

# SPICER SC28

## DESCRIPTION

The SC28 Monitoring System is purpose-designed to monitor the environment for sensitive metrology and electron beam instruments, including Scanning Electron Microscopes (SEM), Transmission Electron Microscopes (TEM), or any instrument sensitive to vibration, acoustic noise, or magnetic fields.

## KEY FEATURES

- Long-term monitoring of the room environment of vibration, acoustic noise, and/or magnetic fields using measurement-grade sensors
- Continuously compare measurement data to the instrument specifications using customizable data configuration on up to 14 graphs
- SC28 Beacon provides a visible Pass/Fail indicator light that compares the environment to specifications or sends an email if offline or out-of-spec
- Acquires sensor data and logs charts to date-stamped files
- Can operate in a “headless” configuration without a user interface open



## MONITORING SOFTWARE

The SC28 monitoring software runs on a Windows PC connected to the same Local Area Network as the SC28/SI. It automatically detects the SC28/SI hardware without needing to know its IP address in advance. The SCplot program is included with the SC28 software and allows users to view and print results and save graphs for use in reports.

The SC28 can acquire 10 channels of data, which can be displayed on six scales and in three display formats (Scope, Spectrum, and Chart). Up to 14 graphs can be viewed simultaneously to monitor the collected data.

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## SPECIFICATIONS

System			
Box Size	58 x 36 x 19 cm approx. (23 x 14 x 7.5 in. approx.)		
Weight	11 kg (24 lb) approx.		
Personal Computer Requirements			
Operating System	Windows 7/8.1/10		
Display	At least 1280 x 960 pixels		
Ethernet Interface	At least 100 Mbps		
Core System: SC28/SI – Sensor Interface			
Inputs			
MAG	3-axis magnetic field sensor		
VIBX, VIBY, VIBZ	3-axis vibration (3 x Wilcoxon 731A)		
MIC	Microphone (B&K 4190/2669L)		
AUX	BNC voltage input, DC coupled, ±10 V range, 100 kW input impedance.		
TEMP/RH	SC28/TH Temperature/Humidity Sensor		
DAQ Resolution/ Range	Bits 13	Input Range ±10V	Resolution 2.44 mV
Anti-Aliasing Filters	20 kHz		
Sampling Rate	200 kHz x 8 channels + 1 Hz x 2 channels continuous		
Data Transfer Rate	2 kHz x 8 channels + 1 Hz x 2 channels continuous		
Communications	USB port for Patlite signal tower Ethernet port for PC/LAN connection		
Power	9-36V DC, 12 W max.		
AC Power Adaptor			
Type	Meanwell GST90A24		
Input	100-240V AC, 50/60 Hz, 1.3A		
Output	24V DC, 3.75 A, 90 W max.		
3-Axis AC Magnetic Field Sensor: SC11/AC			
Co-ordinate System	X, Y, Z Rectangular Cartesian		
Bandwidth	1 – 20 kHz		
Dynamic Range	80 mG (8 µT) Pk-Pk		
Noise Limit	3µG RMS max.		
Accuracy	±1 %		
3-Axis DC Magnetic Field Sensor: SC24/DC+AC			
Co-ordinate System	X, Y, Z Rectangular Cartesian		
Bandwidth	DC – 10 kHz		
Ambient Field Range	±2 G (±200 µT)		
Dynamic Range	±20 mG (±2 µT) Pk-Pk		
Noise Limit	DC: 5 µG (0.5 nT) Pk-Pk typ. (0.0001 – 0.01 Hz) AC: 0.1 µG/√Hz (10 pT/√Hz) RMS typ. at 50 Hz		
Accuracy	±1 % (after >2 hour warm-up) (±15 % cold)		

Vibration Sensor: Wilcoxon 731A Accelerometer		
Type	Wilcoxon Research, model 731A	
Bandwidth	0.1 – 500 Hz	
Dynamic Range	2 m/s <sup>2</sup> (0.2 g's <sup>a</sup> ) Pk-Pk (in this system)	
Noise Limit	7 µm/s <sup>2</sup> RMS max. 0.35 µm/s RMS at 1Hz, 0.11 µm/s RMS at 5Hz 0.07 µm RMS at 1Hz, 0.0035 µm RMS at 5Hz	
Accuracy	±5 % (with gain calibration file)	
Acoustic Sensor: B&K 4190/2669L Precision Microphone		
Type	Brüel & Kjær, Condenser Microphone 4190, Pre-Amplifier 2669L	
Bandwidth	1.5 Hz – 20 kHz	
Dynamic Range	110 dB (in this system)	
Noise Limit	20 dB (in this system)	
Accuracy	±1 dB 3 Hz – 20 kHz	
Temperature/Humidity Sensor: SC28/TH		
Sample Rate	1 Hz max.	
Performance	Temperature	Relative Humidity
Dynamic Range	0 – 100 °C	0 – 100 %RH
Resolution	0.01 °C	0.01 %RH
Accuracy	±0.2 °C	±2 %RH
Drift (max.)	0.03 °C/Year	0.25 %RH/Year
Signal Tower		
Type	Patlite LR6-3USBW-RYG	
Power	USB Bus Powered, 5V, 500mA max.	
Colors	Red, Green	
Dimensions	60mm dia, 199mm height	
Software		
Amplitude Units		
Magnetic Field	mG, nT, µT, mA/m, A/m	
Vibration	µg's <sup>a</sup> , mg's <sup>a</sup> , µm/s <sup>2</sup> , mm/s <sup>2</sup> , µm/s, mm/s, nm, µm	
Acoustic	mPa, Pa, dB	
User-Defined	mV, V, user defined units	
Temperature	°C, °F	
Humidity	%RH	
<sup>a</sup> g's are units of the acceleration due to gravity		



For more information about the  
Spicer SC28, scan this QR code.

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