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

- ◆ **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**

Dynamic Performance

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.

Dual Channel Capability

Racal Instruments 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.

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; it also has standard waveforms such as sine, square, triangle, and pulse (adjustable duty cycle), and can also 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.

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

$\pm(500\mu V + 0.1\%$ of range)

Relative Accuracy (INL)

$\pm 0.025\%$ 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: $V_{low} < 0.6 V$
 $V_{high} > 4.5 V$ (no load)
Impedance: 50 Ω DC

Accuracy

± 100 ppms

TRIGGERING

External Sources

Impedance: 10 K Ω 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 (p-p) to 5 V (p-p)
(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 pp, diff.)

78 dB @ f-out = 1 MHz
64 dB @ f-out = 10 MHz

SINAD (fs = 100 MHz/V out = 2 V pp diff.)

65 dB @ f-out = 1 MHz
62 dB @ f-out = 10 MHz

Channel Crosstalk

< 80 dB @ 10MHz

MAXIMUM CURRENT CONSUMPTION

+3.3 V (dc)	250 mA
+5 V (dc)	700 mA
-12 V (dc)	240 mA
+12 V (dc)	240 mA

FRONT PANEL OUTPUT

Coupling: DC
Connector: SMB
Impedance: 50 Ohms, 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

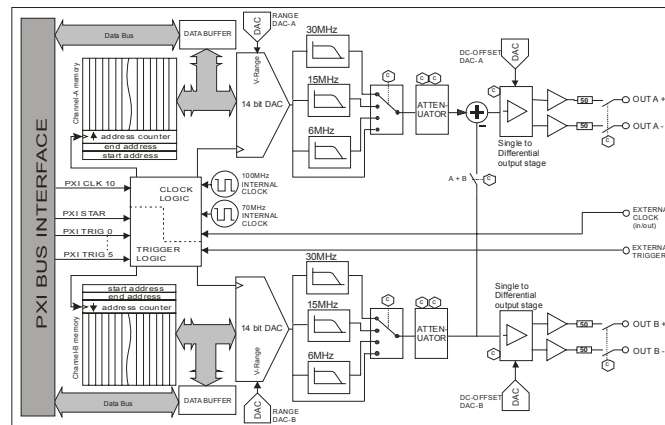
Weight

7.4 oz (210 g)

Module Dimensions

3 U high, Single-width

3165 FUNCTIONAL BLOCK DIAGRAM



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

ORDERING INFORMATION

MODEL/DESCRIPTION

Racal Instruments 1258, 64x64 Switching Matrix

PART NUMBER

407900-001

The EADS North America Defense Test and Services policy is one of continuous development, consequently the equipment may vary in detail from the description and specification in this publication.



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