



PS 113 A

Low-Pressure Safety Switch

Operating Manual GA09616_002_C0

Part Number
230 011



General Information

Product Identification

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

Leybold GmbH, D-50968 Köln	
Typ:.....	CE
No:.....	
F-No:.....	

Validity

This document applies to products with part number:

230 011

The part number (No:) 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 low-pressure safety switch PS 113 A is used as a pressure safety switch in vacuum systems.

Intended Use

The low-pressure safety switch PS 113 A 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 low-pressure safety switch PS 113 A 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 low-pressure safety switch PS 113 A 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.

General Information

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

Low-pressure safety switch PS 113 A complete with cable, 3 m
Operating Manual German
Operating Manual English

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Für Seitenverweise im Text wird das Symbol (→  XY) verwendet, für Verweise auf andere Dokumente das Symbol (→  [Z]).


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.



Notice

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 (→ 6) 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.

Safety, Technical Data

1.4 Liability and Warranty

Leybold 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 (below atmospheric pressure)
Return switching pressure	3 mbar (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 ⁻¹
Switching contact	changeover contact
Switching capacity	100 mA / 24 VAC 30 mA / 24 VDC
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 stainless steel 1.4300 PTFE coated EPDM
Internal volume	2 cm ³
Weight	315 g

Dimensions [mm]

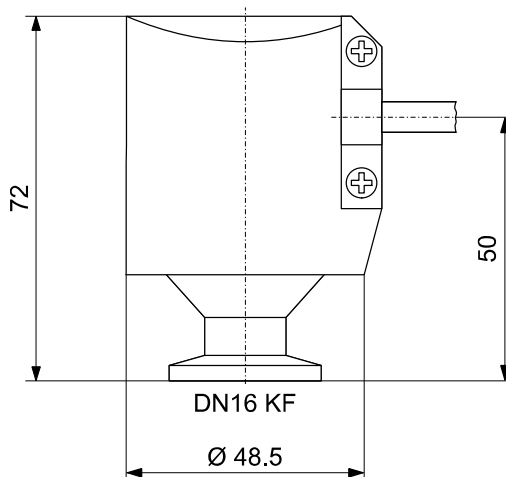


Fig. 1 Dimensional diagram
PS 113 A

3 Installation

3.1 Vacuum Connection

The PS 113 A is connected to the vacuum system via a DN 16 KF small flange.

The PS 113 A 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 PS 113 A 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 PS 113 A 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 PS 113 A, but is permeation of helium through the EPDM diaphragm.


Maintenance, Returning the Product

4 Maintenance

The PS 113 A requires no maintenance

5 Returning the Product

**WARNING**



WARNING: forwarding contaminated products


Products returned to Leybold 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.leybold.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 Leybold, 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.

Declaration of Contamination

Declaration of Contamination



Declaration of Contamination of Compressors, Vacuum Pumps and Components

The repair and / or servicing of compressors, vacuum pumps and components will be carried out only if a correctly completed declaration has been submitted. Non-completion will result in delay. The manufacturer can refuse to accept any equipment without a declaration.

A separate declaration has to be completed for each single component.

This declaration may be completed and signed only by authorized and qualified staff.

Customer/Dep./Institute : _____ Address : _____ _____ Person to contact: _____ Phone : _____ Fax: _____ End user: _____	Reason for return: <input checked="" type="checkbox"/> applicable please mark Repair: <input type="checkbox"/> chargeable <input type="checkbox"/> warranty Exchange: <input type="checkbox"/> chargeable <input type="checkbox"/> warranty <input type="checkbox"/> Exchange already arranged / received Return only: <input type="checkbox"/> rent <input type="checkbox"/> loan <input type="checkbox"/> for credit Calibration: <input type="checkbox"/> DKD <input type="checkbox"/> Factory-calibr. <input type="checkbox"/> Quality test certificate DIN 55350-18-4.2.1															
A. Description of the Leybold product: Material description : _____ Catalog number: _____ Serial number: _____ Type of oil (ForeVacuum-Pumps) : _____	Failure description: _____ Additional parts: _____ Application-Tool: _____ Application- Process: _____															
B. Condition of the equipment																
<table style="margin-left: auto; margin-right: auto;"> <tr> <td style="border-right: 1px solid black; padding: 0 5px;">No¹⁾</td> <td style="border-right: 1px solid black; padding: 0 5px;">Yes</td> <td style="padding: 0 5px;">No</td> </tr> </table>	No ¹⁾	Yes	No	<table style="margin-left: auto; margin-right: auto;"> <tr> <td style="border-right: 1px solid black; padding: 0 5px;">No¹⁾</td> <td style="padding: 0 5px;">Yes</td> </tr> </table>	No ¹⁾	Yes										
No ¹⁾	Yes	No														
No ¹⁾	Yes															
1. Has the equipment been used _____ 2. Drained (Product/service fluid) _____ 3. All openings sealed airtight _____ 4. Purged _____ If yes, which cleaning agent _____ and which method of cleaning _____ 1) If answered with "No", go to D.	Contamination : toxic _____ corrosive _____ flammable _____ explosive ²⁾ _____ radioactive ²⁾ _____ microbiological ²⁾ _____ other harmful substances _____															
C. Description of processed substances (Please fill in absolutely)																
1. What substances have come into contact with the equipment ? Trade name and / or chemical term of service fluids and substances processed, properties of the substances According to safety data sheet (e.g. toxic, inflammable, corrosive, radioactive)																
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:5%; text-align: center;">X</td> <td style="width:30%;">Tradename:</td> <td style="width:65%;">Chemical name:</td> </tr> <tr> <td></td> <td>a)</td> <td></td> </tr> <tr> <td></td> <td>b)</td> <td></td> </tr> <tr> <td></td> <td>c)</td> <td></td> </tr> <tr> <td></td> <td>d)</td> <td></td> </tr> </table>		X	Tradename:	Chemical name:		a)			b)			c)			d)	
X	Tradename:	Chemical name:														
	a)															
	b)															
	c)															
	d)															
2. Are these substances harmful ? <input type="checkbox"/> No <input type="checkbox"/> Yes 3. Dangerous decomposition products when heated ? <input type="checkbox"/> No <input type="checkbox"/> Yes If yes, which ? _____																
²⁾ Components contaminated by microbiological, explosive or radioactive products/substances will not be accepted without written evidence of decontamination.																

