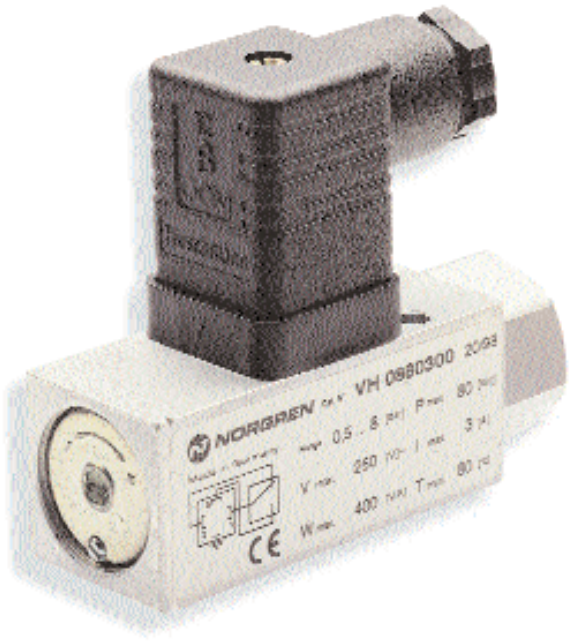
Series	Page no.	Function: Pneumatic	Function: Hydraulic	Function: Allfluid	Body material: Stainless steel	Body material: Brass	Body material: Aluminium	Body material: Polyester
 **18 D Series** Pneumatic pressure switches -1 to 30 bar	***182***	●					●	
 **18 D according to ATEX** Pneumatic pressure switch -1 to 30 bar Hydraulic pressure switch 5 to 420 bar	***184***	●	●		●		●	
 **20 D Series** For low-pressure pneumatics -0,025 to 1,6 bar	***188***	●					●	
 **20 D Series (Allfluid)** For pneumatics, aggressive gases and liquids -1 to 100 bar	***190***	●		●	●	●		
 **20 D according to ATEX** Pneumatic pressure switch For hydraulic and allfluid technology -1 to 400 bar	***192***	●	●	●			●	
 **33 D Series** Electronic pressure switches (pneumatic/allfluid) -1 to 630 bar	***196***	●	●	●	●		●	
 **33 L Series** Electronic pressure switches Vacuum and relative pressure -1 to 600 bar	***198***	●	●	●	●		●	●
 **33 E Series** Electronic pressure switches Relative pressure 0 to 400 bar	***200***	●	●	●	●		●	●

18 D Series

Pneumatic pressure switches

-1 to 30 bar

DIN 43650 M12x1



Gold-plated contacts
High cycle life
Vibration resistant to 15 g
Microswitch approved by UL and CSA
Intrinsically safe operation
Direct interface to Excelon air line units

Technical data

Medium:
Neutral, gaseous and liquid fluids

Operation:
Diaphragm

Mounting position:
Optional

Operating pressure:
-1 to 30 bar

Over pressure:
80 bar max.

Ambient temperature:
-10°C to + 80°C
Consult our Technical Service for use below +2°C.

Viscosity:
Up to 1000 mm^2/s (±450 ssu).

Fluid temperature:
-10°C to +80°C

Temperature at switching element:
+80°C max.

Repeatability:
±3%, for vacuum ±4%

Electrical connection:
DIN 43 650 or M12 x 1

Switching element:
Microswitch

Switching:
100 cyles/min

Degree of protection:
IP 65 (DIN 43650)
IP 67 (M12x1)

Weight:
0,2 kg

Materials

Housing: aluminium
Seals: Perbunan, Viton
'O'-ring: NBR

Electrical connection DIN 43650*

Port size	Type	Pressure range (bar)	Switching pressure difference (bar)**	Model	Drawing no.
G1/4	Female	-1 ... 1	0,25 ... 0,35	0880110	1
G1/4	Female	-1 ... 0	0,15 ... 0,18	0880100	1
1/4 NPT	Female	-1 ... 0	0,15 ... 0,18	0880120	1
G1/4	Female	-1 ... 0	0,15 ... 0,18	0880126 #	1
–	Flange	-1 ... 0	0,15 ... 0,18	0881100	3
G1/4	Female	0,2 ... 2	0,15 ... 0,27	0880200	1
1/4 NPT	Female	0,2 ... 2	0,15 ... 0,27	0880220	1
G1/4	Female	0,2 ... 2	0,15 ... 0,27	0880226 #	1
–	Flange	0,2 ... 2	0,15 ... 0,27	0881200	3
G1/4	Female	0,5 ... 8	0,25 ... 0,65	0880300	2
1/4 NPT	Female	0,5 ... 8	0,25 ... 0,65	0880320	2
G1/4	Female	0,5 ... 8	0,25 ... 0,65	0880326 #	2
–	Flange	0,5 ... 8	0,25 ... 0,65	0881300	3
G1/4	Female	1 ... 16	0,30 ... 0,90	0880400	2
1/4 NPT	Female	1 ... 16	0,30 ... 0,90	0880420	2
G1/4	Female	1 ... 16	0,30 ... 0,90	0880426 #	2
–	Flange	1 ... 16	0,30 ... 0,90	0881400	3
G1/4	Female	1 ... 30	1,0 ... 5,00	0880600	2
1/4 NPT	Female	1 ... 30	1,0 ... 5,00	0880620	2

* Standard plug supplied (except where marked #) ** Typical values # Free of substances that may affect paint spray applications

Electrical connection M12 x 1*

Port size	Type	Pressure range (bar)	Switching pressure difference (bar)**	Model	Drawing no.
G1/4	Female	-1 ... 0	0,15 ... 0,18	0880160 #	4
G1/4	Female	0,2 ... 2	0,15 ... 0,27	0880260 #	4
G1/4	Female	0,5 ... 8	0,25 ... 0,65	0880360 #	4
G1/4	Female	1 ... 16	0,30 ... 0,90	0880460 #	4
G1/4	Female	1 ... 30	1,00 ... 5,00	0880660 #	4
–	Flange	-1 ... 0	0,15 ... 0,18	0881160 #	5
–	Flange	0,2 ... 2	0,15 ... 0,27	0881260 #	5
–	Flange	0,5 ... 8	0,25 ... 0,65	0881360 #	5
–	Flange	1 ... 16	0,30 ... 0,90	0881460 #	5

* Max. voltage 30 V, plug M12 x 1 not supplied, if required see table opposite ** Typical values # Free of substances that may affect paint spray applications

Water applications, electrical connection DIN 43650*

Port size	Type	Pressure range (bar)	Switching pressure difference (bar)**	Model	Drawing no.
G1/4	Female	0,2 ... 2	0,15 ... 0,18	0880219	1
1/4 NPT	Female	0,2 ... 2	0,15 ... 0,27	0880240	1
G1/4	Female	0,5 ... 8	0,25 ... 0,65	0880323	2
1/4 NPT	Female	0,5 ... 8	0,25 ... 0,65	0880340	2

Observe switching range. Do not subject switch to maximum allowable pressure during normal operation. Even short pressure peaks must not exceed this value.
* Standard plug supplied ** Typical values

18 D Series

Pneumatic pressure switches

-1 to 30 bar

Load level	Type of current	Type of load	Umin [V]	Maximum permanent current Imax [A] at U [V] 30	48	60	125	250	Contact life
Standard * (e.g. contractors, solenoids)	a.c.	Resistive load	12	5	5	5	5	5	Switching cycles
	a.c.	Inductive load, cos ≈ 0,7	12	3	3	3	3	3	$>10^7$
	d.c.	Resistive load	12	5	1,2	0,8	0,4	–	
	d.c.	Inductive load, L/R ≈ 10 ms	12	3	0,5	0,35	0,05	–	
Low ** (e.g. electronic circuits)	a.c.	Resistive load	5#	0,34	0,2	0,17	0,08	0,04	Switching cycles
	d.c.	Inductive load, L/R ≈ 10 ms	5#	0,1	0,01	–	–	–	$>10^7$

Reference number of switchings: 30/min, reference temperature: +30°C.

Spark quenching with diode with d.c. and inductive load: Imax = 1,5 x Imax of table Imin = 1 [mA]

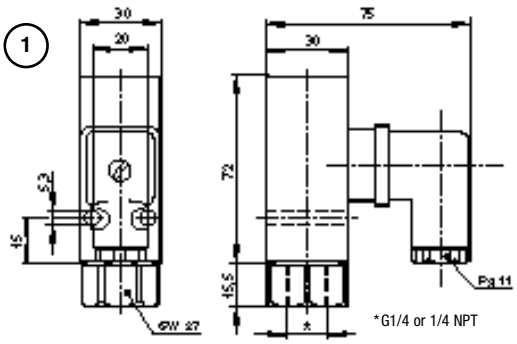
Creepage and air paths correspond to insulation group B according to VDE reg. 0110 (except contact clearance of microswitch).

* Gold-plating not required as it would decay. Maximum permitted in-rush current (approximately 30 ms) a.c. make = max. 15A.

**Gold-plating required (will not decay).

Lower value of critical voltage guarantees sufficient contact safety. Lower voltages permissible under favourable conditions.

