WiDis

Wireless instrument Digital interface system

2006 Brochure

WIMSI

Wireless Instrument Music Systems International

148 Red Rock Ranch Road, Red Rock, TX 78662 (830) 839-4341 wimsiwidis@msn.com
"We see the future with WiDis!"

Wireless Instrument Digital Interface System

WiDis Takes Your Instrument Into The New Millenium!

Designed by musicians for musicians, Wireless Instrument Digital Interface System (WiDis) safely connects microphones and electronic musical instruments to digital as well as analog audio equipment without wires. WiDis adds digital wireless capability using your present instrument, gear, and gig bag.

As practicing musicians, we have tediously unraveled the ubiquitous rats-nests of wires and cables. We suffered electrical shocks from our guitars and microphones. We could not connect to digital equipment. Our performances were interrupted by interference from radio or other electrical apparatus and by bad connections. We resolved to remedy the sad state of existing technology, which is still rooted in standards dating back to the 1930's.

WiDis Year 2006 state-of-the-art digital audio wireless system uses a Musical Instrument Transceiver (MIT) to communicate to a Wireless Music Distributor (WMD). They converse using a clever program to coexist with interference while delivering excellent and secure quality of service.

It's Plug-to-Plug Compatible with your existing analog instrument and gear.

Using the very latest advances in integrated digital circuit technology, WiDis delivers professional quality audio, the highest fidelity, widest dynamic range, lowest processing latency, fastest setup and easiest operation of any digital wireless system available worldwide.

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Musical Instrument Transceiver

Is sold either as a kit to build into a musical instrument, or factory assembled and housed as an outboard unit. The instrument connects through a standard ¼ inch stereo jack. Headphones also use a ¼ inch jack. Microphone connects using a phantom powered XLR connector.

The transceiver digitizes and encodes three streams of audio and a bi-directional channel for control and computer data. It scrambles the stream for security and sends a spread spectrum 2.4 GHz radio frequency signal to a Wireless Music Distributor (WMD).

The antenna is built-in, nothing to break off!

It has a proprietary Audio Media Access Controller chip, which implements a clever anti-interference and co-existence scheme and uses an enhanced (and patented) protocol for superior audio streaming quality of service.

MIT transmits 100 mW (20 dBm) RF output. That's the legal limit.

NO MORE SHOCKS!

Power supply is four AAA batteries. This completely isolates the musician from the power mains and eliminates any chance of electrical shock from the instrument, headphones or microphone.

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Wireless Music Distributor

Receives and decodes the radio waves using two antennas (this reduces drop-outs). It unscrambles and decodes the stream into several audio formats:

A digital stream in Sony/Philips Digital Interface Format (S/PDIF) goes to a RCA Phono jack, or an optional optical interface for TosLink fiber optic cable. It works with other digital audio equipment such as Digidesign's ProTools digital recording system, or a digital receiver.

The digital stream is also available in I2S format on the board header connections. This port is for factory and hardware hackers only.

Exceptional quality stereo analog audio goes to standard ¼ inch jacks for Left and Right Line Out connection to existing analog patch bays, recorders, amplifiers, processors, and computers. Audio output from the microphone goes to a standard RCA jack.

A bi-directional data channel (I2C control format) on both modules allows wireless computer connection to control the system, change default settings, and transfer data. Musicians don't really need this port, but it's a hacker's paradise!

