TEDIASENS

Wireless Metrology
fast, synchronous data acquisition
Q1/2016
Product Information

The multi channel wireless data acquisition system TEDIASENS offers the following main features:

- recording of signals from several sensors
- synchronous data sampling
- wireless data transmission via WLAN
- power supply by mains or accumulator
- controlable by any analysis software

Applications

TEDIASENS is especially suited for mobile applications in the field of service, machine diagnostics, field and object measurement. By the use of TEDIASENS the following measurement and analysis tasks can be solved easily:

- vibration analysis
- predictive maintenance
- modal and structural testing
- sound-engineering

Sensors to be connected

TEDIASENS is designed for the connection of:

- vibration and acceleration sensors
- speed, force and tension sensors
- microphones and displacement sensors
- pressure, flow and temperature sensors
- light barriers and trigger sensors

Benefits

Compared to wire-bound data acquisition TEDIASENS offers the following advantages:

- **Saving of time:**
  - no cables, thus fast sensor installation
- **Lower transportation costs:**
  - equivalent of 1 km cables in your hand luggage
- **Increase of industrial safety:**
  - avoid cables and humans in danger areas
- **Avoidance of production downtimes:**
  - no downtimes caused by laying cables

The advantage of TEDIASENS compared to conventional wireless data acquisition systems is the combination of the following features:

- **Synchronous data acquisition:**
  - synchronicity between nodes 1 μs (standard deviation)
- **Multi location, multi channel capability:**
  - up to 40 nodes, 3 channels each
- **Minimum size and weight:**
  - SN-I base area only slightly bigger than standard triaxial acceleration sensor
- **Optimum radio range:**
  - radio range 138 m free field 802.11g
- **Self sufficient operation:**
  - accumulator lasts 7-9 h
- **High dynamic and high sample rate:**
  - 24 bit at 13 kSmples/s sample rate
TEDIASENS SN-X
for arbitrary sensors

- 3 analog measurement channels
- dynamic: 24 bit
- sample rate: up to 13 kHz
- almost any sensor can be connected
- AC/DC coupling selectable via software
- IEPE (ICP) excitation configurable via software
- input range configurable via software
- powered by mains or accumulator
- accumulator lasts 7-9 h and longer

TEDIASENS SN-I
3-axis acceleration sensor

- applicable for vibration analysis
- wireless 3-axis industrial acceleration sensor
- dynamic: 24 bit
- sample rate: up to 13 kHz
- range: ± 10 g (± 100)
- broadband noise: 1 mg (peak-peak)
- powered by mains or accumulator
- accumulator lasts 7-9 h and longer
- screw or magnet mounting available

TEDIASENS Accessories

TEDIASENS USB-AP and AP RUGGED
- access Point for data acquisition
TEDIASENS EXTENSION POWER PACK
- increased battery life
TEDIASENS SN-X-LEMO
- signal input via LEMO plug-in connector
TEDIASENS SN-X-FIX
- mounting accessories for SN-X and SN-I-3ACC
TEDIASENS GUI
- Labview based User Interface Software
- PC/laptop single license
TEDIASENS DRIVER
- Driver DLL to control the system
- DLL and documentation for the implementation in existing measuring software including
  standard support via telephone or email, for the implementation process (12 h)
Specifications

