

## TUP 224 F901: Pneumatic sash sensor

Used in conjunction with a volume-flow controller and an alarm unit (RXP 210 F001) for measuring the opening of the sliding doors of fume cupboards in laboratories. The sash sensor complies with EN 13463-1 and EN 1127-1 (Ex II 2 G T6) and can be employed in Zone 1 areas where there is a risk of explosion.

Housing baseplate of light metal with force-balance nozzle-ball system. Lid of thermoplastic. Compressed-air connection: Rp 1/8, female thread. Measuring element: stainless steel extension spring.



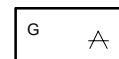
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Type	Measuring span <sup>1)</sup> [m]	Output pressure [bar]	Weight [kg]
<b>TUP 224 F901</b>	0.45...0.75	0.2...1.0	0.14
Supply pressure <sup>2)</sup> via external restrictor, Ø 0,2 mm	1.3 bar ± 0.1	Permissible ambient temp.	0...55 °C
Air capacity, air consumption	33 l <sub>r</sub> /h	Connection diagram	<a href="#">A03488</a>
Linearity	2%	Dimension drawing	<a href="#">M00909</a>
Control action	B	Fitting instructions	<a href="#">MV 505210</a>

### Accessories

**0297832 001** Extension spring for man-sized (walk-in) fume cupboards with sliding-door movement of 2 m. Measuring span: 0.9...1.5 m.

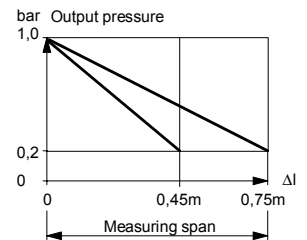
- 1) Factory setting: 0.5 m; can be changed by varying the length of the spring (6 holes); measuring span: 0.9...1.5 m; with accessory no. 0297832 001
- 2) On the RLP volume-flow controllers, the restrictor (Ø 0.14 mm) is fitted at input 6. For regulations on the quality of the air supply, especially at low ambient temperatures, see Section 60.



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### Operation

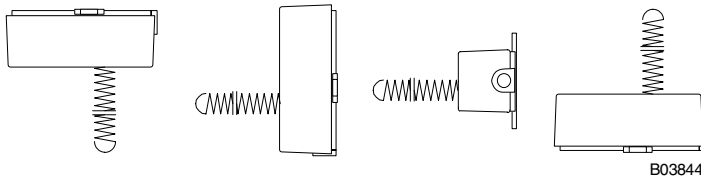
The transmitter – which works on the bleed-off force-balance principle – converts the path (i.e. the amount that the fume cupboard's sliding door is open) into a pneumatic output signal of 0.2...1.0 bar within its measuring range. Wear and tear has no effect on accuracy. The signal is fed as the command variable to the fume-cupboard exhaust-air controller. The air volume is adjusted within seconds in proportion to the amount of the opening. This decreases the risk of noxious gases escaping from the fume cupboard. The output pressure reacts in linear fashion to the opening. Control action is B: as the spring length  $\Delta l$  increases, the output pressure falls.



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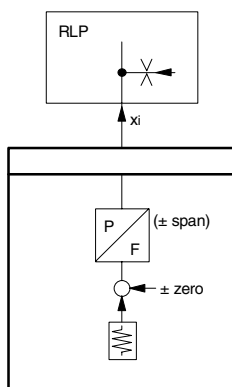
### Fitting instructions

Can be fitted in the following positions



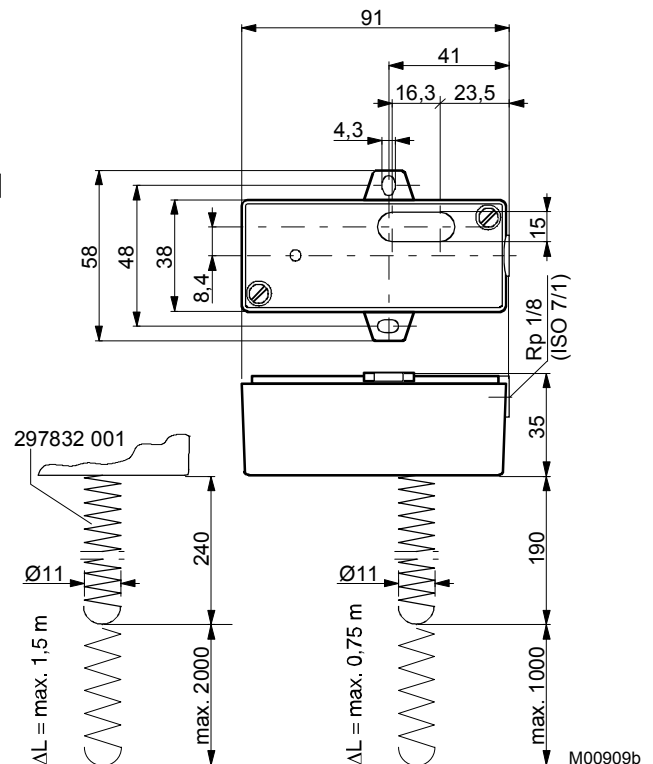
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### Connection diagram