UL Approved Transformer Power Supply

Converts the mains to positive six volts direct current (+6VDC) and connects to WMD through a standard power connector. An external ground lug connection (green) provides noise reduction and increases safety. WMD does not use batteries for safety because once connected, operation is fully automatic, and requires no operator interaction.
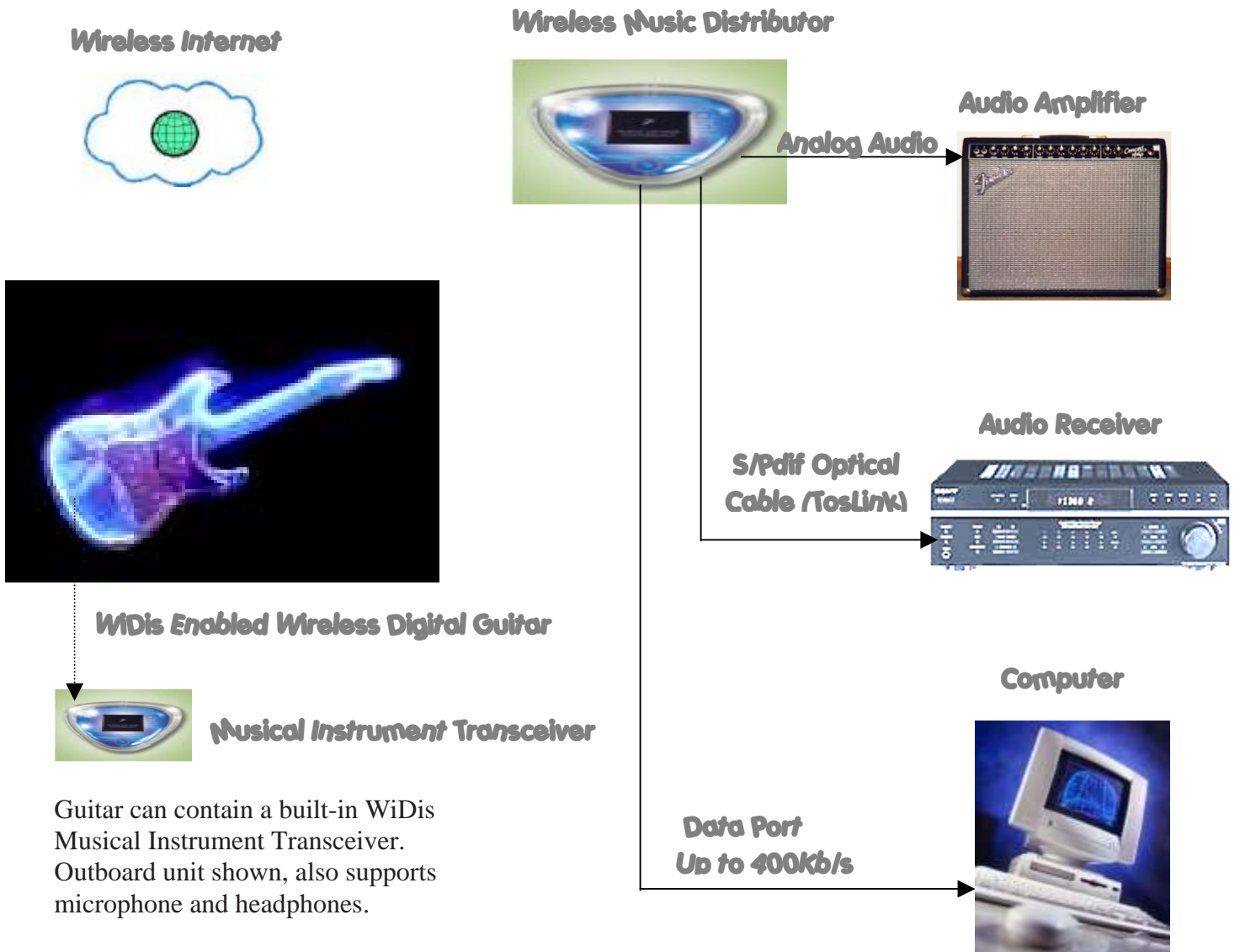
WIMSI — *Wireless Instrument Music Systems International*

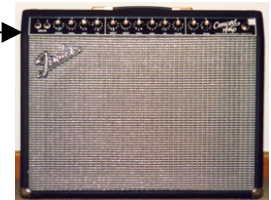# Wireless Instrument Digital Interface System

WiDis

WiDis System Block Diagram

Wireless Internet

Wireless Music Distributor

Audio Amplifier

Analog Audio

Audio Receiver

S/Pdif Optical
Cable (TosLink)

WiDis Enabled Wireless Digital Guitar

Musical Instrument Transceiver

Computer

Data Port
Up to 400Kb/s

Guitar can contain a built-in WiDis Musical Instrument Transceiver. Outboard unit shown, also supports microphone and headphones.