1



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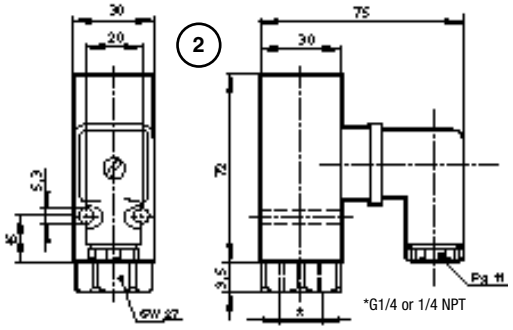

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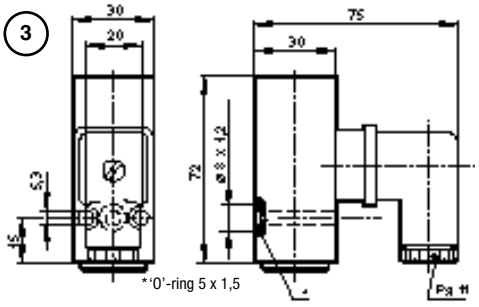

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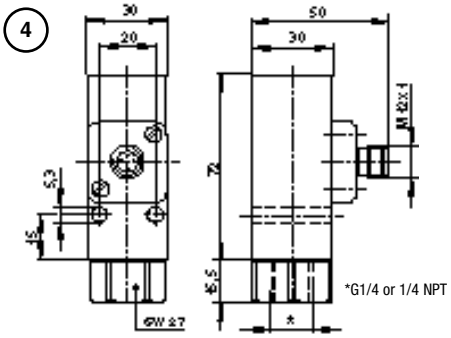

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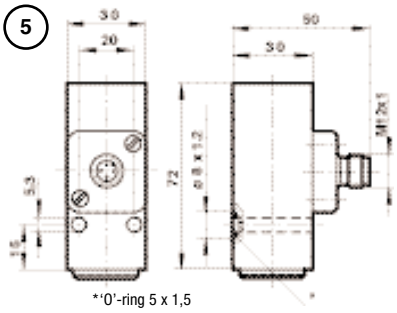
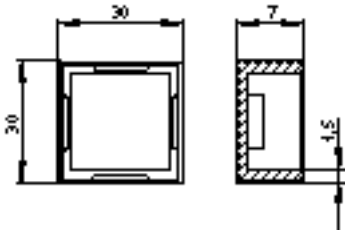


Accessories

Reducer G1/2 to G1/4, external thread – 0550083

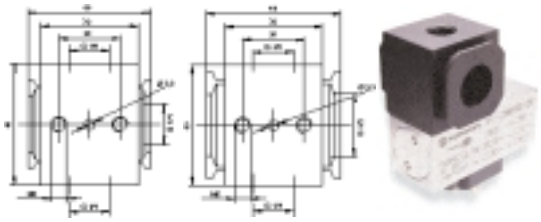
Snubber G1/4 – 0574773

Cover – 0554737



Porting blocks

Adaptor for use with Excelon 72, 73, 74 air preparation systems



Excelon 72	0523109	Excelon 73 & 74	0523110

Plugs, M12 x 1

Model	Description
0523055	Straight, without cable
0523057	Straight, 2 m cable, 4-core
0523052	Straight, 5 m cable, 4-core
0523056	90°, without cable
0523058	90° 2 m cable, 4-core
0523053	90° 5 m cable, 4-core

18 D according to ATEX

Pneumatic pressure switch

-1 to 30 bar

Hydraulic pressure switch

5 to 420 bar

For EX-applications according to ATEX 100 a:

Zone 2 category ATEX 3G (gases)

Zone 22 category ATEX 3D (dust)

TÜV (technical inspection agency) approval:

EX 8 03 01 11122 007

Microswitch with gold plated contacts

Vibration resistant to 15 g

Technical data

Medium:
Pneumatic: for neutral, gaseous, and liquid fluids
Hydraulic: for neutral, self-lubricating fluids
e.g. hydraulic oil, lubricating oil, light fuel oil

Fluid connection:
G1/4, flange

Mounting position:
Optional

Operating pressure:
Pneumatic: -1 to 30 bar
Hydraulic: 5 to 420 bar

Certification:
TÜV EC cert. no. E 8 03 01 11122 007
Zone 2: E II 3 G EEx NA / C IIC T6
Zone 22: E II 3 D IP 65 T 80°C

Ambient temperature:
0°C to + 80°C

Fluid temperature:
0°C to +80°C
Consult our Technical Service for use below +2°C.

Viscosity:
Up to 1000 mm^2/s (±450 ssu).

Repeatability:
±3%, with vacuum ±4% of the final value of range (referring to pressure regulation)

Electrical connection:
DIN EN 175301-803, (DIN 43650)
IEC 947-5-2 (M12 x 1)

Degree of protection:
IP65 (DIN 43650), IP67 (M12 x 1)

Materials

Housing: AL/steel with hydraulic AL (pneumatic)
Sealing: PTFE / NBR / AL / steel (hydraulic)
FKM / AL (pneumatic)

Pneumatic pressure switches

Electrical connection DIN EN 175301-803 (DIN 43650)

Model	Pressure range (bar)*	Pressure difference (bar) lower range	Pressure difference (bar) upper range	Maximum over-pressure (bar)**	Switching cycles (1/min)	Pressure sensor material Housing	Pressure sensor material Seal	Port size	kg	Drawing no.
0880180	-1 ... 0	0,15	0,18	80	100	AL	FKM/MS	G1/4	0,2	2
0880280	0,2 ... 2	0,15	0,27	80	100	AL	FKM/MS	G1/4	0,2	2
0880380	0,5 ... 8	0,25	0,65	80	100	AL	FKM/MS	G1/4	0,2	1
0880480	1 ... 16	0,3	0,9	80	100	AL	FKM/MS	G1/4	0,2	1
0880680	1 ... 30	1	5	80	100	AL	FKM/MS	G1/4	0,2	1
0881180	-1 ... 0	0,15	0,18	80	100	AL	FKM/MS	Flange	0,2	3
0881280	0,2 ... 2	0,15	0,27	80	100	AL	FKM/MS	Flange	0,2	3
0881380	0,5 ... 8	0,25	0,65	80	100	AL	FKM/MS	Flange	0,2	3
0881480	1 ... 16	0,3	0,9	80	100	AL	FKM/MS	Flange	0,2	3
0881680	1 ... 30	1	5	80	100	AL	FKM/MS	Flange	0,2	3

The EX-permission refers to the pressure switch in combination with the supplied plug.

Electrical connection M12 x 1

Model	Pressure range (bar)*	Pressure difference (bar) lower range	Pressure difference (bar) upper range	Maximum over-pressure (bar)**	Switching cycles (1/min)	Pressure sensor material Housing	Pressure sensor material Seal	Port size	kg	Drawing no.
0880181	-1 ... 0	0,15	0,18	80	100	AL	FKM/MS	G1/4	0,2	2
0880281	0,2 ... 2	0,15	0,27	80	100	AL	FKM/MS	G1/4	0,2	2
0880381	0,5 ... 8	0,25	0,65	80	100	AL	FKM/MS	G1/4	0,2	1
0880481	1 ... 16	0,3	0,9	80	100	AL	FKM/MS	G1/4	0,2	1
0880681	1 ... 30	1	5	80	100	AL	FKM/MS	G1/4	0,2	1
0881181	-1 ... 0	0,15	0,18	80	100	AL	FKM/MS	Flange	0,2	3
0881281	0,2 ... 2	0,15	0,27	80	100	AL	FKM/MS	Flange	0,2	3
0881381	0,5 ... 8	0,25	0,65	80	100	AL	FKM/MS	Flange	0,2	3
0881481	1 ... 16	0,3	0,9	80	100	AL	FKM/MS	Flange	0,2	3
0881681	1 ... 30	1	5	80	100	AL	FKM/MS	Flange	0,2	3

Permitted voltage: 30 V max.

Connectors see 'Accessories' table. Connector is not included, please order separately. Use only the connectors listed otherwise the device will lose its EX-permission.

* Reference pressure is the atmospheric air pressure

** Switching points should ideally be in the middle of the switching pressure range.

Short-term pressure peaks are not allowed to exceed this limit value during operation. Operative utilisation of the limit value is not permitted. The limit value corresponds to the maximum over-pressure.

AL = Aluminium

FKM = Viton

Options selector

088★★8★

Variants	Substitute
Thread	0
Flange	1

Switching pressure range	Substitute
-1 ... 0	1
0,2 ... 2	2
0,5 ... 8	3
1 ... 16	4
1 ... 30	6

Electrical connection	Substitute
DIN EN 175301-803 (DIN 43650, form A)	0
M12 x 1	1

18 D according to ATEX

Pneumatic pressure switch
-1 to 30 bar
Hydraulic pressure switch
5 to 420 bar

Hydraulic pressure switch

Electrical connection DIN EN 175301-803 (DIN 43650)

Model	Pressure range (bar)*	Pressure difference (bar) lower range	upper range	Maximum over-pressure (bar)**	Switching cycles (1/min)	Pressure sensor material Housing	Seal	Port size	kg	Drawing no.
0882180	5 ... 70	10,5	15	400	100	AL/Steel	PTFE/NBR	G1/4	0,2	02
0882280	10 ... 160	11	17	400	100	AL/Steel	PTFE/NBR	G1/4	0,2	02
0882380	25 ... 250	13	21	400	100	AL/Steel	PTFE/NBR	G1/4	0,2	02
0882480	40 ... 420	17	38	600	100	AL/Steel	PTFE/NBR	G1/4	0,2	02
0883180	5 ... 70	10,5	15	400	100	AL/Steel	PTFE/NBR	Flange	0,2	03
0883280	10 ... 160	11	17	400	100	AL/Steel	PTFE/NBR	Flange	0,2	03
0883380	25 ... 250	13	21	400	100	AL/Steel	PTFE/NBR	Flange	0,2	03
0883480	40 ... 420	17	38	600	100	AL/Steel	PTFE/NBR	Flange	0,2	03

Electrical connection M12 x 1

Model	Pressure range (bar)*	Pressure difference (bar) lower range	upper range	Maximum over-pressure (bar)**	Switching cycles (1/min)	Pressure sensor material Housing	Seal	Port size	kg	Drawing no.
0882281	10 ... 160	11	17	400	100	AL/Steel	PTFE/NBR	G1/4	0,2	02
0882381	25 ... 250	13	21	400	100	AL/Steel	PTFE/NBR	G1/4	0,2	02
0882481	40 ... 420	17	38	600	100	AL/Steel	PTFE/NBR	G1/4	0,2	02
0883181	5 ... 70	10,5	15	400	100	AL/Steel	PTFE/NBR	Flange	0,2	03
0883281	10 ... 160	11	17	400	100	AL/Steel	PTFE/NBR	Flange	0,2	03
0883381	25 ... 250	13	21	400	100	AL/Steel	PTFE/NBR	Flange	0,2	03
0883481	40 ... 420	17	38	600	100	AL/Steel	PTFE/NBR	Flange	0,2	03

The EX-permission refers to the pressure switch in combination with the supplied plug.

Permitted voltage: 30 V max.

Connectors see 'Accessories' table. Connector is not included, please order separately. Use only the connectors listed otherwise the device will lose its EX-permission.

