


SELF-POWERED WIRELESS ANALOG DATA ACQUISITION SYSTEM WITH 4-20mA CURRENT LOOP INPUTS



//APPLICATIONS


FEATURED VIDEO

-  [BeanDevice® AN-420 XTender Main presentation Video](#)

USER MANUAL

-  [BeanDevice® ProcessSensor user manual](#)


SELECTION GUIDE


-  [BeanDevice® ProcessSensor Selection Guide](#)


MECHANICAL DRAWING


-  [BeanDevice® AN-420 XTender drawing](#)


// MAIN FEATURES


- 

Wireless data logger with 4-20mA current loop inputs (4 channels)
- 

Integrated Lithium-thionyl chloride primary cell 6,5Ah
- 

Wireless transmission IEEE 802.15.4 with antenna diversity
- 

Embedded data logger up to 1million data points
- 

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

Extended operating temperature range : -40°C to +85°C

//EMBEDDED DATA LOGGER UP TO 1 MILLION DATA POINTS

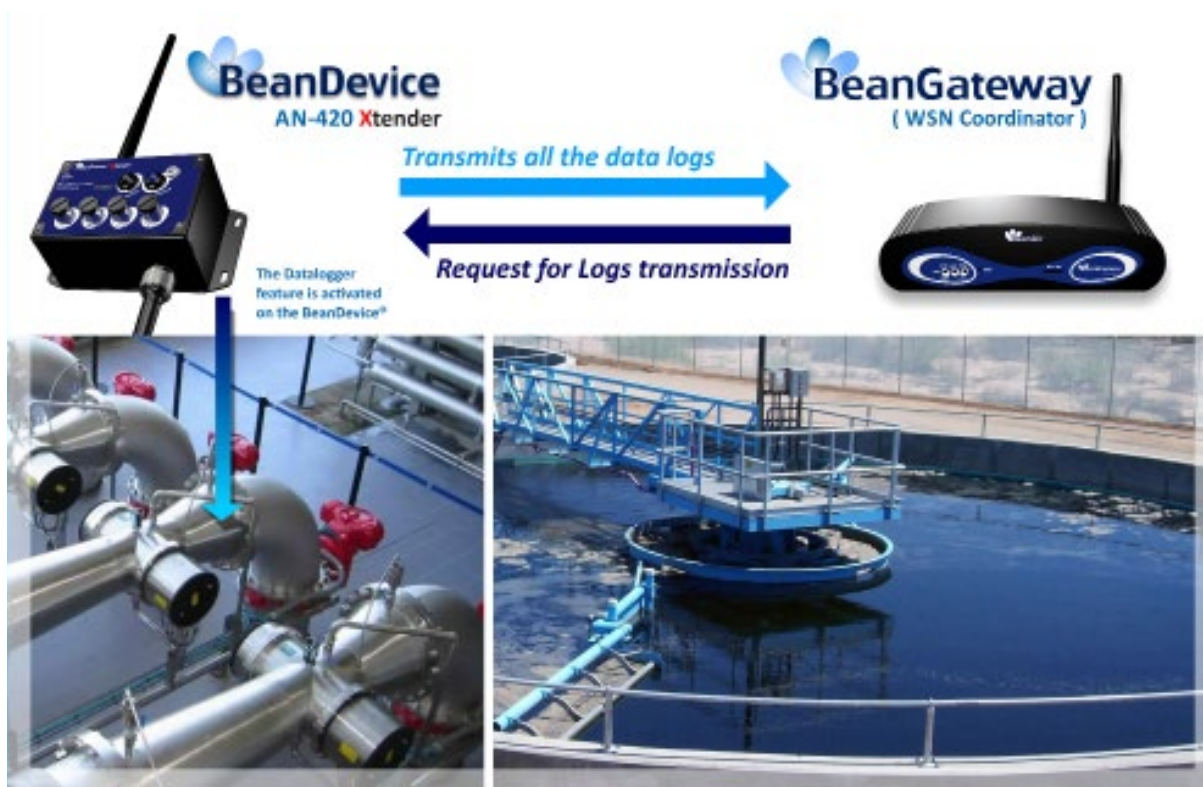
The **BeanDevice® AN-420 Xtender** integrates an embedded data logger, which can be used to log data when a Wireless Sensor Networks can not be easily deployed on your site. All the data acquisitions are stored on the embedded flash and then transmitted to the **BeanGateway®** whenever a Wireless Sensor Network is established.

