7 VACUUM SUPERVISION

Description

Vacuum switches are used to supervise and control vacuum circuits. While vacuum gauges only display the existing operational vacuum can vacuum switched be used both for supervision and control of:

- *several vacuum circuits*
- *vacuum-dependant motor control of vacuum pumps*
- *Control of warning and supervision units, etc.*

Vacuum switches have various functions:

Function and performance of vacuum and pressure switches

Criteria:		**mechanical**	**electronical**	**digital**	**pneumatical**
Mounting position:		discretionary	discretionary	discretionary	discretionary
Measuring medium:		Air, oil, petrol	non-aggressive gases, oil-free, dry air		
Measurement ranges:	bar	- 1 to 1	-1 to 10	-1 to 10	- 0,75 to 0,35
Display:		---	---	digital	---
Overpressure safety:	bar	10	up to 16	up to 16	2
Switching:		NO, NC	PNP, NPN	PNP, NPN	NO, NC
Switching exits:		analogous	analogous, digital	analogous, digital	pneumatical
Condition display:		via connection plug	via diode	via diode	---
Reaction time:		< 20 ms	< 5 ms	< 5 ms	< 35 ms
Switching times:	1/min	200	200	200	30
Hysteresis:		5 - 20 %	2%, adjustable	2%, adjustable	10 %
Repetetive accuracy:		+/- 5 %	+/- 1 %	+/- 1 %	+/- 3 %
Voltage:	V	250	18 - 32	18 -32	---
Power:	A	5	< 0,05	< 0,05	---
Temperature ranges:	°C	-20 to +100	- 10 to + 60	- 10 to + 60	0 to 80
Safety classes:		IP 55	IP 65	IP 65	---
Performances:		Mechanical membrane with adjustable switching point	Piezo-Quarz-technology with adjustable switching point	Piezo-Quarz technology with programmable switching points	Mechanical membrane with adjustable switching point

VS(E) - 1/4 - 3PNP - M8

Cable connection:

AK	Connection wire connected
PS	Connection for pneumatic cable
M8	Connection thread M8 for separate cable
SK	separate cable for direct connection to plug

Switching exit:

A	Analogous switching exit
PNP	Switching condition against +
NPN	Switching condition against -
NO	normal open
NC	normal closed
... %	Switching point chaltpunkt in %-Vakuum (z.B. 60%)

Vacuum connection:

AF	Connection flange
AS	Connection pipe
1/8 A	Connection thread R 1/8", outside thread
1/8 I	Connection thread R 1/8", inside thread
1/4 A	Connection thread R 1/4", outside thread
1/4 I	Connection thread R 1/4", inide thread

Design, function:

M	mechanical
P	pneumatical
E	electronical
D	digital
...M	Miniature design
...K	Kutoche design

Switch type:		**Pressure area (bar)**
VS	Vacuum switch	-1 to 1
DS	Pressure switch	0 to 10

VACUUM SWITCH ELECTRONICAL VSE

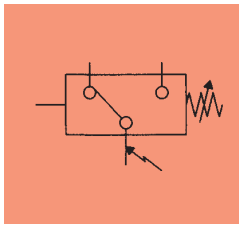
Description

Accurate and robust electronical vacuum switch with Piezo-Quarz-technology.
Elektronical vacuum switches are used to control vacuum switching circuits. The stepless adjustment possibilities of switching point and hysteresis by potentiometer allow to set very exact ratings to optimize cycle times.
The vacuum switches are delivered with all required accessories (ventilation nipple, screws and o-rings). The flange design encludes fixing brackets with screws.

VSE-AF4PNP-M8


Fixing set

Vacuum switch, electronical VSE-R1/8-4PNP-M8

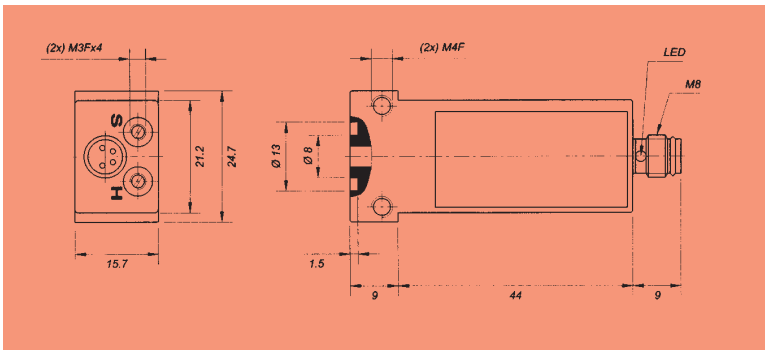

Switching symbol

Article numbers

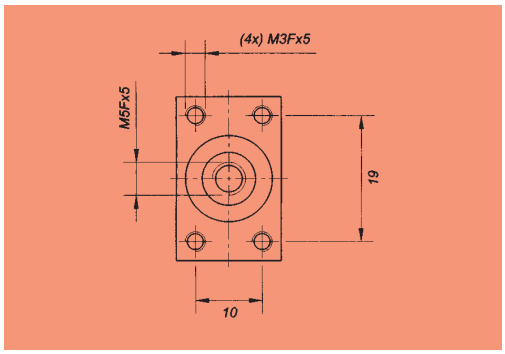
Type	Part No:
VSE-AF-4PNP-M8	1.52.3.0010
VSE-AF-4NPN-M8	1.52.3.0009
VSE-1/8-4PNP-M8	1.52.3.0012
VSE-1/8-4NPN-M8	1.52.3.0011

Technical Data

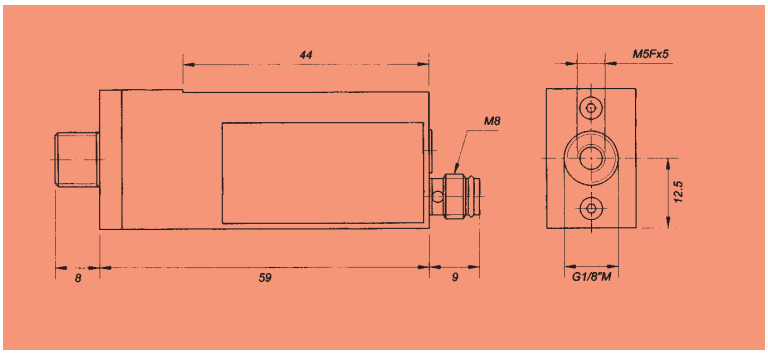
Type	VSE-AF-...	VSE-1/8-...
Mounting position	discretionary	discretionary
Measuring medium:	dry, oilfree air,	dry, oilfree air,
	non-aggressive gasses	non- aggressive gasses
Measuring range	- 1 to 0 bar	- 1 to 0 bar
Overpressure safety	5 bar	5 bar
Voltage	10,8 to 30 (V) DC	10,8 to 30 (V) DC
Allowed peak stress	400 VP, 1µs	400 VP, 1µs
Own power consumption	< 20 mA	< 20 mA
Switching exit	normal open (N.O.)	normal open (N.O.)
	max. 125mA, 30V	max. 125mA, 30V
Switching	PNP / NPN	PNP / NPN
Analogous exit	1 to 5V DC +/-0,04	1 to 5V DC +/-0,04
Electrical connection	4-pin M 8 plug connection	4-pin M 8 plug connection
Display	LED in plug connection	LED in plug connection
Reaction time	< 5 ms	< 5 ms
Repetitive accuracy	± 1 %	± 1 %
Hysteresis H	3 to 20% at -0,3 to -1bar	3 to 20% at -0,3 to -1bar
Allowed humidity	35 to 85 % RH	35 to 85 % RH
Saferty type	IP 65 (w/o ventilation IP 40)	IP 65 (w/o ventilation IP40)
Temperature range°C	0 to + 50 °C	0 to + 50 °C
Weight	43 g	30 g



