DOL 18 V2 Electronic Sub-pressure Sensor

1 EU - Declaration of Conformity

Manufacturer:	dol-sensors A/S
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Telephone:	+45 72 17 58 88

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Product:	DOL 18
Type, model:	Electronic sub-pressure sensor
Markings	CE

EU directives:	2011/65/EU	RoHS Directive
	2014/30/EU	Electromagnetic Compatibility (EMC)
	2014/35/EU	Low Voltage Directive (LVD)
	2007/43/EC	Protection of chickens kept for meat production

Standards:	EN IEC 63000:2018
	EN IEC 61326-1:2021

We declare as manufacturer that the products meet the requirements of the listed directives and standards.

Date: 2023.10.24

Tommy Bak

CTO

2 Product description

The DOL 18 electronic sub-pressure sensor is used in connection with climate and production computers, for climate monitoring among other things.

The DOL 18 electronic sub-pressure sensor can be used for reading/controlling the pressure in the livestock house and for generating an alarm in case of too low or too high pressure. Furthermore, the DOL 18 electronic sub-pressure sensor is often used for pressure control in central ducts. For instance, in connection with air cleaning systems.

3 Installation

Mounting

The sub-pressure sensor should be mounted on a vertical surface with the connections directed down to prevent moisture from entering either the pressure ports or the electrical cable entry.

Pressure connections

The sensor has two built-in pressure connections. They are designed to fit 1/8", 1/16”, 1/4", 5mm and 6mm ID tubing. Connect the high pressure to pressure connection marked + (HIGH). See figure 1.

Negative pressure in livestock house

A tube is led from the plus pressure connection (HIGH) to the open air where the pressure is neutral. A tube is also led from the minus connection (LOW) into the livestock house. The tube may not be affected by the air velocity deriving from the movements of the air, neither outside nor inside.

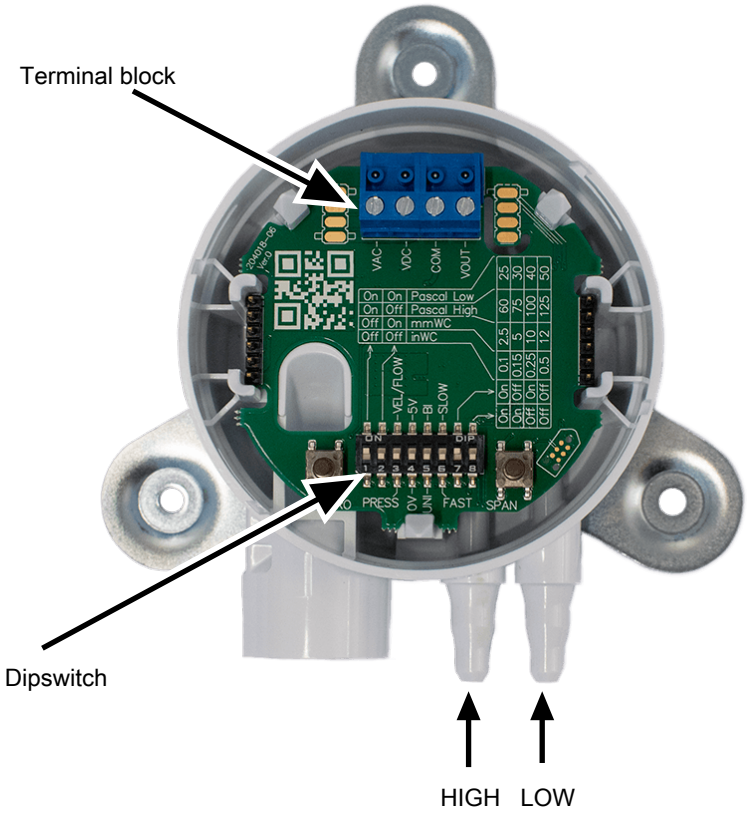


Figure 1: DOL 18 inside.

