Digital Audio Data Interface
The PIO-9216

The Portland Tool & Die PIO-9216 programmable serial audio data interface provides a simple and direct connection between circuit board components such as DSP's, DAC's, ADC's, CODECS, etc. and your SoundCheck® system.

Introduction
The Portland Tool & Die PIO-9216 programmable serial audio data interface provides a simple and direct connection between circuit board components such as DSP's, DAC's, ADC's, CODECS, etc. and your audio test system. This enables accurate testing of devices that use the I2S, Left Justified, Right Justified and TDM audio data formats. This capability is valuable in the R&D lab for evaluating and debugging circuit board designs, and is also common on the production line, for example, for testing / QC of circuit boards before installation into a device. The PIO-9216 works with any audio test system and can be computer controlled from within SoundCheck or via an external program.

Operation
The PIO-9216 interfaces to digital systems with 8 to 24 bit audio samples and from 4 to 216 kHz sample rates and it supports one or two channels. The decoded audio is available for direct interface to a computer over a universally compatible USB audio interface or via SPDIF. The USB interface utilizes a pure digital sample rate converter to allow universal computer access to devices with unusual sample rates and bit depths while the SPDIF interface can be set to either pass the audio through directly or sample rate convert it.

The programmable serial port offers discrete master, bit, and frame clocks. The master clock can operate at up to 50 MHz and can be generated or received. The bit and frame clocks are source synchronous and can also be generated or received. The alignment of data inside the data frame, the size of the data frame and NxFS ratio of the master clock are all independently programmable.

The data terminal, which uses 50 Ohm BNC connectors, is bidirectional and can be set to transmit or receive data. Each input/output connector is buffered and reflected on a dedicated monitor interface which allows an oscilloscope to monitor or sniff the signals without loading the circuit under test. The flexibility of the interface allows the instrument to interface to nearly any digital audio IC.
Digital Audio Data Interface (cont.)

Setup Diagrams

Digital Speaker

Digital Microphone

Specifications

Master Clock
Direction: In or Out
Range: 0.08 to 50 MHz
NxFS: 8 to 12,500
Vin/out: 1.2 to 5.5 V

Bit/Frame Clock
Direction: In or Out
FS Range: 4 to 216 kHz
Bit Range: 128 kHz to 6.912 MHz
Frame width: 8 to 32 bits
Word width: 8 to 24 bits
Vin/out: 1.2 to 5.5 V

Data Terminal
Direction: In or Out
Channels: Mono or Stereo

Justification: Left or Right
Offset: 0 to 7 bits relative to start of frame
Vin/out: 1.2 to 5.5 V

Host Interface
USB Audio
24 bit, 48 kHz sample rate
SPDIF/AES Digital Audio
- 22 to 192 kHz in bit exact mode
- 48 kHz via sample rate conversion

Physical
Dimensions: 86mm (H) x 271mm (W) x 211mm (D)
Weight: 1.6 kg
Power requirement: 12 VDC, 24W power input (Supplied with universal 100 to 240 VAC, 50 to 60 Hz power supply)

NOTE: Specifications are subject to change. Please contact Listen for current information or questions.