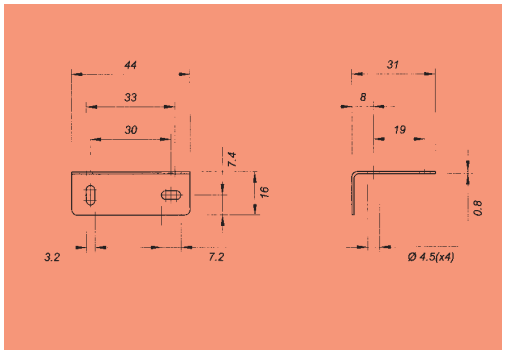
Vacuum switches with flange connection AF



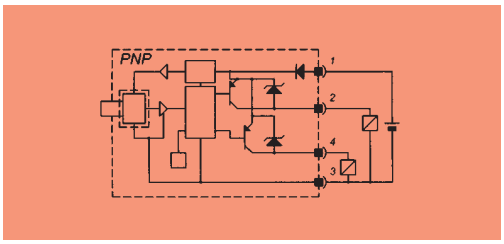
Connection dimensions vakuum switch AF



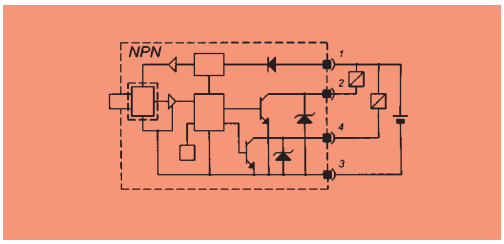
Vacuum switch with connection thread R1/8“



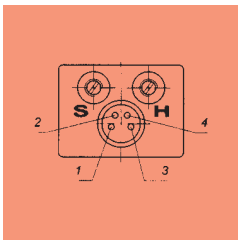
Fixing bracket for underpressure switch flange design (AF)



Switching diagram PNP, 4-PIN



Switching diagram NPN, 4-PIN



Plug connection 4 pin

Overview of fitting cable connections

Type	Connection	Exit	Pins	Length	Material	Part-No
AK-M8-4P-2M PVC	plug	straight	4	2 m	PVC	1.52.4.0001
AK-M8-4P-5M-PUR	plug	straight	4	5 m	PUR	1.52.4.0003
AK-M8-4P-5M-PUR-90	plug	90°	4	5 m	PUR	1.52.4.0004

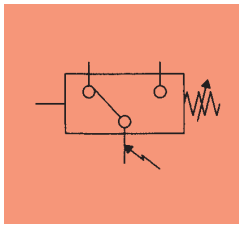
Plug connection 4 pin
(EN 50044)
1 V+ (brown)
2 Analogous exit (white)
3 V- (blue)
4 Switching exit (black)

VACUUM SWITCH DIGITAL VSD-1/8

Description

Elektronic vacuum switch with Piezo-Quarz-technology and digital display.
The digital vacuum switches show an extremely high accuracy and a variety of adjustment possibilities. Two independently working switching exits with differing hystereses can be programmed. The set rates can be secured by code against accidental re-adjustment; all parameters can be set independent of the system pressure. The vacuum switches are especially suitable in robot, packing and automation technology.

Type VSDK-4PNP-R1/8



Switching symbol

Type VSD-1/4-4PNP-M8

Article numbers

Type	Vacuum switch	Fixing frame
VSD-1/8-4PNP-M8	1.52.3.0003	
VSD-1/8-4NPN-M8	1.52.3.0002	
VSDK-1/8-4PNP-M8	1.52.3.0007	2.52.3.0001
VSDK1/8-4NPN-M8	1.52.3.0006	2.52.3.0001

Delivery encludes:
- 1 ventilation nipple M 3 for hose $d_i = 3$
- 1 o-ring for ventilation nipple M 3

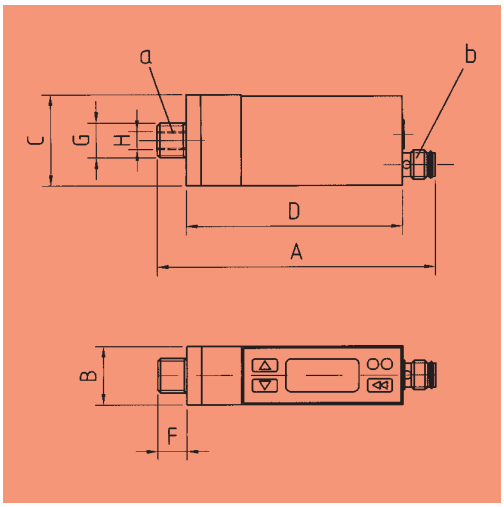
only on UDSD-1-0-K:
- 1 closing plug G 1/8“
- 1 fixing bracket horizontal
- 1 fixing bracket vertical

Technical Data

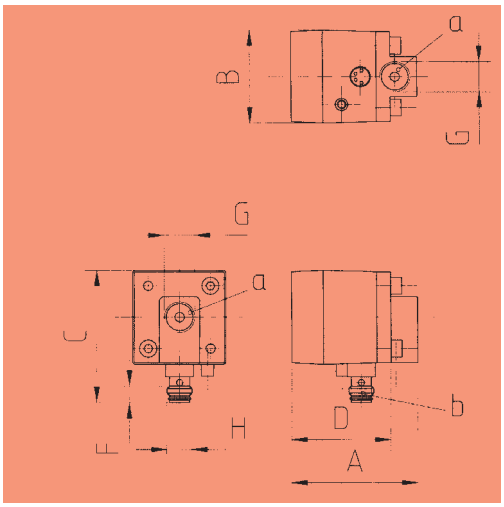
Type	VSD-.../VSDK-...
Mounting position	discretionary
Measuring medium	dry, oilfree air, nicht aggressive Gase
Measuring range	- 1 to 0 bar
Overpressure safety:	5 bar
Voltage	10,8 to 30 V (DC)
Power consumption	< 55 mA
Switching exit	2 x adjustable to either N.O. or N.C.
	max. 125mA, 30V with current limit
Mode:	either hysteresis or comparator
Programming	peak and basic setting
Settings	display option, parameter, locking
Switching	PNP / NPN
Electrical Connection	4-pin M 8 plug connection or integrated cable
Reaction time	< 5 ms
Repetetive accuracy	± 1 %
Allowed humidity	35 to 85 % RH
Safety type	IP 65 (w/o ventilation hose IP 40)
Temperature range °C	0 to + 50 °C
Weight	35 g

VACUUM SWITCH DIGITAL VSD-1/8

FEZER
VACUUM · TRANSPORT · ENGINEERING
AUTOMATION TECHNOLOGY



Vacuum switch VSD-R1/8-...

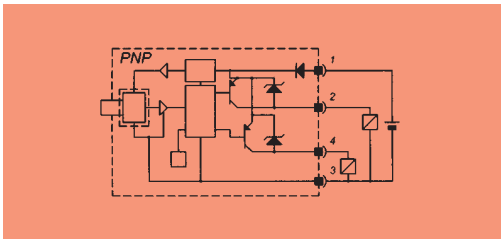


Vacuum switch VSDK-...

