
System Monitoring

Devices for system monitoring are decisive for the safe operation of a vacuum system. Schmalz offers measuring and control components with which you can monitor and protect your system.

Basically, the following components are used for system monitoring and control:

- Vacuum switches
- Combined vacuum/pressure switches
- Pressure switches

Components for system monitoring are used in all areas of automated handling, such as in feeder systems in the automobile industry, in the plastics industry and in other applications, in order to improve the process safety.

System-monitoring components are also used for the control of energy-saving modules which reduce the energy consumption to the absolutely necessary minimum.



Each of these product groups has its own specific properties and defined application areas. The following important information is intended to assist you in the selection of the correct product.

Vacuum switches

Vacuum switches are used to measure vacuum values in the range -1 to 0 bar. Various versions are used, depending on the task:

- **Electronic vacuum switches with digital display VS-V-D / VS-V-W-D**
where high demands exist for switching accuracy and repeatability, switching times and ease of use.
- **Electronic Vacuum switches VS-V-AH/AV-T-PNP(-S)**
Adjustment with the aid of the "Teach" button for fast and easy programming of the two digital switching points and the hysteresis.
- **Electronic Vacuum switches VS-V-A-PNP and VS-V**
are available with two switch outputs (digital and analogue) and can thus also be used as vacuum sensors.
- **Electronic "mini" vacuum switches VS-V-SA und VS-V-SD**
where space is at a premium. These switches are available with either digital or analogue outputs.
- **Pneumatic vacuum switches VS-V-PM**
for monitoring of vacuum systems where no electric power is available.
- **Electromechanical vacuum switches VS-V-A-EM**
For monitoring of simple vacuum-handling devices (e.g. for safety devices). These vacuum switches have a fixed hysteresis.

Pressure switches

Pressure switches are used in the pressure range 0 to 10 bar. The following versions are available:

- **Electronic pressure switches with digital display VS-P10-D and VS-P10-W-D**
where high demands exist for switching accuracy and repeatability, switching times and ease of use.
- **Electronic pressure switches VS-P10-AH/AV-T-PNP(-S)**
Adjustment with the aid of the "Teach" button for fast and easy programming of the two digital switching points and the hysteresis.
- **Electronic pressure switches with digital and analogue outputs VS-P1**
are available with two switch outputs (digital and analogue) and can thus also be used as pressure sensors.

Combined vacuum/pressure switches

Combined vacuum/pressure switches (VS-P) can measure vacuum and pressure in the range -1 to 10 bar. Due to the wide measuring range, their switching accuracy is slightly less than that of single-purpose vacuum or pressure switches.

- **Electronic vacuum/pressure switches VS-P**

are available with 2 switching outputs (digital and analogue) and can thus be used as vacuum or pressure sensors.

Planning checklist for selection of measuring and control devices

Which measuring range is required?	Vacuum only, pressure only or both? Is overpressure resistance necessary?
Which functions are needed?	Switch with a digital switching output? Switch with two digital outputs? Switch with one digital and one analogue output? With adjustable hysteresis?
Which output signals are required? How should the switch be set?	Adjustment with potentiometer? Programming with keypad? Quick setting with teach button?
What is the supply voltage and which signal voltages are needed?	Voltage range? Switching voltages for the controller? Which switching capacity is needed (switched current in mA)?
Which measuring accuracy is necessary?	Hysteresis? Repeatability? Temperature stability?
Which connection facilities exist?	Connection cable (pin assignments, material)? Interchangeability?
Which size and weight restrictions apply?	Mounting facilities? Is on-site adjustment possible?