CL-220-WF
CL-221-WF
CL-222-WF
CL-223-WF
CL-224-WF
CL-225-WF
CL-226-WF
CL-227-WF
CL-228-WF
CL-229-WF

PM1/PM2.5/PM10/CO/CO2/NH3/H2S/HCHO/TVOC/
Temperature/Humidity/Dew Point Data Logger Module

Features

- Able to record PM1/PM2.5/PM10、CO、CO2、NH3、H2S、HCHO、TVOC、Temperature、Humidity and Dew Point
- Non-dispersive Infrared (NDIR) CO_2 Sensor
- Up to 450,000 records with date and time stamps
- Web-based Configuration Interface
- Simple and Powerful Software Utility, iOS App and Android App Included
- Supports the DCON, Modbus RTU/TCP, and MQTT Protocols
- Features RS-485/Ethernet/PoE Communication Interfaces
- Relay Output for Alarm or IAQ Device Control
- Includes redundant power inputs: PoE (IEEE 802.3af, Class 1) and DC input
- Support Infrastructure and Limit-AP Modes for Wireless Networks
- Ceiling Mounting or Wall Mounting

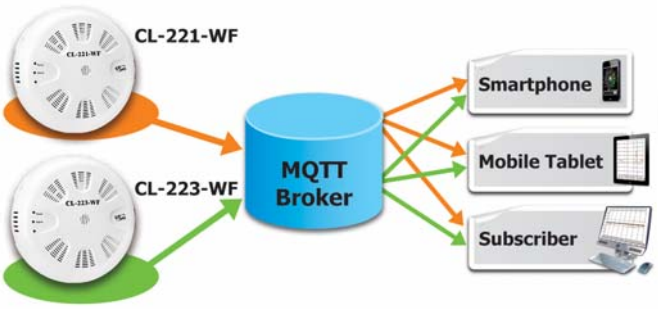
Introduction

The CL-200-WF is an IAQ (Indoor Air Quality) monitoring module that includes Wi-Fi, Ethernet and RS-485 interfaces, It provides a WLAN connection which complies with the IEEE802.11b/g/n standards. With the popularity of 802.11 network infrastructure, the modules provide an easy method of incorporating wireless connectivity into monitoring and control systems. The CL-200-WF series of Data Logger devices can be used to record PM1/PM2.5/PM10 and the number of particles (0.3μm, 0.5μm, 1μm, 2.5μm, 5μm, 10μm), CO, CO2, NH3, H2S, HCHO, TVOC, temperature, Real-time data can be accessed from the CL-200-WF Data Logger from anywhere and at any time using the free Windows software, the iOS App or the Android App, as long as they are connected to the same local network as the Data Logger.

Support is provided for popular industrial protocols such as DCON, Modbus RTU, and Modbus TCP. For Ethernet interface, it also supports the emerging machine-to-machine (M2M)/)IoT (Internet of Things) connectivity protocol – MQTT. The CL-200-WF Data Logger can be connected via widely used communication interfaces including RS-485, Ethernet, PoE and Wi-Fi, meaning that the device can be easily integrated into existing HMI or SCADA systems, and is easily maintained in a distributed control system.

➲ Supports the MQTT Protocol for IoT Applications Features (Ethernet Interface Only)

The MQTT protocol is designed for the efficient exchange of realtime data between a sensor and a mobile device. It operates via TCP/IP and is in widest use today in "machine-to-machine" (M2M) and "Internet of Things" applications.



➲ Real-time data from the CL-200-WF series can be accessed from anywhere and at any time using the WF-IIOT-Utility and iOS App.

