

Operating and installation instructions

Filter control

RM-BV 12

BasicLine

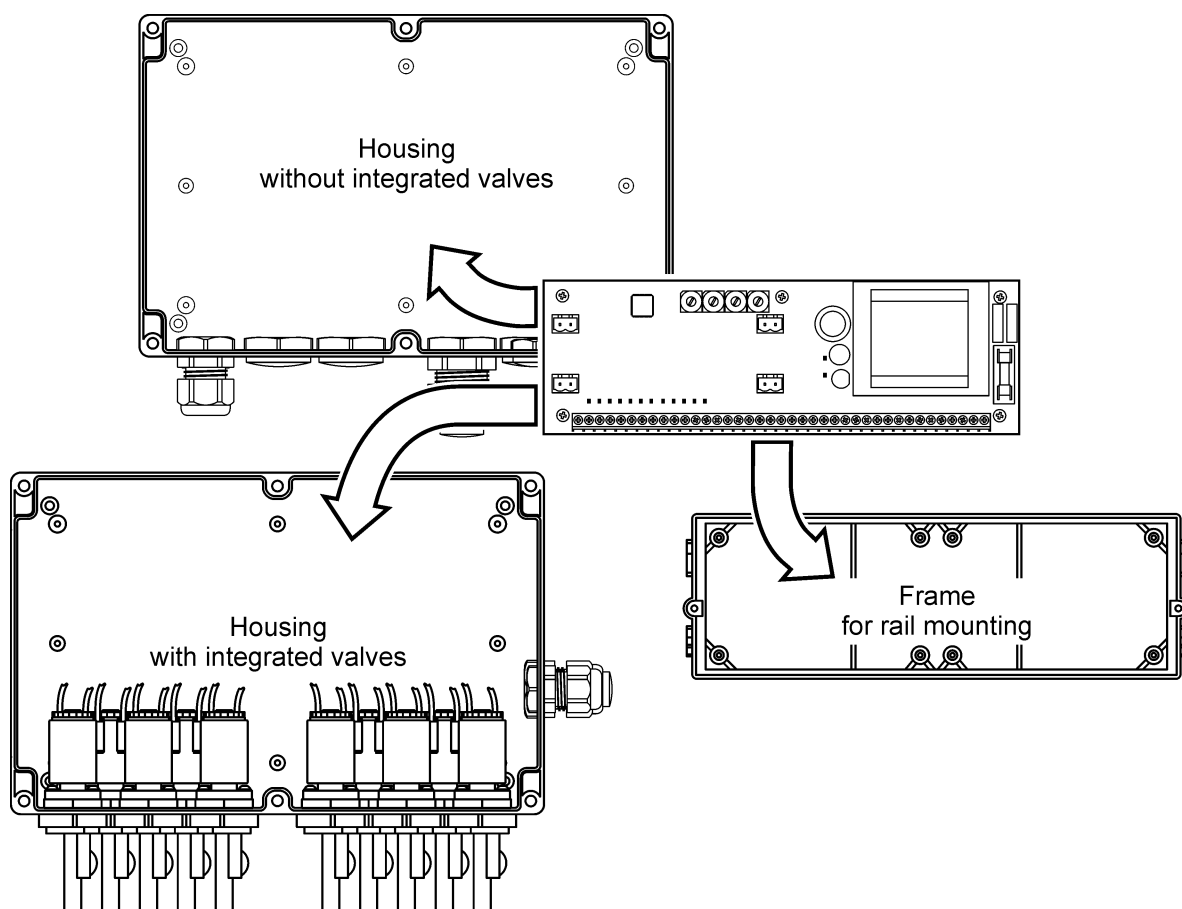


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Regulations

2014/30/EU

EN 60.204 Part 1

2014/35/EU

Legends



Important note



Warning against physical and health hazards or damages to the product and other properties.

1 Safety instructions

Improper installation of the *RM-BV 12* or associated equipment may cause the failure of the device, serious or even fatal injuries. In addition to general safety rules for equipment in industrial electrical installations pay particular attention to the following points:

- The *RM-BV 12* must only be installed by qualified persons according to the provisions of the standards IEC 364 and DIN VDE 0105 for electrical equipment.
- All applicable laws, conditions, rules and regulations governing the installation of electrical equipment must be observed.
- Equipment with protection rating IP00 without covers must only be configured by authorised expert staff when disconnected and whilst observing the local safety and accident prevention rules.
- The *RM-BV 12* is only allowed to be operated in its specified operating range.