D. Legally binding declaration

I / we hereby declare that the information supplied on this form is accurate and sufficient to judge any contamination level.

Name of authorized person (block letters) : _____



_____ Date

_____ signature of authorized person



EU Declaration of Conformity

EU Declaration of Conformity



EU Declaration of Conformity

(Translation of original Declaration of Conformity)

The manufacturer: Leybold GmbH
Bonner Strasse 498
D-50968 Köln
Germany

herewith declares that the products specified and listed below which we have placed on the market, comply with the applicable EU Directives. This declaration becomes invalid if modifications are made to the product without agreement of Leybold GmbH.

Product designation: Pressure switch, Switching Amplifier

Type designation: PS 113 A, SV 110
PS 115, SV 110

Part numbers:
230011
16004, 16074, 16078

The products complies to the following Directives:

Low Voltage Directive (2014/35/EU)

Electromagnetic Compatibility (2014/30/EU)

RoHS-Directive (2011/65/EU)

The following harmonized standards have been applied:

EN 61010-1:2010 Compressors and vacuum pumps - Safety requirements
Part 2: Vacuum pumps

EN 61326-1:2013 Electrical equipment for measurement, control and laboratory use —
EMC requirements — Part 1: General requirements
Emissions: Group 1, Class B
Immunity: Industrial electromagnetic environment

Documentation officer: Herbert Etges
T: +49(0)221 347 0
F: +49(0)221 347 1250
documentation@leybold.com

Cologne, October 24, 2016

Cologne, October 24, 2016

ppa. Martin Tollner
Head of Product Lines

ppa. Dr. Monika Mattern-Klosson
Head of Quality & Business Process Management

Sales and Service

Germany

Leybold GmbH

Sales, Service, Support Center (3SC)
Bonner Strasse 498
D-50968 Cologne
T: +49-(0)221-347 1234
F: +49-(0)221-347 31234
sales@leybold.com
www.leybold.com

Leybold GmbH

Sales Area North
Branch Office Berlin
Industriestrasse 10b
D-12359 Berlin
T: +49-(0)30-435 609 0
F: +49-(0)30-435 609 10
sales.bn@leybold.com

Leybold GmbH

Sales Office South
Branch Office Munich
Karl-Hammerschmidt-Strasse 34
D-85609 Aschheim-Dornach
T: +49-(0)89-357 33 9-10
F: +49-(0)89-357 33 9-33
sales.mn@leybold.com
service.mn@leybold.com

Leybold Dresden GmbH

Service Competence Center
Zur Wetterwarte 50, Haus 304
D-01109 Dresden
Service:
T: +49-(0)351-88 55 00
F: +49-(0)351-88 55 041
info.dr@leybold.com

Europe

Belgium

Leybold Nederland B.V.
Belgisch bijkantoor
Leuvensesteenweg 542-9A
B-1930 Zaventem
Sales:
T: +32-2-711 00 83
F: +32-2-720 83 38
sales.zv@leybold.com
Service:
T: +32-2-711 00 82
F: +32-2-720 83 38
service.zv@leybold.com

France

Leybold France S.A.S.
Parc du Technopolis, Bâtiment Beta
3, Avenue du Canada
F-91940 Les Ulis cedex
Sales and Service:
T: +33-1-69 82 48 00
F: +33-1-69 07 57 38
info.ctb@leybold.com
sales.ctb@leybold.com

Leybold France S.A.S.

Valence Factory
640, Rue A. Bergès
B.P. 107
F-26501 Bourg-lès-Valence Cedex
T: +33-4-75 82 33 00
F: +33-4-75 82 92 69
marketing.vc@leybold.com

Great Britain

Leybold UK LTD.

Unit 9
Silverglade Business Park
Leatherhead Road
Chessington
Surrey (London)
KT9 2QL
Sales:
T: +44-13-7273 7300
F: +44-13-7273 7301
sales.ln@leybold.com

Service:
T: +44-13-7273 7320
F: +44-13-7273 7303
service.ln@leybold.com

Italy

Leybold Italia S.r.l.

