



**AT-1212 FlexRIO Adapter Module**

Specifications									
<b>Number of Analog Channels</b>	2								
<b>DAC Resolution</b>	14 Bit								
<b>Sampling Rate</b>	1.25 GS/s								
<b>DC-coupled analog output</b>									
<b>Characteristics</b>	<b>DC Amplified Output</b>								
<b>Output type</b>	Single ended or differential								
<b>Impedance</b>	50 Ω / 100 Ω								
<b>Amplitude<sup>1</sup></b> , 50 Ω Load (1KHz sine wave)  Full Scale Range, Single Ended Full Scale Range, Differential Resolution	2 Vp-p (2.2Vpp without calibration) 4 Vp-p (4.4Vpp without calibration) 3 digits, < ± (0.07% of amplitude range), <1mV								
<b>Vocm (Output common mode voltage)</b> Range Resolution, 50 Ohm load	-1.6V to 1.6V Open, -0.8V to 0.8V @50 Ω load <5mV								
<b>Channel-to-channel</b> Skew, typ @1.25GS/s	50 ps								
<b>Rise time</b> (10% to 90%)	500 ps (Pulse at 1 Vp-p S.E.)								
<b>Fall time</b> (10% to 90%)	550 ps (Pulse at 1 Vp-p S.E.)								
<b>Bandwidth</b> (0.35/Trise)	700 MHz, typical (calculated)								
<b>Analog Bandwidth</b> , +4dBm (sine wave at 1 Vpp)	650 MHz (compensating for DAC sin(x)/x roll-off), typical								
<b>Analog Bandwidth</b> , +9dBm (-1dBFS) (sine wave at 1.8 Vpp)	500 MHz (compensating for DAC sin(x)/x roll-off), typical 400 MHz (not compensating for DAC sin(x)/x roll-off), typical								
<b>Overshoot</b>	Less than 5% (at 1Vp-p)								
<b>Random Jitter on clock pattern</b> , typ	<5 ps								
<b>SFDR (including Harmonics)</b> @ 1.25GS/s, typical <sup>2</sup> Sine Wave (39.0626 MHz) Sine Wave (78.1252 MHz) Sine Wave (156.2504 MHz)	<table border="1"> <thead> <tr> <th>S.E. (DC to 480MHz)</th> <th>Diff. (DC to 480MHz)</th> </tr> </thead> <tbody> <tr> <td>-71 dBc, 1Vp-p</td> <td>-69 dBc, 2Vp-p</td> </tr> <tr> <td>-57 dBc, 1Vp-p</td> <td>-67 dBc, 2Vp-p</td> </tr> <tr> <td>-44 dBc, 1Vp-p</td> <td>-58dBc, 2Vp-p</td> </tr> </tbody> </table>	S.E. (DC to 480MHz)	Diff. (DC to 480MHz)	-71 dBc, 1Vp-p	-69 dBc, 2Vp-p	-57 dBc, 1Vp-p	-67 dBc, 2Vp-p	-44 dBc, 1Vp-p	-58dBc, 2Vp-p
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-44 dBc, 1Vp-p	-58dBc, 2Vp-p								
<b>Non Harmonic Distortion</b> , typical	-77 dBc, 1Vp-p, DC to 480 MHz								

<sup>1</sup> Gain, offset, Vocm calibrated

<sup>2</sup> Waveforms were generated using DDS (Direct Digital Synthesis) with a waveform table size of 2048 samples and a phase accumulator of 32 bits. Long, non-repetitive, waveforms such as modulated or DDS (Direct Digital Synthesis)-based signals offer better spurious performance.

For periodic waveforms represented by a small number of unique samples, DAC nonlinearities limit dynamic specifications. SFDR performance may be worse at signal frequencies near to integer submultiples of the sampling frequency due to harmonic stacking on images (ex.  $F_s/N$  with  $N=8,16,32$ ).



<b>Phase noise</b>	10 MHz	39.0625 MHz (32 points waveform)	110 MHz
Internal clock, typical			
1 KHz offset	-128 dBc/Hz	-116 dBc/Hz	-107 dBc/Hz
10 KHz offset	-136 dBc/Hz	-127 dBc/Hz	-118 dBc/Hz
100 KHz offset	-148 dBc/Hz	-139 dBc/Hz	-130 dBc/Hz
1 MHz offset	-153 dBc/Hz	-152 dBc/Hz	-151 dBc/Hz

<b>AO 0+ / AO 0- / AO 1+ / AO 1-</b>	<b>DC Amplified Output</b>
Output connector	SMA
Output impedance	50Ω S.E. / 100Ω Diff.
Io max @ 50 Ohm load	44 mA
<b>External Clock IN</b>	
Input connector	SMA
Input Voltage Range	-10 dBm to 8 dBm
Impedance	50 Ω, AC Coupled
Frequency range	1.25 GHz (within ±0.1%)
Damage Level	+14 dBm MAX ±25VDC MAX
<b>External Trigger Input</b>	
Input connector	SMA
Max data rate	140 Mbps
Input impedance	100K Ω
Trigger Level VIH min VIL max	1.75V 0.75V
Damage level	VINmax < 6.5 V VINmin > -0.5V
Slope	Rising Edge or Falling
<b>External Trigger Output</b>	
Output connector	SMA
Output level	3.3V open, 1.65V with 50 Ohm load
Output impedance	50 Ohm nominal

- *Typical* values describe useful product performance beyond specifications that are not covered by warranty and do not include guardbands for measurement uncertainty or drift. Typical values may not be verified on all units shipped from the factory.
- Unless otherwise noted, typical values cover the expected performance of units over ambient temperature ranges of 23 °C ± 5 °C with a 95% confidence level and humidity < 50%, based on measurements taken during development or production.
- Specifications are subject to change without notice. For the most recent specifications, visit [www.activetechnologies.it](http://www.activetechnologies.it)