Wall mount bracket

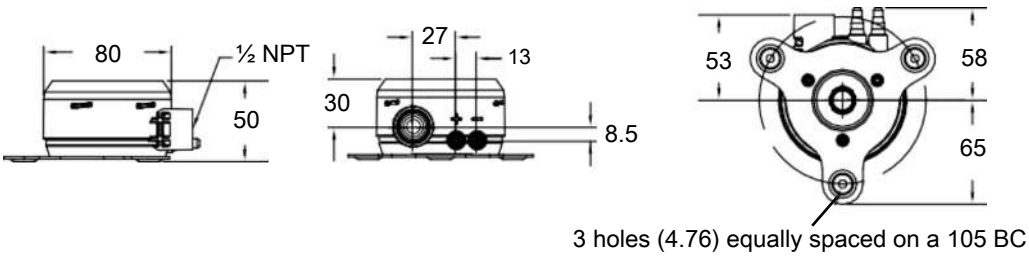


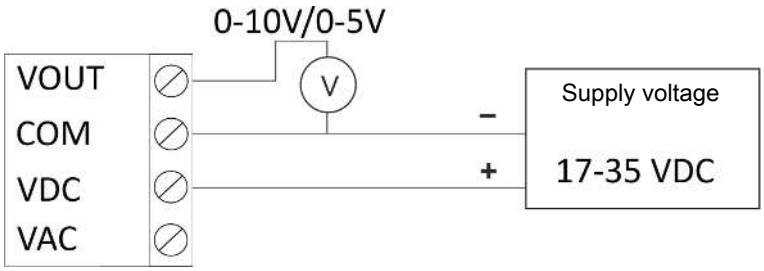
Figure 2: Dimensions in mm.

4 Electrical connection

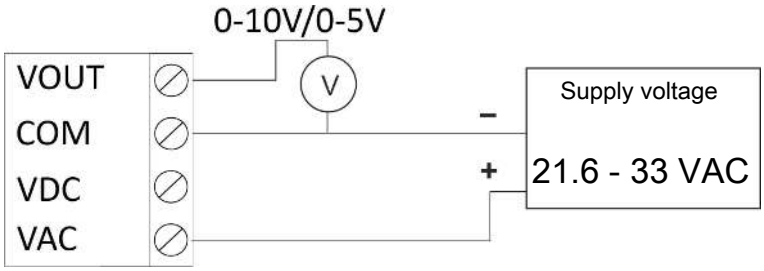
When connecting DOL 18, the terminal block is removable. Next to each terminal, the PCB is labeled VOUT, COM, VDC and VAC, respectively.

DOL 18 can be connected in 3 different ways: Either with voltage output (3- wire), with current measurement (2-wire) or with both voltage output and current measurement (4-wire), see connections below.

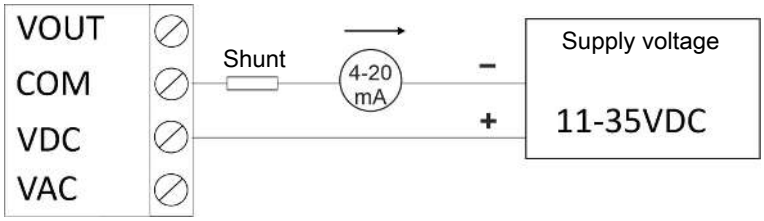
Voltage output only (DC)



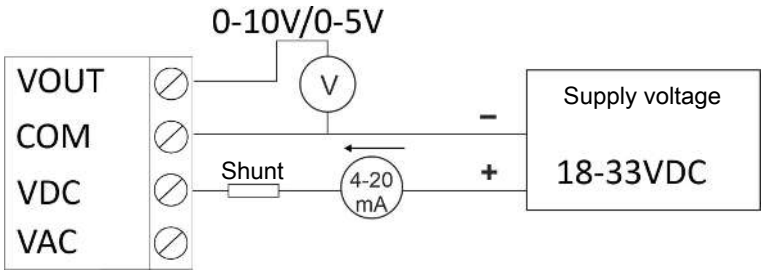
Voltage output only (AC)



Current measurement only



Voltage output and current measurement



Maximum shunt vs. power

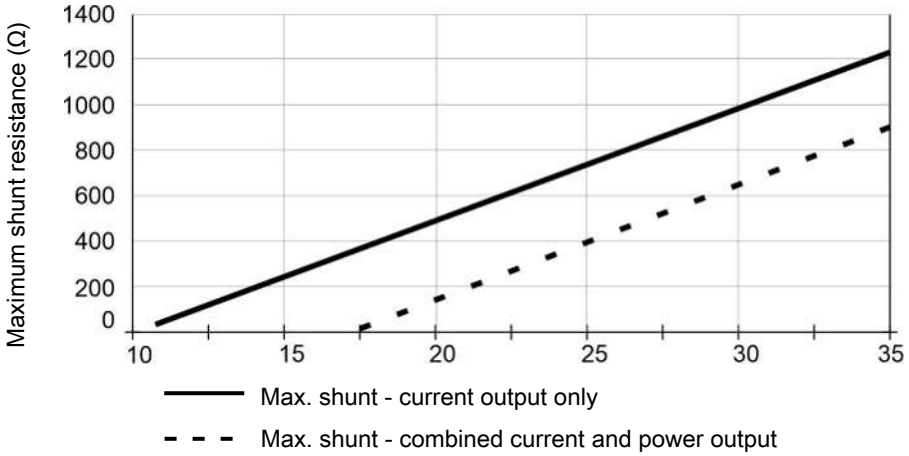


Figure 3: Graph: Maximum shunt vs. Power supply

5 Setting DIP switches

The dipswitches are placed opposite the terminal block.

