

### WIRELESS DATA LOGGER WITH ANALOG INPUTS $\pm 20$ MV

#### //APPLICATIONS



#### FEATURED VIDEO



BeanDevice® AN-mV Main presentation Video



BeanDevice® AN-mV Configuration Video



BeanDevice® AN-mV Wireless Range Video

#### USER MANUAL



[BeanDevice® ProcessSensor user manual](#)

#### // MAIN FEATURES



Analog inputs  $\pm 20$  mV



Integrated rechargeable Lithium-Ion battery



Wireless transmission IEEE 802.15.4 with antenna diversity



Embedded data logger up to 1 million data points



Integrated sensor power supply, software configurable 4.5V to 20V

### //EMBEDDED DATA LOGGER UP TO 1 MILLION DATA POINTS

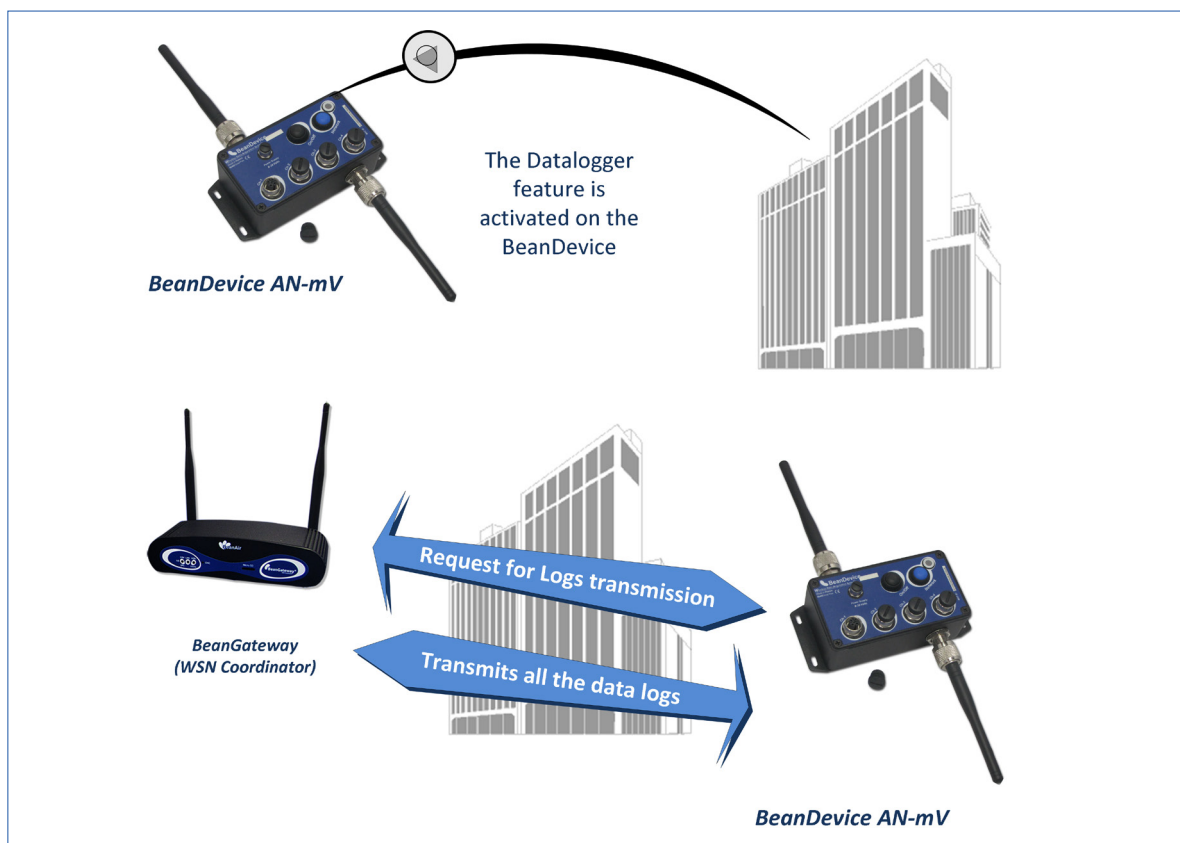
The **BeanDevice® AN-mV** integrates an embedded data logger, which can be used to log data when a Wireless Sensor Networks can not be easily deployed on your site. All the data acquisitions are stored on the embedded flash and then transmitted to the **BeanGateway®** whenever a Wireless Sensor Network is established.

