BeanAir
WIRELESS IIOT SENSORS

2.4 GHz

BeanDevice® 2.4GHz ONE-T

Wireless Industrial IOT Temperature Sensors | built-in datalogger

EcoSensor

2year Warranty

MADE IN GERMANY

CE FC R 001A-08148

APPLICATION VIDEO

USER GUIDE

QUICK START

MECHANICAL DRAWING

STEP FILE

36 mm

34 mm

110 mm
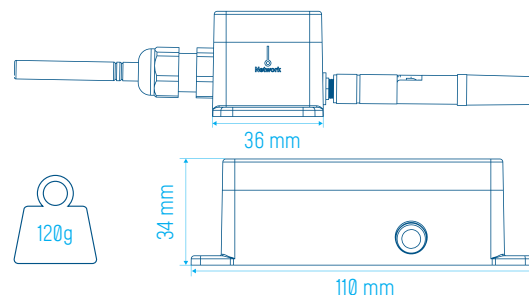
120g

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 (Lxlxh) : 110x36x34mm

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

BeanDevice® 2.4GHz ONE-T

ONE-T
Wireless IOT Temperature Sensors
BND-2.4GHZ-ONE-T-HAEY
-10°C to +60°C

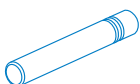(Length 50 mm, Diameter 6 mm, Hole diam. 5.3 mm)

ONE-T
Wireless IOT Temperature Sensors
BND-2.4GHZ-ONE-T-HA
-10°C to +60°C
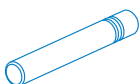
Length 40 mm, Diameter 6 mm

ONE-T
Wireless IOT Temperature Sensors
BND-2.4GHZ-ONE-T-ST
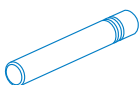-25°C to +75°C

Length 40 mm, Diameter 6 mm

ONE-T
Wireless IOT Temperature Sensors
BND-2.4GHZ-ONE-T-ST-CL
-50°C to +150°C

Length 40 mm, Diameter 6 mm

ONE-T
Wireless IOT Temperature Sensors
BND-2.4GHZ-ONE-T-STCORE
-50°C to +150°C

Stainless steel handle length 9.5cm Diameter 9mm
Temp. core probe length 13.5 cm Diameter 6mm

APPLICATIONS

Medical lab & white room

Medical lab & white room

Environmental Monitoring

Transport

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

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.

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

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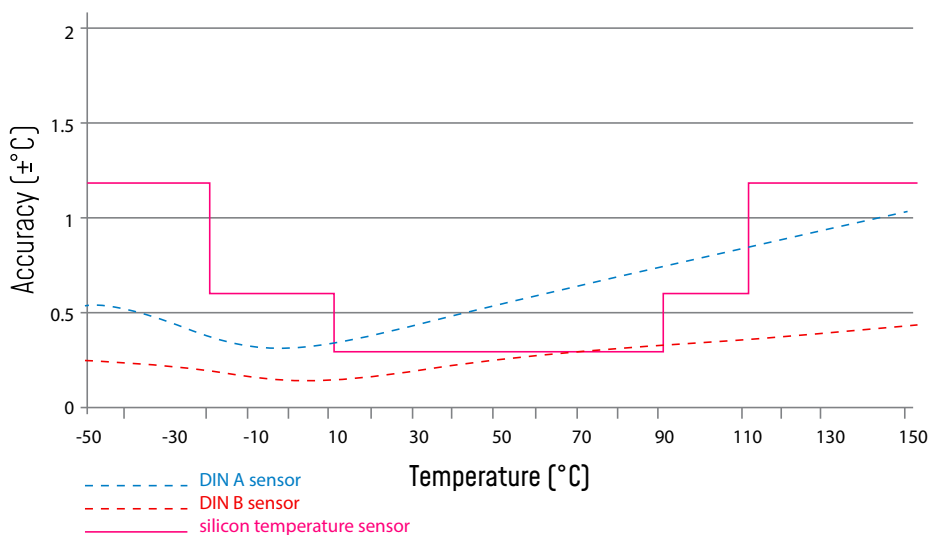
The figure above illustrates the accuracies of the BeanDevice® 2.4GHz One-T standard accuracy version and DIN A and DIN B platinum sensors.