* Reference pressure is the atmospheric air pressure

** Switching points should ideally be in the middle of the switching pressure range.

Short-term pressure peaks are not allowed to exceed this limit value during operation. Operative utilisation of the limit value is not permitted. The limit value corresponds to the maximum over-pressure.

AL = Aluminium

FKM = Viton

Options selector

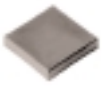
088★★8★

Variants	Substitute
Thread	2
Flange	3

Electrical connection	Substitute
DIN EN 175301-803 (DIN 43650, form A)	0
M12 x 1	1

Switching pressure range	Substitute
5 ... 70	1
10 ... 160	2
25 ... 250	3
40 ... 420	4

Accessories

Pressure port reducing nipple	Snubber	Cover (with adjustment screw)	Connector M12x1		
					
0574767	0574773	0554737	0523058	90° 2 m cable, 4-core	0523056 90°, without cable
			0523053	90° 5 m cable, 4-core	

Making and/or breaking capacity

Change-over switch with gold-plated contacts

Load level	Type of current	Type of load	Umin [V]	Maximum permanent current Imax [A] at U [V] 30	48	60	125	250	Contact life#
Standard * (e.g. contractors, solenoids)	a.c.	Resistive load	12	5	5	5	5	5	Switching cycles >10^7
	a.c.	Inductive load, cos ≈ 0,7	12	3	3	3	3	3	
	d.c.	Resistive load	12	5	1,2	0,8	0,4	–	
	d.c.	Inductive load, L/R ≈ 10 ms	12	3	0,5	0,35	0,05	–	
Low ** (e.g. electronic circuits)	a.c.	Resistive load	5#	0,34	0,2	0,17	0,08	0,04	Switching cycles >10^7
	d.c.	Inductive load, L/R ≈ 10 ms	5#	0,1	0,01	–	–	–	

Reference number of switchings: 30/min, reference temperature: +30°C.

Spark quenching with diode with d.c. and inductive load: Imax = 1,5 x Imax of table Imin = 1 [mA]

Creepage and air paths correspond to insulation group B according to VDE reg. 0110 (except contact clearance of microswitch).

* Gold-plating not required as it would decay. Maximum permitted in-rush current (approximately 30 ms) a.c. make = max. 15A.

**Gold-plating required (will not decay).

Lower value of critical voltage guarantees sufficient contact safety. Lower voltages permissible under favourable conditions.

18 D according to ATEX

Pneumatic pressure switch

-1 to 30 bar

Hydraulic pressure switch

5 to 420 bar

Proposal for spark extinction with direct voltage

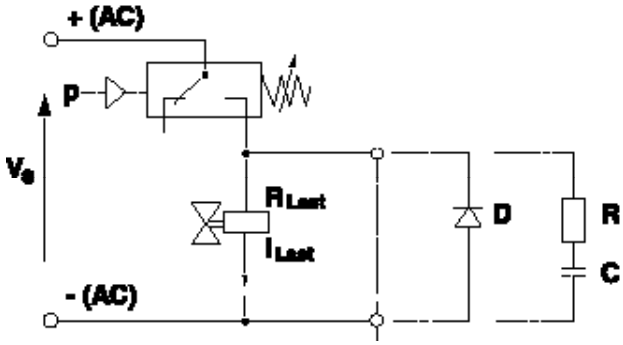
1. Diode D parallel to the inductive load.
Observe correct polarity with connection (positive pole at cathode).

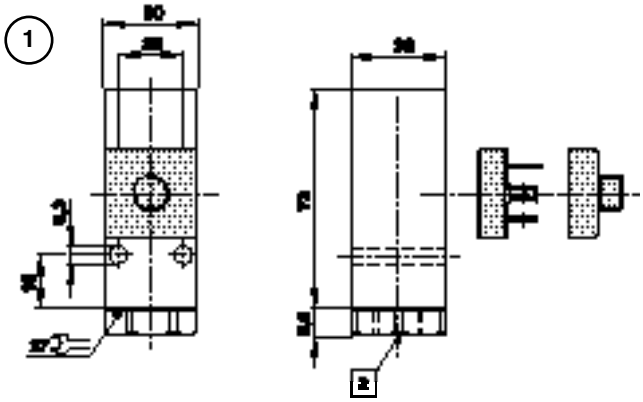
Specificatons for erasing diode:
Nominal voltage of the diode $U_D \geqslant 1{,}4 \times U_s$.
Nominal current of the diode $I_N \geqslant I_{load.}$

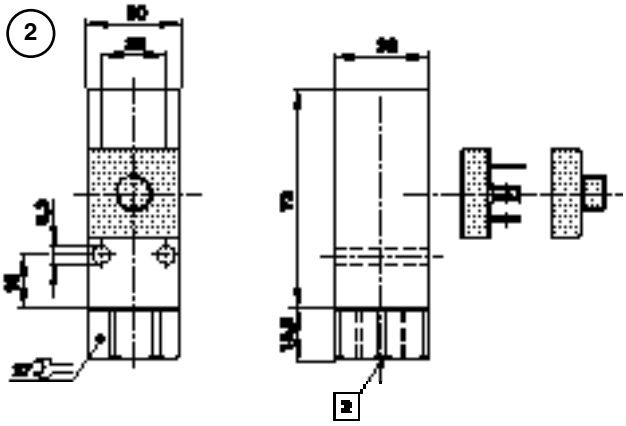
Select fast switching diodes (blocking recovery time trr $\leqslant$ 200 [ms]).

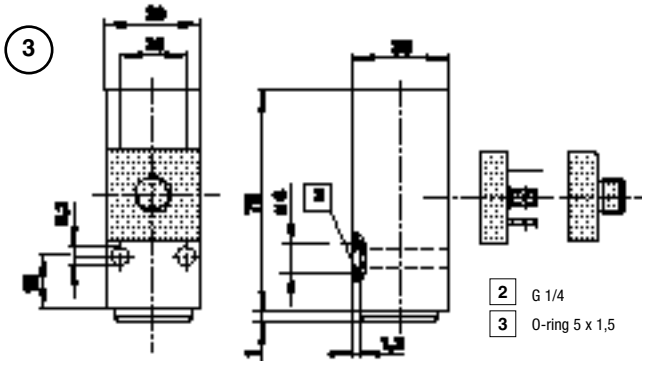
2. RC element parallel to the load (or parallel to the switching contact).
Suitable for direct voltage and alternating voltage.

Ratings:
R in [Ω] ≈ 0,2 x R_{load} in [Ω]
C in [µF] ≈ R_{load} in [A]

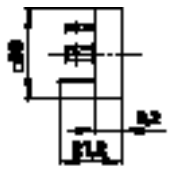




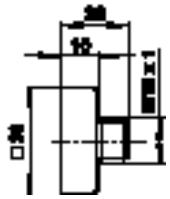




Electrical connection
DIN 43650, form A

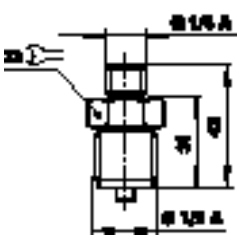


Electrical connection
M12x1

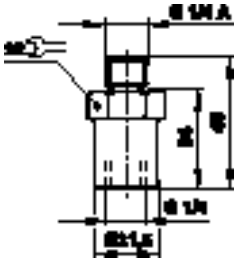


Accessories

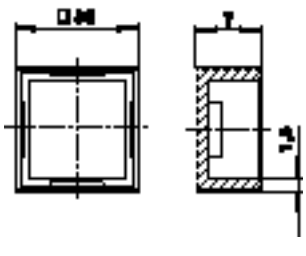
Pressure port
reducing nipple
Materials: brass
Model: 0574767



Snubber
Materials: brass
Model: 0574773

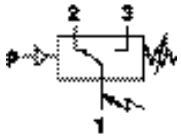


Cover (with
adjustment screw)
Model: 0554737



20 D Series

For low-pressure pneumatics
-0,025 to 1,6 bar



High accuracy

Microswitch with gold-plated contacts (silver plated for field mounting)

Electrical connection: Connector acc. to DIN 43650 or screwed cable gland

Technical data

Medium:
Neutral gases and liquids (water, hydraulic oil, lubricants, light gas oil)

Mounting position:
Optional

Operating pressure:
-0,025 to 16 bar

Ambient temperature:
0°C to +60°C
-40°C to +80°C (weather-proof*)
* On request
Consult our Technical Service for use below +2°C.

Viscosity:
Max. 1000 mm^2/s

Fluid temperature:
0°C to +80°C

Temperature at switching element:
+80°C max.

Seal rate:
5 x 10E - 3mbar•l/s

Repeatability:
±1% of final value (referred to pressure control)

Vibration immunity:
max. 5 Hz/4 g (sinosoidal)
To be avoided

Switching cycles:
max. 10/minute

Degree of protection:
IP65

Materials

Housing: aluminium die cast, aluminium die cast, tin plated (field)
Sensor: steel 1.0333, stainless steel 1.4305/1.4301, brass
Sealing: plastic diaphragm (Perbunan) or Viton (FKM)

Fixed switching pressure differences

Pressure range (bar)**	Over pressure (bar)	Switching pressure difference (bar)*** Range start	Range end	Drawing no.	Model
0 ... 0,025	0,5	0,003	0,004	1	18125YY
0 ... 0,06	0,5	0,004	0,006	1	18126YY
0 ... 0,16	0,5	0,004	0,008	1	18127YY
0 ... 0,25	0,5	0,004	0,009	1	18128YY
0,05 ... 0,6	15	0,03	0,06	2	18141YY
0,05 ... 1,0	15	0,03	0,09	2	18142YY
0,05 ... 1,6	15	0,03	0,12	2	18143YY

Adjustable switching pressure differences

Pressure range (bar)**	Over pressure (bar)	Switching pressure difference (bar)*** Range start	Range end	Max.	Drawing no.	Model
0 ... 0,025	0,5	0,008	0,011	0,025	1	18025YY
0 ... 0,06	0,5	0,009	0,015	0,04	1	18026YY
0 ... 0,16	0,5	0,011	0,023	0,12	1	18027YY
0 ... 0,25	0,5	0,011	0,028	0,2	1	18028YY
0,05 ... 0,6	15	0,09	0,16	0,5	2	18041YY
0,05 ... 1,0	15	0,11	0,18	0,8	2	18042YY
0,05 ... 1,6	15	0,13	0,25	1,2	2	18043YY

