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Newsteo CUB
Product Specification

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Revisions

Revision	Issue Date	Author	Comments
1.0	July 22th, 2019	AC	
2.0	February 4th, 2020		
2.1	January 19th, 2021		Addition of industrial CUB references
2.2	October 29th, 2021		§ Network connection: physical access to the CUB gateway and WiFi network power

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Abbreviations

TBC: To Be Confirmed

1 Introduction

Object:

Define the products specifications in term of technical characteristics, physical dimensions, aperture, accessories and casing.

Products:

The Newsteo CUB is a 868 MHz Radio – Ethernet & WiFi gateway. It allows remote networked collection, through Ethernet (IP) of data coming from several Newsteo Data Loggers, and storage on a remote secured server.

References:

- PFPN-CUB 12-001 : High Performance Ethernet Gateway, for Indoor use

This reference is no longer available.

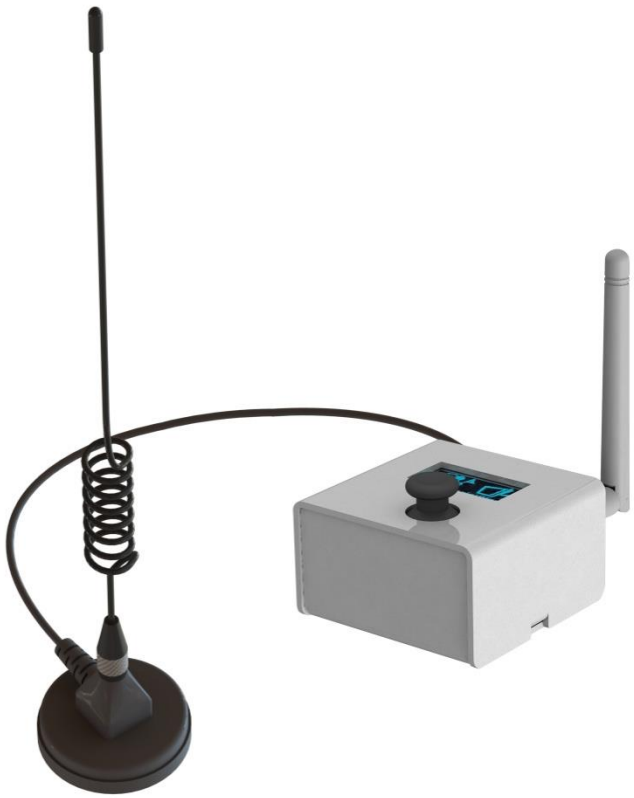

Figure 1: PFPN-CUB12-001

- PFPN-CUB 22-001 : High Performance Ethernet Gateway, for Indoor use, large screen

