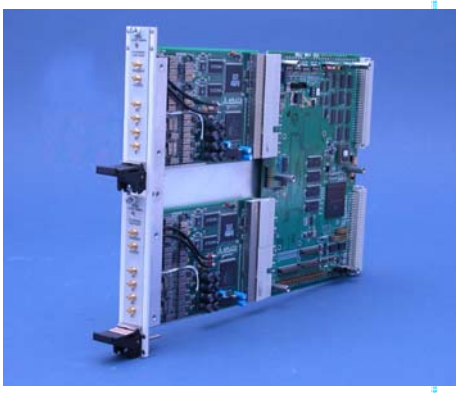
RACAL INSTRUMENTS 6088-14



- **High-Performance Waveform Capture up to 70 MS/s and Waveform Generation up to 100 MS/s at 14-bit Resolution**
- **Flexible Configurations with Matched Digitizer and Digital-to-Analog Converter up to 4 Total Channels**
- **Capture Floating or Ground-Reference Signals with Selectable Differential or Single-Ended Digitizer Inputs**
- **Flexible Triggering and Synchronization**
- **512k of Waveform Memory per Channel**
- **Ideal for Avionics, Medical, Semiconductor, Audio and Telecommunications Test**
- **Register-Based for High Throughput or Message-Based for Ease-of-Use**

Dual 14-bit, 70-MHz Digitizer and 100 MHz Digital-to-Analog Converter

High Performance Digitizer

Racal Instruments 6088-14 features up to 4 high-performance digitizer channels. The 6088-14 is intended for high-speed/high-resolution waveform capture. Performance is excellent in the time domain (ramps, step response) as well as in the frequency domain (sine waves, multi-tone signals).

High Performance DAC

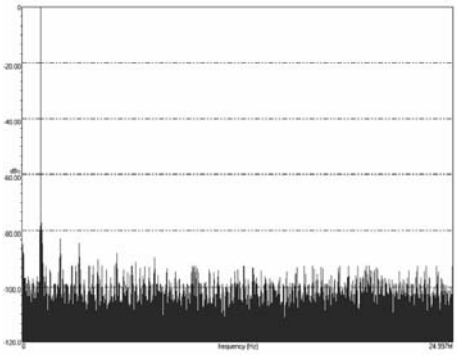
Racal Instruments 6088-14 features up to 4 high-performance digital-to-analog converter (DAC) channels. Each channel can generate waveforms at rates up to 100 MS/s at 14-bit resolution

Flexible Configurations

Choose up to 4 channels in a space-saving single-slot design. Racal Instruments 6088 configurations include a 2 or 4-channel digitizer, a 2 or 4-channel DAC, or a matched combination of a 2-channel digitizer with a 2-channel DAC.

Applications

Applications include analog-to-digital converter (ADC) test, DAC test, audio device test, defibrillator test, or whenever high speed sampling is required.



The plot below shows a 16384 point FFT plot of a 1 MHz tone sampled at 50 MS/s using a Blackman window.

Parameters for this plot are as follows: 68.9 dB SINAD, -81.2 dB THD, 70.5dB Signal to Noise Ratio, -82.7dB Peak Distortion, 85.8 dBc spurious noise.

The absolute accuracy of the 6088-14 is unmatched in competing products, making the 6088-14 useful for DAC characterization.

The VXI*plug&play* driver for the 6088-14 includes a Graphical User Interface plus instrument drivers for C, C++, LabWindows/CVI and Visual Basic. In addition, a LabVIEW driver is available.

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EADS NORTH AMERICA DEFENSE

6088-14 PRODUCT SPECIFICATIONS

DIGITIZER SPECIFICATIONS

PERFORMANCE

ADC Resolution
14-bits each channel

Sample Rate
Internal Clock:
500 kHz to 70 MHz

Absolute Accuracy (INL)
±(500 µV + 0.1% of range)
With attenuator on:
±(2.5 mV + 0.2% of range)

Relative Accuracy
± 0.025% of range

DC Offset Voltage
-5 V to +5 V
With attenuator on:
-25 V to +25 V

Clock Sources
Internal: 70 MHz or 50 MHz
External: Front panel connector

External Clock Input
Logic Thresholds: VLOW < 0.6 V
VHIGH > 4.5 V
Impedence: 50 Ω
Maximum Input: 100 MHz

External Clock Output
Clock Levels: VLOW < 0.6 V
VHIGH > 4.5 V
Impedence: 50 Ω

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

Clock Accuracy
100 ppm

Memory Depth
512 k-words per channel

Frequency Response
(Referenced at 500 kHz)
0 to 20 MHz (±0.5 dB)
20 MHz to 50 MHz (±2.0 dB)

TRIGGERING

Trigger Sources
Front Panel (External) VXI triggers, software trigger, analog trigger

Trigger Modes
Positive level, negative level, positive edge, negative edge, positive edge continuous, and negative edge continuous

Front Trigger Impedance
10 k Ω DC

Front Trigger Levels
Vlow: < 0.6 V
Vhigh: > 2.4 V

INPUTS

DC Offset Range
Normal:-5 V to +5 V
With attenuator on: -25 V to +25 V

Ranges
Normal:
1 V (p-p)
2 V (p-p)
4 V (p-p)
With attenuator on:
5 V (p-p)
10 V (p-p)
20 V (p-p)
Filters
None
30 MHz
15 MHz
6 MHz
(3-pole Butterworth)

SFDR (fs = 50 MHz/VIN =2 V(p-p))
80 dB @ fIN = 1 MHz
72 dB @ fIN = 10 MHz

SINAD (fs = 50 MHz/VIN = 2 V(p-p))
68 dB @ fIN = 1 MHz
64 dB @ fIN = 10 MHz

Channel Crosstalk
<70 dB @ 1 MHz

FRONT PANEL INPUTS

Bandwidth (-3dB, filter off)
70 MHz

Coupling
DC
AC
Connector
SMB

Impedance (Selectable)
50 Ω AC-coupled
50 Ω DC-coupled
10 K Ω DC-coupled
Input Configuration
Single ended
Differential

DAC SPECIFICATIONS

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
±(500µ V+ 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: Vlow: <0.6 V
Vhigh: >1.4 V
Impedance: 50Ω

External Clock Output
Logic Thresholds: Vlow: < 0.6
Vhigh: > 4.5 V (no load)
Impedence: 50 Ω DC

Accuracy
±100 ppms

TRIGGERING

Trigger Sources
Front Panel, VXI triggers, software trigger

Trigger Modes
Positive Level, negative level, positive edge, negative edge, positive edge continuous, and negative edge continuous

Front Trigger Impedance
10 k Ω DC

Front Trigger Levels
Vlow: < 0.6 V
Vhigh: > 2.4 V

ORDERING INFORMATION

MODEL/DESCRIPTION	PART NUMBER
Racal Instruments 6088-14-DIG, 2-Channel 14-bit, 70 MHz Digitizer	407989-001
Racal Instruments 6088-14-DIG-DIG, 2-Channel 14-bit, 70 MHz Digitizer	407989-002
Racal Instruments 6088-14-DIG-DAC, 2-Channel Digitizer, 2-Channel DAC	407989-003
Racal Instruments 6088-14-DAC, 2-Channel 14-bit, 70/100 MHz DAC	407989-011
Racal Instruments 6088-14-DAC-DAC, 4-Channel 14-bit, 70/100 MHz DAC	407989-012

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