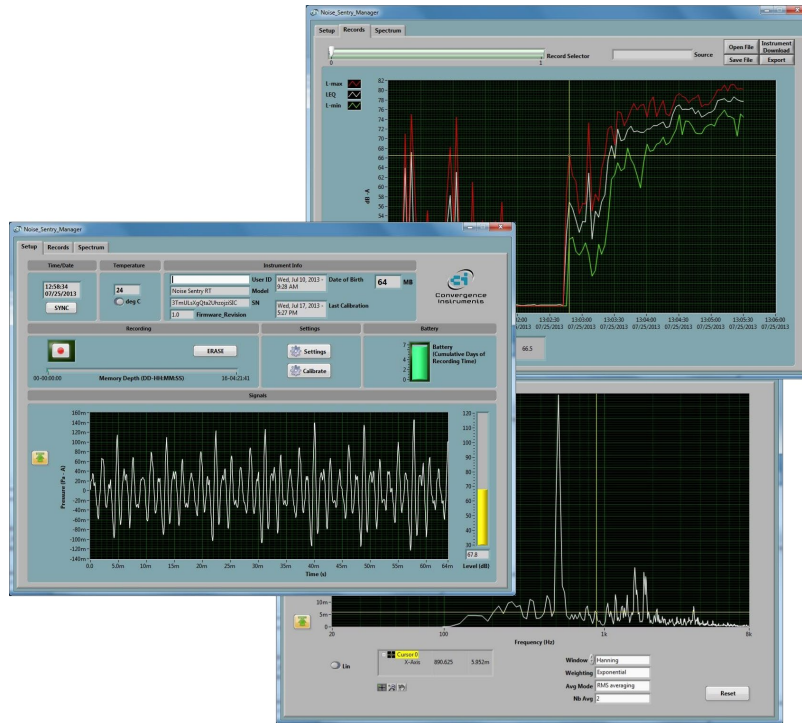




Convergence
Instruments

NSRT_mk4_Spark

Data Sheet



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1 Product Description

NSRT_mk4_Spark is a variant of the *NSRT_mk4_Dev* that is designed to be mounted on the face of a custom enclosure and facilitate the interfacing to small microcontroller-based hosts.

The *NSRT_mk4_Spark* includes the following features:

- IEC61672-2002 class I precision
- A, C and Z weighting curves
- Integrating sound level meter. Provides LEQ, Lmin, Lmax and Lpeak
- Connectivity through USB or UART for easy interfacing with small microcontroller-based hosts
- Individual Manufacturer's Certificate of Calibration from Convergence Instrument provided with every instrument purchased.
- Digital very sensitive MEMS microphone (29 dBA typical noise floor)
- Potted weatherproof enclosure designed for outdoors applications. Now includes an ePTFE membrane that seals the microphone against dust and water.
- All-digital design.
- Ultra-stable sensitivity (field recalibration is easily done, but seldom required)
- Very low sensitivity variation due to temperature changes
- Very low sensitivity to vibrations
- Adjustable response time.
- Can be used as a high-quality USB digital microphone
- Can be field-calibrated.
- Observes and records 100% of the acoustic signal (no missed samples).
- Editable individual User- ID for easier instrument management.
- All settings are stored in non-volatile memory. So the instrument will regain full functionality after a power loss.

2 Applications

- Sound level and acoustic dose measurement and recording.
- Monitoring of safe working conditions.
- 24/7 noise monitoring on construction sites.
- Activity detection and logging.
- Long-term measurement and recording of acoustic levels for environmental impact studies.
- Specially designed for long-term outdoors applications.

3 Specifications

Category	Specification
Bandwidth	<ul style="list-style-type: none"> 20 Hz to 20 kHz
Microphone Sensor	<ul style="list-style-type: none"> Digital MEMS
Precision Class	<ul style="list-style-type: none"> Complies with the precision requirements of IEC61672-2002 Class I
Saturation Level (typical @ 1 kHz)	<ul style="list-style-type: none"> 133 dB-A 133 dB-C 133 dB-Z
Temperature Error	<ul style="list-style-type: none"> Better than 0.6 dB (-20 degC < T < 60 degC)
Sensitivity to Vibrations	<ul style="list-style-type: none"> 60 dB_{SPL}/g (20 dB lower than typical measurement microphone)
Weighting Curve	<ul style="list-style-type: none"> dB-A dB-C dB-Z
Noise-Floor (Typical)	<ul style="list-style-type: none"> 29 dB-A 32 dB-C 36 dB-Z
Duty Rate of Signal Capture and processing	<ul style="list-style-type: none"> 100% - No Missed Samples
Calibration	<ul style="list-style-type: none"> Field-calibrated using a 94 dB 1/2" calibrator
Connectivity	<ul style="list-style-type: none"> USB (Virtual Com Port interface with open communication protocol), UART
Temperature Range	<ul style="list-style-type: none"> -20 degC to 60 degC (-4 degF to 140 degF)
Dimensions	<ul style="list-style-type: none"> Length: 87 mm, Diameter: 30 mm, Thread: 24mmx1.5
Weight	<ul style="list-style-type: none"> 30 g
Construction	<ul style="list-style-type: none"> Potted weather-proof enclosure
Microphone Dust Protection	<ul style="list-style-type: none"> Expanded polytetrafluoroethylene (ePTFE) dust and water barrier
Protocol	<ul style="list-style-type: none"> Open and Documented