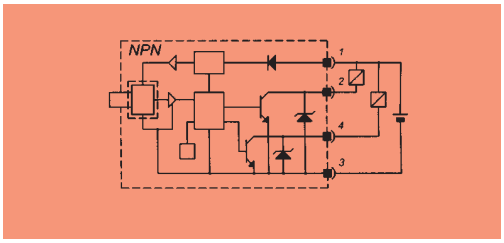
a Vacuum connection
b Voltage connection

Dimensions

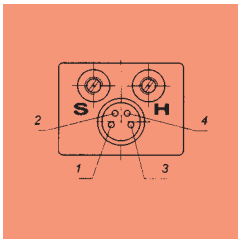
Type	A	B	C	D	E	F	G	H
VSD-1/8-...	76	16	25	59	---	8	G 1/8“	M 5
VSDK-...	40	30	42,2	31,5	6,7	5	G 1/8“	M 8



Switching diagram PNP, 4-PIN



Switching diagram NPN, 4-PIN



Plug connection 4 pin

Overview of fitting cable connections

Type	Connection	Exit	Pins	Length	Material	Part No.
AK-M8-4P-2M PVC	plug	straight	4	2 m	PVC	1.52.4.0001
AK-M8-4P-5M-PUR	plug	straight	4	5 m	PUR	1.52.4.0003
AK-M8-4P-5M-PUR-90	plug	90°	4	5 m	PUR	1.52.4.0004

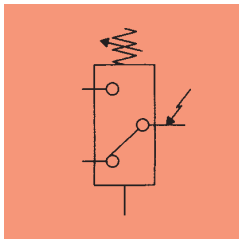
Plug connection 4 pin
(EN 50044)
1 V+ (bown)
2 Analogous exit (white)
3 V- (blue)
4 Switching exit (black)

VACUUM SWITCH DIGITAL VSD-1/4

Description

Elektronical vacuum switch with Piezo-Quarz technology and digital display.
The digital vacuum switches show an extremely high accuracy and a variety of adjustment possibilities. Two independently working switching exits with differing hystereses can be programmed. The set rates can be secured by code against accidental re-adjustment; all parameters can be set independent of the system pressure.
The vacuum switches are especially suitable for vacuum load lifting devices with several, independently working vacuum circuits.

VSD-1/4 w/o connection cable



Switching symbol

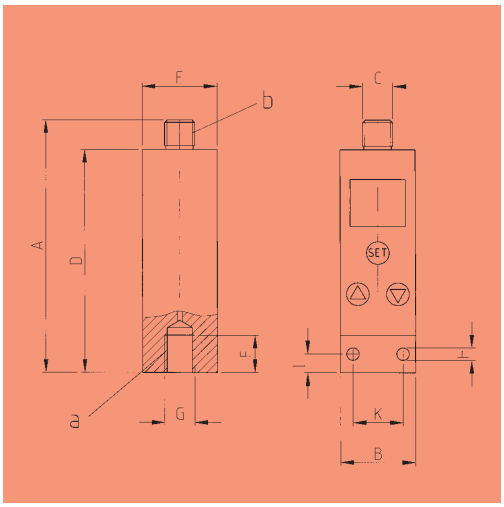
VSD-1/4 with connection cable

Article numbers

Type	without connection cable	with connection cable	conn. cable 90°
VSD-1/4-4PNP	1.52.3.0019	1.52.3.0018	1.52.4.0008

Technical Data

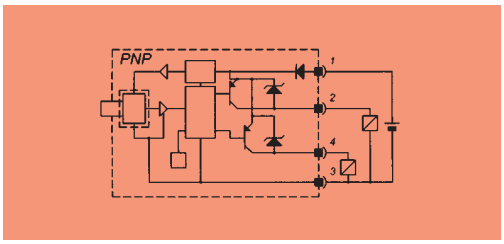
Type	VSD-1/4-3PNP-M8
Mounting position	discretionary
Measuring medium	dry, oilfree air,
	non-aggressive gasses
Measuring range	-1 to + 1 bar
Overpressure safety:	10 bar
Voltage	10 to 32 V (DC)
Power consumption	< 50 mA allowed power
Switching exit	1 x adjustable N.O. or N.C.
	max. 1A, 24V
Mode	hysteresis mode
Programming	peak and basic setting
Settings	display option,, locking
Switching	PNP
Elektric connection	3-pin + PE (DIN 43650)
Reaction time	< 5 ms
Repetetive accuracy	± 0,2 %
Allowed humidity	---
Safety type	IP 65
Temperature range °C	-10 to + 60 °C
Weight	160 g



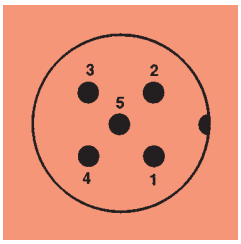
Vacuum switch VSD-1/4

Dimensions

Type	A	B	C	D	E	F	G	H	K	L
VSD-1/4	102	30	M12x1,5	90	30	15	G 1/4"	5	20	7,5



Switching diagram VS-D-1/4-...



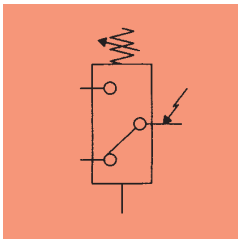
Connection M 12x1

Pinbelegung

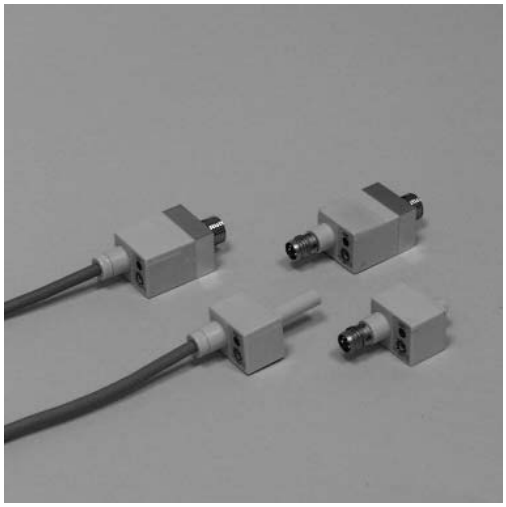
1 brown, V +
2 white, exit 2, analogous
3 blue, V -
4 black, exit 1, PNP
5 not in use

Description

Electronical vacuum switch in miniature design. This vacuum switch is suitable for all control tasks in vacuum switching circuits that require a high precision and short switching circuits. The very compact design of these switches are particularly suitable for pick & place applications, automation and robot technologies and single supervision of suction cups and plates.
The switches own two digital exits (N.C. and N.O)., an LED display for the switching condition and a potentiometer to adjust the switching point.
The switches are available with flange plate (M8) or with connection nozzle (AS 6 mm) and can be obtained with fast or screwable connection cable (see cable connections).



Switching symbolVSEM-...



Underpressure switch VSEM-...

Abbreviations:

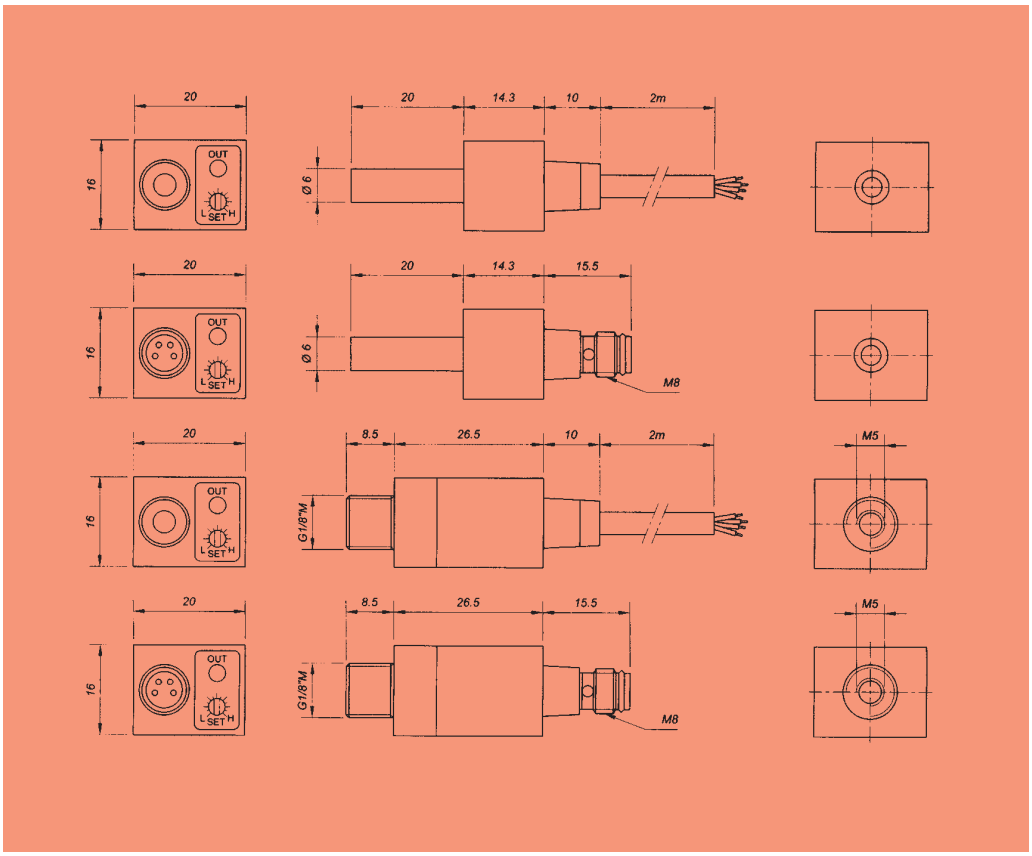
1/8	Thread R 1/8
AS	Connection nozzle 6 mm
M8	separate connection cable with thread M8
AK	mounted connection cable, length 2 m

