message.

**Input Voltage:** 5VDC. Connector 2.1mm X 5.5mm X 11mm (inside x outside x Length).

**Input Current:** 200ma Maximum.

**Input Power Supply:** Two 120VAC to 5VDC @600ma green converters.

**Temperature:** 0 C to 50 C (32 F to 125 F) non-condensing.

**Size W X D X H:** 207mm x 178mm x 43mm (8.15in x 7.0in x 1.7in). 1U high 1/2 Rack compatible.

Voice ID Phrase Download Software (Optional):

Channel Talker Voice overlay Channel ID and Station ID are derived from wave files. The Channel ID file can be custom programmed, providing the overlay information can fit in the allocated time slice. Voice files are stored in non-volatile FLASH memory. All messages are stored at 48K samples/sec.

Change the message as often as needed. 10,000 write cycles typical.

## **MADI Wav It:**

Software requires Windows XP or later, 333 MHZ or better processor; 128MB RAM, 25M Bytes of Disk space, 800x600 monitor or better, and mouse.

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