The Datalogger function is compatible with all the data acquisition mode available on your **BeanDevice® AN-mV** :

- LowDutyCycle Data Acquisition
- Alarm
- Streaming & Streaming packet

#### EXAMPLE : DATA ACQUISITION SYSTEM FOR TECHNICAL BUILDING MANAGEMENT

- The **BeanDevice® AN-mV** is configured with its Datalogger feature. A standalone installation of the **BeanDevice® AN-mV** will be done (mounted on the walls), without the necessity for any connection to the **BeanGateway®**.
- Once the sensors are connected, each data is recorded on the embedded flash.
- When needed a technician working on the site can send a request for a log transmission. Then the **BeanDevice® AN-mV** starts sending all its logs. If all the logs are successfully transmitted to the **BeanGateway®**, the flash memory is erased and new logs will be recorded.



For further informations about the Datalogger, please read the following technical note :  
[TN\\_RF\\_007 – “BeanDevice® DataLogger User Guide”](#)

### // REMOTE CONFIGURATION & MONITORING

#### BeanScape® Basic

The **BeanScape®** application allows the user to view all the data measurements transmitted by the **BeanDevice® AN-mV**. With the OTAC (Over-the-Air configuration) feature, the user can remotely configure the **BeanDevice® AN-mV**.

SEVERAL DATA ACQUISITION MODES ARE AVAILABLE ON THE BEANDEVICE® AN-MV :

- **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.
- **Alarm Mode** : the measured value is transmitted by radio whenever an alarm threshold (fixed by the user) is detected (4 alarms threshold levels High/Low).
- **Survey Mode** : operates like the Alarm mode but the device sends frequently a beacon frame informing its current status.
- **Streaming Packet Mode** : All measured values are transmitted by packet within a continuous flow at 400 samples per second maximum.
- **Streaming Mode** : all measured values are transmitted in real-time within a continuous flow at 100 samples per second maximum.

#### BeanScape® Premium+ Add-on

The **BeanScape® 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 informations about the data acquisition modes, please read the following technical note : [TN\\_RF\\_008 – “Data acquisition modes available on the BeanDevice®”](#)

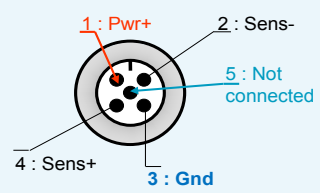
//CONFIGURABLE SENSOR POWER SUPPLY



The sensor is directly powered by a high accuracy and adjustable DC/DC converter integrated inside the device. The excitation voltage is remotely configurable through the [BeanScape®](#) (4.5 to 20V).

Product reference	
<b>BND-AN-MV-<i>N</i> CH</b>	
<i>N</i> - Number of data acquisition channels : <ul style="list-style-type: none"> <li>- <b>2</b> : 2 Channels</li> <li>- <b>4</b> : 4 Channels</li> </ul>	<u>Example :</u> BND-AN-MV-2CH BeanDevice® AN-mV with two channels

Analog data acquisition block specifications	
Signal Conditionning	Analog low voltage mV <b>with voltage-compensated measurement</b>
Number of analog inputs	2 or 4 Channels
A/D Converter	16 bits - SAR Architecture (Successive Approximation Register) with temperature compensation
Measurement range	±20 mV (bipolar) or 0-40 mV (unipolar)
Non-linearity error	± 0.5 LSB
Measurement accuracy	< 0,2% when the BeanDevice® is connected to an external power supply < 0,4% when the BeanDevice® operates on battery
Sensor Connector	M12-5Pins coming with an IP rating IP67

Sensor wiring code (M12 Socket)	
<b>Caption</b> <b>Pwr+</b> : sensor power supply (4.5 to 20 Volts) <b>Gnd</b> : electrical ground <b>Sens+</b> : sensor signal + input <b>Sens-</b> : Not used	