➲ Multi-platform Remote Access Software

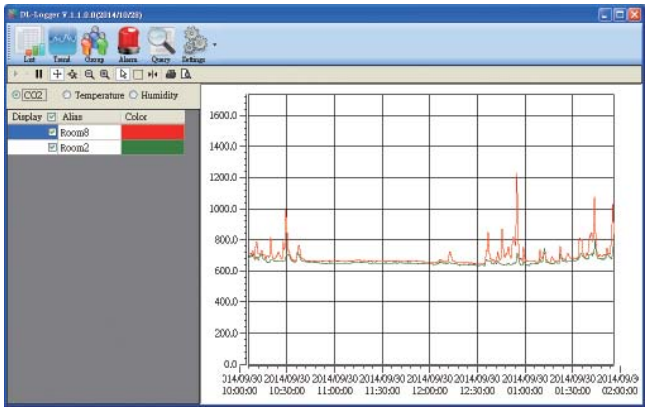
Real-time data from the CL-200 data logger can be accessed from anywhere and at any time using the iAir Utility, the iOS or Android App, or via a regular web browser, as long as they are connected to the same local network as the data logger.

▲ iOS APP QR CODE

▲ Android APP QR CODE

Simple and Powerful iAir Utility

The iAir Utility is a powerful tool that is designed for configuring the modules, monitoring real-time data, grouping CL-200 modules to view and manage the status of distribution groups, downloading log data, which can be exported to a CSV fi le that can then be imported into any industry-standard software or spreadsheet for analysis.



Specifications

COM Ports	
Ports	1 x RS-485 1 x Ethernet
Protocol	DCON and Modbus/RTU (RS-485) Modbus TCP(Ethernet, Wi-Fi) and MQTT(Ethernet)
Ethernet	
Ports	10/100 Base-TX, 8-Pin RJ-45 x1 (Auto-negotiating, Auto-MDI/MDIX, LED indicators)
PoE	Yes
Wi-Fi	
Antenna	Antenna = 1 dBi (PCB Antenna)
Output Power	18 dBm @ 1 DSSS, 14.5 dBm @ 54 OFDM
Receive Sensitivity	-95.7 dBm @ 1 DSSS, -74.0 dBm @ 54 OFDM
Standard Supported	IEEE 802.11 b/g/n
Wireless Mode	Infrastructure & Limited AP
Encryption	WEP, WPA and WPA2
Transmission Range	50 meters (LOS)
System	
Alarm	PM1/PM2.5/PM10/CO/CO2/NH3/H2S/HCHO/TVOC/RH/Temperature
Security	IP filter (whitelist) and Password (web)
Real Time Clock	Yes
Data Logger	Yes, up to 450,000 records
Relay Output	
Channels	1 x Form A, SPST 30 VDC @ 16 A or 250 VAC @ 16 A
Power	
Consumption	Non-PoE: 3.3 W (Max.) PoE: 3.5 W (Max.)
Powered from Terminal Block	+12 ~ +48 VDC
Mechanical	
Dimensions (mm)	Ø 150 x 53 (Ø x H)
Installation	Ceiling Mounting/Wall Mounting
Ingress Protection Rating	IP20
Environment	
Operating Temperature	0 ~ 50°C
Storage Temperature	-30 ~ +75°C
Humidity	10 ~ 90% RH, Non-condensing

Specifications

CL-22X-WF Series	Type of Sensor								Communication
	Particle	Gas Sensor							
	PM1/PM2.5/PM10 Particle	CO	CO_2	HCHO	NH_3	H_2S	TVOC	T & RH	
CL-220-WF	√	-	-	-	-	-	-	√	RS-485 + Ethernet/ Wi-Fi/PoE
CL-221-WF		√	-	-	-	-	-		
CL-222-WF		-	√	-	-	-	-		
CL-223-WF		√	√	-	-	-	-		
CL-224-WF		-	-	√	-	-	√		
CL-225-WF		-	-	-	√	-	-		
CL-226-WF		-	-	-	-	√	-		
CL-227-WF		-	-	√	-	-	-		
CL-228-WF		-	-	-	-	-	√		
CL-229-WF		√	√	√	-	-	√		

