

## RXP 81: Pneumatic master controller

### How energy efficiency is improved

The energy-efficient control of buildings is achieved by adapting the heating and ventilation systems to the outside temperature.

### Areas of application

Outside-temperature-dependent setpoint shift of several temperature controllers with fixed/schedule function, e.g. in combination with TWUP210 transducer.

### Features

- Central setpoint correction for easy on-site master control
- Option of reducing setpoint at central location, e.g. for night set-back
- Inscribed front panel with 4 adjusters for easy commissioning
- Practical control cabinet housing in thermoplastic, 144 x 144 mm
- Complies with directive 97/23/EC Art. 3.3 on pressure equipment

### Technical description

- Supply pressure 1.3 bar  $\pm$  0.1
- Correction of zero point in range of up to  $\pm$  2 K
- Max. adjustment of  $\pm$  6 K possible

| Type   | Correction zero              | Maximum shift | Air capacity $I_n/h$    | Weight kg               |
|--|------------------------------|---------------|-------------------------|-------------------------|
| <b>RXP 81 F001</b>                                 | $\pm 0...2$ K                | $\pm 6$ K     | 400                     | 0,75                    |
| Supply pressure <sup>1)</sup>                      | 1,3 bar $\pm$ 0,1            |               | Slope S                 | 0,14...2 K/K            |
| Input pressure w1                                  | 0,2...1,0 bar, (-20...40 °C) |               | Shift starting point FF | -20...40 °C             |
| Output pressure affecting the controller setpoint: |                              |               | Permissible amb.t temp. | 0...55 °C               |
| fixed-value control                                | 0,6 bar                      | 0 K           | Connection diagram      | <a href="#">A02107</a>  |
| schedule control                                   | 0,6...1,2 bar                | +6 K          | Dimension drawing       | <a href="#">M297100</a> |
| setpoint reduction                                 | 0,6...0 bar                  | -6 K          | Fitting instructions    | <a href="#">MV 3257</a> |

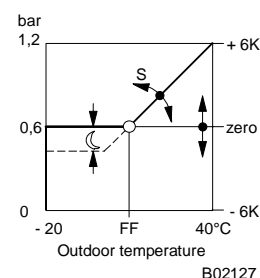
<sup>1)</sup> See Section 60 on regulations concerning the quality of supply air, especially at low ambient temperatures.



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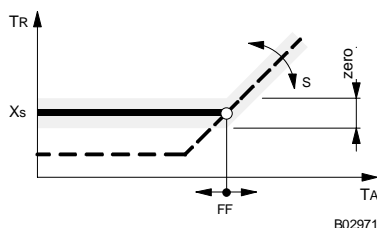
### Operation

This is divided into several separate functions as detailed below.

#### Fixed-value control

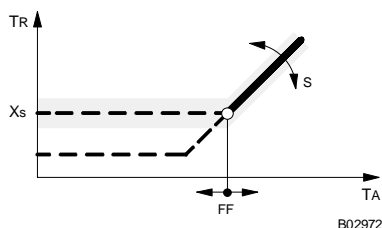
In this operating state, the master relay has an output pressure of 0,6 bar. The temperature controllers regulate to the scale value ( $X_s$ ) that has been set.

Using the 'zero' adjuster, these setpoints can be corrected centrally by  $\pm 2^\circ\text{C}$  as required.



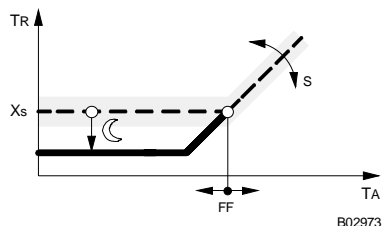
#### Schedule control (setpoint shift)

If the outside temperature exceeds the variable shift starting point (FF), then the master relay allows a pressure of between 0,6 and 1,2 bar. This pressure is the input pressure for the temperature controllers, the setpoint of which is raised in accordance with the set slope S.



Setpoint reduction (e.g. night setback)

When connection no. 6 is opened via an electro-pneumatic relay, the pressure controlled by the master relay falls by 0,6...0 bar. This pressure is the input pressure for the temperature controllers, the setpoint of which is lowered in accordance with the setpoint reduction level set at the  $\text{C}$  adjuster.

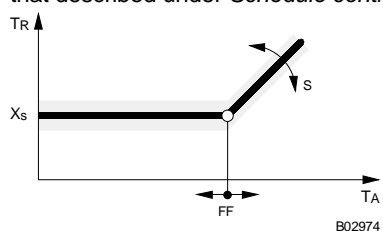


$\text{C}$  = setpoint reduction

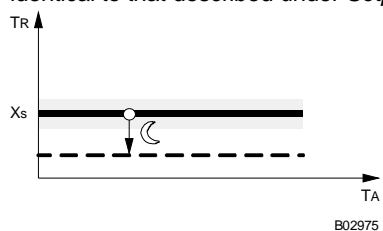
Installation is much simpler if not all of the functions are needed.