Switch off the supply voltage before replacing the *RM-BV 12* or components connected to it. Failure to do so may cause equipment damage.

2 Device description

The *RM-BV 12* filter controller is used to control solenoid valves on filtering separators. One *RM-BV 12* can control up to 12 solenoid valves featuring a rated voltage of 24 V DC.

Standard operation

Using the set control times for pulse time and pause time, all connected solenoid valves are controlled one after the other starting with a cleaning pulse. Once the last valve has been operated, the control circulation is continued with the first valve. This happens until the supply voltage is turned off. Once the supply voltage has been turned on again, a restart occurs as described above.

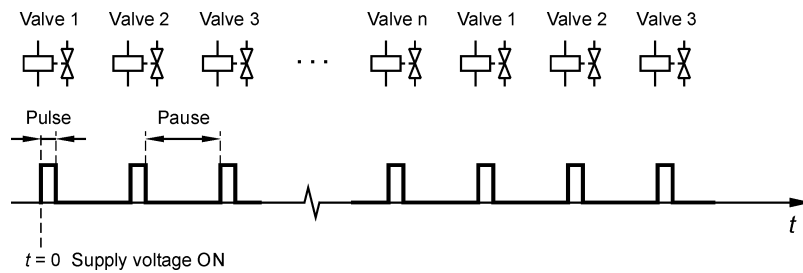
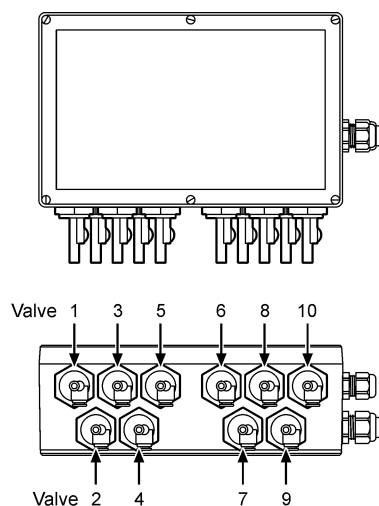


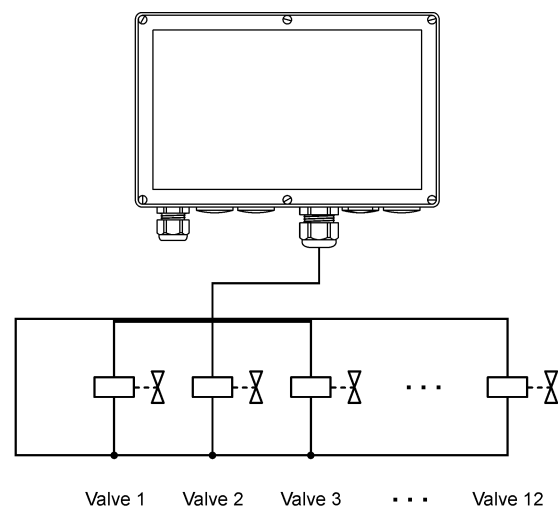
Figure 1: Standard operation of the *RM-BV 12* filter controller

3 Design versions

- Enclosed housing with integrated solenoid valves (refer to figure 2, left)
- Enclosed housing without integrated solenoid valves (refer to figure 2, right)
- on a carrier for rail mounting (refer to figure 7)



