

## Gas sensors



- ▶ Wide range of sensors optimized for indoor air quality monitoring
- ▶ Portable and stand-alone applications in indoor environments
- ▶ Possibility to calibrate the sensor using “zero” and “span” trimmers. Not for CO<sub>2</sub>
- ▶ 4...20 mA output, free wires cable L=10 m (DSOxxx series). mV output and cable with MiniDIN connector type (ESOxxx series)

Range of sensors for measuring gas concentration in indoor environments.

The line includes sensors with cables and mini-DIN connectors, to be used with LSI LASTEM data loggers type M-Log (ELO009) and sensors with 4...20 mA output that can be used by third party systems or LSI LASTEM data logger with inputs terminal block. The sensors are based on electrochemical cell technology. Only the CO<sub>2</sub> sensors are based on infra-red cell technology and the VOCs sensors on the PID cell technology.


### Technical Specifications

PN	ESOxxx series	DSOxxx series
<b>Output</b>	60...300 mV	4...20 mA
<b>Power supply</b>	12 V DC	12 V DC (not for DSO205)
<b>Cable + connector</b>	L= 2 m + mini Din connector	L= 10 m free wires
<b>Data logger compatibility</b>	M-Log	E-Log, Alpha-Log
<b>Mounting</b>	Mounting screw for BVA315-320 stands (except for DSO205)	



## Technical Specifications

PN	ESO101 DSO102A	ESO108 DSO109A	ESO111 ESO112 DSO112A	ESO119 DSO120A
				
<b>Gas</b>	CO	NO <sub>2</sub>	SO <sub>2</sub>	H <sub>2</sub> S
<b>Range</b>	0...1000 ppm	0...20 ppm	ESO111/DSO112A: 0...20 ppm ESO112: 0...100 ppm	0...50 ppm
<b>Detection technology</b>	Electrochemical cell			
<b>Detectable threshold</b>	1 ppm			
<b>Repeatability (% reading)</b>	1%	2%	2%	1%
<b>Resolution</b>	0.5 ppm	0.1 ppm	0.5 ppm	0.1 ppm
<b>Operative temperature</b>	-20...50°C			-40...50°C
<b>Drift signal loss/ year</b>	<5% year	<2% year	<2% year	<2% year
<b>Temp.coeff. (%signal/°C)</b>	<0.4	<0.15	<0.05	<0.3
<b>Typical baseline range in pure air</b>	-1...3 ppm	-0.1...0.1 ppm	-0.1...0.2 ppm	-0.2...0.4 ppm
<b>Max zero shift (20...40°C)</b>	9 ppm	0.2 ppm	0.1 ppm	0.1 ppm
<b>Response time (T90)</b>	30 s	40 s	15 s	30 s
<b>Sensor life</b>	3 years	2 years	2 years	2 years


**Technical Specifications**

PN	<b>ESO140 DSO141A</b>	<b>ESO146</b>	<b>ESO104 DSO105A</b>	<b>ESO115 DSO116A</b>
				
<b>Gas</b>	O <sub>2</sub>	O <sub>3</sub>	NO	NH <sub>3</sub>
<b>Range</b>	0...25%	0...3 ppm	0...100 ppm	0...50 ppm
<b>Detection technology</b>	Electrochemical cell			
<b>Detectable threshold</b>	1%	1 ppm	1 ppm	1 ppm
<b>Repeatability (% reading)</b>	Na	5%	1%	10%
<b>Resolution</b>	0.1%	0.1 ppm	0.5 ppm	0.5 ppm
<b>Operative temperature</b>	-20...50 °C	-20...50 °C	-20...50 °C	-20...40 °C
<b>Drift signal loss/ year</b>	<5% year	<2% year	<2% year	<10% year
<b>Temp.coeff. (%signal/°C)</b>	Na	<4%	<+0.2	<+1
<b>Typical baseline range in pure air</b>	Na	0...0.1 ppm	0...3 ppm	0...10 ppm
<b>Max zero shift (20...40°C)</b>	Na	0.04 ppm	9 ppm	10 ppm
<b>Response time (T90)</b>	15 s	150 s	10 s	180 s
<b>Sensor life</b>	2 years	2 years	3 years	1 years

**Technical Specifications**

PN	ESO204	DSO205	ESO150 DSO150A	DSO152A
				
<b>Gas</b>	CO <sub>2</sub>		VOCs	VOCs
<b>Range</b>	0...5000 ppm		0...20 ppm	0...2000 ppm
<b>Detection principle</b>	Infrared absorption cell (NDIR)		PID	
<b>Detectable threshold</b>			<0.01 ppm Isobutylene response	<1 ppm Isobutylene response
<b>Accuracy</b>	±50 ppm (+2% reading value)		3% range	
<b>Resolution</b>	-		0.01 ppm	1 ppm
<b>Operative temperature</b>	-40...60 °C		-20...40 °C	
<b>Temp.coeff.</b>	± (1+CO <sub>2</sub> concentration [ppm] / 1000) ppm/°C (@ -20...45 °C)			
<b>Output</b>	0.2...1 V	4...20 mA	ESO150-152: 60...300 mV DSO150A-152: 4...20 mA	
<b>Power supply</b>	6...9 V DC	10...30 V DC/AC	6...9 V DC	
<b>Power consumption</b>	120 mA		30 mA	
<b>Cable</b>	L=2 m	Not included (DWA5xx)	L=2 m	L=10 m
<b>Response time (T90)</b>	140 s		20 s	
<b>Cell life</b>	5 years		1 year	

**Accessories**

	<b>SVICA7002</b>	Calibration certificate. ISO9000 type (Gas sensor)
	<b>DWA505</b>	Cable L= 5 m DSO205 sensor
	<b>DWA510</b>	Cable L= 10 m DSO205 sensor
	<b>DWA525</b>	Cable L= 25 m DSO205 sensor
	<b>DWA526</b>	Cable L= 50 m DSO205 sensor
	<b>DWA527</b>	Cable L= 100 m DSO205 sensor
	<b>BVA320</b>	Arm for fixing sensors on BVA304 tripod or to wall
	<b>BVA315</b>	Arm for fixing sensors on BVA304 tripod
	<b>MAOFA0001</b>	Duct fixing support for DSOxxx series probes