

RCP 20 & 21: P-controller

For universal use as a P-controller in ventilation and air-conditioning systems or similar. Used in conjunction with the relevant transducers for controlling temperature, humidity, pressure and flow. Conforms to the regulations on pressure equipment (97/23/EG Art. 3.3).

Housing and insert of thermoplastic; front door of thermoplast; front plate with the setting knobs and three covered openings for plug-in manometers (XMP); setpoint adjuster X_S can be set manually, with scales for all centair measuring ranges; all other settings are made using a coin and the % scale; measuring connection M4; control action can be changed (factory setting is B); suitable for wall or panel mounting; compressed-air connection $R_p \frac{1}{8}$ female thread; includes a bag of scales (297103).

Type	Description	Air capacity ¹⁾	Air consumption ²⁾	Weight kg
RCP 20 F001	fixed-value P-controller, min. limiter	400 l _n /h	40 l _n /h	0.7
RCP 21 F001	fixed-value + schedule P-controller	400 l _n /h	60 l _n /h	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 \pm 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_{i3} 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 ($x_{i3} = X_S$), 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.

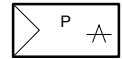
RCP 21: additional functions

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_{i5}) 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.

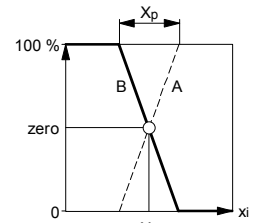
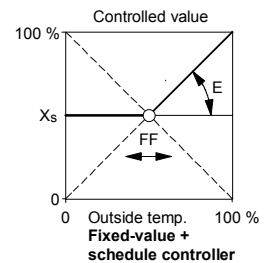
Because the outside temperature is often fed to more than one controller, the transducer at connection 5 must be supplied by a separate (\varnothing 0.2 mm) restrictor.



T03054



Y03247

P-controller
B03811

B03257

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

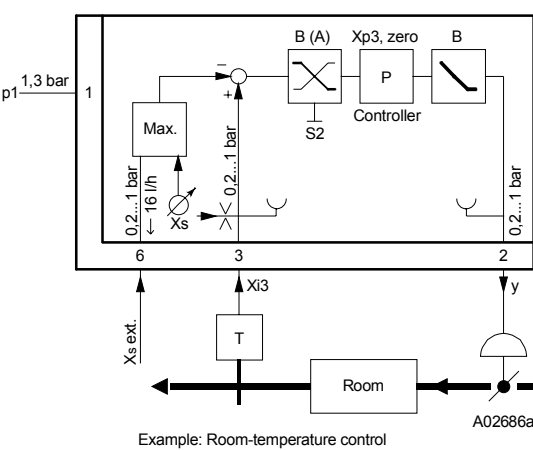
0297103 000 Additional bag of eight alternative scales
5...35 °C 20...90 %rh
-20...40 °C 0...5 mbar
0...120 °C 5...10 mbar
80...200 °C 10...15 mbar

Technical information

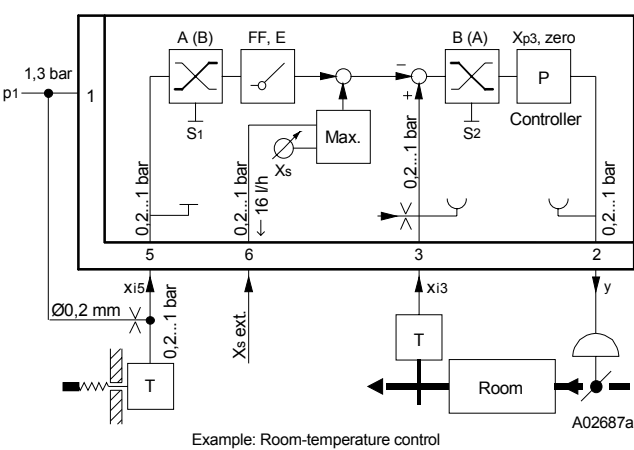
Technical manual: centair system 304991 003

Connection diagrams

RCP 10



RCP 11



1	Supply pressure	X _S	Variable setpoint	x _{i3}	Control variable
2	Output pressure	X _{P3}	P-band for P-controller	x _{i5}	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

