BeanAir
WIRELESS IIOT SENSORS

2.4 GHz

BeanDevice® 2.4GHz ONE-TH

Wireless IIOT Temperature & humidity sensors | built-in datalogger

PRODUCT VIDEO

APPLICATION VIDEO

USER GUIDE

QUICK START

MECHANICAL DRAWING

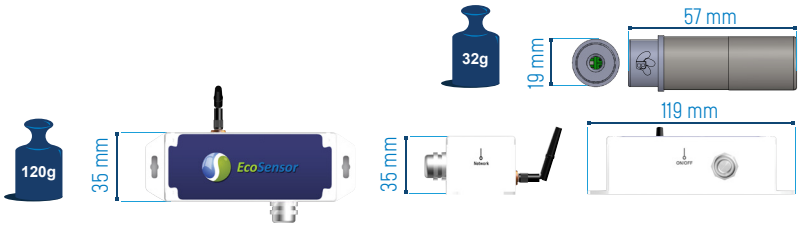
STEP FILE

EcoSensor

2year Warranty

MADE IN GERMANY

CE FC R 207-132085



MAIN FEATURES

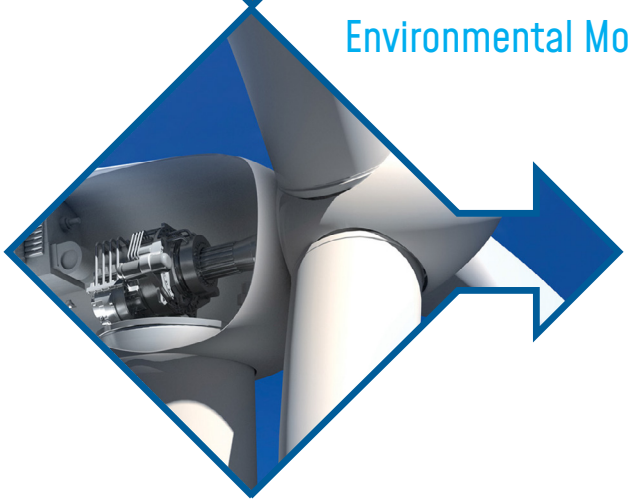
- High accuracy temperature sensor :
  -range : -40°C to +75°C
  - accuracy : ±0.2°C
- Ultra-low power technology IEEE 802.15.4 (up to 7-year battery life) Max wireless range: 300m (L.O.S.)
- Embedded data logger :
  up to 1 million data points
- High accuracy humidity sensor :
  -range : 0 to 100% RH
  - accuracy : ±1.8% RH
- Waterproof IP67 polycarbonate enclosure Weight: 120g - Size (Lxlxh): 119 x 35 x 35 mm (without sensor probe)
- OPC server allowing real time access from your IT system to the BeanScape® (available on BeanScape® Premium+)
- Primary cell capacity: 2200 mAh (AA size) Lithium-thionyl chloride technology
- Integrated dew point measurement

BeanDevice® 2.4GHz ONE-TH

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 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 Wireless IIOT 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

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 Greehouses 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

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-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:

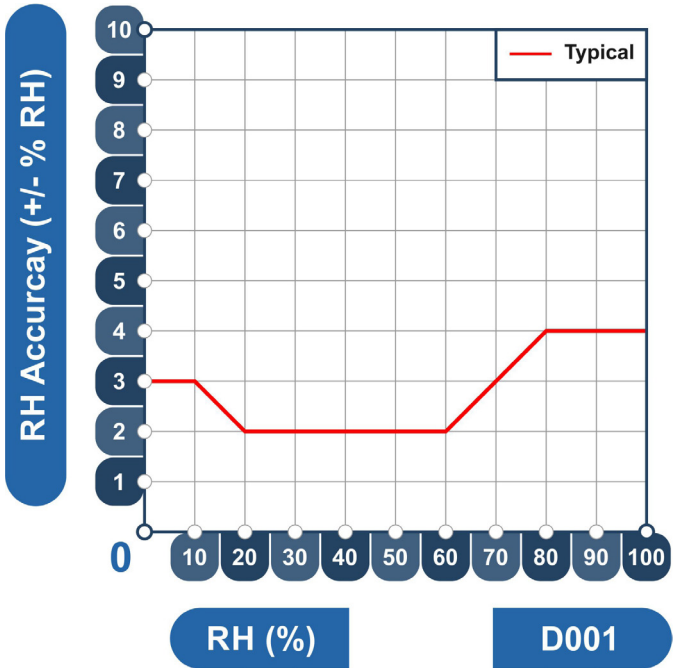
- Low Duty Cycle Data Acquisition mode (LDCDA) : the data acquisition is immediately transmitted by radio. The transmission frequency can be configured from 1s to 24h.
- Survey Mode : the measured value is transmitted by radio whenever an alarm threshold (fixed by the user) is detected (4 alarms threshold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