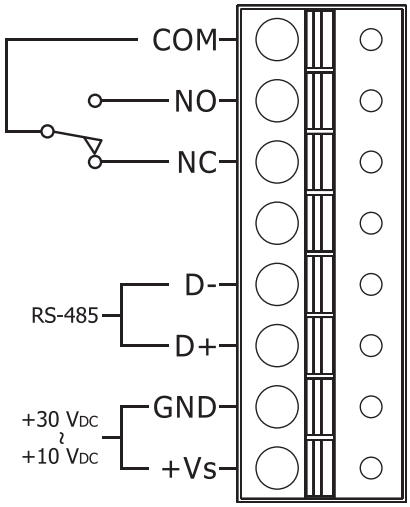
I/O Specifications

Type of Sensor	Range	Resolution	Accuracy	Response Time	Warm-up Time	Life Time
PM1/PM2.5/PM10 /Particle (Note1)	0 to 1,000μg/m3 (Laser Type)	1μg/m3	± 10% of FSR.	1 seconds	20 seconds	5 years
CO	0 to 1000 ppm (Electrochemical)	1 ppm	±5% of measured value	30 seconds	5 minutes	5 years
CO_2	0 to 9999 ppm (NDIR)	1 ppm	±40 ppm ±3% of measured value	120 seconds	5 minutes	15 years
HCHO	0 ppb to 2000 ppb (Electrochemical)	1 ppb	-	≤60 seconds	180 seconds	3 years
TVOC	0 ppb to 60000 ppb (MEMS Metal Oxide)	1 ppb	±15%	60 seconds	180 seconds	5 years
NH_3	0 to 100 ppm (Electrochemical)	1 ppm	±5% of measured value	< 120 seconds	180 seconds	2 years
H_2S	0 to 100 ppm (Electrochemical)	1 ppm	±5% of measured value	< 120 seconds	180 seconds	2 years
Temperature	-10 ~ +50°C	0.1°C	±0.6°C	-	-	10 years
Relative Humidity	0 ~ 100% RH, Non-condensing	0.1% RH, Non-condensing	±5% RH, N on-condensing	-	-	10 years
Dew Point	Calculated using temperature and relative humidity	0.1°C	-	-	-	10 years

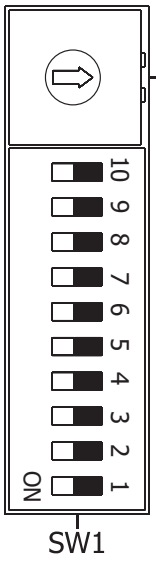
Note1: 5 years, the filter patch (FLT-C002) by replaceable

Particle	
Sizes	0.3μm, 0.5μm, 1μm, 2.5μm, 5μm, 10μm

Pin Assignments & WireConnections

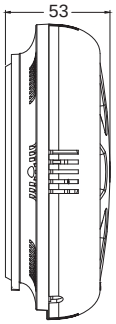


DIP Switch Settings

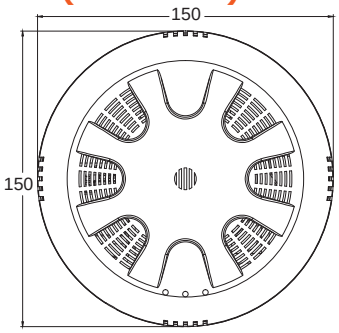


SW1-	ON	OFF
1	DCON	Modbus
2	SW Config	HW Config
3	High Node	Low Node
4	INIT	RUN
5~10	Reserved	

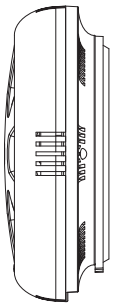
Dimensions (Units: mm)



