



## Comparison of APx DSIO to 2700/PSIA digital serial interface features and capabilities.

The APx DSIO and the PSIA for the 2700 Series offer very similar feature sets. With recent software updates, APx DSIO meets or exceeds the features and specifications of the PSIA. Here is a comparison of key features, vetted by AP Tech Support and Engineering.

*This information is current as of November 20 2014.*

FEATURE	DSIO	PSIA
<b>Audio Data Channel count</b>	1, 2, 4, 8 or 16 active in TDM single line 1, 2, 4 or 8 active in multi-line	256 time slots, 2 active
<b>Word Width, bits</b>	8 to 128 bits	8 to 32 bits
<b>Bit Depth (audio "active" data length), bits</b>	8 bits to 32 bits	8 to 24 bits
<b>Independent master clocks</b>	Yes - allows for testing of sample rate converters	No
<b>Transmitter Connections</b>		
	Master Clock OUT	Yes
	Master Clock IN	Yes
	Master Clock Scope Monitor	Yes
	N*Fs Clock OUT	n/a
	N*Fs Clock Scope Monitor	Yes
	Bit Clock OUT	Yes
	Bit Clock IN	Yes
	Bit Clock Scope Monitor	Yes
	Channel Clock OUT	Yes
	Channel Clock Scope Monitor	Yes
	Frame Clock OUT	Yes
	Frame Clock IN	Yes
	Frame Clock Scope Monitor	Yes
	Data OUT	Yes
	Data Scope Monitor	Yes
<b>Receiver Connections</b>		
	Master Clock OUT	Yes
	Master Clock IN	Yes
	Master Clock Scope Monitor	Yes
	N*Fs Clock OUT	n/a
	N*Fs Clock Scope Monitor	Yes
	Bit Clock OUT	Yes
	Bit Clock IN	Yes



FEATURE		DSIO	PSIA
	Bit Clock Scope Monitor	Yes	Yes
	Channel Clock OUT	Yes	Yes
	Channel Clock Scope Monitor	Yes	Yes
	Frame Clock OUT	Yes	Yes
	Frame Clock IN	Yes	Yes
	Frame Clock Scope Monitor	Yes	Yes
	Data IN	Yes	Yes
	Data Scope Monitor	Yes	Yes
<b>Voltage Levels</b>			
	TTL Family 5 V	No	Yes
	TTL Family 3.3 V	No	Yes
	CMOS Family 3.3 V	Yes	Yes
	CMOS Family 2.4/2.5V	Yes	Yes
	CMOS Family 1.8 V	Yes	Yes
<b>Loopback</b>		Internal, software switch	Requires cables
<b>Audio Data</b>			
	Single data line (TDM)	Yes	Yes
	Multiple data lines	1, 2 or 4	No
<b>Audio Data Format</b>			
	I <sup>2</sup> S	Yes, one click	Yes, one click
	DSP	Yes, one click	Yes, manually configurable
	Custom	Yes	Yes
<b>Audio Data Justification</b>		Left or right	Left or right
<b>Frame Pulse duration</b>			
	One Bit Clock	Yes	Yes
	One Subframe	Yes	No
	50% duty cycle	Yes	Yes
<b>Frame Clock Inversion</b>		Yes	Yes
<b>Frame Clock Shift One Bit Left</b>		Yes	Yes
<b>Selectable Bit Clock Edge Sync</b>		Yes	Yes
<b>Master Clock OUT rates</b>		4 kHz to 49.152 MHz	2.048 MHz to 27.648 MHz
<b>Master Clock IN rates</b>		4 kHz to 49.152 MHz	8 kHz to 60 MHz
<b>Frame Clock (Sample Rate)</b>		4 kS/s to 216 kS/s	6.75 kS/s to 216 kS/s
<b>Output Latency</b>			
	Frame Clock (referenced to Bit Clock)	typ 3 ns	15 ns
	Data lines (referenced to Bit Clock)	typ 3 ns	15 ns



FEATURE		DSIO	PSIA
	Monitor ports (referenced to signal pin)	typ 10 ns	Unspecified
<b>Input setup and hold</b>			
	Frame setup (referenced to Bit Clock)	6 ns	7 ns
	Frame hold (referenced to Bit Clock)	2 ns	3 ns
	Data line setup (referenced to Bit Clock)	6 ns	7 ns
	Data line hold (referenced to Bit Clock)	2 ns	3 ns
<b>Adjustable padding</b>		No	Yes
<b>Dynamic timing display</b>		Yes	No
<b>Scale audio frequency</b>		Yes	Yes
<b>Coded audio</b>		Any form of coded audio <sup>1</sup>	A-law, $\mu$ -law <sup>2</sup>
<b>Clock Jitter</b>		Yes <sup>3</sup>	Yes

<sup>1</sup> DSIO will input or output any coded audio bitstream, including Dolby, DTS and telecommunications algorithms such as A-law and  $\mu$ -law. However, the APx500 software will neither encode nor decode coded audio.

<sup>2</sup> PSIA will input or output A-law and  $\mu$ -law coded bitstreams. Additionally, the AP2700 software will encode and decode A-law and  $\mu$ -law.

<sup>3</sup> Requires APx unit with AMC (Advanced Master Clock) option, such as APx555 or APx unit that has had the AMC option installed. Contact Service at [service@ap.com](mailto:service@ap.com) to determine if this upgrade is possible for older APx units.