**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 XS 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 XS (setpoint), XP4 (P range), Tn (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

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Air capacity $I_n$/h</th>
<th>Air consumption $I_n$/h</th>
<th>Weight kg</th>
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</thead>
<tbody>
<tr>
<td>RCP 10 F001</td>
<td>fixed-value PI-controller</td>
<td>400</td>
<td>30</td>
<td>0,7</td>
</tr>
<tr>
<td>RCP 11 F001</td>
<td>fixed-value/schedule PI controller</td>
<td>400</td>
<td>30</td>
<td>0,7</td>
</tr>
</tbody>
</table>

| RCP 10:        |                              |                      |                        |          |
| Setpoint $X_S$ | 0...100%                      |                      |                        |          |
| Remote adjust. of setpoint | 0...100%                  |                      |                        |          |
| P-band $X_{P4}$ | 0...100%                     |                      |                        |          |
| Reset time $T_n$ | 1...15 min                  |                      |                        |          |
| RCP 11:        |                              |                      |                        |          |
| Setpoint $X_S$ | 0...100%                      |                      |                        |          |
| Remote adjustment of setpoint | 0...100%                 |                      |                        |          |
| P-band $X_{P4}$ | 0...100%                     |                      |                        |          |
| 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
Input pressures 0,2...1,0 bar
Output pressures 0,2...1,0 bar
Permissible amb. temp. 0...55 °C

**Connection diagram, RCP 10** A02690
**Connection diagram, RCP 11** A02691
**Dimension drawing** M297100
**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

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1) Without transducer; air consumption for transducer connection 4 is 33 ln/h more.
2) See Section 60 on regulations concerning the quality of supply air, especially at low ambient temperatures.

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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 $x_4$ 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 ($x_5$) 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

RCP 11

Example: Room temperature control
Example: Supply-air temperature control

1 Supply pressure
2 Output pressure
4 Actual value for PI-controller
5 Command variable for fixed-value + schedule
6 Remote setpoint adjustment

$T_r$: Reset time
$X_s$: Variable setpoint
$X_{p4}$: P-band for PI-controller
FF: Shift starting point for fixed-value + schedule
E: Influence

$X_4$: Control variable
$X_5$: Command variable
$y$: Output pressure
S1: Control action for fixed-value + schedule
S2: Control action for controller