

## RLP100F910, F916, F918: Dual-channel air-volume controller

### How energy efficiency is improved

For demand-based volume flow control of dual-channel systems in offices

### Features

- Optimum use of energy thanks to RLP100 2-channel controller in combination with room operating units of the TSP, TSFP and TSSP series
- Compatible with practically all currently-available mixing boxes
- Suitable for explosion hazard zone 1 II 2 G T6
- Conformity tested as per EN 13463-1 and EN 1127-1 (ex zone 1 II 2 G T6)
- Controls constant, switchable or variable air volumes
- Accurate, static differential pressure sensor with large measuring range
- Front plate printed with circuit diagrams for easy identification of the controller functions
- Compressed-air connections with Rp $\frac{1}{8}$ " female thread
- Special measuring connection for detecting the air volume
- Low-pressure connections with dual-diameter connector for soft plastic tubing (internal  $\varnothing$  4 and 6 mm)
- 2 inputs
  - Command variable
  - Day/night change-over or heating/cooling signal
- 3 outputs
  - Actual value, air volume
  - Activates two damper actuators, heating and cooling
- 1 adjuster for setting the sensor measuring range
- 2 setpoint adjusters for maximum and minimum limitation of the air volume

### Technical data

#### Parameters

Admissible pressure	Low-pressure connections	3000 Pa
	Supply pressure	1.3 bar $\pm$ 0.1
	Operating range P <sub>stat</sub>	0...3000 Pa
	Response sensitivity	0.1 Pa
	Input for setpoint shift w1, w2; 20...100% $\dot{v}$	0.2...1.0 bar
	Measuring range $\Delta p$ (factory setting)	6.4...160 Pa, can be reduced to 1...25 Pa

#### Ambient conditions

Admissible ambient temperature	0...55 °C
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#### Inputs/Outputs

Setting range for setpoint	20...100% $\dot{v}$
Output pressures	0.2...1.0 bar
Linearity and accuracy of root extraction	2% of 100% $\dot{v}$

#### Construction

Housing material	Glass-fibre-reinforced thermoplastic
Fitting	To walls or top-hat rails (EN 60715 rail)
Weight	0.6 kg

#### Standards and directives

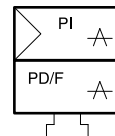
Type of protection	IP 30
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#### Overview of types

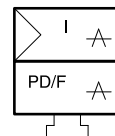
Type	RLP100F910	RLP100F916
Properties	Constant-air-volume controller (PI) for full-range actuators	Constant VAV controller (PI) for sequential actuators
Air capacity, connection 2, cooling	400 l <sub>n</sub> /h	100 l <sub>n</sub> /h



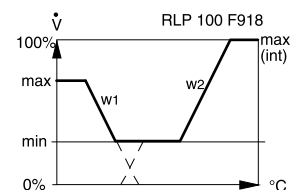
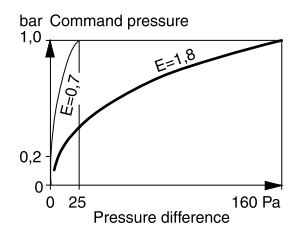
RLP100F91\*



RLP100F910, RLP100F916



RLP100F918



Type	RLP100F910	RLP100F916
Air capacity, connection 7, heating	400 l <sub>n</sub> /h	18 l <sub>n</sub> /h
Air consumption	53 l <sub>n</sub> /h	60 l <sub>n</sub> /h
P-band (fixed)	100%	400%

#### Accessories

Type	Description
0297354000	Short screw-in connector R $\frac{1}{8}$ ", for soft plastic tubing $\varnothing$ 4 mm (internal)
0297762001	Restrictor $\varnothing$ 0.8 mm for damping turbulent low-pressure signals
0274571000	Restrictor $\varnothing$ 0.5 mm for damping turbulent low-pressure signals
0297870001	Bracket for fixing to ceilings, floors or in panels

💡 0297354000: 5 pieces required

💡 0297762 001: Can be plugged into soft plastic hose, inner  $\varnothing$  4 mm. If attenuation is insufficient, instead of the  $\varnothing$  0.8 mm restrictor, the  $\varnothing$  0.5 mm restrictor can be used (accessory 0274571; this restrictor is not suitable for RLP100F908, F914, F123).