Article numbers

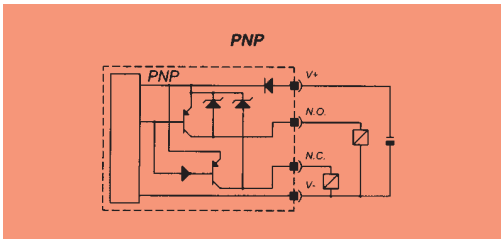
Type:	Part No:
VSEM-1/8-4PNP-M8	1.52.3.0014
VSEM-1/8-4PNP-AK	1.52.3.0013
VSEM-AS-4PNP-M8	1.52.3.0016
VSEM-AS-4PNP-AK	1.52.3.0015

Technical Data

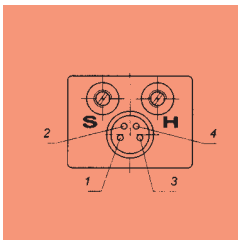
Features	VSEM-...-...-...
Mounting position	discretionary
Measuring medium	dry, oilfree air, non-aggressive gasses
Connection:	connection nozzle ϕ 6 mm or thread R 1/8"
Measuring range	-1 to 0 bar
Overpressure safety	5 bar
Operational voltage	10,8 ... 30 V DC conn. reversal-proof
Power consumption	< 20 mA
Allowed peaks	400 VP, 0,5 µs
Switching exit	2 exits (N.O. and N.C.), max: 125 mA, 30V
	adjustment by potentiometer (2/3 turnings)
Switching	PNP
Elektrical connection	4-pin M8 plug connection or cable 2 m (long)
Reaction time	1 ms
Repetetive accuracy	+/- 0,2 % F.S.
Hystereses setting	2 % F.S.
Allowed humidity	35 to 85 % RH
Safety type	IP 40
Temperature range	0 to + 50 °C
Storage temperature:	- 10°C to + 50°C
Vibration resistance	10 to 55 Hz, 0,75 mm XYZ, 2 hours
Shock resistance	100 G XYZ
Weight	7 g (connection nozzle AS) or 77 g (thread R 1/8)



Vacuum switch VSEM-...-...-... with connection nozzle and thread R 1/8"



Switching diagram PNP



Plug connection 4 pin

Plug connection 4 pin
(EN 50044)

1	V+	(brown)
2	Switching exit N.C.	(white)
3	V -	(blue)
4	Switching exit N.O.	(black)

Overview of fitting cable connections

Type	Connection	Exit	Pins	Length	Material	Part No
AK-M8-4P-2M PVC	plug	straight	4	2 m	PVC	1.52.4.0001
AK-M8-4P-5M-PUR	plug	straight	4	5 m	PUR	1.52.4.0003
AK-M8-4P-5M-PUR-90	plug	90°	4	5 m	PUR	1.52.4.0004

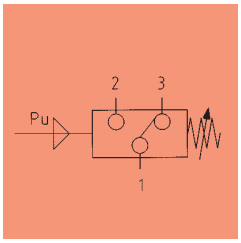
VAKUUMSCHALTER, MECHANISCH VSM

Description

Robuster, mechanischer Vakuumschalter mit fester Rückschaltdifferenz.

Mechanische Unterdruckmessung über eine Membran mit einstellbarem Schaltpunkt für Ventilansteuerungen. Diese Unterdruckschalter eignen sich besonders für einfache Handhabungsaufgaben, bei denen die Grundfunktion „Betriebsvakuum erreicht oder nicht" im Vordergrund stehen.

Lieferbar mit fest eingestellten Schaltpunkten von 60 % und 80 % und einer festen Hysterese von ca. 5% und 20% für einfache vakuumabhängige Motorswitchingen bei 230V



Schaltsymbol VSM

Mechanischer Unterdruckschalter VSM

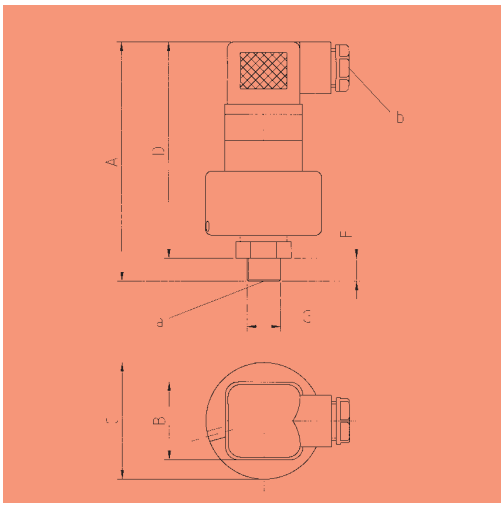
Article numbers

Type	
VSM-1/4-0,6-SK-5%	1.52.1.0001
VSM-1/4-0,6-SK-20%	1.52.1.0006
VSM-1/4-0,8-SK-5%	1.52.1.0002

5 % Hysteresis set
20 % Hysteresis set

Technical Data

Type	VSM-1/4-0,6-SK	VSM-1/4-0,8-SK
Mounting position	vertical	vertical
Adjustment area (bar)	-0,95 to 1	-0,95 to 1
Switching point	60 %	80 %
Overpressure safety (bar)	10	10
Media resistance	Air, oil, petrol	Air, oil, petrol
Reproduction accuracy	± 5 %	± 5 %
Return difference (bar)	0,02 to 0,05	0,02 to 0,05
Switching (1/ min)	200	200
Electrical connection	Pg 9	Pg 9
Outlet	DIN 43650	DIN 43650
Voltage max. (V)	250	250
Strom max. (A)	5	5
Safety type	IP 55	IP 55
Temperature range (°C)	- 20 to + 100	- 20 to + 100
Weight (kg)	0,29	0,29



Vacuum switch VSM-1/4

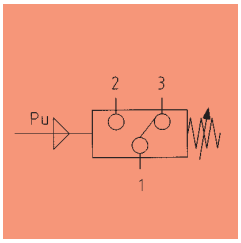
Dimensions

Type	A	B	C	D	F	G
VSM-1/4	93	27	45	84	9	R 1/4"

VACUUM SWITCH PNEUMATIC VSP

Description

Strictly pneumatical vacuum switch without electrical connections. Vacuum measuring by a membrane. The vacuum switch is available as NO and NC.
Due to its minimum dimensions and weight the vacuum switch is especially suitable for supervision of the vacuum directly in the vacuum circuit. Also suitable for applications run with compressed air without electrical connection.

