Blowdown Timer
PRS 50

Description

The PRS 50 blowdown timer is used to trigger periodic blowdowns by means of the MPA 26, MPA 27, MPA 46, MPA 47, MPA 48 or MPA 110 rapid-closing intermittent blowdown valve.

It is used for keeping the boiler water in good condition in pressurised steam plants, particularly during operation without constant or with limited supervision.

Configuration, operation and visual display

Configuration, operation and visual display are achieved using the rotary knob, the integrated green 4-digit, 7-segment display and status LEDs.

Function

The PRS 50 blowdown timer generates configurable control pulses for opening an intermittent blowdown valve.

When the power supply to the PRS 50 blowdown timer is switched on, a two-minute remaining runtime counts down before the first blowdown. Once this time has elapsed, blowdown takes place with the parameters set in the timer.

Next, the set interval begins. The remaining runtime until the next blowdown pulse is shown on the 7-segment display.

Standby/burner mode

To prevent loss of water, automatic intermittent blowdown can be disabled in standby mode or when the burner is switched off. To do this, a control signal is applied to the standby input.

When the system has switched to normal operation, a blowdown pulse is triggered with the set parameters (blowdown time and number of pulses).

For demand-based intermittent blowdown, the standby input can be configured as a burner input. In this mode, the remaining runtime until the next blowdown only begins counting down if the burner is active (control signal applied to the burner input).

In this mode, the blowdown interval equals the sum total of burner firing times.

Manual intermittent blowdown

To trigger a blowdown pulse manually, a button (N/O contact) can be connected to the "Manual intermittent blowdown" input. After this, a new blowdown interval begins and the remaining runtime until the next intermittent blowdown is displayed.

Monitoring by limit switches

Volt-free limit switches can be used to monitor problem-free operation of the intermittent blowdown valve. For this, you need to enable limit switch monitoring (factory setting = Off). The contact is closed in standby mode and open during intermittent blowdown.

The opening and closing of the limit switch is monitored during intermittent blowdown. In the event of a malfunction, an alarm is triggered.

Function test and failure diagnosis

Function testing and failure diagnosis can be performed using the rotary knob and the 7-segment display.

Display and actions in the event of errors

■ Errors in the PRS 50 blowdown timer, the electrical connection or in settings are shown with an error code.

■ If an error occurs, the alarm is triggered and the intermittent blowdown valve closes.

By turning the rotary knob, you can change the parameters, simulate the alarm or initiate an intermittent blowdown pulse.

Alarm simulation

By turning the rotary knob, you can start a test sequence for the valve relay or alarm relay.

Technical data

Supply voltage

■ 24 V DC +/-20 %

Power consumption

■ Max. 4 W

Current input

■ Max. 0.3 A

Required external fuse

■ M0.5A

Inputs

■ 1 x input for manual intermittent blowdown (external button)

■ 1 x input for limit switch (volt-free) on intermittent blowdown valve

■ 1 x volt-free input 24 V DC (standby/burner) for inputting an external switching command (intermittent blowdown OFF/burner active)

Outputs

Intermittent blowdown valve

■ 1 x volt-free relay contact (changeover relay)

Alarm output

■ 1 x volt-free N/O contact (as an alarm contact, open in the event of an error)

■ Maximum switching current 8 A at 250 V AC/30 V DC - cos $\varphi = 1$

■ Contact material AgNi0.15, AgSnO2

■ Inductive loads must have interference suppression (RC combination) as per the manufacturer's specification

Indicators and controls

■ 1 x green 4-digit, 7-segment display for showing status information

■ 3 x LEDs (2 x yellow, 1 x red)

  ◆ S/B   yellow (standby/burner input active, depending on configuration)

  ◆ ▾   yellow (intermittent blowdown valve open)

  ◆ ⚠   red (alarm)

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- 1 x 4-pole code switch for configuration (standby/burner function)

- 1 x rotary knob with integrated push-button for setting parameters and executing the test function

