

# BeanDevice® 2.4GHz ONE-T

Wireless IIOT temperature sensor | built-in datalogger



MADE IN GERMANY



APPLICATION VIDEO



USER GUIDE



QUICK START



MECHANICAL DRAWING



STEP FILE



## MAIN FEATURES



• Embedded data logger : up to 1 million data points



• Ultra-low power technology IEEE 802.15.4 (up to 7-year battery life) Max wireless range: 300m (L.O.S.)



• Temperature measurement range :  
- 50°C to +150°C (standard accuracy) or  
- 10°C to +60°C (high accuracy)



• High & standard accuracy silicon temperature sensor



• Watertight IP67 polycarbonate enclosure  
Weight : 120g,  
Size (LxHxh) : 119x35x35mm



• Primary cell capacity: 2200 mAh (AA size)  
Lithium-thionyl chloride technology



• OPC server allowing real time access from your IT system to the BeanScope® (available on BeanScope® Premium+)

BeanDevice® 2.4GHz ONE-T

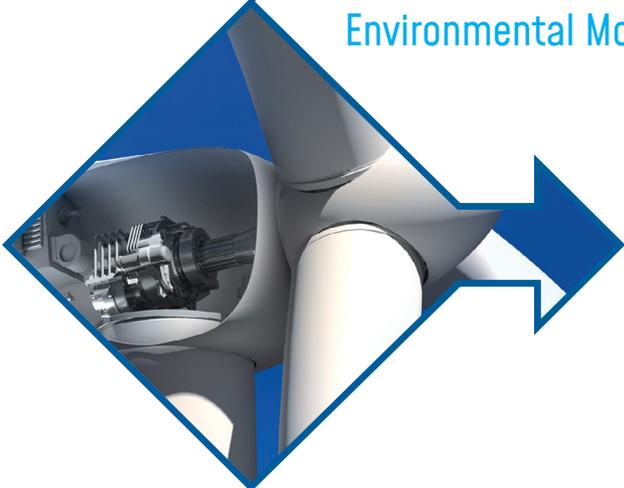
APPLICATIONS



structural Health Monitoring



Environmental Monitoring



Condition Monitoring



Test and Measurement

EMBEDDED DATA LOGGER UP TO 1 MILLION DATA POINTS

The **BeanDevice® 2.4GHz One-T** integrates an embedded datalogger, which can be used to log data when a Wireless IIOT Sensors can not be easily deployed on your site. All the data acquisition are stored on the embedded flash and then transmitted to the **BeanGateway® 2.4GHz** when a network is established.

The dataLogger function is compatible with all the data acquisition mode available on your **BeanDevice® 2.4GHz One-T** :

- LowDutyCycle Data Acquisition
- Survey

## BeanDevice® 2.4GHz ONE-T

### EXAMPLE : COLD CHAIN TRACEABILITY

- In standalone operation, the BeanDevice® 2.4GHz One-T stores all the measurements on its embedded datalogger. Thus, a direct connection with the BeanGateway® 2.4GHz is not needed.
- When the the truck starts moving, the local temperature is monitored and all the acquired measurements are stored on datalogger.
- Data logs can be transmitted to the BeanGateway® 2.4GHz 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 data logger, please read the following technical note :  
TN-RF-007 – “BeanDevice® DataLogger User Guide ”

### REMOTE CONFIGURATION & MONITORING

#### BeanScape® 2.4GHz Basic

The BeanScape® 2.4GHz application allows the user to view all the data measurements transmitted by the BeanDevice® 2.4GHz One-T. With the OTAC (Over-the-Air configuration) feature, the user can remotely configure the BeanDevice® 2.4GHz One-T

SEVERAL DATA ACQUISITION MODES ARE AVAILABLE ON THE BEANDEVICE® 2.4GHz One-T:

- **Low Duty Cycle Data Acquisition mode (LDCDA)** : the data acquisition is immediately transmitted by radio. The transmission frequency can be configured from 1s to 24h.
- **Survey Mode** : the measured value is transmitted by radio whenever an alarm threshold (fixed by the user) is detected (4 alarms threshold levels High/Low). Meanwhile, the device sends frequently a beacon frame informing its current status.

