

18D

Pneumatic pressure switches

Electromechanically actuated, -1 ... 30 bar G1/4, 1/4 NPT and flange

- Microswitch with gold plated contacts
- High number of switching cycles
- Vibration resistant to 15 g
- Conforms to low voltage Directive 2006/95/EG
- Intrinsically safe operation

Technical Data

Medium:

For neutral, gaseous and liquid fluids, non-combustible (special versions for water application)

Operation:

Diaphragm

Operating pressure range:

-1 ... 30 bar

Operating viscosity:

Up to 1.000 mm²/s

Switching pressure difference:

Fixed

Repeatability:

±3% for vacuum

±4% of final value

(Depending on regulating pressure)

Switching element:

Microswitch with gold plated contacts

Mounting position:

Optional

Degree of protection:

IP65 for DIN EN 175301-803

(DIN 43650) form A

IP67 for M12 x 1

Electrical connection:

DIN EN 175301-803 (DIN 43650)

form A or M12 x 1 IEC 947-5-2

Fluid/Ambient temperature:

-10 ... +85°C (NBR)

0 ... +80°C (FKM)

Air supply must be dry enough to avoid ice formation at temperatures below +2°C

Materials

Housing:

Aluminium (brass)

Sealing:

NBR/FKM



● Technical data 18D - electrical connection acc. to DIN EN 175301-803, form A

Symbol	Pressure range *1 (bar)	Switching pressure difference (bar)		Max. over pressure *2 (bar)	Switching cycles (1/min)	Materials pressure sensor		Port size	Weight (kg)	Dimension No.	Model
		Lower range	Upper range			Housing	Sealing				
	-1 ... 0	0,15	0,18	80	100	AL	FKM *3)	G1/4	0,2	1	0880100
	-1 ... 1	0,25	0,35	80	100	AL	FKM *3)	G1/4	0,2	1	0880110
	-1 ... 0	0,15	0,18	80	100	AL	FKM *3)	1/4 NPT	0,2	1	0880120
	-1 ... 0	0,15	0,18	80	100	AL	FKM *3)	G1/4	0,2	1	0880126 *4) *5)
	-1 ... 0	0,15	0,18	80	100	AL	FKM *3)	Flange	0,2	3	0881100
	0,2 ... 2	0,20	0,35	80	100	AL	FKM *3)	G1/4	0,2	1	0880200
	0,2 ... 2	0,20	0,35	80	100	AL	FKM	1/4 NPT	0,2	1	0880220
	0,2 ... 4	0,20	0,35	80	100	AL	FKM	G1/4	0,2	1	0880226 *4) *5)
	0,2 ... 2	0,20	0,35	80	100	AL	NBR	Flange	0,2	3	0881200
	0,5 ... 8	0,35	0,85	80	100	AL	NBR	G1/4	0,2	2	0880300
	0,5 ... 8	0,35	0,85	80	100	AL	NBR	1/4 NPT	0,2	2	0880320
	0,5 ... 8	0,35	0,85	80	100	AL	FKM	G1/4	0,2	2	0880326 *4) *5)
	0,5 ... 8	0,35	0,85	80	100	AL	NBR	Flange	0,2	3	0881300
	1 ... 16	0,40	1,20	80	100	AL	NBR	G1/4	0,2	2	0880400
	1 ... 16	0,40	1,20	80	100	AL	NBR	1/4 NPT	0,2	2	0880420
	1 ... 16	0,40	1,20	80	100	AL	FKM	G1/4	0,2	2	0880426 *4) *5)
	1 ... 16	0,40	1,20	80	100	AL	NBR	Flange	0,2	3	0881400
	1 ... 30	1,0	5,00	80	100	AL	NBR	G1/4	0,2	2	0880600
	1 ... 30	1,0	5,00	80	100	AL	NBR	1/4 NPT	0,2	2	0880620

*1) Setpoints should be ideally in the middle of the switching pressure range. Reference pressure = atmospheric pressure. Switching pressure must not exceed the indicated values.

*2) Max. values

*3) Static seal: o-ring (NBR)

*4) LABS free


*5) Plug 0570110 not included, please order separately.

