IIS2ICLX
High-accuracy inclinometer

Advantages and benefits
Inclinometers in industrial applications

- **Pointing, levelling and stabilization**
  - Antenna pointing, platform leveling and stabilization
- **Robotics and IIoT**
  - Robotics and Industrial automation
- **Inclinometers for industrial vehicle**
  - Industrial vehicles, forklifts and construction machines
- **Equipment installation and monitoring**
  - Installation and monitoring of equipment, trackers for solar panels
- **Leveling instruments**
  - Precise leveling instruments
- **Structural health monitoring**
  - Buildings, towers and infrastructures condition monitoring

**IIS2ICLX**
2-axis digital inclinometer
IIS2ICLX

High-accuracy 2-axis digital inclinometer

Ultra-high-accuracy, high-resolution, low-power, 2-axis digital inclinometer with embedded Machine Learning Core

Key Features

- 2-axis, digital plug & play inclinometer
- Top notch performance: resolution, accuracy, stability over temperature and time
- Accuracy better than 0.5° over full temperature range and over time
- Ultra-low noise (15 µg/√Hz)
- Low power
- Programmable Machine Learning Core & Finite State Machines to integrate AI algorithms and reduce power consumption at system level
- Extended operating temperature range: from -40 to +105 °C

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>N. of axes</td>
<td>2-axis</td>
</tr>
<tr>
<td>Full Scale [g]</td>
<td>± 0.5/1.0/2.0/3.0</td>
</tr>
<tr>
<td>Output i/f</td>
<td>Digital I2C/SPI</td>
</tr>
<tr>
<td>Bandwidth (-3dB) [Hz]</td>
<td>Programmable, up to 260</td>
</tr>
<tr>
<td>ODR [Hz]</td>
<td>2.5 to 833</td>
</tr>
<tr>
<td>Noise Density [µg/√Hz]</td>
<td>15</td>
</tr>
<tr>
<td>Offset change vs Temp [mg/°C]</td>
<td>&lt;0.075</td>
</tr>
<tr>
<td>Current consumption [mA]</td>
<td>0.42</td>
</tr>
<tr>
<td>Features</td>
<td>MLC (Machine Learning Core)</td>
</tr>
<tr>
<td></td>
<td>FSM (Finite State Machine)</td>
</tr>
<tr>
<td></td>
<td>Sensor HUB</td>
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<tr>
<td></td>
<td>FIFO (3kbyte), Interrupts</td>
</tr>
<tr>
<td></td>
<td>Embedded Temp. Sensor</td>
</tr>
<tr>
<td>Operating Temp [°C]</td>
<td>-40 ; +105</td>
</tr>
<tr>
<td>Operating Voltage [V]</td>
<td>1.71 ÷ 3.6</td>
</tr>
</tbody>
</table>

Ceramic Cavity LGA 5x5x1.7 16L
Inclinometers for Structural Health Monitoring

Measuring inclination and low-frequency, low-level vibrations with high resolution and repeatability
Evaluation Tools and GUI
In-depth evaluation of sensor performance

A powerful development tool and GUI to capture and process data and assess the performance of any sensor in our portfolio

Professional MEMS motherboard

Evaluation board (adapter)

Professional MEMS motherboard
STEVAL-MKI109V3

Software package:
UNICO-GUI

Device | Adapter Order Code
--- | ---
IIS2ICLX | STEVAL-MKI209V1K

Linux → STSW-MKI109L,
Mac OS X → STSW-MKI109M,
Windows → STSW-MKI109W
Quick & Modular Prototyping

STM32 Nucleo with Expansion board and Unicleo GUI

STM32 NUCLEO with X-NUCLEO EXPANSION
X-NUCLEO-IKS02A1
and optional dedicated adapter board

Software package:
UNICLEO GUI with X-CUBE-MEMS1
Thank you