

## PRESSURE MONITORING

PRESSURE SWITCHES

VACUUM SWITCHES

PRESSURE TRANSMITTERS



# TRADITION AND INNOVATION



From a mechanical workshop  
to an international industrial manufacturer

## 1938

*Robert Scheuffele opens a mechanical workshop.*

## 1945

*Partnership formed by Robert Scheuffele and Georg Fuhrmann.*

## 1950 ...

*Registration of the name SUCO (Scheuffele und Co) as a trademark.  
Development and production of centrifugal clutches and brakes.  
Market leader in Germany and abroad.  
The Company moves into a new production and administration building.*

## 1960 ...

*Electromagnetic clutches and brakes introduced into the production program.  
Development and production of pressure and vacuum switches started.*

## 1970 ...

*Establishment of a comprehensive dealer and sales network throughout Europe.  
SUCO mechanical pressure and vacuum switches become leaders in their market.*



Design and development of new products using the latest CAD tools.



To simulate realistic environmental conditions and loads, our products are subjected to extensive trials and tests.



Assembly and testing of pressure switches on partially or fully automated plant.



Fully-automatic setting of switching point with computer-aided documentation of results.





### 1985

*SUCO Inc. formed in the USA to exploit the American market. A new building extends the production and administration facilities.*

### 1997 ...

*Dealer structure built up in Asia. Company certified to ISO 9001.*

### 1999

*Founding of a subsidiary company, SUCO VSE, in France.*

### 2001

*Certification to ISO 9001:2000.*

### 2004

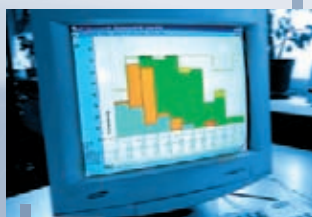
*Inauguration of the new building with modern production hall and 600 m<sup>2</sup> office area.*

### 2005

*Change of corporate name to SUCO Robert Scheuffele GmbH & Co. KG.*



Thorough training at SUCO is an important guarantee for the continuing development of the company in the future.



Capacity and schedule planning of production orders to make optimum use of the available human, machinery and material resources.



Ultra-modern production plant with integrated, fully-automatic component handling for high efficiency.



Encapsulating equipment for customer-specific ready-wired pressure switches for highest degree of protection (leak tightness).



Latest measurement and inspection equipment for quality assurance in receiving and production.



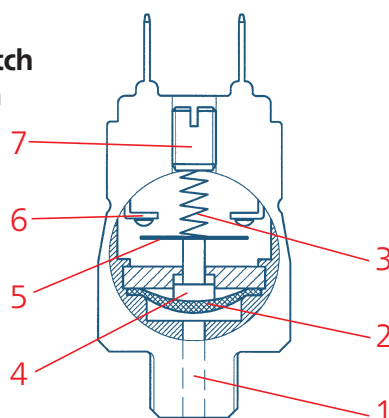
From here our products are dispatched to any country in the world.



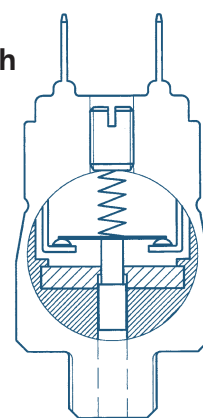
# TECHNICAL EXPLANATIONS

How does a pressure switch work?

**Diaphragm pressure switch**  
Normally open



**Piston pressure switch**  
Normally closed



**Normally open**

Description of operation for a switch whose contacts close at its operating point: Pressure enters through the connection (1) and acts on the diaphragm (2). If the force resulting from this pressure is greater than the force exerted by the preloaded compression spring (3), the plunger (4) moves taking with it the contact disc (5), which closes the circuit between the contacts (6). When the pressure falls again by an amount greater than the hysteresis, the switch opens again.

**Normally closed**

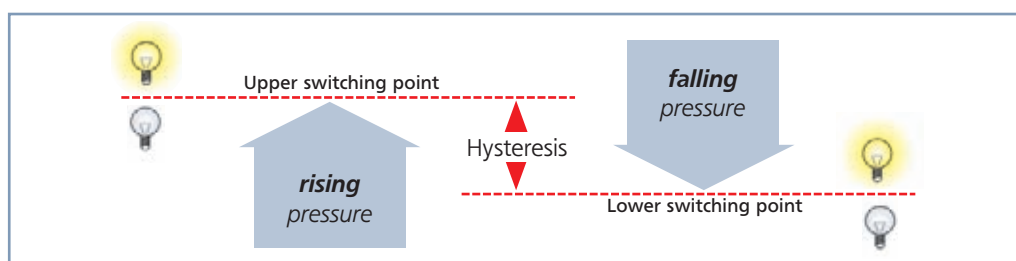
For a **normally closed** switch, the action of the contacts is reversed. By turning the setting screw (7), a pressure switch can be adjusted within its pressure range.

**Changeover**

By using a micro-switch with **changeover** contacts, the normally open and normally closed functions can be combined in a single pressure switch.

**Hysteresis**

**Hysteresis** (switching lag) is the term given to the difference between the switching points when the pressure is rising and when it is falling. For pressure switches with non-adjustable hysteresis, it is a function of the switch design. For SUCO switches with adjustable hysteresis, it can typically be set in the range 10 to 30% of the switching point. The hysteresis cannot be kept for the whole pressure range. It is only an average value.



**Switching frequency**

The **switching frequency** provides information about the possible number of switching cycles per minute. The figure given of 200/minute is intended only as a guide. Depending on the type of switch and the operating conditions, a considerably higher number of cycles can be achieved.

**Vacuum**

In our technical data, the figures for the **vacuum** range are given in millibars (mbar) below atmospheric pressure. Data can also be specified as absolute pressure.



Our pressure switches are suitable for liquid and gaseous media. Gaseous media, however, place special demands on leak-tightness. The leakage rate varies with the type of gas, the working pressure, and the permeability of the seal material.

Because of their lower leakage rate, diaphragm switches are better suited to gas applications than piston-type switches. However, the latter can also be employed if certain precautions (e.g. venting the switch body) are taken.

Please consult us when you have a gas application.

The tolerances we quote relate to operation at room temperature (RT). The effects of temperature and aging can change tolerance ranges.

### **Gas applications**

### **Tolerances**

## **Conversion table for pressure units**

Abbreviation for unit	Name of unit	PA = N/m <sup>2</sup>	BAR	TORR	LB/IN <sup>2</sup> , PSI
1 PA = N/m <sup>2</sup>	PASCAL	1	0.00001	0.0075	0.00014
1 BAR	BAR	100 000	1	750.062	14.5
1 TORR = 1 mm HG	MILLIMETERS of mercury	133.322	0.00133	1	0.01934
1 LBF/IN <sup>2</sup> = 1 PSI	POUND-FORCE PER SQUARE INCH	6894	0.06894	51.71	1

## **Conversion table for temperature units**

	K	°C	F
K	1	K-273.15	9/5 K-459.67
°C	°C +273.15	1	9/5°C +32
F	5/9 (F+459.67)	5/9 (F-32)	1

The data in our catalogue concerning compatibility with various media relate mainly to seal materials. Testing the media compatibility of sealing and body materials for particular applications is the responsibility of the user.

The technical data we provide result from tests made during product development backed up by experience. They may not be applicable in all cases. It is the responsibility of the user to test the suitability of a switch for particular applications.

### **Media compatibility**

### **Product information**

6



Rated operating voltage U <sub>e</sub>	Rated operating current I <sub>e</sub>	Utilisation category	Model ranges:
250 volt AC 50 / 60 Hz	4 amp (2 amp )*	AC 12	<b>0140</b> <b>0141</b> <b>0180</b> <b>0181</b> <b>0184</b> <b>0185</b> <b>0186</b> <b>0187</b>
250 volt AC 50 / 60 Hz	1 amp	AC 14	
24 volt DC	4 / 4 amp (2 / 1 amp)*	DC 12 / DC 13	
50 volt DC	2 / 1 amp (1 / 0.5 amp)*	DC 12 / DC 13	
75 volt DC	1 / 0.5 amp (0.5 / 0.25 amp)*	DC 12 / DC 13	
125 volt DC	0.3 / 0.2 amp (0.2 / 0.1 amp)*	DC 12 / DC 13	
250 volt DC	0.25 / 0.2 amp (0.15 / 0.1 amp)*	DC 12 / DC 13	
Rated insulation voltage U <sub>i</sub> :	300 volt		
Rated surge capacity U <sub>imp</sub> :	2.5 kV (4 kV)*		
Rated thermal current I <sub>the</sub> :	5 amp		
Switching overvoltage:	< 2.5 kV		
Rated frequency:	DC und 50 / 60 Hz		
Rated current of short-circuit protection:	Up to 5 amp (up to 3.5 amp)*		
Conditional short-circuit current:	< 350 amp		
IP degree of protection to EN60529:1991+A1:1999:	IP65 with plug		
Tightening torque of terminal screws:	< 0.35 Nm		
Conductor cross-section:	0.5 – 1.5 mm²		
			* Figures in brackets apply to types 0140 and 0141
Rated operating voltage U <sub>e</sub>	Rated operating current I <sub>e</sub>	Utilisation category	Model ranges:
250 volt AC 50 / 60 Hz	5 amp	AC 12	<b>0150</b> <b>0161</b> <b>0162</b> <b>0175</b>
250 volt AC 50 / 60 Hz	1 amp	AC 14	
30 volt DC	3.5 / 3.5 amp	DC 12 / DC 13	
50 volt DC	2 / 1 amp	DC 12 / DC 13	
75 volt DC	1 / 0.5 amp	DC 12 / DC 13	
125 volt DC	0.3 / 0.2 amp	DC 12 / DC 13	
250 volt DC	0.35 / 0.2 amp	DC 12 / DC 13	
Rated insulation voltage U <sub>i</sub> :	300 volt		
Rated surge capacity U <sub>imp</sub> :	2.5 kV		
Rated thermal current I <sub>the</sub> :	6 amp		
Switching overvoltage:	< 2.5 kV		
Rated frequency:	DC and 50 / 60 Hz		
Rated current of short-circuit protection:	Up to 6.3 amp		
Conditional short-circuit current:	< 350 amp		
IP degree of protection to EN60529:1991+A1:1999:	IP65 with plug		
Tightening torque of terminal screws:	< 0.35 Nm		
Conductor cross-section:	0.5 – 1.5 mm²		
Rated operating voltage U <sub>e</sub>	Rated operating current I <sub>e</sub>	Utilisation category	Model ranges:
250 volt AC 50 / 60 Hz	2.5 amp	AC 12	<b>0159</b>
250 volt AC 50 / 60 Hz	1 amp	AC 14	
30 volt DC	2 / 2 amp	DC 12 / DC 13	
50 volt DC	1 / 0.5 amp	DC 12 / DC 13	
75 volt DC	0.75 / 0.4 amp	DC 12 / DC 13	
125 volt DC	0.3 / 0.2 amp	DC 12 / DC 13	
250 volt DC	0.3 / 0.2 amp	DC 12 / DC 13	
Rated insulation voltage U <sub>i</sub> :	300 volt		
Rated surge capacity U <sub>imp</sub> :	2.5 kV		
Rated thermal current I <sub>the</sub> :	6 amp		
Switching overvoltage:	< 2.5 kV		
Rated frequency:	DC and 50 / 60 Hz		
Rated current of short-circuit protection:	Up to 2.5 amp		
Conditional short-circuit current:	< 350 amp		
IP degree of protection to EN60529:1991+A1:1999:	IP65 with plug		
Tightening torque of terminal screws:	< 0.5 Nm		
Conductor cross-section:	0.5 – 1.5 mm²		

The utilisation category describes among other things the voltages and currents and the way of load for our pressure switches according DIN EN 60947-5-1	<b>Utilisation category</b>
AC 12 : Drive of resistive loads and semiconductor input circuits of optoelectronic couplers (e.g. PLC inputs)	
AC 14 : Drive of electromagnetic loads up to 72 VA	
DC 12 : Drive of resistive loads and semiconductor input circuits of optoelectronic couplers (e.g. PLC inputs)	
DC 13 : Drive of electromagnet	

# PRESSURE-CONTROL SYSTEMS



## Pressure Switches hex 24 NO or NC

From page 10

Max. voltage 42 V

0166	Diaphragm pressure switch, external thread Zinc-plated steel body, overpressure safe up to 300 bar	Pages 12 - 13
0163	Diaphragm pressure switch, external thread Zinc-plated steel body, overpressure safe up to 600 bar	Pages 14 - 15
0120	Diaphragm pressure switch, bayonet connection DIN 72585-A1-2.1 Zinc-plated steel body, overpressure safe up to 300 bar	Pages 16
0121	Piston pressure switch, bayonet connection DIN 72585-A1-2.1 Zinc-plated steel body, overpressure safe up to 600 bar	Pages 17
0169	Piston pressure switch, external thread Zinc-plated steel body, overpressure safe up to 600 bar	Page 18
0168	Diaphragm pressure switch, internal thread Zinc-plated steel body, overpressure safe up to 300 bar	Page 19
0167	Diaphragm pressure switch, external thread Brass body, overpressure safe up to 20 bar	Page 20
	Accessories	Page 21



## Pressure Switches hex 27 changeover contacts

From page 22

Switches with silver contacts, zinc-plated steel body

0140	Diaphragm pressure switch Hysteresis non-adjustable, max. voltage 250 V	Page 24
0141	Piston pressure switch Hysteresis non-adjustable, max. voltage 250 V	Page 24
0170	Diaphragm pressure switch Adjustable hysteresis, max. voltage 42 V	Page 25
0171	Piston pressure switch Adjustable hysteresis, max. voltage 42 V	Page 25
0180	Diaphragm pressure switch Adjustable hysteresis, max. voltage 250 V	Page 26
0181	Piston pressure switch Adjustable hysteresis, max. voltage 250 V	Page 26
0184	Diaphragm pressure switch with valve connector plug to DIN EN 175301, adjustable hysteresis, max. voltage 250 V	Page 27
0185	Piston pressure switch with valve connector plug to DIN EN 175301, adjustable hysteresis, max. voltage 250 V	Page 27

Switches with gold contacts, zinc-plated steel body

0190	Diaphragm pressure switch Adjustable hysteresis, max. voltage 24 V	Page 28
0191	Piston pressure switch Adjustable hysteresis, max. voltage 24 V	Page 28
0194	Diaphragm pressure switch Adjustable hysteresis, max. voltage 24 V	Page 29
0195	Piston pressure switch Adjustable hysteresis, max. voltage 24 V	Page 30

Switches with stainless steel bodies

0186	Diaphragm pressure switch, silver contacts, Adjustable hysteresis, max. voltage 250 V	Page 31
0187	Piston pressure switch, silver contacts, Adjustable hysteresis, max. voltage 250 V	Page 31
0196	Diaphragm pressure switch, gold contacts, Adjustable hysteresis, max. voltage 24 V	Page 32
0197	Piston pressure switch, gold contacts, Adjustable hysteresis, max. voltage 24 V	Page 32

Accessories

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# OVERVIEW

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## Ready-wired Pressure Switches

From page 34

**Mechanical pressure and vacuum switches can be supplied ready-wired with any available connector.**

0240

Diaphragm pressure switch, ready-wired, IP67  
Switching point can be set by the customer after potting.

Page 36 - 37

0241

Piston pressure switch, ready-wired, IP67  
Switching point can be set by the customer after potting.