BeanScape ® 2.4GHz Premium+ Add-on

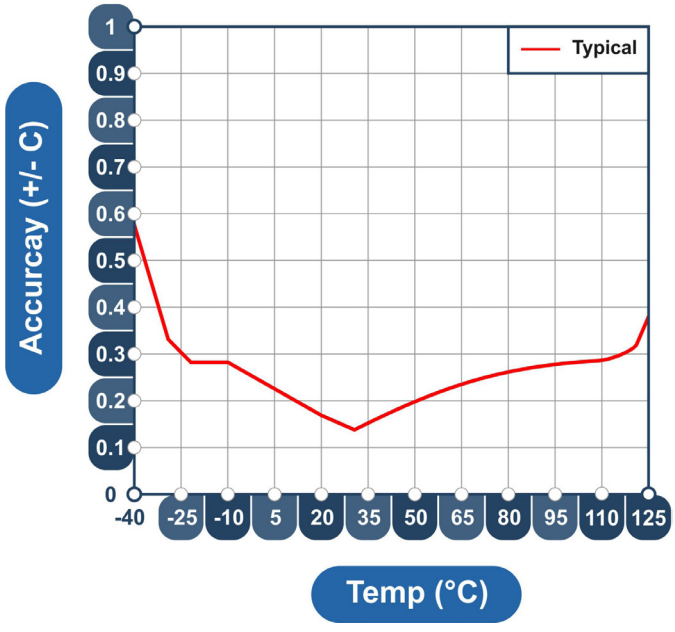
The BeanScape® 2.4GHz Premium+ integrates an OPC DA server (Data Access). OPC DA is particularly well suited for real time measurement and data sharing. Each data/measurement can be associated to a tag or its attributes and shared with one or many OPC clients

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

RELATIVE HUMIDITY ACCURACY



TEMPERATURE MEASUREMENT ACCURACY



TECHNICAL SPECIFICATIONS

PRODUCT REFERENCE

BND-2.4GHZ-ONE-TH-CL

SENSOR FILTER CAP MECHANICAL SPECIFICATIONS

Filter cap	Glass grommet and sinter filter
Pressure Resistant	Up to 16 bar
Dew formation resistant	Yes

TEMPERATURE SENSOR SPECIFICATIONS

Temperature Sensor technology	Thermistor
Measurement range	- 40°C to +85 °C
Measurement accuracy	±0.2 °C (0 ... 60 °C)
Sensor resolution	0.015 °C
Long term drif	< 0.05 K / year
Response time	< 20s with sensor cap

HUMIDITY SENSOR SPECIFICATIONS

Humidity Sensor technology	Capacitive polymer humidity sensor
Measurement range	0 to 100 %RH
Accuracy	±2 %RH (Temp: 25°C, range: 20-60 %RH)
Repeatability	±0.1 %RH
Sensor resolution	0.01% RH
Hysteresis (10 %RH to 70 %RH)	< ±1% RH
Response time	<20s with sensor cap
Long term drif	< 0.25 % RH / year

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	Omndirectional antenna 2.2dBi

BeanDevice® 2.4GHz ONE-TH

TECHNICAL SPECIFICATIONS

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

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

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

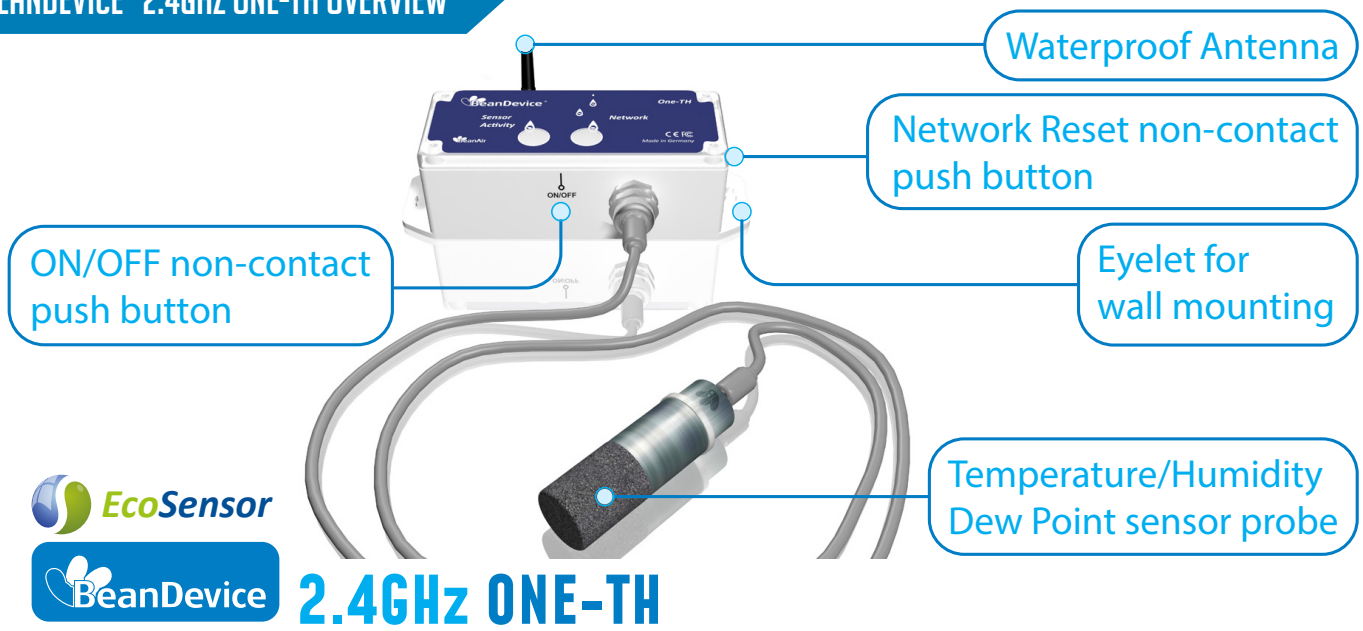
BeanDevice® 2.4GHz ONE-TH

GETTING STARTED WITH A WIRELESS IIOT SENSORS

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

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

BEANDEVICE® 2.4GHZ ONE-TH OVERVIEW



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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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