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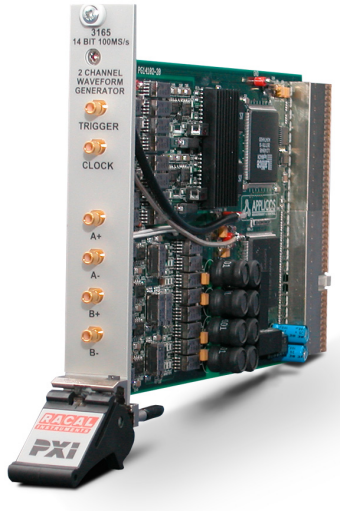
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Racal Instruments™ 3165

MATURE

2-Channel, 14-Bit, 100 MS/s PXI Arbitrary Waveform Generator

The Racal Instruments™ 3165 is a space and money-saving, single-slot, two-channel, PXI-based Arbitrary Waveform Generator. Its unique capability of two independent output channels provides added value and functionality that cannot be found in a single output PXI Arbitrary Waveform Generator. With features including separate channel user-selectable triggering and separate user selectable clock frequency, the 3165 offers true dual channel performance. To ensure continued, uninterrupted, reliable performance, the 3165 can be user calibrated with the supplied software.

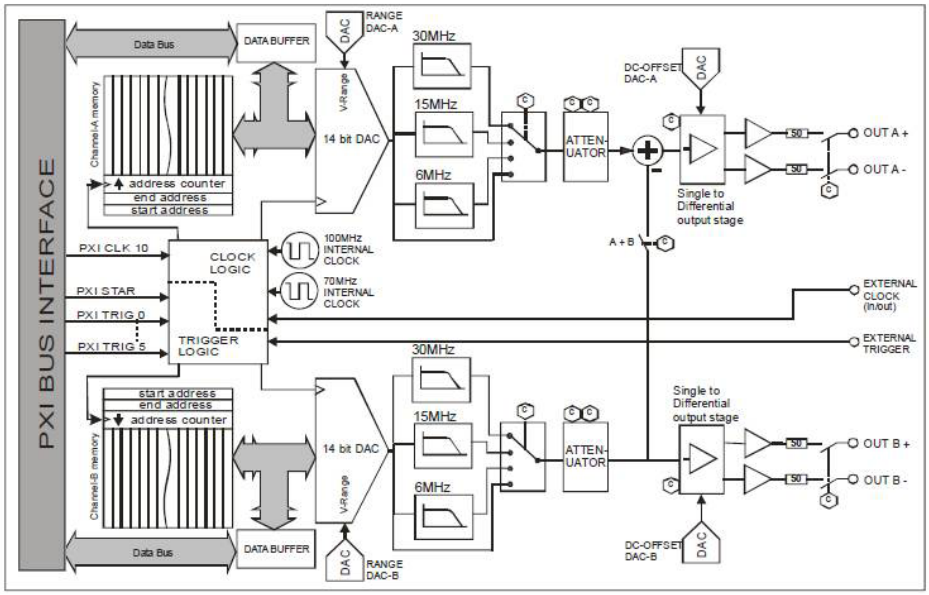
Key Features

- **Two independent analog outputs, single-ended, differential, or A + B**
- **14-bit resolution**
- **Pre-installed LabVIEW™ and LabWindows™ libraries**
- **Sample rate up to 100 MS/s**
- **Easy to use soft front panels; adjust, load, and save instrument configuration**
- **Highly flexible**

Product Information

Dual Channel Capability

The 3165's dual channels have independent 14-bit high-speed digital to analog converters. 100 MS/s sampling and 14-bit resolution provide high-speed output signal generation. Separate trigger circuits for Channel A and Channel B allow each channel to start on different sources and edges, whether internal or external. For improved reconstruction of the analog output signal, each channel has three user-selectable, 3-pole, low pass filters, with cut-off frequencies of 6 MHz, 15 MHz, and 30 MHz.