Protection class
- II double insulated

IP rating to EN 60529
- Housing: IP 40
- Terminal strips: IP 20

Electrical safety
- Degree of contamination 2 for installation in control cabinet with protection rating IP 54, fully insulated

Admissible ambient conditions
- Service temperature: - 10 °C - 55 °C
  (0 °C - 55 °C at power-on)
- Storage temperature: - 20 °C - 70 °C *
- Transport temperature: - 20 °C - 80 °C *
  (< 100 hours)
- Air humidity: max. 95 %, non-condensing
  * Only switch on after a 24-hour defrosting period

Housing
- Housing material: Lower section of black polycarbonate (glass-fibre reinforced), front of grey polycarbonate
- 2 x 8-pole terminal strips, removable separately
- Max. cross-section per screw terminal:
  - 1 x 4.0 mm² solid, or
  - 1 x 2.5 mm² stranded with sleeve, or
  - 2 x 1.5 mm² stranded with sleeve
- Housing attachment: Mounting clip on support rail TH 35 (to EN 60715)

Weight
- Approx. 0.2 kg

Applicable directives:
The PRS 50 blowdown timer has been tested and approved for use in the scope governed by the following directives and standards:

- Directive 2014/35/EU   Low Voltage Directive
- Directive 2014/30/EU   EMC Directive
- Directive 2011/65/EU   RoHS II Directive

Important notes
Connecting the 24 V DC power supply
The PRS 50 blowdown timer is supplied with 24 V DC. A safety power supply unit that delivers a Safety Extra Low Voltage (SELV) must be used to supply the equipment with 24 V DC.

Use an M0.5A fuse as an external fuse.

Connecting the output contacts (intermittent blowdown valve/alarm)
Use a slow-blow T2.5A fuse to protect the switching contacts.
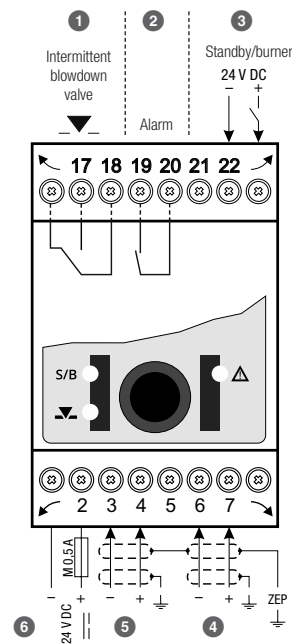
Connecting the standby/burner input (24 V DC)
- 24 V DC input, for external command intermittent blowdown OFF/burner active (standby/burner configuration).
- Maximum cable length = 30 m.

Connecting the inputs (manual intermittent blowdown/limit switch)
- Connect a button (N/O contact) here if you require this function.
- Connect the volt-free limit switch of the intermittent blowdown valve here.
- Use a shielded, multi-core, twisted-pair control cable with a minimum conductor size of 0.5 mm², e.g. LIYCY 2 x 0.5 mm².
- Apply the shield at both ends.
- Maximum cable length = 100 m.
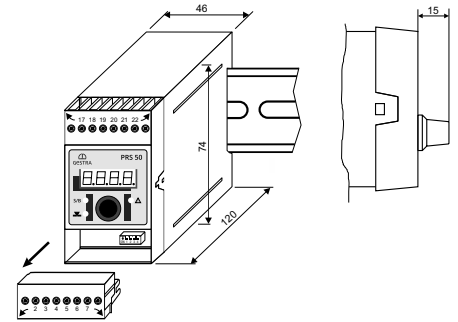
Dimensions

Fig. 1

Wiring diagram

Key
1. Intermittent blowdown valve relay output
2. Alarm relay output
3. Standby/burner input (24 V DC) for an external command: intermittent blowdown OFF/burner active
4. Limit switch
5. Button (N/O contact) for manual blowdown
6. 24 V DC supply voltage (M0.5A)

Fig. 2

Please note our general terms of business.

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