

# Vacuum Switch

## VSA100A



CE

## Product Identification

In all communications with INFICON, please specify the information on the product nameplate.

|                             |           |
|-----------------------------|-----------|
| INFICON AG, LI-9496 Balzers |           |
| Model:.....                 | <b>CE</b> |
| PN:.....                    |           |
| SN:.....                    |           |

## Validity

This document applies to products with part number:

399-001

The part number (PN) can be found on the product nameplate.

We reserve the right to make technical changes without prior notice.

All dimensions are indicated in mm.

The references to diagrams, e.g. (4/5), consist of the fig. no. and the item no. in that order.

## Description

The Vacuum Switch VSA100A is used as a pressure safety switch in vacuum systems.

## Intended Use

The Vacuum Switch VSA100A is used as a pressure safety switch in vacuum systems. It is used e.g. to automatically interrupt the gas supply when venting vacuum systems with a purge gas at a pressure of 3 mbar below atmospheric pressure.

## Unpacking and Checking

Unpack the Vacuum Switch VSA100A immediately after delivery, even if it is to be put into operation at a later date.

Before doing so, examine the shipping container for any external damage. Then completely remove the packaging materials.

The shipping container and packaging materials must be kept in the event of complaints about damage.

In order to ensure that no damages have been caused during transport carefully examine Vacuum Switch VSA100A visually.

If any damage is discovered, report it immediately to the forwarding agent and insurer. If the damaged part has to be replaced, please get in touch with the orders department.

## Design and Function

At a differential pressure of 6 mbar when pumping down or 3 mbar when venting below atmospheric pressure, an elastic diaphragm actuates a changeover contact which in turn may be used to directly switch any ancillary equipment. The electrical connections are placed under a plastic cover.

## Scope of Delivery

Vacuum Switch VSA100A complete with cable, 3 m  
 Operating Manual German  
 Operating Manual English

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For cross-references within this document, the symbol (→  XY) is used.


# 1 Safety

## 1.1 Symbols Used


Symbols for residual risks

 **DANGER**

Information on preventing any kind of physical injury.

 **WARNING**


Information on preventing extensive equipment and environmental damage.

 **Caution**

Information on correct handling or use. Disregard can lead to malfunctions or minor equipment damage.



## 1.2 Personnel Qualifications

 **Skilled personnel**

All work described in this document may only be carried out by persons who have suitable technical training and the necessary experience or who have been instructed by the end-user of the product.

## 1.3 General Safety Instructions

- Adhere to the applicable regulations and take the necessary precautions for the process media used.  
Consider possible reactions between the materials (→ 5) and the process media.
- Adhere to the applicable regulations and take the necessary precautions for all work you are going to do and consider the safety instructions in this document.
- Before beginning to work, find out whether any vacuum components are contaminated. Adhere to the relevant regulations and take the necessary precautions when handling contaminated parts.

Communicate the safety instructions to other users.

## 1.4 Liability and Warranty

INFICON assumes no liability and the warranty becomes null and void if the end-user or third parties

- disregard the information in this document
- use the product in a non-conforming manner
- make any kind of changes (modifications, alterations etc.) to the product
- use the product with accessories not listed in the corresponding product documentation.

## 2 Technical Data

|                                      |  |
|--------------------------------------|--|
| Switching pressure                   | 6 mbar<br>(below atmospheric pressure)                                       |
| Return switching pressure            | 3 mbar<br>(below atmospheric pressure)                                       |
| Switching inaccuracy                 | ±2 mbar  |
| Max. operating pressure (abs.)       | 2000 mbar  |
| Operating temperature                | 0 to 85 °C   |
| Helium permeation                    | $<1 \cdot 10^{-6}$ mbar·l·s <sup>-1</sup>                                    |
| Switching contact                    | changeover contact   |
| Switching capacity                   | 100 mA / 24 V (ac)<br>30 mA / 24 V (dc)                                      |
| Electrical connection                | standard cable 3 m   |
| Vacuum connection                    | DN 16 KF   |
| Protection type                      | IP 44  |
| Materials in contact with the medium | stainless steel 1.4305, 1.4310<br>stainless steel 1.4300 PTFE coated<br>EPDM |
| Internal volume                      | 2 cm <sup>3</sup>  |
| Weight                               | 315 g  |

Dimensions [mm]