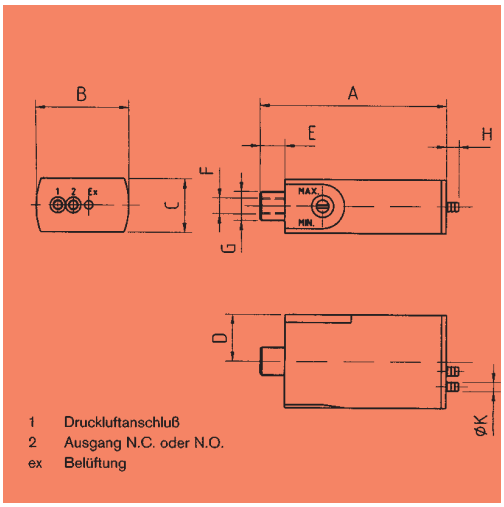


Switching symbol VSP

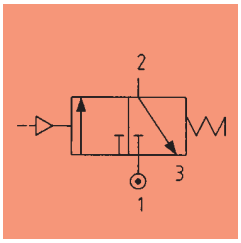
Pneumatic vacuum switch VSP-1/8

Article numbers Type	
VSP-1/8-NO	1.52.2.0002
VSP-1/8-NC	1.52.2.0001

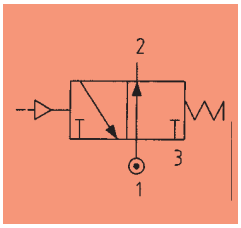
Technical Data Type	VSP-1/8-NO	VSP-1/8-NC
Mounting position	discretionary	discretionary
Measuring medium	dry, oilfree air,	dry, oilfree air,
	non-aggressive gasses	non-aggressive gasses
Einsatzbereich (bar)	2 to 6	2 to 6
Einstellbereich (mbar)	-350 to -850	-350 to -850
Overpressure safety (bar)	2	2
Design	N.O.	N.C.
Mode	Hysterese	Hysterese
Hysteresis (mbar)	80 to 100	80 to 100
Cycles (1/ min)	30	30
Repetetive accuracy (%)	3	3
Temperature range (°C)	0 to + 80	0 to + 80
Weight (g)	32	32
Max. flow (l/ min)	130	70



Vacuum switch VSP-1/8



Switching diagram VS-P-NC



Switching diagram VS-P-NO

1 Compressed air entrance
2 Compressed air exit
3 Ventilation

Dimensions

Type	A	B	C	D	E	F	G	H	K
VSP-1/8-...	59,6	30	17	15	8	M 5	G 1/8“	4	3

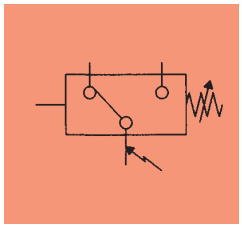
PRESSURE SWITCH ELECTRONICAL DSE

Exact and robust electronical pressure switch with Piezo-Quarz technology.
Electronical pressure switches are used to control and regulate pressure circuits. The stageless adjustment possibility of switching point and hysteresis via potentiometer allow to set very exact values, thus optimizing cycle times.
The pressure switches are supplied with all necessary accessories (ventilation nipple, screws, o-rings). The flange design encludes a fixing bracket with screws.


VSE-AF4PNP-M8


fixing set


Vacuum switch, electronical VSE-R1/8-4PNP-M8

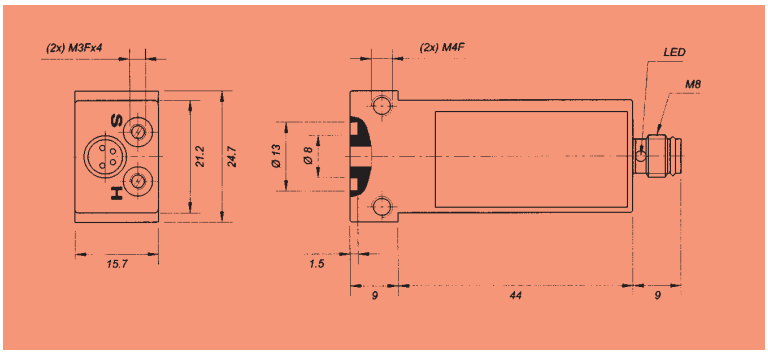

Switching diagram

Article numbers

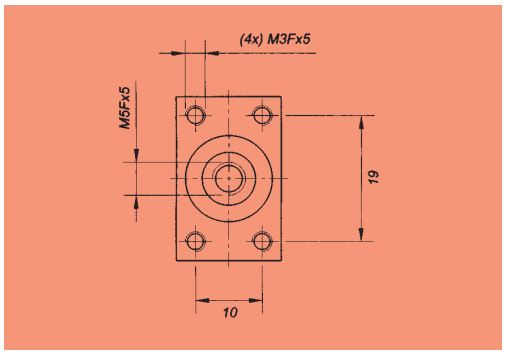
Type	Part-No:
DSE-AF-4PNP-M8	1.52.3.0020
DSE-AF-4NPN-M8	1.52.3.0021
DSE-1/8-4PNP-M8	1.52.3.0022
DSE-1/8-4NPN-M8	1.52.3.0023

Technical Data

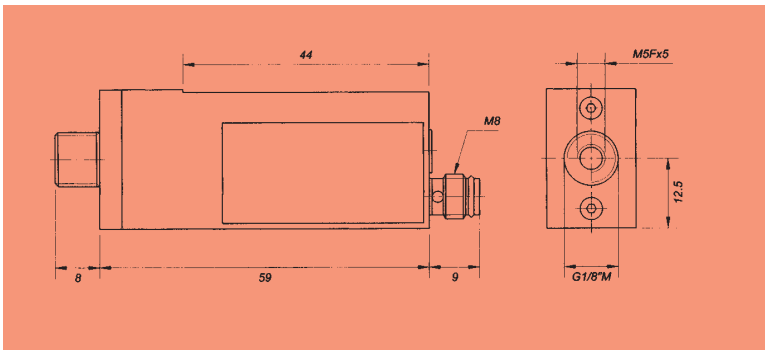
Type	VSE-AF-...	VSE-1/8-...
Mounting position	discretionary	discretionary
Measuring medium	dry, oilfree air,	dry, oilfree air,
	non-aggressive gases	non-aggressive gases
Measuring range	0 to 10 bar	0 to 10 bar
Overpressure safety	15 bar	15 bar
Voltage	10,8 to 30 (V) DC	10,8 to 30 (V) DC
zul. Spannunsspitze	400 VP, 1µs	400 VP, 1µs
Power consumption	< 20 mA	< 20 mA
Switching exit	Ruhestellung offen (N.O.)	Ruhestellung offen (N.O.)
	max. 125mA, 30V	max. 125mA, 30V
Switching	PNP / NPN	PNP / NPN
Analogausgang	1 to 5V DC +/-0,04	1 to 5V DC +/-0,04
Elektrischer Connection	4-pin M 8 SteckConnection	4-pin M 8 SteckConnection
Zustandsanzeige	LED im SteckConnection	LED im SteckConnection
Reaction time	< 5 ms	< 5 ms
Repetetive accuracy	± 1 %	± 1 %
Hystereseeinstellung H	3 to 20% bei -0,3 to -1bar	3 to 20% bei -0,3 to -1bar
Allowed humidity	35 to 85 % RH	35 to 85 % RH
Safety type	IP 65 (ohne Entlüftungsschl. IP 40)	IP 65 (ohne Entlüftungsschl. IP40)
Temperature range °C	0 to + 50 °C	0 to + 50 °C
Weight	43 g	30 g



