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Author:	AC

Newsteo COL11, COL22, COL51
Product Specification

Revisions

Revision	Issue Date	Author	Comments
0.1	April 19th	AC	
0.2			
0.3	December 5th, 2013	AC	Addition of the GPRS reference
1.0	February 27th, 2014	AC	Addition of the COL41
1.1	November 20th, 2014	AC	Additional information on data transmission encryption (§ *6.1 Newsteo hosting*)
1.2	December 18th, 2014	AC	Addition of the COL51
1.3	May 13th, 2015	HS	Erase COL 41 specifications Weight and dimensions of the COL products
1.4	December 3th, 2015	AC	Operating temperature
1.5	December 9th, 2016	AC	Correction on the used port for Collector setting (443 instead of 447) Modification of the antenna delivered with COL22

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1 Introduction

Object:

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

Products:

- PFPN-COL22-001: The COL22 is a Radio – Ethernet gateway. It allows remote networked collection, through Ethernet (IP) of data coming from several Newsteo loggers, and storage on a remote secured server.
- PFPN-COL11-001 : Indoor GPRS Collector, main current supply with AC/DC adapter
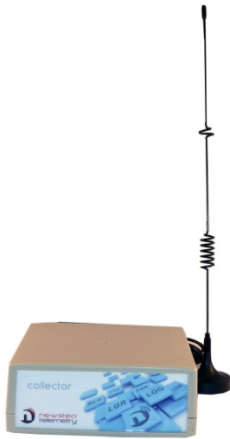- PFPN-COL51-001: Outdoor GPRS Collector, supplied by battery recharged by solar panels.

Figure 1: PFPN-COL22-001   **Figure 2: PFPN-COL11-001**   **Figure 3: PFPN-COL51-001**

2 Summary of the data collection infrastructure
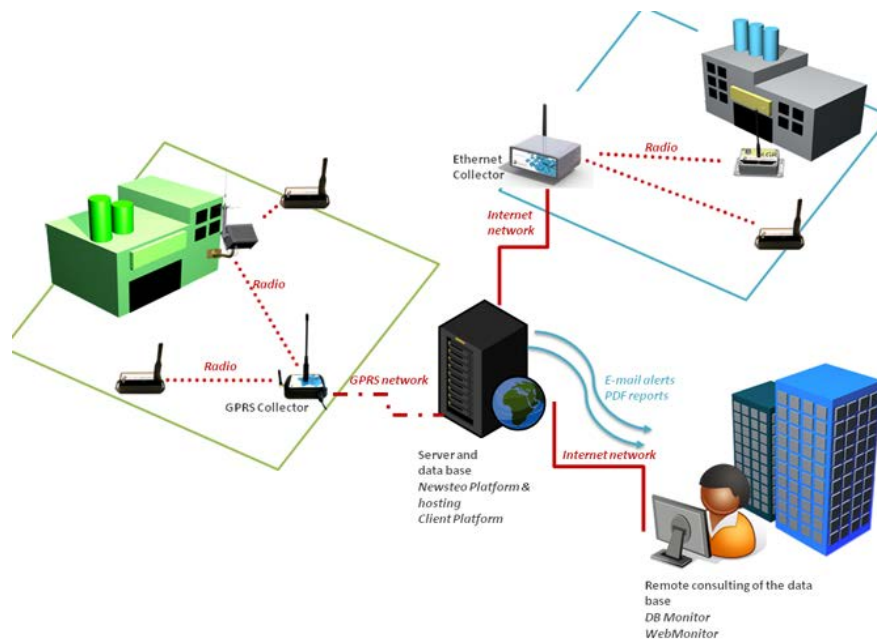
2.1 Measurements collection

Figure 4: Functioning

- The Logger equipped with a sensor takes the measure and transmits it by radio to the Collector,
    a. PFPN-COL22-001: The collector transmits the measurements through Ethernet (IP) to a central database,
    b. PFPN-COL11-001, PFPN-COL51-001: The collector transmits the measurements through GPRS to a central database,
- A real-time alert can be sent anywhere to the supervisor,
- The supervisor can access at any time to the measures, via Internet

The Newsteo Collector allows remote collection of data coming from several Newsteo loggers, and storage on a remote secured server:
- Avoids the trip of an operator on each location to collect loggers,
- Replaces the couple PC+Key or PLC+Key to collect data,
- Contains the RF Monitor GOLD license: several sites of Newsteo Loggers can be managed with several Collectors, reporting to a unique database

2.2 Displaying of the measures from the database

2 solutions are available for the measurements displaying:
- The web application WebMonitor: Thin Client solution, simply connect to the website www.newsteo-webmonitor.com
- DB Monitor software, installed on a PC

Both solutions offer the following functions
    a. The measurement display is operated from a software provided by Newsteo: DB Monitor.
    b. Several people can simultaneously access the data, regardless of the site where they are.

c. Access is secured by ID and password

2.3 Database hosting

The database is a standard MySQL format.