Use a small screwdriver or pen to change the position of the switches. The tables in the back of this guide shows possible settings of the switches.

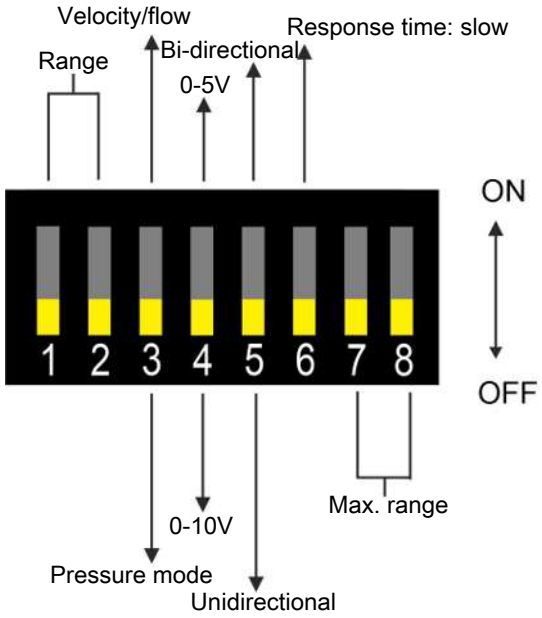
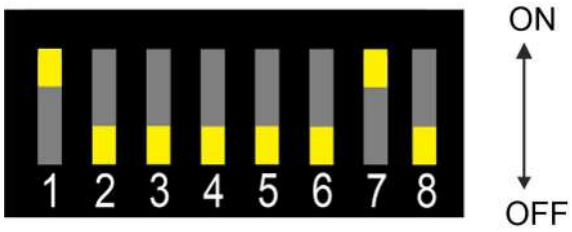
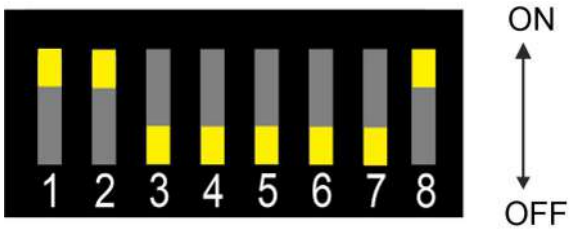


Figure 4: Setting dipswitches.

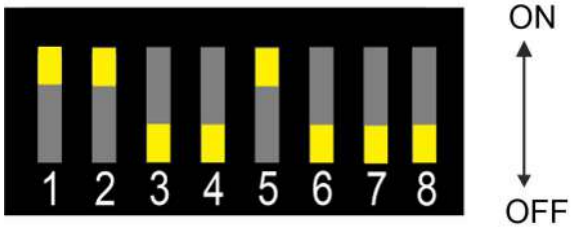
Example of dipswitch settings



100 Pa / 1000 Pa, 0-10V



30 Pa / 300 Pa, 0-10V



+/- 50 / +/- 500 Pa, 0-10V

6 Technical data

		Unit	Value
Pressure limits	Max. operation (100Pa version)	PSI	3.6
	Max. operation (300Pa version)	PSI	6
	Burst (both versions)	PSI	6
Accuracy		% FSO	+/- 1
2-wire	Supply voltage	V	11-35
	Measurement signal	mA	4-20
	Shunt resistance	Ω	50-1250 (see graph)
3-wire	Supply voltage	VDC	17-36
		VAC	21.6-33
	Output signal	V	0-10 / 0-5 (DIP switch setting)
	Load resistance	kΩ	>100
4-wire	Supply voltage	V	18-35
	Measurement and output signal	mA V	4-20 0-10 / 0-5 (DIP switch setting)
	Shunt resistance	Ω	50-900 (see graph)
	Load resistance	kΩ	>100
Stability		% FSO / year	+/- 1
Reaction time	DIP switch setting		Instantaneous or 3 sec.
Power consumption		mA	Max. 25
Electrical connections	2-wire	mA	4-20
	3-wire:	V	0-10 (0-5)
	4-wire	mA	4-20
		V	0-10 (0-5)
	Terminal block	AWG	16-26
Electrical entry	1/2″ NPS thread		
	Cable gland for cables Ø 5 - 9 mm		
Tube connection	Inner diameter tube	”(mm)	1/8", 1/16", 1/4", 5mm, 6mm
Temperature, storage		°C	-20 – 70
Temperature, operation		°C	-20 - 70
IP class		IP	66
		NEMA	4X
Mounting orientation	Vertical		
Weight		g	230

*FSO = Full Scale Output.

