ORTEC®

DSP^{EC}50A and DSP^{EC}502A

Advanced, Digital Signal Processing Based Gamma-Ray Spectrometers

All of the Superior Digital Signal Processing Features of the original **DSP^{EC}50** and **DSP^{EC}502** plus expanded ADC Conversion Gain, Configurable Gate and Output ports, Digital counters, and Web Interface Options!

AMETEK®
ADVANCED MEASUREMENT TECHNOLOGY

DSP^{EC}50A and DSP^{EC}502A

DSPEC 50/502A (Advanced) Features and Specifications	
General • ADC Conversion Gain expansion: 256 to 64k Channels[1] • Digital TTL Counters via Sample Ready and Gate Ports synchronized with spectrum acquisition • SMART-1 Detector Temperature available on LCD Display **Configurable Coincidence and Gate Options** • Coincidence Logic: Gate pulse compared to internal fast channel with adjustable offset and window (25 nS increments up to ±6.375 µS) • Gate Window: Defined by delay after coincidence detection and gate width to cover peak detection (25 nS increments up to 200 µS) • Gate Route Mode: All events saved as gated or not gated in separate memory. The Gated, Ungated, and Total spectrum can be saved to a common N42 (2012) spectrum format and read individually using GammaVision and other applications compatible with N42 (2012) files.	**Configurable TTL Output Port (Change Sample Port) based on the following options:** • Change Sample command with user-defined pulse width • Input Count Rate based on fast channel trigger • SCA Count Rate for each pulse in a region of interest • ADC Gate enabled (dependent on configurable Coincidence and Gate logic when applicable) **Operating System Independence** • Web Page Interface for basic MCA Emulation and Hardware Configuration • Web Services Programming Interface
DSPEC 50/502 (Standard) Features and Specifications	
General • Single (DSPEC 50) and dual (DSPEC 502) MCA versions • Operating Systems: Windows 10, 8.1 and 7 • ADC Conversion Gain: 512 to 16k Channels • Communication: RJ-45 Ethernet and USB 2.0 • PHA and List Mode Data Acquisition • Display: 7" backlit color LCD • Dimensions: 42.55 cm W x 35.56 cm D x 15.24 cm H 16.75 in. W x 14 in. D x 6 in. H • Weight: DSPEC 50: 11 kg (24.25 lbs). DSPEC 502 11.7 kg (25.8 lbs). • Power: 100–220 V AC, 47–63 Hz, 110 watts • Operating Environment: 0° to 50°C. Humidity: 0 to 95%, non-condensing. • Change Sample and Sample Ready TTL ports • Positive or Negative High Voltage: 500 to 5 kV • Inhibit In for transistor-reset (TRP) or pulsed-optical (POF) preamplifier reset • ADC Gate: Off, coincidence, or anticoincidence • High Voltage Shutdown: ORTEC, TTL	**Advanced Digital Signal Processing** • High Stability for Count Rate and Temperature variation • Maximum System Throughput: >100,000 cps • Gain: <50 ppm/°C. [Typically <30 ppm/°C.] • Offset: <5 ppm/°C of full scale, with Rise/Fall times of 12 µs, Flat Top of 0.8 µs • Digital Filter Shaping-Time Constants • Rise Times: 0.8 µs to 23 µs in steps of 0.2 µs • Flat Tops: 0.3 to 2.4 in steps of 0.1 µs • Digital Baseline Restorer: High, Low, and Auto • Automatic Digital Pole-Zero Adjustment • Digital Zero and Gain Spectrum Stabilizers • Pulse Pile-Up Rejection • Upper and Lower Level Discriminators • Resolution Enhancer • Loss Free Counting (LFC) / Zero Dead Time (ZDT) • Low-Frequency Rejector (LFR) for mechanical vibration or ground loops **Standards Compliance** • NRTL and CE certified

Notes:

1) DSPEC 50/502A has 32k Max ADC Conversion Gain when using ZDT or Gate Route Mode and 16k when using List Mode.

Ordering Information

• Detector connection cable not included.

Model	Description
DSPEC-50A	DSPEC 50A (Advanced) with MAESTRO Software, single MCA, and single internal High Voltage Power Supply.
DSPEC-502A	DSPEC 502A (Advanced) with MAESTRO Software, two MCAs, and two internal High Voltage Power Supplies.
Detector Connection Cable	
931431	Detector Interface Module (DIM) cable, 4-ft length.
683410	Detector Interface Module (DIM) cable, 10-ft length.

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