Diamond\textsubscript{X} DCTM\textsubscript{X}

Precision Data Converter Test Module

**Highlights**
- Supported applications: audio, DC source and measure and high resolution converter testing including INL/DNL, as well as dynamic parameters; THD+N, SNR, SFDR and THD
- Precision linearity to 1 ppm
- Single-ended, differential, and pseudo-differential connection
- Testing ADCs and DACs, and class-D amplifiers with a single instrument

**Features**
- 4 independent DC source and measure channels per board
- Each channel includes a stable, low-noise, high-accuracy, DC source and measure instrument
- 4 independent Audio source and measure channels per board
- Each channel includes a high purity sinewave source and measure
- Built-in “bucking DAC” technique achieving nano Volt resolution
- True parallel measurement capabilities and real time averaging
- Diamondx SmartMux, 16 channel output

- Bench-top capability in Semiconductor ATE
- 24 bit Resolution Source/Measure
- Front-end Smart Matrix
  - 4 x 4:1 Output Fan Out
  - 4 x 2 Alternative Inputs
Diamond\textsuperscript{X} DCTM\textsubscript{X}

Precision Data Converter Test Module

The Data Converter Test Module (DCTM) delivers bench top precision for testing precision Analog to Digital Converters (ADCs), voltage output Digital to Analog Converters (DACs), and current output DACs. Each DCTM instrument includes a stable, low-noise, high-accuracy, DC source and measure instrument; and a high precision audio source and measure. There are four independent source and measure channels for each of the DC and audio functions per board.

Each DCTM instrument includes four high purity sinewave source and measure functions, for tones up to 50 kHz. These are designed for testing high precision Audio convertors and Class-D amplifiers which require extended dynamic range.

The ability of the DCTM to support the “bucking DAC” technique delivers a powerful capability to perform measurements usually only possible with precision bench top instrumentation.

For both DC and Audio, the source is designed to be able to be connected in a high precision “null” mode to the measure.

### Key Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>± Ranges</th>
<th>Resolution</th>
<th>Update/Sample Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Resolution DC</td>
<td>DC Stable Source</td>
<td>22 V, 11 V, 5.5 V, 2.75 V</td>
<td>24 bits</td>
</tr>
<tr>
<td></td>
<td>DC Measure</td>
<td>11 V, 200 mV, 100 mV, 20 mV</td>
<td>156nV on 20mV range</td>
</tr>
<tr>
<td>High Resolution AC</td>
<td>Audio Source</td>
<td>22 V, 11 V, 5.5 V, 2.75 V</td>
<td>16 bits (1.31 uV on 22 V range)</td>
</tr>
<tr>
<td></td>
<td>Audio Measure</td>
<td>16 V, 1.6 V, 160 mV</td>
<td>18 bits</td>
</tr>
</tbody>
</table>

All specifications are subject to change without notification and are for reference only. For detailed performance specifications, please contact Cohu.