

RLP100F901, F915, F924: Pneumatic room-pressure controllers

How energy efficiency is improved

Allows precise measurement and control of pressure differences in clean rooms or laboratories without creating additional pressure equalisation openings leading to unnecessary energy losses

Features

- Suitable for explosion hazard zone 1 II 2 G T6
- Room-pressure control in tightly-sealed rooms, e.g. clean rooms or laboratories (up to BSL-4)
- Fast and accurate control system in conjunction with the RLP 100 pneumatic air volume controllers
- Accurate static sensor; can also be used in areas with contaminated air
- Conformity tested as per EN 13463-1 and EN 1127-1 (ex zone 1 II 2 G T6)
- Front plate is printed with diagrams for easy identification of the controller's functions
- Compressed-air connections with Rp $\frac{1}{8}$ " female thread
- Special measuring connection for detecting the room pressure
- Low-pressure connections with dual-diameter connector for soft plastic tubing (internal \varnothing 4 and 6 mm)
- 1 input
 - Remote setpoint adjustment
- 2 outputs
 - Actual value for room pressure
 - Command signal for air-volume controller (air volume shift)
- Setpoint adjuster for room pressure (minimal limitation for room pressure for setpoint remote adjustment) and adjuster for T_n and X_p



RLP100F9**



Technical data

Parameters			
Admissible pressure	Low-pressure connections	± 3000 Pa	
	Supply pressure ¹⁾	1.3 bar ± 0.1	
	Output pressure	0.2...1.0 bar	
	Integral action time	0...15 s (0...100%)	
	Remote setpoint adjustment	0.2...1.0 bar	
	Air capacity	400 l _n /h	
	Air consumption	50 l _n /h	
	Linearity error	1%	
Ambient conditions			
	Admissible ambient temperature	0...55 °C	
	Admissible operating pressure p_{stat}	± 3000 Pa	
Construction			
	Housing material	Glass-fibre-reinforced thermoplastic	
	Fitting	To walls or top-hat rails (EN 60715 rail)	
	Weight	0.6 kg	
Standards and directives			
	Type of protection	IP 30	
Overview of types			
Type	Setting range	P-band 0...100% \triangle	Response sensitivity
RLP100F901	-20...20 Pa	0...40 Pa	0.1 Pa
RLP100F915	-50...50 Pa	0...100 Pa	0.25 Pa

¹⁾ For regulations concerning the quality of the air supply, particularly at low ambient temperatures, see www.sauter-controls.com/en/pneumatic_plants



Accessories

Type	Description
XMP50/50PF001	Manometer, scale –50...50 Pa/–20...20 Pa
0297354000	Short screw-in connector R $\frac{1}{4}$ ", for soft plastic tubing \varnothing 4 mm (internal)
0297838001	Manometer bracket for 2 XMP manometers
0297091000	Cover for unused manometer apertures
0297867001	Reference pressure container
0297870001	Bracket for fixing to ceilings, floors or in panels

⚡ 0297354000: 3 pieces required

⚡ 0297838 001: Also supplied: 1 reduction piece (0297596) for hose with inner \varnothing 1.7 / \varnothing 4.0; 1 connector (0297112) with seal M4/plug nipple for hose with inner \varnothing 1.7; 1 m hose with inner \varnothing 1.7 and 2 screws. Use cover 0297091 for unused pressure gauge aperture. The pressure gauge to indicate the room pressure must be connected to the actual value connection M.

Additional information

Fitting instructions	MV 505811
VAV technical manual	7 000 621 001

Description of operation

The low pressure amplifier converts the measured pressure difference to the pneumatic standard signal (0.2...1.0 bar). This signal is compared to the adjustable pressure signal for the setpoint X_s . The proportional/integral controller compensates for the control deviations with no persistent error. The setpoint X_s on the controller can be adjusted externally via connection 6, with the set value becoming the minimum limitation.