Variant codes (YY)

Code	Materials	Electrical connection	Fluid port size	Options
00	Steel/1.0333 / NBR	DIN 43650*	G1/4 female	–
05	Steel/1.0333 / NBR	M20 x 1,5	G1/4 female	–

NPTF port sizes on request
* Connector not supplied. If required please order separately, part no. 0570110
** Special pressure ranges on request
*** Typical values

20 D Series

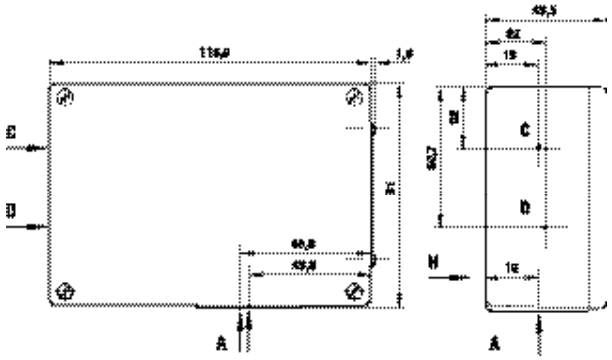
For low-pressure pneumatics
-0,025 to 1,6 bar

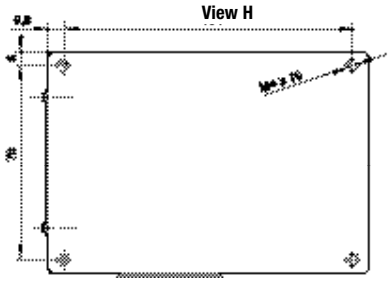
Load level	Type of current	Type of load	Umin [V]	Maximum permanent current Imax [A] at U [V] 30	48	60	125	250	Contact life # electrical at Imax	mechanical at I ≈ 0
Standard * (e.g. contractors, solenoids)	a.c.	Resistive load	12	5	5	5	5	5	5×10^4 switching cycles	$>10^7$ switching cycles
	a.c.	Inductive load, cos ≈ 0,7	12	3	3	3	3	3		
	d.c.	Resistive load	12	5	1,2	0,8	0,4	–		
	d.c.	Inductive load, L/R ≈ 10 ms	12	3	0,5	0,35	0,05	–		
Low ** (e.g. electronic circuits)	a.c.	Resistive load	5‡	0,34	0,2	0,17	0,08	0,04	2×10^5 switching cycles	$> 10^7$ switching cycles
	d.c.	Inductive load, L/R ≈ 10 ms	5‡	0,1	0,01	–	–	–		

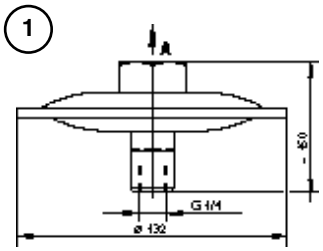
Reference number of switchings: 30/min, reference temperature: +30°C
Spark quenching with diode with d.c. and inductive load: Imax = 1,5 x Imax of table Imin = 1 [mA]
Creepage and air paths correspond to insulation group B according to VDE reg. 0110 (except contact clearance of microswitch).
* Gold-plating not required as it would decay. Maximum permitted in-rush current (approximately 30 ms) a.c. make = max. 15A.
**Gold-plating required (will not decay).
50% of the respective switching current I nearly doubles contact life. The mechanical life depends on the field of application.
‡ Lower value of critical voltage guarantees sufficient contact safety. Lower voltages permissible under favourable conditions.

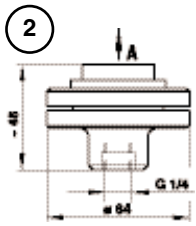
Standard housing

For electrical and pneumatic connectors see below





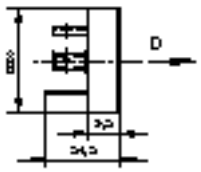




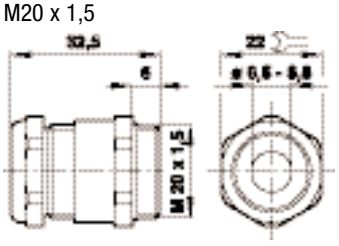
Accessories

Please see page 191 for details of plugs, brackets, surge dampers and adaptors.

Electrical connection
DIN 43650



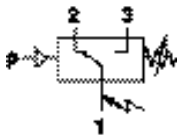
Electrical connection
M20 x 1,5



20 D Series (Allfluid)

For pneumatics, aggressive gases and liquids

-1 to 100 bar



High accuracy

Gold-plated contacts

With Ex-Versions acc. to ATEX 100a

Weatherproof (silver-plated contacts)

Power supply connections: DIN 43650 plug or screwed cable gland

Technical data

Medium:

For neutral and aggressive gases and liquids

Mounting position:

Optional, preferably with pressure connection underneath

Ambient temperature:

-25°C to +80°C

-40°C to +80°C (weatherproof)

Consult our Technical Service for use below +2°C.

Viscosity:

Up to 1000 mm^2/s (±450 ssu).

Fluid temperature:

-10°C to +100°C

Temperature at switching element:

+80°C

Seal rate:

>10-7 mbar·l·s-1

Repeatability:

±1% from range end value (depending on pressure regulation)

Degree of protection:

IP 65

Materials

Brass, stainless steel: see table

Alternative models

For power plants, part no. 18XXX12 with Harting connector type HAN 7D including 47 K Ω wire breaking monitoring, G1/2 male stainless steel, Pg16

Ex-Versions acc. to ATEX 100a on request

Fixed switching pressure differences

Switching pressure range (bar)	Over pressure (bar)	Switching pressure difference (bar)*** Code 00, 10, 20		Switching pressure difference (bar)*** Code 21		Switching pressure difference (bar)*** Code 05, 15, 25		Model
		Range start	Range end	Range start	Range end	Range start	Range end	
-1 ... 0	10	0,06	0,07	0,02	0,03	0,06	0,07	18101YY
-1 ... 1	10	0,06	0,08	0,07	0,10	0,07	0,08	18102YY
-1 ... 2,5	10	0,08	0,12	0,09	0,12	0,09	0,12	18104YY
0,05 ... 1	10	0,06	0,08	0,07	0,08	0,07	0,08	18111YY
0,1 ... 2,5	10	0,07	0,09	0,09	0,10	0,11	0,15	18113YY
0,5 ... 4	20	0,20	0,25	0,30	0,33	0,30	0,33	18114YY
0,5 ... 6	20	0,20	0,30	0,30	0,35	0,30	0,35	18115YY
0,5 ... 10	20	0,30	0,40	0,30	0,40	0,30	0,40	18116YY
1 ... 16	50	0,60	0,80	0,70	0,80	0,70	0,80	18117YY
1 ... 25	50	0,70	0,90	0,70	0,90	0,70	0,90	18118YY
5 ... 63	85	0,90	1,50	1,00	2,00	1,00	2,00	18119YY*
5 ... 100	150	2,50	5,00	3,00	7,00	3,00	7,00	18110YY**

Adjustable switching pressure differences

Switching pressure range (bar)	Over pressure (bar)	Switching pressure difference (bar)*** Code 00, 10, 20			Switching pressure difference (bar)*** Code 05, 10, 15, 21, 25			Model
		Range start	Range end Min.	Range end Max.	Range start	Range end Min.	Range end Max.	
-1 ... 0	10	0,12	0,13	0,7	0,12	0,13	0,7	18001YY
-1 ... 1	10	0,13	0,14	1,00	0,19	0,21	1,00	18002YY
-1 ... 2,5	10	0,17	0,20	2,50	0,22	0,24	2,50	18004YY
0,05 ... 1	10	0,08	0,11	0,70	0,15	0,16	0,70	18011YY
0,1 ... 2,5	10	0,11	0,15	2,00	0,20	0,25	2,00	18013YY
0,5 ... 4	20	0,30	0,40	2,50	0,80	0,80	2,50	18014YY
0,5 ... 6	20	0,35	0,50	5,00	0,80	0,90	5,00	18015YY
0,5 ... 10	20	0,40	0,80	8,00	0,90	1,90	8,00	18016YY
1 ... 16	50	0,80	1,10	12,00	1,70	2,00	12,00	18017YY
1 ... 25	50	1,00	1,50	20,00	1,80	2,80	20,00	18018YY
5 ... 63	85	2,00	3,00	20,00	2,30	3,50	20,00	18019YY*
5 ... 100	150	3,50	7,00	55,00	4,00	9,00	55,00	18010YY**

* Not for pressure sensor variants 00 and 05 ** Only for pressure sensor variants 10 and 15 YY = replace with code from table below

*** Typical values

Variant codes (YY)

Code	Materials	Electrical connection	Fluid port size	Options
00	Brass/stainless steel 1.4404	DIN 43650#	G1/4 Internal thread	–
05	Brass/stainless steel 1.4404	M20 x 1,5	G1/4 Internal thread	–
10	Stainless steel 1.4305, 1.4404	DIN 43650#	G1/2 External thread	–
15	Stainless steel 1.4305, 1.4404	M20 x 1,5	G1/2 External thread	–
21	Stainless steel 1.4571	M20 x 1,5	G1/2 External thread	Weatherproof

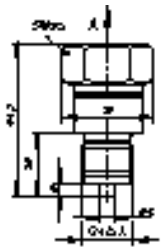
Plug not included. If required, order model 0570110, see page 191

For dimensional drawings, electrical information and connections, see page 189

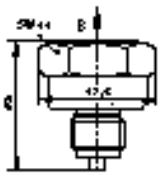
20 D Series (Allfluid)

For pneumatics, aggressive gases and liquids
-1 to 100 bar

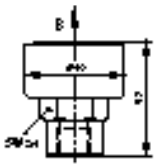
Pressure sensor variations



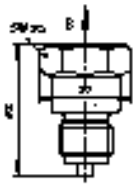
	18110YY / 18010YY
G1/2	10, 15, 20, 21, 25