#### BeanScape® Premium+ Add-on

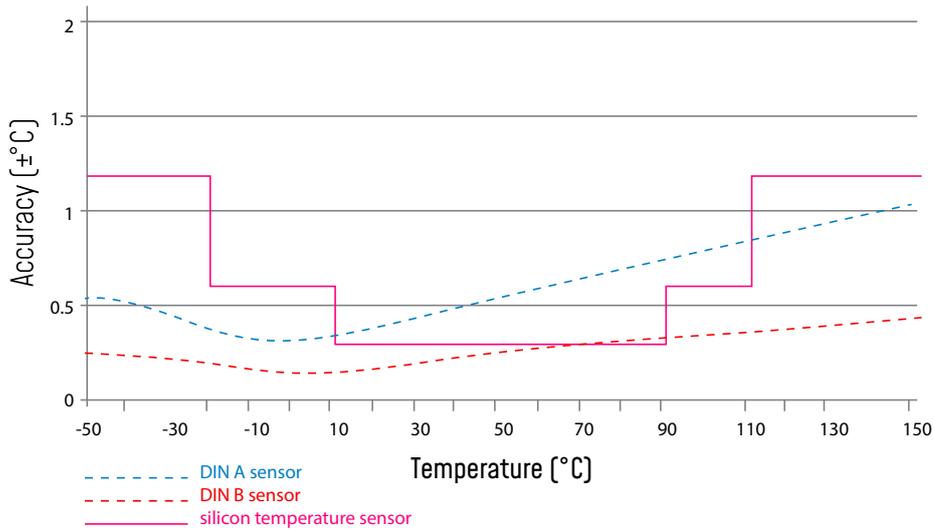
The BeanScape® 2.4GHz Premium+ integrates an OPC DA server (Data Access). OPC DA is particularly well suited for real time measurement and data sharing. Each data/measurement can be associated to a tag or its attributes and shared with one or many OPC clients



For further information about data logger, please read the following technical note :  
TN-RF-008 – “Data acquisition modes available on the BeanDevice®”

ACCURATE SILICON TEMPERATURE SENSOR (STANDARD ACCURACY VERSION)

ACCURACY COMPARISON BETWEEN THE BEANDEVICE ONE-T STANDARD ACCURACY VERSION AND PLATINUM SENSORS

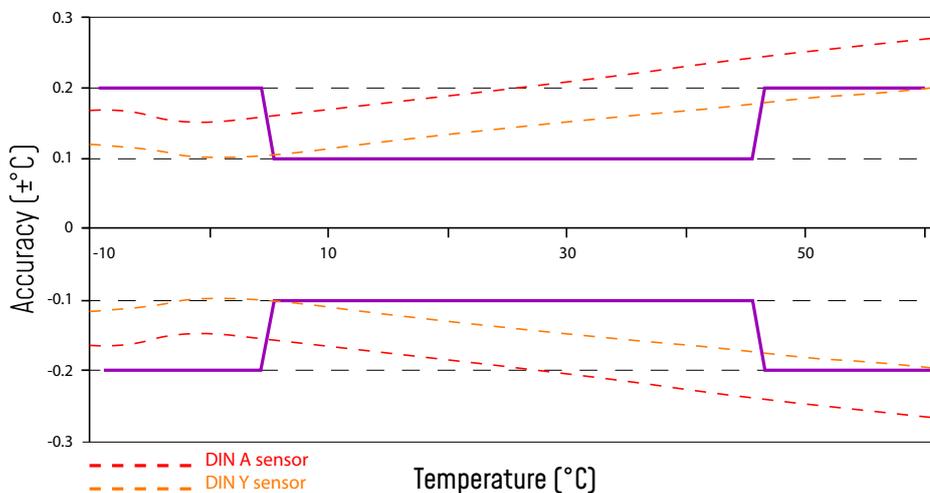


The figure above illustrates the accuracies of the BeanDevice® 2.4GHz One-T standard accuracy version and DIN A and DIN B platinum sensors.

In the standard calibration the BeanDevice® 2.4GHz One-T is in the range between 10°C and 110°C more accurate than the DIN B platinum sensor.

An outstanding long term stability makes sure that the accuracy will remain in the described tolerances.

ACCURATE SILICON TEMPERATURE SENSOR (HIGH ACCURACY VERSION)



## TECHNICAL SPECIFICATIONS

### PRODUCT REFERENCE

#### BND-2.4GHZ-ONE-T-SA-CL

##### SA—temperature sensor accuracy & design

- **ST** : standard accuracy
- **HA**: High accuracy
- **HAEY**: High accuracy with eyelet probe for wall mounting (minimum cable length 25 cm)

##### CL—Sensor Cable length

- Sensor cable length in cm
- Maximum cable length: 150 cm
- If this field is empty : no cable length

**Example 1:** BND-2.4GHZ-ONE-T-ST, wireless temperature sensor with 1 probe, standard accuracy (temperature range -25°C to +75°C), no cable length

**Example 2:** BND-2.4GHZ-ONE-T-HA-120, wireless temperature sensor with 1 probe, High accuracy (temperature range -10°C to +60°C), cable length 120 cm

**Example 3:** BND2.4GHZ-ONE-T-HAEY-25, wireless temperature sensor with eyelet probe for wall mounting , high accuracy (temperature range -10°C to +60°C), cable length 25 cm

### TEMPERATURE PROBE TYPES

Probe type HAEY	Temperature probe with eyelet mounting <ul style="list-style-type: none"> <li>• Length 50 mm, Diameter 6 mm</li> <li>• Hole diam. 5.3 mm</li> </ul> 
Probe type ST & HA	<ul style="list-style-type: none"> <li>• Length 40 mm, Diameter 6 mm</li> </ul> 

