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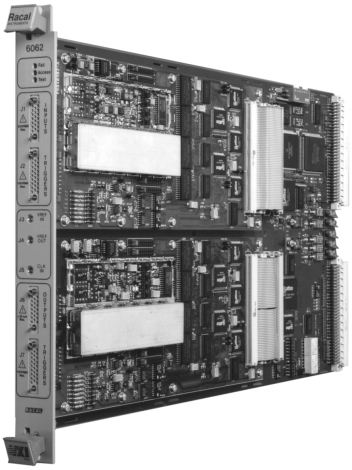
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Find the *Astronics / EADS / Racal 6062B4* at our website: ***Click HERE***

Racal Instruments

http://www.racalinstruments.com

PRODUCT INFORMATION



8-Channel A/D and D/A Module Model 6062

- **Unique Combination of Digitizer and Waveform Generator**
- **Message and Pseudo-Register Based Control**
- **Up to Eight Channels in a Single-Slot with 16-bit Resolution**
- **Sample Rate with Options to 250 kS/s(A/D) or 2.5 MS/s(D/A)**
- **64 k-point Sample Memory Per Channel (Optional 512 k-point memory)**
- **Four Built-In Waveforms: *Sine*, *Square*, *Triangle*, and *Ramp***

The Racal 6062 VXIbus Precision A/D and D/A module provides versatility, configurability, and precision in a single-slot, C-sized module. The unique design of the 6062 allows the configuration of a 4- or 8-channel instrument with mixed A/D and D/A inputs and outputs, independently or synchronously triggered.

High-Speed and Ease-of-Use
The 6062 can be programmed using SCPI messages. It also can be controlled at the pseudo-register level, providing response times of several microseconds for high-speed system throughput.

Independent Timing
Racal's unique multi-timer design allows independent control of each channel, providing versatility and flexibility. The 16-bit precision I/O, configurability options and multi-timer design provide the 6062 with the capabilities necessary to perform high-performance data acquisition and control.

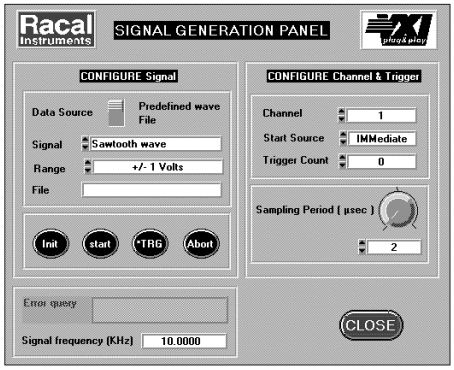
Versatile Memory Configurations
The 6062's memory configurations allow it to be used in a wide variety of applications. Each channel has enough memory to store 64 k-points of data. The extended memory option enables the 6062 to be configured with 576 k-points behind a single channel or 128 k-points each for four channels. This, coupled with 2- or 4-wire capability on the D/A and differential or single-ended inputs on the A/D, provides a unique combination not found on any other product.

The 6062 comes complete with VXI*plug&play* drivers and SCPI compatibility. For driver updates, please refer to www.racalinstruments.com.

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Flexible Triggering Capability
The 6062's triggering scheme allows A/D or D/A channels to be triggered independently or synchronously in groups of two to four channels. D/A channels may be triggered to run continuously or in bursts of 1 k to 64 k waveforms. A/D and D/A channels also have independent trigger outputs that can be used for inter-channel triggering to generate complex waveforms. The standard model is triggered with a gate (on/off) signal, and Option 10 adds edge triggering.

Waveforms
Built-in waveforms allow the 6062 to be used as a function generator capable of generating sine, triangle, sawtooth, and ramp waveforms.

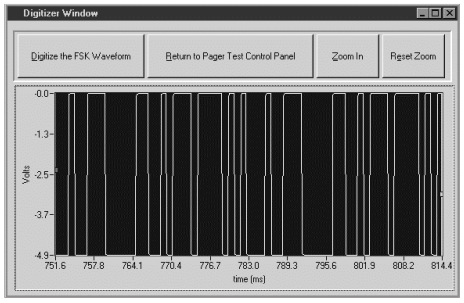


Waveform Generation Screen from the VXIplug&play Soft Front Panel

Built-in Waveforms
Built-in waveforms generate signals with frequencies up to 50 kHz and square waves up to 25 kHz with selectable amplitudes. In addition, two user-defined signals may be specified (and stored in flash ROM) describing an arbitrary waveform using the sum of Fourier coefficients.

Arbitrary Waveforms
Waveforms can be loaded from a file or test program to create standard or arbitrary waveforms. For example, instead of using the built-in 50-point square wave, a 6-point square wave may be loaded to generate a higher maximum frequency.