Note: The pressure to be regulated must always be connected to the + connection. This is also true for negative pressure control. The change from positive to negative pressure control takes place exclusively by means of the setpoint.

The direction of action can be changed from B (factory setting) to A using a switch.

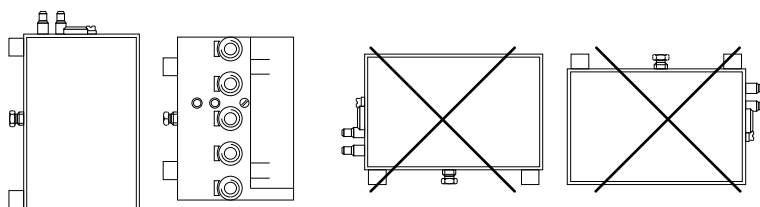
Intended use

This product is only suitable for the purpose intended by the manufacturer, as described in the "Description of operation" section.

All related product documents must also be adhered to. Changing or converting the product is not admissible.

Engineering and fitting notes

Crosswise mounting is not permitted.

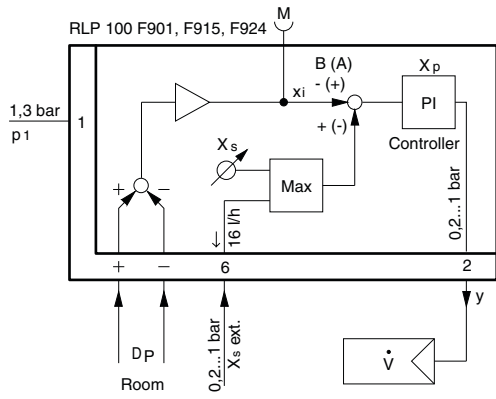


Disposal

When disposing of the product, observe the currently applicable local laws.

More information on materials can be found in the Declaration on materials and the environment for this product.

