

RCP 20, 21: P-controller

How energy efficiency is improved

Enables the implementation of individually optimised controls for maximum efficiency in pneumatic installations.

Areas of application

Pneumatic control in ventilation and air-conditioning equipment of temperature, pressure, pressure differential, humidity and flow rate in combination with appropriate transducers.

Features

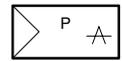
- P fixed-value controller
- P fixed-value/schedule controller
- Controllers can be used universally for the most varied of applications
- Housing, rack and front doors made of thermoplastic
- Suitable for wall or panel mounting
- Functional description and commissioning help inserted in front door
- Front panel with adjusters and 3 covered recesses for plug-in pressure gauge (XMP) making commissioning easier
- Setpoint adjuster X_S adjustable manually with scales for all Centair measuring ranges
- All settings very easy to make with a coin and % scale
- M4 measuring connections, control action adjustable (delivered with control action B)
- Compressed-air connections R_p 1/8" female thread
- Complies with directive 97/23/EC Art. 3.3 on pressure equipment

Technical description

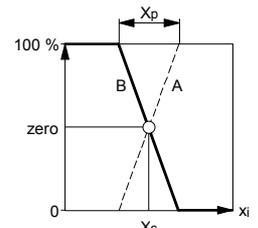
- Supply pressure 1.3 bar ± 0.1
- Easily accessible adjusters for X_S (setpoint), X_{P4} (P range), T_N (reset time), E (influence) and FF (schedule start point)
- Inputs for:
 - remote setpoint adjustment
 - controlled variable
 - command variable
- Outputs for:
 - output pressure for dampers or actuator



T03054

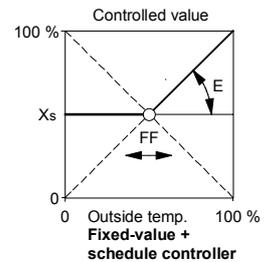


Y03247



P-controller

B03811



Fixed-value + schedule controller

B03257

Type	Description	Air capacity ¹⁾ l _n /h	Air consumption ²⁾ l _n /h	Weight kg
RCP 20 F001	fixed-value P-controller, min. limiter	400	40	0,7
RCP 21 F001	fixed-value + schedule P-controller	400	60	0,7
RCP 20:		RCP 21:		
Setpoint X _S	0...100%	Setpoint X _S	0...100%	
Remote adjust. of setpoint	0...100%	Remote adjustment of setpoint	0...100%	
P-band X _{P3}	0...100%	P-band X _{P3}	0...100%	
Zero point	0...100%	Zero point	0...100%	
Limiter B	0...100%	Shift starting point FF	0...100%	
		Influence E	0,25...3	
Supply pressure ³⁾	1,3 bar ± 0,1	Connection diagram, RCP 20	A02686	
Input pressures	0,2...1,0 bar	Connection diagram, RCP 21	A02687	
Output pressures	0,2...1,0 bar	Dimension drawing	M297100	
Permissible amb. temp.	0...55 °C	Fitting instructions	MV 3246	

Accessories

0297103 000 Additional bag of scales with 8 different scales according to the transducer used.

0297133 000 Universal scales for setpoint adjuster X_S; gradation 120, 80/160, 50/100, 30/60

1) 200 l_n/h for RCP 20 with limiter B activated.

2) Without transducer; air consumption for transducer connection 3 is 33 l_n/h more.

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

Operation

RCP 20 and RCP 21

The transducer at connection 3 converts the control variable into the pneumatic standard signal 0,2...1,0 bar (equivalent to 0...100%) within its measuring range. This actual-value signal x_{13} is compared with the fixed setpoint X_S . If there is control deviation, the output pressure changes depending on the set P-band X_{P3} (P-control). When the actual value is equal to the setpoint ($x_{13} = X_S$), the output pressure always assumes the value zero (0,6 bar).

By including the limiter B, the RCP 20 allows the output pressure y to be limited to a (variable) minimum value.

With a pressure of 0,2...1,0 bar at input 6, the setpoint can be set remotely from 0...100%. The internal setpoint setting then functions as a minimum limitation.

A restrictor (\varnothing 0,2 mm) for supplying the transducer is fitted at connection 3. The signals from the transducer and the output pressure can be checked via the M4 measuring connection or shown via the manometer.

RCP 21: additional functions

The transducer at connection 5 converts the command variable (e.g. outside temperature) into the pneumatic standard signal 0,2...1,0 bar (equivalent to 0...100%). This signal (x_{15}) is fed to the command circuit which, together with the setting parameters FF and E, creates a program for the setpoint shift of the following P-controller. The characteristic for the influence E can be placed in any of the four quadrants.

Because the outside temperature is often fed to more than one controller, the transducer at connection

Additional details

RCP 20: Front plate with adjusters for setpoint, P-band, zero and minimum limiter of y .

RCP 21: Front plate with adjusters for setpoint, P-band, zero, influence and shift starting point.

Additional information on accessories

0297103 000 Additional bag of eight alternative scales

5...35 °C	20...90 %rh
-20...40 °C	0...5 mbar
0...120 °C	5...10 mbar
80...200 °C	10...15 mbar

Technical information

Technical manual: *centair* system 304991 003

5 must be supplied by a separate (\varnothing 0,2 mm) restrictor.

Connection diagrams

Dimension drawing

RCP 20



Example: Room-temperature control

RCP 21



Example: Room-temperature control

1	Supply pressure	X_S	Variable setpoint	x_{13}	Control variable
2	Output pressure	X_{P3}	P-band for P-controller	x_{15}	Command variable
4	Actual value for P-controller	zero	zero point	y	Output pressure
5	Command variable for fixed-value + schedule	FF	Shift starting point for fixed-value + schedule	S1	Control action for fixed-value + schedule
6	Remote setpoint adjustment	E	Influence	S2	Control action for controller
		B	Limiter		

Dimension drawing