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## Pressure Switches 30 A/F, changeover contacts

From page 38

0159

Diaphragm / piston pressure switch  
Steplessly adjustable

Page 39

0161

Diaphragm / piston pressure switch  
With valve connector similar to DIN EN 175301

Page 40

0162

Diaphragm / piston pressure switch for manifold mounting,  
With valve connector similar to DIN EN 175301

Page 40

0175

Diaphragm pressure switch high precision in low-pressure range,  
With valve connector similar to DIN EN 175301

Page 41



## Explosion-protected Pressure Switches, changeover contacts

From page 42

**To new ATEX standards**

0165

Diaphragm / piston pressure switch, for explosive gases, Zone 1  
Steplessly adjustable

Page 44

0340

Diaphragm pressure switch, for explosive dusts, Zone 22  
Steplessly adjustable

Page 45

0341

Piston pressure switch, for explosive dusts, Zone 22  
Steplessly adjustable

Page 45



## Vacuum Switches

From page 46

0150

Vacuum switch, changeover contacts  
With valve connector similar to DIN EN 175301, max. voltage 250 V

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0151

Vacuum switch, NO or NC  
With screw / push-on terminals, max. voltage 42 V

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Accessories

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## Electronic Pressure Switches

From page 50

0520

Electronic pressure switch, NO or NC  
With ceramic sensor, steplessly adjustable

Page 52

0570

Electronic pressure switch,  
Programmable, with display

Page 53



## Pressure Transmitters

From page 54

0605

Pressure transmitter, stainless steel diaphragm  
With voltage output 0.5–4.5 V ratiometrically

Page 56

0610

Pressure transmitter, stainless steel diaphragm  
With voltage output 0–10 V

Page 56

0620

Pressure transmitter, stainless steel diaphragm  
With current output 4–20 mA

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Accessories

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## Our worldwide sales network

From page 58

*Suco*

# Pressure Switches hex 24

Normally open or normally closed

Maximum voltage 42 V



## Technical Data

Degree of protection:	IP65 (IP67/IP6K9K for 0120 /0121) Terminals IP00	
Current rating (resistive):	≤ 4 A	
Switching frequency:	200 / min.	
Temperature stability for diaphragm/seal materials:	NBR	-30 °C – +100 °C
	EPDM	-30 °C – +120 °C
	FKM	-5 °C – +120 °C
	Silicone	-40 °C – +120 °C
	HNBR	-30 °C – +120 °C
Mechanical life expectancy:	10 <sup>6</sup> cycles (at pressures up to 50 bar)	
Vibration resistance:	10 g / 5 – 200 Hz sine-wave	
Shock resistance:	294 m/s <sup>2</sup> ; 14 ms half-sine-wave	





## TECHNICAL DATA

Type	Switching power	Material		Overpressure safe up to:		
		Zinc-plated Steel	Brass	20 bar	300 bar	600 bar
0120	•	•			•	
0121	•	•				•
0163	•	•				•
0166	•	•			•	
0167	•		•	•		
0168	•	•			•	
0169	•	•				•

- Compact switch design, normally closed (nc) or normally open (no)
- Low-cost mechanical pressure switch to high SUICO quality standards
- High overpressure resistance and long working life even under harsh operating conditions
- Switching point easy to adjust - even during operation <sup>1)</sup>
- Various thread connections to suit your installation (see relevant product data sheet)
- Ready-wired variants - see catalogue page 34
- Versions with push-on and screw terminals
- Available with gold contacts on request
- Other body materials are also possible
- Integrated DIN 72585 connector (type 0120/0121)

<sup>1)</sup> **Pressure switches can be supplied preset from our works. Switches we have preset are secured with sealing paint and have the switching pressure stamped on their body.**

## Diaphragm pressure switches 42 V



Zinc-plated steel body  
With M3 screw terminals  
Overpressure safe to 300 bar <sup>1)</sup>

With external thread



- Also available with switching point preset in our works.
- Other body materials and connection threads on request.
- Other diaphragm / seal materials on request, e.g. HNBR, silicone (last one for diaphragm type only).

• Accessories: see page 21



## 0166 Diaphragm pressure switches with screw terminals

Adjustment range in bar (tolerance at room temperature)	Thread	Normally open (no) → :				Normally closed (nc) → :			
0.1–1 (± 0.2)	M 10x1 taper	0166	401	01	001	0166	402	01	005
	M 12x1.5	0166	401	02	002	0166	402	02	006
	G 1/4	0166	401	03	003	0166	402	03	007
	NPT 1/8	0166	401	04	004	0166	402	04	008
	G 1/8	0166	401	28	601	0166	402	28	602
	M 10x1 cyl.	0166	401	13	001	0166	402	13	002
1–10 (± 0.5)	M 10x1 taper	0166	405	01	017	0166	406	01	021
	M 12x1.5	0166	405	02	018	0166	406	02	022
	G 1/4	0166	405	03	019	0166	406	03	023
	NPT 1/8	0166	405	04	020	0166	406	04	024
	G 1/8	0166	405	28	605	0166	406	28	606
	M 10x1 cyl.	0166	405	13	005	0166	406	13	006
10–20 (± 1.0)	M 10x1 taper	0166	409	01	033	0166	410	01	037
	M 12x1.5	0166	409	02	034	0166	410	02	038
	G 1/4	0166	409	03	035	0166	410	03	039
	NPT 1/8	0166	409	04	036	0166	410	04	040
	G 1/8	0166	409	28	609	0166	410	28	610
	M 10x1 cyl.	0166	409	13	009	0166	410	13	010
20–50 (± 2.0)	M 10x1 taper	0166	413	01	049	0166	414	01	053
	M 12x1.5	0166	413	02	050	0166	414	02	054
	G 1/4	0166	413	03	051	0166	414	03	055
	NPT 1/8	0166	413	04	052	0166	414	04	056
	G 1/8	0166	413	28	613	0166	414	28	614
	M 10x1 cyl.	0166	413	13	013	0166	414	13	014

**Order number:**  
Add figure for diaphragm/seal material

0166 XXX XX **X** XXX 0166 XXX XX **X** XXX

<b>NBR</b>	Hydraulic / machine oil, turpentine, heating oil, air etc.	=	<b>1</b>	=	<b>1</b>
<b>EPDM</b>	Hydrogen, acetylene, ozone, brake fluid etc.	=	<b>2</b>	=	<b>2</b>
<b>FKM</b>	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	=	<b>3</b>	=	<b>3</b>
See page 10 for temperature ranges of diaphragm / seal materials					

**Warning!**

When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar is not exceeded.

<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

**Degree of protection IP65**

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.



# Diaphragm pressure switches 42 V

Zinc-plated steel body  
With push-on terminals  
Overpressure safe to 300 bar <sup>1)</sup>



## 0166 Diaphragm pressure switches with push-on terminals

Adjustment range in bar (tolerance at room temperature)	Thread	Normally open (no) →  :				Normally closed (nc) →  :			
0.1–1 (± 0.2)	M 10x1 taper	0166	403	01	009	0166	404	01	013
	M 12x1.5	0166	403	02	010	0166	404	02	014
	G 1/4	0166	403	03	011	0166	404	03	015
	NPT 1/8	0166	403	04	012	0166	404	04	016
	G 1/8	0166	403	28	603	0166	404	28	604
	M 10x1 cyl.	0166	403	13	003	0166	404	13	004
1–10 (± 0.5)	M 10x1 taper	0166	407	01	025	0166	408	01	029
	M 12x1.5	0166	407	02	026	0166	408	02	030
	G 1/4	0166	407	03	027	0166	408	03	031
	NPT 1/8	0166	407	04	028	0166	408	04	032
	G 1/8	0166	407	28	607	0166	408	28	608
	M 10x1 cyl.	0166	407	13	007	0166	408	13	008
10–20 (± 1.0)	M 10x1 taper	0166	411	01	041	0166	412	01	045
	M 12x1.5	0166	411	02	042	0166	412	02	046
	G 1/4	0166	411	03	043	0166	412	03	047
	NPT 1/8	0166	411	04	044	0166	412	04	048
	G 1/8	0166	411	28	611	0166	412	28	612
	M 10x1 cyl.	0166	411	13	011	0166	412	13	012
20–50 (± 2.0)	M 10x1 taper	0166	415	01	057	0166	416	01	061
	M 12x1.5	0166	415	02	058	0166	416	02	062
	G 1/4	0166	415	03	059	0166	416	03	063
	NPT 1/8	0166	415	04	060	0166	416	04	064
	G 1/8	0166	415	28	615	0166	416	28	616
	M 10x1 cyl.	0166	415	13	015	0166	416	13	016

**Order number:**  
Add figure for diaphragm/seal material

0166 XXX XX **X** XXX 0166 XXX XX **X** XXX

<b>NBR</b>	Hydraulic / machine oil, turpentine, heating oil, air etc.	= 1	= 1
<b>EPDM</b>	Hydrogen, acetylene, ozone, brake fluid etc.	= 2	= 2
<b>FKM</b>	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	= 3	= 3
See page 10 for temperature ranges of diaphragm / seal materials			

### Warning!

When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar is not exceeded.

<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

### Degree of protection IP65

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.

### With external thread



- Also available with switching point preset in our works.
- For ready-wired variants, see page 34 onwards.
- Other body materials and connection threads on request.
- Other diaphragm / seal materials on request, e.g. HNBR, silicone (last one for diaphragm type only).

- Accessories: see page 21



## Diaphragm pressure switches 42 V

Zinc-plated steel body  
With M3 screw terminals  
Overpressure safe to 600 bar <sup>1)</sup>



With external thread



- Also available with switching point preset in our works.
- Other body materials and connection threads on request.
- Other diaphragm / seal materials on request, e.g. HNBR, silicone (last one for diaphragm type only).

• Accessories: see page 21



## 0163 Diaphragm pressure switches with screw terminals

Adjustment range in bar (tolerance at room temperature)	Thread	Normally open (no) →  :				Normally closed (nc) →  :			
0.1–1 (± 0.2)	M 10x1 taper	0163	401	01	001	0163	402	01	005
	M 12x1.5	0163	401	02	002	0163	402	02	006
	G 1/4	0163	401	03	003	0163	402	03	007
	NPT 1/8	0163	401	04	004	0163	402	04	008
	G 1/8	0163	401	28	601	0163	402	28	602
	M 10x1 cyl.	0163	401	13	001	0163	402	13	002
1–10 (± 0.5)	M 10x1 taper	0163	405	01	017	0163	406	01	021
	M 12x1.5	0163	405	02	018	0163	406	02	022
	G 1/4	0163	405	03	019	0163	406	03	023
	NPT 1/8	0163	405	04	020	0163	406	04	024
	G 1/8	0163	405	28	605	0163	406	28	606
	M 10x1 cyl.	0163	405	13	005	0163	406	13	006
10–20 (± 1.0)	M 10x1 taper	0163	409	01	033	0163	410	01	037
	M 12x1.5	0163	409	02	034	0163	410	02	038
	G 1/4	0163	409	03	035	0163	410	03	039
	NPT 1/8	0163	409	04	036	0163	410	04	040
	G 1/8	0163	409	28	609	0163	410	28	610
	M 10x1 cyl.	0163	409	13	009	0163	410	13	010
20–50 (± 2.0)	M 10x1 taper	0163	413	01	049	0163	414	01	053
	M 12x1.5	0163	413	02	050	0163	414	02	054
	G 1/4	0163	413	03	051	0163	414	03	055
	NPT 1/8	0163	413	04	052	0163	414	04	056
	G 1/8	0163	413	28	613	0163	414	28	614
	M 10x1 cyl.	0163	413	13	013	0163	414	13	014

**Order number:**  
Add figure for diaphragm/seal material

0163 XXX XX **X** XXX 0163 XXX XX **X** XXX

<b>NBR</b>	Hydraulic / machine oil, turpentine, heating oil, air etc.	=	<b>1</b>	=	<b>1</b>
<b>EPDM</b>	Hydrogen, acetylene, ozone, brake fluid etc.	=	<b>2</b>	=	<b>2</b>
<b>FKM</b>	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	=	<b>3</b>	=	<b>3</b>
See page 10 for temperature ranges of diaphragm / seal materials					

**Warning!**

When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar is not exceeded.

<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

**Degree of protection IP65**

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.

# Diaphragm pressure switches 42 V

Zinc-plated steel body  
With push-on terminals  
Overpressure safe to 600 bar<sup>1)</sup>



## 0163 Diaphragm pressure switches with push-on terminals

Adjustment range in bar (tolerance at room temperature)	Thread	Normally open (no) →  :				Normally closed (nc) →  :			
0.1–1 (± 0.2)	M 10x1 taper	0163	403	01	009	0163	404	01	013
	M 12x1.5	0163	403	02	010	0163	404	02	014
	G 1/4	0163	403	03	011	0163	404	03	015
	NPT 1/8	0163	403	04	012	0163	404	04	016
	G 1/8	0163	403	28	603	0163	404	28	604
	M 10x1 cyl.	0163	403	13	003	0163	404	13	004
1–10 (± 0.5)	M 10x1 taper	0163	407	01	025	0163	408	01	029
	M 12x1.5	0163	407	02	026	0163	408	02	030
	G 1/4	0163	407	03	027	0163	408	03	031
	NPT 1/8	0163	407	04	028	0163	408	04	032
	G 1/8	0163	407	28	607	0163	408	28	608
	M 10x1 cyl.	0163	407	13	007	0163	408	13	008
10–20 (± 1.0)	M 10x1 taper	0163	411	01	041	0163	412	01	045
	M 12x1.5	0163	411	02	042	0163	412	02	046
	G 1/4	0163	411	03	043	0163	412	03	047
	NPT 1/8	0163	411	04	044	0163	412	04	048
	G 1/8	0163	411	28	611	0163	412	28	612
	M 10x1 cyl.	0163	411	13	011	0163	412	13	012
20–50 (± 2.0)	M 10x1 taper	0163	415	01	057	0163	416	01	061
	M 12x1.5	0163	415	02	058	0163	416	02	062
	G 1/4	0163	415	03	059	0163	416	03	063
	NPT 1/8	0163	415	04	060	0163	416	04	064
	G 1/8	0163	415	28	615	0163	416	28	616
	M 10x1 cyl.	0163	415	13	015	0163	416	13	016

**Order number:**  
Add figure for diaphragm/seal material

0163 XXX XX **X** XXX 0163 XXX XX **X** XXX

<b>NBR</b>	Hydraulic / machine oil, turpentine, heating oil, air etc.	= 1	= 1
<b>EPDM</b>	Hydrogen, acetylene, ozone, brake fluid etc.	= 2	= 2
<b>FKM</b>	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	= 3	= 3
See page 10 for temperature ranges of diaphragm / seal materials			

### Warning!

When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar is not exceeded.

<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

### Degree of protection IP65

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.

### With external thread



- Also available with switching point preset in our works.
- For ready-wired variants, see page 34 onwards.
- Other body materials and connection threads on request.
- Other diaphragm / seal materials on request, e.g. HNBR, silicone (last one for diaphragm type only).

- Accessories: see page 21





## Diaphragm pressure switches 42 V

with bayonet connection DIN 72585-A1-2.1

Zinc-plated steel body

Overpressure safe to 300 bar<sup>1)</sup>

Degree of protection IP6K9K

With external thread



- Also available with switching point preset in our works.
- Other body materials and connection threads on request.
- Other diaphragm / seal materials on request, e.g. HNBR, silicone (last one for diaphragm type only).