💡 0274571 000: Can be plugged into soft plastic hose, inner  $\varnothing$  4 mm. Suitable for extreme cases when the  $\varnothing$  0.8 mm restrictor (accessory 0297762) does not provide sufficient attenuation. Not suitable for volume flow controllers (RLP100F914, F123) and transducers (RLP100F908) where the "+ and -" low pressure line is constantly supplied with a very small quantity of air, because the pressure signals in the lower measuring range are falsified and the positioning time of 1...2 s (RLP100F123) is not achieved.

#### Additional information

Fitting instructions	
RLP100F916	MV 505338
RLP100F918	MV 505262
RLP100F910	MV 505089
VAV technical manual	7 000 621 001

#### Description of operation

A square root transducer converts the pressure difference (6.4...160 Pa) produced at an orifice plate or pitot tube into a standard signal (0.2...1.0 bar) that is linear to the flow. The pressure difference of the setpoint range ( $E = 0.7...1.8$ ) is set using the adjuster E. The integral controller compensates for the control deviations with no persistent error.

##### RLP100F916:

The command variable w shifts the volume flow (e.g. TSP 80 B temperature controller). An external setpoint signal can be supplied via connection 8 and limited with the adjusters  $\dot{V}_{\min}$  and  $\dot{V}_{\max}$ . When the connection is open  $\dot{V}_{\min}$  is effective, and when it is closed  $\dot{V}_{\max}$  applies.

##### RLP100F918:

The command variables w1 (heating) and w2 (cooling) shift the volume flow (e.g. TSSP 80 temperature controller). The volume flows for heating and cooling can be individually limited using the  $\dot{V}_{\min}$  and  $\dot{V}_{\max}$  adjusters and the internal adjuster  $\dot{V}_{\max}$  (int.).

##### RLP100F910:

The command variable w shifts the heating volume flow (e.g. TSP 80 B temperature controller). The ratio of hot to cold air is fixed at 1:2. An external setpoint signal can be supplied via connection 8 and limited with the adjusters  $\dot{V}_{\min}$  and  $\dot{V}_{\max}$ . When the connection is open  $\dot{V}_{\min}$  is effective, and when it is closed  $\dot{V}_{\max}$  applies.

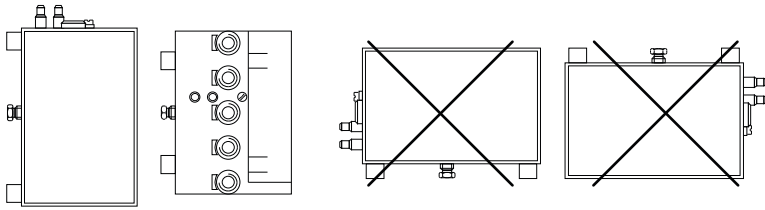
#### Intended use

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.



To prevent turbulent flow causing vibrations that affect the low pressure signal, there must be a smoothing sector in front of the cross meter for measuring the differential pressure.

