

BeanDevice® 2.4GHz ONE-TH

Wireless Industrial IOT Temperature and Humidity Sensors | built-in datalogger

PRODUCT VIDEO



APPLICATION VIDEO



USER GUIDE



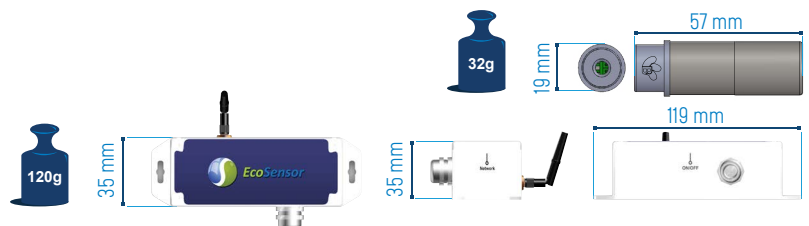
QUICK START



MECHANICAL DRAWING



STEP FILE



MAIN FEATURES



- High accuracy temperature sensor :
- range : -40°C to +85°C
- accuracy : ±0.1°C



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



- Embedded data logger :
up to 1 million data points



- High accuracy humidity sensor :
-range : 0 to 100% RH
- accuracy : ±1.5% RH



- Watertproof IP67 polycarbonate enclosure
Weight : 120g
Size (LxLxh) : 119x35x35mm



- Primary cell capacity: 2100 mAh (AA size Lithium-thionyl chloride technology)



- Integrated dew point measurement

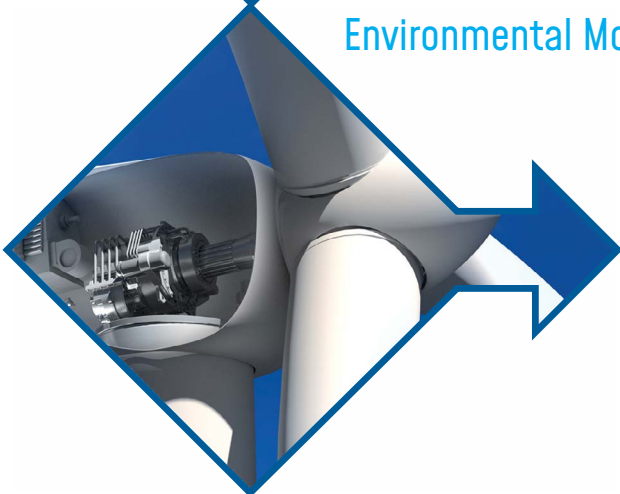
APPLICATIONS



structural Health Monitoring



Environmental Monitoring



Condition Monitoring

EMBEDDED DATA LOGGER UP TO 1 MILLION DATA POINTS

The [BeanDevice® 2.4GHz ONE-TH](#) integrates an embedded datalogger, which can be used to log data when a Wireless IOT 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 Wireless IOT Sensors is established.

The dataLogger function is compatible with all the data acquisition mode available on your [BeanDevice® 2.4GHz ONE-TH](#) :

- LowDutyCycle Data Acquisition
- Survey

BeanDevice® 2.4GHz ONE-TH

EXAMPLE : HVAC MONITORING

- In standalone operation, the **BeanDevice® 2.4GHz ONE-TH** stores all the measurements on its embedded datalogger. Thus, a direct connection with the **BeanGateway® 2.4GHz** is not needed.
- The temperature & humidity in the HVAC system are monitored and all the acquired measurements are logged on the embedded flash.
- 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 ”

BeanDevice® 2.4GHz ONE-TH

DEW POINT MEASUREMENT

The **BeanDevice® 2.4GHz ONE-TH**, comes with DewPoint measurement capability which makes it suitable for Greenhouses monitoring. The dew point is the temperature at which the water vapor in a sample of air at constant barometric pressure condenses into liquid water at the same rate at which it evaporates. When the air temperature cools to the dew point temperature, or if the dew point rises to equal the air temperature, the **BeanDevice® 2.4GHz ONE-TH** transmits the information, so the user can prevent the formation of dews.

REMOTE CONFIGURATION & MONITORING

BeanScope® 2.4GHz Basic

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

SEVERAL DATA ACQUISITION MODES ARE AVAILABLE ON THE BEANDEVICE® 2.4GHz ONE-TH:

- **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.