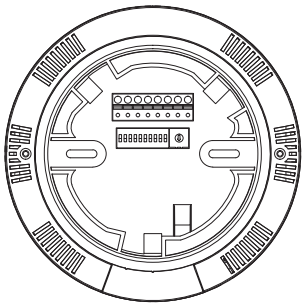
Left View



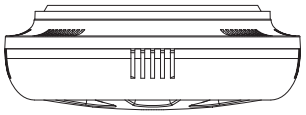
Front View



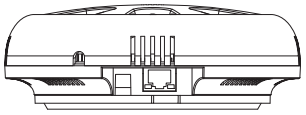
Right View



Rear View



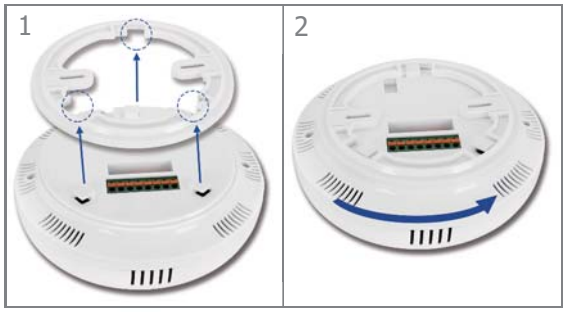
Top View



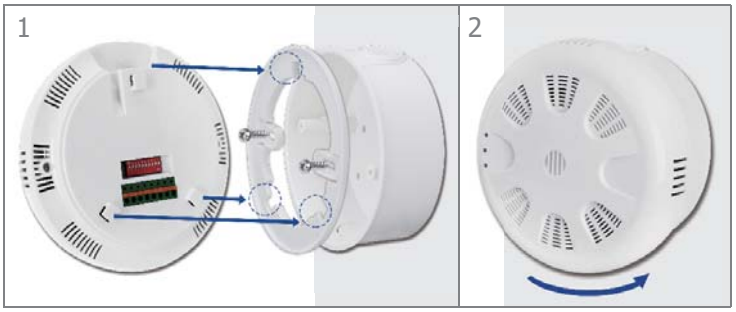
Bottom View

Installation

Ceiling Mounting



Wall Mounting (+ External Wall Box EWB-C150)



Replaceable Filter Patch:

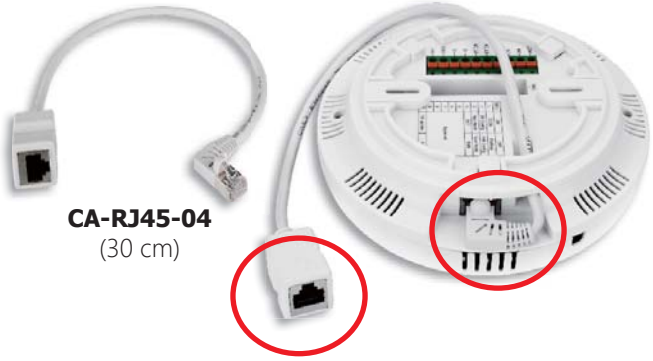
CL-22x Series offers a replaceable filter patch on the back of the hood filter. This mechanism makes users to replace only the filter patch rather than uninstall all devices.

CL-22x Filter

Filter Patch FLT-C002

CL-2xx-WF + RJ45 Cable:

CL-2xx-WF (Ethernet Type) are with optional angle-bent RJ45 cable to smoothly install the Ethernet plug in the hole of the ceiling-mounted.