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- Technical data 18D - electrical connection M12 x 1 acc. to IEC 947-5-2 plug not included, max. allowable voltage 30 V

Symbol	Pressure range *6) (bar)	Switching pressure difference (bar)		Max. over pressure *7) (bar)	Switching cycles (1/min)	Materials pressure sensor		Port size	Weight (kg)	Dimension No.	Model
		Lower range	Upper range			Housing	Sealing				
	-1 ... 0	0,15	0,18	80	100	AL	FKM	G1/4	0,2	1	0880149 *8) *9)
	-1 ... 0	0,15	0,18	80	100	AL	FKM	G1/4	0,2	1	0880160 *8)
	0,2 ... 2	0,20	0,35	80	100	AL	FKM	G1/4	0,2	1	0880260 *8)
	0,5 ... 8	0,35	0,85	80	100	AL	FKM	G1/4	0,2	2	0880360 *8)
	1 ... 16	0,40	1,20	80	100	AL	FKM	G1/4	0,2	2	0880460 *8)
	1 ... 30	1,00	5,00	80	100	AL	FKM	G1/4	0,3	2	0880660 *8)
	-1 ... 0	0,15	0,18	80	100	AL	FKM	Flange	0,2	3	0881160 *8)
	0,2 ... 2	0,20	0,35	80	100	AL	FKM	Flange	0,2	3	0881260
	0,5 ... 8	0,35	0,85	80	100	AL	FKM	Flange	0,2	3	0881360 *8)
	1 ... 16	0,40	1,20	80	100	AL	FKM	Flange	0,2	3	0881460 *8)


*6) Setpoints should be ideally in the middle of the switching pressure range. Reference pressure = atmospheric pressure. Switching pressure must not exceed the indicated values.

*7) Max. values

*8) LABS free

*9) Switching function reversed



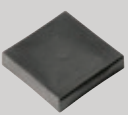





- Technical data 18D - versions for water applications
Electrical connection acc. to DIN EN 175301-803, form A

Symbol	Pressure range *10) (bar)	Switching pressure difference (bar)		Max. over pressure *11) (bar)	Switching cycles (1/min)	Materials pressure sensor		Port size	Weight (kg)	Dimension No.	Model
		Lower range	Upper range			Housing	Sealing				
	0,2 ... 2	0,20	0,35	80	100	Brass	FKM	G1/4	0,2	1	0880219
	0,2 ... 2	0,20	0,35	80	100	Brass	FKM	1/4 NPT	0,2	1	0880240
	0,5 ... 8	0,35	0,85	80	100	Brass	FKM	G1/4	0,2	2	0880323
	0,5 ... 8	0,35	0,85	80	100	Brass	FKM	1/4 NPT	0,2	2	0880340

*10) Setpoints should be ideally in the middle of the switching pressure range. Reference pressure = atmospheric pressure. Switching pressure must not exceed the indicated values.

*11) Max. values

● Accessories

Pressure port Reducing nipple	Surge damper	Cover (Via adjustment screw)	Connector	Connector M 12 x 1 90°	Connector M 12 x 1 90°	Connector M 12 x 1 straight	Connector M 12 x 1 straight
							
0574767	0574773	0554737	0570110	0523058	0523056	0523057	0523055
(Brass)	(Brass)			(2 m cable, 4-core)	(90° without cable)	(2 m cable, 4-core)	(Without cable)
0550083	0553258			0523053		0523052	
(Stainless steel)	(Stainless steel)			(5 m cable, 4-core)		(5 m cable, 4-core)	

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● Switching capacity – commutator with gold plated contacts

Current type	Load type *13)	U min [V]	Max. permanent current I _{max} [A] at U *12) (UL & CSA) M 12x1 DIN EN 175301-803, form A 30 V30 V48 V 125 V250 V					Contact life
AC	Ohmic, inductive	6	0,1	0,1	0,1	0,1	0,1	≥ 2 x 105 switching cycles
DC	Ohmic, inductive	6	0,1	—	—	—	—	

Reference number: 20/min, reference temperature: +20°C.
I_{min} = 1 mA at 24 V DC or 5 mA at 6 V DC

*12) Higher currents (5 A max) will cause a reduction of the durability of the micro-switch contacts. Furthermore additional measurements have to be taken to fulfil the EMV regulation 2004/108/EG by the manufacturer.

*13) Spark quenching/overload protection will be necessary using inductive loads.

● Recommended circuit – spark quenching and EMV intrinsically safe

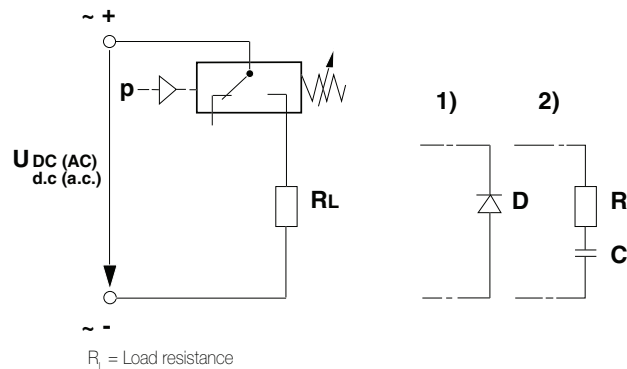
1. Quick diode (D) with t_v ≤ 200 ns, parallel to inductive load

