//APPLICATIONS

• Dynamic measurement on embedded equipment
• Vibration analysis
• Inertial measurement
• Movement detection

FEATURED VIDEO

BeanDevice® HI-INC Xrange main presentation video
BeanDevice® HI-INC Xrange - Wireless Sensor Network dedicated to health monitoring on bridge

USER MANUAL

BeanDevice® SmartSensor user manual
BeanDevice® HI-INC Xrange drawing

//MAIN FEATURES

High performance wireless inclinometer (measurement range ±15°, ±30°)

Embedded data logger : up to 8 millions data points (with events dating)

Fully autonomous system with an integrated Lithium-Ion battery charger

Time-Synchronized Wireless Sensor Network

Waterproof for IP67 casing (Nema 6) coming with a rugged base plate (three-point-mounting)

Excellent radio link relying on the radio antenna diversity developed by Beanair®
// TYPICAL CUSTOMER APPLICATIONS

**ANTENNA POSITIONNING**

**BENCHMARK ON CAR FRAME STABILITY**

**FLIGHT TEST MEASUREMENT**

**STRUCTURAL HEALTH MONITORING**

For further information about bridge monitoring, please read the following applications note: **AN_RF_002 – “Bridge monitoring with BeanAir® products”**

// TIME-SYNCHRONIZED WIRELESS SENSOR NETWORK

**TimeSync**

A Time-Synchronized Wireless Sensor Network: Beanair® provides a time-synchronization (with an accuracy of 5ms) over the Wireless Sensor Network. The user can launch a data acquisition on-demand.
For further information about the different data acquisition modes:

TN_RF_008 – “Data acquisition modes available on the BeanDevice®”
The BeanDevice® HI-INC XRange integrates an embedded data logger, which can be used to log data whenever a Wireless Sensor Network cannot be easily deployed on your site. All the data acquisition are stored on the embedded flash and then transmitted to the BeanGateway® once a wireless Sensor Network is established. The data logger feature is compatible with all the data acquisition mode available on your BeanDevice® HI-INC XRange:

- Low Duty Cycle Data Acquisition
- Alarm & Survey
- Streaming & Streaming packet

EXAMPLE: TILT MEASUREMENT ON A BRIDGE

- In standalone operation, the BeanDevice® HI-INC XRange stores all the measurements on its embedded datalogger. Thus, a direct connection with the BeanGateway® is not needed.
- During the measurement campaign, all the acquired measurements are stored on datalogger.
- Data logs can be transmitted to the BeanGateway® on request. Once a successful transmission is done, the user can choose to erase automatically the logs from the datalogger memory, so new ones can be stored.

For further information about the Datalogger, please read the following technical note: TN_RF_007 – “BeanDevice® DataLogger User Guide”
HI-INC Xrange

Product Reference

BND-HI-INC-MRG-XR-PS

MR – Measurement Range :
15M : mono-axis ±15°
15B : bi-axis ±15°
30M : mono-axis ±30°
30B : bi-axis ±30°

PS - Power supply :
RB : Internal rechargeable battery
XT : External Primary cell

Example 1: BND-HI-INC-15B-XR-RB, High performance wireless bi-axis inclinometer with ±15° measurement range, internal rechargeable battery
Example 2: BND-HI-INC-30M-XR-XT, High performance wireless mono-axis inclinometer with ±30° measurement range

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**Embedded Data Logger**

- **Storage Capacity**: up to 8 million data points
- **Wireless data dowloading**: 20 minutes to download the full memory (average time)

**Real Time Clock and Crustal**

- **Real Time Clock**: Extremely Accurate Real Time Clock for measurement time stamping in Low duty cycle mode (±10ppm)
- **Crystal**: Extremely accurate crystal for measurement time stamping in streaming & streaming packet mode / Tolerance ±10ppm, stability ±10ppm

**Environmental and Mechanical**

- **Enclosure**: Aluminum & Waterproof (IP67 | Nema 6) enclosure
  - Enclosure Dimensions (w/o antenna) L×W×H: 100×71×30mm (135 x 71 x 30 with antennas), Weight (battery included: 165g)
- **Base plate**
  - Aluminum black anodized AL 7075 with rugged three-point-mounting
  - The sensor module is to be mounted on a flat and smooth surface with 3 screws,
  - dimension M5. Mounting torque 5 ±1Nm
- **Shock Resistance**: 200g during 50ms
- **Operating Temperature**: -20 °C to +65 °C
- **Norms**: CE Labelling Directive R&TTE (Radio) ETSI EN 300 328
  - ROHS - Directive 2002/95/EC

**Power Supply**

- **Integrated Battery Charger**: Integrated Lithium-ion battery charger with high precision battery monitoring:
  - Overvoltage/Overcurrent/Short-Circuit/Undervoltage protection
  - Battery Temperature monitoring
- **Current Consumption @3.3V**
  - During data acquisition: 20 to 30 mA
  - During Radio transmission: 40 mA @ 0dBm, 80 mA @ 18 dBm
  - During Sleeping: <30 μA
- **External Power Supply**: External power supply: +8v to +28v
- **Rechargeable Battery**: High density Lithium-ion rechargeable battery with a capacity of 1.25 Ah

**Option(s)**

- **Power-supply bloc**: Wall plug-in, Switchmode power supply 12V @ 1.25A with sealed M8 Plug (IP67 | Nema 6)
- **Calibration Certificate**: Calibration certificate provided by BeanAir
  - A static calibration method is used on a granite surface plate DIN876
For further information about the BeanDevice® battery life:
- **TN_RF_002** Current consumption in active & sleeping mode
- **TN_RF_012** Beandevice autonomy in Streaming and Streaming Packet Mode

Product specifications are subject to change without notice. Contact Beanair for latest specifications.
FOR MORE INFORMATION:

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