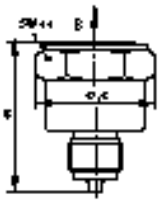
	18116YY / 18016YY 18115YY / 18115YY 18114YY / 18114YY
G1/2	10, 15, 20, 21, 25



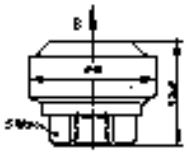
	18116YY / 18016YY 18115YY / 18015YY 18114YY / 18014YY
G1/4	00, 05



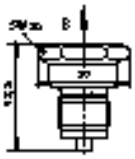
	18119YY / 18019YY
G1/2	10, 15, 20, 21, 25



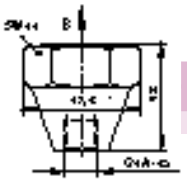
	18113YY / 18013YY 18111YY / 18011YY 18104YY / 18004YY 18102YY / 18002YY 18101YY / 18001YY
G1/2	10, 15, 20, 21, 25



	18113YY / 18013YY 18111YY / 18011YY 18104YY / 18004YY 18102YY / 18002YY 18101YY / 18001YY
G1/4	00, 05



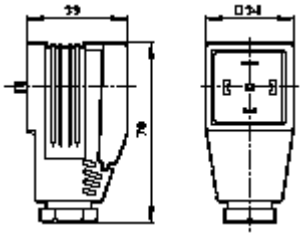
	18118YY / 18018YY 18117YY / 18117YY
G1/2	10, 15, 20, 21, 25



	18118YY / 18018YY 18117YY / 18017YY
G1/4	00, 05

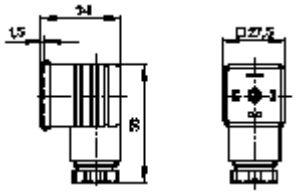
Plug (black) with LED

3 poles mains earth connector according to DIN43650 for d.c. or a.c.



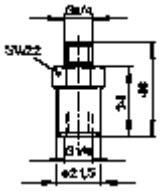
Description	Model
With LED 12 to 28 V	0585418
With fibre lamp 90 to 130 V	0585419
With fibre lamp 180 to 240 V	0585420

3 pole plug with protective earth conductor



Description	Model
DIN 43650	0570110

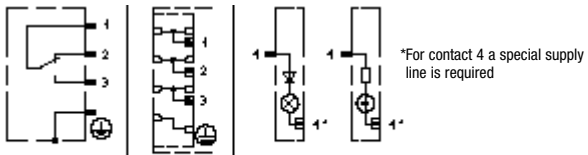
Surge damper



Description	Model
Stainless steel	0553258
Brass/steel	0574773

Pressure switch with indicator and light insert

The light insert shows the switching position of the connected pressure switch



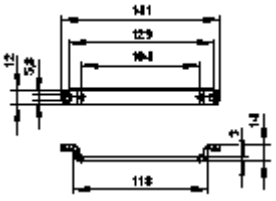
Pressure switch with DIN 43650

Plug

Plug selectable light insert – connection either on normally closed contact (2 ports) or on normally open contact (3 ports)

*For contact 4 a special supply line is required

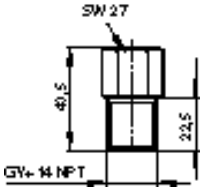
Bracket (2 clips and 4 screws)



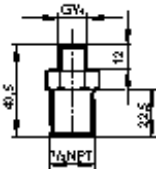
Description	Model
Steel	0574772
Stainless steel	0553908

Reducing nipple for pressure connection

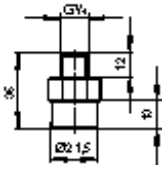
G 1/2 female, 1/2 NPT male
Stainless steel 1.4305 (AISI 303/304 S)
– 0553831



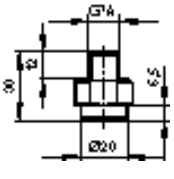
G 1/4 male - G 1/2 male
Stainless steel 1.4305 (AISI 303/304 S)
– 0550083



G 1/4 male - G 3/8 female
Steel
– 0574764



G 1/4 male - 1/4 NPT female
Brass
– 0574765



20 D according to ATEX

Pneumatic pressure switch

For hydraulic and allfluid technology

-1 to 400 bar

Applicable in ex-zone 1 and 2 (gases) category II2G, type of protection EEx de IIC T6

Microswitch with gold plated contacts

Electrical connection: connector (M20 x 1,5)

EC design tested: TÜV (technical inspection agency) Exx

Robust metal housing in weather-resisting version

Technical data

Medium:
Neutral and aggressive gases and liquids

Fluid port:
G1/4 and 1/2 A

Operating pressure:
-1 to 400 bar

Mounting position:
Optional

Fluid temperature:
0°C to +75°C max.

Operating viscosity:
Max. 1000 mm^2/s

Repeatability:
±1% of final value (referred to pressure control)

Protection degree of (according to DIN 40050):
IP65

Sealing:
>10-7 mbar • l • s-1

Vibration immunity:
4 g max. (sinusoidal) / 5 Hz max. To be avoided

Switching cycles:
Max. 20/min.

Materials

Housing: aluminium die-cast anodised
Pressure sensor: brass or stainless steel
Electrical connection/pressure sensor combination: see selection table on page 193
Sealing: stainless steel bellow, plastic membrane (NBR), steel piston (NBR or FKM)

Fixed switching pressure differences

Pressure range* pvu min. to max. (VDI 3283) (bar)	Over pressure ** (bar)	Switching difference typ. value (bar) lower range	upper range	Fluid/Fluid contact parts	Port size	Model
-1...0	10	0,2	0,23	Allfluid / 1,4404	G1/2 A	184 01 15
-1...1	10	0,20	0,25	Allfluid / 1,4404	G1/2 A	184 02 15
-1...2,5	10	0,22	0,26	Allfluid / 1,4404	G1/2 A	184 04 15
0...0,16	0,5	0,015	0,02	Pneumatic / 1.4305/1.4301	G1/4	184 27 15
0...0,6	15	0,06	0,15	Pneumatic / 1.4305/1.4301	G1/4	184 41 15
0,05...1	10	0,16	0,18	Allfluid / 1,4404	G1/2 A	184 11 15
0,05...1,6	10	0,16	0,20	Allfluid / 1,4404	G1/2 A	184 12 15
0,1...2,5	10	0,10	0,22	Allfluid / 1,4404	G1/2 A	184 13 15
0,5...4	20	0,50	0,55	Allfluid / 1,4404	G1/2 A	184 14 15
0,5...6	20	0,60	0,70	Allfluid / 1,4404	G1/2 A	184 15 15
0,5...10	20	0,70	0,90	Allfluid / 1,4404	G1/2 A	184 16 15
1...16	50	1,00	1,40	Allfluid / 1,4404	G1/2 A	184 17 15
1...25	50	1,3	1,80	Allfluid / 1,4404	G1/2 A	184 18 15
5...63	150	2,00	5,00	Allfluid / 1,4404	G1/2 A	184 19 15
5...160	300	5,00	9,00	Hydraulic / MS, Steel, NBR	G1/4	184 65 05
10...400	550	7,00	18,00	Hydraulic / MS, Steel, FKM	G1/4	184 67 05

Adjustable switching pressure differences

Pressure range* pvu min. to max. (VDI 3283) (bar)	Over pressure ** (bar)	Switching difference typ. value (bar) lower range	upper range min.	upper range max.	Fluid/Fluid contact parts	Port size	Model
-1 ... 0	10	0,25	0,20	0,80	Allfluid/1.4404	G1/2 A	185 01 15
-1 ... 1	10	0,30	0,20	1,00	Allfluid/1.4404	G1/2 A	185 02 15
-1 ... 2,5	10	0,28	0,20	2,50	Allfluid/1.4404	G1/2 A	185 04 15
0...0,16	0,5	0,025	0,007	0,12	Pneumatic / 1.4305/1.4301	G1/4	185 27 15
0...0,6	15	0,09	0,06	0,80	Pneumatic / 1.4305/1.4301	G1/4	185 41 15
0...1,6	10	0,22	0,16	1,00	Allfluid/1.4404	G1/2 A	185 12 15
0,05...1	10	0,18	0,16	0,80	Allfluid/1.4404	G1/2 A	185 11 15
0,1...2,5	10	0,22	0,18	2,00	Allfluid/1.4404	G1/2 A	185 13 15
0,5...4	20	0,60	0,5	2,50	Allfluid/1.4404	G1/2 A	185 14 15
0,5...6	20	0,70	0,60	5,00	Allfluid/1.4404	G1/2 A	185 15 15
0,5...10	20	0,90	0,70	8,00	Allfluid/1.4404	G1/2 A	185 16 15
1...16	50	1,90	1,60	12,00	Allfluid/1.4404	G1/2 A	185 17 15
1...25	50	2,20	1,60	20,00	Allfluid/1.4404	G1/2 A	185 18 15
5...63	150	5,00	2,00	20,00	Allfluid/1.4404	G1/2 A	185 19 15
5...160	300	22,00	8,00	120,00	Hydraulic / MS, Steel, FKM	G1/4	185 65 05
10...400	550	35,00	15,00	330,00	Hydraulic / MS, Steel, FKM	G1/4	185 67 05

* Reference pressure is the atmospheric air pressure

** Short-term pressure peaks are not allowed to exceed this limit value during operation.
Operative utilization of the limit value is not permitted.
The limit value corresponds to the maximum testing pressure .

