

# 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: $8 \times 10^6$ counts/sec<br>SPCM-AQR(H) SPAD: $4 \times 10^6$ counts/sec<br>COUNT SPAD: $4 \times 10^6$ 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 $\pm 5$ % |
| 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                          |