Pictured below is a digital waveform that creates a pager signal (details are included in the Developing a VXI Pager Tester white paper found at the following website address: www.racalinstruments.com/whitepapers/VXIpager01.pdf).



6062 Used to Digitize an FSK Pager Waveform, from "Pager" Whitepaper

As another example, LabVIEW may be used to add noise to a standard sine waveform, and this may be loaded into waveform memory using the LabVIEW driver.

Extensive Waveform Management Utilities
Managing input and output waveforms is easy with the 6062's rich set of commands for manipulating data stored in the A/D and D/A waveform memory. A/D and D/A waveform trace data can be re-sized, moved, or modified with built-in SCPI commands. In addition, data may be transferred in ASCII format enabling import and export from spreadsheets or waveform creation/analysis software.

Real Time Data Transfer
Using the 6062's Shared Memory Mode register and direct VXIbus access, the user can update D/A waveform memory or download A/D trace memory in real-time. VXIbus interrupt control allows the memory buffer to be updated even while the 6062 is generating a waveform. Wheel speed simulation (e.g., for ABS control testing) is performed with real-time data transfer to four 6062 D/A channels.

Isolated Output and Gain Control
The 6062B-4-06 provides four channels of 750 V isolated, differential outputs with a maximum output voltage of 50 Vpk-pk. You can source or sink up to 50 mA or current from each output. Isolated outputs are useful for ground loop elimination or whenever there is a requirement to connect a signal to a device which is "floating" with respect to ground.

In addition, the output level of each 6062 channel is independently controlled by a gain control circuit with 12-bit resolution. This makes the outputs of each 6062B-4 into an independent, 16-bit arbitrary waveform generator.

MODEL 6062 SPECIFICATIONS

ANALOG OUTPUTS

Output Modes
2-wire or 4-wire
Built-in Waveforms
Sine: 100 mHz - 50 kHz
Sawtooth: 100 mHz – 50 kHz
Square: 250 mHz - 125 kHz
Triangle: 100 mHz – 50 kHz
Ramp: 100 mHz – 50 kHz
Selectable Amplitudes

0 to 1 V	5 V to 5 V
1 V to 1 V	0 to 10 V
0 to 5 V	10 V to 10 V

User Waveforms (2)
Sum of 10 sine and cosine terms
Resolution
16 bits
Monotonicity
14 bits
Voltage Range
± 10 V
Integral Non-linearity
±0.006% FSR
Differential Non-linearity
±0.006% FSR
Accuracy (at 23°C ±2°C)
±(0.01% FSR + 1 mV)
Temperature Coefficient
±(0.002% FSR + 0.1 mV)/°C
Settling Time
10 µs to 0.1%, 50 µs to 0.01%
Small Signal Bandwidth
>200 kHz
Sample Rate
Standard: 1 to 500 k samples/s
Option 3: 10 to 2.5 Ms/s
Slew Rate
>5 V/µs
Ripple Voltage
2 mVrms, 5 mVpk-pk
Output Resistance
<2 Ω in 2-wire mode,
<0.2 Ω in 4-wire mode
Maximum Output Current
20 mA/channel

ANALOG OUTPUTS

(With 6062B-4-06-Isolation & Gain Control)
Max Number of Channels
Four
Output Type
Differential
Isolation
750 Vrms, chan-chan, chan-gnd
Output Level
50 Vpk-pk, max.
Bandwidth
DC to 10 kHz
Slew Rate
2 V/µs
Offset Error
±10 mV
Offset Thermal Drift
±300 µV/ C
Gain (Full Scale)
2.5
Gain Resolution
12 bits
Gain Accuracy
±0.1%
Gain Thermal Drift
±20 ppm/ C
Output Current (per channel)
±50 mA, max.
Linearity Error
0.02%, max.
Settling Time to 0.1%
60 µs
Short Circuit Protection
Continuous
Capacitive Load
3.3 nF, max.

ANALOG INPUTS

Input Modes
Differential or Single Ended
Maximum Common Mode Voltage
±10 V
Resolution
16 bits
No Missing Codes
15 bits
Voltage Range
±10 V
Integral Non-linearity
±0.005% FSR
Differential Non-linearity
±0.005% FSR
Accuracy (at 23°C ±2°C)
±(0.01% FSR ±1 mV)
Temperature Coefficient
±0.002% FSR +0.1 mV/°C
Input Impedance
10 MΩ//100 pF
Over Voltage Protection
250 VDC or rms (50/60 Hz)
Small Signal Bandwidth
>200 kHz
Sample Rate
Standard: 1 k to 100 k samples/s
Option 5: 10 k to 250 k samples/s
DC CMRR
80 dB
AC CMRR (50/60 Hz)
70 dB