Sensor Power Supply specifications	
Excitation voltage range	4.5 Volts to 20Volts , configurable from the BeanScape® software
Excitation voltage accuracy on full scale range(@25°C)	±0.1%
Maximum Output Power (@25°C)	2 Watts



	Over-the-air configuration (OTAC) parameters
Data Acquisition mode	Low Duty Cycle Data Acquisition (LDCDA) Mode: 1s to 24 hour Alarm & Survey mode: 1s to 24 hour Streaming Packet Mode: 400 SPS maximum Streaming Mode: 100 SPS maximum
Sampling Rate (SPS = samples per second)	Minimum: 1 SPS Maximum: 400 SPS maximum on each channel
Alarm Threshold	2 high levels alarms & 2 low levels alarms
Sensor power supply	4.5 to 20 Volts
Analog Input polarity	Bipolar or Unipolar
Power Mode	Sleeping, Sleeping with Network Listening & Active
TX Power	-7 dBm / -1 dBm / +5 dBm / +11 dBm / +15 dBm / +18 dBm

	RF Specifications
Wireless Protocol Stack	IEEE 802.15.4 (2006 version)
WSN Topology	Point-to-Point / Star
Data rate	250 Kbits/s
RF Characteristics	ISM 2.4GHz – 16 Channels.
TX Power	+0 dBm to +18 dBm
Receiver Sensitivity	-95,5 dBm to -104 dBm
Maximum Radio Range	1 Km (L.O.S)
Antenna diversity	2 omnidirectional N-Type antenna , gain of 2.2 dBi , IP67

	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
Enclosure	Aluminium, Watertight IP65 – Fire Protection : ULV94/Getex Enclosure dimensions (w/o antenna ) L x l x h : 146.05mm x 65.5mm x 33.5mm
Shocks resistance	10g during 50 ms
Operating Temperature	-20 °C to +65 °C
Norms	CE Labelling Directive R&TTE (Radio) ETSI EN 300 328 ROHS - Directive 2002/95/EC



	Power supply
Integrated battery charger	Integrated Lithium-ion battery charger with high precision battery monitoring : <ul style="list-style-type: none"> <li>· Overvoltage Protection, Overcurrent/Short-Circuit Protection, Undervoltage Protection</li> <li>· Battery Temperature monitoring</li> <li>· Current accumulation measurement</li> </ul>
Current consumption @ 3,3V	<ul style="list-style-type: none"> <li>· During data acquisition : 70mA to 130mA (depends on external sensor power supply)</li> <li>· During Radio transmission : 60 mA @ 0dBm</li> <li>· During sleeping: &lt; 30 µA</li> </ul>
External power supply	External power supply : +8v to +28v
Rechargeable battery	Lithium-Ion high density rechargeable battery capacity of 950 mAh

	Option(s)
Power-supply bloc	Wall plug-in, Switchmode power Supply 12V @ 1,25A with sealed M8 Plug (IP67)
Calibration certificate	Calibration certificate linked to national and international standards (COFRAC)

### //GETTING STARTING WITH A WIRELESS SENSOR NETWORK

DESCRIPTION	STARTERKIT REFERENCE
<b>Starterkit Wireless System acquisition BeanDevice AN-mV</b> 1 x <u>BeanGateway Ethernet (Indoor version), Ref. : BGTW-ETH-IND</u> 1 x <u>BeanDevice AN-MV, Ref. : BND-AN-MV-4CH-IEEE</u> 1 x <u>Beanscape Basic, Ref. : BNSC_BASIC</u>	SK_BND_ANMV_4CH_IND
<b>Starterkit Wireless System acquisition BeanDevice AN-mV</b> 1 x <u>BeanGateway Ethernet (Outdoor version), Ref. : BGTW-ETH-OUT</u> 1 x <u>BeanDevice AN-MV, Ref. : BND-AN-MV-4CH-IEEE</u> 1 x <u>Beanscape Basic, Ref. : BNSC_BASIC</u>	SK_BND_ANMV_4CH_OUT

The **BeanDevice® AN-mV** operates only on our Wireless Sensor Networks, you will need the **BeanGateway®** and the **BeanScape®** for starting a wireless sensor networks.



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




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