2. RC link in parallel to load in parallel to switching contact

Dimensioning principles

$$R_L \text{ in } \Omega \approx 0,2 \times R_{L_{load}} \text{ in } \Omega$$

$$C \text{ in } [\mu\text{F}] \approx I_{L_{load}} \text{ in } [\text{A}]$$



● Switching function



Plug DIN EN 175301-803, form A
Microswitch SPDT
Terminals 1 - 3:
Contacts close on rising pressure.
Terminals 1 - 2:
Contacts open on rising pressure.



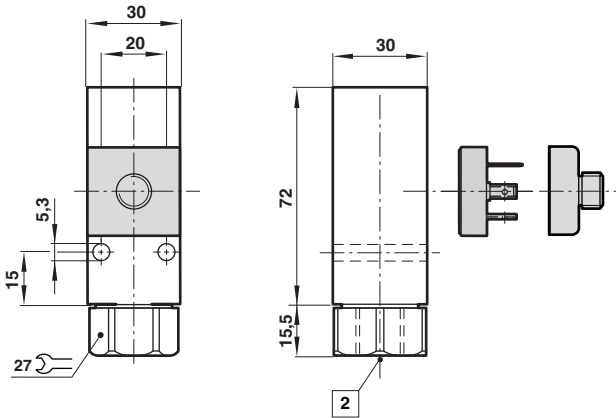
Switching function IEC 947-5-2, M12 x 1:
Microswitch SPDT
Terminals 1 - 4:
Contacts close on rising pressure.
Terminals 1 - 2:
Contacts open on rising pressure.

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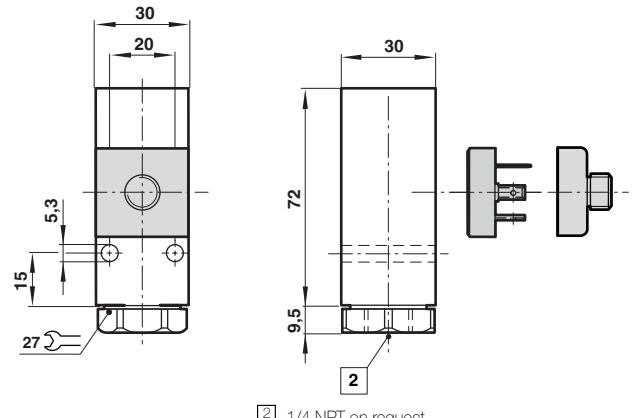
Pneumatic pressure switches
Electromechanically actuated, -1 ... 30 bar G1/4, 1/4 NPT and flange

● Dimensions

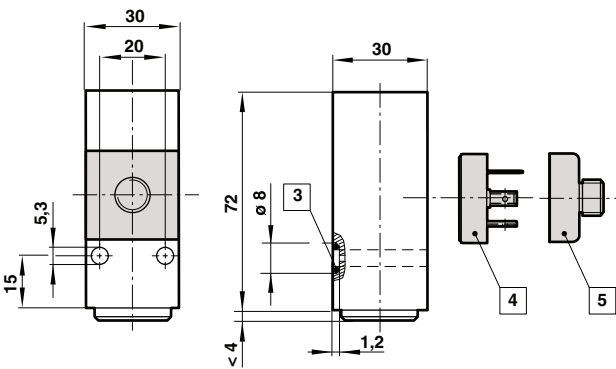
1



2

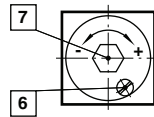


3



Adjustable switch point

After releasing the locking screw
Clockwise rotation = increasing switch point
Anti-clockwise rotation = decreasing the switch point

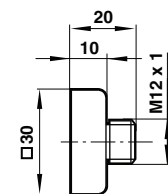
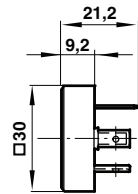


- 7 Switch point screw
- 6 Locking screw

Electrical connection for plug according to DIN EN 175301-803, form A

Electrical connection M12 x 1

- 3 O-ring 5 x 1,5
- 4 Electrical connection for plug according to DIN EN 175301-803, form A
- 5 Electrical connection M12 x 1