20 D according to ATEX

Pneumatic pressure switch
For hydraulic and allfluid technology
-1 to 400 bar

Options selector

18★ ★★ ★★

Switching pressure difference	Substitute
adjustable	5
fixed	4

Switching pressure range	Substitute
-1 ...0	01
-1 ...1	02
-1 ...2,5	04
0,05 ...1	11
0 ...1,6	12
0,1 ...2,5	13
0,5 ...4	14
0,5 ...6	15
0,5 ...10	16
1 ...16	17
1 ...25	18
5 ... 63	19
0 ... 0,16	27
0 ... 0,6	41
5 ... 160	65
10 ... 400	67

Pressure sensor Material	Electrical connection	Substitute
MS / NBR	M20 x 1,5; G 1/4	15
1.4404	M20 x 1,5; G 1/2 A	15
MS/1.4404	M20 x 1,5; G 1/4	05

Accessories

Bracket	Surge dampers	Pressure port reducing nipple
		
0574772 (Steel)	0553258 (Stainless steel G1/4 A – G1/4)	0553831 (G1/2 A / 1/2 NPT)
0553908 (Stainless steel)	0574773 (Brass/steel G1/4 A – G1/4)	0550083 (G1/4 A / G1/2 A)
0551894 (Stainless steel G1/2 / G1/2 A)		0574764 (G1/4 A / G3/8)
		0574765 (G1/4 A / 1/4 NPT)

Load level	Current	Load [V]	U_{min}	Max. permitted constant current Imax [A] bei U [V] 30	48	60	125	250	Durability [3] electrical with I_{max}	mechanical with I ≈< 0
Normal [1] (e.g. contacts solenoids)	a.c.	ohmic	12	5	5	5	5	5	5×10^4	$\geqslant 10^7$
	a.c.	inductive, cos ≈ 0.7	12	3	3	3	3	3		
	d.c.	ohmic	12	5	1,2	0,8	0,4	-		
	d.c.	inductive, L/R ≈ 10 ms	12	3	0,5	0,35	0,05	-		
Minor [2] (e.g. electronic switching circuit)	a.c.	ohmic	5[4]	0,34	0,2	0,17	0,08	0,04	2×10^5	$_8\ 10^7$
	d.c.	inductive, L/R ≈ 10 ms	5[4]	0,1	0,01	-	-	-		

Number of switching: 30/min, reference temperature: +30°C

Quenching spark with diode at I/d.c. and inductive load:

Imax = 1.5 x Imax of table

Imin = 1 [mA]

The creep and air distance correspond to VDE 0110 of the insulation group B (with the exception of the contact distance of the micro switch).

1) Gold coating not required, will be destroyed. Max. permitted current at make (ca. 30 ms) a.c. on = max. 15A.

2) Gold coating required, continues to remain.

3) Bisection of the respective switching current I almost effects a doubling of the contact durability.

4) Lower limit of voltage to guarantee sufficient contact safety, smaller voltages under favourable conditions (contacts free of external layers) are permitted.

Spark quenching with d.c. voltage proposal

1. Diode D parallel to the inductive load
   Observance of correct polarity (positive pole to cathode)

Dimensioning specificatons for quenching diode:
Nominal voltage of the diode $U_D \geqslant 1{,}4 \times U_s$.
Nominal current of the diode $I_N \geqslant I_{load}$.

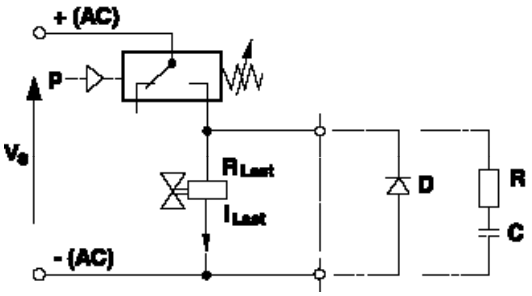
Selection of a quick switching diode (recovery time trr ⩽ 200 [ms]).

2. RC element parallel to the load (or parallel to the switching contact).
   Suitable for direct voltage and alternating voltage.

Ratings:

R in [Ω] ≈ 0,2 x R_{load} in [Ω]

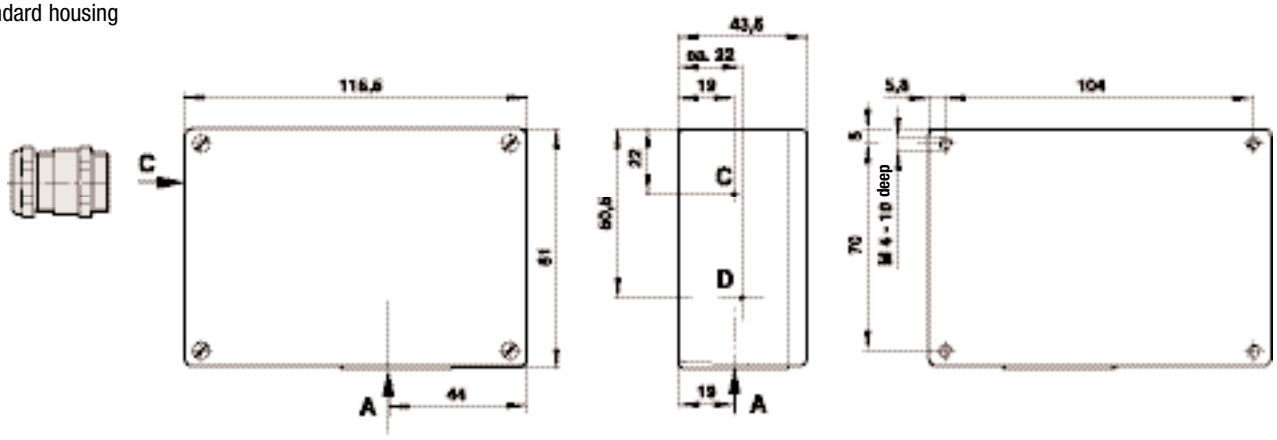
C in [µF] ≈ R_{load} in [A]

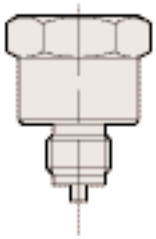


20 D according to ATEX

Pneumatic pressure switch
For hydraulic and allfluid technology
-1 to 400 bar

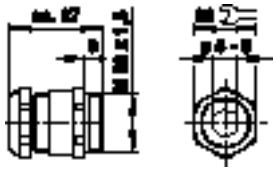
Standard housing



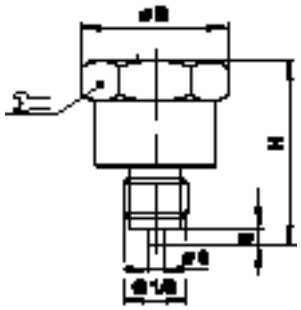


Electrical connection

Cable gland according to EEx e (ATEX),
MS nickel-plated for cable Ø 5 to 8 mm (Part no.: 0588819)



Pressure sensor



Variant	H	B	⇆	G
B	75	42	32	G 1/2 A
F	43	47,5	41	G 1/2 A
H	53	37	32	G 1/2 A
I	61,5	37	32	G 1/4
J	66	37	32	G 1/4
K	150	132	-	G 1/4
L	46	64	-	G 1/4

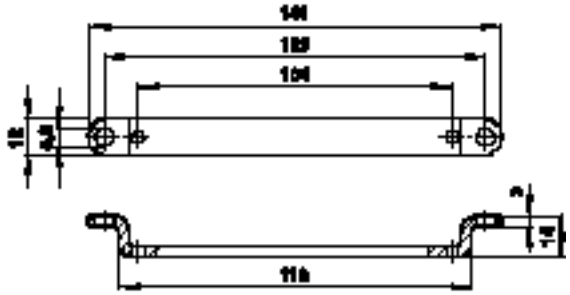
Pressure sensor combination possibilities

Switching pressure range Substitute	Pressure sensor Substitute	Variant
01	15	B
02	15	B
04	15	B
11	15	B
12	15	B
13	15	B
14	15	B
15	15	B
16	15	B
17	15	F
18	15	F
19	15	H
27	15	K
41	15	L
65	05	I
67	05	J

20 D according to ATEX

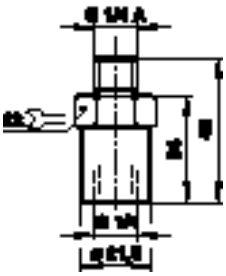
Pneumatic pressure switch
For hydraulic and allfluid technology
-1 to 400 bar

Bracket

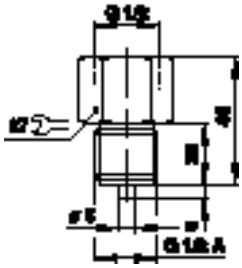


Materials	Model
Steel	0574772
Stainless steel 1.4301 (AISI 304)	0553908

Surge dampers

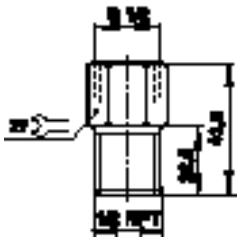


Materials	Model
Stainless steel 1.4301 (AISI 304)	0553258
Brass/steel	0574773

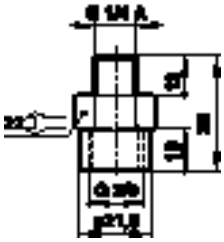


Materials	Model
Stainless steel 1.4301 (AISI 304)	0551894

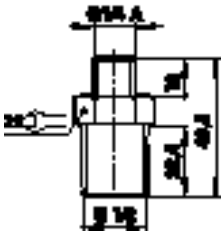
Pressure port reducing nipple



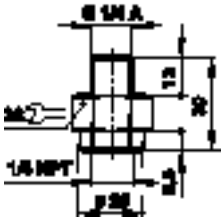
Materials	Port size	Model
Stainless steel 1.4305 (AISI 303/304 S)	G1/2 ... G1/2 NPT A	0553831



Materials	Port size	Model
Steel	G1/4 A ... G3/8	0574764



Materials	Port size	Model
Stainless steel 1.4305 (AISI 303/304 S)	G1/4 A ... G1/2	0550083



Materials	Port size	Model
Brass	G1/4 A ... 1/4 NPT	0574765

33 D Series

Electronic pressure switches (pneumatic/allfluid)

-1 to 630 bar

Display of system pressure and unit (pressure unit programmable)

Compact and robust design

Easy programming of set points and additional functions

Transistor output signals 1 x PNP/2 x PNP/1 x PNP + 4 to 20 mA

Electronic lock

Switching status indicated by LED

Standard M12x1 electrical connection (IP 65)

For pneumatic, all fluid and hydraulic applications

Technical data

Medium:
Filtered compressed air, lubricated or unlubricated, neutral gases

Display:
LCD 4 digits illuminated, pressure unit programmable for bar, psi, mpa
Customer-specific pressure unit available on request

Mounting position:
Optional

Operating pressure:
-1 to 16 bar (pneumatic)
0 to 630 (hydraulic/allfluid)

Temperature sensitivity (zero point):
0,4% of final value/10 K

Temperature sensitivity (range):
0,4% of final value/10 K

Ambient temperature:
-10°C to 60°C

Fluid temperature:
-10°C to 80°C
Consult our Technical Service for use below +2°C.

