

Product overview

The mixed gas sensor is designed for the detection of air quality in living spaces. If the detected air quality is bad, the output of the sensor will rise to 10V.

Mixed gas sensors detect gases and vapours which can be oxidised (burnt): body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue, etc.). In practice it has been proved that these devices indicate air quality which is detectable by the sensors. They have well proved themselves over the past years in a variety of applications.

Measuring principle

A heated tin dioxide semi-conductor sensor varies its conductivity proportional to the number of molecules of reducing gases and thus amplifies the connected output voltage of the measuring element of DC 0V to 10V.

The following particles and gases are detected:

Portions of cigarette smoke, hydrogen, carbon monoxide, ethanol and ammonia.

Contrary to CO2 sensors which measure concentration of a type of gas in a selective mode, the mixed gas sensors are wider band, i.e. the sensor signal neither shows the type of gas nor the concentration in ppm. Due to the complex and ever changing composition of ambient air it is desirable that the air quality measurement of the sensor would be broadband.


Types available

Type code	Type	Description
EXT-TN-1071481	LK130 V	Duct air quality sensor, 0...10V, mounting length 130mm
EXT-TN-1072389	LK260 V	Duct air quality sensor, 0...10V, mounting length 260mm
EXT-TN-1066654	LW04 V	Room air quality sensor, 0...10V

Technical data

Standards	CE conformity	- 2004/108/EG Electromagnetic compatibility - 2001/95/EG Product safety	
	EN conformity	- EN60730-1:2002 EMC - EN60730-1:2002 Product safety	
General data	Power supply	DC 15-24V (±10%) / AC 24V (±10%)	
	Clamps	Terminal screw, max. 1.5mm ²	
	Sensor	VOC = volatile organic compound (mixed gas)	
	Warm up time	Approximately 30 minutes	
	Housing	- LW04	Material ABS ASA, colour pure white
		- LKx	Material PA6.6, colour pure white (head) Material PVC, colour black (bushing)
		Housing protection	IP20 according to EN60529
Type LW04 V	Ambient temperature	20...+50°C, max. 85% RH non-condensing	
	Power consumption	1.2W / 2.2VA	
	Output	0...10V, load min. 10kΩ	
Type LKx V	Weight	65g	
	Power consumption	1.2W / 2.2 VA	
	Output	0...10V, load min. 10kΩ	
	Weight	150g	

Security advice

The installation and assembly of electrical equipment may only be performed by a skilled electrician.

The modules must not be used with equipment that supports, directly or indirectly, human health or life or with applications that can result in danger for people or animals.

Electrical connection

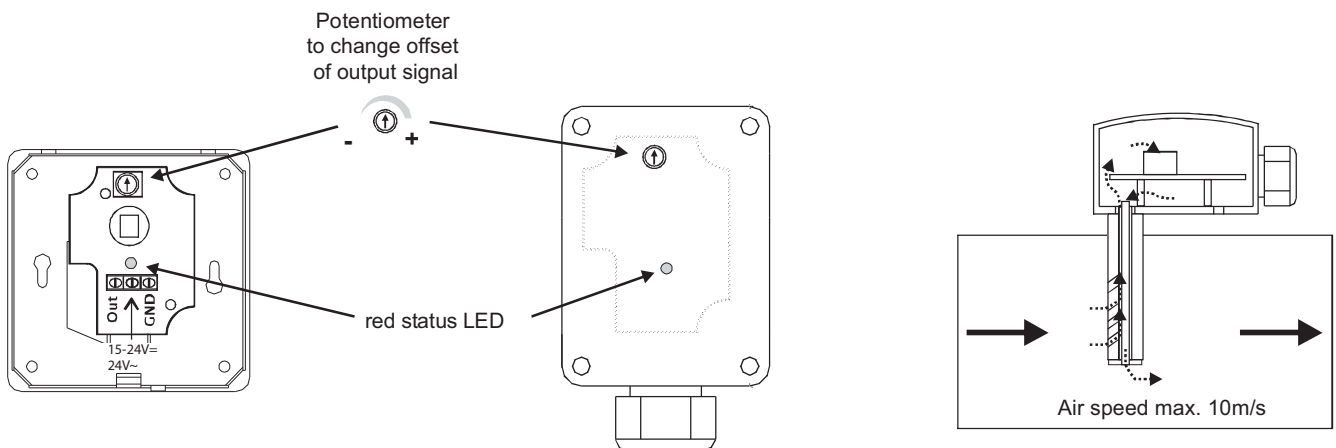
The devices are constructed for the operation of protective low voltage (SELV). For the electrical connection, the technical data of the corresponding device is valid.
 Sensing devices with transducer should in principle be operated in the middle of the measuring range to avoid deviations at the measuring end points. The ambient temperature of the transducer electronics should be kept constant.
 The transducers must be operated at a constant supply voltage ($\pm 0.2V$). When switching the supply voltage on/off, power surges must be avoided on site.

