# RLP100F910, F916, F918: Dual-channel volume flow 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 RLP 100 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 use in potentially explosive atmospheres in zone 1 II 2 G T6
- Conformity tested as per EN 13463-1 and EN 1127-1 (potentially explosive atmosphere 1 II 2 G T6)
- · Controls constant, switchable or variable air volumes
- · High-precision, 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 Rp½" female thread
- · Special measuring connection for detecting the volume flow
- Low-pressure connections with dual-diameter connector for soft plastic tubing (internal Ø 4 and 6 mm)
- · 2 inputs
  - · Command variable
  - · Day/night change-over or heating/cooling signal
- · 3 outputs
  - · Actual value of volume flow
  - · Activates two damper actuators, heating and cooling
- · 1 adjuster for calibrating the sensor measuring range
- · 2 setpoint adjusters for maximum and minimum limitation of the volume flow

### **Technical data**

Parameters		
Admissible pressure	Low-pressure connections	3000 Pa
	Supply pressure	1.3 bar ±0.1
	Operating range P <sub>stat</sub>	03000 Pa
	Response sensitivity	0.1 Pa
	Input for setpoint shift w1, w2; 20100% v	0.21.0 bar
	Measuring range Δp (factory setting)	6.4160 Pa, can be reduced to 125 Pa
Ambient conditions		
	Admissible ambient temperature	055 °C
Inputs/outputs		
	Setting range for setpoint	20100% v
	Output pressures	0.21.0 bar
	Linearity and accuracy of root extraction	2% of 100% 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	IP30



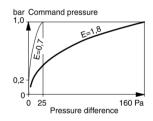
RLP100F91

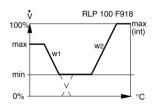


## RLP100F910, RLP100F916



## RLP100F918







Overview of types							
Туре	RLP100F910	RLP100F916	RLP100F918				
Properties	Constant-air-volume controller (PI) for full-range actuators	Constant VAV controller (PI) for sequential actuators	VAV controller (I) for full- range actuators				
Air capacity, connection 2, cooling	400 l <sub>n</sub> /h	100 l <sub>n</sub> /h	120 l <sub>n</sub> /h				
Air capacity, connection 7, heating	400 l <sub>n</sub> /h	18 I <sub>n</sub> /h	80 l <sub>n</sub> /h				
Air consumption	53 l <sub>n</sub> /h	60 l <sub>n</sub> /h	80 l <sub>n</sub> /h				
P-band (fixed)	100%	400%	-				

Accessories	
Туре	Description
0297354000	Short screw-in connector R⅓", for soft plastic tubing Ø 4 mm (internal)
0297762001	Restrictor Ø 0.8 mm for damping turbulent low-pressure signals
0274571000	Restrictor Ø 0.5 mm for damping turbulent low-pressure signals
0297870001	Bracket for fixing to ceilings, floors or in panels

- O297762 001: Can be plugged into soft plastic hose, inner Ø 4 mm. If attenuation is insufficient, instead of the Ø 0.8 mm restrictor, the Ø 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 Ø 4 mm. Suitable for extreme cases when the Ø 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.

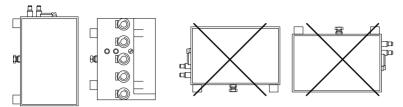
#### Intended use

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

All related product regulations 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.

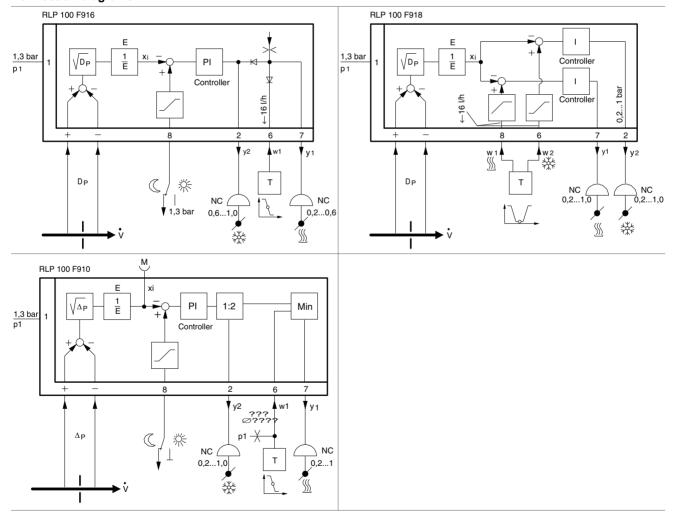
Where there are unfavourable inflows – bends, elbows or branches immediately in front of the cross meter – a restrictor (accessory 0297762 or 0274571) must be installed in the plastic hose of the + and – connection to attenuate turbulent low pressure signals.

### **Disposal**

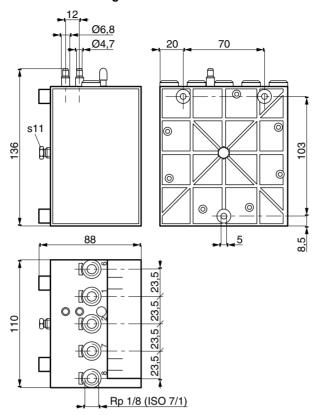
When disposing of the product, observe the currently applicable local laws.

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

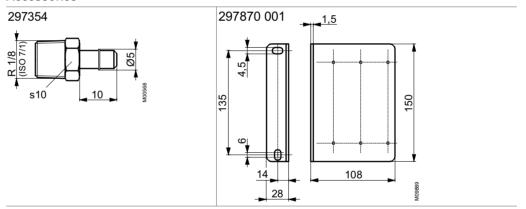
# **Connection diagrams**



# **Dimension drawing**

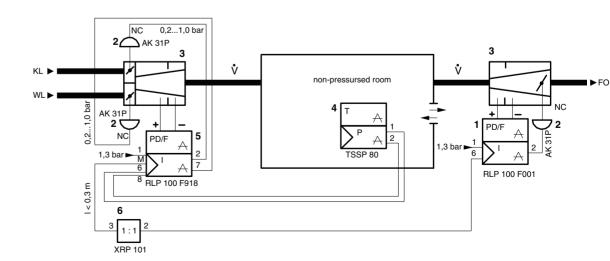


## **Accessories**



# 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

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