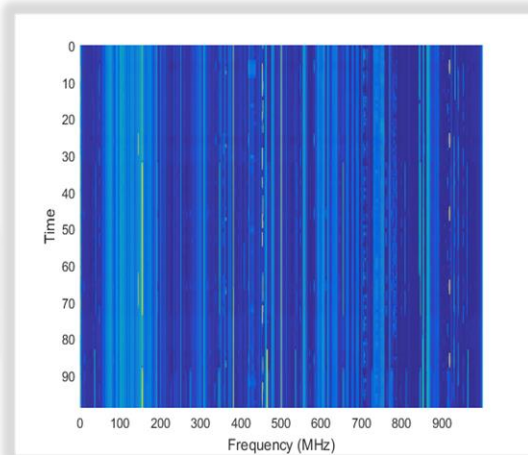
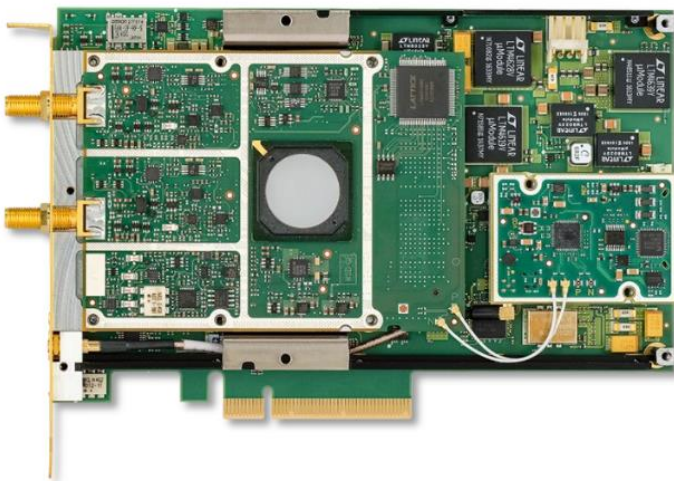




Wideband FFT Spectrometer

1 GHz analysis bandwidth, 16k channels
Simultaneous acquisition and readout for gap-free measurement

DFS-2000 Datasheet



Overview

Introduction

The DFS-2000 Wideband FFT Spectrometer analyzes the frequency content of sensor inputs over a full 1 GHz bandwidth. It provides simultaneous acquisition and readout with zero gaps in time or frequency. The combination of DSPlogic’s SpectroCore™ real-time processor with proven digitizer electronics delivers high sensitivity, high dynamic range and high frequency resolution in a compact and reliable platform.

DFS-2000 Applications

The DFS-2000 spectrometer can process data from a wide variety of sensors such as radio telescopes, RF subsystems, antennae, or millimeter-wave receivers. Applications include:

- Atmospheric Remote Sensing
- Radio Astronomy and Physics
- RF Spectral Monitoring/Interference Detection
- RF Compliance, Spurious Emission Testing
- Millimeter-Wave Spectroscopy

PySpectro™ Software

- Instrument control and measurement GUI
- Real-time spectrum monitoring
- HDF5 data storage
- Provided in source-code format for easy customization

SpectroCore™ Features

Custom, Real-time Hardware Processor	
Instantaneous bandwidth	1 GHz
FFT Length	32k
Number of Channels	16,384
Channel spacing	61.035 kHz
Measurement Accumulation	On-board > than 1 minute On Host: unlimited
Choice of Measurement Algorithm	Polyphase Filter Bank FFT

Digitizer Features

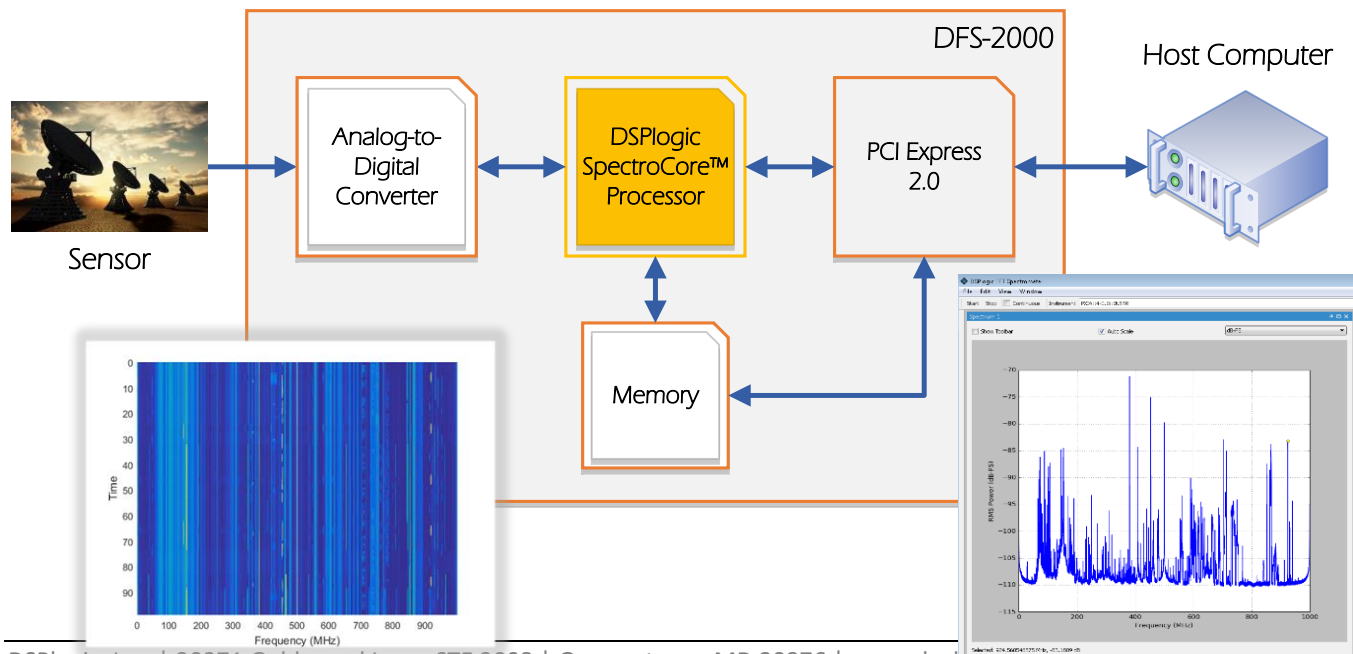
- High performance A/D conversion, 12-bits @ 2 GSPS
- 64 dBc spurious-free dynamic range
- Input frequency range: DC to 1.3 GHz
- Switchable 650 MHz input filter to reduce aliasing
- 3-Year hardware warranty