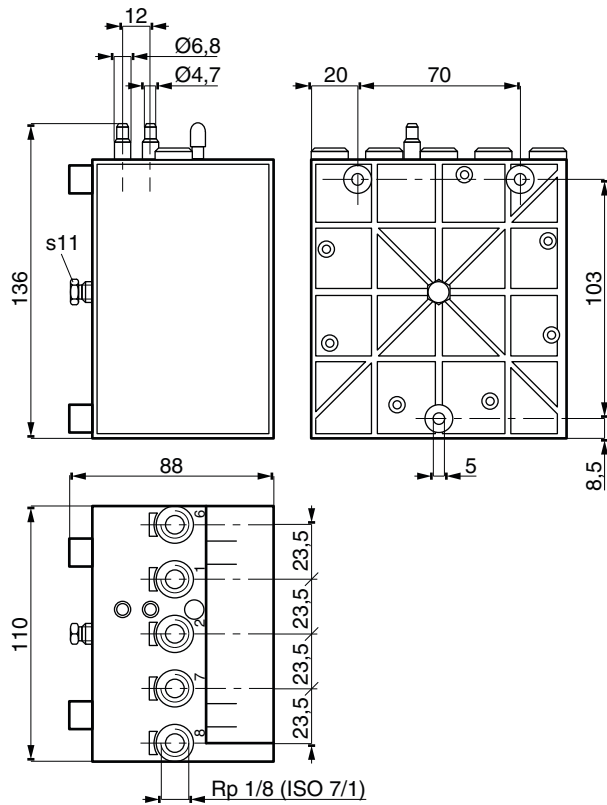
Connection diagram



Δp = room pressure difference

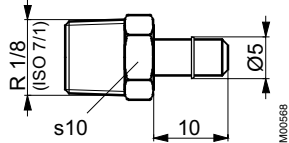
y = output pressure

Dimension drawing

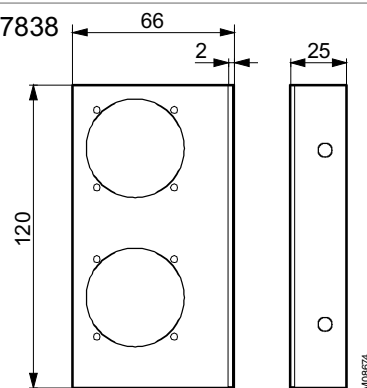


Accessories

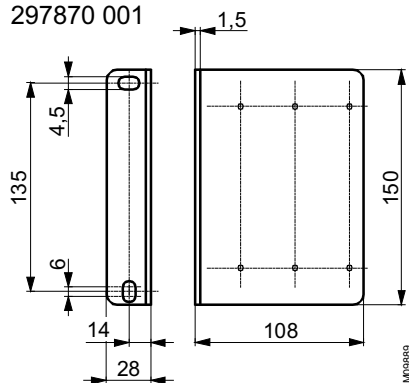
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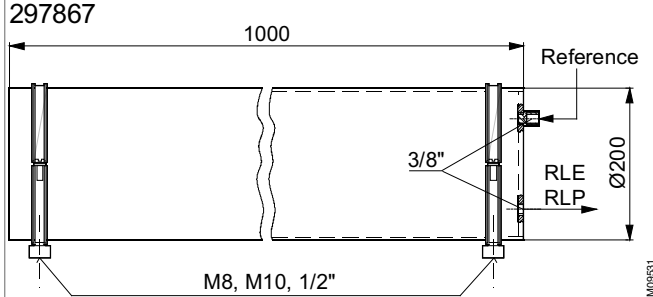
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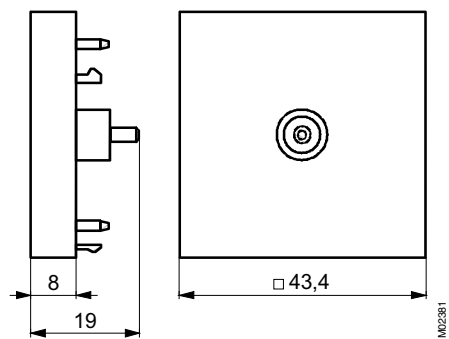
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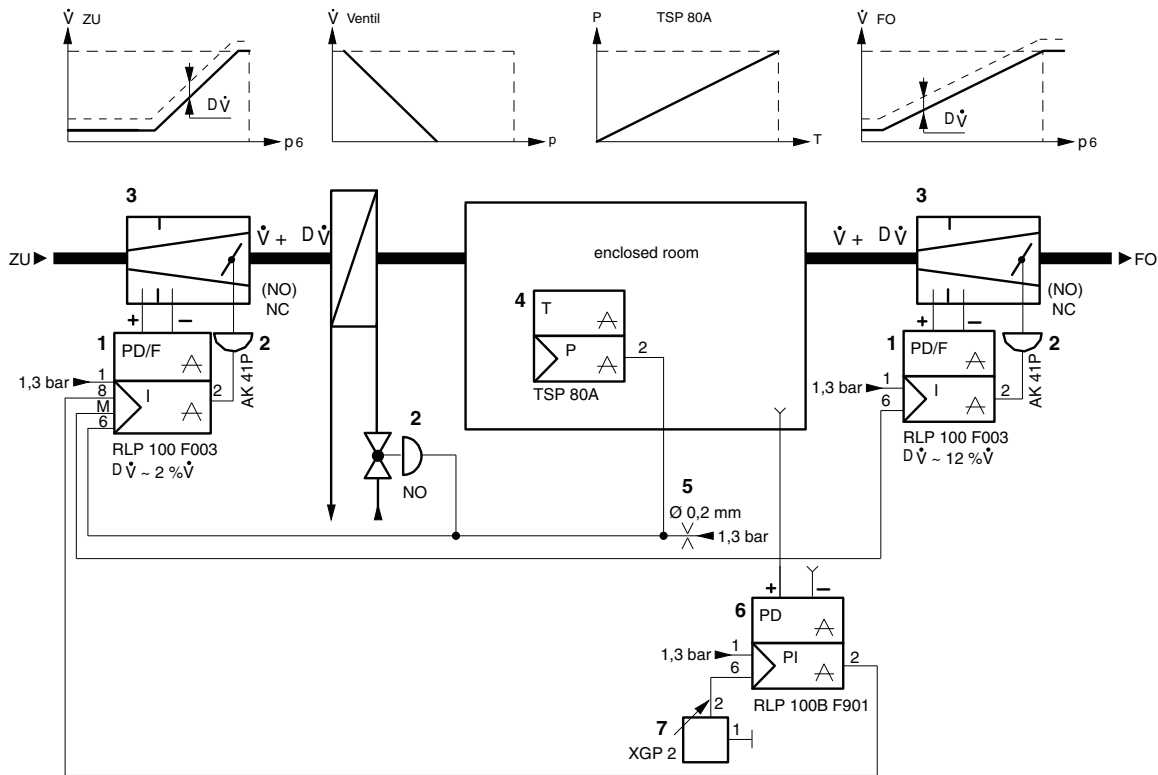


