

**BeanDevice® 2.4GHz ONE-TIR-MED**

Wireless IR Temperature Sensor | Human Body Temperature Screening | Medical Precision | built-in datalogger

APPLICATION VIDEO



USER GUIDE



QUICK START



MECHANICAL DRAWING

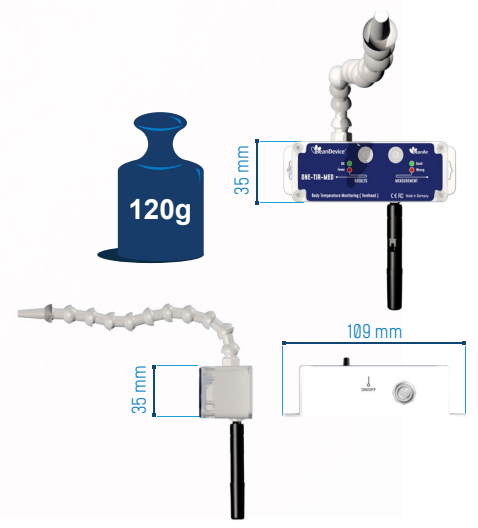


STEP FILE



**2year**  
Warranty

MADE IN GERMANY



**MAIN FEATURES**

- Embedded data logger : up to 1 million data points
- Waterproof IP67 polycarbonate enclosure  
Weight : 120g / Size (LxH) : 119x35x35mm
- Ultra-low power technology IEEE 802.15.4 (up to 7-year battery life) Max wireless range: 300m (L.O.S.)
- Primary cell capacity: 2200 mAh (AA size) Lithium-thionyl chloride technology
- High precision non-contact temperature measurement ( $\pm 0,2^{\circ}\text{C}$ )
- OPC server allowing real time access from your IT system to the BeanScope® (available on BeanScope® Premium+)