3165 Functional Block Diagram

Maximum Independence and Control

Providing control while maintaining the unit's flexibility, the 3165 allows for signal generation with or without triggering. Triggering can be software-initiated or from the front panel input, allowing each channel to start from different sources. The 3165 accepts PXI backplane trigger sources including PXI Trigger 0 to 5 and PXI STAR Trigger. The front panel input allows TTL logic levels, positive or negative polarity, and edge or level response. Complementing the unit's flexible triggering is the clock selection capability, internal or external. Clock selection can be the 10 MHz PXI clock via the front panel, or the available 70 MHz or 100 MHz internal clock.

Easy To Use

The soft front panel makes it easy to generate waveforms and store them in memory. The 3165 is not only an Arbitrary Waveform Generator; but it also has standard waveforms such as sine, square, triangle, and pulse (adjustable duty cycle), and can import waveforms and store them into memory. The pre-installed LabVIEW™ and LabWindows™ libraries and VISA drivers in combination with its dual-channel input and output capability give the 3165 unmatched performance for an arbitrary waveform generator in the market.

ASTRONICS TEST SYSTEMS

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Specifications

Note: The Astronics Test Systems policy is one of continuous development and improvement. Consequently, the equipment may vary in detail from the description and specifications in this publication.

Performance

DAC Resolution
- 14 bits each channel

Sample Rate
- With internal clock: 40 kHz to 100 MHz
- With external clock: DC to 100 MHz

Absolute Accuracy
- ±(500 µV+ 0.1% of range)

Relative Accuracy (INL)
- ±0.025% of range

DC Offset Voltage
- -2.5 V to +2.5 V

Memory Depth
- 512 k words per channel

Sample Clock

Division Rate
- User selectable from 1 to 256
- Independent clock source selection per channel

Sources
- Internal: 70 MHz, 100 MHz
- External Front Panel Connector
- PXI CLK 10: 10 MHz

External Clock Input
- Source: SMB front panel connector
- Maximum Frequency: 100 MHz
- Clock Levels: V_{LOW}: <0.6 V
- V_{HIGH}: >1.4 V
- Impedance: 50 Ω

External Clock Output
- Logic Thresholds: V_{LOW}: < 0.6
- V_{HIGH}: >4.5 V (no load)
- Impedance: 50 Ω DC

Accuracy
- ±100 ppms

Triggering

External Sources
- Impedance: 10 kΩ DC
- Levels: V_{LOW}: <0.6 V
- V_{HIGH}: >2.4 V

Internal Sources
- PXI STAR
- PXI TRIG 0-to 5
- Software Trigger (Independent trigger source selection per channel)

Polarity
- Positive
- Negative

Response
- Edge
- Level, Continuous

Outputs

Ranges
- 315 mV_{pk-pk} to 5 V_{pk-pk} (proportional) into an open circuit

Filters
- None
- 30 MHz, 15 MHz, 6 MHz (3-pole Butterworth)

DAC Output Range Control
- 0 to 24 dB in steps of 3 dB

Noise

SFDR (fs = 100 MHz/V out = 2 V_{pk-pk}, diff)
- 78 dB @ f_{OUT} = 1 MHz
- 64 dB @ f_{OUT} = 10 MHz

SINAD (fs = 100 MHz/V out = 2 V_{pk-pk}, diff)
- 65 dB @ f_{OUT} = 1 MHz
- 62 dB @ f_{OUT} = 10 MHz

Channel Crosstalk
- <80 dB @ 10 MHz

Maximum Current Consumption
- +3.3 VDC: 250 mA
- +5 VDC: 700 mA
- -12 VDC: 240 mA
- +12 VDC: 240 mA

Front Panel Output
- Coupling: DC
- Connector: SMB
- Impedance: 50 Ω, 0.25%
- Configuration: Single-ended
- Differential: A + B

Standard Waveforms
- Sine, Triangle, Pulse (adjustable duty cycle)

Environmental

Temperature
- Operating: 0° C to 50° C
- Storage: 0° C to 70° C

Relative Humidity
- 10% to 80%, non-condensing

Mechanical

Weight
- 7.4 oz (210 g)

Module Dimensions
- 3 U high, Single-width

CE The CE Mark indicates that the product has completed and passed rigorous testing in the area of RF Emissions and Immunity to Electromagnetic Disturbances, and complies with European electrical safety standards.

Ordering Information

407947 : Racal Instruments™ 3165 (Mature)
100 MS/s, 14-bit 2-channel Arbitrary Waveform Generator

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