

## DATASHEET SiSMoS-4

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| <b>Manufacturer</b>                                                   | ITEL TELECOMUNICAZIONI s.r.l.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Product name</b>                                                   | SiSMoS-4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Design</b>                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Brief Description</b>                                              | <p>The SiSMoS-4 is a portable four-channel unit, offering a 24-bit data acquisition system with software for temporal and spectral analysis of data acquired from fluxgate sensors and IEPE accelerometers. The system is designed for environmental monitoring (EMI and vibration) for the purpose of pre-installation investigations of magnetic resonance systems, electron microscopes and similar sensors. Data acquisition with SiSMoS-4 is performed on three channels for triaxial fluxgate sensors or on a single channel for uniaxial accelerometers.</p> <p>It provides the possibility of viewing the acquired data both in the time and frequency domain, detecting both slow and fast trends. All the acquired data can be stored on the PC and consequently post-processed with filters or dedicated windows.</p> |
| <b>Use</b>                                                            | Magnetic field and vibration surveys<br>Pre-installation MRI site survey                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Number of input channels</b>                                       | 3 for magnetic field sensor<br>1 for accelerometer or acoustic sensor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Input voltage range</b>                                            | $\pm 10$ V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Digital Analog Converter Resolution</b>                            | 24 bit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>ADC Type</b>                                                       | Delta-Sigma (analog pre-filtering)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Sampling method</b>                                                | Simultaneous                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Display options for frequency domain</b>                           | Spectrum (RMS, peak-to-peak)<br>Power spectral density (RMS/ $\sqrt{\text{Hz}}$ , p-p/ $\sqrt{\text{Hz}}$ )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Internal Master Timebase (<math>f_M</math>) Frequency Accuracy</b> | 13.1072 MHz<br>$\pm 50$ ppm max                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

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| <b>Sampling frequency range (f S)</b><br><b>Minima</b><br><b>Maximum</b>                                                                                                                         | 1.652 kS/s<br>51.2 kS/s                                                                                      |                     |                        |
| <b>Input coupling</b>                                                                                                                                                                            | AC/DC selectable by software                                                                                 |                     |                        |
| <b>AC filter cutoff frequency</b><br><b>- 3dB</b><br><b>- 0.1 dB</b>                                                                                                                             | 0.5 Hz<br>4.6 Hz max                                                                                         |                     |                        |
| <b>IEPE compliance voltage</b>                                                                                                                                                                   | 19 V max                                                                                                     |                     |                        |
| <b>Overvoltage protection (with respect to the frame reference)</b><br><br><b>For signal sources connected between AI + and AI-<br/>For low-impedance sources connected between AI + and AI-</b> | $\pm 30$ V<br>-6 to 30 V                                                                                     |                     |                        |
| <b>Gain drift</b><br><b>Typical</b><br><b>Maximum</b>                                                                                                                                            | 0.078 mdB/°F (8.9 ppm/°F)<br>0.25 mdB/°F (28.9 ppm/°F)<br>0.14 mdB/°C (16 ppm/°C)<br>0.45 mdB/°C (52 ppm/°C) |                     |                        |
| <b>Offset drift</b><br><b>Typical</b><br><b>Maximum</b>                                                                                                                                          | 10.7 $\mu$ V/°F 19.2 $\mu$ V/°C<br>65.6 $\mu$ V/°F 118 $\mu$ V/°C                                            |                     |                        |
| <b>Accuracy</b>                                                                                                                                                                                  | Measurement conditions                                                                                       | Gain error          | Offset Error           |
|                                                                                                                                                                                                  | Maximum calibrated<br>( -40° C to 70°C)<br>(-40 °F to 158 °F)                                                | 0.34% $\pm$ 0.03 dB | $\pm 0.14\%$ , 7.1 mV  |
|                                                                                                                                                                                                  | Typical calibrated<br>(from 25° C $\pm$ 5°C)<br>(from 77 °F $\pm$ 9 °F)                                      | 0.48% $\pm$ 0.04 dB | $\pm 0.04\%$ , 2.3 mV  |
|                                                                                                                                                                                                  | Maximum not calibrated<br>( -40° C to 70°C)<br>(-40 °F to 158 °F)                                            | 1.9% $\pm$ 0.16 dB  | $\pm 0.27\%$ , 13.9 mV |
| <b>Gain</b><br><b>Typical</b><br><b>Maximum</b>                                                                                                                                                  | 0.01 dB<br>0.04 dB                                                                                           |                     |                        |