### RF SPECIFICATIONS

Wireless Technology	Ultra-Power and license-free 2.4Ghz radio technology (IEEE 802.15.4E)
WSN Topology	Point-to-Point / Star
Data rate	250 Kbits/s
RF Characteristics	ISM 2.4GHz – 16 Channels
TX Power	+18 dBm
Receiver Sensitivity	-95.5 dBm to -104 dBm
Max. Radio Range	300 m (Line of Sight) , 30-80m (Non Line of Sight)
Antenna	Omnidirectional antenna 2.2dBi

**TECHNICAL SPECIFICATIONS**

**TEMPERATURE SENSOR SPECIFICATIONS**

Temperature Sensor technology	Silicon temperature probe – Probe watertightness : IP67 Mechanical assembly type : steel tube	
Measurement range	High accuracy temperature probe: BND-2.4GHZ-ONE-T- <b>HA-CL</b> BND-2.4GHZ-ONE-T- <b>HAEY-CL</b>	-10 °C to +60°C
	Standard accuracy temperature probe with cable length: BND-2.4GHZ-ONE-T- <b>ST-CL</b>	-50 °C to +150°C
	Standard accuracy temperature probe without cable length: BND-2.4GHZ-ONE-T- <b>ST</b>	-25°C to +75°C
Measurement accuracy	High accuracy temperature probe: BND-2.4GHZ-ONE-T- <b>HA-CL</b> BND-2.4GHZ-ONE-T- <b>HAEY-CL</b>	±0.2°C between -10°C and -5°C ±0.1°C between -5°C and +4°C ±0.2°C between +45°C and +60°C
	Standard accuracy temperature probe : BND-2.4GHZ-ONE-T- <b>ST-CL</b>	±0.3 °C between -10 °C and +60°C ±(0.3 + 0.012(T-60)) °C between +60 °C and +150°C +/- (0.3 - 0.012(T+10)) °C between -50°C and -10°C
Sensor resolution	High accuracy temperature probe: BND-2.4GHZ-ONE-T- <b>HA-CL</b> BND-2.4GHZ-ONE-T- <b>HAEY-CL</b> Standard accuracy temperature probe : BND-ONE-T- <b>ST-CL</b>	0.0034°C  0.1°C

**OVER-THE-AIR CONFIGURATION (OTAC) PARAMETERS**

Data Acquisition mode	Low Duty Cycle Data Acquisition (LDCDA) Mode: 1s to 24 hour / Alarm mode: 1s to 24 hour
Alarm Threshold	2 high level alarms & 2 low level alarms
Power Mode	Sleep & Active

**EMBEDDED DATA LOGGER**

Storage capacity	up to 1 000 000 data points
Wireless data downloading	3 minutes to download the full memory (average time)

**ENVIRONMENTAL AND MECHANICAL**

Casing	Polycarbonate, Waterproof IP67 – Fire Protection : ULV94 Casing dimensions (LxLxh) : 119 mm x 35 mm x 35 mm Weight (battery included): 120g
Operating Temperature	-40°C to +75°C
Norms	FCC & CE compliant ROHS - Directive 2002/95/EC

BeanDevice® 2.4GHz ONE-T

TECHNICAL SPECIFICATIONS

POWER SUPPLY

Current consumption @3.3 Volts

- During data acquisition : 20 to 30 mA
- During Radio transmission : 60 mA
- During sleeping : < 10 µA

Included primary cell

Lithium-thionyl chloride battery with 1800 mAh capacity (AA size)

OPTION(S)

Calibration

DakkS connected calibration

CHOOSE AN ULTRA LOW POWER WIRELESS SENSOR

RF transmission	Battery life (temperature room 25°C)
Every 2 minutes	22 months
Every 5 minutes	51 months
Every 10 minutes	102 months

GETTING STARTED WITH A WIRELESS IIOT SENSORS

The BeanDevice® 2.4GHz One-T operates only on our Wireless IIOT Sensors , you will need the BeanGateway® 2.4GHz and the BeanScope® 2.4GHz for starting a Wireless IIOT Sensors.

BeanDevice  
2.4GHz ONE-T



BeanGateway  
Indoor Version



OR



BeanScope

Wireless IIOT Sensors Supervision Software

BeanAir  
Rethinking Sensing Technology



Outdoor Version

BeanGateway

# BeanDevice® 2.4GHz ONE-T

## BEANDEVICE® ONE-T OVERVIEW



Product specifications are subject to change without notice.  
Contact Beanair for latest specifications

## ACCESSORIES

### Antenna

2.2 dBi omnidirectional antenna



### Primary Cell

Lithium-thionyl chloride primary cell (Li-SOCl<sub>2</sub>) 2.2 Ah  
Ref: PP2.2DMG

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