Dipswitch settings

DOL 18 range	**25Pa (100 Pa type) / 250Pa (300 Pa type)**								**30Pa (100 Pa type) / 300Pa (300 pa type)**							
Uni- or Bi-directional	Unidirectional				Bi-directional				Unidirectional				Bi-directional			
Reaction time	Instanta-neous		3 sec.		Instanta-neous		3 sec.		Instanta-neous		3 sec.		Instanta-neous		3 sec.	
Output range	0-10V	0-5V	0-10V	0-5V	0-10V	0-5V	0-10V	0-5V	0-10V	0-5V	0-10V	0-5V	0-10V	0-5V	0-10V	0-5V
Dipswitch																
1	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**
2	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**
3	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**
4	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**
5	**OFF**	**OFF**	**OFF**	**OFF**	**ON**	**ON**	**ON**	**ON**	**OFF**	**OFF**	**OFF**	**OFF**	**ON**	**ON**	**ON**	**ON**
6	**OFF**	**OFF**	**ON**	**ON**	**OFF**	**OFF**	**ON**	**ON**	**OFF**	**OFF**	**ON**	**ON**	**OFF**	**OFF**	**ON**	**ON**
7	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**
8	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**

DOL 18 range	**40Pa (100 Pa type) / 400Pa (300 Pa type)**								**50Pa (100 Pa type) / 500Pa (300 Pa type)**							
Uni- or Bi-directional	Unidirectional				Bi-directional				Unidirectional				Bi-directional			
Reaction time	Instanta-neous		3 sec.		Instanta-neous		3 sec.		Instanta-neous		3 sec.		Instanta-neous		3 sec.	
Output range	0-10V	0-5V	0-10V	0-5V	0-10V	0-5V	0-10V	0-5V	0-10V	0-5V	0-10V	0-5V	0-10V	0-5V	0-10V	0-5V
Dipswitch																
1	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**
2	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**
3	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**
4	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**
5	**OFF**	**OFF**	**OFF**	**OFF**	**ON**	**ON**	**ON**	**ON**	**OFF**	**OFF**	**OFF**	**OFF**	**ON**	**ON**	**ON**	**ON**
6	**OFF**	**OFF**	**ON**	**ON**	**OFF**	**OFF**	**ON**	**ON**	**OFF**	**OFF**	**ON**	**ON**	**OFF**	**OFF**	**ON**	**ON**
7	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**
8	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**

DOL 18 range	**60Pa (100 Pa type) / 600Pa (300 Pa type)**								**75Pa (100 Pa type) / 750Pa (300 Pa type)**							
Uni- or Bi-directional	Unidirectional				Bi-directional				Unidirectional				Bi-directional			
Reaction time	Instanta-neous		3 sec.		Instanta-neous		3 sec.		Instanta-neous		3 sec.		Instanta-neous		3 sec.	
Output range	0-10V	0-5V	0-10V	0-5V	0-10V	0-5V	0-10V	0-5V	0-10V	0-5V	0-10V	0-5V	0-10V	0-5V	0-10V	0-5V
Dipswitch																
1	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**
2	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**
3	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**
4	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**
5	**OFF**	**OFF**	**OFF**	**OFF**	**ON**	**ON**	**ON**	**ON**	**OFF**	**OFF**	**OFF**	**OFF**	**ON**	**ON**	**ON**	**ON**
6	**OFF**	**OFF**	**ON**	**ON**	**OFF**	**OFF**	**ON**	**ON**	**OFF**	**OFF**	**ON**	**ON**	**OFF**	**OFF**	**ON**	**ON**
7	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**
8	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**

DOL 18 range	**100Pa (100 Pa type) / 1000Pa (300 Pa type)**								**125Pa (100 Pa type) / 1250Pa (300 Pa type)**							
Uni- or Bi-directional	Unidirectional				Bi-directional				Unidirectional				Bi-directional			
Reaction time	Instanta-neous		3 sec.		Instanta-neous		3 sec.		Instanta-neous		3 sec.		Instanta-neous		3 sec.	
Output range	0-10V	0-5V	0-10V	0-5V	0-10V	0-5V	0-10V	0-5V	0-10V	0-5V	0-10V	0-5V	0-10V	0-5V	0-10V	0-5V
Dipswitch																
1	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**
2	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**
3	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**
4	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**
5	**OFF**	**OFF**	**OFF**	**OFF**	**ON**	**ON**	**ON**	**ON**	**OFF**	**OFF**	**OFF**	**OFF**	**ON**	**ON**	**ON**	**ON**
6	**OFF**	**OFF**	**ON**	**ON**	**OFF**	**OFF**	**ON**	**ON**	**OFF**	**OFF**	**ON**	**ON**	**OFF**	**OFF**	**ON**	**ON**
7	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**
8	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**	**OFF**

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