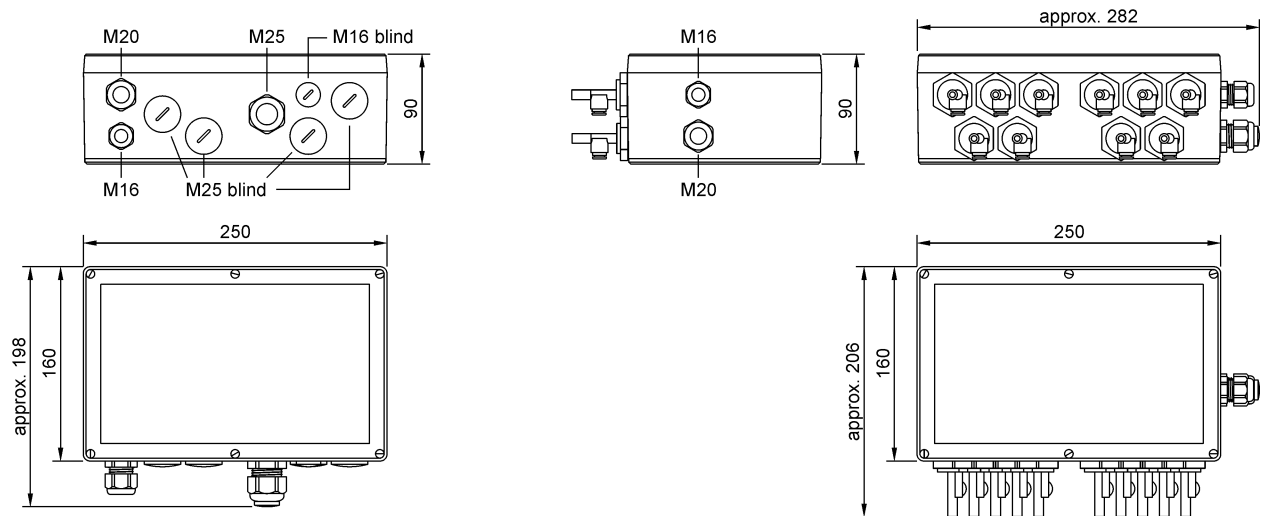
Solenoid valves integrated in the housing



Control of external solenoid valves

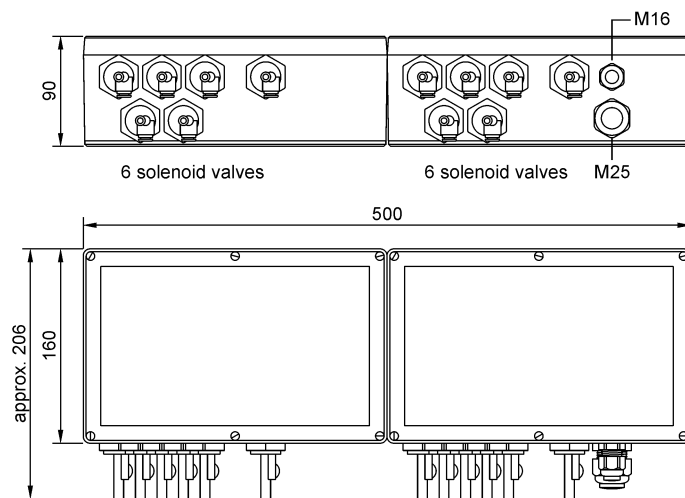
Figure 2: Design versions with and without solenoid valves

4 Assembly



RM-BV 12

RM-BV 12 with up to 10 integrated valves
(shown with 10 valves)



RM-BV 12 with 11 or 12 integrated valves
(shown with 12 valves)