The Datalogger function is compatible with all the data acquisition mode available on your **BeanDevice® AN-420 Xtender** :

- LowDutyCycle Data Acquisition
- Alarm
- Survey

EXAMPLE : DATA ACQUISITION SYSTEM ON WATER TREATMENT PLANT

- The http://beanair.com/wa_files/TN-RF-007-BeanDevice-wireless-sensor-DataLogger-User-Guide.pdf is configured with its Datalogger feature. A standalone installation of the **BeanDevice® AN-420 Xtender** 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-420 Xtender** 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-420 Xtender**.

With the OTAC (Over-the-Air configuration) feature, the user can remotely configure the **BeanDevice® AN-420 Xtender**.

SEVERAL DATA ACQUISITION MODES ARE AVAILABLE ON THE BEANDEVICE® AN-420 XTENDER :

- **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® 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).

//EASY BATTERY MAINTENANCE

Fully designed for an easy battery maintenance, **BeanDevice® AN-420 Xtender** integrates a battery holder which is sealed to IP67, extending the applications into harsher external environments where dust or water would inhibit equipment operation.


STEP 1

STEP 2

STEP 3


Product Reference	
BND-AN420-XTD-NCH	
N - Number of data acquisition channels:	Example: BND-AN420-4CH
4 : 4 channels	BeanDevice® AN-420 with four channels

Analog data acquisition block specifications	
Signal Conditioning	Analog current loop measurement
Number of channels	4 Channels
A/D Converter	16 bits - SAR Architecture (Successive Approximation Register) with temperature compensation
Measurement range	4-20 mA Current Loop measurement
Non-linearity error	± 0.5 LSB
Measurement accuracy(@25°C)	< 0,08% when operating on battery power
Sensor Connector	M12-5Pins coming with an IP rating IP67 Nema 6

Sensor wiring code (M12 Socket)	
Caption 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	<ul style="list-style-type: none"> Low Duty Cycle Data Acquisition (LDCDA) Mode: 1s to 24 hour Survey mode: 1s to 24 hour
Alarm Threshold	2 high levels alarms & 2 low levels alarms
Sensor power supply	4.5 to 20 Volts
Power Mode	Sleeping with Network Listening & Active
TX Power	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	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 Nema 6

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	Aluminum, Watertight IP65 – Fire Protection : ULV94/Getex Enclosure dimensions (without antenna) L x W x H : 149.1 mm x 77mm x 60.5 mm Weight : 690 g
Shock Resistance	10g during 50ms
Operating Temperature	-40 °C to +85 °C
Norms	CE Labelling Directive R&TTE (Radio) ETSI EN 300 328 ROHS - Directive 2002/95/EC

Power Supply

Current consumption @ 3,3V	<ul style="list-style-type: none"> · During data acquisition : 70mA to 130mA (depends on external sensor power supply) · During Radio transmission : 60 mA @ 0dBm · During sleeping: < 30 µA
Primary cell protection	High precision primary cell monitoring : <ul style="list-style-type: none"> · Overvoltage Protection, · Primary cell Temperature monitoring · Current accumulation measurement
Primary cell	Lithium-thionyl chloride 6,5Ah

//GETTING STARTING WITH A WIRELESS SENSOR NETWORK

DESCRIPTION	STARTERKIT REFERENCE
Starterkit Wireless System acquisition BeanDevice AN-420 Xtender 1 x BeanGateway Ethernet (Indoor version), Ref. : BGTW-ETH-IND 1 x BeanDevice AN-420 Xtender, Ref. : BND-AN-420-4CH-XTD 1 x Beanscape Basic, Ref. : BNSC_BASIC	SK_BND_AN420_XTD_4CH_IND
Starterkit Wireless System acquisition BeanDevice AN-420 Xtender 1 x BeanGateway Ethernet (Outdoor version), Ref. : BGTW-ETH-OUT 1 x BeanDevice AN-420 Xtender, Ref. : BND-AN-420-4CH-XTD 1 x Beanscape Basic, Ref. : BNSC_BASIC	SK_BND_AN420_XTD_4CH_OUT

The BeanDevice® AN-420 Xtender operates only on our Wireless Sensor Networks, you will need the BeanGateway® and the Beanscape® for starting a wireless sensor networks.