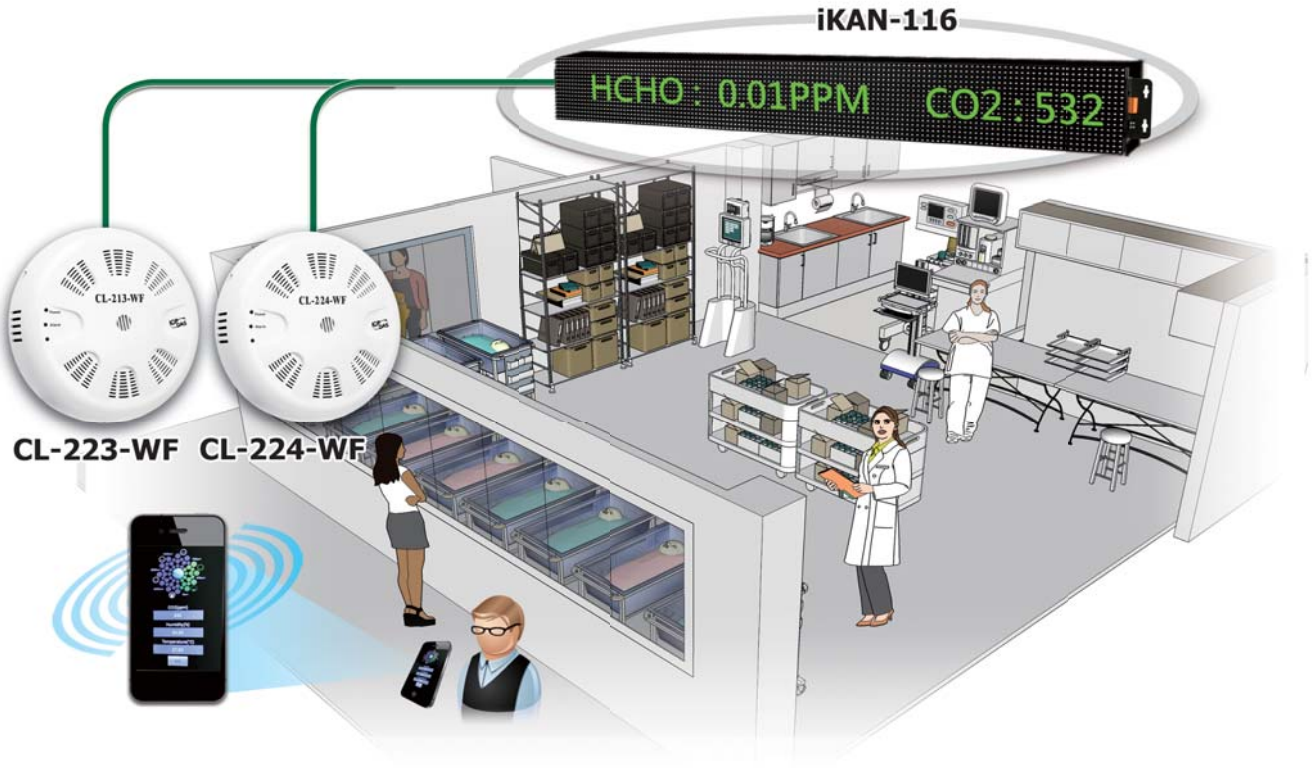
CA-RJ45-04
(30 cm)

Applications

- Transportation of Food or Pharmaceuticals
- Food and Beverage Industry (HACCP)
- Blood Stations and Pharmacies
- Building and Energy Management
- Warehouse Management
- Museums, Archives and Galleries

