WIRELESS DATA LOGGER WITH ANALOG INPUTS (±5V OR ±10V)

FEATURED VIDEO
- BeanDevice® AN-V Main presentation Video
- BeanDevice® AN-V Configuration Video
- BeanDevice® AN-V Wireless Range Video

USER MANUAL
- BeanDevice® ProcessSensor user manual

SELECTION GUIDE
- BeanDevice® ProcessSensor selection guide

MECHANICAL DRAWING
- BeanDevice® AN-V drawing

MAIN FEATURES
- Analog inputs ±5V or ±10V (4 channels)
- 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

APPLICATIONS

BeanDevice® AN-V Main presentation Video
BeanDevice® AN-V Configuration Video
BeanDevice® AN-V Wireless Range Video
BeanDevice® ProcessSensor user manual
BeanDevice® ProcessSensor selection guide
BeanDevice® AN-V drawing

made in Germany

550g
6.5 cm
14.6 cm
3.35 cm
The BeanDevice® AN-V integrates an embedded data logger, which can be used to log data when a Wireless Sensor Networks cannot 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-V:

- LowDutyCycle Data Acquisition
- Alarm
- Streaming & Streaming packet

EXAMPLE : DATA ACQUISITION SYSTEM FOR TECHNICAL BUILDING MANAGEMENT

- The BeanDevice® AN-V is configured with its Datalogger feature. A standalone installation of the BeanDevice® AN-V 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-V 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 information about the Datalogger, please read the following technical note:

TN_RF_007 – “BeanDevice® DataLogger User Guide”
BeanScape® Basic

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

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

- **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 information about the different data acquisition modes:
TN_RF_008 – “Data acquisition modes available on the BeanDevice®”
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**

**BND-ANV-NCH-MR**

- **N** - Number of data acquisition channels: 4 : 4 channels
- **MR** - Measurement Range
  - 5 : 5V measurement range
  - 10 : ±10V measurement range

**Example:** BND-ANV-4CH-5, BeanDevice® AN-V with 4 channels, measurement range: ±5V

**Analog data acquisition block specifications**

- **Signal Conditioning**: Analog low voltage measurement
- **Number of channels**: 4 Channels
- **A/D Converter**: 16 bits - SAR Architecture (Successive Approximation Register) with temperature compensation
- **Measurement range (analog polarity is configurable from the BeanScape®)**
  - BND-ANV-NCH-5 - IEEE-BT: ±5V (bipolar) or 0-10 V (unipolar)
  - BND-ANV-NCH-10 - IEEE-BT: ±10V (bipolar) or 0-20 V (unipolar)
- **Non-linearity error**: ± 0.5 LSB
- **Measurement accuracy (@25°C)**
  - < 0,1% when plugged on external power supply
  - < 0,08% when operating on battery power
- **Sensor Connector**: M12-5Pins coming with an IP rating IP67 | Nema 6

**Sensor wiring code (M12 Socket)**

- **Pwr+**: sensor power supply (4.5 to 20 Volts)
- **Gnd**: electrical ground
- **Sens+**: sensor signal + input
- **Sens-**: 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

<table>
<thead>
<tr>
<th>Wireless Protocol Stack</th>
<th>IEEE 802.15.4 (2006 version)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WSN Topology</td>
<td>Point-to-Point / Star</td>
</tr>
<tr>
<td>Data Rate</td>
<td>250 Kbits/s</td>
</tr>
<tr>
<td>RF Characteristics</td>
<td>ISM 2.4GHz - 16 Channels</td>
</tr>
<tr>
<td>TX Power</td>
<td>+0 dBm to +18 dBm</td>
</tr>
<tr>
<td>Receiver Sensitivity</td>
<td>-95.5 dBm to -104 dBm</td>
</tr>
<tr>
<td>Maximum Radio Range</td>
<td>1 Km (L.O.S)</td>
</tr>
<tr>
<td>Antenna diversity</td>
<td>2 omnidirectional N-Type antenna, gain of 2.2 dBi, IP67</td>
</tr>
</tbody>
</table>

### 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 (without antenna) L x W x H : 146.05 mm x 65.5mm x 33.5 mm |
| Shock Resistance | 10g during 50ms |
| 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

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated battery charger</td>
<td>Integrated Lithium-ion battery charger with high precision battery monitoring:&lt;br&gt;· Overvoltage Protection, Overcurrent/Short-Circuit Protection, Undervoltage Protection&lt;br&gt;· Battery Temperature monitoring&lt;br&gt;· Current accumulation measurement</td>
</tr>
<tr>
<td>Current consumption @ 3.3V</td>
<td>· During data acquisition: 70mA to 130mA (depends on external sensor power supply)&lt;br&gt;· During Radio transmission: 60 mA @ 0dBm&lt;br&gt;· During sleeping: &lt; 30 µA</td>
</tr>
<tr>
<td>External power supply</td>
<td>External power supply: +8v to +28v</td>
</tr>
<tr>
<td>Rechargeable battery</td>
<td>Lithium-Ion high density rechargeable battery capacity of 950 mAh</td>
</tr>
</tbody>
</table>

## Option(s)

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power-supply bloc</td>
<td>Wall plug-in, Switchmode power Supply 12V @ 1,25A with sealed M8 Plug (IP67</td>
</tr>
<tr>
<td>Calibration Certificate</td>
<td>Calibration certificate linked to national and international standards (COFRAC)</td>
</tr>
</tbody>
</table>
### GETTING STARTING WITH A WIRELESS SENSOR NETWORK

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>STARTERKIT REFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Starterkit Wireless System acquisition BeanDevice AN-mV</td>
<td>SK_BND_ANV_4CH_IND</td>
</tr>
<tr>
<td>1 x BeanGateway Ethernet <em>(Indoor version)</em>, Ref. : BGTW-ETH-IND</td>
<td></td>
</tr>
<tr>
<td>1 x BeanDevice AN-V, Ref. : BND-AN-MV-4CH-IEEE</td>
<td></td>
</tr>
<tr>
<td>1 x Beanscape Basic, Ref. : BNSC_BASIC</td>
<td></td>
</tr>
<tr>
<td>Starterkit Wireless System acquisition BeanDevice AN-mV</td>
<td>SK_BND_ANV_4CH_OUT</td>
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The BeanDevice® AN-V 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.