WCES All-In-One Air Quality Detector

Description & Features:

- WCES Series is a comprehensive air quality detector with high-precision sensor elements with digital circuitry
- The WCES detects and measures simultaneous environments all at once
- Designed for wall-mounting in occupied areas and with fixed duct mounting for ventilation systems
- Each module may be equipped with as few as two (2) sensing elements or as many as eight (8) sensing elements
- Sensing types include temperature, humidity, TVOC, PM2.5, PM10, CO, CO2, CH2O (formaldehyde), NH3 (ammonia) and O3 (ozone)
- Available with and without an LCD screen and the standard output is RS485 (Modbus RTU)
- Complete protection against overvoltage, reverse polarity and EMC interference
- Customization available for dedicated installations and private labelling
- 5 year warranty

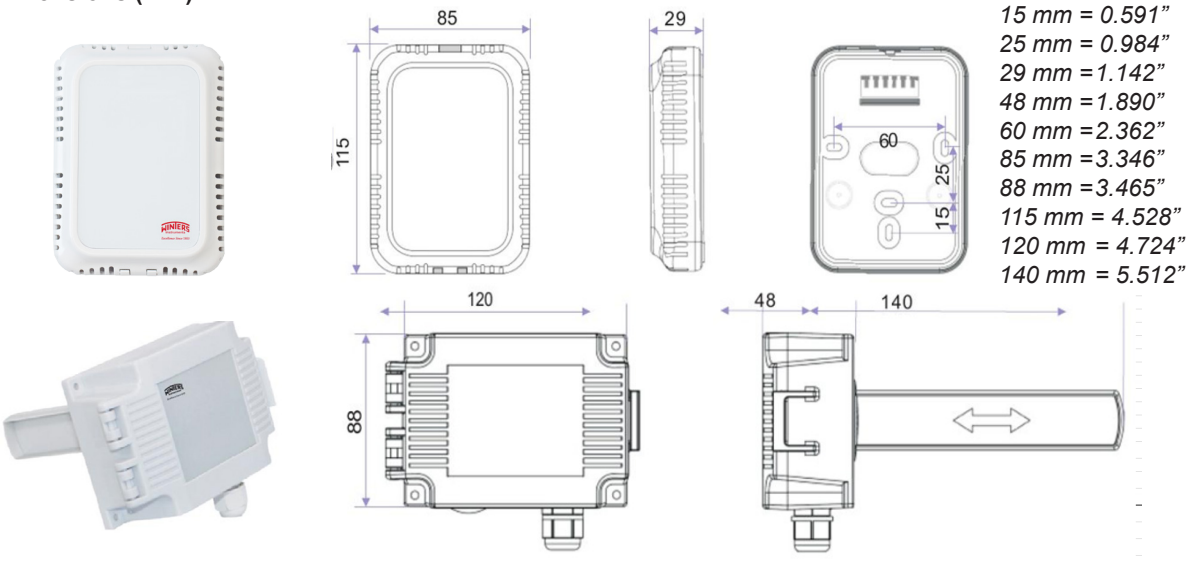
Applications:

- WCES all-in-one unit in the detection and measurement of air quality with a variety of embedded sensors
- Appropriate for installation in occupied (meeting & board rooms etc) and unoccupied areas (duct and ventilation chambers)
- Widely used in intelligent HVAC systems in modern buildings, machinery & equipment, train stations, subways, airports, schools and other places
- The product is widely used in HVAC control systems of various types in commercial and government buildings as well as manufacturing and processing facilities

Technical Parameters	
Output Signal	RS485 (Modbus RTU)
Power Supply	24 VDC standard, 24 VAC optional
Mounting Height	Wall-mounted position, 1.2m-1.8m (3.9'-26.25') above ground level
Response Time	T90 ≤ 60s
Warm-up Time	< 600 s
Working Environment	−10° to 60°C (14°F to 140°F) & 0–95%RH, non-condensing
Housing Material	ABS + PC
Protection Class	IP30 (indoor type), IP65 (duct type)
Fire Rating	V-0 per UL94 standard
Display	LCD (optional)
Certification	CE

Sensor Type	Range	Accuracy
Temperature	−20° to 80°C (−4° to 176°F)	±0.3°C (33°F) @25°C (77°F)
Humidity	0–100% RH	±3% RH @25°C (77°F) & 50% RH
TVOC	0–2000 PPB	±10% FS
PM2.5	0–1000 μg/m³	±10 μg + 10% of reading
PM10	0–1000 μg/m³	±10 μg + 10% of reading
CO	0–1000 PPM	±5% FS
CO2	0–5000 PPM	±50 PPM + 5% of reading
CH2O (Formaldehyde)	0–2000 PPB	±5% FS
NH3 (Ammonia)	0–50 PPM	5 PPM ±5% FS
H2S	0–100 PPM	10 PPM ±5% FS
O3 (Ozone)	0–5 mg/m³	0.5 mg ±5% FS

Dimensions (mm)



15 mm = 0.591"
25 mm = 0.984"
29 mm = 1.142"
48 mm = 1.890"
60 mm = 2.362"
85 mm = 3.346"
88 mm = 3.465"
115 mm = 4.528"
120 mm = 4.724"
140 mm = 5.512"

Selection Table

WCES Series - Indour Wall Mountable - All In One Air Quality Environmental Sensor