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)

- - - - - DIN A sensor
- - - - - DIN Y sensor
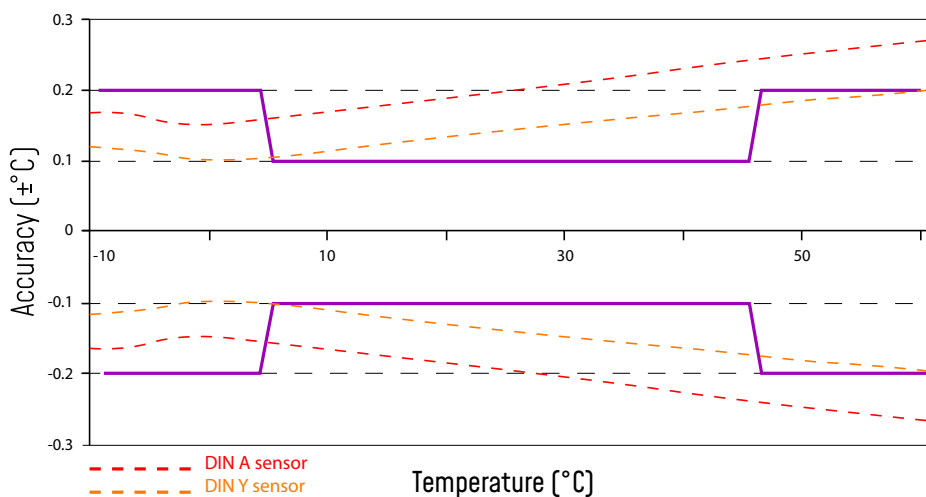
TECHNICAL SPECIFICATIONS

PRODUCT REFERENCE
BND-2.4GHZ-ONE-T-SA-CL

SA—temperature sensor accuracy & design	CL—Sensor Cable length
· ST : standard accuracy	Sensor cable length in cm
· HA: High accuracy	Maximum cable length: 150 cm

· HAEY: High accuracy with eyelet probe for wall mounting (minimum cable length 25 cm)

STCORE: Temperature core probe with straight stainless steel Handle - standard accuracy (minimum cable length 25 cm)

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
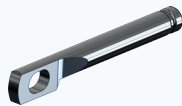   (temperature range -10°C to +60°C), cable length 25 cm
Example 4: BND-2.4GHZ-ONE-T-STCORE-100, Temperature core probe with straight stainless steel Handle, standard accuracy
        (-50 °C to +150 °C), cable length 100 cm

TEMPERATURE PROBE TYPES		
Probe type HAEY	Temperature probe with eyelet mounting (Length 50 mm, Diameter 6 mm, Hole diam. 5.3 mm)	
Probe type ST & HA	Length 40 mm, Diameter 6 mm	
Probe type STCORE	Stainless steel handle length 9.5cm Diameter 9mm , Temp. core probe length 13.5 cm Diameter 6mm	

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 (In Transmission Mode)	300 m (Line of Sight) , 30-80m (Non Line of Sight) [1]
Antenna	Omndirectional antenna 2.2dBi

BeanDevice® 2.4GHz ONE-T

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-HA-CL BND-2.4GHZ-ONE-T-HAEY-CL	-10 °C to +60°C
	Standard accuracy temperature probe with cable length: BND-2.4GHZ-ONE-T-ST-CL BND-2.4GHZ-ONE-T-STCORE-CL	-50 °C to +150°C
	Standard accuracy temperature probe without cable length: BND-2.4GHZ-ONE-T-ST	-25°C to +75°C
Measurement accuracy	High accuracy temperature probe: BND-2.4GHZ-ONE-T-HA-CL BND-2.4GHZ-ONE-T-HAEY-CL	±0.2°C between -10°C and -5 °C ±0.1°C between -5°C and +45°C ±0.2°C between +45°C and +60°C
	Standard accuracy temperature probe : BND-2.4GHZ-ONE-T-ST-CL BND-2.4GHZ-ONE-T-STCORE-CL	±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-HA-CL BND-2.4GHZ-ONE-T-HAEY-CL	0.0034°C
	Standard accuracy temperature probe : BND-ONE-T-ST-CL BND-2.4GHZ-ONE-T-STCORE-CL	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	3 thresholds of Alarms Alert <Action< Alarm
Power Mode	Battery saver mode

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) : 110 mm x 36 mm x 34 mm Weight (battery included): 120g
Operating Temperature	-40°C to +75°C (data acquisition and A7wireless transmission box)
Norms	FCC & CE compliant ROHS - Directive 2002/95/EC

* 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

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 2100 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 IOT Sensors , you will need the BeanGateway® 2.4GHz and the BeanScape® 2.4GHz for starting a Wireless IOT Sensors.