Mounting advice

The devices are supplied in an operational status.
 Installation is made by means of rawl plugs and screws (accessory) to the smooth wall surface. Model LKx can either be mounted to the air duct by means of a mounting flange or by screws. Attention: It is absolutely necessary to install the type LKx (Duct Sensors) in a way that the air inlet is opposite to the flow direction in the duct. For model LW04, mounting on standard ISO boxes is possible. Tightening material is not included in delivery range.
 For wiring, the snap-on lid must be separated from the base plate. For wiring model LKx (duct sensor), the cover of the terminal box must be opened.
 Installation must be made on representative places for the air-quality, to avoid a falsification of the measuring result. Solar radiation and draught should be avoided. If the device is mounted on standard flush box, the end of the installation tube in the flush box must be sealed, so as to avoid any draught in the tube falsifying the measuring result.
 The sensor cannot distinguish pleasant from unpleasant smells. The final adjustment whether air quality is satisfactory or not must be made by the people living or working in the room. Moreover, various air compositions occur in different rooms.
 Therefore the set point for the desired air quality is adjusted provisional upon production. Optimisation must be done by the users of the rooms, according to their personal feeling.
 The individual adaption of the output signal is made via a trimming potentiometer on the sensor board. By means of the potentiometer, the offset of the output signal is increased or lowered.

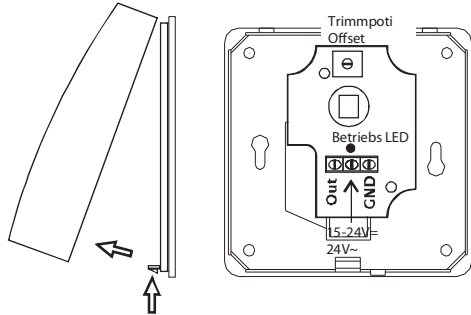
Installation procedure

1. Connect sensor and switch operating voltage on.
 In case of duct sensor: close the cover of the connection head!
2. Ensure good air conditions close to the sensor.
3. The output signal has to be verified after an operating time of approximately 30 minutes. The voltage level should lie in the range 13V.
 Please correct a too high/too low voltage level by means of the trimming potentiometer on the circuit board: the potentiometer should be turned to the left until the red LED is almost extinguished. Now, the output signal amounts to approximately 0.7V.
4. The sensor is ready for operation. The operating voltage of the output signal increases upon air quality changes for the worse.

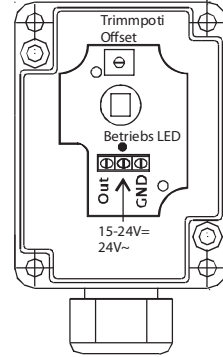


Terminal connection plan

LW04 V

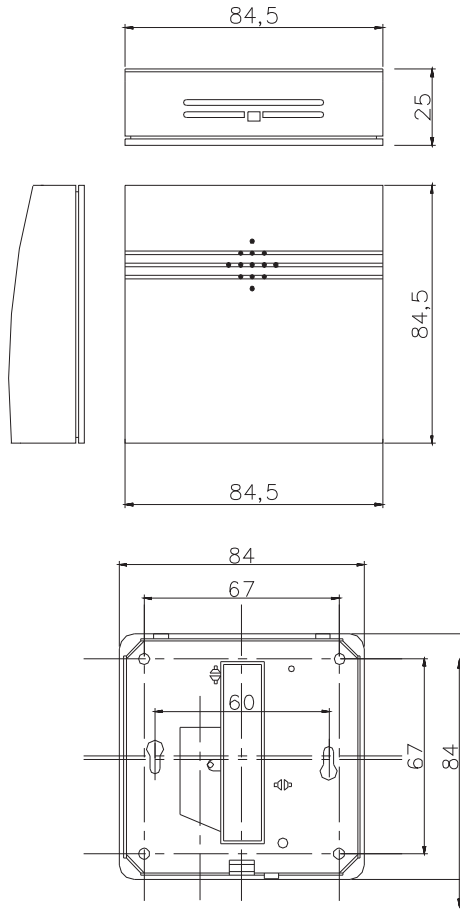


LKx V



Dimensions (mm)

LW04 V



LKx V

