Motion MEMS and environmental sensor expansion board for STM32 Nucleo

Features

- LSM6DSO: MEMS 3D accelerometer (±2/±4/±8/±16 g) + 3D gyroscope (±125/±250/±500/±1000/±2000 dps)
- LIS2MDL: MEMS 3D magnetometer (±50 gauss)
- LIS2DW12: MEMS 3D accelerometer (±2/±4/±8/±16 g)
- LPS22HH: MEMS pressure sensor, 260-1260 hPa absolute digital output barometer
- HTS221: capacitive digital relative humidity and temperature
- STTS751: Temperature sensor (–40 °C to +125 °C)
- DIL 24-pin socket available for additional MEMS adapters and other sensors
- Free comprehensive development firmware library and example for all sensors compatible with STM32Cube firmware
- I²C sensor hub features on LSM6DSO available
- Compatible with STM32 Nucleo boards
- Equipped with Arduino UNO R3 connector
- RoHS compliant
- WEEE compliant

Description

The X-NUCLEO-IKS01A3 is a motion MEMS and environmental sensor evaluation board system.

It is compatible with the Arduino UNO R3 connector layout and features the LSM6DSO 3-axis accelerometer + 3-axis gyroscope, the LIS2MDL 3-axis magnetometer, the LIS2DW12 3-axis accelerometer, the HTS221 humidity and temperature sensor, the LPS22HH pressure sensor, and the STTS751 temperature sensor.

The X-NUCLEO-IKS01A3 interfaces with the STM32 microcontroller via the I²C pin, and it is possible to change the default I²C port.

Product summary

- iNEMO inertial module, 3-axis accelerometer, 3-axis gyroscope, always-on eco power mode LSM6DSO
- digital 3-axis magnetometer LIS2MDL
- 3-axis MEMS accelerometer, ultra low power, configurable single/double-tap recognition, free-fall, wakeup, portrait/landscape, 6D/4D orientation detections LIS2DW12
- digital nano pressure sensor LPS22HH
- digital sensor for relative humidity and temperature HTS221
- low-voltage local digital temperature sensor STTS751
Figure 1. X-NUCLEO-IKS01A3 board schematics
## Revision history

Table 1. Document revision history

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<thead>
<tr>
<th>Date</th>
<th>Version</th>
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<tbody>
<tr>
<td>13-Feb-2019</td>
<td>1</td>
<td>Initial release.</td>
</tr>
<tr>
<td>17-Jun-2019</td>
<td>2</td>
<td>Corrected typo in features.</td>
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