Table 1

3.1 Frequency Response

[Figure 1](#) shows the typical spectral error in dB-A, dB-C and dB-Z, at 32 kHz and 48 kHz sampling rate, together with the type I limit lines.

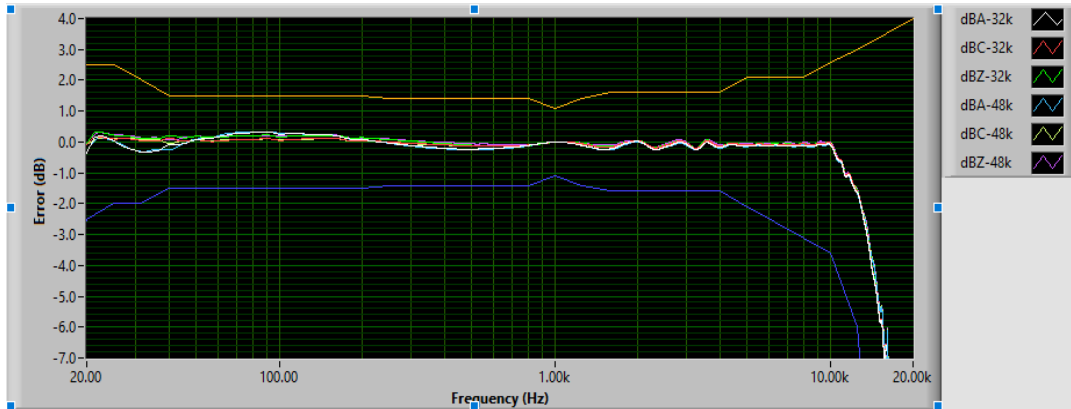


Figure 1

3.2 Directivity

[Figure 2](#) shows the directivity of the instrument as a function of frequency.

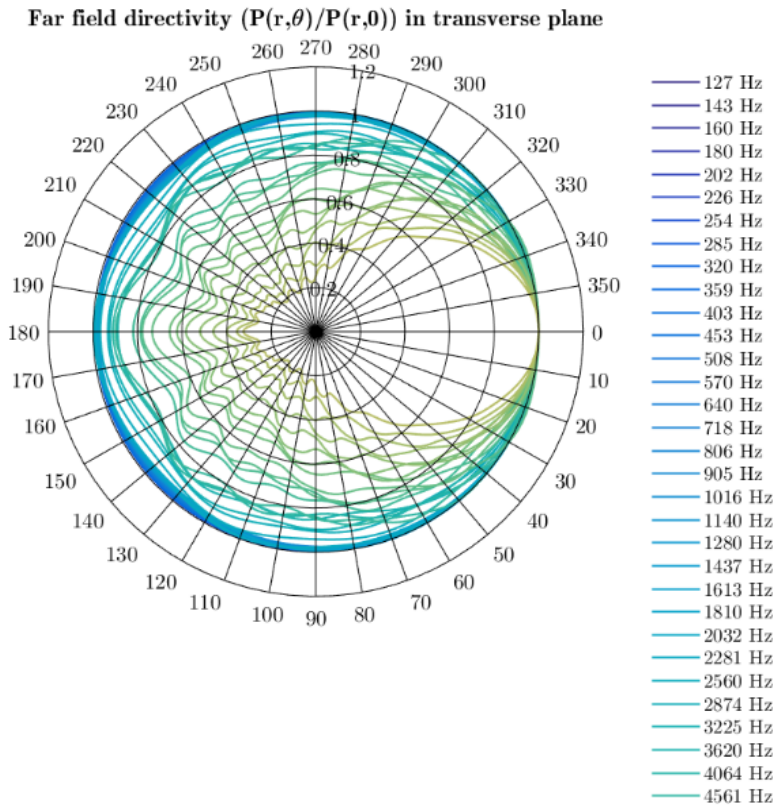


Figure 2

4 Platforms supported

- Windows
- MacOS
- Linux

The instrument has been tested on Windows and Linux. It will work on any platform that provides a generic CDC-class USB driver (Virtual Com Port), or can be controlled by a microcontroller using its UART connector.