BeanScope® 2.4GHz Premium+ Add-on

The **BeanScope® 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®”

TECHNICAL SPECIFICATIONS

PRODUCT REFERENCE

BND-2.4GHZ-ONE-TH-CL

CL : Cable length in cm (minimum cable length 20 cm, maximum cable length 150 cm)

TEMPERATURE SENSOR SPECIFICATIONS

Temperature Sensor technology	Thermistor
Measurement range	- 40°C to +85 °C
Accuracy Tolreance	±0.1 °C , for temperature range +20°C to +60°C See Figure 3 more information
Repeatability	±0.04 °C
Sensor resolution	0.01 °C
Long term drif	< 0.03 °C / year
Response time	< 20s with sensor cap

HUMIDITY SENSOR SPECIFICATIONS

Humidity Sensor technology	Capacitive polymer humidity sensor
Measurement range	0 to 100 %RH
Accuracy Tolerance	±1.5 %RH for Humidity range 0 to 90 %RH and temperature range +10°C to +60°C See Figures 1 and 2 for more information
Repeatability	±0.08 %RH
Sensor resolution	0.01% RH
Hysteresis (10 %RH to 70 %RH)	< ±0.8% RH
Response time	<20s with sensor housing
Long term drif	0.25 % RH / year

SENSOR HOUSING

Dimensions	Diameter 18 mm, Length: 57 mm
Sensor housing	Waterproof (IP66) stainless steel with 30-45µm of pore size
Pressure Resistant	Up to 16 bar
Operating Temperature	-40°C to +85°C
Dew formation resistant	Yes

TECHNICAL SPECIFICATIONS

RF SPECIFICATIONS

Wireless Technology	Ultra-Low-Power and license-free 2.4Ghz radio technology (IEEE 802.15.4E)
Network 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	Omndirectional antenna 2.2dBi

CONFIGURABLE SETTINGS (FROM THE BEANSCAPE®)

Data Acquisition mode	Low Duty Cycle Data Acquisition (LDCDA) Mode: 4s to 24 hour Alarm mode: 4s to 24 hour
Alarm Threshold	3 levels of Alarms : Alarm>Action>Alert
Power Mode	Battery saver mode only

EMBEDDED DATA LOGGER

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

ENVIRONMENTAL AND MECHANICAL

Casing	Polycarbonate, Waterproof IP67 – Fire Protection : UL94 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

POWER SUPPLY

Current consumption @3.3 Volts	<ul style="list-style-type: none"> • During data acquisition : 20 to 30 mA • During Radio transmission : 60 mA • During battery saver mode : < 10 µA
Included primary cell	Lithium-thionyl chloride battery with 2100 mAh capacity (AA size)

TECHNICAL SPECIFICATIONS

OPTION(S)

Calibration DakkS connected calibration

CHOOSE AN ULTRA LOW POWER WIRELESS SENSOR

RF transmission in minutes

Every 2 minutes

Every 5 minutes

Every 10 minutes

Battery life (temperature room 25°C)