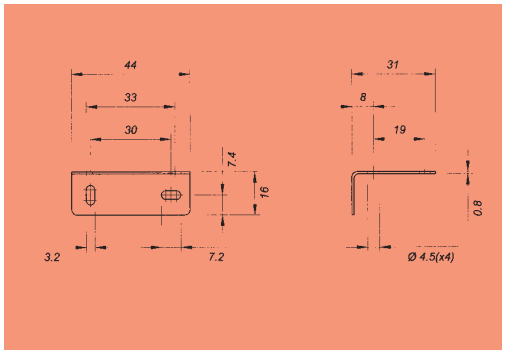
Vacuum switch with flange connection AF



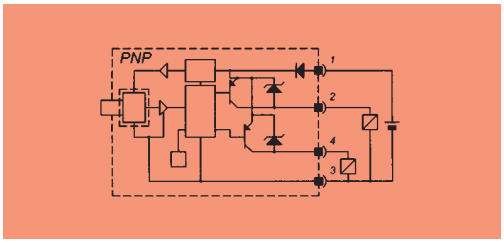
Connection dimensions vacuum switch AF



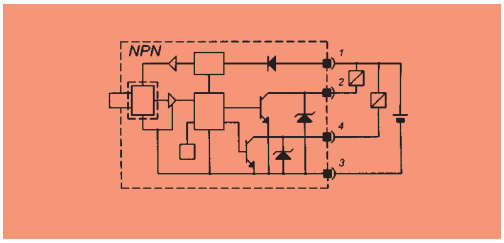
Vacuum switch with thread R1/8"



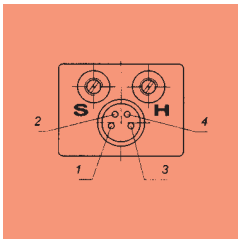
Fixing bracket for underpressure switch, flange design (AF)



Switching diagram PNP, 4- pin



Switching diagram NPN, 4-pin



Plug connection 4 pin

Overview of fitting cable connections

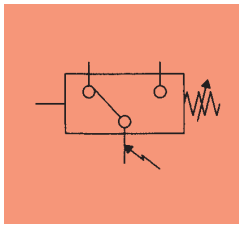
Type	Connection	Exit	Pins	Length	Material	Part No
AK-M8-4P-2M PVC	plug	straight	4	2 m	PVC	1.52.4.0001
AK-M8-4P-5M-PUR	plug	straight	4	5 m	PUR	1.52.4.0003
AK-M8-4P-5M-PUR-90	plug	90°	4	5 m	PUR	1.52.4.0004

Plug connection 4 pin
(EN 50044)
1 V+ (brown)
2 Analogous exit (white)
3 V- (blue)
4 Switching exit (black)

Description

Elektronischer Druckschalter mit Piezo-Quarz-Technik und digitaler Anzeige.
Die digitalen Druckschalter zeichnen sich durch ihre extrem hohe Genauigkeit und die Vielfalt an Einstellmöglichkeiten aus. Es können zwei unabhängig voneinander arbeitende Schaltausgänge mit unterschiedlichen Hysteresen verarbeitet werden. Die eingestellten Werte lassen sich gegen unbeabsichtigtes Verstellen mit Code sichern; die Einstellung aller Parameter kann unabhängig vom anliegenden Systemdruck vorgenommen werden.
Die Druckschalter eignen sich besonders zum Einsatz in der Roboter-, Verpackungs- und Automatisierungstechnik.

Type DSDK-4PNP-R1/8



Schaltsymbol Druckschalter

Type DSD-1/4-4PNP-M8

Article numbers

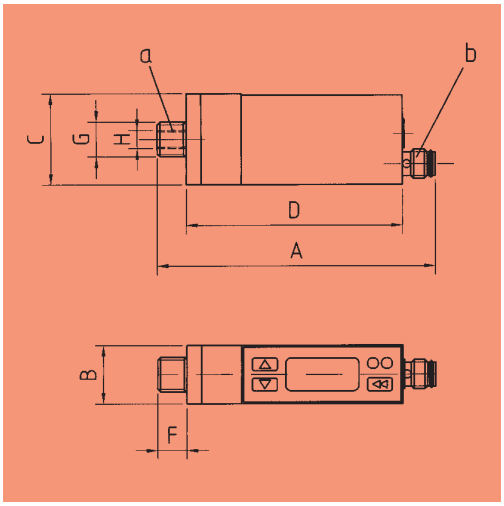
Type	Vakuumschalter	Befestigungs-rahmen
DSD-1/8-4PNP-M8	1.52.3.0024	
DSD-1/8-4NPN-M8	1.52.3.0025	
DSDK-1/8-4PNP-M8	1.52.3.0026	2.52.3.0001
DSDK1/8-4NPN-M8	1.52.3.0027	2.52.3.0001

Im Lieferumfang enthalten sind:
- 1 Entlüftungsnippel M 3 für Schlauch $d_i = 3$
- 1 O-Ring für Entlüftungsnippel M 3

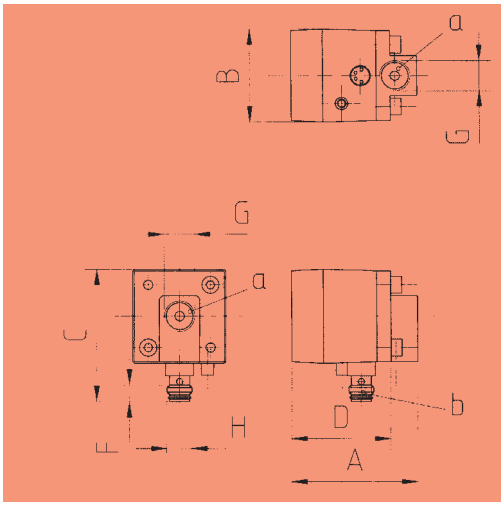
nur bei UDSD-1-0-K:
- 1 Verschlußstopfen G 1/8“
- 1 Befestigungswinkel horizontal
- 1 Befestigungswinkel vertikal

Technical Data

Type	DSD-.../DSDK-...
Mounting position	discretionary
Measuring medium	dry, oilfree air, nicht aggressive Gase
Measuring range	0 to 10 bar
overpressure safety:	15 bar
Voltage	10,8 to 30 V (DC)
Power consumption	< 55 mA
Switching exit	2 x wahlweise einstellbar N.O. oder N.C.
	max. 125mA, 30V mit Strombegrenzung
Mode:	wählbar: Hysterese oder Komparator
Programming	Spitzen- und Grundwert
Settings	Anzeigeoption, Parameter, Verriegelung
Switching	PNP / NPN
Elektrischer Connection	4-pin M 8 SteckConnection bzw. integiertes Kabel
Reaction time	< 5 ms
Repetetive accuracy	± 1 %
Settings	35 to 85 % RH
Safety type	IP 65 (ohne Entlüftungsschlauch IP 40)
Temperature range °C	0 to + 50 °C
Weight	35 g



Pressure switch DSD-R1/8-...

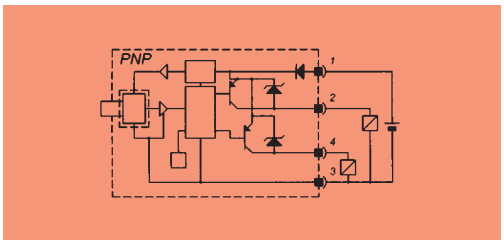


Pressure switch DSDK-...