Switching point:
Adjustable between 0 and 100% of full scale

Reset point:
Adjustable between 0 and 100% of full scale:

Electrical connection:
M12 x 1

Linearity:
< 0,2% of final value ±1 digit

Degree of protection to DIN 40 050:
IP 65 (with mounted plug)

Materials

Housing: aluminium/stainless steel
Seal: viton O-ring (FKM)
Sensor elements:
pneumatic: silicium
hydraulic/allfluid: stainless steel 1.4571 (0 to 250 bar versions), stainless steel 1.4542 (400 to 630 bar versions)
NPT versions with integrated damping element

Electrical connection M12 x 1 (standard pneumatic models)*

Port size	Measuring range (bar) (Relative pressure)	Value max. (bar) (Over pressure)	Output signal	Model
G1/4	-1 ... 1	10	1 x PNP	0863012
Flange	-1 ... 1	10	1 x PNP	0863016
G1/4	-1 ... 1	10	2 x PNP	0863022
Flange	-1 ... 1	10	2 x PNP	0863026
G1/4	-1 ... 1	10	1 x PNP / 4...20 mA	0863042
Flange	-1 ... 1	10	1 x PNP / 4...20 mA	0863046
G1/4	0 ... 16	30	1 x PNP	0863212
Flange	0 ... 16	30	1 x PNP	0863216
G1/4	0 ... 16	30	2 x PNP	0863222
Flange	0 ... 16	30	2 x PNP	0863226
G1/4	0 ... 16	30	1 x PNP / 4...20 mA	0863242
Flange	0 ... 16	30	1 x PNP / 4...20 mA	0863246

* M12 x 1 connector not included. Please see table on next page.

Options selector

0863★★★

Pressure range (pneumatic)	Substitute
-1 ... 1 bar	0
0 ... 16 bar	2

Pressure range (allfluid)*	Substitute
0 ... 10 bar	1
0 ... 40 bar	3
0 ... 100 bar	4
0 ... 160 bar	5
0 ... 250 bar	6
0 ... 400 bar	7
0 ... 630 bar	8

* In the case of pressure peaks, please use NPT version (with damping) or external reducer 0550083

Fluid/electrical connection	Substitute
G¼/M12 x 1	2
¼ NPT/M12 x 1	4
Flange/M12 x 1	6

Output signal	Substitute
1 digital out	1
2 digital out	2
1 digital out/4 ... 20 mA	4

33 D Series

Electronic pressure switches (pneumatic/allfluid)
-1 to 630 bar

Electrical parameters

Electrical connection:	M12 x 1
Power supply:	10 ... 32 V d.c. (polarity safe) digital models 15 ... 32 V d.c. (polarity safe) analogue models
Permissible residual ripple:	10% (within 12 to 32 V)
Current consumption:	<50 mA (plus load current)

Electromagnetic compatibility

Interference emission	Conforming to EN 61326
Interference immunity	Conforming to EN 61326 Part 1

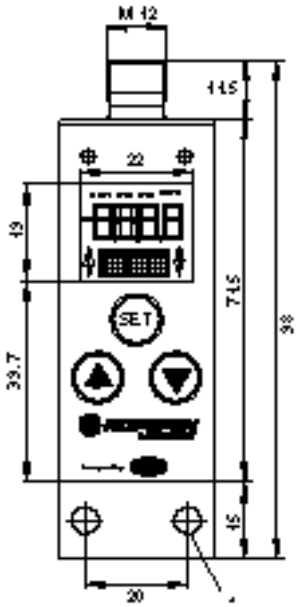
Electrical connection M12 x 1

Pin	Signal	Cable
1	Supply voltage	Brown
2	Out 2 (PNP) / analog 4 ... 20 mA	White
3	0 V	Blue
4	Out 1 (PNP)	Black
5	Free	Grey

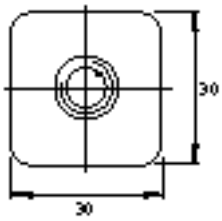
Switching output

Switching mode:	Potential-bound open collector switching to U_B, suitable for inductive load
Output voltage:	Supply voltage -1,5 V
Analog output:	4 ... 20 mA
Contact rating:	Imax = 500 mA (short-circuit proof)
Switching time:	< 10 ms
Damping:	5 ms ... 0,64 sec
Signal delay:	On/off 0 ... 20 sec
Service life:	min. 100 million switching cycles
Switching logic:	n.o. / n.c. programmable
Operating mode:	Standard, hysteresis and window mode Separately selectable for each output

Front view



Rear view (flange version)



* Suitable for M 5 x 35 screws

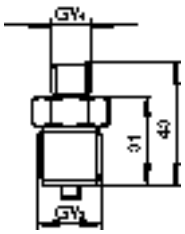
** Flange diameter 8 x 1,2 deep, O-ring 4,47 x 1,78 (Viton 90)

Accessories

Plugs

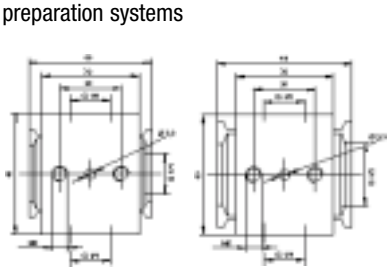
Description	Model
M12 x 1, straight without cable	0523055
M12 x 1, straight 2 m cable, 4-core	0523057
M12 x 1, straight 5 m cable, 4-core	0523052
M12 x 1, 90° without cable	0523056
M12 x 1, 90° 2 m cable, 4-core	0523058
M12 x 1, 90° 5 m cable, 4-core	0523053

Reducer G1/2 to G1/4,
external thread – 0550083



Porting blocks

Adaptor for use with Excelon 72, 73, 74 air preparation systems



Excelon 72 0523109 Excelon 73 & 74 0523110

33 L Series

Electronic pressure switches

Vacuum and relative pressure -1 to 600 bar

Diagnostic function acc. to DESINA
Display of system pressure
Easy programming of switchpoints
Economic solution for industrial applications
Switching status indicated by 3-colour LED display
Free of lacquer impairing substances

Technical data

Medium:
Gaseous, liquid, aggressive and neutral, non-combustible

Electrical connection:
M 12 x 1

Mounting:
Optional

Fluid temperature:
-25°C to + 80°C
Consult our Technical Service for use below +2°C.

Ambient temperature:
-20°C to + 80°C

Pressure range:
-1 to 1 / 16 / 40 / 100 / 160 / 250 / 400 / 600 bar

Temperature sensitivity (zero point):
0,4% of final value/10 K

Temperature sensitivity (range):
0,4% of final value/10 K

Switching point:
Adjustable between 0 to 100% of FS

Reset point:
Adjustable between 0 to 100% of FS

Accuracy:
⩽ 1,5% FS
(Linearity, hysteresis, repeatability)

Degree of protection to DIN 40 050:
IP65 (<10bar) / IP67 (>10bar), with plug mounted

Shock protection:
30g, xyz, DIN EN 60068-2-27

Vibration protection:
10g, 5 to 500 Hz, xyz, DIN EN 60068-2-6

Weight:
0,06 kg

Materials

Housing: aluminium, stainless steel, polyester
Wetted parts:
-1 to 16 bar: aluminium, ceramics, FKM (viton)
40 to 600 bar: stainless steel, ceramics, FKM (viton)
All parts free of lacquer impairing substances

Measuring range (bar) (Relative pressure) [3]	Value max. (bar) (Over pressure) [4]	Port size [1]	Output signal [2]	Display step size (bar)	Model
-1 ... 1 bar	6	G1/4	2 x PNP	0,01	0860110
-1 ... 1 bar	6	Flange	2 x PNP	0,01	0860116
0 ... 10 bar	25	G1/4	2 x PNP	0,05	0860120
0 ... 10 bar	25	Flange	2 x PNP	0,05	0860126
0 ... 16 bar	40	G1/4	2 x PNP	0,1	0860130
0 ... 16 bar	40	Flange	2 x PNP	0,1	0860136
0 ... 40 bar	100	G1/4	2 x PNP	0,2	0860140
0 ... 40 bar	100	Flange	2 x PNP	0,2	0860146
0 ... 100 bar	175	G1/4	2 x PNP	0,2	0860150
0 ... 100 bar	175	Flange	2 x PNP	0,2	0860156
0 ... 160 bar	280	G1/4	2 x PNP	1,0	0860160
0 ... 160 bar	280	Flange	2 x PNP	1,0	0860166
0 ... 250 bar	400	G1/4	2 x PNP	1,0	0860170
0 ... 250 bar	400	Flange	2 x PNP	1,0	0860176
0 ... 400 bar	700	Flange	2 x PNP	2,0	0860186
0 ... 600 bar	1000	G1/4	2 x PNP	3,0	0860190
0 ... 600 bar	1000	Flange	2 x PNP	3,0	0860196

1) Versions with fluid connection 1/4 NPTF on request, versions with bleeder screw on request
2) Mode of OUT2 is programmable: Diagnostic acc. to DESINA / switching, switching logic of OUT1 and /OUT2 is programmable (NO/NC)
3) Versions with pressure unit psi on request
4) Max. value = over pressure. Short-term pressure peaks are not allowed to exceed this limit value during operation. Operative utilization of the overload range is not permitted.