## 0120 Diaphragm pressure switches with bayonet connection

Adjustment range in bar (tolerance at room temperature)	Thread	Normally open (no) →  :				Normally closed (nc) →  :			
0.1–1 (± 0.2)	M 10x1 taper	0120	403	01	009	0120	404	01	013
	M 12x1.5	0120	403	02	010	0120	404	02	014
	G 1/4	0120	403	03	011	0120	404	03	015
	NPT 1/8	0120	403	04	012	0120	404	04	016
	G 1/8	0120	403	28	603	0120	404	28	604
	M 10x1 cyl.	0120	403	13	003	0120	404	13	004
1–10 (± 0.5)	M 10x1 taper	0120	407	01	025	0120	408	01	029
	M 12x1.5	0120	407	02	026	0120	408	02	030
	G 1/4	0120	407	03	027	0120	408	03	031
	NPT 1/8	0120	407	04	028	0120	408	04	032
	G 1/8	0120	407	28	607	0120	408	28	608
	M 10x1 cyl.	0120	407	13	007	0120	408	13	008
10–20 (± 1.0)	M 10x1 taper	0120	411	01	041	0120	412	01	045
	M 12x1.5	0120	411	02	042	0120	412	02	046
	G 1/4	0120	411	03	043	0120	412	03	047
	NPT 1/8	0120	411	04	044	0120	412	04	048
	G 1/8	0120	411	28	611	0120	412	28	612
	M 10x1 cyl.	0120	411	13	011	0120	412	13	012
20–50 (± 2.0)	M 10x1 taper	0120	415	01	057	0120	416	01	061
	M 12x1.5	0120	415	02	058	0120	416	02	062
	G 1/4	0120	415	03	059	0120	416	03	063
	NPT 1/8	0120	415	04	060	0120	416	04	064
	G 1/8	0120	415	28	615	0120	416	28	616
	M 10x1 cyl.	0120	415	13	015	0120	416	13	016



Order number:

Add figure for

diaphragm/seal material

0120 XXX XX **X** XXX 0120 XXX XX **X** XXX

<b>NBR</b>	Hydraulic / machine oil, turpentine, heating oil, air etc.	=	<b>1</b>	=	<b>1</b>
<b>EPDM</b>	Hydrogen, acetylene, ozone, brake fluid etc.	=	<b>2</b>	=	<b>2</b>
<b>FKM</b>	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	=	<b>3</b>	=	<b>3</b>
See page 10 for temperature ranges of diaphragm / seal materials					

**Warning!**

When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar is not exceeded.

<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

**Degree of protection IP67 (IP6K9K)**

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.

# 0121

www.suco.de

## Piston pressure switches 42 V

with bayonet connection DIN 72585-A1-2.1

Zinc-plated steel body

Overpressure safe to 600 bar <sup>1)</sup>

Degree of protection IP6K9K

### 0121 Piston pressure switches with bayonet connection

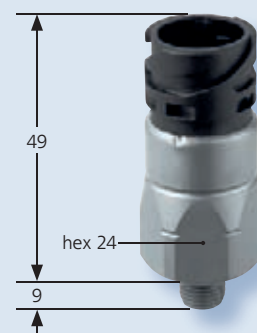
Adjustment range in bar (tolerance at room temperature)	Thread	Normally open (no) →  :				Normally closed (nc) →  :			
50–150 (± 5.0)	M 10x1 taper	0121	419	01	009	0121	420	01	013
	M 12x1.5	0121	419	02	010	0121	420	02	014
	G 1/4	0121	419	03	011	0121	420	03	015
	NPT 1/8	0121	419	04	012	0121	420	04	016
	G 1/8	0121	419	28	603	0121	420	28	604
	M 10x1 cyl.	0121	419	13	003	0121	420	13	004

**Order number:**  
**Add figure for**  
**diaphragm/seal material**

0121 XXX XX **X** XXX 0121 XXX XX **X** XXX

<b>NBR</b>	Hydraulic / machine oil, turpentine, heating oil, air etc.	=	<b>1</b>	=	<b>1</b>
<b>EPDM</b>	Hydrogen, acetylene, ozone, brake fluid etc.	=	<b>2</b>	=	<b>2</b>
<b>FKM</b>	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	=	<b>3</b>	=	<b>3</b>
See page 10 for temperature ranges of diaphragm / seal materials					

With external thread



- Also available with switching point preset in our works.
- Other body materials and connection threads on request.
- Other diaphragm / seal materials on request, e.g. HNBR, silicone (last one for diaphragm type only).

### Warning!

When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar is not exceeded.

Piston-type pressure switches are only to a limited extent suitable for use with gases and oxygen. See explanation on page 5.

<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

### Degree of protection IP67 (IP6K9K)

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.

**Suco**

## Piston pressure switches 42 V

Zinc-plated steel body  
With M3 screw or push-on terminals  
Overpressure safe to 600 bar <sup>1)</sup>



## With external thread



- Also available with switching point preset in our works.
- For ready-wired variants, see page 34 onwards.
- Other body materials and connection threads on request.
- Other diaphragm / seal materials on request, e.g. HNBR, silicone (last one for diaphragm type only).
- Accessories: see page 21



## 0169 Piston pressure switches with screw terminals

Adjustment range in bar (tolerance at room temperature)	Thread	Normally open (no) →  :				Normally closed (nc) →  :			
50–150 (± 5.0)	M 10x1 taper	0169	417	01	001	0169	418	01	005
	M 12x1.5	0169	417	02	002	0169	418	02	006
	G 1/4	0169	417	03	003	0169	418	03	007
	NPT 1/8	0169	417	04	004	0169	418	04	008
	G 1/8	0169	417	28	601	0169	418	28	602
	M 10x1 cyl.	0169	417	13	001	0169	418	13	002

## 0169 Piston pressure switches with push-on terminals

Adjustment range in bar (tolerance at room temperature)	Thread	Normally open (no) →  :				Normally closed (nc) →  :			
50–150 (± 5.0)	M 10x1 taper	0169	419	01	009	0169	420	01	013
	M 12x1.5	0169	419	02	010	0169	420	02	014
	G 1/4	0169	419	03	011	0169	420	03	015
	NPT 1/8	0169	419	04	012	0169	420	04	016
	G 1/8	0169	419	28	603	0169	420	28	604
	M 10x1 cyl.	0169	419	13	003	0169	420	13	004

**Order number:**  
Add figure for  
diaphragm/seal material

0169 XXX XX **X** XXX 0169 XXX XX **X** XXX

<b>NBR</b>	Hydraulic / machine oil, turpentine, heating oil, air etc.	=	<b>1</b>	=	<b>1</b>
<b>EPDM</b>	Hydrogen, acetylene, ozone, brake fluid etc.	=	<b>2</b>	=	<b>2</b>
<b>FKM</b>	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	=	<b>3</b>	=	<b>3</b>
See page 10 for temperature ranges of diaphragm / seal materials					

**Warning!**

When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar is not exceeded.

Piston-type pressure switches are only to a limited extent suitable for use with gases and oxygen. See explanation on page 5.

<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

**Degree of protection IP65**

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.



# 0168

## Diaphragm pressure switches 42 V

Zinc-plated steel body

With M3 screw or push-on terminals

Overpressure safe to 300 bar <sup>1)</sup>

With internal thread for compression fittings to DIN 2353



### 0168 Diaphragm pressure switches with screw terminals

Adjustment range in bar (tolerance at room temperature)	Thread	Normally open (no) → :				Normally closed (nc) → :			
0.1–1 (± 0.2)	M 12x1.5 internal	0168	401	16	001	0168	402	16	002
1–10 (± 0.5)		0168	405	16	005	0168	406	16	006
10–20 (± 1.0)		0168	409	16	009	0168	410	16	010
20–50 (± 2.0)		0168	413	16	013	0168	414	16	014

### 0168 Diaphragm pressure switches with push-on terminals

Adjustment range in bar (tolerance at room temperature)	Thread	Normally open (no) → :				Normally closed (nc) → :			
0.1–1 (± 0.2)	M 12x1.5 internal	0168	403	16	003	0168	404	16	004
1–10 (± 0.5)		0168	407	16	007	0168	408	16	008
10–20 (± 1.0)		0168	411	16	011	0168	412	16	012
20–50 (± 2.0)		0168	415	16	015	0168	416	16	016

**Order number:**  
**Add figure for**  
**diaphragm/seal material**

0168 XXX XX **X** XXX 0168 XXX XX **X** XXX

<b>NBR</b>	Hydraulic / machine oil, turpentine, heating oil, air etc.	=	<b>1</b>	=	<b>1</b>
<b>EPDM</b>	Hydrogen, acetylene, ozone, brake fluid etc.	=	<b>2</b>	=	<b>2</b>
<b>FKM</b>	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	=	<b>3</b>	=	<b>3</b>
See page 10 for temperature ranges of diaphragm / seal materials					

#### Warning!

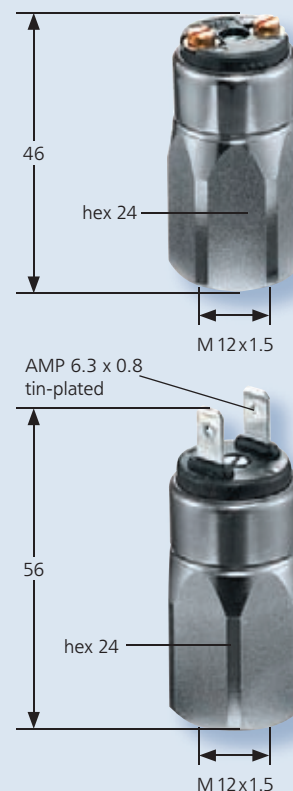
When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar is not exceeded.

<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

#### Degree of protection IP65

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.

#### With internal thread



- Also available with switching point preset in our works.
- For ready-wired variants, see page 34 onwards.
- Other body materials and connection threads on request.
- Other diaphragm / seal materials on request, e.g. HNBR, silicone (last one for diaphragm type only).
- Accessories: see page 21

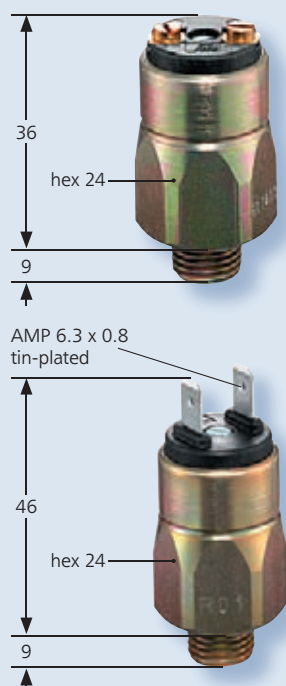


## Diaphragm pressure switches 42 V

Brass body  
With M3 screw or push-on terminals  
Overpressure safe to 20 bar <sup>1)</sup>



## With external thread



- Also available with switching point preset in our works.
- For ready-wired variants, see page 34 onwards.
- Other body materials and connection threads on request.
- Other diaphragm / seal materials on request, e.g. HNBR, silicone (last one for diaphragm type only).
- Accessories: see page 21



Adjustment range in bar (tolerance at room temperature)	Thread	Normally open (no) → :	Normally closed (nc) → :
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## 0167 Diaphragm pressure switches with screw terminals

0.1–1 (± 0.2)	M 10x1 taper	0167 401 01	001	0167 402 01	004
	R 1/8 taper	0167 401 12	002	0167 402 12	005
	R 1/2 taper	0167 401 07	003	0167 402 07	006
	G 1/4	0167 401 03	037	0167 402 03	038
	G 1/8	0167 401 28	001	0167 402 28	002
1–10 (± 0.5)	M 10x1 taper	0167 405 01	013	0167 406 01	016
	R 1/8 taper	0167 405 12	014	0167 406 12	017
	R 1/2 taper	0167 405 07	015	0167 406 07	018
	G 1/4	0167 405 03	041	0167 406 03	042
	G 1/8	0167 405 28	005	0167 406 28	006
10–20 (± 1.0)	M 10x1 taper	0167 409 01	025	0167 410 01	028
	R 1/8 taper	0167 409 12	026	0167 410 12	029
	R 1/2 taper	0167 409 07	027	0167 410 07	030
	G 1/4	0167 409 03	045	0167 410 03	046
	G 1/8	0167 409 28	009	0167 410 28	010

## 0167 Diaphragm pressure switches with push-on terminals

0.1–1 (± 0.2)	M 10x1 taper	0167 403 01	007	0167 404 01	010
	R 1/8 taper	0167 403 12	008	0167 404 12	011
	R 1/2 taper	0167 403 07	009	0167 404 07	012
	G 1/4	0167 403 03	039	0167 404 03	040
	G 1/8	0167 403 28	003	0167 404 28	004
1–10 (± 0.5)	M 10x1 taper	0167 407 01	019	0167 408 01	022
	R 1/8 taper	0167 407 12	020	0167 408 12	023
	R 1/2 taper	0167 407 07	021	0167 408 07	024
	G 1/4	0167 407 03	043	0167 408 03	044
	G 1/8	0167 407 28	007	0167 408 28	008
10–20 (± 1.0)	M 10x1 taper	0167 411 01	031	0167 412 01	034
	R 1/8 taper	0167 411 12	032	0167 412 12	035
	R 1/2 taper	0167 411 07	033	0167 412 07	036
	G 1/4	0167 411 03	047	0167 412 03	048
	G 1/8	0167 411 28	011	0167 412 28	012

**Order number:**  
Add figure for  
diaphragm/seal material

0167 XXX XX **X** XXX 0167 XXX XX **X** XXX

NBR	Hydraulic / machine oil, turpentine, heating oil, air etc.	= 1	= 1
EPDM	Water, hydrogen, acetylene, ozone, brake fluid etc.	= 2	= 2
FKM	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	= 3	= 3
See page 10 for temperature ranges of diaphragm / seal materials			

### Warning!

When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar is not exceeded.

<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

### Degree of protection IP65

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.

## Accessories

For all hex 24 pressure switches



### Protective cap

With central cable gland

for 1.5 - 5 mm cable diameter

Not suitable for voltages above 42 V !

**Order number: 1-1-66-621-010**



### Protective cap

With two cable entries

for 1.7 - 2.2 mm cable diameter

Not suitable for voltages above 42 V !

**Order number: 1-1-66-621-003**



# Pressure Switches hex 27

Changeover contacts

With silver or gold contacts



- High-quality micro-switch for reliable switching
- Switching point easy to adjust <sup>1)</sup>
- Hysteresis can be set in our works <sup>2)</sup>
- Self-cleaning contacts for a long working life (only 250 V versions)
- High overpressure safety
- Long working life under harsh operating conditions
- Connector plug or protective cap to protect against moisture and dirt, and thus easy replacement on site by service personnel
- Various thread connections available to suit your installation
- Ready-wired variants – see pages 34 – 37
- A choice of zinc-plated steel or stainless steel as body material and a selection of diaphragm materials ensure high resistance to media

<sup>1)</sup> Switches we have preset are secured with sealing paint and have the switching pressure stamped on their body.

<sup>2)</sup> Except for Series 0140/0141

# TECHNICAL DATA



	Voltage			Max. current			Body material					DIN valve connector
	24 V	42 V	250 V	50 mA	2 A	4 A	Gold contacts	Silver contacts	Adjustable hysteresis	Zinc-plated steel	Stainless steel 1.4305	
0140*)			•		•			•		•		
0141*)			•		•			•		•		
0170		•				•		•	•	•		
0171		•				•		•	•	•		
0180*)			•			•		•	•	•		
0181*)			•			•		•	•	•		
0184*)			•			•		•	•	•		•
0185*)			•			•		•	•	•		•
0186*)			•			•		•	•		•	
0187*)			•			•		•	•		•	
0190	•			•			•		•	•		
0191	•			•			•		•	•		
0194	•			•			•		•	•		•
0195	•			•			•		•	•		•
0196	•			•			•		•		•	
0197	•			•			•		•		•	

\*) For further details of switching performance, see page 7

## Technical Data

Degree of protection:	IP65 with suitable connector installed Terminals IP00
Switching frequency:	200 / min.
Temperature stability for diaphragm/seal materials:	NBR -30 °C – +100 °C EPDM -30 °C – +120 °C FKM -5 °C – +120 °C Silicone -40 °C – +120 °C HNBR -30 °C – +120 °C
Mechanical life expectancy:	10 <sup>6</sup> cycles (life expectancy of diaphragm pressure switches only for pressures up to max. 50 bar)
Vibration resistance:	10 g / 5 – 200 Hz sine-wave
Shock resistance:	294 m/s <sup>2</sup> ; 14 ms half-sine-wave
Switching performance:	see page 7
Hysteresis:	adjustable 10 – 30% (only at works); type 0140/0141 not adjustable, standard value approx. 10 – 20%

### CE Marking

Directives of the European Council

**Machinery Directive,  
EMC Directive  
Low Voltage Directive  
ATEX Directive**

Equipment that falls under these directives must have a declaration of conformity and carry the CE marking.