# BeanDevice® 2.4GHz ONE-TIR-MED

## APPLICATIONS



HOSPITALS

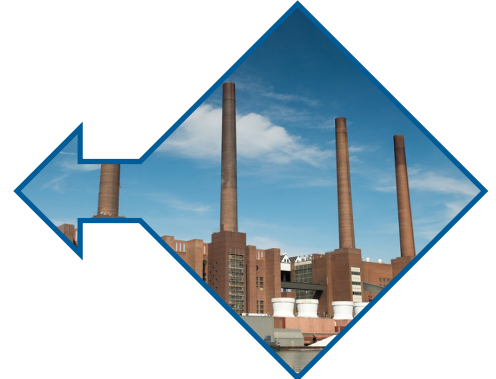


AIRPORT



TRAIN STATION

FACTORY



OFFICES



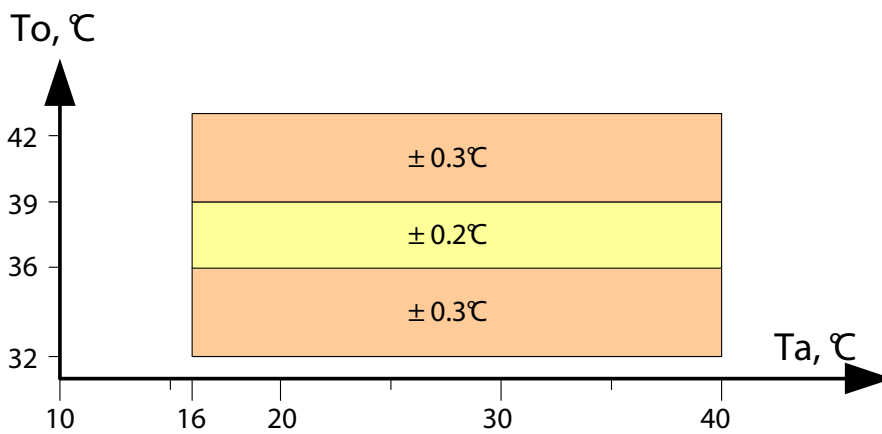
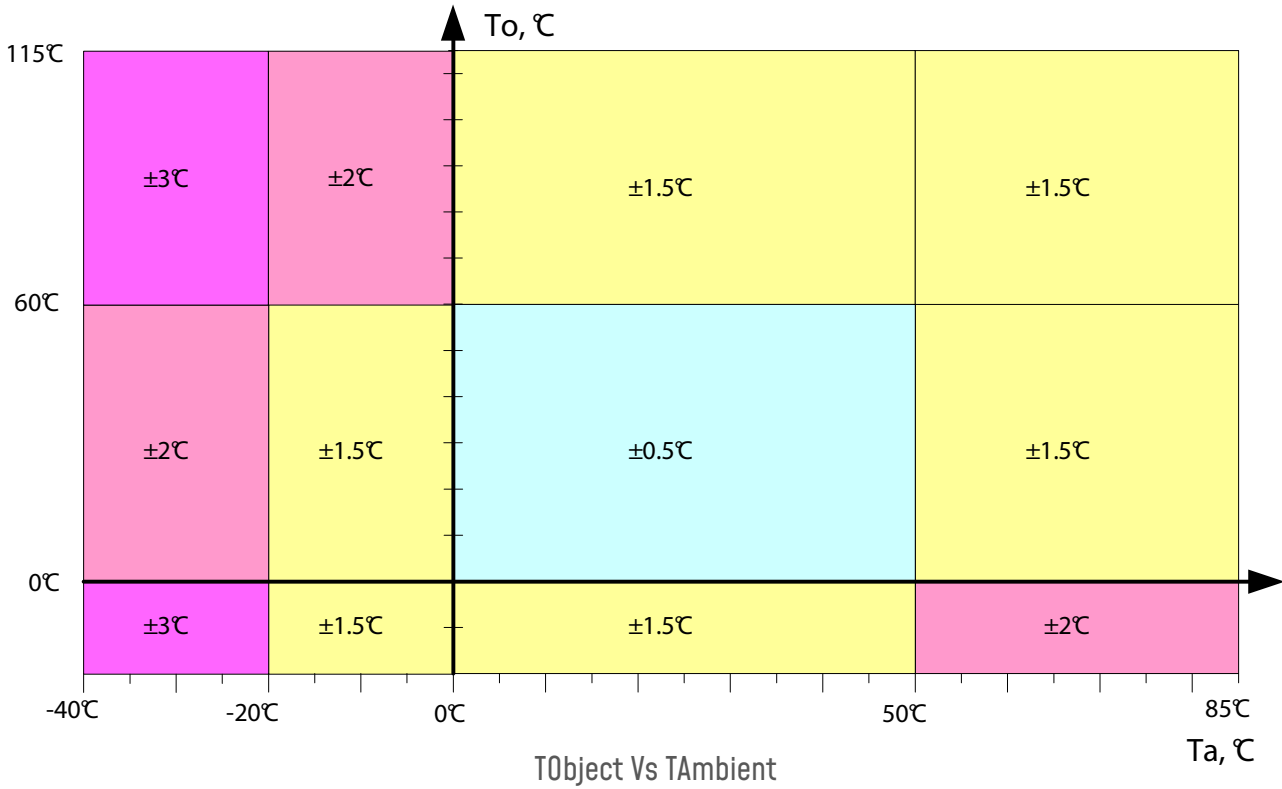
SHOPPING CENTER



## ADVANTAGES

- Rapid Analysis of the target system
- Highly operational in system with very high temperature
- Adapted for working in Hazardous /Sensible environment
- No risk of contamination and mechanical effect on the target
- High measurement accuracy
- Easy integration