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Wireless Instrument Digital Interface System

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Musical Instrument Transceiver & Wireless Music Distributor Look the Same

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Digital Audio Board

Digital Audio Board uses the latest digital technology to produce wide dynamic range, noiseless, pristine high fidelity audio for professional applications. This board uses an advanced Coder/Decoder integrated circuit and a micro controller. It is configured as an Analog-to-Digital Converter (ADC) when used in the Musical Instrument Transceiver, and as a Digital-to-Analog Converter (DAC) when used in the Wireless Music Distributor.
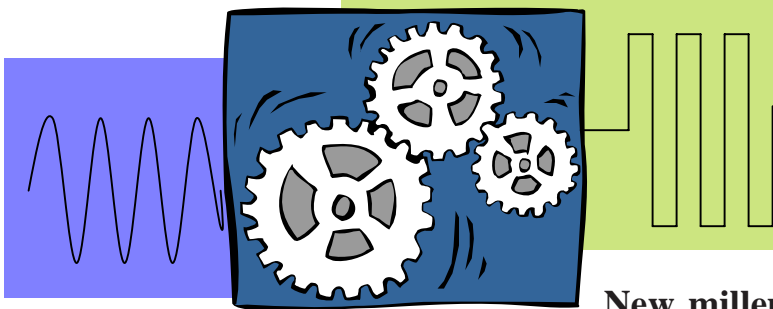
New millennium integrated circuit technology

Analog to Digital Converter takes 24 bit samples of each musical instrument channel at a rate of 192Ks/s. This is "over-sampled multi-bit un-compressed Sigma-Delta (sum-of-change) conversion," and that is the reason for such high fidelity, wide dynamic range, low distortion, and low conversion noise. An internal process decimates the 24 bits to 16 bits, which further reduces noise and distortion products, then filters and mixes the samples into a stream encoded in the Sony/Phillips digital interface format (S/Pdif). This stream goes to the 2.4 GHz radio frequency transceiver module.

On the other side of the link is the Wireless Music Distributor. It uses a micro controller and a Digital to Analog Converter to decode the S/Pdif digital stream into three channels of superb analog audio and a data channel for computer communication. The digital stream also outputs to a RCA Phono jack and an (optional) optical transmitter suitable for connecting a TosLink optical cable.

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Features

* * Secure digital wireless in worldwide license free 2.4 GHz band.
* * Micro controller with embedded software.
* • Two antennas, automatically controlled, reduce dropouts.
* • Left and Right Line In on MIT, Line Out on WMD connections.
* • Headphone amplifier with volume up/down switches.
* • Power on/off switch on MIT only, not needed on WMD.
* • LED indicators: on/off, link status, data traffic.
* • DC jack connector for external power supply only on WMD
* * Digital audio:
  * * Uncompressed audio (44.1 ks/s or 48 ks/s, 16 bit)
  * • I2S and S/PDIF input/output.
  * • Optional proprietary low latency compression.
  * • Three audio channels, one data channel per link.
  * • Programmable digital audio gain.
* * Advanced controller coexists with in and out of band interference:

Microwave ovens	WLAN (802.11.x)
2.4GHz cordless phones	GSM telephones
Bluetooth (class I, II, III)	DECT telephones

* * Low latency (configurable from 10…17ms)
* • Automatic frequency allocation.
* * Bi-directional data channel.
* • Soft audio muting under poor link circumstances.
* • Complies with applicable laws; Europe EN 300…328, US FCC Part 15.247.
* * I2C control bus, up to 400Kb/s

Automatic Power Cycle

When you turn power off on the Music Instrument Transceiver (MIT), the Wireless Music Distributor (WMD) places itself into low power stand-by. When MIT comes back on, WMD powers up again **automatically.**

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