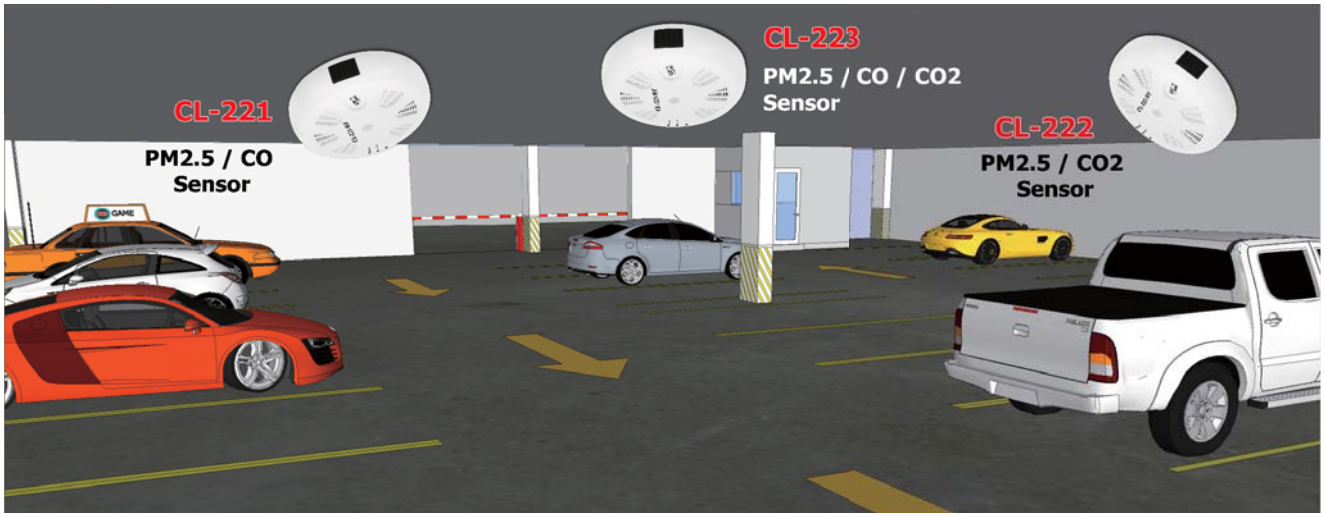
Preschool Air Quality Monitoring

Indoor air quality is a key matter for children in preschool. ICP DAS provide a solution toward this environment include CL-223-WF, CL-204-WF modules to monitor the fumes and Particle Matters such as PM1, PM2.5, PM10, CO, CO2, HCHO, TVOC, and etc. Combine with ICP DAS iKAN series LED monitors, teachers in the preschool can easily check the real-time Air Quality Index. Furthermore, diversity of SCADA software is also compatible with these monitoring modules and can upload received data into remote database. Teachers can use their mobile App to remotely check the AQI or other fumes data to make sure that the Air Quality is always in the safety range.



Indoor or Underground Parking Lot Automatic Monitoring Solution

The air quality automation system for indoor or underground parking lot can use the CL-220 series modules to monitor the health and safety information, such as PM1,PM2.5,PM10, CO, CO2, temperature, humidity, dew point, and more...



Ordering Information

CL-220-WF CR	PM1/PM2.5/PM10/Temperature/Humidity/Dew Point Data Logger with Ethernet/RS-485/Wi-Fi Interfaces and PoE (RoHS)
CL-221-WF CR	PM1/PM2.5/PM10/CO/Temperature/Humidity/Dew Point Data Logger with Ethernet /RS-485/Wi-Fi Interfaces and PoE (RoHS)
CL-222-WF CR	PM1/PM2.5/PM10/CO2/Temperature/Humidity/Dew Point Data Logger with Ethernet/RS-485/Wi-Fi Interfaces and PoE (RoHS)
CL-223-WF CR	PM1/PM2.5/PM10/CO/CO2/Temperature/Humidity/Dew Point Data Logger with Ethernet/RS-485/Wi-Fi Interfaces and PoE (RoHS)
CL-224-WF CR	PM1/PM2.5/PM10/HCHO/TVOC/Temperature/Humidity/Dew Point Data Logger with Ethernet/RS-485/Wi-Fi Interfaces and PoE (RoHS)
CL-225-WF CR	PM1/PM2.5/PM10/NH3/Temperature/Humidity/Dew Point Data Logger with Ethernet/RS-485/Wi-Fi Interfaces and PoE (RoHS)
CL-226-WF CR	PM1/PM2.5/PM10/H2S/Temperature/Humidity/Dew Point Data Logger with Ethernet/RS-485/Wi-Fi Interfaces and PoE (RoHS)
CL-227-WF CR	PM1/PM2.5/PM10/HCHO/Temperature/Humidity/Dew Point Data Logger with Ethernet/RS-485/Wi-Fi Interfaces and PoE (RoHS)
CL-228-WF CR	PM1/PM2.5/PM10/TVOC/Temperature/Humidity/Dew Point Data Logger with Ethernet/RS-485/Wi-Fi Interfaces and PoE (RoHS)
CL-229-WF CR	PM1/PM2.5/PM10/CO/CO2/HCHO/TVOC/Temperature/Humidity/Dew Point Data Logger with Ethernet/RS-485/ Wi-Fi Interfaces and PoE (RoHS)

Accessories

EWB-C150		External Wall Box for the CL-200 series
CA-RJ45-04		RJ45 Cable, Male-Female, 30 cm (90º)
FLT-C002		Replaceable Filter Patch