Options selector

08601★★

Pressure ranges (bar)	Substitute
-1 ... 1	1
0 ... 10	2
0 ... 16	3
0 ... 40	4
0 ... 100	5
0 ... 160	6
0 ... 250	7
0 ... 400	8
0 ... 600	9

Fluid connection	Substitute
G1/4	0
Flange	6

33 L Series

Electronic pressure switches

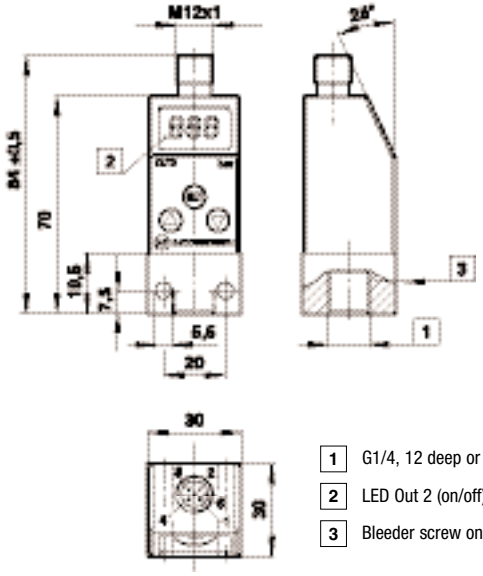
Vacuum and relative pressure -1 to 600 bar

Electrical parameters

Electrical connection:	M12 x 1
Power supply:	UB =18 to 32 V d.c., polarity safe
Permissible residual ripple:	10% (within UB)
Current consumption:	< 100 mA (plus load current)
Switching mode:	PNP, Potential-bound open collector switching to UB
Output signal:	Out 1: switching: UB minus 1.5V / Imax. 250 mA Out 2: diagnostic/switching UB minus 1,5V/250 mA Surge and short-circuit protection (Out1/Out2)
Switching logic Out 1 & 2:	NO/NC programmable
Response time:	< 10 ms
Service life:	min. 50 million switching cycles
Electromagnetic compatibility:	Interference emission acc. to EN 61326 Interference immunity acc. to EN 61326 Part 1

Electrical connection M12 x 1

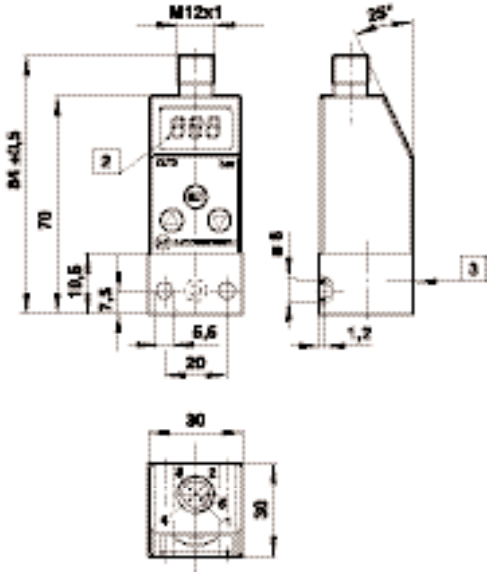
Electrical connection M12 x 1			
Pin no.	**Signal**	**Cable**	**Display**
1	+U	Brown	
2	Out 2 (diagnostic/switch, PNP)	White	Red blinking / LED
3	0 V	Blue	
4	Out 1 (switch, PNP)	Black	Yellow / green
5	NC		



1 G1/4, 12 deep or 1/4 NPT, 10 deep

2 LED Out 2 (on/off)

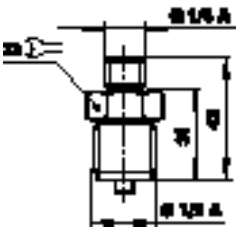
3 Bleeder screw on request



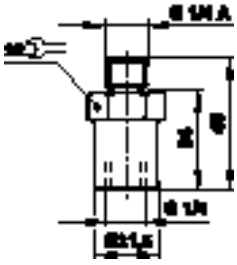
Accessories

Pressure port reducing nipple	Snubber	Connector M 12x1 90° 5 pins (on PE-requirement)	Connector M 12x1 90° 4 pins		Connector M 12x1 Straight 4 pins	
						
0574767	0574773	0799845 (2 m cable, 5-pin) 0250081 (5 m cable, 5-pin)	0523058 (2 m cable length) 0523053 (5 m cable length)	0523056 (without cable)	0523057 (2 m cable length) 0523052 (5 m cable length)	0523055 (without cable)

Pressure port reducing nipple
0574767 (brass)
0550083 (stainless steel 1.4301)



Snubber
0574773 (brass)
0553258 (stainless steel 1.4301)



33 E Series

Electronic pressure switches

Relative pressure 0 to 400 bar

Thread and flange connections
Compact and robust design
Easy programming of switchpoint
Economic solution for industrial applications
Switching status indicated by LED
Free of lacquer impairing substances

Technical data

Medium:
Gaseous, liquid, aggressive and neutral, non-combustible

Electrical connection:
M 12 x 1

Mounting:
Optional

Fluid temperature:
-25°C to + 80°C
Consult our Technical Service for use below +2°C.

Ambient temperature:
-20°C to + 80°C

Pressure range:
0 to 2 / 10 / 16 / 40 / 100 / 160 / 250 / 400 bar

Temperature sensitivity (zero point):
0,4% of final value/10 K

Temperature sensitivity (range):
0,4% of final value/10 K

Switching point:
Adjustable between 0 to 100% of FS

Reset point:
Adjustable between 0 to 100% of FS

Accuracy:
⩽ 1,5% FS
(Linearity, hysteresis, repeatability)

Degree of protection to DIN 40 050:
IP67 (with plug mounted)

Shock protection:
25 g, xyz, DIN EN 60068-2-27

Vibration protection:
10 g, 5 to 500 Hz, xyz, DIN EN 60068-2-6

Weight:
0,06 kg

Materials

Housing: aluminium, stainless steel, polyester
Wetted parts:
Up to 16 bar: aluminium, ceramics, FKM (viton)
40 to 400 bar: stainless steel, ceramics, FKM (viton)
All parts free of lacquer impairing substances

Measuring range (bar) (Relative pressure)	Value max. (bar) (Over pressure) [2]	Port size [1]	Output signal [3]	Model
0 ... 2	5	G1/4	1 x PNP	0860020
0 ... 2	5	Flange	1 x PNP	0860026
0 ... 10	25	G1/4	1 x PNP	0860030
0 ... 10	25	Flange	1 x PNP	0860036
0 ... 16	40	G1/4	1 x PNP	0860040
0 ... 16	40	Flange	1 x PNP	0860046
0 ... 40	100	G1/4	1 x PNP	0860050
0 ... 40	100	Flange	1 x PNP	0860056
0 ... 100	175	G1/4	1 x PNP	0860060
0 ... 100	175	Flange	1 x PNP	0860066
0 ... 160	280	G1/4	1 x PNP	0860070
0 ... 160	280	Flange	1 x PNP	0860076
0 ... 250	350	G1/4	1 x PNP	0860080
0 ... 250	350	Flange	1 x PNP	0860086
0 ... 400	700	G1/4	1 x PNP	0860090
0 ... 400	700	Flange	1 x PNP	0860096

1) Versions with fluid connection 1/4 NPTF on request

2) Max. value = over pressure, Short-term pressure peaks are not allowed to exceed this limit value during operation. Operative utilization of the overload range is not permitted.

3) Switching logic is programmable (NO/NC)

Options selector

08600★★

Measuring range (bar)	Substitute
0 ... 2	2
0 ... 10	3
0 ... 16	4
0 ... 40	5
0 ... 100	6
0 ... 160	7
0 ... 250	8
0 ... 400	9

Fluid connection	Substitute
G1/4	0
Flange	6

33 E Series

Electronic pressure switches

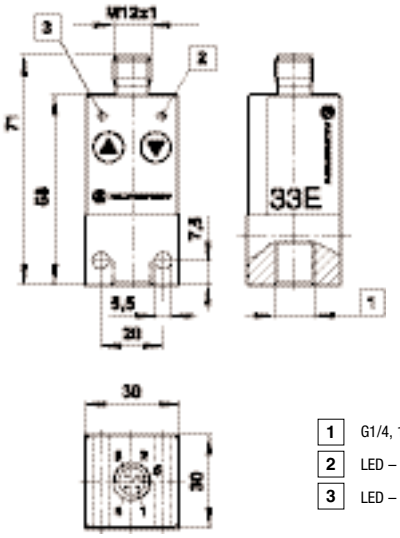
Relative pressure 0 to 400 bar

Electrical parameters

Electrical connection:	M12 x 1
Power supply:	U_B = 18 to 32 V DC, polarity safe
Permissible residual ripple:	10% (within UB)
Current consumption:	< 50 mA (plus load current)
Switching mode:	PNP, potential-bound open collector switching to UB
Switching logic:	NO/NC programmable
Output signal:	U_B minus 1,5 V
Contact rating:	Imax = 250 mA (short-circuit proof)
Switching time:	< 3 ms
Service life:	min. 50 million switching cycles
Electromagnetic compatibility	Interference emission acc. to EN 61326 Interference immunity acc. to EN 61326 Part 1

Electrical connection M 12 x 1

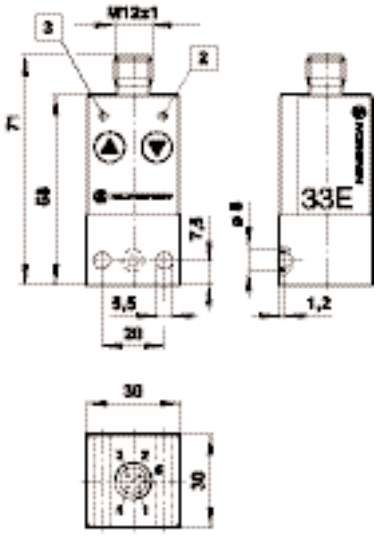
Electrical connection M12 x 1			Display
Pin no.	Signal	Cable	
1	+Ub	Brown	LED green
2	NC	White	
3	0 V	Blue	
4	Out 1 (switching, PNP)	Black	LED yellow
5	PE	Grey	



1 G1/4, 12 deep or 1/4 NPT, 10 deep

2 LED – yellow; status Out 1

3 LED – green; power on



Accessories

Pressure port reducing nipple	Snubber	Connector M 12x1 90° 5 pins (on PE-requirement)	Connector M 12x1 90° 4 pins		Connector M 12x1 Straight 4 pins	
						
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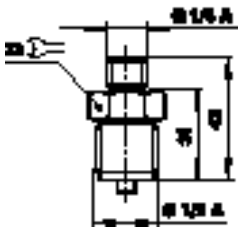

Snubber

0574773 (brass)

0553258 (stainless steel 1.4301)