22 months

51 months

102 months

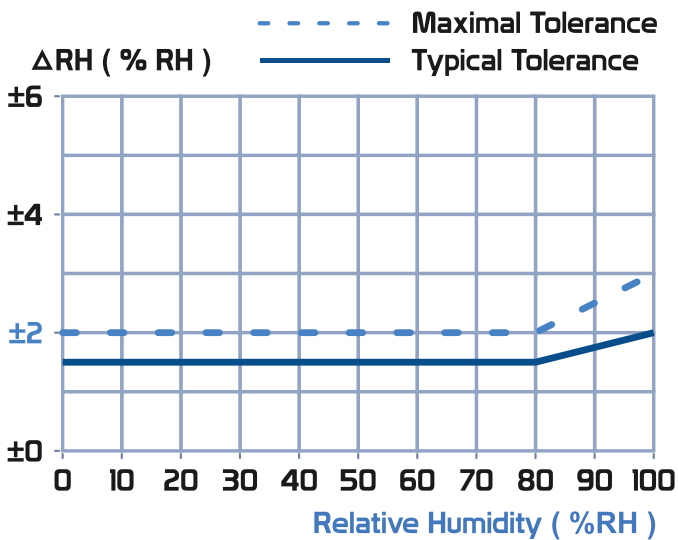


Figure 1 : Tolerance of %RH over Temperature

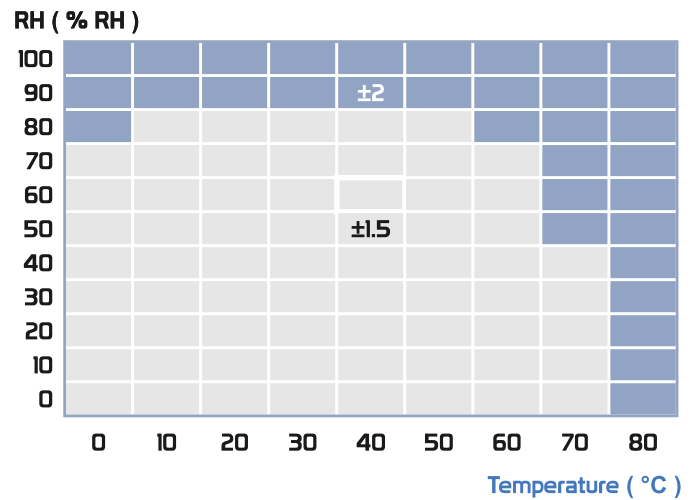


Figure 2 : Typical Accuracy Tolerance of %RH over Temperature

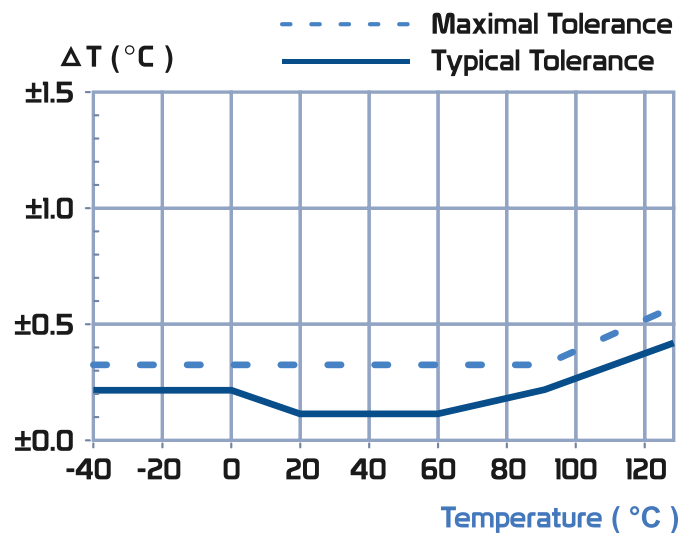
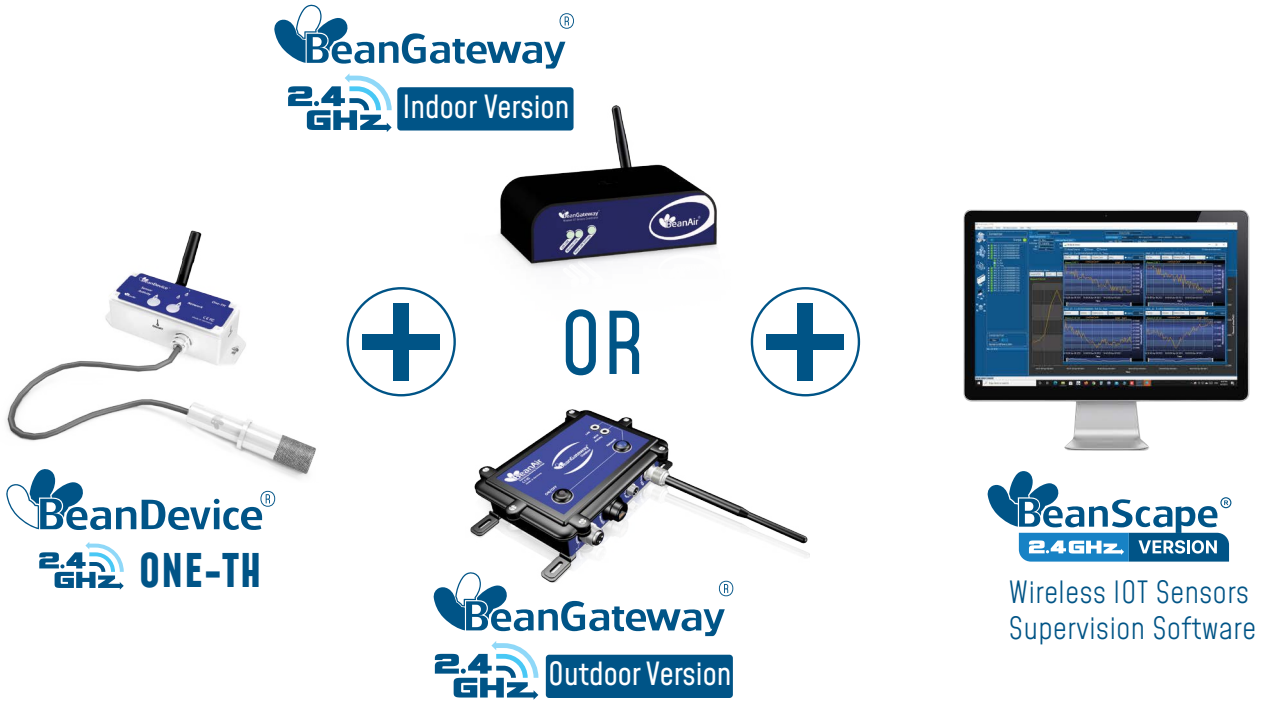