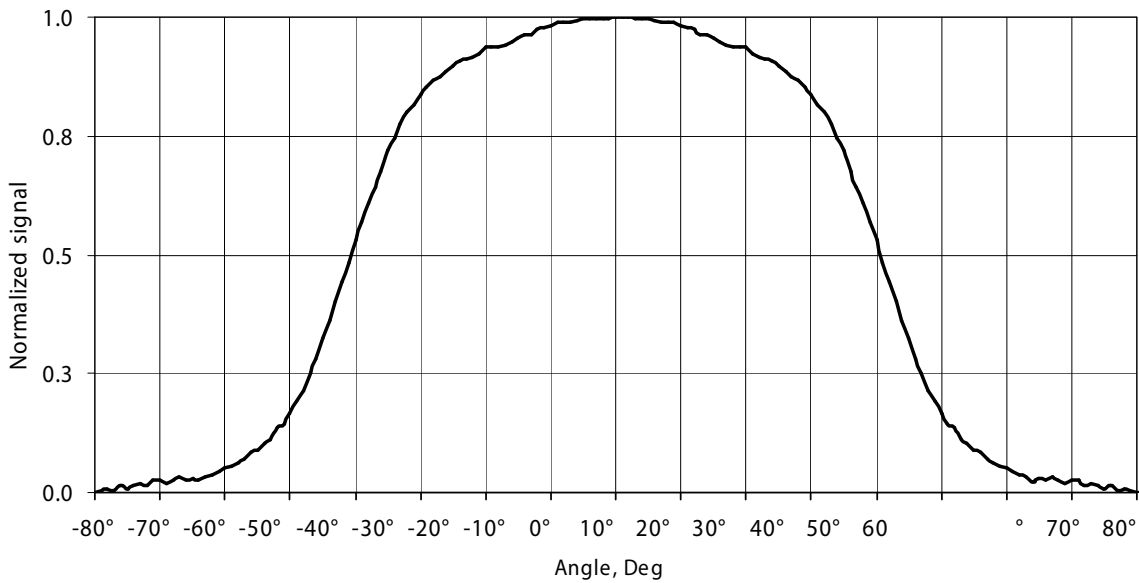
IR TEMPERATURE SENSOR PRECISION



Accuracy of IR Temperature Sensor in range T<sub>Ambient</sub> = 16°C to 40°C , T<sub>Object</sub> = 32°C ... 42°C . comply with ASTM standard section 5.3 (Designation: E1965 – 98 (2009) - Standard Specification for Infrared Thermometers for Intermittent Determination of Patient Temperature).

TYPICAL FIELD OF VIEW

FOV



EMBEDDED DATA LOGGER UP TO 1 MILLION DATA POINTS

The [BeanDevice® 2.4GHz ONE-TIR-MED](#) 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-TIR-MED](#):

- LowDutyCycle Data Acquisition
- Survey

# IoT BeanDevice® 2.4GHz ONE-TIR-MED



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 transmitted by the BeanDevice® 2.4GHz ONE-TIR-MED- With the OTAC (Over-the-Air configuration) feature, the user can remotely configure the BeanDevice® 2.4GHz ONE-TIR-MED

- **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®”

TECHNICAL SPECIFICATIONS

PRODUCT REFERENCE

**BND-2.4GHZ-ONE-Tir-MED-MA-SA**

**MA-MAIN OPTION:**

TRA : Transportable version, powered with a non-rechargeable battery (Lithium-thionyl chloride primary cell with 2200 mAh capacity)

FTS : Fast tempertaure screening version, mains powered

**SA- Sensor Arm Extension**

15CM - default sensor arm extension

extension can incremented by 15 cm and the maximum length is 105 cm

Example 1: **BND-2.4GHZ-ONE-TIR-MED-TRA-15CM** , transportable version, default sensor arm length 15 cm

Example 2: **BND-2.4GHZ-ONE-TIR-MED-FTS-45CM** , fast temperature screening, sensor arm length 45 cm