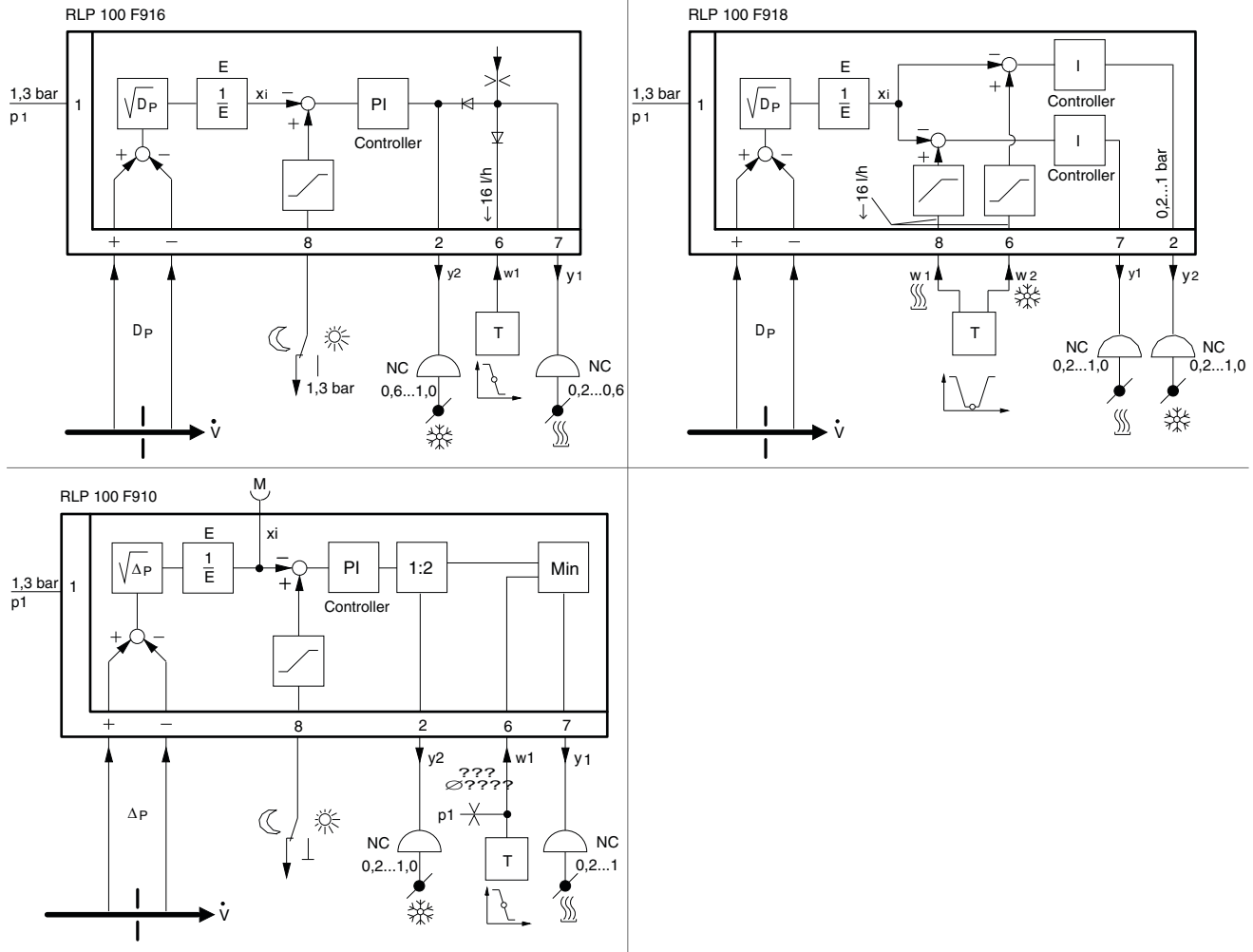
Where there are unfavourable inflows – bends, elbows or branches immediately in front of the cross meter – a restrictor (accessory 0297762 or 0274571) must be installed in the plastic hose of the + and – connection to attenuate turbulent low pressure signals.

