

aSENSE Ind 5% Disp RL

CO₂- and temperature transmitter
with relay



aSENSE Ind 5% Disp RL is an advanced transmitter for installation in the climate zone. It measures both CO₂ concentration and temperature in the ambient air. The data is transmitted to a BMS system or controller and can be configured with UIP Software. The unit can also be used as a safety product to save life.

STANDARD SPECIFICATION

Art.no.	045-7-0007
Measured gas	Carbon dioxide (CO ₂)
Operating principle	Non-dispersive infrared (NDIR) 0
Measurement range CO ₂	0 – 5%
OUT1 linear output	0/2 – 10VDC, 0 – 5% CO ₂ 0/4 – 20mA, 0 – 5% CO ₂
OUT2 linear output	0/2 – 10VDC, 0 – 50°C 0/4 – 20mA, 0 – 50°C
OUT3 Relay	Closes at 1.5%, 0.1% hysteresis
Accuracy (CO ₂)	±0.03% _{vol.} , ±3% of measured value
Accuracy (Temp)	±1°C
Operating principle Temp.	Negative Temperature Coefficient (NTC) resistor
Measurement range Temp.	0 - 50°C
Dimensions	152 x 85 x 47mm
Life expectancy	>10 years
Power supply	24VAC/DC (±20%)
Power consumption	<1W average
Communication	UART (prepared for Modbus)

APPLICATIONS

The **aSENSE Ind 5% Disp RL** is designed to control ventilation by transmitting the measured carbon dioxide and temperature value to the Master of the system or DDC to save energy and ensure a good indoor environment.

KEY BENEFITS

- Maintenance-free
- Contributes to lower energy costs
- RS-485 communication as option
- 24 months warranty



aSENSE™ Ind 5% Disp RL Technical Specification

General Performance:

Storage Temperature Range	-20 - 50°C
Sensor Life Expectancy	>10 years ¹
Maintenance Interval	no maintenance required ¹
Self-Diagnostics	complete function check, yellow LED and LCD error indication
Display	4 Digits, 7 segments LCD with ppm indicator
Warm-up Time	<5min
Conformance with standards	EMC directive 2014/30/EC, EN 61326-1:2013, Class B equipment, Table 1 - Basic immunity test requirements, RoHS directive 2011/65/EU
Operating Temperature Range ²	0 - 50°C
Operating Humidity Range	0 - 85%RH (non-condensing)
Operating Environment	Residential, commercial, industrial spaces. ³

Electrical / Mechanical:

Power Input	24VAC ±20%, 50/60Hz (half-wave rectifier input)
Power Consumption	<1W average
Electrical Connections	1.5mm ² screw terminals for power input (G+, G0) and outputs (OUT1, OUT2, OUT3)

CO₂ Measurement:

Sensing Method	non-dispersive infrared (NDIR) waveguide technology with ABC automatic baseline correction algorithm
Sampling Method	diffusion
Response Time (T _{1/e})	<3min. diffusion time
Measurement Range	0 - 5% _{vol.}
Accuracy ^{1,4}	±0.03% _{vol.} ±3% of measured value
Pressure Dependence	+1.6% reading per kPa deviation from normal pressure, 100kPa

Temperature Measurement:

Operating principle	Negative Temperature Coefficient (NTC) resistor
Measurement range	0 - 50°C
Accuracy ⁵ / Digital resolution	±1°C / 0.1°C (display), 0.01°C by UART

Outputs:⁶

Linear Analogue Outputs:

OUT1	Voltage or mA current loop output, selectable by jumper
Linear Conversion Range, voltage	0/2 - 10VDC for 0 - 5% _{vol.}
Linear Conversion Range, mA current	0/4 - 20mA for 0 - 5% _{vol.}
OUT2	Voltage or mA current loop output, selectable by jumper
Linear Conversion Range, voltage	0/2 - 10VDC for 0 - 50°C
Linear Conversion Range, mA current	0/4 - 20mA for 0 - 50°C

Voltage outputs:

D/A Conversion Accuracy	±2% of reading ±20mV
D/A Resolution	10mV (10 bit)
Electrical Characteristics	R _{OUT} <100Ω, R _{LOAD} >5kΩ

Current loop output:

D/A Conversion Accuracy	±2% of reading ±0.3mA
D/A Resolution	0.02mA (10 bit)
Electrical Characteristics	R _{LOAD} <500Ω

Digital Output:

OUT3	
Relay (RL)	Closes at 1.5%, 0.1% hysteresis, CO ₂ , at screw terminal
	I _{max} : 1A/50VAC/24VDC
Input Source	CO ₂ /Temp

Note 1: In normal IAQ applications, accuracy is defined after minimum three (3) weeks of continuous operation. Some industrial applications do require maintenance.

Note 2: Lower operation temperature range can be reached by adding a box heater assembly

Note 3: SO₂ enriched environments are excluded.

Note 4: Repeatability is included. Uncertainty of calibration gases (±1% currently) is added to the specified accuracy.

Note 5: Valid only for units configured in voltage output mode.

Note 6: During power up, OUT1 and OUT2 are defined to be low. Exact value depends on many factors including temperature.