SUCO pressure switches are electrical equipment and therefore fall under the Low Voltage Directive 73/23/EC.

An EC Declaration of Conformity has been prepared for all products that fall under these directives and is kept on our premises. The catalogue pages for the relevant switches carry the CE marking.

## 0140/0141

## Diaphragm/piston pressure switches 250 V



Zinc-plated steel body, with screw terminals  
With changeover switch and silver contacts  
Overpressure safe to 300/600 bar <sup>1)</sup>

- See page 7 for electrical properties

## With external thread



- Also available with switching point preset in our works.
- For ready-wired variants, see page 34 onwards.
- Other body materials and connection threads on request.
- Protection class 2, protective insulation ☐
- Other diaphragm / seal materials on request, e.g. HNBR, silicone (last one for diaphragm type only).



- For further technical data, see page 23.

## 0140 Diaphragm pressure switches with screw terminals

Adjustment range in bar	Tolerance in bar (at room temperature)	Thread	Order number	p <sub>max.</sub> in bar
0.3 – 1.5	± 0.2	G 1/4	0140 457 03 003	300 <sup>1)</sup>
		NPT 1/8	0140 457 04 300	
		NPT 1/4	0140 457 09 305	
		7/16-20 UNF	0140 457 20 310	
		9/16-18 UNF	0140 457 21 315	
1 – 10	± 0.5	G 1/4	0140 458 03 006	
		NPT 1/8	0140 458 04 301	
		NPT 1/4	0140 458 09 306	
		7/16-20 UNF	0140 458 20 311	
		9/16-18 UNF	0140 458 21 316	
10 – 20	± 1.0	G 1/4	0140 459 03 009	
		NPT 1/8	0140 459 04 302	
		NPT 1/4	0140 459 09 307	
		7/16-20 UNF	0140 459 20 312	
		9/16-18 UNF	0140 459 21 317	
20 – 50	± 2.0	G 1/4	0140 461 03 012	
		NPT 1/8	0140 461 04 303	
		NPT 1/4	0140 461 09 308	
		7/16-20 UNF	0140 461 20 313	
		9/16-18 UNF	0140 461 21 318	

## 0141 Piston pressure switches with screw terminals

Adjustment range in bar	Tolerance in bar (at room temperature)	Thread	Order number	p <sub>max.</sub> in bar
50 – 150	± 5.0	G 1/4	0141 460 03 003	600 <sup>1)</sup>
		NPT 1/8	0141 460 04 304	
		NPT 1/4	0141 460 09 309	
		7/16-20 UNF	0141 460 20 314	
		9/16-18 UNF	0141 460 21 319	

**Order number**  
Add figure for diaphragm/seal material

014X XXX XX **X** XXX

<b>NBR</b>	Hydraulic / machine oil, turpentine, heating oil, air etc.	=	<b>1</b>
<b>EPDM</b>	Hydrogen, acetylene, ozone, brake fluid etc.	=	<b>2</b>
<b>FKM</b>	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	=	<b>3</b>
See page 23 for temperature ranges of diaphragm/seal materials			

## Warning!

When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar is not exceeded.

Piston-type pressure switches are only to a limited extent suitable for use with gases and oxygen. See explanation on page 5.

<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

## Degree of protection IP65

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.

# 0170/0171

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## Diaphragm/piston pressure switches 42 V

Zinc-plated steel body, with push-on terminals  
With changeover switch and silver contacts  
Overpressure safe to 100/300/600 bar<sup>1)</sup>  
Adjustable hysteresis at works



### 0170 Diaphragm pressure switches with push-on terminals

Adjustment range in bar	Tolerance in bar (at room temperature)	Thread	Order number	p <sub>max.</sub> in bar
0.3 – 1.5	± 0.2	M 10x1 taper	0170 457 01 001	100 <sup>1)</sup>
		M 12x1.5	0170 457 02 002	
		G 1/4	0170 457 03 003	
1 – 10	± 0.5	M 10x1 taper	0170 458 01 004	
		M 12x1.5	0170 458 02 005	
		G 1/4	0170 458 03 006	
1 – 10	± 0.5	M 10x1 taper	0170 458 01 040	300 <sup>1)</sup>
		M 12x1.5	0170 458 02 041	
		G 1/4	0170 458 03 042	
10 – 50	± 3.0	M 10x1 taper	0170 459 01 007	
		M 12x1.5	0170 459 02 008	
		G 1/4	0170 459 03 009	
10 – 100	± 3.0 – 5.0	M 10x1 taper	0170 461 01 010	
		M 12x1.5	0170 461 02 011	
		G 1/4	0170 461 03 012	

### 0171 Piston pressure switches with push-on terminals

Adjustment range in bar	Tolerance in bar (at room temperature)	Thread	Order number	p <sub>max.</sub> in bar
50 – 200	± 5.0	M 10x1 taper	0171 460 01 001	600 <sup>1)</sup>
		M 12x1.5	0171 460 02 002	
		G 1/4	0171 460 03 003	

**Order number**  
Add figure for diaphragm/seal material

017X XXX XX **X** XXX

<b>NBR</b>	Hydraulic / machine oil, turpentine, heating oil, air etc.	=	<b>1</b>
<b>EPDM</b>	Hydrogen, acetylene, ozone, brake fluid etc.	=	<b>2</b>
<b>FKM</b>	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	=	<b>3</b>
See page 23 for temperature ranges of diaphragm/seal materials			

### Warning!

When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar is not exceeded.

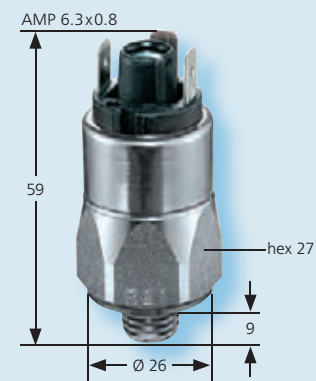
Piston-type pressure switches are only to a limited extent suitable for use with gases and oxygen. See explanation on page 5.

<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

### Degree of protection IP65

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.

### With external thread



- Also available with switching point preset in our works.
- For ready-wired variants, see page 34 onwards.
- Other body materials and connection threads on request.
- Other diaphragm / seal materials on request, e.g. HNBR, silicone (last one for diaphragm type only).



- Accessories: see page 33



- For further technical data, see page 23.

**Suco**



## 0180/0181

## Diaphragm/piston pressure switches 250 V

Zinc-plated steel body, with push-on terminals

With changeover switch and silver contacts

Overpressure safe to 100/300/600 bar <sup>1)</sup>

Adjustable hysteresis at works

- See page 7 for electrical properties



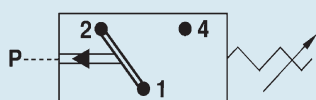
### With external thread



- Also available with switching point preset in our works.
- For ready-wired variants, see page 34 onwards.
- Other body materials and connection threads on request.
- Other diaphragm / seal materials on request, e.g. HNBR, silicone (last one for diaphragm type only).



- Accessories: see page 33



- For further technical data, see page 23.

### 0180 Diaphragm pressure switches with push-on terminals

Adjustment range in bar	Tolerance in bar (at room temperature)	Thread	Order number				p <sub>max.</sub> in bar
0.3 – 1.5	± 0.2	M 10x1 taper	0180	457	01	001	100 <sup>1)</sup>
		M 12x1.5	0180	457	02	002	
		G 1/4	0180	457	03	003	
1 – 10	± 0.5	M 10x1 taper	0180	458	01	004	
		M 12x1.5	0180	458	02	005	
		G 1/4	0180	458	03	006	
1 – 10	± 0.5	M 10x1 taper	0180	458	01	040	300 <sup>1)</sup>
		M 12x1.5	0180	458	02	041	
		G 1/4	0180	458	03	042	
10 – 50	± 3.0	M 10x1 taper	0180	459	01	007	
		M 12x1.5	0180	459	02	008	
		G 1/4	0180	459	03	009	
10 – 100	± 3.0 – 5.0	M 10x1 taper	0180	461	01	010	
		M 12x1.5	0180	461	02	011	
		G 1/4	0180	461	03	012	

### 0181 Piston pressure switches with push-on terminals

Adjustment range in bar	Tolerance in bar (at room temperature)	Thread	Order number				p <sub>max.</sub> in bar
50 – 200	± 5.0	M 10x1 taper	0181	460	01	001	600 <sup>1)</sup>
		M 12x1.5	0181	460	02	002	
		G 1/4	0181	460	03	003	

**Order number**  
Add figure for diaphragm/seal material

018X XXX XX **X** XXX

<b>NBR</b>	Hydraulic / machine oil, turpentine, heating oil, air etc.	=	<b>1</b>
<b>EPDM</b>	Hydrogen, acetylene, ozone, brake fluid etc.	=	<b>2</b>
<b>FKM</b>	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	=	<b>3</b>

See page 23 for temperature ranges of diaphragm/seal materials

### Warning!

When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar is not exceeded.

Piston-type pressure switches are only to a limited extent suitable for use with gases and oxygen. See explanation on page 5.

<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

### Degree of protection IP65

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.

## Diaphragm/piston pressure switches 250 V

Zinc-plated steel body, with connector plug to DIN EN 175301 (DIN 43650)

With changeover switch and silver contacts

Overpressure safe to 100/300/600 bar<sup>1)</sup>

Adjustable hysteresis at work

- See page 7 for electrical properties



### 0184 Diaphragm pressure switches with screw terminals

Adjustment range in bar	Tolerance in bar (at room temperature)	Thread	Order number	p <sub>max.</sub> in bar
0.3 – 1.5	± 0.2	M 10x1 taper	0184 457 01 001	100 <sup>1)</sup>
		M 12x1.5	0184 457 02 002	
		G 1/4	0184 457 03 003	
1 – 10	± 0.5	M 10x1 taper	0184 458 01 040	300 <sup>1)</sup>
		M 12x1.5	0184 458 02 041	
		G 1/4	0184 458 03 042	
10 – 50	± 3.0	M 10x1 taper	0184 459 01 007	300 <sup>1)</sup>
		M 12x1.5	0184 459 02 008	
		G 1/4	0184 459 03 009	
10 – 100	± 3.0 – 5.0	M 10x1 taper	0184 461 01 010	300 <sup>1)</sup>
		M 12x1.5	0184 461 02 011	
		G 1/4	0184 461 03 012	

### 0185 Piston pressure switches with screw terminals

Adjustment range in bar	Tolerance in bar (at room temperature)	Thread	Order number	p <sub>max.</sub> in bar
50 – 200	± 5.0	M 10x1 taper	0185 460 01 001	600 <sup>1)</sup>
		M 12x1.5	0185 460 02 002	
		G 1/4	0185 460 03 003	

**Order number**  
Add figure for diaphragm/seal material

018X XXX XX X XXX

<b>NBR</b>	Hydraulic / machine oil, turpentine, heating oil, air etc.	=	<b>1</b>
<b>EPDM</b>	Hydrogen, acetylene, ozone, brake fluid etc.	=	<b>2</b>
<b>FKM</b>	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	=	<b>3</b>
See page 23 for temperature ranges of diaphragm/seal materials			

#### Warning!

When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar is not exceeded.

Piston-type pressure switches are only to a limited extent suitable for use with gases and oxygen. See explanation on page 5.

<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

#### Degree of protection IP65

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.

#### With external thread



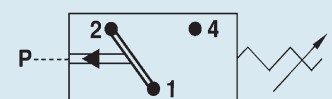
- Also available with switching point preset in our works.

- Other body materials and connection threads on request.

- Other diaphragm / seal materials on request, e.g. HNBR, silicone (last one for diaphragm type only).



Connector plug with indicator light is also available.



- For further technical data, see page 23.

## 0190/0191

## Diaphragm/piston pressure switches 24 V

Zinc-plated steel body, with push-on terminals

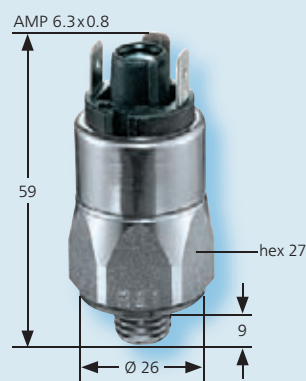
With changeover switch and gold contacts

Max. voltage 24 V, overpressure safe to 100/300/600 bar<sup>1)</sup>

Adjustable hysteresis at works



## With external thread



- Also available with switching point preset in our works.
- For ready-wired variants, see page 34 onwards.
- Other body materials and connection threads on request.
- Other diaphragm / seal materials on request, e.g. HNBR, silicone (last one for diaphragm type only).



- Accessories: see page 33



- For further technical data, see page 23.

## 0190 Diaphragm pressure switches with push-on terminals

Adjustment range in bar	Tolerance in bar (at room temperature)	Thread	Order number	p <sub>max.</sub> in bar
0.3 – 1.5	± 0.2	M 10x1 taper	0190 457 01	100 <sup>1)</sup>
		M 12x1.5	0190 457 02	
		G 1/4	0190 457 03	
1 – 10	± 0.5	M 10x1 taper	0190 458 01	
		M 12x1.5	0190 458 02	
		G 1/4	0190 458 03	
1 – 10	± 0.5	M 10x1 taper	0190 458 01	300 <sup>1)</sup>
		M 12x1.5	0190 458 02	
		G 1/4	0190 458 03	
10 – 50	± 3.0	M 10x1 taper	0190 459 01	
		M 12x1.5	0190 459 02	
		G 1/4	0190 459 03	
10 – 100	± 3.0 – 5.0	M 10x1 taper	0190 461 01	
		M 12x1.5	0190 461 02	
		G 1/4	0190 461 03	

## 0191 Piston pressure switches with push-on terminals

Adjustment range in bar	Tolerance in bar (at room temperature)	Thread	Order number	p <sub>max.</sub> in bar
50 – 200	± 5.0	M 10x1 taper	0191 460 01	600 <sup>1)</sup>
		M 12x1.5	0191 460 02	
		G 1/4	0191 460 03	



**Order number**  
Add figure for diaphragm/seal material

019X XXX XX **X** XXX

<b>NBR</b>	Hydraulic / machine oil, turpentine, heating oil, air etc.	=	<b>1</b>
<b>EPDM</b>	Hydrogen, acetylene, ozone, brake fluid etc.	=	<b>2</b>
<b>FKM</b>	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	=	<b>3</b>
See page 23 for temperature ranges of diaphragm/seal materials			

## Warning!

When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar is not exceeded.

Piston-type pressure switches are only to a limited extent suitable for use with gases and oxygen. See explanation on page 5.

<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

## Degree of protection IP65

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.

# Diaphragm pressure switch 24 V

Zinc-plated steel body, with connector plug to DIN EN 175301 (DIN 43650)

With changeover switch and gold contacts

Overpressure safe to 100/300 bar <sup>1)</sup>

Adjustable hysteresis at works



## 0194 Diaphragm pressure switches with screw terminals

Adjustment range in bar	Tolerance in bar (at room temperature)	Thread	Order number	p <sub>max.</sub> in bar
0.3 – 1.5	± 0.2	M 10x1 taper	0194 457 01 001	100 <sup>1)</sup>
		M 12x1.5	0194 457 02 002	
		G 1/4	0194 457 03 003	
		NPT 1/8	0194 457 04 318	
		NPT 1/4	0194 457 09 309	
		7/16-20 UNF	0194 457 20 301	
		9/16-18 UNF	0194 457 21 302	
1 – 10	± 0.5	M 10x1 taper	0194 458 01 040	300 <sup>1)</sup>
		M 12x1.5	0194 458 02 041	
		G 1/4	0194 458 03 042	
		NPT 1/8	0194 458 04 343	
		NPT 1/4	0194 458 09 340	
		7/16-20 UNF	0194 458 20 341	
		9/16-18 UNF	0194 458 21 342	
10 – 50	± 3.0	M 10x1 taper	0194 459 01 007	300 <sup>1)</sup>
		M 12x1.5	0194 459 02 008	
		G 1/4	0194 459 03 009	
		NPT 1/8	0194 459 04 320	
		NPT 1/4	0194 459 09 311	
		7/16-20 UNF	0194 459 20 305	
		9/16-18 UNF	0194 459 21 306	
10 – 100	± 3.0 – 5.0	M 10x1 taper	0194 461 01 010	300 <sup>1)</sup>
		M 12x1.5	0194 461 02 011	
		G 1/4	0194 461 03 012	
		NPT 1/8	0194 461 04 321	
		NPT 1/4	0194 461 09 312	
		7/16-20 UNF	0194 461 20 307	
		9/16-18 UNF	0194 461 21 308	

**Order number**  
Add figure for diaphragm/seal material

0194 XXX XX **X** XXX

<b>NBR</b>	Hydraulic / machine oil, turpentine, heating oil, air etc.	=	<b>1</b>
<b>EPDM</b>	Hydrogen, acetylene, ozone, brake fluid etc.	=	<b>2</b>
<b>FKM</b>	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	=	<b>3</b>
See page 23 for temperature ranges of diaphragm/seal materials			

### Warning!

When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar is not exceeded.