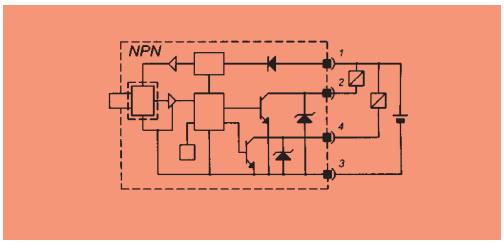
a Connection Vakuum
b Connection Voltage

Dimensions

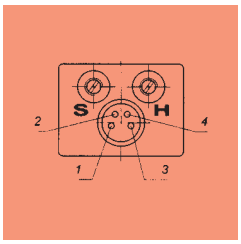
Type	A	B	C	D	E	F	G	H
DSD-1/8-...	76	16	25	59	---	8	G 1/8“	M 5
DSDK-...	40	30	42,2	31,5	6,7	5	G 1/8“	M 8



Schaltplan PNP, 4-PIN Belegung



Schaltplan NPN, 4-PIN Belegung



SteckConnection 4 pin

Übersicht für passende Kabelanschlüße

Type	Connection	Exit	Pins	Length	Material	Art.-Nr
AK-M8-4P-2M PVC	steckbar	gerade	4	2 m	PVC	1.52.4.0001
AK-M8-4P-5M-PUR	steckbar	gerade	4	5 m	PUR	1.52.4.0003
AK-M8-4P-5M-PUR-90	steckbar	90°	4	5 m	PUR	1.52.4.0004

SteckConnection 4 pin
(EN 50044)
1 V+ (braun)
2 Analogausgang (weiß)
3 V- (blau)
4 Switching exit (schwarz)

CONNECTIONKABEL FÜR VAKUUMSCHALTER

Description

Sehr elastische und beanspruchbare Connection-kabel mit verschraubbarer Steckconnection für elektronische Unterdruckschalter.

Die Connectionkabel werden am Unterdruck-schalter festgeschraubt (Gewinde M 8). Sie sind in unterschiedlichen Lengthn mit geradem Exit oder 90°-WinkelExit, in 3- oder 4-Pin Ausführung lieferbar.

Bei sehr hoher Beanspruchung empfehlen wir, Kabel im Material PUR zu verwenden!

Article numbers

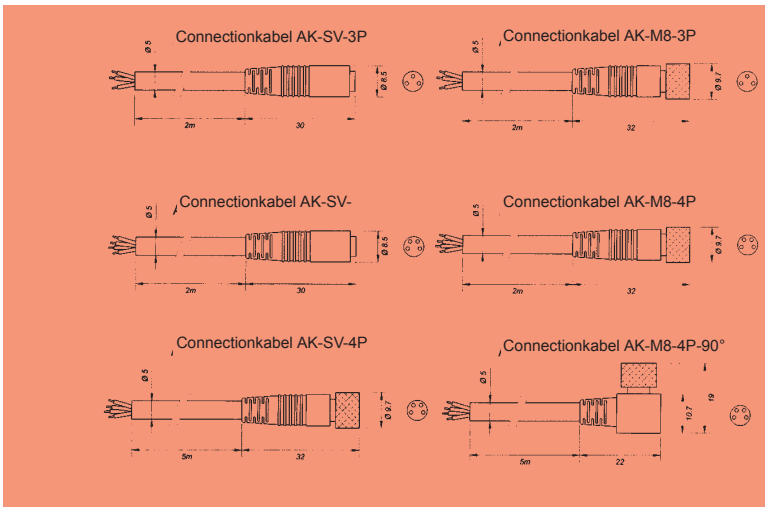
Type	Connectionkabel
AK-M8-3P-2M-PVC	1.52.4.0001
AK-M8-3P-2M-SV	1.52.4.0005
AK-M8-4P-2M-PVC	1.52.4.0002
AK-SV-4P-2M-PVC	1.52.4.0006
AK-M8-4P-5M-PUR	1.52.4.0003
AK-M8-4P-5M-PUR-90°	1.52.4.0004

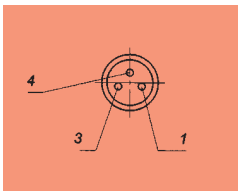
Elektrische Daten

Type	AK-M8/SV-...
Leitungsquerschnitt	0,25mm²
Material Federkontakt	CuSn
Temperature range	-25 to +85°C
Strombelastbarkeit	4 A
Betriebsvoltage	60 V (AC) / 75V (DC)
Safety type	IP 65

Technical Data

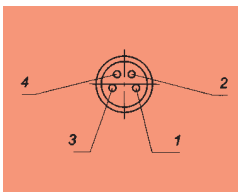
Type	Connection	Exit	Pins	Length	Material
AK-M8-3P-2M-PVC	M 8	gerade	3	2 m	PVC
AK-SV-3P-2M-PVC	steckbar	gerade	3	2 m	PVC
AK-M8-4P-2M-PVC	M 8	gerade	4	2 m	PVC
AK-SV-4P-2M-PVC	steckbar	gerade	4	2 m	PVC
AK-M8-4P-5M-PUR	M 8	gerade	4	5 m	PUR
AK-M8-4P-5M-90°-PUR	M 8	90°	4	5 m	PUR





Kontaktbelegung
3-Pin

1 braun
3 blau
4 schwarz



Kontaktbelegung
4-Pin

1 braun
2 weiß
3 blau
4 schwarz

VAKUUMMETER VM

Description

Vakuummeter (Kontrollmanometer) in robuster Ausführung mit Rot-/ Grün-Bereich.
Geeignet zur optischen Kontrolle des Vakuums in Ansauggeräten und Anlagen aller Art. Der Grünbereich signalisiert Betriebsbereitschaft. Vakuummeter sind in verschiedenen Durchmessern, mit unterschiedlichen Anschlüssen und Measuring rangeen erhältlich.

Vakuummeter mit Connection hin-

VM-100-R1/2U-MB0-250

Vakuummeter mit unterschiedlichen Anschlüssen und Measuring ran-

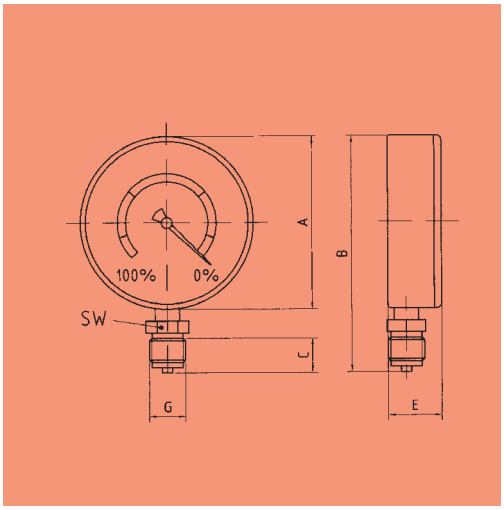
Hinweis:
Laut UVV 18 müssen VacuumLastaufnahmemittel mit einer Druckmeßeinrichtung ausgerüstet sein, die den Arbeits- und den Gefahrbereich deutlich erkennbar signalisiert.

Article numbers

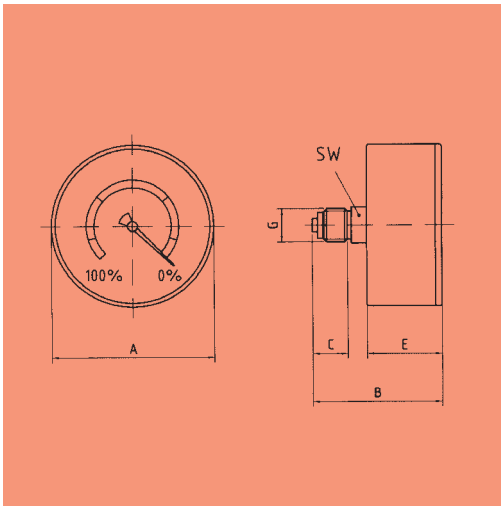
Type	Vakuummeter
VM-63-R1/4U-RG60	1.52.5.0010
VM-63-R1/4H-RG60	1.52.5.0008
VM-63-R1/4U-RG80	1.52.5.0011
VM-63-R1/4H-RG80	1.52.5.0009
VM-100-R1/2U-RG60	1.52.5.0005
VM-100-R1/2H-RG60	1.52.5.0001
VM-100-R1/2U-RG80	1.52.5.0006
VM-100-R1/2H-RG80	1.52.5.0002
VM-100-R1/2U-MB0-250	1.52.5.0004