2 Summary of the data collection infrastructure

2.1 Measurements collection

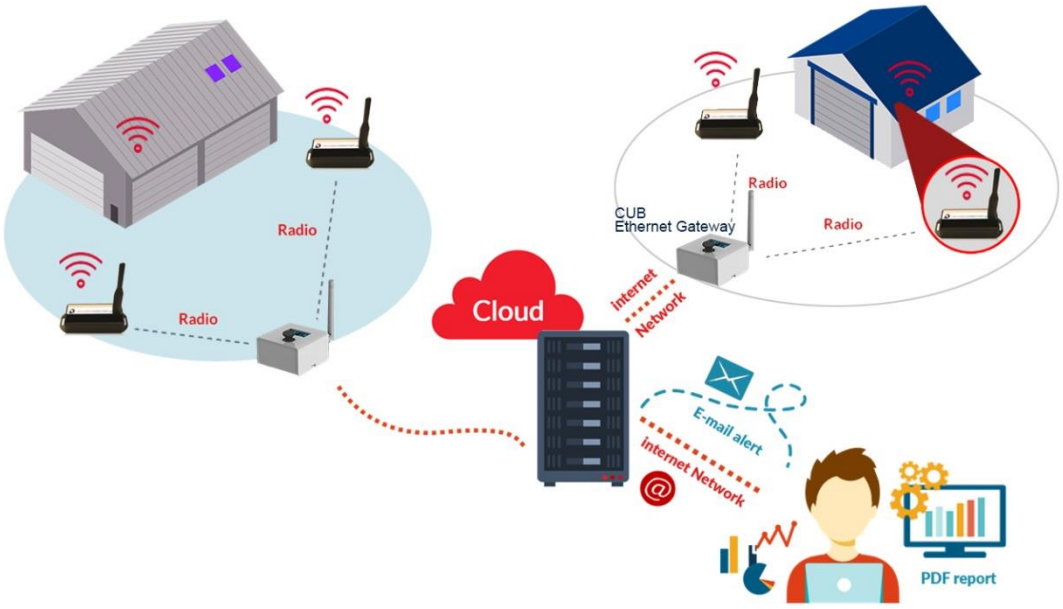

Figure 2: Functioning

- The Wireless Data Logger equipped with a sensor takes the measure and transmits it by radio to the Newsteo CUB,
- The Newsteo CUB (or gateway) transmits the measurements through Ethernet (IP) or Wi-Fi to a central database,
- A real-time alert can be sent anywhere to the supervisor,
- The supervisor
    a. can access at any time to the measures, via Internet
    b. can modify any data logger's setting though the internet

2.2 Database hosting

The CUB sends the measurements to a database hosted on the Web, on the Newsteo server.

2.3 Displaying of the measures from the database

The data are displayed on www.newsteo-webmonitor.com.
Newsteo Webmonitor is delivered as a cloud based solution based on a SaaS licensing mode.

3 Product characteristics

3.1 Hardware Key Features

	PFPN-CUB12-00x	PFPN-CUB22-00x
Application	Indoor Ethernet & WiFi Gateway	
Transmission mode	Ethernet IPv4 – 10/100Mbps WiFi IEEE 802.11 b/g/n	
CPU cores	2	
CPU architecture	32 bits	
CPU frequency	240MHz to 1.2 GHz	
RAM	512Mo DDR3	
Non-volatile memory	SD Card 8Go for the Operating System Additional SPI 16Mbits for data loggers data buffering (equivalent to 128000 time stamped measurements lines)	
Antenna connectors	- 1 SMA for ISM antenna - 1 SMA reverse for WiFi antenna **(not to be disassembled)**	
Power consumption	Average 5V 300mA , UPS (Uninterruptible Power Supply) on board 1A during first power-up (1 to 2 minutes)	
Power supply	**AC adapter included 2A** (USB 3.1 C Format for Power supply) (5V DC input)	
RTC	No internal RTC	Embedded RTC

3.2 Connection to the Network

Regardless of the type of connection chosen, it is important to keep the possibility of physically accessing the CUB gateway if necessary.

3.2.1 Physical connection

2 ways to connect the IP Network:

- Connection through Ethernet cable (connect the CUB to the modem with a RJ45 cable)
- Connection through WiFi (connect the CUB by WiFi to the modem), WPS pairing available. To ensure the reliability of the solution, the WiFi connection must be always efficient. If the WiFi speed is too low, this can lead to unwanted restarts of the CUB gateway, or even cause a freeze requiring a manual restart of the gateway.

Other connection:

- Connection 3G 4G: You can also transmit the measurements to the Newsteo server through the cellular network (3G 4G). You have to connect an external 3G or 4G modem to the CUB, either on the USB port of the CUB (3G 4G modem) or on the Ethernet port of the CUB or even through Wifi. The modem must have a SIM card to connect to the network. Newsteo can provide you with a 3G 4G USB modem and the associated SIM card, compatible with the CUB. For more details, see *§5 3G / 4G modem.*

3.2.2 Modbus over IP

The CUB can be set to use Modbus TCP/IP communication protocol, on the Ethernet network. It implies a specific development on client's side to integrate the protocol. The specification of the protocol is available on request.