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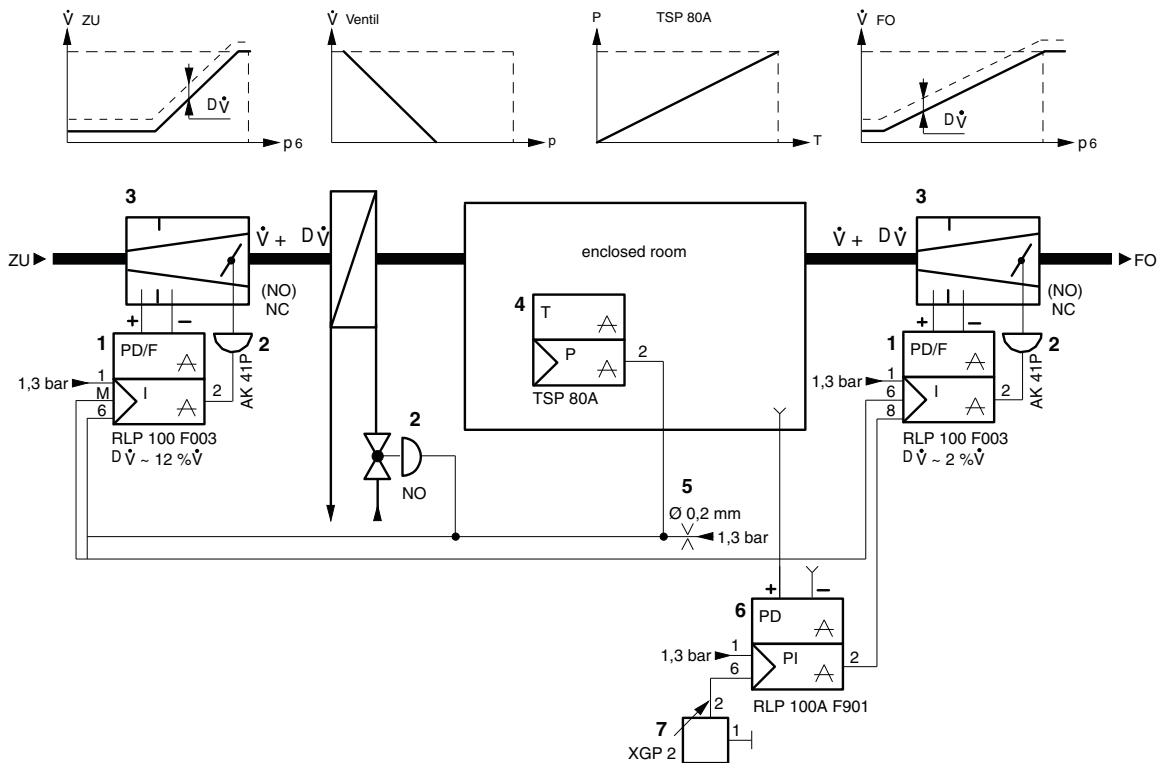