Figure 3: Design versions within enclosed housings

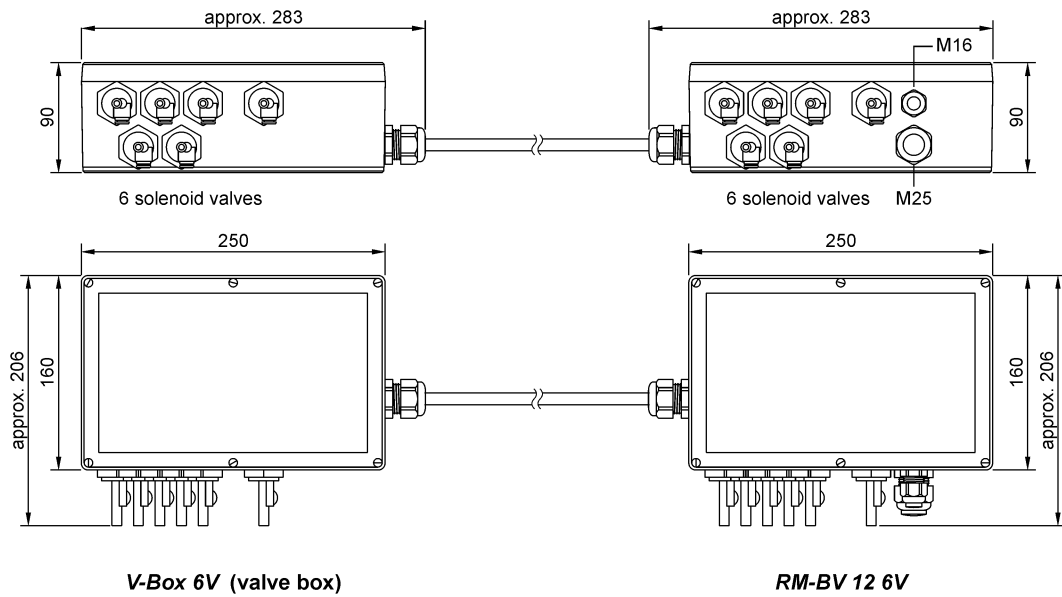


Figure 4: RM-BV 12 6V