<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

### Degree of protection IP65

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.

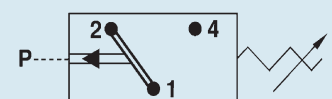
### With external thread



- Also available with switching point preset in our works.
- Other body materials and connection threads on request.
- Other diaphragm / seal materials on request, e.g. HNBR, silicone (last one for diaphragm type only).



Connector plug with indicator light is also available.



- For further technical data, see page 23.



## Piston pressure switch 24 V

Zinc-plated steel body, with connector plug to DIN EN 175301 (DIN 43650)

With changeover switch and gold contacts

Overpressure safe to 600 bar<sup>1)</sup>

Adjustable hysteresis at works



### With external thread



- Also available with switching point preset in our works.
- Other body materials and connection threads on request.
- Other diaphragm / seal materials on request, e.g. HNBR, silicone (last one for diaphragm type only).



Connector plug with indicator light is also available.



- For further technical data, see page 23.

### 0195 Piston pressure switches with screw terminals

Adjustment range in bar	Tolerance in bar (at room temperature)	Thread	Order number				p <sub>max.</sub> in bar
50 – 200	± 5.0	M 10x1 taper	0195	460	01	001	600 <sup>1)</sup>
		M 12x1.5	0195	460	02	002	
		G 1/4	0195	460	03	003	
		NPT 1/8	0195	460	04	304	
		NPT 1/4	0195	460	09	303	
		7/16-20 UNF	0195	460	20	301	
		9/16-18 UNF	0195	460	21	302	

**Order number**  
Add figure for diaphragm/seal material

0195 XXX XX **X** XXX

<b>NBR</b>	Hydraulic / machine oil, turpentine, heating oil, air etc.	=	<b>1</b>
<b>EPDM</b>	Hydrogen, acetylene, ozone, brake fluid etc.	=	<b>2</b>
<b>FKM</b>	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	=	<b>3</b>
See page 23 for temperature ranges of diaphragm/seal materials			

### Warning!

When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar is not exceeded.

Piston-type pressure switches are only to a limited extent suitable for use with gases and oxygen. See explanation on page 5.

<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

### Degree of protection IP65

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.

# 0186/0187

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## Diaphragm/piston pressure switches 250 V

### Stainless steel (1.4305) body

With changeover switch and silver contacts

Max. voltage 250 V, overpressure safe to 300/600 bar <sup>1)</sup>

Adjustable hysteresis at works

- See page 7 for electrical properties



### 0186 Diaphragm pressure switches with push-on terminals

Adjustment range in bar	Tolerance in bar (at room temperature)	Thread	Order number	p <sub>max.</sub> in bar
0.5 – 5	± 0.2	G 1/4	0186 457 03 003	300 <sup>1)</sup>
1 – 10	± 0.5		0186 458 03 006	
10 – 50	± 3.0		0186 459 03 009	
10 – 100	± 3.0 – 5.0		0186 461 03 012	

### 0187 Piston pressure switches with push-on terminals

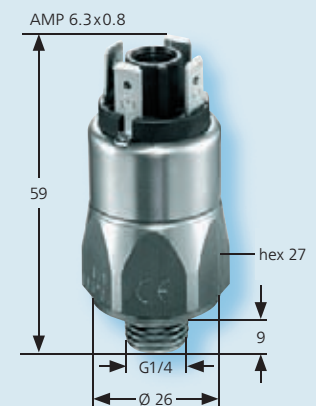
Adjustment range in bar	Tolerance in bar (at room temperature)	Thread	Order number	p <sub>max.</sub> in bar
50 – 200	± 5.0	G 1/4	0187 460 03 003	600 <sup>1)</sup>

**!** Order number  
Add figure for diaphragm/seal material

018X XXX XX **X** XXX

<b>NBR</b>	Hydraulic / machine oil, turpentine, heating oil, air etc.	=	<b>1</b>
<b>EPDM</b>	Water, hydrogen, acetylene, ozone, brake fluid etc.	=	<b>2</b>
<b>FKM</b>	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	=	<b>3</b>
See page 23 for temperature ranges of diaphragm/seal materials			

### With external thread



- Also available with switching point preset in our works.
- For ready-wired variants, see page 34 onwards.
- Other body materials and connection threads on request.
- Other diaphragm / seal materials on request, e.g. HNBR, silicone (last one for diaphragm type only).



- Accessories: see page 33



- For further technical data, see page 23.

### Warning!

When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 50 bar is not exceeded.

Piston-type pressure switches are only to a limited extent suitable for use with gases and oxygen. See explanation on page 5.

<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

### Degree of protection IP65

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.

**Suco**

## Diaphragm/piston pressure switches 24 V

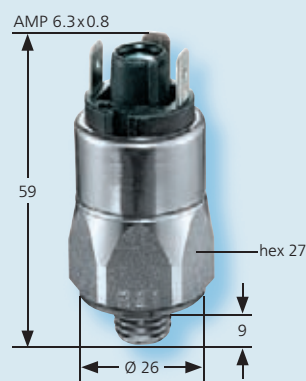
**Stainless steel (1.4305) body**

With changeover switch and gold contacts

Max. voltage 24 V

Overpressure safe to 300/600 bar <sup>1)</sup>

Adjustable hysteresis at works

**With external thread**

- Also available with switching point preset in our works.
- For ready-wired variants, see page 34 onwards.
- Other body materials and connection threads on request.
- Other diaphragm / seal materials on request, e.g. HNBR, silicone (last one for diaphragm type only).



- Accessories: see page 33



- For further technical data, see page 23.

**0196 Diaphragm pressure switches with push-on terminals**

Adjustment range in bar	Tolerance in bar (at room temperature)	Thread	Order number				p <sub>max.</sub> in bar
0.5 – 5	± 0.2	G 1/4	0196	457	03	003	300 <sup>1)</sup>
1 – 10	± 0.5		0196	458	03	006	
10 – 50	± 3.0		0196	459	03	009	
10 – 100	± 3.0 – 5.0		0196	461	03	012	

**0197 Piston pressure switches with push-on terminals**

Adjustment range in bar	Tolerance in bar (at room temperature)	Thread	Order number				p <sub>max.</sub> in bar
50 – 200	± 5.0	G 1/4	0197	460	03	003	600 <sup>1)</sup>



**Order number**  
Add figure for diaphragm/seal material

019X XXX XX **X** XXX

<b>NBR</b>	Hydraulic / machine oil, turpentine, heating oil, air etc.	=	<b>1</b>
<b>EPDM</b>	Water, hydrogen, acetylene, ozone, brake fluid etc.	=	<b>2</b>
<b>FKM</b>	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	=	<b>3</b>
See page 23 for temperature ranges of diaphragm/seal materials			

**Warning!**

When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 50 bar is not exceeded.

Piston-type pressure switches are only to a limited extent suitable for use with gases and oxygen. See explanation on page 5.

<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

**Degree of protection IP65**

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.

# Accessories

For hex 27 pressure switches



## Protective cap

With two cable entries  
for 1.7 – 2.3 mm cable diameter  
Not suitable for voltages above 42 V !

Order number: 1-1-70-621-007



## Connector plug

Cable gland Pg9  
(clamping range 6 – 9 mm)  
Not suitable for voltages above 250 V !

Order number.: 1-1-80-652-002



## Application matrix for accessories

Pressure switch range	Protective cap 1-1-70-621-007	Connector plug 1-1-80-652-002	Connector plug with indicator light to DIN EN 175301-803-A 24 VDC: 1-1-84-652-011 230 VAC: 1-1-84-652-010
<b>0170 / 0171</b>	•	•	
<b>0180 / 0181</b>	• (up to max. 42 V)	•	
<b>0184 / 0185</b>			• (for 24 V and 250 V on request) see also page 27
<b>0190 / 0191</b>	•	•	
<b>0194 / 0195</b>			• (for 24 V on request) see also page 29 – 30
<b>0186 / 0187</b>	• (up to max. 42 V)	•	
<b>0196 / 0197</b>	•	•	



# Ready-wired Pressure Switches



## Applications

Our pressure switches mostly have a degree of protection IP65. This may not be adequate for all applications. Especially for commercial vehicles, mobile hydraulics, and similar applications where **IP67** or **IP6K9K** may be required.

At SUCO any commercially-available connector system can be supplied ready-wired with a customer-specific cable length. This ensures great flexibility, and we can also supply small quantities without the need for expensive tooling.

The technical data of ready-wired pressure switch variants are substantially the same as those of the standard models. Differences in the technical data will be agreed with the customer and defined on a customer-specific drawing of the ready-wired pressure switch.

# Pressure switches suitable for ready-wiring

are supplied with the switching point preset in our works.  
The switching point can not be changed subsequently.  
It is therefore essential that the switching point is stated  
when the order is placed.

## Pressure switch ranges suitable for ready-wiring



0263/0266  
0267  
0269

See pages 12 - 15, 18, 20  
for technical data



0268

See page 19  
for technical data



0270/0271  
0290/0291  
0296/0297

See page 25, 28, 32  
for technical data

## A selection from the wide variety of plugs we can supply.



Plugs to  
DIN 72585

AMP Junior Timer

Cannon plugs

AMP Superseal

Packard plugs  
(Weather Pack)

Packard plugs  
(Weather Pack)

Deutsch plugs  
(DT 06)

Deutsch plugs  
(DT 04 - 2P)

Deutsch plugs  
(DT 04 - 3P)

Further plugs and  
connectors available  
on request

We supply the type and  
length of cable you  
need

# 0240/0241

## Diaphragm/piston pressure switches


Depending on connection, suitable for 42 V or 250 V

With changeover switch and silver contacts

Overpressure safe to 300/600 bar <sup>1)</sup>



### Technical Data

Voltage:	42 V / 250 V depending on connection
Current:	max. 2 A
Degree of protection:	IP67
Protection class:	2, protective insulation, 
Switching frequency:	200 / min.
Hysteresis:	10 – 20% not adjustable
Mechanical life expectancy:	10 <sup>6</sup> cycles (at pressures up to 50 bar)
Materials:	body: zinc-plated steel protective cover: anodised aluminium
cable:	standard delivery 2 m with wire end sleeves

- Switching point can be adjusted after potting
- Degree of protection **IP67**

#### 0240 Diaphragm pressure switches

Adjustment range in bar	Tolerance in bar (at room temperature)	Thread	Order number	P <sub>max.</sub> in bar
0.3 – 1.5	± 0.2	G 1/4	0240 457 03 003	300 <sup>1)</sup>
		NPT 1/8	0240 457 04 300	
		NPT 1/4	0240 457 09 305	
		7/16-20 UNF	0240 457 20 310	
		9/16-18 UNF	0240 457 21 315	
1 – 10	± 0.5	G 1/4	0240 458 03 006	
		NPT 1/8	0240 458 04 301	
		NPT 1/4	0240 458 09 306	
		7/16-20 UNF	0240 458 20 311	
		9/16-18 UNF	0240 458 21 316	
10 – 20	± 1.0	G 1/4	0240 459 03 009	
		NPT 1/8	0240 459 04 302	
		NPT 1/4	0240 459 09 307	
		7/16-20 UNF	0240 459 20 312	
		9/16-18 UNF	0240 459 21 317	
20 – 50	± 2.0	G 1/4	0240 461 03 012	
		NPT 1/8	0240 461 04 303	
		NPT 1/4	0240 461 09 308	
		7/16-20 UNF	0240 461 20 313	
		9/16-18 UNF	0240 461 21 318	

#### 0241 Piston pressure switches

Adjustment range in bar	Tolerance in bar (at room temperature)	Thread	Order number	P <sub>max.</sub> in bar
50 – 150	± 5.0	G 1/4	0241 460 03 003	600 <sup>1)</sup>
		NPT 1/8	0241 460 04 304	
		NPT 1/4	0241 460 09 309	
		7/16-20 UNF	0241 460 20 314	
		9/16-18 UNF	0241 460 21 319	

**Order number:**  
Add figure for  
diaphragm/seal material

024X XXX XX **X** XXX

<b>NBR</b>	Hydraulic / machine oil, turpentine, heating oil, air etc.	=	<b>1</b>
<b>EPDM</b>	Hydrogen, acetylene, ozone, brake fluid etc.	=	<b>2</b>
<b>FKM</b>	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	=	<b>3</b>
See page 23 for temperature ranges of diaphragm / seal materials			

#### Warning!

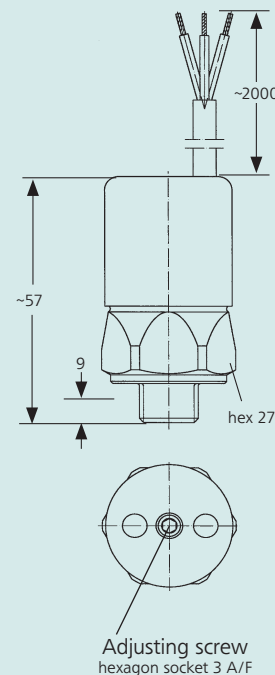
When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar is not exceeded.

Piston-type pressure switches are only to a limited extent suitable for use with gases and oxygen. See explanation on page 5.

<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

#### Degree of protection IP67

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.



- Options:
  - other cable lengths and connectors on request
  - fixed, pre-set switching point
- Other body materials and connection threads on request.
- Other diaphragm / seal materials on request, e.g. HNBR, silicone (last one for diaphragm type only).

#### Contact assignment:

- 1 = black
- 2 = red
- 4 = white





**CE Marking**

Directives of the  
European Council

Machinery Directive,  
EMC Directive  
Low Voltage Directive  
ATEX Directive

# Pressure Switches 30 A/F

## Changeover contacts



Equipment that falls under these directives must have a declaration of conformity and carry the CE marking.

SUCO pressure switches are electrical equipment and therefore fall under the Low Voltage Directive 73/23/EC.

An EC Declaration of Conformity has been prepared for all products that fall under these directives and is kept on our premises. The catalogue pages for the relevant switches carry the CE marking.



