

GUZIK PRODUCT BULLETIN

Preliminary

16 Bit / 100 MHz Digitizer



- Two Independent Channels
- 40 MHz Bandwidth and 100 MHz Clock
- 16 Bit Resolution
- 512 MByte Memory
- Wide Range of Input Signals (for Baseband Input)

This **16 Bit / 100 MHz Digitizer** is designed as an FFT postprocessor for the Spectrum Analyzer SA3000. The digitizer, however, can work as a standalone high-performance two-channel device.

The digitizer has two independent channels, which can be used simultaneously. The first channel is dedicated for the connection to the SA3000. The second channel, which is a baseband channel, can work with the wide range of the input signals: **from - 8 dBm to + 37 dBm**. A high resolution ADC and a well-balanced design of the analog front end make possible the wide Spurious Free Dynamic Range (SFDR) (**more than 100 dB**) and low non-linear distortions (**better than -90 dBc**) of this digitizer.



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Digitizer Specifications:

Down-Converter Input

Nominal Input Level: -12 dBm

Full Scale Level: -6 dBm

Analog Bandwidth: from 0.4 MHz to 40 MHz (-3 dB)

Input Impedance: 50 Ohm

Baseband Channel Input

Full-Scale Input Range: from -18 dBm to +37 dBm

Attenuator: 42 dB in 6 dB steps

Analog Bandwidth: from 200 Hz to 40 MHz (-3dB)

Input Impedance: 50 Ohm

Phase Noise

Offset:

100 Hz less than -117 dBc/Hz

1 kHz less than -134 dBc/Hz

Beyond 10 kHz less than -140 dBc/Hz

Spurious Free Dynamic Range (SFDR)

100 dB typical

Input Noise Density

Down-Converter Input: -148 dBFS/Hz

Baseband Channel Input: -146 dBFS/Hz

Sensitivity

Down-Converter Input: -153 dBm/Hz

Baseband Channel Input: -151 dBm/Hz

Non-Linear Distortions (Full Scale, Input Level 0 dBm at 15 MHz)

The Second Harmonic: below -90 dBc

The Third Harmonic: below -90 dBc

Third-Order Intermodulation Distortions (Two -6 dB Full-Scale Tones with Tone Separation 1 MHz)

-90 dB typical, input IP3 39 dBFS (see Figure 1)

With 12 dB preamplifier

-88 dB typical, input IP3 38 dBFS

Absolute Amplitude Measurement Accuracy

± 0.2 dB

FFT Specification

Hardware-Implemented Adjustable Window and Averaging

Resolution Bandwidth: from 6 Hz to 25 MHz

Programmable Window (Hamming, Hanning etc.)

Programmable Averaging

Typical Processing Speed: 16 Mpts / 100 msec

External Trigger and Gates

Frequency: up to 1 MHz

Level: LVTTTL with 50 Ohm Thevenin Termination to +3.3 V

External Clock

Frequency: up to 130 MHz

Nominal Level: +10 dBm ± 3 dB

Input Impedance: 50 Ohm

Form Factor

6 U CPCI module, 20 mm wide

Power Consumption

+15 V	170 mA (300 mA during heat-up)
-5 V	200 mA
+5 V	1000 mA
+3.3 V	450 mA
+2.5 V	3300 mA

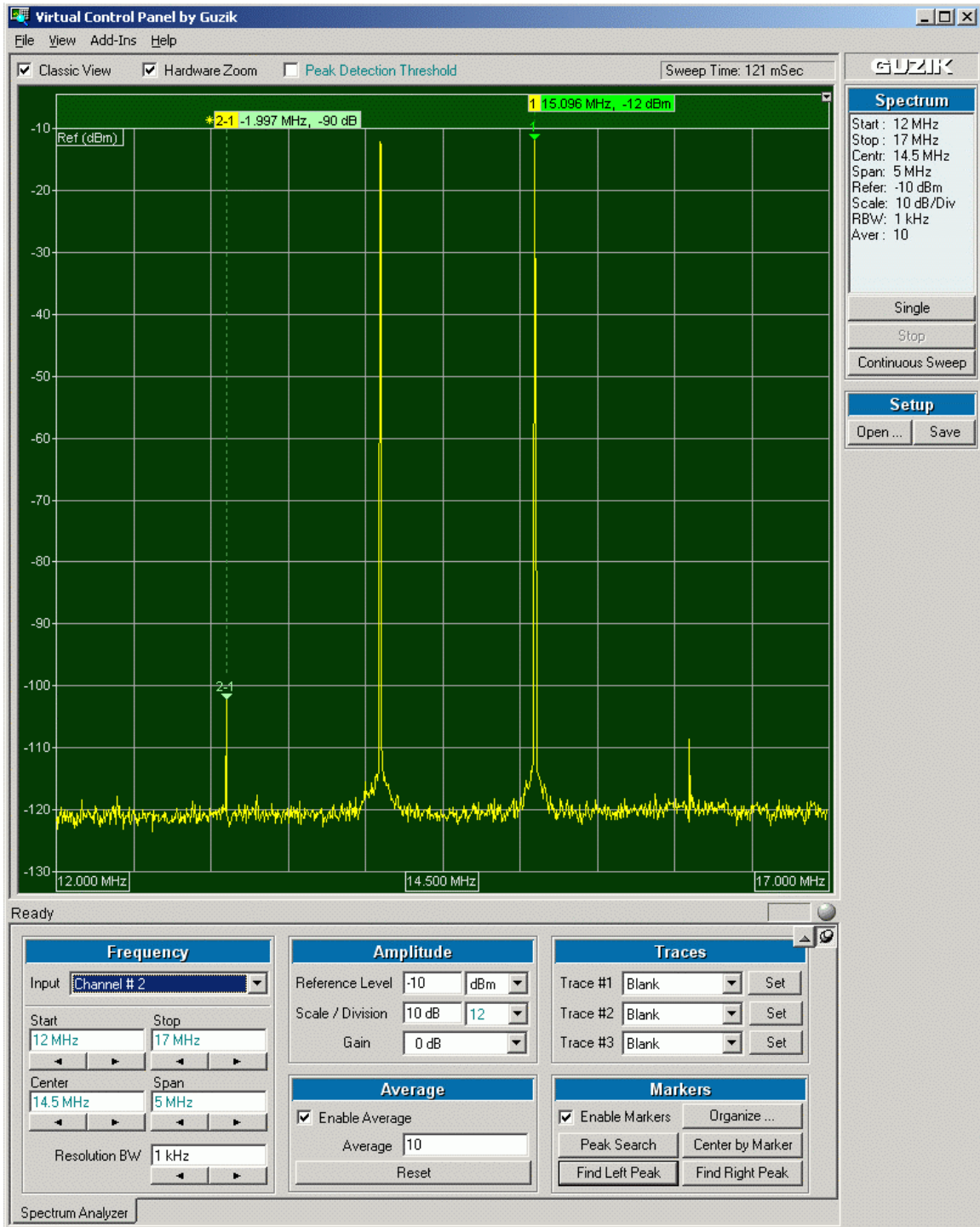


Figure 1: Third-Order Intermodulation Distortions ($IP_3 = -90$ dBc)