BeanDevice®
2.4GHz **ONE-T**

BeanGateway® 2.4GHz
Wireless IOT Sensors coordinator
Indoor Version

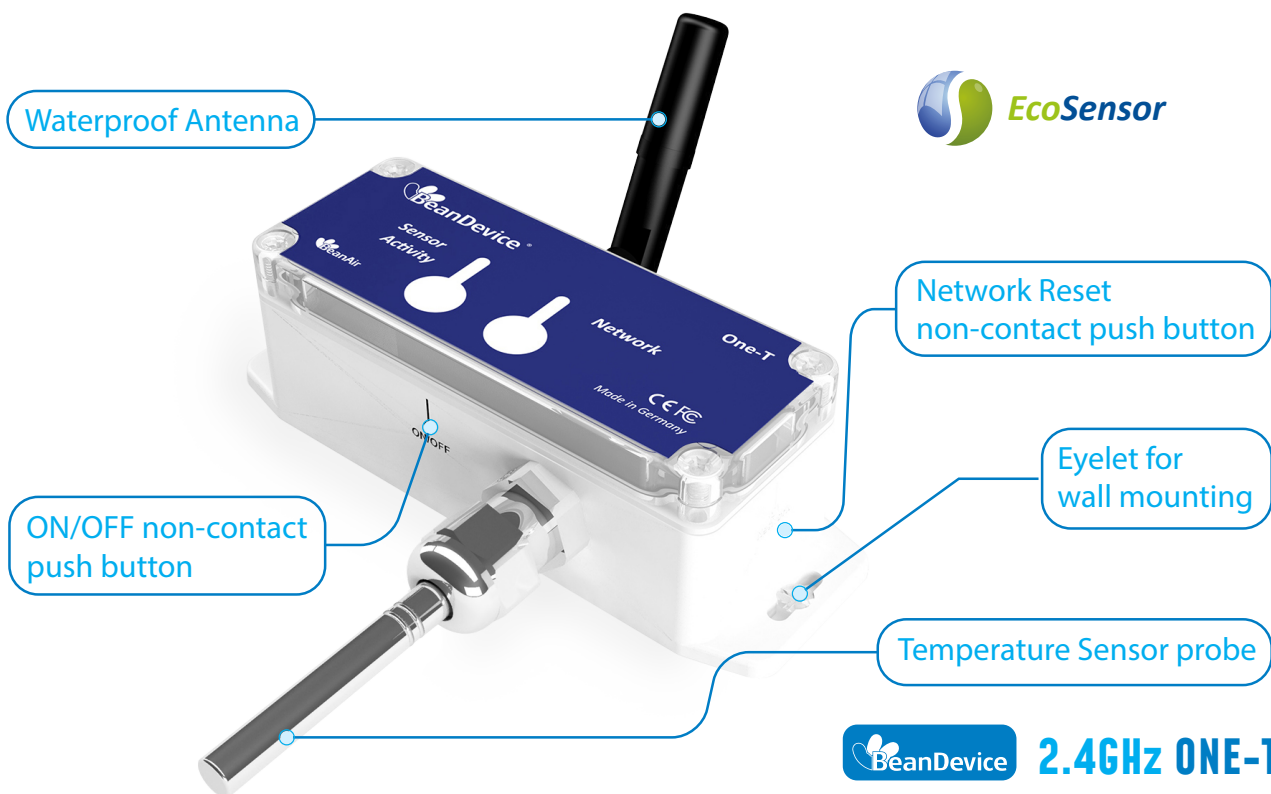OR

BeanAir®
Rethinking Sensing Technology

BeanGateway® 2.4GHz
Wireless IOT Sensors coordinator
Outdoor Version

BeanScape®
Wireless IOT Sensors
Supervision Software

BeanDevice® 2.4GHz ONE-T

BEANDEVICE® ONE-T OVERVIEW

EcoSensor

Waterproof Antenna

Network Reset
non-contact push button

Eyelet for
wall mounting

ON/OFF non-contact
push button

Temperature Sensor probe

BeanDevice 2.4GHz ONE-T

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-SOCl2) 2,2 Ah
Ref: PP2.2DMG

BeanDevice® 2.4GHz ONE-T

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