Via Trasimeno 8
I-20128 Mailand
Sales:
T: +39-02-27 22 31
F: +39-02-27 20 96 41
sales.mi@leybold.com
Service:
T: +39-02-27 22 31
F: +39-02-27 22 32 17
service.mi@leybold.com

Netherlands

Leybold Nederland B.V.

Floridadreef 102
NL-3565 AM Utrecht
Sales and Service:
T: +31-(30) 242 63 30
F: +31-(30) 242 63 31
sales.ut@leybold.com
service.ut@leybold.com

Switzerland

Leybold Schweiz AG, Pfäffikon

Churerstrasse 120
CH-8808 Pfäffikon
Warehouse and shipping address:
Riedthofstrasse 214
CH-8105 Regensdorf
Sales:
T: +41-44-308 40 50
F: +41-44-302 43 73
sales.zh@leybold.com
Service:
T: +41-44-308 40 62
F: +41-44-308 40 60
service.zh@leybold.com

Spain

Leybold Spain, S.A.

C/. Huelva, 7
E-08940 Cornellà de Llobregat
(Barcelona)
Sales:
T: +34-93-666 43 11
F: +34-93-666 43 70
sales.ba@leybold.com
Service:
T: +34-93-666 46 11
F: +34-93-685 43 70
service.ba@leybold.com

America

USA

Leybold USA Inc.

5700 Mellon Road
USA-Export, PA 15632
T: +1-724-327-5700
F: +1-724-325-3577
info.ex@leybold.com
Sales:
T: +1-724-327-5700
F: +1-724-333-1217
Service:
T: +1-724-327-5700
F: +1-724-325-3577

Brazil

Leybold do Brasil

Rod. Vice-Prefeito Hermenegildo Tonolli,
nº. 4413 - 6B
Distrito Industrial
Jundiá - SP
CEP 13.212-315
Sales and Service:
T: +55 11 2152 0499
F: +55 11 99467 5934
sales.ju@leybold.com
service.ju@leybold.com

Asia

P.R. China

Leybold (Tianjin)
International Trade Co. Ltd.
Beichen Economic
Development Area (BEDA),
No. 8 Western Shuangchen Road
Tianjin 300400
China
Sales and Service:
T: +86-22-2697 0808
F: +86-22-2697 4061
F: +86-22-2697 2017
sales.tj@leybold.com
service.tj@leybold.com

India

Leybold India Pvt Ltd.

No. 82(P), 4th Phase
K.I.A.D.B. Plot
Bommasandra Industrial Area
Bangalore - 560 099
India
Sales and Service:
T: +91-80-2783 9925
F: +91-80-2783 9926
sales.bgl@leybold.com
service.bgl@leybold.com

Japan

Leybold Japan Co., Ltd.

Headquarters
Shin-Yokohama A.K.Bldg., 4th floor
3-23-3, Shin-Yokohama
Kohoku-ku, Yokohama-shi
Kanawaga 222-0033
Japan
Sales:
T: +81 -45-471-3330
F: +81 -45-471-3323
sales.yhl@leybold.com

Leybold Japan Co., Ltd.

Tsukuba Technical Service Center
1959, Kami-yokoba
Tsukuba-shi, Ibaraki-shi 305-0854
Japan
Service:
T: +81 -29-839 5480
F: +81 -29-839 5485

Malaysia

Leybold Malaysia

Leybold Singapore Pte Ltd.

No. 1 Jalan Hi-Tech 2/6
Kulim Hi-Tech Park
Kulim, Kedah Darul
Aman 09000
Malaysia
Sales and Service:
T: +604 4020 222
F: +604 4020 221
sales.ku@leybold.com
service.ku@leybold.com

South Korea

Leybold Korea Ltd.

3F, Jellzone 2 Tower
Jeongja-dong 159-4
Bundang-gu Sungnam-si
Gyeonggi-do
Bundang 463-384, Korea
Sales:
T: +82-31 785 1367
F: +82-31 785 1359
sales.bd@leybold.com
Service:
623-7, Upsung-Dong
Cheonan-Si
Chungcheongnam-Do
Korea 330-290
T: +82-41 589 3035
F: +82-41 588 0166
service.cn@leybold.com

Singapore

Leybold Singapore Pte Ltd.

8 Commonwealth Lane #01-01
Singapore 149555
Singapore
Sales und Service:
T: +65-6303 7030
F: +65-6773 0039
sales.sg@leybold.com
service.sg@leybold.com

Taiwan

Leybold Taiwan Ltd.

No 416-1, Sec. 3
Chunghsin Rd., Chutung
Hsinchu County 310
Taiwan, R.O.C.
Sales and Service:
T: +886-3-500 1688
F: +886-3-583 3999
sales.hc@leybold.com
service.hc@leybold.com

Headquarter

Leybold GmbH

Bonner Strasse 498
D-50968 Cologne
Tel: +49-(0)221-347-0
Fax: +49-(0)221-347-1250
info@leybold.com



www.leybold.com