Each Collector is delivered with a pre-set web-hosted database valid during 1 month.

After this trial period, the database can be hosted on a Newsteo' server with a monthly fee or by the client himself with a software licence. Hosting the database requires technical capabilities in software deployment especially on network administration and setting.

See *6 Hosting server functioning*.

3 Product characteristics

3.1 Transmission between Collector and Server

	PFPN-COL22-001	PFPN-COL11-001	PFPN-COL51-001
Application	Indoor Ethernet	Indoor GPRS	Outdoor GPRS
Transmission mode	Ethernet IPv4 - 100Mbps	GPRS (2.5G)	GPRS (2.5G)
Subscription	ADSL subscription supplied by the customer	GPRS subscription + SIM card managed by the customer or supplied by Newsteo	

3.2 Transmission between Collector and Newsteo loggers

	PFPN-COL22-001	PFPN-COL11-001	PFPN-COL51-001
Transmission mode		Radio ISM 868 MHz	
ISM antenna	Full wavelength antenna included The antenna is provided with a magnetizable foot	½ wavelength antenna included (and replaceable by one with higher radio range)	High-range fullwavelength antenna
Radio range	Several hundred meters, can pass through several walls		From 1 to several kilometres

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3.3 Other features

	PFPN-COL22-001	PFPN-COL11-001	PFPN-COL51-001
Internal memory	60 000 measurements Can store the measurements in case of loss transmission with the server (ADSL cut, loss of GPRS network …)		
Power supply	**AC adapter included** AC power connector (5V-48V DC input)	**AC adapter included** AC power supplied, micro-USB connector	1 individual solar panel, with 3 Lithium Ion 12Ah reloadable batteries. Battery life @25°C : 14 days without sun (a weak luminosity is enough to reload the battery). Full load time : 24 sun hours
IP level	IP30	IP30	IP67
Operating temperature	-40°C…+50°C	-40°C…+60°C	-40°C…+85°C
Diagnostic LED	3 LED - Radio : the collector receives a transmission from a logger - Server : connection state between Collector and Server - Power : the collector is power supplied and / or treatment in progress	4 LED - Connection status - Radio : the collector receives a transmission from a logger - Power : the collector is power supplied and / or treatment in progress	6 LED - Level of the battery - Load of the battery - State of the battery - Radio transmission - Transmissions with the server - GPRS transmission
Buzzer	N.A.	Buzzer which buzzes at the power on or reboot of the GPRS collector. It gives the quality of the GPRS signal / connection.	
Connectors	- RJ-45 for Ethernet (cable 100 Base-T needed) - Jack for power supply - SMA for radio antenna *- Connector for relay output warning (not implemented yet)*	- micro-USB for power supply - SMA for radio antenna - FME for GPRS antenna	- SMA for radio antenna
GPRS antenna	N.A.	External supplied GPRS antenna	On board GPRS antenna
Force transmission	Button to force transmission	Magnet area : pass a magnet on it to force transmission	

	PFPN-COL22-001		**PFPN-COL11-001**		**PFPN-COL51-001**	
Weight	Casing	205g	Casing	187g	Total weight	1900g
	Antenna + cable antenna	61g	Antenna	35g		
			Cable	90g		
	Power supply cable + adapters	138g				
	Ethernet cable	48g				
Dimensions	Casing		Casing		Casing	
	Length	131mm	Length	134mm	Length	134mm
	Width	104mm	Width	85mm	Width	88mm
	Height	53mm	Height	68mm	Height	68mm
	Antenna	350mm	Antenna	150mm	Antenna	310mm
					Solar panel	
					Length	260mm
					Width	220mm
					Height	18mm

Figure 5: COL22 Rear panel

3.4 Supplied accessories

PFPN-COL22-001:
- 1 x External power supply (AC/DC adapter)
- 1 x Radio Antenna with SMA connector
- 1 x Ethernet cable, RJ45 connectors, 2 meters length

PFPN-COL11-001:
- 1 x External power supply (AC/5V micro-USB)
- 1 x Radio Antenna with SMA connector
- 1 x External GPRS antenna with FME connector

PFPN-COL51-001:
- 1 x Radio Antenna with SMA connector
- 1 x rotating foot for collector installation

3.5 LED functioning

3.5.1 PFPN-COL22-001
- **RADIO:** Indicator lights for the Radio reception
- **SERVER:** Indicator lights for the Ethernet communication
- **POWER:** Indicator lights for the Power supply