**Disposal**

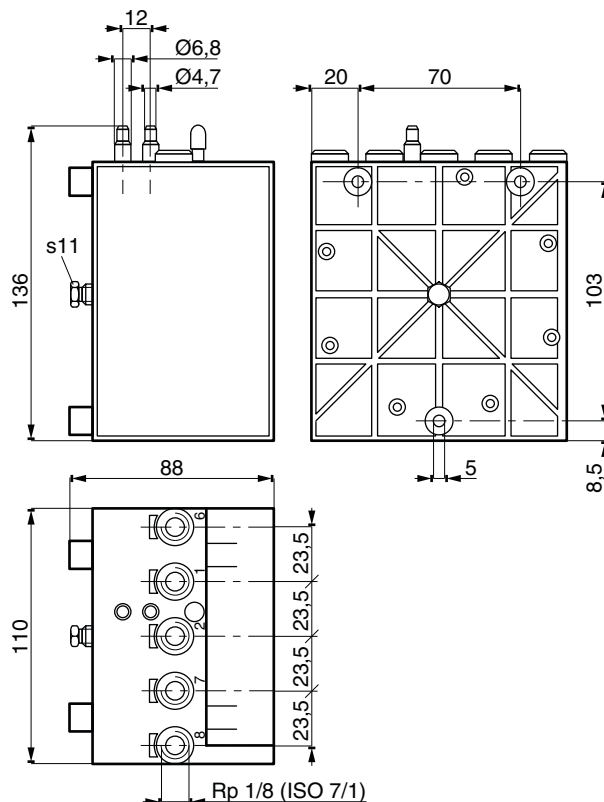
When disposing of the product, observe the currently applicable local laws.

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

**Connection diagrams**

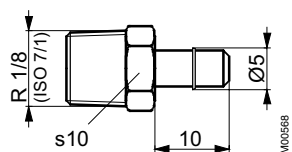


**Dimension drawing**

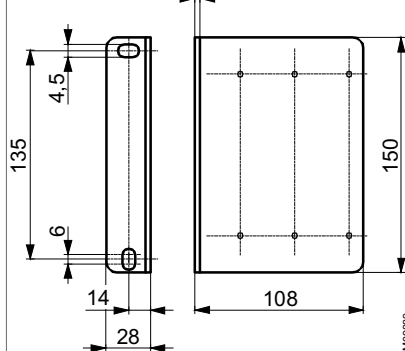


**Accessories**

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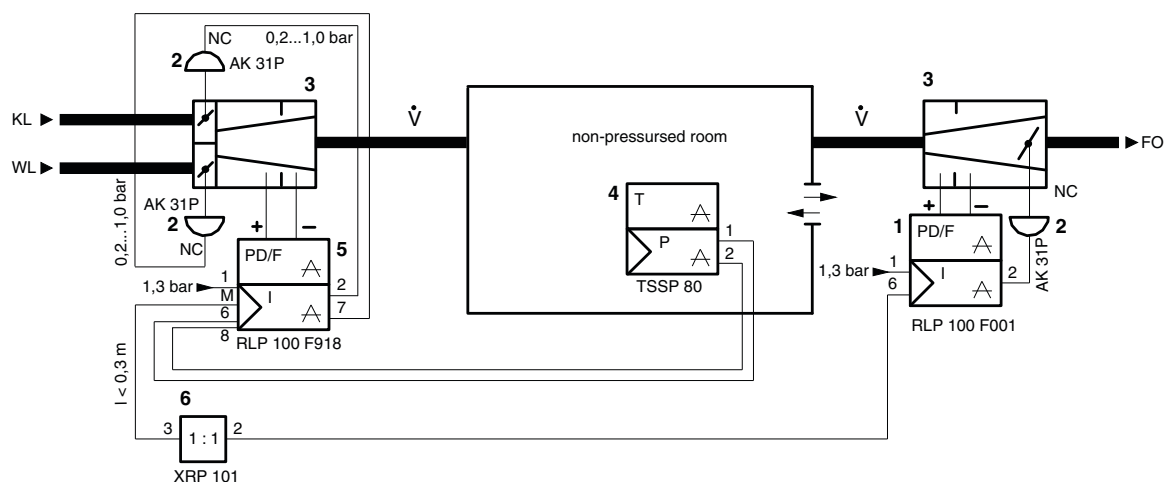


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**Application example for RLP100F918**

VAV control facility for 2-duct installations with room temperature for heating and cooling



1	VAV controller	4	Room temperature controller	CA	Cold air
2	Damper actuator	5	2-duct VAV controller	WA	Warm air
3	Reducing box	6	Interface relay	EA	Exhaust air
				NC	Normally closed