

DSN 102

Dual SPAD Power Supply

- Two channel power supply for Single Photon Avalanche Diodes (SPAD)
- Integrated counter
- Acoustic monitoring and warning
- Safety shut-down to prevent SPAD degradation
- Stand-alone version or OEM module for 19" subrack

Applications

- General photon counting
- Time-resolved spectroscopy
- Fluorescence Lifetime Imaging (FLIM)
- Confocal fluorescence microscopy
- Single Molecule Spectroscopy (SMS)
- Fluorescence Correlation Spectroscopy (FCS) and Förster Resonance Energy Transfer (FRET)



The dual SPAD power supply DSN 102 is an accessory for the SPCM-AQR SPAD detectors of Perkin Elmer, the PDM modules from Micro Photon Devices (MPD) or the COUNT modules from Laser Components. The SPCM-AQRH SPADs of Excelitas Technologies are only supported if they generate a TTL output pulse with a pulse width > 20ns. The DSN 102 controls and monitors the operation of the detectors. It can control two SPAD modules at the same time, displaying the count rate of one selected module.

The DSN 102 is also equipped with an automatic protection circuitry that shuts down the supply voltage to the modules when critical exposure levels to light are reached. While this is not a critical issue for the PDM modules, it is an absolute must for the SPCM-AQR modules and suggested for the COUNT and SPCM-AQRH modules. In such a case the DSN 102 gives an acoustic warning.

For further diagnostics and detector adjustment there is also a BNC output for an oscilloscope or other monitoring device. The voltage at this output is proportional to the log count rate. In addition, an acoustic count rate monitor output e.g. for use with speakers or earphones is provided. The DSN 102 in its OEM version is an installation module (3 U, 160 mm depth) designated to fit into a 19 inch subrack. The stand-alone version is supplied in a small table-top rack, equipped with the appropriate AC power supply.

Specifications

Detector input	
Pulse width	> 20 ns
Pulse height	> 2.3 V
Electrical parameters	
High shut-down count rate (factory set)	PDM SPAD: 8×10^6 counts/sec SPCM-AQR(H) SPAD: 4×10^6 counts/sec COUNT SPAD: 4×10^6 counts/sec
Oscilloscope output	max. 2 V
Acoustic output	> 120 Ohms
Connectors	
SPAD power socket	LEMO EEG 2B (5 pin)
Appropriate male connector	LEMO FGG 1B 302 C Type
Input/output SPAD	female SMA
Oscilloscope output	female BNC
Acoustic output	3.5 mm earphone socket

Power requirements		
	Stand-alone version	OEM version
Voltage	110 to 240 V, 50/60 Hz	13.5 V, stabilized at ± 5 %
Power/current consumption	max. 35 Watts	max. 3 A
Dimensions		
	Stand-alone version (incl. rack)	OEM version (3 U/21 HP)
Width	237 mm	106 mm
Depth	310 mm	173 mm
Height	133 mm	129 mm



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