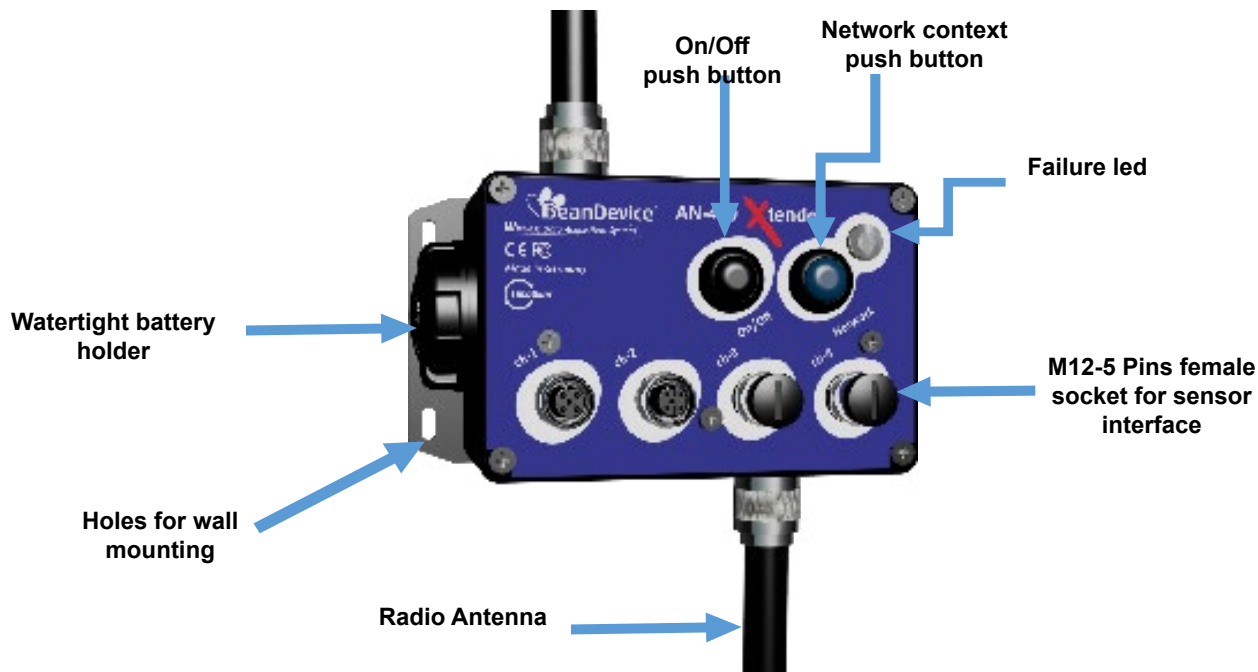


OR



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

//PRODUCT OVERVIEW



//ACCESSORIES



Power Supply | Ref: M8-PWR-12V

- . Power Supply bloc 12V with M8-3Pins plug
- . Watertight - IP67



Molded Cable with M8 plug | Ref: CBL-M8-2M (cable length: 2meters)

CBL-M8-5M (cable length : 5 meters)

CBL-M8-10M (cable length : 10 meters)

- . 3pole - Male, PVC with shield protection
- . Waterproof - IP67



Omnidirectional antenna 5dBi for outdoor use | Ref: HG_OMNI_5_OUT_DBI

- . Waterproof design
- . Outdoor use
- . Professional N-type design reduces stress
- . N-type, Male, Reverse Polarity,
- . VSWR < 2.0 / Length=95mm
- . Wind survival: up to 180Mph / Watertight IP65



N-Type cable (Male/Male) | Ref: CBL_ANT_XXM

. length: 1 meter / 2 meters / 5 meters
. Cable type: RF-5/H155



M12-5 Pins plug for sensor interface | Ref: M12-PL-SENSOR
watertight IP67 - Material: Plastic ABS

M12-5 Pins plug for sensor interface | Ref: M12-AL-SENSOR
watertight IP67 - Material: Aluminum case



Lithium-thionyl chloride primary cell (Li-SOCl₂) 6,5 Ah |
Ref: PP6.5DMG

//CONTACT US

FOR MORE INFORMATION :

sales@beanair.com

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Visit our blog : **www.industrial-wsn.com**

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