RCP 10, 11: PI-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
- PI fixed-value controller
- PI 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 ranges
- All settings very easy to make with coin and % scale
- M4 measuring connections, control action adjustable (delivered with control action B)
- Rp $\frac{1}{8}$" female thread
- Complies with directive 97/23/EC Art. 3.3 on pressure equipment

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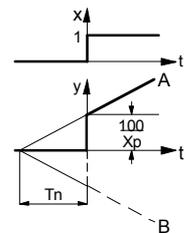- Supply pressure 1.3 bar ± 0.1
- Easily accessible adjusters for X_S (setpoint), X_{P4} (P range), T_n (reset time), E (influence) and FF (schedule start point)
- Inputs for:
  - remote setpoint adjustment
  - controlled variable
  - command variable
- Outputs for:
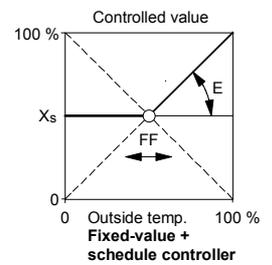 - output pressure for dampers or valve actuator

T03082

Y03248

PI-controller
B02214

Fixed-value + schedule controller
B03257

Type	Description	Air capacity l_n/h	Air consumption [1] l_n/h	Weight kg
RCP 10 F001	fixed-value PI-controller	400	30	0,7
RCP 11 F001	fixed-value/schedule PI controller	400	30	0,7

RCP 10:		RCP 11:	
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_{P4}	0...100%	P-band X_{P4}	0...100%
Reset time T_n	1...15 min	Reset time T_n	1...15 min
		Shift starting point FF	0...100%
		Influence E	0,25...3
Supply pressure [2]	1,3 bar ± 0,1	Connection diagram, RCP 10	A02690
Input pressures	0,2...1,0 bar	Connection diagram, RCP 11	A02691
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] Without transducer; air consumption for transducer connection 4 is 33 l_n/h more.
[2] See Section 60 on regulations concerning the quality of supply air, especially at low ambient temperatures.

Sauter Components

Operation

RCP 10 and RCP 11

The transducer at connection 4 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_{i4} is compared with the fixed setpoint X_S. If there is control deviation, the output pressure y is adjusted until the actual value is equal to the setpoint (PI-control). 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 (Ø 0,2 mm) for supplying the transducer is fitted at connection 4. The signals from the transducer and the output pressure can be checked via the M4 measuring connection or shown via the manometer.

RCP 11: 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 PI-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 (Ø 0,2 mm) restrictor.

Additional details

RCP 10: Front plate with adjusters for setpoint, P-band and reset time.
RCP 11: Front plate with adjusters for setpoint, P-band, reset time, influence and shift starting point.
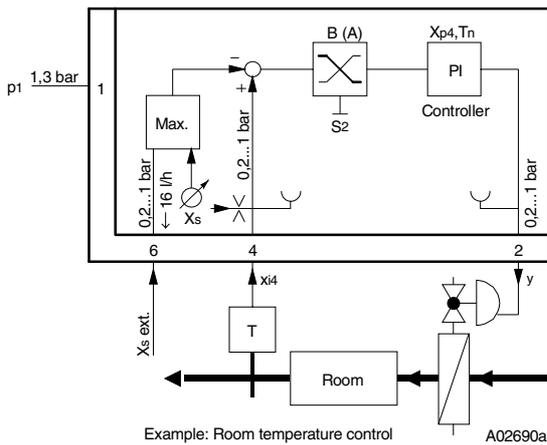
Additional information on accessories

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

Example: Room temperature control   A02690a

RCP 11

Example: Supply-air temperature control   A02691a
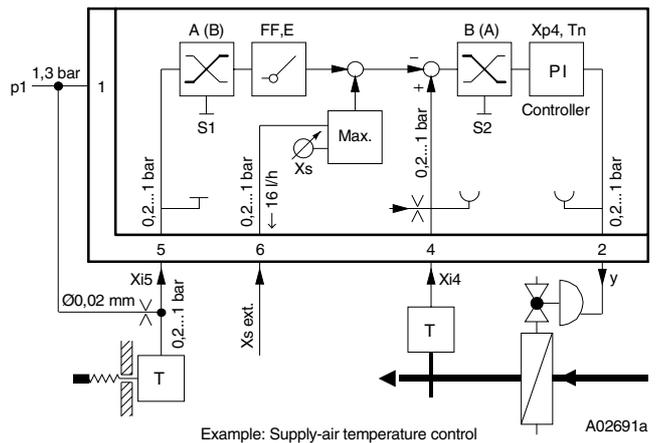
1	Supply pressure	T_n	Reset time	x_{i4}	Control variable
2	Output pressure	X_S	Variable setpoint	x_{i5}	Command variable
4	Actual value for PI-controller	X_{P4}	P-band for PI-controller	y	Output pressure
5	Command variable for fixed-value + schedule	FF	Shift starting point for fixed-value + schedule	S1	Control action for fixed-value + schedule
6	Remote setpoint adjustment	E	Influence	S2	Control action for controller

Sauter Components

Dimension drawing

Rp1/8
(ISO 7/1)

5x22

11

13

45

□144

6

100

109

93

16

max.5

min.155

□138(+1/-0)
DIN 43700

M297100

Sauter Components