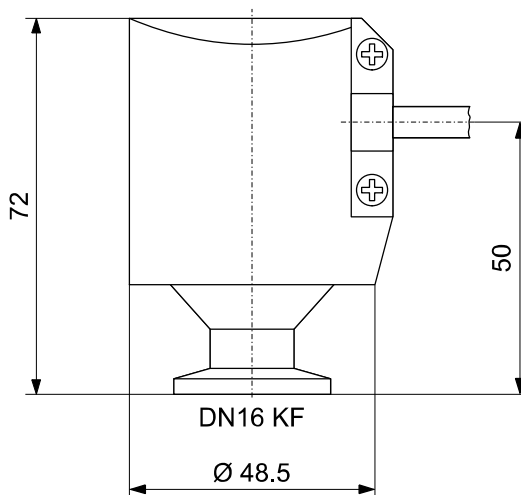


Fig. 1 Dimensional diagram VSA100A

## 3 Installation

### 3.1 Vacuum Connection

The VSA100A is connected to the vacuum system via a DN 16 KF small flange.

The VSA100A should preferably be mounted standing on its flange. Inclined mounting is also permissible, including the horizontal position. Downward installation is not permissible because in such a case condensate may collect in the pressure switch. This affects the measurements and may damage the pressure switch.

### 3.2 Electrical Connection



Fig. 2 Contact assignment of microswitch

The contact assignment is given in Fig. 2.

The VSA100A is supplied with a connected 3 m long standard cable. The length of this cable may be changed.

The electrical connection terminals and the strain relief are accessible after unscrewing the cross head screws and folding out the cap.

The contacts at the VSA100A are marked 1, 2 and 3 (see contact assignment Fig. 2).

The supply line has to be fuse-protected with max. 100 mA by the end-user.

Adhere to the applicable regulations and take the necessary precautions for all work you are going to do.


### 3.3 Start up

When leak detecting with a helium leak detector, spraying the pressure switch with helium may result in a helium proof. This is in general not due to a leak of the VSA100A, but is permeation of helium through the EPDM diaphragm.


## 4 Maintenance

The VSA100A requires no maintenance

## 5 Returning the Product



**WARNING**



**WARNING: forwarding contaminated products**


Products returned to INFICON for service or repair should preferably be free of harmful substances (e.g. radioactive, toxic, caustic or microbiological).


Adhere to the forwarding regulations of all involved countries and forwarding companies and enclose a completed declaration of contamination (Form under [www.inficon.com](http://www.inficon.com)).

Products that are not clearly declared as "free of harmful substances" are decontaminated at the expense of the customer.


When returning a product to INFICON, put it in a tight and impact resistant package.


## 6 Disposal


**DANGER**



**DANGER: contaminated parts**  
 Contaminated parts can be detrimental to health.  
 Before beginning to work, find out whether any parts are contaminated. Adhere to the relevant regulations and take the necessary precautions when handling contaminated parts.


**WARNING**



**WARNING: substances detrimental to the environment**  
 Electronic components must be disposed of in accordance with special regulations.  
 Dispose of such products in accordance with the relevant local regulations.

### Separating the components

After disassembling the product, separate its components according to the following criteria:

#### Contaminated components

Contaminated components (radioactive, toxic, caustic, or biological hazard etc.) must be decontaminated in accordance with the relevant national regulations, separated according to their materials, and recycled.

#### Other components

Such components must be separated according to their materials and recycled.



## EU Declaration of Conformity



We, INFICON, hereby declare that the equipment mentioned below complies with the provisions of the following directives:

- 2014/35/EU, OJ L 96/357, 29.3.2014  
(Low Voltage Directive; Directive relating to electrical equipment designed for use within certain voltage limits)
- 2014/30/EU, OJ L 96/79, 29.3.2014  
(EMC Directive; Directive relating to electromagnetic compatibility)
- 2011/65/EU, OJ L 174/88, 1.7.2011  
(RoHS Directive; Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment)

### Product

Vacuum Switch  
VSA100A

### Standards

Harmonized and international/national standards and specifications:

- EN 61000-6-2:2005  
(EMC: generic immunity standard for industrial environments)
- EN 61000-6-3:2007 + A1:2011  
(EMC: generic emission standard for residential, commercial and light-industrial environments)
- EN 61010-1:2010  
(Safety requirements for electrical equipment for measurement, control and laboratory use)
- EN 61326-1:2013; Group 1, Class B  
(EMC requirements for electrical equipment for measurement, control and laboratory use)

### Manufacturer / Signatures

INFICON AG, Alte Landstraße 6, LI-9496 Balzers

2 May 2017

2 May 2017




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Notes

## Notes

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