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| <b>Phase (fin in kHz)</b>                                                                                 | $Fin * 0.045^\circ + 0.04 \text{ max}$                                                                                                                                                                          |
| <b>Bandwidth</b><br><b>Frequency</b><br><b>Planarity</b><br><b>(<math>f_s = 51.2 \text{ kS/s}</math>)</b> | $0.45 * f_s$<br>$\pm 40 \text{ mdB (picco-picco max)}$                                                                                                                                                          |
| <b>Phase not linearity</b><br><b>(<math>f_s = 51.2 \text{ kS/s}</math>)</b>                               | $\pm 0.45^\circ \text{ max}$                                                                                                                                                                                    |
| <b>Attenuated band</b><br><b>Frequency</b><br><b>Rejection</b>                                            | $0.55 * f_s$<br>100 dB                                                                                                                                                                                          |
| <b>Bandwidth without Aliasing</b>                                                                         | $0.45 * f_s$                                                                                                                                                                                                    |
| <b>Crosstalk (1 kHz)</b>                                                                                  | -110 dB                                                                                                                                                                                                         |
| <b>Interface</b>                                                                                          | USB2                                                                                                                                                                                                            |
| <b>Software</b>                                                                                           | Minimum requirements:<br>S.O.: Windows® 7 or later<br>RAM: 2GB<br>Graphic Resolution: 1024x768<br>Hard Disk min space availability: 22GB                                                                        |
| <b>Operating temperature range</b>                                                                        | -10°C to +50°C<br>14 °F to 122 °F                                                                                                                                                                               |
| <b>Storage temperature range</b>                                                                          | -20°C to +70°C<br>-4 °F to 158 °F                                                                                                                                                                               |
| <b>Humidity</b>                                                                                           | 0 – 50%RH                                                                                                                                                                                                       |
| <b>Case</b>                                                                                               | Aluminum                                                                                                                                                                                                        |
| <b>Size</b>                                                                                               | 7.87 × 2.76 × 7.87 in<br>200 x 70 x 200 mm                                                                                                                                                                      |
| <b>Weight</b>                                                                                             | 3.5 kg                                                                                                                                                                                                          |
| <b>Connectors</b>                                                                                         | 1 x DB9 plug to magnetic field sensor<br><br>1 x BNC for ICP piezoelectric vibration sensor or preamplified microphone<br><br>1 x USB to PC<br><br>1 x IEC for 110-220V input from mains adaptor for recharging |
| <b>Output power per sensor</b>                                                                            | $\pm 15 \text{ V}, \pm 75 \text{ mA}$                                                                                                                                                                           |
| <b>Sensor input (magnetic field)</b>                                                                      | Sensor Mag-13MS 1000                                                                                                                                                                                            |

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| <b>Suitable ICP® vibration sensor</b>          | Wilcoxon                                                                                                                                                                                                                    |
| <b>Battery</b>                                 | Internal rechargeable, Ni-Mh 7.2V                                                                                                                                                                                           |
| <b>Battery life</b>                            | 12 hours (typical)                                                                                                                                                                                                          |
| <b>Battery charging time</b>                   | 5 hours for full charge                                                                                                                                                                                                     |
| <b>Input- grounding safety voltage Channel</b> | ±30 V max, CAT I                                                                                                                                                                                                            |
| <b>Input impedance (magnetic field sensor)</b> | 1 MΩ                                                                                                                                                                                                                        |
| <b>ICP® constant current</b>                   | 4mA ±20% for cables up to 1km 0.6 miles in length                                                                                                                                                                           |
| <b>Accessories</b>                             | 1 x Fluxgate Sensor<br>1 x Accelerometer<br>1 x USB cable for connected PC<br>1 x Power cable<br>1 x Tripod and adapter for Fluxgate Sensor<br>1 x Accelerometer base<br>1 x SiSMoS-4 User Manual<br>1 x Hard carrying case |
| <b>Rigid suitcase size</b>                     | 555 x 445 x 258 mm<br>22 x 18 x 10 in                                                                                                                                                                                       |
| <b>Suitcase weight</b>                         | 11kg (SiSMoS-4, Sensor Mag-13MS 1000, 5m 16.4 ft cable and tripod)                                                                                                                                                          |
| <b>Packing size</b>                            | 580x470x260 mm<br>23x18x10 in<br>Gross weight 12 Kg                                                                                                                                                                         |
| <b>Quality standard</b>                        | IEC EN 61326-1:2013<br>IEC EN 61010-1:2013<br>EMC Direttiva 2014/30/UE<br>LVD Direttiva 2014/35/UE<br>WEEE Direttiva 2012/19/UE<br>RoHS Direttiva 2011/65/UE                                                                |
| <b>Other information</b>                       | TARIC CODE 90318080<br>P.N. STSTM0001                                                                                                                                                                                       |
| <b>Datasheet rev.</b>                          | 2.4                                                                                                                                                                                                                         |