Fixed-value + schedule control only (with setpoint shift)

Connection 6 remains open. Setpoint reduction at the  $\text{C}$  adjuster is at zero. This function is identical to that described under *Schedule control above*.

Fixed-value control only, with setpoint reduction (e.g. night setback)

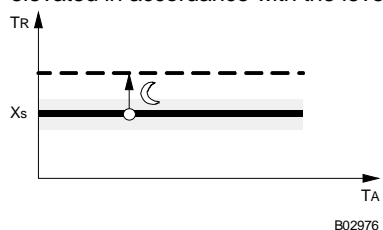
Connection 4 remains open. The position of the adjusters for FF and S are irrelevant. This function is identical to that described under *Setpoint reduction above*.



$\text{C}$  = setpoint reduction

Fixed-value control only, with setpoint increase (e.g. night increase)

Connection 4 remains open. The position of the adjusters for FF and S are irrelevant. When connection no. 6 is opened via an electro-pneumatic relay, the pressure controlled by the master relay rises by 0,6...0 bar. This pressure is the input pressure for the temperature controllers, the setpoint of which is elevated in accordance with the level set at the  $\text{C}$  adjuster.



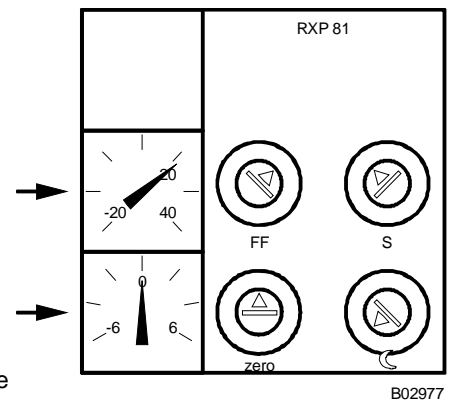
$\text{C}$  = setpoint elevation

**Key**

|       |  |
|-------|--|
| S     | = slope, setpoint shift                              |
| FF    | = shift starting point, setpoint of the master relay |
| $X_s$ | = setpoint of the temperature controller             |
| $T_A$ | = outside temperature                                |
| $T_R$ | = room temperature                                   |

### Manometer display

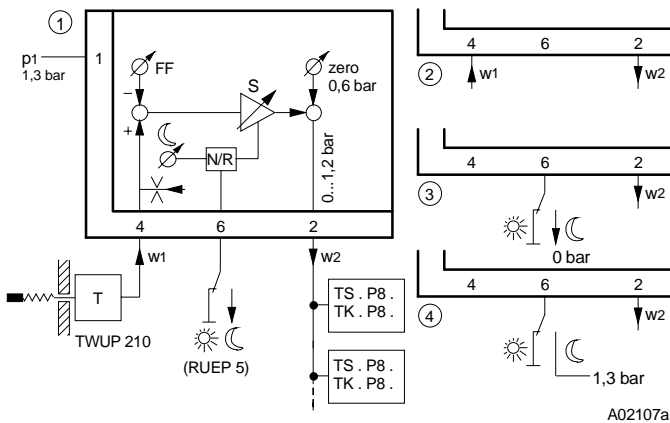
- The temperature of the outside-temperature transducer is shown on the -20 to +40 °C manometer
- The -6 to +6 °C manometer has multiple functions:-
  - (a) Fixed-value control: shows the central 'zero' room-temperature correction.
  - (b) Schedule control: shows the room-temperature shift.
  - (c) Reduced operation: shows the room-temperature setback for heating, or the room-temperature elevation for cooling.



### Additional information on equipment

Card insert with *Centair* components; integrated throttle (restrictor) of 0,2 mm diameter in connection no. 4 for the air supply of the outside-temperature transducer; front door of transparent plastic.

### Connection diagram

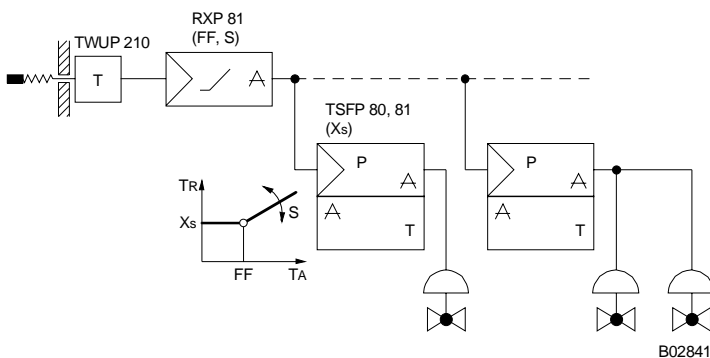


### Key

- |     |  |
|-----|--|
| ①   | Fixed-value + schedule control, N/R = decrease |
| ②   | Fixed-value + schedule control, without N/R    |
| ③   | Fixed-value control, N/R = setback             |
| ④   | Fixed-value control, N/R = elevation           |
| N/R | external change-over 'normal/reduced'          |
| FF  | shift starting point                           |

### Example of use

- Addition of a command variable (outside temperature) to several room-temperature controllers of type TSFP 80,81 or duct-temperature controllers of type TFK 81.



## Dimension drawing