A03488

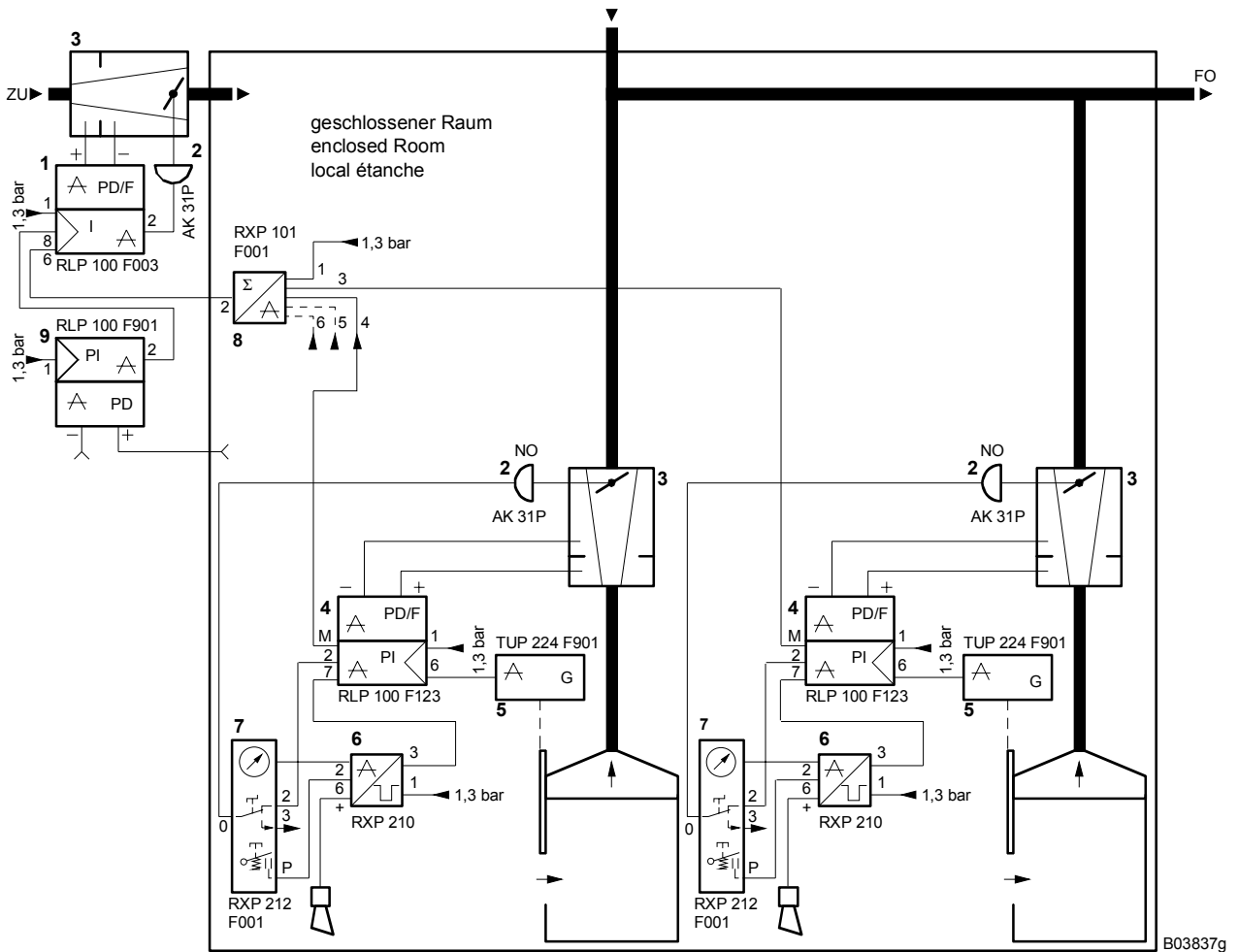
### Dimension drawing



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**Example of use**

Volume of return air controlled in proportion to the opening of the fume cupboard's sash; with sash sensor, alarm and operating units and adding relay.



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1	Volume-flow controller	7	Operating unit
2	Damper drive, NO	8	Volume-flow adding relay
3	Reducing box	9	Pressure controller
4	VAV return-air controller for fume cupboards	FO	EA (exhaust air)
5	Path-measuring transmitter	ZU	SA (supply air)
6	Alarm unit	NO	= normally open