IR TEMPERATURE SENSOR SPECIFICATION

Measurement range	-40°C to +85°C for ambient temperature (Ta) -70°C to +115°C for object temperature (To)
Sensor Technology	Thermopile
Emissivity coefficient	0.15 to 1 ( Configurable from the BeanScape®) Default value: 0.97 (Human Body Skin)
Accuracy	<ul style="list-style-type: none"> <li>• ±0.3°C for body temperature 32°C to 36°C, Ambient Temperature 16°C to 40°C</li> <li>• ±0.2°C for body temperature 36°C to 39°C, Ambient Temperature 16°C to 40°C</li> <li>• ±0.3°C for body temperature 39°C to 42°C, Ambient Temperature 16°C to 40°C</li> <li>• Comply with ASTM standard Section 5.3 (Designation E1965 - 98(2009) - Standard Specification for Infrared Thermometers for Intermittent Determination of Patient Temperature)</li> </ul>
Measurement resolution	0.02 °C
Optimum Distance to Forehead	2cm to 4cm
Field of View (FOV)	80°

EMBEDDED DATA LOGGER

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

**TECHNICAL SPECIFICATIONS**

**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

**HUMAN BODY TEMPERATURE MONITORING (HBTM)**

Body Temperature range	<p>Default Value: 32°C to 42°C</p> <p>All object temperatures outside this range are discarded as it's considered that there is no human presence in front of the sensor</p> <p>Body temperature range is user configurable</p>
Temperature Refresh rate	<p>TRA version: User Configurable from 4s to 24h, Default value: 10s</p> <p>FTS version: User Configurable from 1s to 24h, Default value: 1s</p>
Temperature Units available	°Celsius, °Fahrenheit and °Kelvin
LEDS Indicators	<p>Two LEDES Indicators:</p> <p><b>-Measurement LED:</b></p> <ul style="list-style-type: none"> <li>=&gt; blinks in Green Color if the measured object temperature is outside body temperature range (individual/patient is in front of the sensor head)</li> <li>=&gt; blinks in Red Color if the measured object temperature is matching body temperature range (individual/patient is in front of the sensor head)</li> </ul> <p><b>-Results:</b></p> <ul style="list-style-type: none"> <li>=&gt; blinks in green color if body temperature is Lower than Fever Alarms</li> <li>=&gt; blinks in red color if body tempertaure is higher than Fever Alarms</li> </ul>
Alarm Management	<p>3 levels of fever alarms:</p> <ul style="list-style-type: none"> <li>- Fever Alert: 37.5°C,</li> <li>- Fever Action: 38.5°C</li> <li>- Fever Alarm:39.5°</li> </ul> <p>Each Fever Alarm can be connected to Email/PC Sound notification can be modified by the user from BeanScape® Screening software"</p>

**TECHNICAL SPECIFICATIONS**

**AVAILABLE DATA ACQUISITION MODE**

Main Data Acquisition Mode	Human Body Temperature Monitoring (HBTM) - forehead temperature monitoring with associated 3 thresholds of Alarms ( Alert/Action/Alarm) Emissivity is setted to 0.97(Human Body Skin) and can not be changed
Auxiliary Data Acquisition Mode	Low Duty Cycle Data Acquisition (LDCDA) Mode: 1s to 24 hour Emissivity is user-configurable 0.15 to 1

**ENVIRONMENTAL AND MECHANICAL**

Casing	<ul style="list-style-type: none"> <li>• Polycarbonate, Waterproof IP67 – Fire Protection : ULV94</li> <li>• Casing dimensions (LxHx) : 119 mm x 35 mm x 35 mm</li> <li>• Weight (battery included): 120g</li> </ul>
Articular and Modular Sensor Arm	Material: Plastic ABS Length 18 cm , can be cleaned with Isopropyl solution
Operating Temperature	-20°C to +55°C
Norms	FCC & CE compliant ROHS - Directive 2002/95/EC

**CALIBRATION**

Calibration Settings	The sensor is calibrated with a Black Body Calibrator with a precision of $\pm 0.05^{\circ}\text{C}$ on object tempertaure range 20°C 50°C. DakKS connected calibration settings.
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**POWER SUPPLY DESCRIPTION - BATTERY POWER VERSION**