### TECHNICAL DATA

Degree of protection:	IP65 valve connector fitted	
Switching frequency:	200 / min.	
Temperature stability for diaphragm/seal materials:	NBR	-30 °C – +100 °C
	EPDM	-30 °C – +120 °C
	FKM	-5 °C – +120 °C
Mechanical life expectancy:	10 <sup>6</sup> cycles (at pressures up to 50 bar)	
Vibration resistance:	10 g / 5–200 Hz sine-wave	
Shock resistance:	294 m/s <sup>2</sup> ; 14 ms half-sine-wave	
Body material:	AlMgSi1 F28	
Switching performance:	see page 7	
Hysteresis:	Type 0159:	10 – 30 % (not adjustable)
	Type 0161, 0162, 0175:	10 – 30 % (adjustable at works)

- Panel or manifold mounting for clear, maintenance-friendly installation
- Easily adjustable by user
- High-quality micro-switch for reliable switching
- High overpressure safety
- Connection plug for simple installation on site

# Diaphragm/piston pressure switches 250 V

Aluminium body

With changeover switch and silver contacts

Overpressure safe to 200/600 bar<sup>1)</sup>

Max. voltage 250 V

- See page 7 for electrical properties

- Switching point steplessly adjustable with switch in operating condition by turning knurled knob

## 0159 Diaphragm pressure switches

Adjustment range in bar	Tolerance in bar (room temperature)	p <sub>max.</sub> in bar	Thread	Order number
0.2 – 2	± 0.2 – 0.3	200 <sup>1)</sup>	G 1/4 internal	0159 426 14 001
0.5 – 5	± 0.2 – 0.5			0159 427 14 001
1 – 10	± 0.5			0159 428 14 001
2 – 20	± 1.0			0159 429 14 001
5 – 50	± 3.0			0159 430 14 001
10 – 100	± 3.0 – 5.0			0159 431 14 001

## 0159 Piston pressure switches

Adjustment range in bar	Tolerance in bar (room temperature)	p <sub>max.</sub> in bar	Thread	Order number
10 – 100	± 3.0 – 5.0	600 <sup>1)</sup>	G 1/4 internal	0159 432 14 001
25 – 250	± 5.0 – 7.0			0159 433 14 001
40 – 400	± 5.0 – 9.0			0159 434 14 001

**Order number**  
Add figure for diaphragm/seal material

0159 XXX XX **X** XXX

<b>NBR</b>	Hydraulic / machine oil, turpentine, heating oil, air etc.	=	<b>1</b>
<b>EPDM</b>	Hydrogen, acetylene, ozone, brake fluid etc.	=	<b>2</b>
<b>FKM</b>	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	=	<b>3</b>
See page 38 for temperature ranges of diaphragm / seal materials			

### Warning!

When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar is not exceeded.

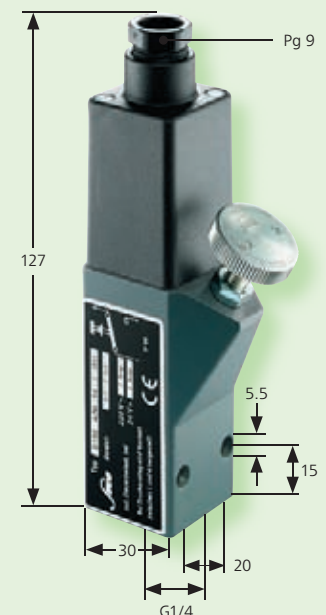
Piston-type pressure switches are only to a limited extent suitable for use with gases and oxygen. See explanation on page 5.

<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

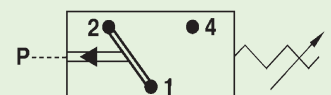
### Degree of protection IP65

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.

With internal thread



- Also available with switching point preset in our works.



- For further technical data see page 38

## 0161/0162

## Diaphragm/piston pressure switches 250 V

Aluminium body

With changeover switch and silver contacts

Max. voltage 250 V

Overpressure safe to 200/600 bar<sup>1)</sup>

With connector plug similar to DIN EN 175301 (DIN 43650)

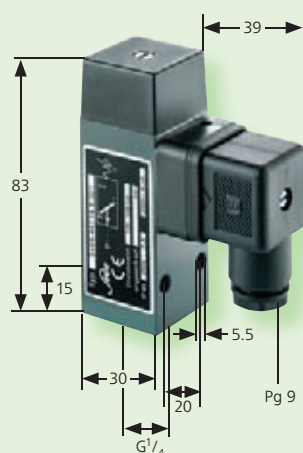
Adjustable hysteresis at works

- See page 7 for electrical properties



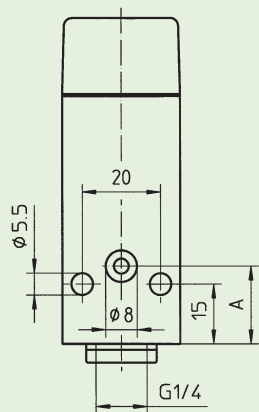
## 0161

With internal thread

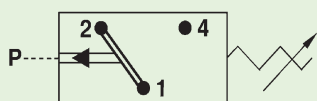


## 0162

Manifold mounting



- Also available with switching point preset in our works.



- For further technical data see page 38

## Diaphragm pressure switches

## 0161

0162<sup>2)</sup>

Adjustment range in bar	Tolerance in bar (room temperature)	Dim."A" in mm	P <sub>max.</sub> in bar	Internal thread G 1/4	Manifold mounting
0.5 – 1	± 0.2	15	200 <sup>1)</sup>	0161 436 14  001	0162 436 14  001
0.5 – 5	± 0.2 – 0.5			0161 437 14  001	0162 437 14  001
1 – 10	± 0.5			0161 438 14  001	0162 438 14  001
10 – 50	± 3.0			0161 439 14  001	0162 439 14  001
50 – 100	± 3.0 – 5.0			0161 440 14  001	0162 440 14  001

## Piston pressure switches

## 0161

0162<sup>2)</sup>

Adjustment range in bar	Tolerance in bar (room temperature)	Dim."A" in mm	P <sub>max.</sub> in bar	Internal thread G 1/4	Manifold mounting
100 – 400	± 5.0 – 9.0	19.5	600 <sup>1)</sup>	0161 441 14  001	0162 441 14  001

**Order number**  
Add figure for diaphragm/  
seal material

0161 XXX XX XXX 0162 XXX XX XXX

<b>NBR</b>	Hydraulic / machine oil, turpentine, heating oil, air etc.	=	1	=	1
<b>EPDM</b>	Hydrogen, acetylene, ozone, brake fluid etc.	=	2	=	2
<b>FKM</b>	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	=	3	=	3
See page 38 for temperature ranges of diaphragm/seal materials					

<sup>2)</sup> 0162 Diaphragm pressure switches: scope of supply includes O-ring NBR 5 x 1.5

## Warning!

When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar is not exceeded.

Piston-type pressure switches are only to a limited extent suitable for use with gases and oxygen. See explanation on page 5.

<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

## Degree of protection IP65

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.

# 0175

www.suco.de

## Diaphragm pressure switches 250 V

Aluminium body

With changeover switch and silver contacts

Max. voltage 250 V

Overpressure safe to 25 bar <sup>1)</sup>

With connector plug similar to DIN EN 175301 (DIN 43650)

Adjustable hysteresis at works

- See page 7 for electrical properties



### 0175 Diaphragm pressure switches

Adjustment range in bar	Tolerance in bar (room temperature)	P <sub>max.</sub> in bar	Thread	Order number
0.1 – 1	± 0.1 – 0.2	25 <sup>1)</sup>	G 1/4 internal	0175 435 14 <span style="background-color: green; color: white;">X</span> 001

**Order number**  
Add figure for diaphragm/  
seal material

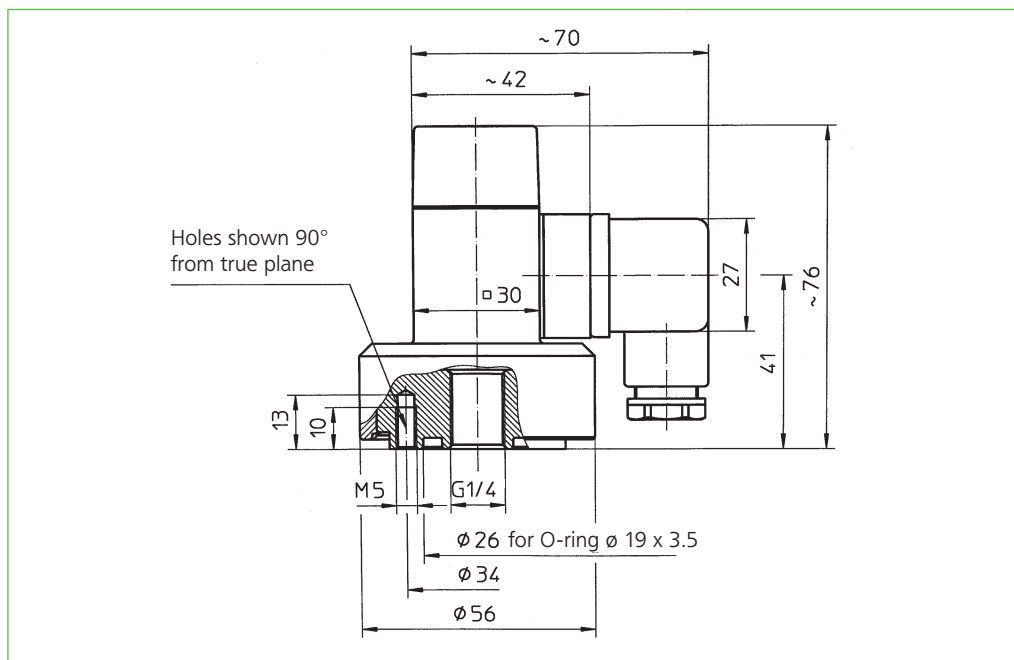
0175 XXX XX X XXX

<b>NBR</b>	Hydraulic / machine oil, turpentine, heating oil, air etc.	=	<span style="background-color: green; color: white;">1</span>
<b>EPDM</b>	Hydrogen, acetylene, ozone, brake fluid etc.	=	<span style="background-color: green; color: white;">2</span>
<b>FKM</b>	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	=	<span style="background-color: green; color: white;">3</span>
See page 38 for temperature ranges of diaphragm/seal materials			

With internal thread



- Also available with switching point preset in our works.



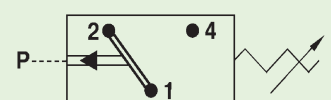
### Warning!

When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar is not exceeded.

<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

### Degree of protection IP65

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.



- For further technical data see page 38

**Suco**



# Explosion-Protected Pressure Switches

To new ATEX standard



## TECHNICAL DATA

	0165	0340	0341
Degree of protection:	IP 65		
Protection zone:	1	22	22
Switching power:	1 A / 250 VAC 0.25 A / 250 VDC	2 A / 250 VAC	
Body material:	AlMgSi1 F28	Steel, zinc-plated Anodised aluminium	
Conductor cross-section:	3 x 0.75 mm <sup>2</sup>	3 x 0.5 mm <sup>2</sup>	
Switching frequency:	200 / min.		
Temperature range:	NBR, EPDM: -20 °C – +80 °C; FKM: -5 °C – +80 °C		
Mechanical life expectancy:	10 <sup>6</sup> cycles (at pressures up to 50 bar)		
Vibration resistance:	10 g / 5 – 200 Hz sine-wave		
Shock resistance:	294 m/s <sup>2</sup> ; 14 ms half-sine-wave		
Cable length:	standard delivery 2 m with wire end sleeves		
Hysteresis:	10 – 30% (not adjustable)		

# TECHNICAL DATA

- ATEX-certified for use in potentially-explosive atmospheres
- Compact design
- Micro-switch for reliable operation
- Switching point can be easily adjusted by user when switch is in operation

Explosion-protected pressure switches are classified by ATEX and approved according to the type of combustible material that may be expected where they are to be used. The sub-divisions are:

**Gases and vapours**

**Dusts**

**Methane dust**

Our pressure switches are suitable for gases and vapours, or for dust according to type. They are not suitable for use in methane dust (mining applications).

**The table provides an overview of the sub-division into zones, equipment groups and equipment categories.**

## Conditions in locations with potentially-explosive atmosphere

Combustible material	Occurrence of combustible material in location	Designation of location with specified hazard	Marking required on equipment to be used in the specified zone	
			Equipment group	Equipment category
Gases Vapours	Present continuously, for long periods or frequently	Zone 0	II	1G
	Occurs occasionally	Zone 1	II	2G or 1G
	Unlikely to occur, and then only seldom or for short periods	Zone 2	II	3G or 2G or 1G
Dusts	Present continuously, for long periods or frequently	Zone 20	II	1D
	Occurs occasionally	Zone 21	II	2D or 1D
	Occurs if accumulated dust is disturbed, and then only seldom or for short periods	Zone 22	II	3D or 2D or 1D
Methane Dust	—	Mining industry	I	M1
	—	Mining industry	I	M1 or M2



### CE Marking

*Directives of the European Council*

**Machinery Directive,  
EMC Directive  
Low Voltage Directive  
ATEX Directive**

*Equipment that falls under these directives must have a declaration of conformity and carry the CE marking.*

*SUCO pressure switches are electrical equipment and therefore fall under the Low Voltage Directive 73/23/EC.*

*An EC Declaration of Conformity has been prepared for all products that fall under these directives and is kept on our premises. The catalogue pages for the relevant switches carry the CE marking.*

# Diaphragm/piston pressure switches 250 V

ATEX 0102 C€

II 2G EEx d II C T6 / T5 (gas-protected)

Aluminium body

With changeover switch

Max. voltage 250 V

Overpressure safe to 200 / 600 bar <sup>1)</sup>



With internal thread

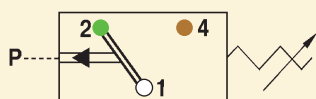


• Also available with switching point preset in our works.

• Other cable lengths on request.

Contact assignment:

- 1 = white
- 2 = green
- 4 = brown



• For further technical data, see page 43

## 0165 Diaphragm pressure switches

Adjustment range in bar	Tolerance in bar (at room temperature)	Order number	p <sub>max.</sub> in bar
1 – 6	± 0.5	0165 448 14 001	200 <sup>1)</sup>
5 – 50	± 3.0	0165 449 14 001	

## 0165 Piston pressure switches

Adjustment range in bar	Tolerance in bar (at room temperature)	Order number	p <sub>max.</sub> in bar
20 – 100	± 3.0 – 5.0	0165 450 14 001	600 <sup>1)</sup>
100 – 400	± 5.0 – 9.0	0165 451 14 001	

**Order number**  
Add figure for diaphragm/seal material

0165 XXX XX X XXX

<b>NBR</b>	Hydraulic / machine oil, turpentine, heating oil, air etc.	=	<b>1</b>
<b>EPDM</b>	Hydrogen, acetylene, ozone, brake fluid etc.	=	<b>2</b>
<b>FKM</b>	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	=	<b>3</b>
See page 42 for temperature ranges of diaphragm / seal materials			

## Warning!

When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar is not exceeded.

Piston-type pressure switches are only to a limited extent suitable for use with gases and oxygen. See explanation on page 5.

<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

## Degree of protection IP65

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.

# 0340/0341

www.suco.de

## Diaphragm/piston pressure switches 250 V

ATEX C E

Ex II 3D IP65 T90°C (dust-protected)

Zinc-plated steel body

With changeover switch

Max. voltage 250 V

Overpressure safe to 300 / 600 bar<sup>1)</sup>



### 0340 Diaphragm pressure switches

Adjustment range in bar	Tolerance in bar (at room temperature)	Thread	Order number	P <sub>max.</sub> in bar
0.3 – 1.5	± 0.2	G 1/4	0340 457 03 003	300 <sup>1)</sup>
1 – 10	± 0.5 – 1.0		0340 458 03 006	
10 – 20	± 1.0		0340 459 03 009	
20 – 50	± 2.0		0340 461 03 012	

### 0341 Piston pressure switches

Adjustment range in bar	Tolerance in bar (at room temperature)	Thread	Order number	P <sub>max.</sub> in bar
50 – 150	± 5.0	G 1/4	0341 460 03 003	600 <sup>1)</sup>

**Order number**  
Add figure for diaphragm/seal material

034X XXX XX X XXX

<b>NBR</b>	Hydraulic / machine oil, turpentine, heating oil, air etc.	=	<b>1</b>
<b>EPDM</b>	Hydrogen, acetylene, ozone, brake fluid etc.	=	<b>2</b>
<b>FKM</b>	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	=	<b>3</b>
See page 42 for temperature ranges of diaphragm / seal materials			

### Warning!

When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar is not exceeded.