TEDIASENS SN-X and SN-I

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>Value</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analog Input</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADC resolution</td>
<td>bit</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>Sample rate</td>
<td>Hz</td>
<td>13000</td>
<td></td>
</tr>
<tr>
<td>Jitter</td>
<td>µs</td>
<td>1</td>
<td>standard deviation</td>
</tr>
<tr>
<td>3-Channel</td>
<td></td>
<td>simultaneous</td>
<td></td>
</tr>
<tr>
<td>Data Transmission</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data rate per sensor node</td>
<td>Mbit/s</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Sensor nodes per system</td>
<td></td>
<td>≤ 40</td>
<td></td>
</tr>
<tr>
<td>Range (isotopic)</td>
<td>m</td>
<td>138</td>
<td></td>
</tr>
<tr>
<td>Power Supply</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accumulator technology</td>
<td></td>
<td>Li-Ion</td>
<td></td>
</tr>
<tr>
<td>Accumulator charge</td>
<td>mAh</td>
<td>2600</td>
<td></td>
</tr>
<tr>
<td>Measuring time</td>
<td>h</td>
<td>7-9</td>
<td></td>
</tr>
<tr>
<td>Charging voltage</td>
<td>V</td>
<td>4.25-5.5</td>
<td></td>
</tr>
<tr>
<td>Charging time</td>
<td>h</td>
<td>≤ 3</td>
<td></td>
</tr>
<tr>
<td>User interface</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input</td>
<td></td>
<td>1 button</td>
<td>on/off, display state</td>
</tr>
<tr>
<td>Display</td>
<td></td>
<td>4 LEDs (red/green/yellow)</td>
<td>WLAN, Accum. state</td>
</tr>
<tr>
<td>Antenna connector</td>
<td></td>
<td>RP-SMA</td>
<td></td>
</tr>
<tr>
<td>Power connector</td>
<td></td>
<td>Binder 707 M5x0.5</td>
<td></td>
</tr>
</tbody>
</table>

TEDIASENS SN-X

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>Value</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connector</td>
<td>V</td>
<td>BNC</td>
<td>optional others available</td>
</tr>
<tr>
<td>IEPE Excitation</td>
<td>mA</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Input Range</td>
<td>V</td>
<td>± 1; ± 10</td>
<td></td>
</tr>
<tr>
<td>Bandwidth</td>
<td>Hz</td>
<td>DC/0.4-8600</td>
<td></td>
</tr>
<tr>
<td>SNR_{RMS}</td>
<td>dB</td>
<td>109.5</td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td>mm³</td>
<td>114.1 x 63.5 x 30.0</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>g</td>
<td>270</td>
<td></td>
</tr>
<tr>
<td>IP-Class</td>
<td></td>
<td>IP64</td>
<td></td>
</tr>
<tr>
<td>Mounting</td>
<td></td>
<td>mounting flanges</td>
<td></td>
</tr>
</tbody>
</table>

TEDIASENS SN-I

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>Value</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>g</td>
<td>± 10 (± 100)</td>
<td>RMS at 13 kS/s</td>
</tr>
<tr>
<td>Broadband noise</td>
<td>mg</td>
<td>1.7</td>
<td></td>
</tr>
<tr>
<td>Bandwidth</td>
<td>Hz</td>
<td>DC/1-8000</td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td>mm³</td>
<td>40 x 40 x 82</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>g</td>
<td>220</td>
<td></td>
</tr>
<tr>
<td>IP-Class</td>
<td></td>
<td>IP67</td>
<td></td>
</tr>
</tbody>
</table>

1) Hardware selectable (done by ELOVIS)
2) Software selectable
3) Depending on sample rate, resolution and selected channels
4) Proved by design
## Dimensions

<table>
<thead>
<tr>
<th>SN-X</th>
<th>SN-I</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Diagram of SN-X" /></td>
<td><img src="image2" alt="Diagram of SN-I" /></td>
</tr>
<tr>
<td><img src="image3" alt="Diagram of SN-X" /></td>
<td><img src="image4" alt="Diagram of SN-I" /></td>
</tr>
<tr>
<td><img src="image5" alt="Diagram of SN-X" /></td>
<td><img src="image6" alt="Diagram of SN-I" /></td>
</tr>
</tbody>
</table>

**Dimensions in mm**

- **SN-X**
  - 17.40
  - 63.50
  - 94.00
  - 144.10
  - 71.00
  - 37.00

- **SN-I**
  - 40.00
  - 144.10
  - 37.00

---

ELOVIS GmbH — Karl-Friedrich-Straße 14-18, 76133 Karlsruhe, Germany — www.elovis.com