

LoRa® Datalogger for CO_2, PM, and pressure

The **WLRD40COPM** is a professional wireless datalogger for indoor air quality monitoring, based on WineCap™ technology with LoRa® radio communication.

It monitors CO_2 (*NDIR sensor*), fine particulate matter PM2.5 and PM10 (*MCERTS-certified laser sensors*), and atmospheric pressure.

It supports transmission distances of up to 15 km, features dual power supply (*battery or USB-C*) with automatic switching, and includes internal memory for 65 000 data records per channel. Battery life is up to 4 years.

Full cloud management via the winecap.it web platform, with threshold configuration, notifications, CSV export, and REST API access. Ideal for schools, offices, hospitals, and public facilities.

Main applications:

- Ambient air monitoring in public spaces
- Ventilation of school buildings
- Environmental safety in nursing homes
- Supervision of intelligent HVAC systems
- Public tenders and technical procurement
- Quality control according to ISS regulations

Main features:

- MCERTS-certified PM sensors
- LoRa® wireless communication
- Battery or USB-C powered
- 65 000 data records per channel
- Remote management via cloud
- Easy wall-mounted installation

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General technical specifications

Power supply	2 internal lithium "D" batteries, 19 Ah - 3.6 V (*BAT3*) Optional external power supply via USB Type-C input (*5 Vdc 1 A*)
Battery life (*)	Up to 4 years (*acquisition every 60 minutes and at least sufficient radio signal*)
Measured quantities (*4 channels*)	• CO_2 – Carbon dioxide concentration [ppm] • Atmospheric pressure [mbar] • PM2.5 – Fine particulate matter [µg/m³] • PM10 – Inhalable particulate matter [µg/m³]
Sampling interval (*)	Selectable from 1 minute to 24 hours (*default: 60 minutes*)
Datalogger capacity	65 000 measurements (*per channel*)
Operating temperature	• Operation: -10°C to +60°C • Storage: -40°C to +70°C
Radio frequency	ISM 868 MHz
Line-of-sight radio coverage (**)	Up to 15 km (*extendable using WLRE battery-powered enhancers*)
Protection rating	IP30
Dimensions (*W x H x D*)	155 × 120 × 50 mm
Weight	500 g
Enclosure material	ABS
Mounting	3-point mounting
Connections	Wireless, Mini USB 2.0
CO_2 concentration – Measurement principle	Dual-wavelength NDIR sensor with integrated auto-calibration
CO_2 concentration – Measurement range	0–5 000 ppm
CO_2 concentration – Measurement resolution	1 ppm
CO_2 concentration – Measurement accuracy	0–5 000 ppm: < ±(*50 ppm + 3% of reading*)
CO_2 concentration – Compensations	Compensated for temperature and atmospheric pressure
CO_2 concentration – Calibrations	No calibration required. No need for ambient air zeroing periods
Atmospheric pressure – Measurement range	700–1 100 mbar
Atmospheric pressure – Measurement resolution	0.1 mbar
Atmospheric pressure – Accuracy at 25°C	Typical: ±2 mbar (*20–80% RH*)
Atmospheric pressure – Temperature dependence	±0.015 mbar/K
Particulate matter PM2.5 and PM10 – Measurement principle	Laser-based scattering
Particulate matter PM2.5 and PM10 – Measurement range	0–1 000 µg/m³
PM2.5 – Measurement accuracy range 0–100 µg/m³	±5 [µg/m³ + 5 % of reading]
PM2.5 – Measurement accuracy range 100–1000 µg/m³	±10 % of reading
PM10 – Measurement accuracy range 0–100 µg/m³	±25 µg/m³
PM10 – Measurement accuracy range 100–1000 µg/m³	±25 % of reading
Particulate matter PM2.5 and PM10 – Measurement resolution	0.1 µg/m³
Particulate matter PM2.5 and PM10 – Certifications	MCERTS

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WLRD40COPM

The **WLRD40COPM** is a professional wireless datalogger for continuous monitoring of indoor air quality.

It integrates sensors for CO_2, PM2.5, PM10, and atmospheric pressure.

The PM sensors are MCERTS-certified according to DIN EN 15267, and feature forced ventilation and cyclic self-cleaning, ensuring long-term stability and minimal maintenance.

The CO_2 sensor uses dual-wavelength NDIR technology, which provides time-stable measurements with no need for recalibration.

The device communicates via LoRa® radio (*ISM 868 MHz*), with a range of up to 15 km line-of-sight.

It can be powered by lithium batteries (*up to 4 years of autonomy*) or via USB-C, with automatic switchover to ensure continuous operation.

Internal memory stores up to 65 000 measurements per channel, ensuring data logging even when the network is unavailable.

It can be fully managed remotely via the winecap.it platform, which enables access to collected data at a configurable sampling rate, alarm threshold setting, automatic notifications, data export in CSV format, and integration via REST API.

The IP30-rated enclosure is designed to optimize airflow and allow easy wall mounting.

The **WLRD40COPM** is a reliable, accurate, and scalable technical device, ideal for applications in schools, healthcare facilities, offices, residential buildings, and industrial environments.

It is particularly suited for public procurement managers, HVAC system operators, and environmental monitoring projects.

The device supports compliance with ISS recommendations on indoor air exchange and adds tangible value to environmental supervision, regulatory control, indoor wellness, and air quality initiatives.

The technical specifications of the WLRD40COPM make it suitable for inclusion in technical reports for public tenders, technical procurements, and projects compliant with GPP, CAM, and EPC contracts.

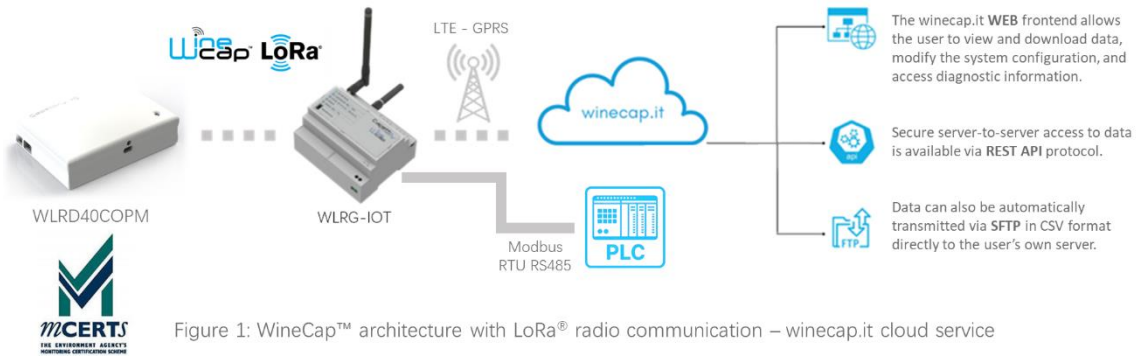


Figure 1: WineCap™ architecture with LoRa® radio communication – winecap.it cloud service

Notes:

ISS:	Istituto Superiore di Sanità – Italian National Institute of Health (Italy's leading scientific authority for public health)
HVAC:	Heating, Ventilation and Air Conditioning
GPP:	Green Public Procurement
CAM:	Minimum Environmental Criteria (mandatory for public tenders in Italy)
EPC:	Energy Performance Contract

The features shown may be subject to change without notice.

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