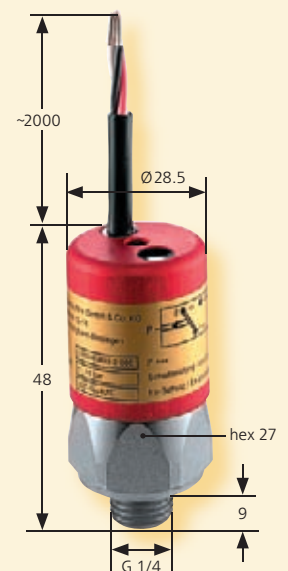
Piston-type pressure switches are only to a limited extent suitable for use with gases and oxygen. See explanation on page 5.

<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

### Degree of protection IP65

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.

With external thread

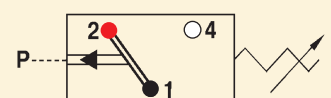


• Also available with switching point preset in our works.

• Other cable lengths on request.

**Contact assignment:**

- 1 = black
- 2 = red
- 4 = white

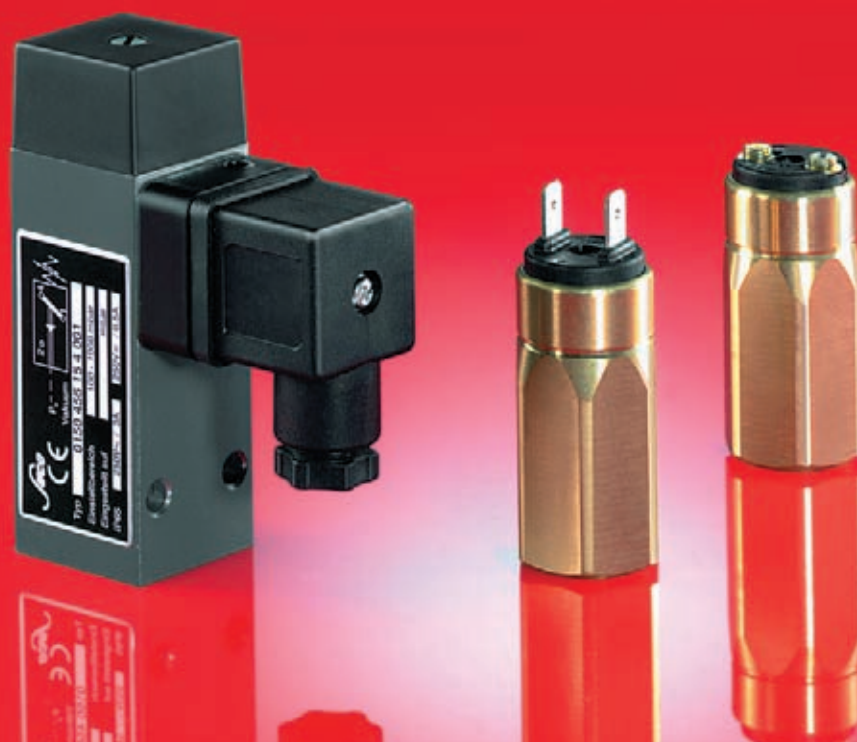


• For further technical data, see page 43

**Suco**



# Vacuum Switches



## TECHNICAL DATA

	0150	0151
Degree of protection:	IP65	
Switching power:	See page 7	100 VA
Max. voltage:	250 V	42 V
Temperature stability:	-20 °C – +100 °C	-5 °C – +120 °C
Body material:	AlMgSi1 F28	Brass
Switching frequency:	200 / min.	
Mechanical life expectancy:	10 <sup>6</sup> cycles (at pressures up to 20 bar)	
Vibration resistance:	10 g / 5– 200 Hz sine-wave	
Shock resistance:	294 m/s <sup>2</sup> ; 14 ms half-sine-wave	



#### **CE Marking**

*Directives of the  
European Council*

**Machinery Directive,  
EMC Directive  
Low Voltage Directive  
ATEX Directive**

*Equipment that falls under  
these directives must have  
a declaration of conformity  
and carry the CE marking.*

*SUCO vacuum switches  
are electrical equipment  
and therefore fall under  
the Low Voltage Directive  
73/23/EC.*

*An EC Declaration of  
Conformity has been pre-  
pared for all products that  
fall under these directives  
and is kept on our premi-  
ses. The catalogue pages  
for the relevant switches  
carry the CE marking.*

- Low-cost switch with high SUCO standard of quality
- Switching point easy to adjust
- High overpressure resistance and long working life even under harsh operating conditions
- Model 0150 with micro-switch for reliable switching
- Model 0150 with panel-mounting feature
- Model 0151 as normally open or normally closed

*In 1656, the statesman and scientist Otto von Guericke devised the Magdeburg hemispheres. He used the air pump he had invented to create a vacuum within them and showed the magnitude of air pressure in a sensational public demonstration.*



# 0150

## Vacuum switch 250 V

With built-in changeover switch

Aluminium body

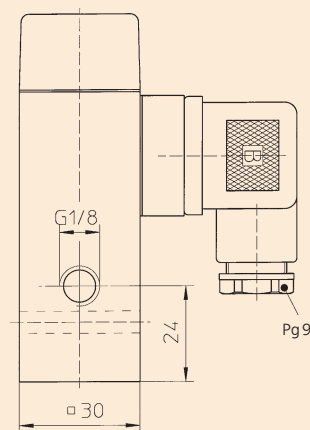
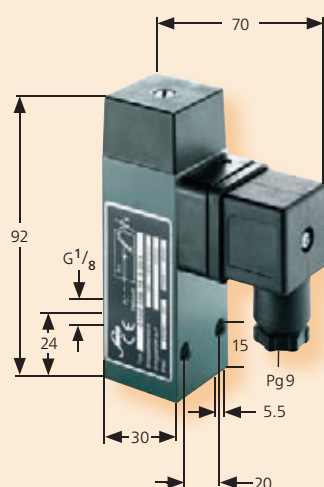
Max. voltage 250 V

Overpressure safe to 20 bar<sup>1)</sup>

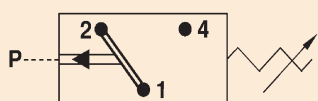
Hysteresis ca. 50 – 100 mbar (non-adjustable)

- See page 7 for electrical properties

With internal thread



- Also available with switching point preset in our works.



- For further technical data, see page 46

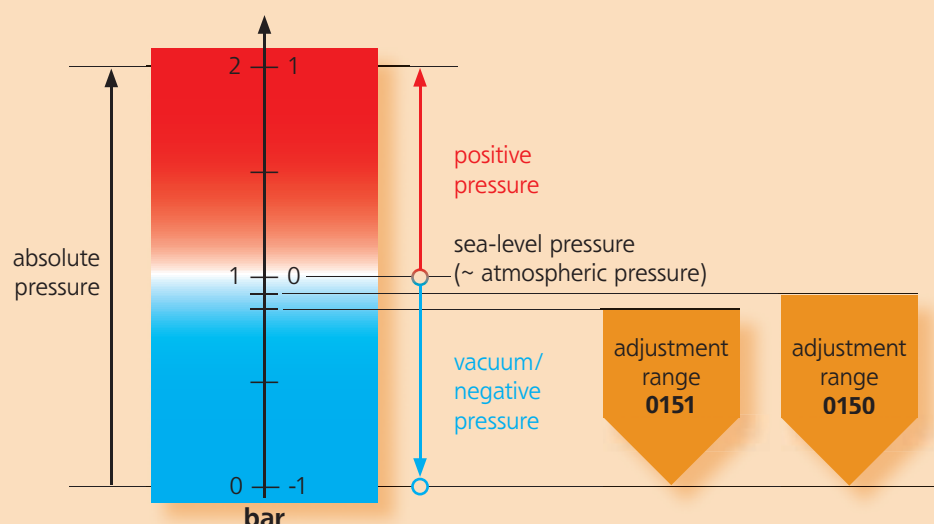
### 0150 Vacuum switch

Adjustment range in mbar	Tolerance in mbar (at room temperature)	Thread	Order number	p <sub>max.</sub> in bar
100 – 1000	± 50	G 1/8 internal	0150 456 15 4 001	20 <sup>1)</sup>

### Diaphragm/seal material

ECO:	Air, oils, greases, fuels etc.	=	4
Temperature stability:	-20 °C – +100 °C		

### Comparison absolute pressure / relative pressure



<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

### Degree of protection IP65

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.

# 0151

www.suco.de

## Vacuum switch 42 V

Normally open or normally closed

Brass body

With M3 screw or push-on terminals

Max. voltage 42 V

Overpressure safe to 20 bar <sup>1)</sup>

### 0151 Vacuum switch with screw terminals

Adjustment range in mbar	Tolerance in mbar (at room temperature)	Thread	p <sub>max.</sub> in bar	Normally open (no) →  :	Normally closed (nc) → :
200 – 1000	± 100	G 1/8 internal	20 <sup>1)</sup>	0151 452 15 <b>3</b> 001	0151 453 15 <b>3</b> 001

### 0151 Vacuum switch with push-on terminals

Adjustment range in mbar	Tolerance in mbar (at room temperature)	Thread	p <sub>max.</sub> in bar	Normally open (no) →  :	Normally closed (nc) → :
200 – 1000	± 100	G 1/8 internal	20 <sup>1)</sup>	0151 454 15 <b>3</b> 001	0151 455 15 <b>3</b> 001

### Diaphragm/seal material

FKM:	Air, oils, greases, fuels	=	<b>3</b>	=	<b>3</b>
Temperature stability: -5 °C – +120 °C					

## Accessories

### Protective cap

With central cable gland  
for 1.5 – 5 mm cable diameter

Order Number: 1-1-66-621-010

Not suitable for voltages above 42 V!



### Protective cap

With two cable entries  
for 1.7 – 2.2 mm cable diameter

Order Number: 1-1-66-621-003

Not suitable for voltages above 42 V!

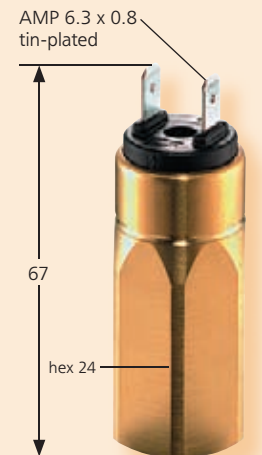


<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

### Degree of protection IP65

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.

### With internal thread



• Also available with switching point preset in our works.

• For further technical data, see page 46

**Suco**



# Electronic Pressure Switches



- Precision pressure sensors for high accuracy (0.5 % full scale)
- Electronic evaluation of switching point permits extremely small or very large hysteresis settings
- Switching point easily set by the user

## Technical data for electronic pressure switches

	0520	0570
Switching function:	Normally open / normally closed	Normally open / normally closed programmable, time-delayed switching, zero-resetting, peak-value memory (within setting range), switching-pointcounter
Hysteresis:	2 – 95% programmable at our works (max. tolerance $\pm 1.0\%$ full scale)	1 – 99% programmable using key-pad
Adjustment:	Switching point can be set on site by the customer using a screwdriver via setting potentiometer when operating voltage is applied	Programmable using key-pad on front face
Outputs:	Transistor output (1.4 A / PNP)	2 Transistor outputs (each 1.4 A / PNP) 1 analogue output (4–20 mA)
Indication of circuit status:	—	By 2 LEDs (yellow)
Time-delayed switching:	—	Adjustable 0 – 3.0 s
Pressure display:	—	Current pressure can be shown in bar or PSI on 3-digit LED-display (red)
Materials:	Zinc-plated steel body	Medium-contact parts anodised aluminium, body is zinc die-casting
Access coding:	—	The switch can have a number code between 1 and 999
Supply voltage:	18 – 36 VDC	12 – 30 VDC
Degree of protection:	IP65	
Switching time:	< 4 ms	
Accuracy:	$\pm 0.5\%$ (FS at room temperature)	
Temperature range:	NBR, EPDM: -20 °C – +80 °C; FKM: -5 °C – +80 °C	
Temperature compensation:	-20 °C – +80 °C, error = 1.5% overall	
Temperature drift:	$\pm 0.2\%$ / 10 K	
Life expectancy:	$5 \times 10^6$ cycles	
Vibration resistance:	10 g at 5 – 2000 Hz sine-wave	
Shock resistance:	294 m/s <sup>2</sup> , 14 ms half-sine-wave to DIN 40046	
EMC:	To EN 50081-1, EN 50081-2, EN 50082-2	

### CE Marking

Directives of the European Council

**Machinery Directive,  
EMC Directive  
Low Voltage Directive  
ATEX Directive**

*Equipment that falls under these directives must have a declaration of conformity and carry the CE marking.*

*SUCO electronic switches comply with the EMC Directive 89/336/EC.*

*An EC Declaration of Conformity has been prepared for all products that fall under these directives and is kept on our premises. The catalogue pages for the relevant switches carry the CE marking.*



## Electronic pressure switches



Zinc-plated steel body  
 Ceramic sensor with thick film technology  
 Supply voltage 18 – 36 VDC  
 Overpressure safe to 20/150/500 bar <sup>1)</sup>  
 Hysteresis programmable in our works from 2 – 95%

## With internal thread



- Simple, mechanical adjustment of switching point

## 0520 Electronic pressure switches

Adjustment range in bar	Hysteresis <sup>2)</sup> in bar	Thread	P <sub>max.</sub> in bar	Burst pressure in bar	Normally open (no) → :	Normally closed (nc)→:
0 – 10	0.5	G 1/4 internal	20 <sup>1)</sup>	25	0520 470 14 X 001	0520 471 14 X 001
0 – 100	5		150 <sup>1)</sup>	175	0520 472 14 X 001	0520 473 14 X 001
0 – 250	10		500 <sup>1)</sup>	600	0520 474 14 X 001	0520 475 14 X 001

**Order number**  
 Add figure for diaphragm/seal material

0520 XXX XX X XXX 0520 XXX XX X XXX

- Also available with switching point preset in our works.

<b>NBR</b>	Hydraulic / machine oil, turpentine, heating oil, air etc.	= 1	= 1
<b>EPDM</b>	Hydrogen, acetylene, ozone, brake fluid etc.	= 2	= 2
<b>FKM</b>	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	= 3	= 3
See page 51 for temperature ranges of diaphragm / seal materials			

	no / nc
○ 1	(+)
○ 2	(GND)
○ 3	(OUT)

## Warning!

When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar is not exceeded.

<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

<sup>2)</sup> Factory set, if no special customer request.

## Degree of protection IP65

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.

- For further technical data, see page 51

# 0570

www.suco.de

## Electronic pressure switches

Aluminium and zinc die-cast body  
Ceramic sensor with thick film technology  
Supply voltage 12 – 30 VDC  
Overpressure safe to 20/150/600 bar <sup>1)</sup>  
Programmable using key-pad on front face



- Time delayed switching
- Peak-value memory (within setting range)
- Coding to prevent tampering

### 0570 Electronic pressure switches

Adjustment range in bar	Thread	p <sub>max.</sub> in bar	Burst pressure in bar	Order number
0 – 10	G 1/4 internal	20 <sup>1)</sup>	25	0570 467 14 001
0 – 100		150 <sup>1)</sup>	175	0570 468 14 001
0 – 400		600 <sup>1)</sup>	700	0570 469 14 001

**Order number**  
Add figure for diaphragm/seal material

0570 XXX XX **X** XXX

<b>NBR</b>	Hydraulic / machine oil, turpentine, heating oil, air etc.	=	<b>1</b>
<b>EPDM</b>	Hydrogen, acetylene, ozone, brake fluid etc.	=	<b>2</b>
<b>FKM</b>	Hydraulic fluids (HFA, HFB, HFC, HFD), petrol/gasoline etc.	=	<b>3</b>
See page 51 for temperature ranges of diaphragm / seal materials			

### Warning!

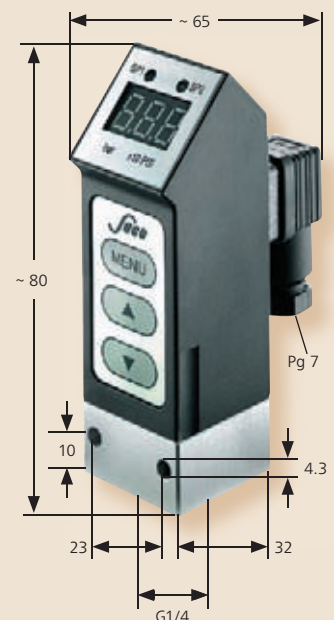
When using with oxygen, the relevant accident-prevention regulations must be observed. In addition, we recommend that a maximum operating pressure of 10 bar is not exceeded.

