



The BeanDevice<sup>®</sup> 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<sup>®</sup> 2.4GHz when a Wireless IOT Sensors is established.

The dataLogger function is compatible with all the data acquisition mode available on your BeanDevice<sup>®</sup> 2.4GHz ONE-TH :

- LowDutyCycle Data Acquisition
- Survey



#### EXAMPLE : HVAC MONITORING

• In standalone operation, the BeanDevice<sup>®</sup> 2.4GHz ONE-TH stores all the measurements on its embedded datalogger. Thus, a direct connection with the BeanGateway<sup>®</sup> 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<sup>®</sup> 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**

BeanAir WIRELESS HOT SENSORS

The BeanDevice<sup>®</sup> 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<sup>®</sup> 2.4GHz ONE-TH transmits the information, so the user can prevent the formation of dews.

### **REMOTE CONFIGURATION & MONITORING**

#### BeanScape<sup>®</sup> 2.4GHz Basic

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



# BeanDevice<sup>®</sup> 2.4GHz ONE-TH

**TECHNICAL SPECIFICATIONS** 

BeanAir WIRELESS HOT SENSORS

### **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 30-45 $\mu m$ of pore size
Pressure Resistant	Up to 16 bar
Operating Temperature	-40°C to +85°C
Dew formation resistant	Yes

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# **2.4** Gl

# BeanDevice<sup>®</sup> 2.4GHz ONE-TH

### **TECHNICAL SPECIFICATIONS**

<b>RF SPECIFICATIONS</b>	
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 (In Transmission Mode)	300 m (Line of Sight), 30-80m (Non Line of Sight)* <sup>1</sup>
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 : 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	<ul> <li>During data acquisition : 20 to 30 mA</li> <li>During Radio transmission : 60 mA</li> <li>During battery saver mode : &lt; 10 μA</li> </ul>
Included primary cell	Lithium-thionyl chloride battery with 2100 mAh capacity (AA size)

1 300m L.O.S conditions is reached:
 Beangateway is positioned in Line Of Sight toward sensor (no obstacles, no radio interferences) with High Gain Antenna, with a Height of 3 meters minimum. 26dBm High Gain Directional Antenna is used om gateway side.
 On sensor side : Radome Antenna should point to Vertical Direction for better coverity



### 2.4 GHZ,

## BeanDevice<sup>®</sup> 2.4GHz ONE-TH

### TECHNICAL SPECIFICATIONS

OPTION(S)

Calibration

DakkS connected calibration

CHOOSE AN ULTRA LOW F	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



RH (% RH) ±1.5 Temperature (°C)

Figure 2 : Typical Accuracy Tolerance of %RH over Temperature



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### **GETTING STARTED WITH A WIRELESS IOT SENSORS**

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



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



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Above given technical data are only for information purpose. BeanAir<sup>®</sup> Sensors has right to change product specifications without notice.