TRIGGERING CHARACTERISTICS

Types
Standard: Gate
Option 10: Rising Edge
Sources
External: front panel connector
VXI backplane: TTLTRG0-7
External Trigger Inputs (50Ω, TTL)
One/channel
Start/stop Logic
External Trigger Outputs (per channel)
One start/stop Logic
One configurable to trigger with the sample clock, at the halfway point of memory or at the end of each waveform cycle.
Modes
Immediate: One waveform cycle is input or output.
Continuous: Sampling is controlled by a start/stop command or trigger.
Burst: 1 k to 64 k waveforms.
Synchronous Trigger: Trigger 1-4 channels simultaneously.
Independent Trigger: Trigger a channel by itself.
Minimum Trigger Pulse Width
100 ns
Trigger Output Transition Time
<100 ns
Over Voltage Protection
100 VDC

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WAVEFORM MEMORY

Access Modes
Message Based Mode: ASCII, Hex, or binary data
Shared Memory Mode: DMA (binary data)

Channel Memory
Standard: 64 k-points/channel
Extended: 128 k-points/channel or 576 k-points on one channel

Shared Memory Transfer Rate (max)
5 Mb/s

EXTERNAL CLOCK INPUT

Input Impedance
>10 kΩ

Over voltage Protection
100 VDC or RMS

Frequency Range
10 Hz to 16 MHz

Minimum Amplitude
3 Vpk-pk (square wave)

REFERENCE INPUT

Input Impedance
100 kΩ

Level
10 V ±1%

Over-voltage Protection
100 VDC or rms

REFERENCE OUTPUT

Accuracy (at 23°C±2°C, I_{out}=1 mA)
±0.1%

Temperature Coefficient
50 ppm/°C

Maximum Current Output
20 mA

VXIbus INTERFACE DATA

Device Type
VXIbus Message-Based
Alternate Control: Pseudo-register-based

Compatibility
VXIbus Rev. 1.4

VXIbus Protocol
Word serial protocol
Shared memory capability

Languages
Native: SCPI
Drivers: LabVIEW, LabWindows/CVI, VXI*plug&play* (WIN95, WIN NT Framework)

Execution Time in Interactive Mode
<5 ms per channel

Input/Output Connector Type
Positronic SGMC, 20 pins

Trigger Connector Type
Positronic SGMC, 26 pins

Power Requirements

	+24 V	+5 V	-24 V
I_{Pm}	0.92 A	2.6 A	0.42 A
I_{Dm}	0.32 A	0.5 A	0.32 A

Total Power: <39 W

Cooling
4 l/s, 0.5 mm H_20

Self-Test Coverage
90% at 25°C

ENVIRONMENTAL

Operating Temperature
10°C to 50°C Dimensions
C-size, Single-Slot VXIbus Module

Weight
3.25 lb. (1.5 kg)

EMC
Tested to the requirements of: EN55022-B, EN 50082-1

Maximum Option Mix

Option	01	03	05	10
	512 kB Memory	D/A 2.5 Ms/s	A/D 250 Ks/s	Edge Trigger
6062A	1	1	1	1
6062B-4	1	1	0	1
6062B-8	1	1 or 2	0	2
6062C-4	1	0	1	0
6062C-8	1	0	2	0
6062B-4-06	1	1	0	1

Part Number Examples:
4-Channel Input/Output Module with 2.5 MS/s D/A : 33-1070-30000
4-Channel Output Module with Isolation and Gain Control Amplifiers: 33-1075-00000
4-Channel Input Module with Edge Triggering: 33-1073-A0000

ORDERING INFORMATION

Model	Description	Part Number
6062A	4-Channel Analog Input/4 Channel Analog Output Module	33-1070-VWXYZ
6062B-4	4-Channel Analog Output Module	33-1071-VWXYZ
6062B-8	8-Channel Analog Output Module	33-1072-VWXYZ
6062C-4	4-Channel Analog Input Module	33-1073-VWXYZ
6062C-8	8-Channel Analog Input Module	33-1074-VWXYZ
6062B-4-06	4-Channel Analog Output w/50 Vpk-pk Programmable Isolation Amplifiers	33-1075-VWXYZ
Option 1	Additional Reconfigurable 512 k Memory	1 (added to P/N)
Option 3	Four 2.5 MS/s D/A Channels (Replacing Four Standard Channels)	3 (added to P/N)
Option 5	Four 250 Ks/s A/D Channels (Replacing Four Standard Channels)	5 (added to P/N)
Option 10	Edge-Triggering Option	A (added to P/N)
Note: Where VWXYZ are the options in ascending numerical order. Unused digits are zero.		

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.

For driver updates, please refer to www.racalinstruments.com.

The Racal Instruments 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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