<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

### Degree of protection IP65

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.

With internal thread



1	+	VDC
2	⊥	GND
3	○	OUT SWITCH 1(14A)
4	○	OUT SWITCH 2(14A)
5	○	OUT 4-20 mA
⊕	○	⊕

- For further technical data, see page 51

**Suco**



# Pressure Transmitters



- Wetted parts are all made of stainless steel for high resistance to chemicals
- Stainless steel diaphragm welded with casing
- No seals and thus low leakage rate even with difficult gases
- High overpressure safety especially suitable for use in hydraulic systems
- Long working life even with high rates of pressure cycles
- Flexible voltage supply and current or voltage output signal for your control electronics
- High accuracy (0.5 % full scale) and reliability for secure process monitoring
- Very small size for compact subassemblies
- IP67 with robust connections for reliable wiring



## Technical Data

Type	0605	0610	0620
Output signal:	0.5 – 4.5 V ratiometrically	0 – 10 V (3-wire)	4 – 20 mA (2-wire)
Supply voltage $U_b$ :	5 VDC $\pm$ 10 %	10 – 32 VDC	12 – 32 VDC
Maximum load:	$\geq$ 4.7 k $\Omega$	$\geq$ 4.7 k $\Omega$	$\leq (U_b - 12 \text{ V}) / 20 \text{ mA}$
Current consumption (without load):	$\leq$ 10 mA	$\leq$ 15 mA	–
Pressure ranges $p_{\text{range}}$ :	-1 – 0 bar; 0 – 10 bar; 0 – 100 bar; 0 – 250 bar; 0 – 600 bar; 0 – 1000 bar -14.5 – 0 PSI; 0 – 145 PSI; 0 – 1450 PSI; 0 – 3625 PSI; 0 – 8700 PSI; 0 – 14500 PSI		
Accuracy:	$\pm$ 0.5% FS at room temperature		
Response time (10 – 90 %):	max. 2 ms		
Temperature range:	-40 °C – +125 °C -40 °F – +257 °F	-40 °C – +105 °C -40 °F – +221 °F	-40 °C – +100 °C -40 °F – +212 °F
Temperature drift:	approx. $\pm$ 0.2% / 10 K		
Mechanical life expectancy:	$10^7$ pulses up to nominal $p_{\text{range}}$		
Overpressure safety <sup>1)</sup> :	2 x $p_{\text{range}}$ up to 350 bar; 1.5 x $p_{\text{range}}$ up to 600 bar 2 x $p_{\text{range}}$ up to 5100 PSI; 1.5 x $p_{\text{range}}$ up to 8700 PSI		
Bursting pressure <sup>1)</sup> :	3 x $p_{\text{range}}$ up to 350 bar; 2 x $p_{\text{range}}$ up to 600 bar 3 x $p_{\text{range}}$ up to 5100 PSI; 2 x $p_{\text{range}}$ up to 8700 PSI		
Materials:	body material: 1.4301 diaphragm: 1.4301 (<500 bar / 7250 PSI); 1.4542 (>500 bar / 7250 PSI)		
Reverse polarity protection:	built in		
Protection according to DIN EN 60 529:	IP67 for M12x1 and DIN 72585; IP65 for AMP and DIN EN 175301-803 (DIN 43650)		
Weight:	approx. 100 g (DIN EN 175301 approx. 120 g)		
Vibration resistance:	20 g at 4 – 2000 Hz sine		
Max. length of connection cable:	30 m / 100 ft		
EMC Standards:	DIN EN 61000-6-2, DIN EN 61000-6-3		

<sup>1)</sup> Static pressure, dynamic pressures should be 30 to 50% lower. These values refer to the hydraulic or pneumatic part of the pressure switch.

### CE Marking

Directives of the  
European Council

**Machinery Directive,  
EMC Directive  
Low Voltage Directive  
ATEX Directive**

*Equipment that falls under  
these directives must have  
a declaration of conformity  
and carry the CE marking.*

*SUCO transmitters  
comply with the EMC  
Directive 89/336/EC.*

*An EC Declaration of  
Conformity has been pre-  
pared for all products that  
fall under these directives  
and is kept on our premises.  
The catalogue pages for  
the relevant products carry  
the CE marking.*

# 0605/0610/0620

## Technical Explanations



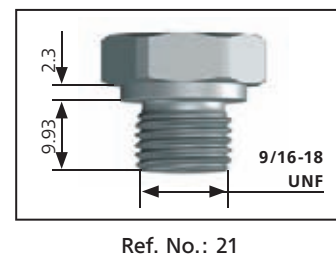
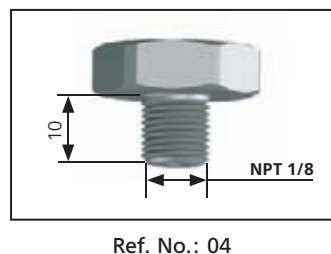
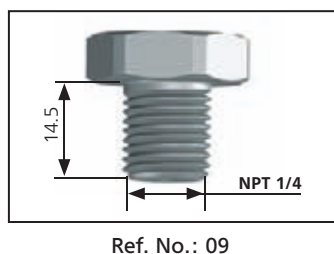
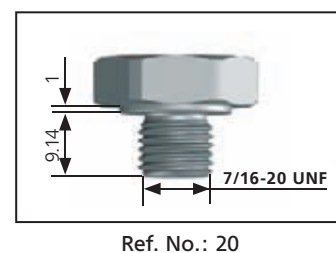
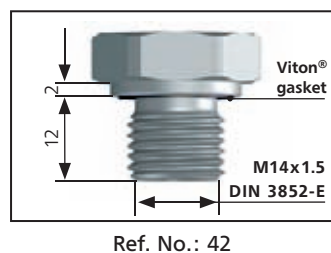
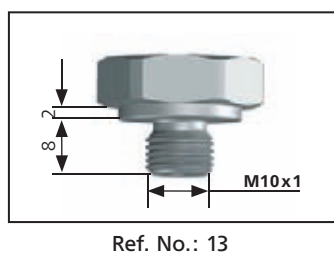
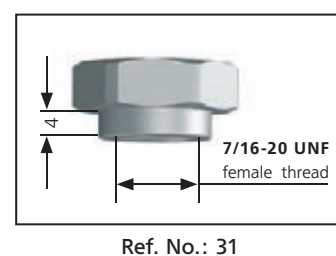
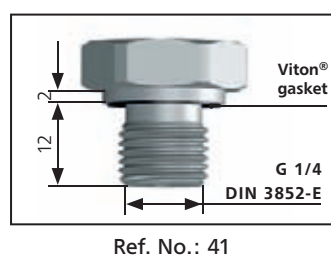
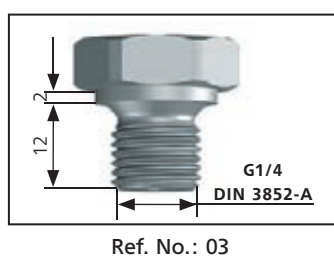
M12	
0605 + 0610	0620
1: U <sub>v</sub> +	1: U <sub>v</sub> +
2: U <sub>out</sub>	2: nc
3: Gnd	3: I <sub>out</sub>
4: nc	4: nc
x ≈ 72 mm	
d = Ø22 mm	
Ref. No.: 002	

AMP Junior-Timer	
0605 + 0610	0620
1: U <sub>v</sub> +	1: U <sub>v</sub> +
2: U <sub>out</sub>	2: nc
3: Gnd	3: I <sub>out</sub>
x ≈ 57 mm	
d = Ø22 mm	
Ref. No.: 003	

DIN 72585-A1-4.1	
0605 + 0610	0620
1: U <sub>v</sub> +	1: U <sub>v</sub> +
2: Gnd	2: nc
3: U <sub>out</sub>	3: I <sub>out</sub>
4: nc	4: nc
x ≈ 61 mm	
d = Ø27 mm	
Ref. No.: 004	

DIN EN 175301-803-A	
0605 + 0610	0620
1: U <sub>out</sub>	1: nc
2: Gnd	2: I <sub>out</sub>
3: U <sub>v</sub> +	3: U <sub>v</sub> +
x ≈ 88 mm*	
d = Ø22 mm	
Ref. No.: 001	

\* incl. connector plug  
(included in delivery)



# 0605/0610/0620

## Order Matrix for Pressure Transmitters

www.suco.de

**Accessories**  
(not included)

**Connector plugs**  
**M12x1**

	Type	Pressure range	Pressure connector	Dia-phragm	Electrical plug
Order Number:	<b>06XX</b>	<b>XXX</b>	<b>XX</b>	<b>0</b>	<b>XXX</b>
<b>Type</b>					
0.5 – 4.5 V ratiometrically	<b>0605</b>				
0 – 10 V 3-wire	<b>0610</b>				
4 – 20 mA 2-wire	<b>0620</b>				
<b>Pressure range</b>					
-1 – 0 bar vacuum		<b>356</b>			
0 – 10 bar		<b>480</b>			
0 – 100 bar		<b>481</b>			
0 – 250 bar		<b>482</b>			
0 – 600 bar		<b>483</b>			
0 – 1000 bar		<b>484</b>			
<b>Pressure connector</b>					
G 1/4 - DIN 3852-A			<b>03</b>		
NPT 1/8			<b>04</b>		
NPT 1/4			<b>09</b>		
M 10 x 1 cyl.			<b>13</b>		
7 / 16 – 20 UNF			<b>20</b>		
9 / 16 – 18 UNF			<b>21</b>		
Female thread – 7 / 16 – 20 UNF			<b>31</b>		
G 1/4 - DIN 3852 - E			<b>41</b>		
M 14 x 1.5 – DIN 3852-E			<b>42</b>		
<b>Electrical plug</b>					
DIN EN 175301-803-A (DIN 43 650-A)					<b>001</b>
M 12					<b>002</b>
AMP – Junior-Timer					<b>003</b>
DIN 72585-A1- 4.1 (bayonet)					<b>004</b>

**! Order number:**                      **06XX**                      **XXX**                      **XX**                      **0**                      **XXX**

**Customer specified versions on request.**

### Degree of protection IP65 / IP67

The type approval does not apply without restriction to all environmental conditions. It is the responsibility of the user to check whether the connection complies with regulations other than those stated, and whether it can be used for special applications which could not be foreseen by us in advance.



Order number:  
1-6-00-652-016



Order number:  
1-6-00-652-017

**suco**





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info@bintz.be



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Fax: +55-11-46882113  
www.pws.com.br  
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#### Algeria



#### Tunisia



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Fax: +49-37208-61713  
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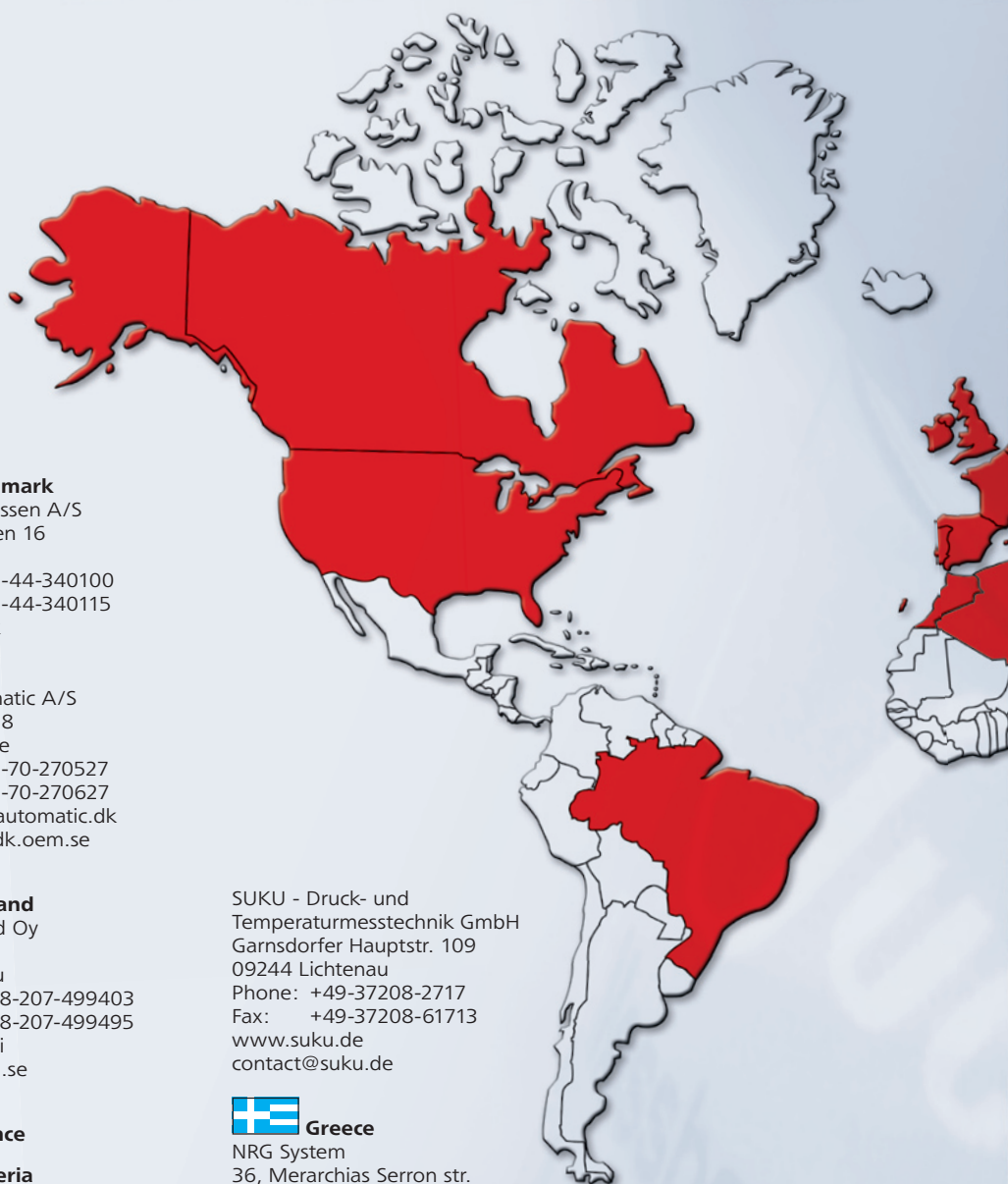
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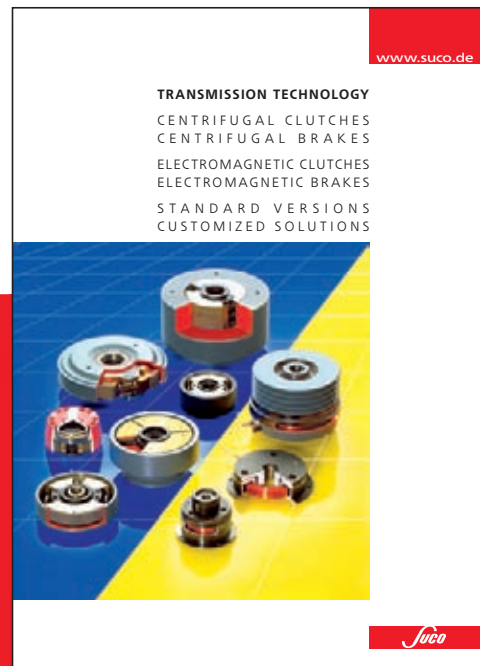
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