Figure 3 : Temperature Tolerance accuracy

IoT **BeanDevice® 2.4GHz ONE-TH**

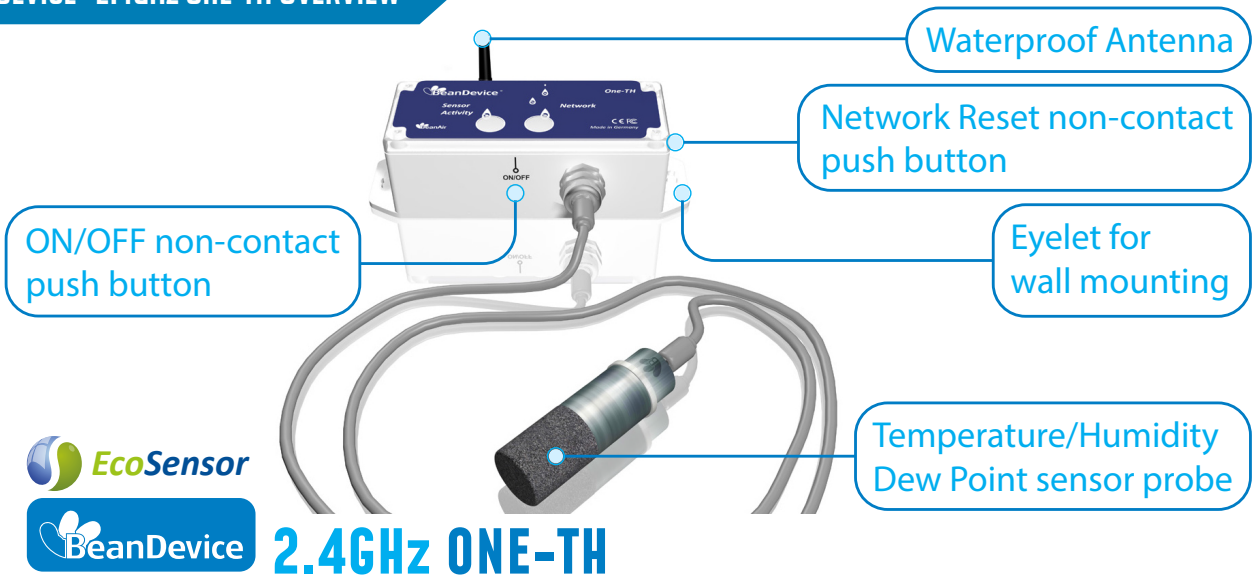
GETTING STARTED WITH A WIRELESS IOT SENSORS

The **BeanDevice® 2.4GHz ONE-TH** operates only on our Wireless IOT Sensors , you will need the **BeanGateway® 2.4GHz** and the **BeanScope® 2.4GHz** for starting a Wireless IOT Sensors.



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

BEANDEVICE® 2.4GHz ONE-TH OVERVIEW



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BeanDevice® 2.4GHz ONE-TH

ACCESSORIES

Antenna

2.2 dBi omnidirectional antenna



Primary Cell

Lithium-thionyl chloride primary cell (Li-SOCl₂) 2.2 Ah
Ref: PP2.2DMG

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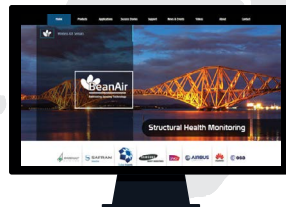
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