Technical Data

Type	Connection	Measuring range (Vakuum %)	Grünbereich (Vakuum %)	Weight (kg)
VM-63-R1/4U-RG60	unten	0 - 100%	ab 60%	0,134
VM-63-R1/4H-RG60	hinten	0 - 100%	ab 60%	0,136
VM-63-R1/4U-RG80	unten	0 - 100%	ab 80%	0,136
VM-63-R1/4H-RG80	hinten	0 - 100%	ab 80%	0,137
VM-100-R1/2U-RG60	unten	0 - 100%	ab 60%	0,353
VM-100-R1/2H-RG60	hinten	0 - 100%	ab 60%	0,249
VM-100-R1/2U-RG80	unten	0 - 100%	ab 80%	0,364
VM-100-R1/2H-RG80	hinten	0 - 100%	ab 80%	0,25
VM-100-R1/2U-MB0-250	unten	0 - 25%	ab 10%	0,545



Vakuummeter Connection unten



Vakuummeter Connection hinten

Dimensions

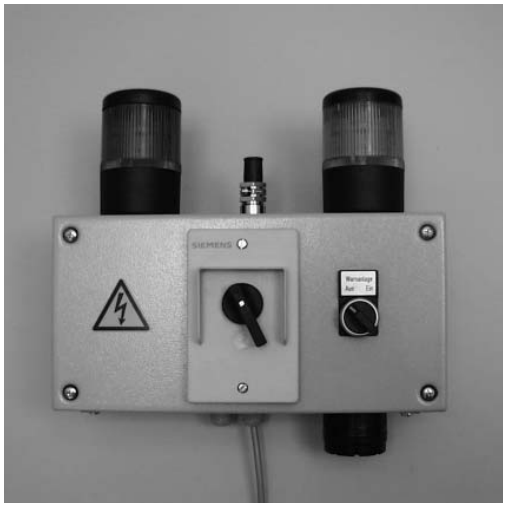
Type	A	B	C	G	E	SW
VM-63-R1/4U-RG60/80	63	86	12	G 1/4"	28	14
VM-63-R1/4H-RG60/80	63	49	12	G 1/4"	30	14
VM-100-R1/2U-RG60/80	100	137	20	G 1/2"	31	22
VM-100-R1/4H-RG60/80	100	51	12	G 1/4"	32	14
VM-100-R1/2U-MB0-250	100	142	19	G 1/2"	49	22

Description

Elektronische Warneinrichtung im Blechgehäuse, zum nachträglichen Einbau (komplett verdrahtet und Connectionfertig).

Geeignet zum nachträglichen Einbau in VacuumLastaufnahmemittel. Durch die akustische Warneinrichtung (EW-0) werden die Sicherheitsvorschriften eingehalten. Bei größeren Lastaufnahmemitteln oder beim Betrieb in sehr lauter Umgebung empfehlen wir die Warneinrichtung EW-III, die zusätzlich mit Dioden oder Leuchten ausgestattet ist.
Zudem sind sämtliche Warneinrichtung mit einer Stromausfallmeldung ausgerüstet, die einen Stromausfall akustisch melden.(100 dB(A))
Lieferumfang mit mechanischen Unterdruckschalter VS-M-1/4 voreingestellt auf 60% oder 80% Schaltpunkt

Warneinrichtung EW-0



Elektronische Warneinrichtung EW-III-L, mit optischem und akustischem Signal sowie Stromausfallmeldung.

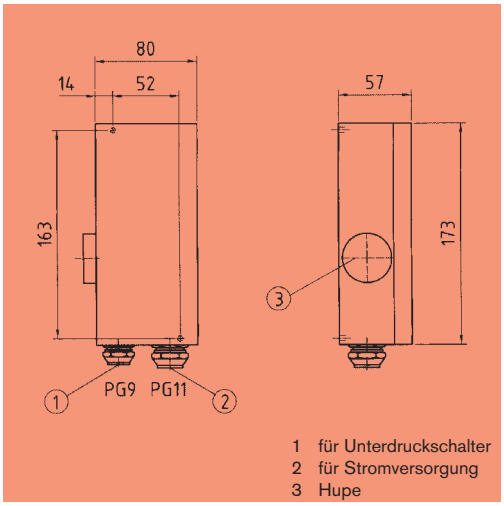
Article numbers

Type	HSV 230V, 50Hz	HSV 400V, 50Hz	EMV 400V, 50 Hz
EW-O	6.34.1.0002	6.34.1.0003	---
EW-III-L	---	6.34.1.0016	6.34.1.0012

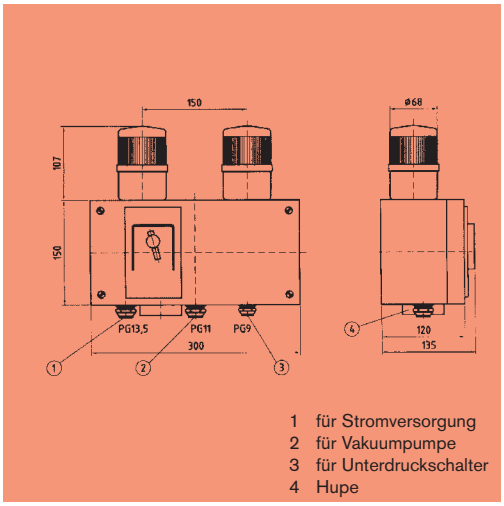
HSV für Vakuumansteuerung über Handschiebeventil
EMV für Vakuumansteuerung über Elektromagnetventil

Technical Data

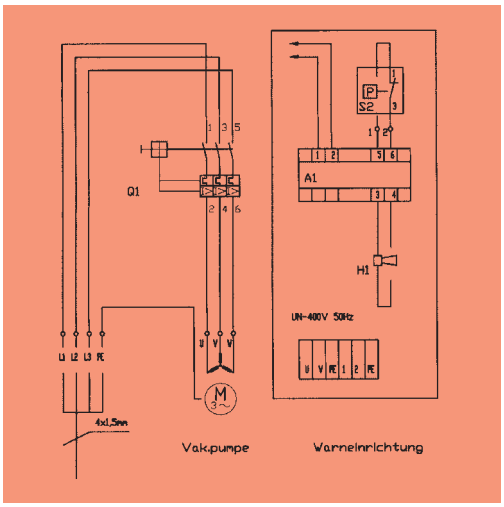
Type	Warnsignal	Stromausfall-meldung	Stromaufnahme (W)
EW-O	akustisch	ja	2
EW-III-L	akustisch und optisch über Lampen	ja	4



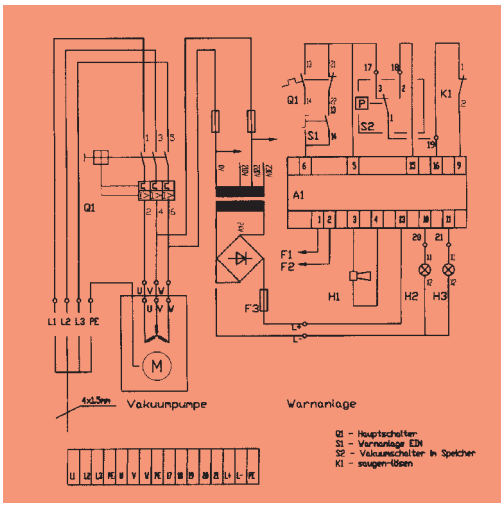
Warneinrichtung EW-O



Warneinrichtung EW-III-L



Schaltplan Warneinrichtung EW-O



Schaltplan Warneinrichtung EW-III-L