3.3 Other features

Figure 3: CUB12 Rear panel

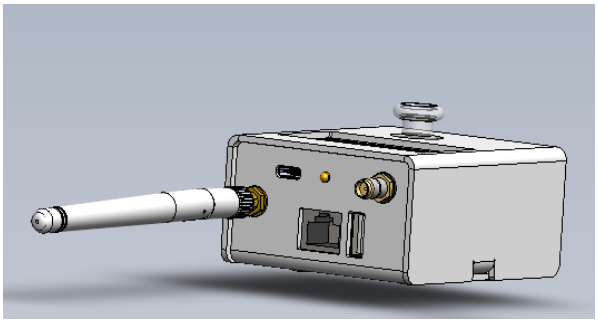

Figure 4: CUB22 Rear panel

	PFPN-CUB12-00x	PFPN-CUB22-00x
Casing	Painted aluminium	
IP level	IP30 non condensing	
Operating temperature	+10°C...+40°C (for other operating temperature, consult us)	
Display	Oled white 128x64 pixels Active Area: 35 × 17.5 mm for status & settings	Oled white 128x64 pixels Active Area: 55 × 27.5 mm for status & settings
Button	5 positions (4 directions & click) for navigation	
Connectors	- RJ-45 for Ethernet (cable 10/100 Base-T needed) - USB 3.1 C Format for Power supply & power status led (green/red) - SMA for radio antenna - WiFi antenna (not to be dissembled) - USB A	
Dimensions (without antennas)	Length: 68 mm Width: 68 mm Height: 41 mm To have more details on the casing size, please refer to the Annex 1.	Length: 82 mm Width: 71.5 mm Height: 41 mm
Weight	With accessories: about 400g Without accessories: about 200g	

3.4 Supplied accessories

- 1 x External power supply (AC/DC adapter), with USB Type C connector, 1-meter length
- 1 x Ethernet cable, RJ45 connectors, 2 meters length
- 1 x black Radio Antenna, fullwave antenna
- 1 x white WiFi antenna (not to be disassembled)

3.5 Certifications

Products certified for radio use in Europe, on the frequency of 868 MHz (ISM/SRD band). For use in another area, check with local authorities.

4 Hosting server functioning

The Newsteo Gateway communicates with the remote Newsteo Webserver in 'point-to-point' mode, which limits the risk on the network itself. Newsteo has implemented the SSL protocol (port 443) to secure the data between the gateway and the server.

5 3G / 4G modem

Newsteo can provide USB 3G /4G modems, with the corresponding SIM card and subscription.
Measures are transferred by 3G (cellular network) up to the Newsteo server.

Size of the SIM card: Standard SIM (15 x 25mm)

6 Integration into an industrial box

Ideal for outdoor or industrial installation.

The CUB22 is integrated in an industrial IP65 box:

- 220 V power supply on DIN rail, protected by a 2A end-of-line circuit breaker.
- Optional:
    - Transmission in Modbus protocol over IP
    - 3G-4G module for transmission over cellular network (also integrated into the box)

On the rear face, 2 fixing brackets can be swivelled and used to install the device.

Product references:
PFPN-CBI10-001: CUB22 Wifi Ethernet gateway with Industrial box
PFPN-CBI20-001: CUB22 IIoT Gateway with 3G / 4G Modem and Industrial box

Dimensions:

- Electrical box only: 95 (D) x 210 (W) x2 10 (H) mm (excluding cable glands, excluding antennas)
- General dimensions with cable glands and WiFi antenna: 95 (D) x 210 (W) x 350 (H) mm

The radio antenna (black) is connected by a SMA connector attached to a wire and can be positioned remotely to maximize radio range.

ANNEX 1: CUB12 DIMENSIONS