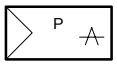
RCP 40: Damper control unit



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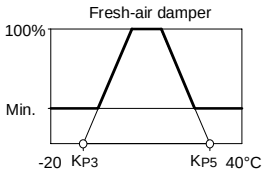


Trapezium diagram

B03259

How energy efficiency is improved

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

Areas of application

Activation of a temperature-dependent outside-air/return-air damper in combination with a transducer in ventilation and air-conditioning equipment. Control of the mixed-air temperature with two separate transducers, e.g. in winter operating mode.

Features

- Control of fresh air damper, depending on trapezium diagram for the outdoor temperature
- 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
- 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 Rp $^1/_8$" 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 KP_{3+5} (schedule start point), XP_{3+5} (P range)
- Inputs for:
  - control action
- Outputs for:
  - output pressure for damper drive

Type	Description	Air Capacity l_n/h	Air consumption [1] l_n/h	Weight kg
RCP 40 F001	trapezium diagram	400	70	0,7

Supply pressure [2]	1,3 bar ± 0,1	Permissible amb. temp.	0...55 °C
Input pressures	0,2...1,0 bar		
Output pressures	0,2...1,0 bar	Connection diagram	A02692
Shift starting pt. KP_3, KP_5	0...100%	Dimension drawing	M297100
P-band X_{P3}, X_{P5}	0...100%	Fitting instructions	MV 3247
Minimum limiter B	0...100%		

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 connections 3 and 5 is 33 ln/h more in each case.
2) See Section 60 on regulations concerning the quality of supply air, especially at low ambient temperatures.

Operation

The pressure at connections 3 and 5 is fed in each case to an amplifier with variable shift starting point KP (zero point) and variable P-band X_P (amplification). The amplifier at input 3 has control action A; the one at input 5 has control action B. Due to the following minimum selection, the smaller of the two amplifier outputs is always passed on. This forms a trapezoidal characteristic which can be rotated at the KP points (at 0 bar). Both characteristics are limited to a (variable) minimum value by the following limiter B.

In its main use, a transducer is fed to both inputs, e.g. for the control of a fresh-air damper dependent on outside temperature (trapezium diagram).

The fresh-air damper can also be controlled with dependency on two separate transducers, e.g. damper control dependent on outside temperature in summer, and control of the mixed-air temperature in winter.

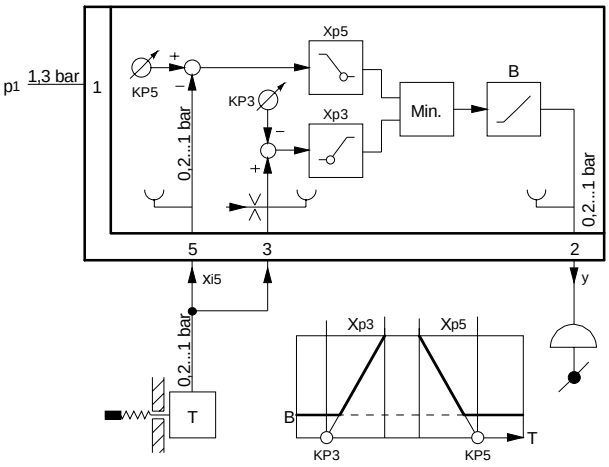
Additional details
Front plate with adjusters for P-bands (X_{P3}, X_{P5}), shift starting point (KP3, KP5) and limitation (B).

Additional information on accessories
0297103 000 Additional bag of eight alternative scales

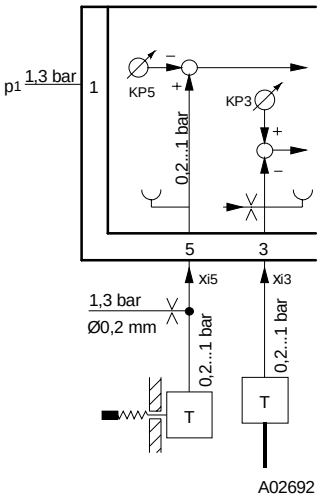
5...35 °C	20...90 %rh
–20...40 °C	0...5 mbar
0...120 °C	5...10 mbar
80...200 °C	10...15 mbar

Technical information
Technical manual: *centair* system 304991 003

Connection diagrams
Damper control for summer and winter



Open-loop control in summer, closed-loop control in winter



1	Supply pressure	KP3	Shift starting point, summer	B	Minimum limiter
2	Output pressure	KP5	Shift starting point, winter	x_{i3}	Mixed-air temperature
3	Input for control action A (winter)	XP_3	P-band, summer	x_{i5}	Outside temperature
5	Input for control action B (summer)	XP_5	P-band, winter	y	Output pressure

Dimension drawing