with separate valve box V-Box 6V

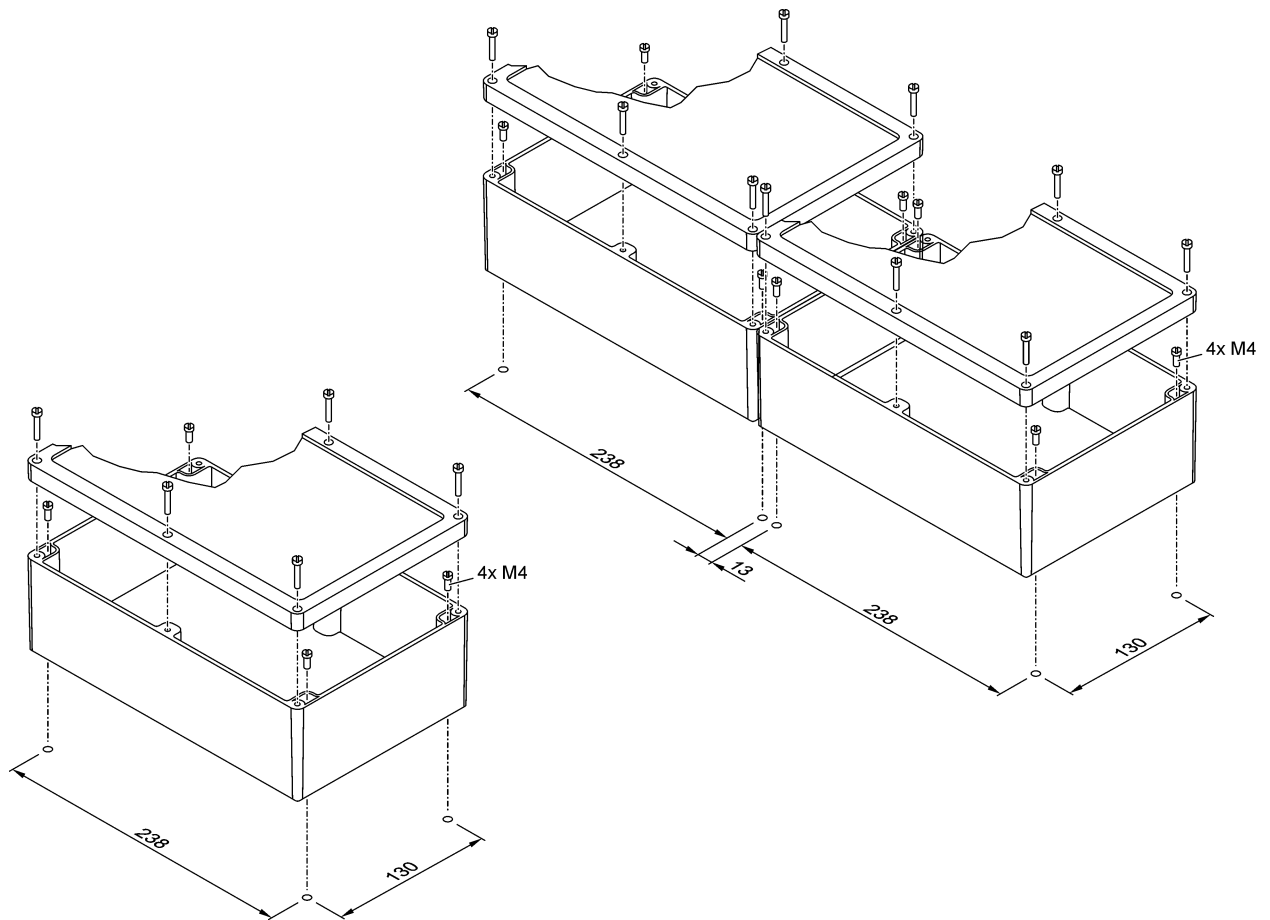
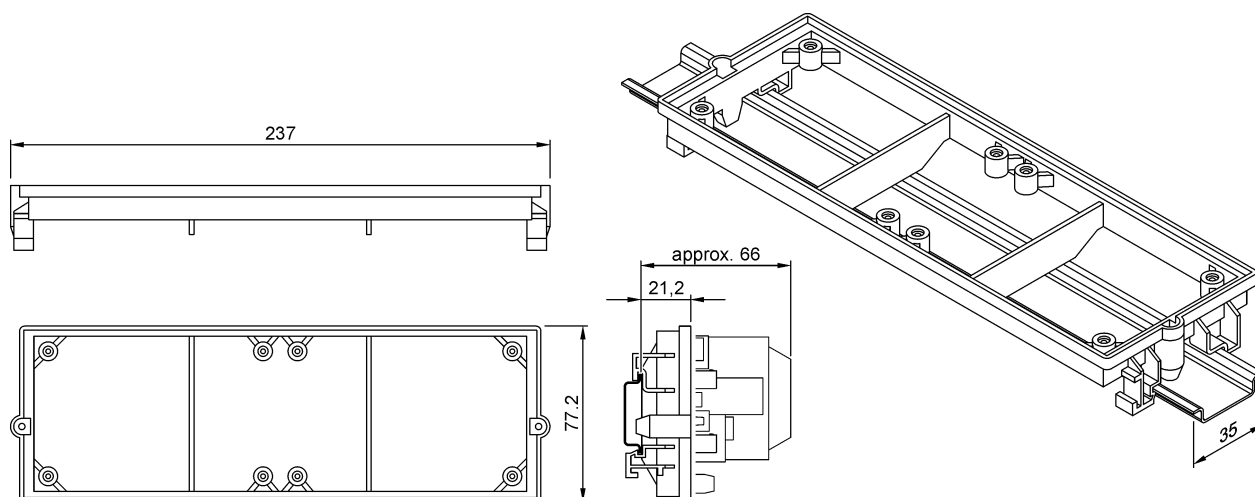