Current consumption @3.3 Volts	<ul style="list-style-type: none"> <li>· During data acquisition : 20 to 30 mA</li> <li>· During Radio transmission : 60 mA</li> <li>· During sleeping : &lt; 10 <math>\mu\text{A}</math></li> </ul>
Included primary cell	Lithium-thionyl chloride primary cell with 2200 mAh capacity @3.6VDC (standard AA size) . It can be purchased

**POWER SUPPLY DESCRIPTION - MAINS POWER VERSION**

DC Power input	12 VDC
External Power Supply	Wall plug-in, Switchmode power Supply 12V @ 1,25A with sealed M8 Plug (IP67/Nema 6) <a href="#">Ref: M8-PWR-12V</a>



BeanDevice® 2.4GHz ONE-TIR-MED

TECHNICAL SPECIFICATIONS

BATTERY LIFE ( ROOM TEMPERATURE 25°C )

Every 10 seconds for fast body temperature screening	3 weeks
Every 5 minutes for long-term body temperature monitoring	12 months
Every 10 minutes for long-term body temperature monitoring	29 months

OPTIONS

Sensor Arm extension	Extension up to 1 meter, ref: <a href="#">BND-2.4GHZ-ONE-TIR-MED-SA-1M</a>
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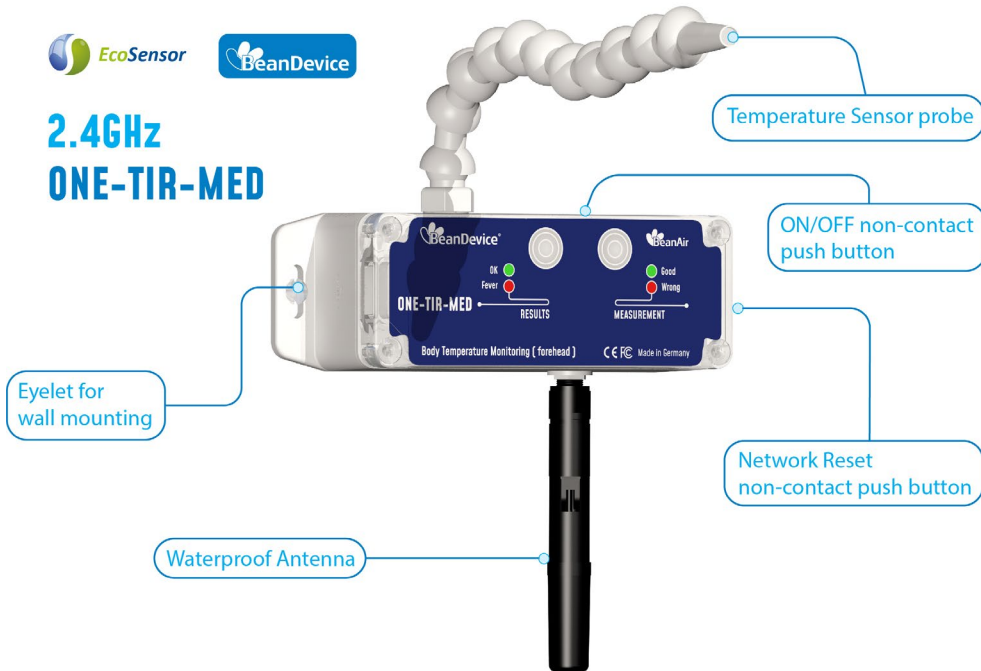
GETTING STARTED WITH A WIRELESS IIOT SENSORS

The [BeanDevice® 2.4GHz ONE-TIR-MED](#) 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.

The diagram illustrates the required components for a wireless IIOT sensor system. It features the **BeanDevice 2.4GHz One-Tir-MED** sensor, which can be connected to either the **BeanGateway Indoor Version** or the **BeanGateway Outdoor Version**. The system also requires the **OPC FOUNDATION OPC SERVER** and the **BeanScope** software for monitoring. The BeanAir logo and tagline "Rethinking Sensing Technology" are also present.

# BeanDevice® 2.4GHz ONE-TIR-MED

## BEANDEVICE® ONE-TIR OVERVIEW



## 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



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

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