VC2300 – CO2 /Temp /RH
Indoor Air Quality Transmitter

Product Descriptions

VC2300 is an Indoor Air Quality (IAQ) monitoring device. It measures carbon dioxide (CO2) concentrations, temperature and relative humidity simultaneously. It is ideal for places where measurement of these three parameters are required and most suitable for demand controlled ventilation (DCV) as well as indoor environment monitoring.

VC2300 is available in different housing to meet the installation requirements. It provides RS485 modbus communication protocol and can be linked to most building management system.

The installation of VC2300 IAQ sensor/transmitter is simple and straight-forward, easy to operate and cost effective. It is an excellent choice for indoor environment monitoring and control.

VC2300-TRD
IP20 wall mount
dimension：110 x 80 x 26 ㎜
European standard 60 mm mount

VC2300-TR-KS
IP65 duct mount
dimension：142 x 84 x 46
duct probe length：245 ㎜

Product Features

Using patented state-of-the-art infrared (NDIR) wave-guide technology and offers reliable measurements

- CO2 measuring range： 0 to 2,000ppm
- Temperature measuring range：0 to 50˚C
- Humidity measuring range ： 0 to 95% RH
- Display menu selection：
  a. LC Display reading showing either CO2、Temp or RH。
  b. LC Display showing CO2、Temp and RH alternatively。
- RS485 Modbus protocol for digital interface with different control systems such as DDC 、PLC、long distance platform or stand-alone operation.
- Two housing options
  1) IP20 wall housing
  2) IP65 duct mount housing

Application Area

The VC2300 is commonly used in HVAC and indoor environment monitoring and control applications with CO2 concentration, temperature and relative humidity readings from one single device. Such readings are used to regulate IAQ, temperature and RH as and when required. Such demand-controlled-ventilation (DCV) approach balances between achieving energy conservation and ensuring indoor air quality.

VC2300 is an ideal choice for automatic ventilation controls in green and intelligent buildings. typical application areas include shopping malls, offices, conference rooms, classrooms, restaurants, railway stations and etc.

1	PWR	24V AC/DC (+)
2	GND	System Ground, GND
3	CR+	RS485 A(+)
4	CR-	RS485 B(-)

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VC2300 Technical Specification

General Performance

Compliance with	EMC Directive EMC/89/336/EEC
Operating temperature range	0 ~ 50°C
Storage temperature range	-40 ~ 70°C (display model -D : -20 ~ 70°C)
Operating humidity range	0 - 95% (non-condensing)
Operating environment	Public facilities, office buildings, high rise residential buildings and industrial spaces[1]
Warm up time	≤ 1 minute （@ full spec ≤ 15 minutes）
Maintenance interval	No maintenance required[2]

Electrical

Power supply input	10~36VAV/DC ， 50Hz（half wave rectification）
Power consumption	< 1.7 watt
Terminal connections	Use 1.0 ~1.5 mm^2 control wires for power supply input（G+,G0), use shielded twisted RS485 cables for RS485 modbus connection.

CO2 measurement

Measuring principle	Infrared (NDIR) wave-guide technology with Automatic Background Calibration (ABC) and passive gas diffusion (no moving parts).
Measuring Range	0 - 2,000ppm CO2
Response time ($T_{1/e}$)	Less than 10sec with 30cc/min flow rate < 3minutes with natural diffusion
Repeatability	±(20ppm + 1% of reading)
Accuracy [2]	± (70ppm + 3% of reading)
Annual drift [2]	< ±10ppm (with ABC function activated)
Pressure dependence	+1.6% of reading per kPa
In-built calibration function	Background calibration function with RS485 and bCAL switch

Relative humidity (RH) measurement

Working Temperature	0 - 95%RH
Response time	< 8sec at τ63%
Repeatability	±0.1 %RH
Accuracy	±2 %RH @ 25 °C
Delay response	±1 %RH
Long term drift	< 0.5 %RH/yr

Temperature measurement

Working Temperature	-20 to +80°C.
Response time	min:3 sec; max:30 sec at τ63%.
Repeatability	±0.1°C.
Accuracy	±0.2°C. @ 25°C
Long term drift	< 0.04 °C/yr.

Signal output

RS485	ModBUS RTU

Models

VC2300	CO2 transmitter with RS485 modbus protocol
VC2300-D	with LC Display (LCD) option
VC2300-TR	with Temp/RH transmitter option
VC2300-TR-D	with Temp/RH transmitter & with LC display option

Remarks :

1. not suitable for use in environment with high SO2.
2. in normal IAQ application (@ NTP), accuracy is defined after 3 weeks of continuous operation. The tolerance of the calibration gas (+/-2%) and test gas adds to the total uncertainty in accuracy.