Figure 5: Housing assembly

**Figure 6: Valve numbering****Figure 7: Design version with carrier for rail mounting**

5 Indicating and configuration elements / electrical connections

Figure 8 shows the design of the *RM-BV-12* board with all indicating and configuration elements and electrical terminals. For a detailed description see the next page.

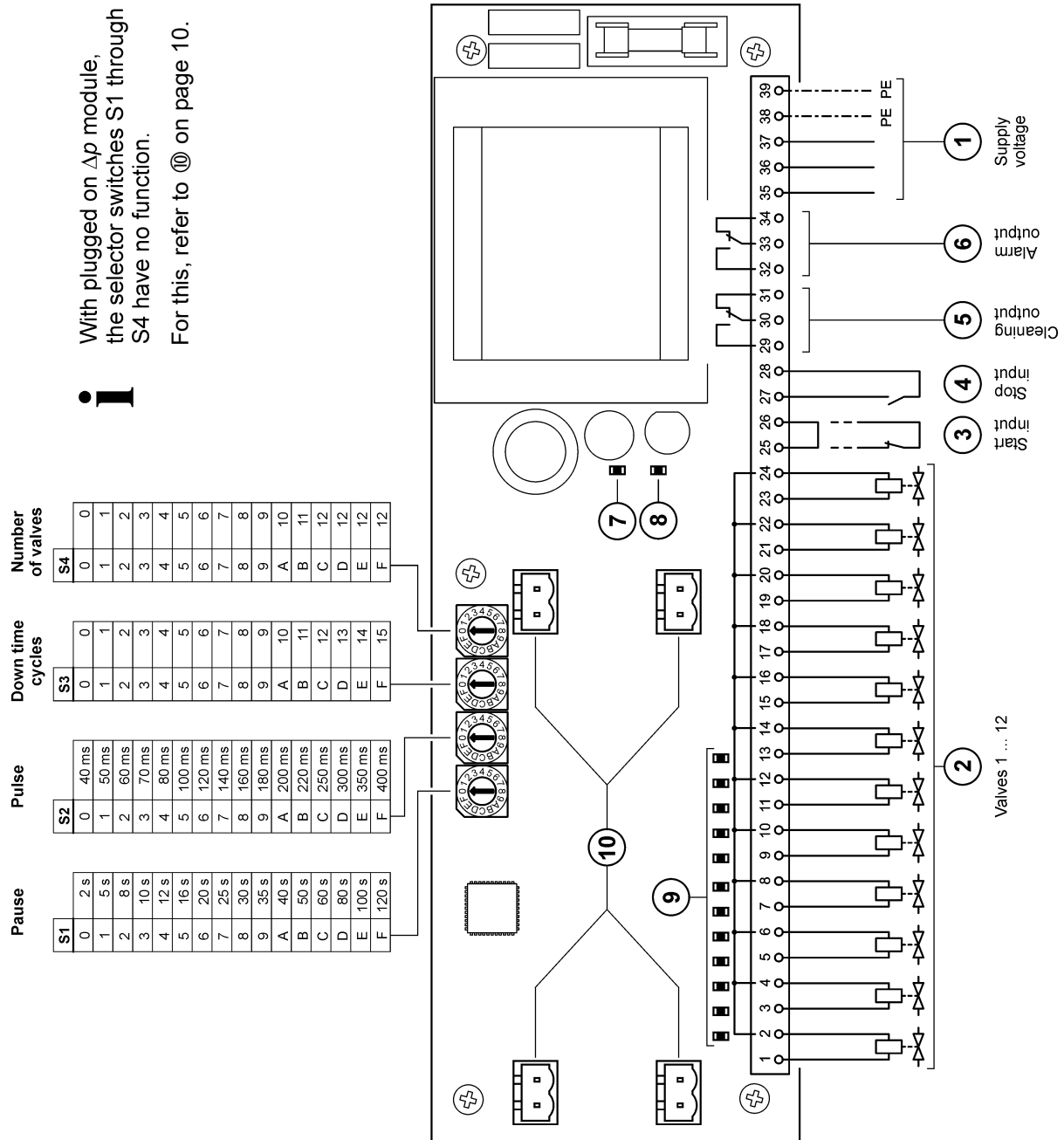


Figure 8: Design of the *RM-BV-12* board and connection diagram

Item number
in figure 8

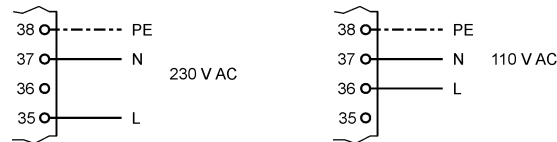
Description

1 Supply voltage

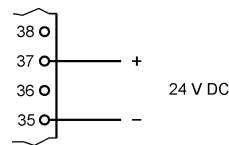


There are separate controller models for the supply voltages 230 V AC / 110 V AC and 24 V DC. Before connecting the supply voltage, check whether the rated voltage of the controller matches with the supply voltage (see nameplate).