Custom Programming Options

In addition to the PySpectro software provided, users can directly program the SpectroCore™ processor and collect data using standard MD2 portable drivers:

- Windows (7, 8.1, 10) and Linux (2.6, 3, 4)
- IVI-C, IVI-COM, and MATLAB Drivers
- Programming options include C/C++, C#, VB.NET, Python, MATLAB, and LabVIEW
- Standard drivers simplify future hardware upgrades

DFS-2000 Description



Technical Specifications

System Requirements

Operating System	Windows 10 (32 and 64 bit) Windows 8.1 (32 and 64 bit) Windows 7 (32 and 64 bit) Linux Kernel 2.6 and higher (32 or 64 bit), Debian 7.0, CentOS 6
Processor Speed	1 GHz 32-bit (x86), 1 GHz 64-bit (x64), no support for Itanium 64
Available Memory	1 GB minimum
Available disk space	1.5 GB minimum

Data Acquisition

Number of input channels	1
Input frequency range	DC – 1.3 GHz On-board 650 MHz filter (switchable)
A/D Sample Rate	2 Gsps
A/D Sample Resolution	12-bit, real
ENOB (typical)	9.1 bits @ 410 MHz
SNR (typical)	57 dB @ 410 MHz
SFDR (typical)	64 dBc @ 410 MHz
Input Voltage Range	+/- 500mV
Maximum Voltage Range	+/- 3.6V
Coupling	DC
Impedance	50 Ohm
Internal Clock	
Sampling Jitter	225 fs (nominal)
Clock Accuracy	+/- 1.5 PPM

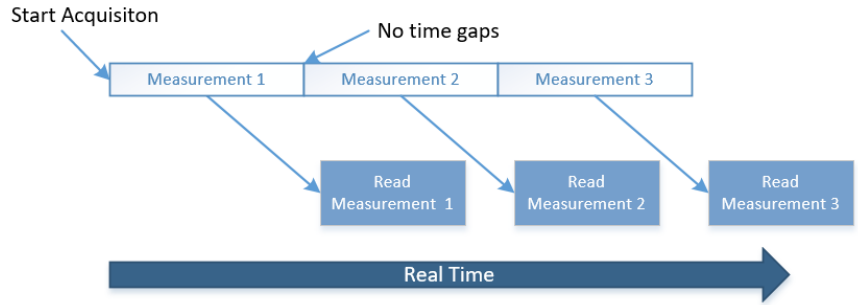
Environmental¹

Power consumption	57 Watt (typical)
Temperature Range (Operating) ²	0 to +50 °C (sea-level to 10,000 feet) 0 to +45 °C (10,000 to 15,000 feet)
Temperature Range (Non-Operating)	-40 to +70 °C
Altitude	Up to 15,000 feet

1. Samples of this product have been type tested in accordance with the Acqiris Environmental Test Manual and verified to be robust against the environmental stresses of Storage, Transportation and End-use; those stresses include but are not limited to temperature, humidity, shock, vibration, altitude and power line conditions. Test Methods are aligned with IEC 60068-2 and levels are similar to MIL-PRF-28800F Class 3.
2. PC internal ambient temperature at intake of device fan

Simultaneous Acquisition and Readout

The DFS-2000 provides simultaneous acquisition and readout capability in real-time. During acquisition, gap-free, continuous measurements ensure no signals go undetected while allowing software to read, process, and display data in real-time. This feature also supports virtually unlimited accumulation times.



Additional Information

Calibration

The DFS-2000 Spectrometer is factory calibrated and shipped with a certificate of calibration.

Software Maintenance

The initial purchase price includes software maintenance for a period of one year. Software maintenance service entitles you to all software maintenance modifications and enhancements for the product you purchased. Software maintenance service also entitles you to web and/or email-based access to technical support.

Warranty

Each Wideband Spectrometer hardware instrument is backed by a Three Year Warranty.

Ordering Information

Model	Description
DFS-2000-FFT	Wideband Spectrometer w/ FFT analysis engine
DFS-2000-PFB	Wideband Spectrometer w/ polyphaser filter bank analysis engine

Configurations	Description
-RE2	Single-input, 2 GSPS
-IQ1	Dual (complex) input, 1 GSPS ea. <i>Call for additional information</i>

Additional FFT Sizes available. Please inquire.

For more information, please contact us at:

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