# RLP 100 F901, F915 & F924: Pneumatic room-pressure controller

Proportional-integral controller for controlling the over- and/or under-pressure in rooms. Used in conjunction with either a pneumatic damper drive or (indirectly in cascade) with volume-flow controllers (supply or return air) in sealed or relatively sealed rooms. All the listed room-pressure controllers comply 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.

Baseplate of glass-fibre-reinforced thermoplastic with high-sensitivity measuring diaphragm; snap-on lid; front plate with the adjusters for setpoint and P-band; control action can be changed externally (factory setting is B); suitable for mounting in panels, (vertically) onto walls, onto rails (as per C-EN 50024) or elsewhere using the fixing bracket (accessory). Compressed-air connection Rp <sup>1</sup>/<sub>8</sub> with female thread. Low-pressure connections: 2 stepped push-on connectors for soft plastic tubing (internal  $\emptyset$  4 and 6 mm). Measuring connection M4.

Туре	Setting range			Air capacity	Weight	
	Ра			l <sub>n</sub> /h	kg	
RLP 100 F901	-20+20			400	0.6	
RLP 100 F915	-50+50			400	0.6	
RLP 100 F924 -1	8035 / +	-35+180	1)	400	0.6	
Output pressure	0.21.0 ba	r		Reset time (0100%)		015 s
Remote setpoint adjust.	0.21.0 bar			Linearity		1%
	F901	F915	F924	Permiss. operation pres	sure p <sub>stat</sub>	± 3 kPa
Response sensitivity	0.1 Pa	0.25 Pa	0.36 Pa	Permissible pressure to	the	
P-band 0100% $\widehat{=}$	040 Pa	0100 Pa	0145 Pa	low-pressure connect	tions	± 3 kPa
Supply pressure <sup>2)</sup>	$1.3 \text{ bar} \pm 0.$	1		Connection diagram		A02883
Air consumption	50 l <sub>n</sub> /h			Dimension drawing		M297570
Permissible amb. temp.	055 °C			Fitting instructions		MV 505811
Degree of protection	IP 30			-		

Accessories

-XMP50/50P Pressure gauge, range -50...+50 Pa or -20...+20 Pa (see PDS, Section 68) 0297354 000\* Short screw-type connector (R  $\frac{1}{8}$ ) for soft plastic tubing, internal dia. 4 mm;

3 pcs required

0297838 001\* Bracket for two XMP pressure gauges

0297091 000\* Blanking piece for unused opening in bracket

0297867 001\* Reference pressure container

**0297870 001\*** Fixing bracket for fitting the controller to ceilings, floors or panels.

\*) Dimension drawing or wiring diagram are available under the same number

<sup>1)</sup> Change from measuring over-pressure to under-pressure by transposing the  $\Delta p$  measuring lines

See Section 60 on regulations concerning the quality of supply air, especially at low ambient temperatures.

## Operation

The measured pressure difference is converted by the low-pressure amplifier into the pneumatic standard signal of 0.2...1.0 bar and compared with the variable pressure signal for the setpoint  $X_s$ . The PI-controller compensates without lasting error for the control deviation. The setpoint  $X_s$  set at the controller can be adjusted externally via connection 6, in which case the value set serves as the minimum limitation.

N.B.: The pressure to be controlled should always be connected to the '+' connection, even in the case of under-pressure control. Changing from over- to under-pressure control is realised exclusively by the corresponding setpoint value.

The control action can be changed from B (factory setting) to A using the change-over switch.

## Additional information on accessories

0297838 001 Bracket for two XMP pressure gauges. Includes:

1 adaptor (0297596) for tube (internal Ø 1.7 or 4.1);

1 Connector (0297112) with seal M4/push-on connector for tube (internal Ø 1.7);

1 m tube (internal Ø 1.7) and 2 screws.

Use the blanking piece (0297091) to cover the unused opening in the bracket. The pressure gauge for indicating the room pressure should be connected to the actual-value terminal M.

#### **Engineering and fitting notes**

The unit should not be fitted laterally (as depicted below, right).



#### Technical information

Technical manual: VAV 7 000 621 003





# **Connection diagram**









297091



**Dimension drawing** 





## Examples of use

 Control facility for variable air volume with re-heater, for 'closed rooms', controlled for over- and/or under-pressure, activating the supply-air controller has controlaction B; normally-open re-heater; room-temperature controller has controlaction A.



2. Control facility for variable air volume with re-heater, for 'closed rooms', controlled for over- and/or under-pressure, activating the exhaust-air controller has controlaction A; normally-open re-heater; room-temperature controller has control action A.



3. Control facility for variable air volume with re-heater, for 'closed rooms', controlled for over- and/or under-pressure, activating the supply-air controller has controlaction B; normally-closed re-heater; room-temperature controller has control action B.



4. Control facility for variable air volume with re-heater, for 'closed rooms', controlled for over- and/or under-pressure, activating the exhaust-air controller has controlaction A; normally-closed re-heater; room-temperature controller has control action B.



5. Control facility for variable air volume with re-heater, for 'closed rooms', controlled for over- and/or under-pressure, activating the supply-air controller has controlaction B; normally-open re-heater; room-temperature controller has control action A.



1	VAV controller	5	External line restrictor	Ventil	Valve
2	Damper/valve drive	6	Pressure controller	FO	EA (exhaust air)
3	Pressure-release unit	7	Remote setpoint adjuster	ZU	SA ( supply air)
4	Room-temperature controller	8	Manual switch or E-P relay	NO	Normally open
			-	NC	Normally closed