230 / 110 VAC version



24 VDC version

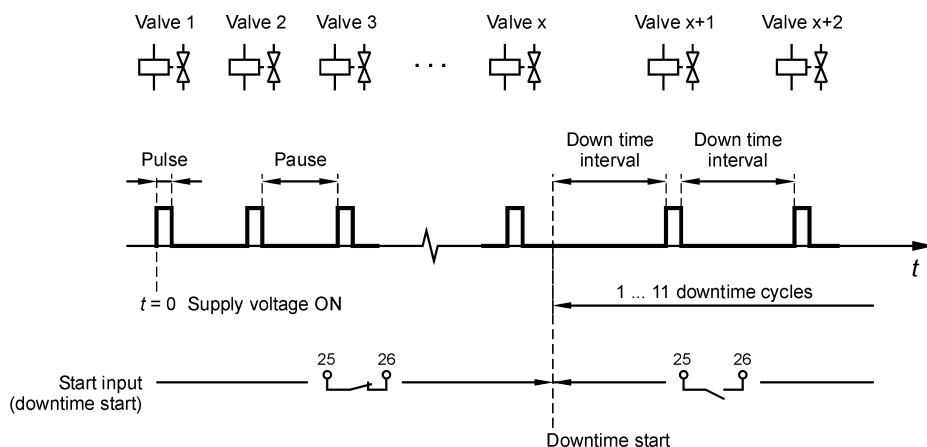


2 Valve outputs

It is possible to connect up to 12 solenoid valves featuring a rated voltage of 24 V DC to the terminals 1 ... 24.

3 Start input

The start input for downtime cleaning (terminals 25, 26) is factory-bridged. When a contact (NC) connected to this input is opened, the set downtime cycles are started, beginning with the pulse time. Downtime cleaning is resumed with the valve following to the last controlled valve. During downtime, the pause time is always 12 sec.



- ④ Stop input**

When a contact (NO) connected to the input, terminals 27, 28, is closed a running cleaning process immediately stops. When the contact opens again, cleaning is resumed with the valve that follows to the last operated valve. Active downtime cycles remain unaffected by the stop input.
- ⑤ Cleaning output**

The potential-free relay output "Cleaning", terminals 29 (NO), 30 (COM) and 31 (NC), is active during a running cleaning process and downtime cleaning.
- ⑥ Alarm output**

The potential-free "Alarm" relay output, terminals 32 (NO), 33 (COM) and 34 (NC) is used for self-monitoring of the *RM-BV 12*. This output is energised during trouble-free operation. Following events will cause the relay contact to drop off:

 - Failure of the supply voltage
- ⑦ LED "ON"**

The LED "ON" lights when the supply voltage is applied. This LED blinks during the downtime cleaning.
- ⑧ LED "Stop"**

The "Stop" LED lights when the "Stop" input is energised (refer to ④ "Stop input").
- ⑨ LEDs V1 ... V12**

A LED assigned to a valve output lights when the relevant output is closed.
- ⑩ Plug-type connector for dP module (optional)**

The RM-BV 12 can be optionally fitted with the dP module, which is plugged on the base board. This extends the functionality of the filter controller. Among others, then a dP-dependent cleaning and a differential pressure monitoring can be configured.

There is a separate documentation (*RM-BV 12 DP*) for the *RM-BV 12* with dP module.

6 Technical specifications

Item	Data	Terminals
Supply voltage	Design version 230 / 110 V AC: 230 V AC +/-10 % 50-60 Hz Power consumption: approx. 125 mA	35 (L) 37 (N) 38 (PE)
	110 V AC +/-10 % 50-60 Hz Power consumption: approx. 220 mA	36 (L) 37 (N) 38 (PE)
	Design version 24 V DC: 24 V ... 30 V DC Power consumption: approx. 1.5 A	35 (-) 37 (+)
Outputs for solenoid valves	12 short-circuit-proof outputs, 24 V DC, max. 1.9 A	1 (valve 1) 3 (valve 2) 5 (valve 3) to 23 (valve 12) 2, 4, 6 ... 24 (COM)
Signal input	2 inputs 24 V DC, to be served potential-free	25, 26 27, 28
Signal outputs	2 relay outputs (changeover contact), potential-free Max. contact rating: 250 V AC, 10 A 50 V DC, 1,5 A / 30 V DC, 10 A (ohmic)	29, 30, 31 32, 33, 34
Fuse	Design version 230 / 110 V AC: T 0.8 A, 250 V, 5 x 20 mm	
	Design version 24 V DC: T 2.5 A, 250 V, 5 x 20 mm	
Temperature range	-20 °C ... +60 °C	
Protection class	Housing IP66, NEMA 4	
Weight	within housing with 10 integrated valves: approx. 2,600 g on carrier: approx. 750 g	
Installation height	Max. 3000 m above sea level	
Dimensions	see section 4 „Assembly“ on page 5	

Disclaimer

The contents of this documentation has been verified for correctness and completeness. Nevertheless, errors can not be excluded so that we cannot guarantee the correctness of this information. Subject to alterations at any time.