3.5.2 PFPN-COL11-001

	GPRS status - OFF: there is no communication - ORANGE / GREEN: transmission in progress
	Server connection - RED: unable to connect the server - ORANGE : data exchanges in progress - GREEN : connection is OK
	Radio communication with Newsteo Loggers - RED: Indicates that there has been no transmission at all - GREEN : there has been at least one transmission - ORANGE: transmission in progress
	Power supply: - GREEN: power supply OK - ORANGE: the power supply is insufficient - RED : the power supply is very insufficient - OFF : no power supply

3.5.3 PFPN-COL51-001

BATT
- RED: battery empty or not connected
- GREEN: battery present over 2.7V

CHG/D
- GREEN: recharge of the battery in progress. Charge from the solar panels is higher than COL consumption
- ORANGE: recharge is partially sufficient to cover the COL consumption
- RED: discharge of the battery in progress. Recharge from the solar panels is not sufficient to cover the COL consumption

FULL/ERR
- GREEN: Recharge of the batteries finished (Full)
- RED: charge cycle of the batteries is being disrupted by overheating, freezing or the battery is out of service

RADIO
- RED: No transmission at all
- GREEN/ORANGE: one FLASH each time the COL receives a packet from a logger (868 MHz)

DBASE
- - GREEN: Data received by the database and acknowledged
- - ORANGE : order in progress
- - RED : Error received from the server

2G
- - GREEN: Active GPRS module
- - ORANGE: flashes on GPRS data rate.

3.6 Certifications

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

4 Recommendations & minimum requirements for COL22

4.1 Setting done by Newsteo

For each order, you can download and fill the following form. Your settings will then be set in factory by Newsteo, to allow a quick installation on the field.
Download : http://support.newsteo.com/customer/en/portal/articles/2544599-fiche-de-configuration-du-collecteur-ethernet-newsteo

4.2 Ethernet network to connect to

- ▪ The Ethernet collector connects to a local area network. A LAN consists of a **router** and **switch/hub** optionally.

- ▪ The router provides the link between the local network and another (potentially the Internet) external network. There are usually:

  - • a firewall. The firewall provides a filter between the local network managed by the router and the outside world.

  - • a DHCP server. This server provides automatic configuration of an IP address.

  - • a DNS server. This server converts name to IP address

  - • possibly an ADSL modem

- ▪ Sometimes, access to the external network is performed via a "**proxy**" that applies rules and filters to limit exchange between the Local Network and the Internet.

4.3 Collector operation

- ▪ The collector is configured with the server address (IP or name of machine like www.newsteo-webmonitor.com). This is accomplished by radio using RFMonitor or www.newsteo-webmonitor.com.

- ▪ By default, the collector acquires an IP address via the DHCP protocol configuration. It is also possible to configure a static address.

- ▪ By default, the collector does not use any proxy. It is possible to set one (without authentication option).

- Port configuration:

  - If the server is outside of the local network (internet for instance), the router firewall must allow the sending of HTTP or HTTPS requests to the Internet. It is generally the case, except in some companies.

    Port 443 (SSL – secured layer) is set by default on the Collector. The internal network should be configured to allow port 443 connections. Otherwise, it is possible to modify the port used by the Collector to use the port 80 (not secured layer) to connect to the Newsteo server.

  - When the collector is connected to an internal server (server managed by the client), it is possible to set any port.

5 Recommendations on COL51 installation

The installer is fully responsible of hanging properly the device on the wall. Newsteo or any reseller will never be responsible of any damage due to the product fall, bad screwing or any injury caused by the product.

To correctly charge the battery, the solar panels have to be oriented to the south (direction of the sun at 12am).
The top panel supporting the antenna should be placed horizontally and without tilt.
Special care should be taken to potential buildings, trees or any shield in the sun direction.
We recommend using the Newsteo rotating foot to hang the product: it allows to simply orientate the solar panel.

Important remark: The COL51 is protected against lightning influence but not resistant to direct lightning bolt. Before installing the product, you need to check that your lightning conductor will protect the building and should be placed higher than the COL51 antenna.

6 Hosting server functioning

6.1 Newsteo hosting

In case of **external hosting on Newsteo platform**, on the Internet, there is nothing particular to know, Newsteo supports this part, with its subscription offer.

The Newsteo Collector 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 collector and the server.

The Newsteo Collector product runs on a private operating system and does not use Linux or any other public OS. So, apart from the limited capabilities to communicate with Newsteo remote server, the Collector does not contain any other generic network functions that would permit to enter Customer's internal network through the Collector.

6.2 Internal hosting

In case of **internal hosting**, on Customer local network, please consult:

http://support.newsteo.com/customer/en/portal/articles/1329933-data-hosting-on-client-server---installation