Example applications

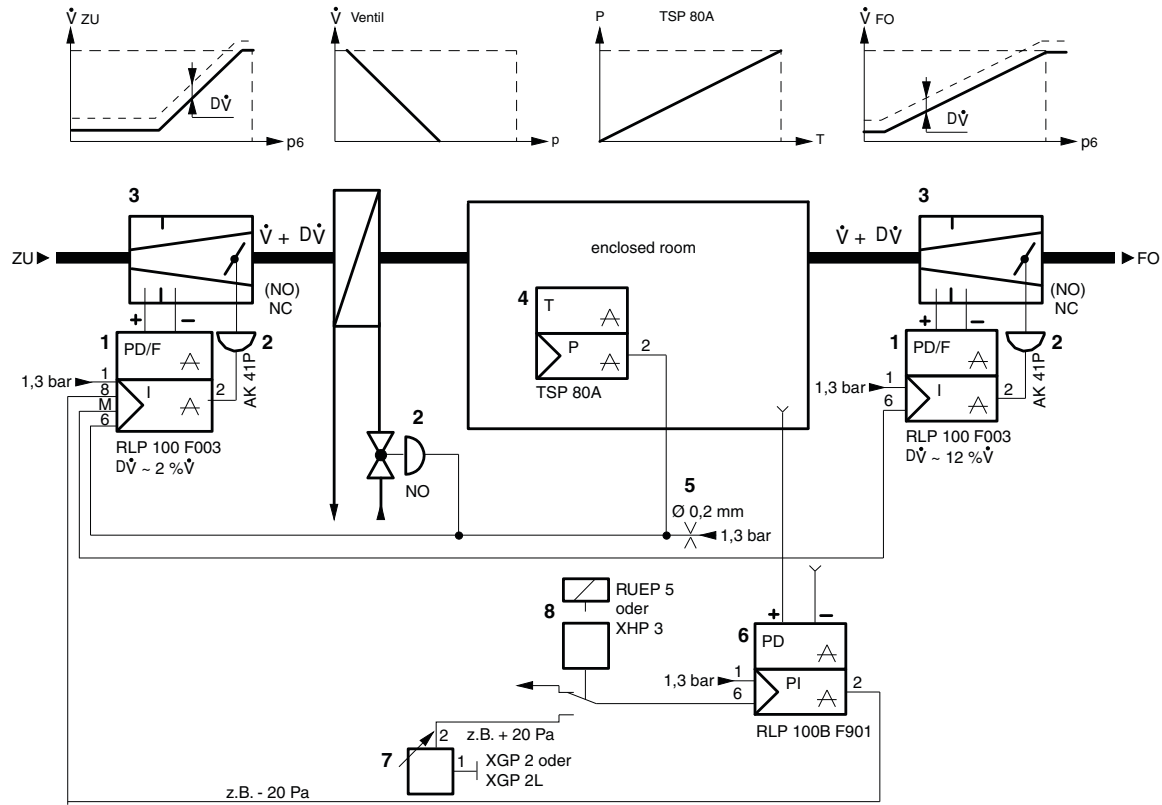
1. VAV control facility with reheater for closed rooms, positive and/or negative pressure control, acting on the supply air controller in direction B, reheater normally open, room temperature controller in direction A



2. VAV control facility with reheat for closed rooms, positive and/or negative pressure control, acting on the return air controller in direction A, reheat normally open, room temperature controller in direction A



3. VAV control facility with reheat for closed rooms, positive and negative pressure control, acting on the supply air controller in direction B, reheat normally open, room temperature controller in direction A



1	VAV controller	5	Ext. Line restrictor	NO	Normally open (Open without pressure)
2	Damper or valve actuator	6	Pressure controller		
3	Reducing box	7	Remote setpoint adjustment	NC	Normally closed (Closed without pressure)
4	Room temperature controller	8	Manual switch or electropneumatic relay		