Description	Technical parameters						
Indoor use	Occupied locations, wall mountable	B					
Power supply	24 Vdc		1				
	24 Vac		2				
Output signal	RS485			R			
Sensing Type	2 in 1 - TVOC & CH_2O				20		
	2 in 1 - CO_2 & PM2.5				21		
	2 in 1 - CO & CO				22		
	3 in 1 - Temperature, Humidity & CO_2				30		
	3 in 1 - Temperature, Humidity & CO				31		
	3 in 1 - CO_2, PM2.5 & PM10				32		
	3 in 1 - CO_2, TVOC & PM2.5				33		
	4 in 1 - TVOC, CH_2O, PM2.5 & PM10				40		
	4 in 1 - TVOC, CO_2, PM2.5 & CH_2O				41		
	4 in 1 - Temperature, Humidity, TVOC & PM2.5				42		
	4 in 1 - Temperature, Humidity, TVOC & CO_2				43		
	4 in 1 - Temperature, Humidity, CO_2 & PM2.5				44		
	4 in 1 - Temperature, Humidity, CO_2 & CH_2O				45		
	5 in 1 - Temperature, Humidity, CO_2, PM2.5 & CH_2O				50		
	5 in 1 - Temperature, Humidity, TVOC, CO_2 & CH_2O				51		
	5 in 1 - Temperature, Humidity, TVOC, CO_2 & PM2.5				52		
	5 in 1 - Temperature, Humidity, CO_2, PM2.5 & PM10				53		
	5 in 1 - Temperature, Humidity, PM2.5, NH_3 & H_2S				54		
	6 in 1 - Temperature, Humidity, TVOC, CO_2, PM2.5 & PM10				60		
	6 in 1 - Temperature, Humidity, CH_2O, CO_2, PM2.5 & PM10				61		
	6 in 1 - Temperature, Humidity, CH_2O, TVOC, PM2.5 & PM10				62		
	6 in 1 - Temperature, Humidity, CH_2O, TVOC, CO_2 & PM2.5				63		
	6 in 1 - Temperature, Humidity, CH_2O, TVOC, CO_2 & NH_3				64		
	7 in 1 - Temperature, Humidity, TVOC, CO_2, PM2.5, PM10 & CH_2O				70		
	8 in 1 - Temperature, Humidity, TVOC, CO_2, PM2.5, PM10, CH_2O & O_3				80		
	Other types				#		
LCD	Without LCD display					-	
	LCD display included					L	
Customization	Special types, labelling etc						Z###

WCES Series - Duct Mountable - All In One Air Quality Environmental Sensor

Description	Technical parameters						
Power supply	24 Vdc		1				
	24 Vac		2				
Output signal	RS485			R			
Sensing Type	2 in 1 - TVOC & CH_2O				20		
	2 in 1 - CO_2 & PM2.5				21		
	2 in 1 - CO & CO				22		
	3 in 1 - Temperature, Humidity & CO_2				30		
	3 in 1 - Temperature, Humidity & CO				31		
	3 in 1 - CO_2, PM2.5 & PM10				32		
	3 in 1 - CO_2, TVOC & PM2.5				33		
	4 in 1 - TVOC, CH_2O, PM2.5 & PM10				40		
	4 in 1 - TVOC, CO_2, PM2.5 & CH_2O				41		
	4 in 1 - Temperature, Humidity, TVOC & PM2.5				42		
	4 in 1 - Temperature, Humidity, TVOC & CO_2				43		
	4 in 1 - Temperature, Humidity, CO_2 & PM2.5				44		
	4 in 1 - Temperature, Humidity, CO_2 & CH_2O				45		
	5 in 1 - Temperature, Humidity, CO_2, PM2.5 & CH_2O				50		
	5 in 1 - Temperature, Humidity, TVOC, CO_2 & CH_2O				51		
	5 in 1 - Temperature, Humidity, TVOC, CO_2 & PM2.5				52		
	5 in 1 - Temperature, Humidity, CO_2, PM2.5 & PM10				53		
	5 in 1 - Temperature, Humidity, PM2.5, NH_3 & H_2S				54		
	6 in 1 - Temperature, Humidity, TVOC, CO_2, PM2.5 & PM10				60		
	6 in 1 - Temperature, Humidity, CH_2O, CO_2, PM2.5 & PM10				61		
	6 in 1 - Temperature, Humidity, CH_2O, TVOC, PM2.5 & PM10				62		
	6 in 1 - Temperature, Humidity, CH_2O, TVOC, CO_2 & PM2.5				63		
	6 in 1 - Temperature, Humidity, CH_2O, TVOC, CO_2 & NH_3				64		
	7 in 1 - Temperature, Humidity, TVOC, CO_2, PM2.5, PM10 & CH_2O				70		
	8 in 1 - Temperature, Humidity, TVOC, CO_2, PM2.5, PM10, CH_2O & O_3				80		
	Other types				#		
LCD	Without LCD display					-	
	LCD display included					L	
Customization	Special types, labelling etc						Z###

Note: Due to the limitations of the product housing, not all sensing options may be combined together. Please consult Winters specific combination options

Concentration Units and Conversions

Volume Concentration (PPM): The volume of the measured gas contained in every one million volume of air
Mass Concentration (mg/m³): The mass of the measured gas contained in each cubic metre of air
Unit Conversion: Volume concentration = Mass concentration / M × 22.4;
Mass concentration = M / 22.4 × Volume concentration (M = molecular weight of the measured gas)
1 PPM = 1,000 PPB = 1,000,000 PPT
1% VOL = 10,000 PPM (this unit is commonly used at higher concentrations)