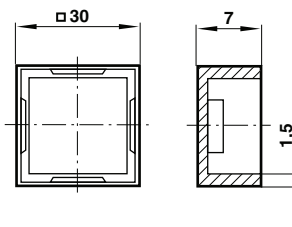
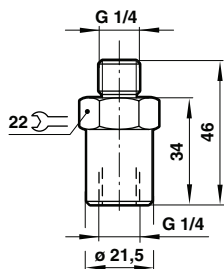
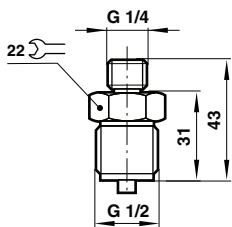


Accessories

Pressure port/
Reducing nipple
Material: Brass
Model: 0574767

Surge damper
Material: Brass
Model: 0574773

Cover
Material: Polymer
Model: 0654737



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Pneumatic pressure switches

Electromechanically actuated, -1 ... 10 bar, G1/8

- System pressure (unit bar, psi, Mpa, KPa, kgf/cm², mmHg, InHg or mmH₂O) selectable
- High accuracy and resolution
- Switching status indicated by LED
- Output: 2 x PNP or 2 x NPN
- Versions with analogue output signal on request

Technical Data

Medium:
Compressed air, filtered, lubricated or non-lubricated

Pressure range:
-1 ... 10 bar
-1 ... 1 bar

Display:
3 1/2 digit LED

Mounting position:
Optional

Repeatability (switch output):
≤ ±0,2% of full scale (FS) ±1 digit
- without temperature sensitivity

Response time:
±2,5 ms

Shockproof:
100 g (980 m/s²), xyz

Vibrationproof:
88 g, 10 - 55 Hz, xyz

Degree of protection acc. to DIN 40050:
IP65 (with mounted dust proof protector)

Weight:
83 g

Temperature sensitivity:
≤ 2% of full scale (FS) of detected pressure

Ambient/Media temperature:
0 ... +50°C

Storage temperature:
-20 ... +60°C
No condensation or freezing

Electronical Parameters

Electrical connection:
M12 x 1

Power supply:
12 ... 24 V d.c.
24 V d.c. (PNP) maximum
30 V d.c. (NPN) maximum

Residual voltage:
≤ 1 V (load current 80 mA)

Permissible residual ripple:
10% or less (P-P)

Current consumption:
≤ 50 mA

Load current:
80 mA maximum (with output short circuit protection)

Switching mode:
PNP or NPN

Indicator:
Green LED (OUT1), red LED (OUT2)

Insulation resistance:
50 MΩ min (at 500 V d.c. (between case and lead wire))

Electromagnetic compatibility:
According to EN 61326-1



Materials

Body:
PC

● Technical data 51D

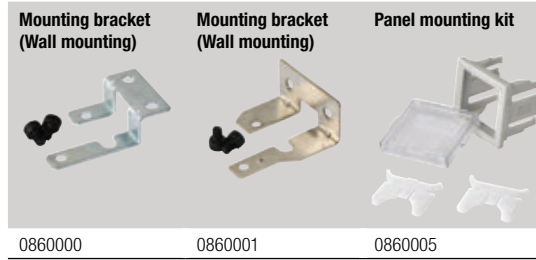
Symbol	Port size	Switching pressure range (bar)	Over pressure *1) (bar)	Output signal	Model
	G 1/8	-1 ... 10	15	2 x PNP	0860810
	G 1/8	-1 ... 10	15	2 x NPN	0860815
	G 1/8	-1 ... 1	3	2 x PNP	0860820
	G 1/8	-1 ... 1	3	2 x NPN	0860825

*1) 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.

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Pneumatic pressure switches
Electromechanically actuated, -1 ... 10 bar G1/8

● Accessories



0860000

0860001

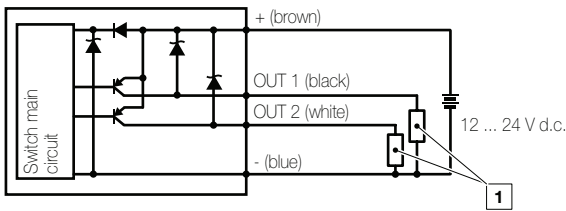
0860005

● Electrical connection M12 x 1

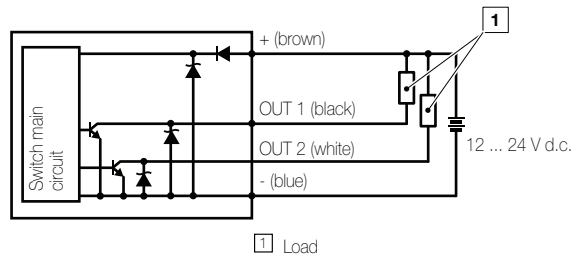
	PIN-No.	Signal	Cable
	1	+ UB	Brown
	2	Out 2	White
	3	-	Blue
	4	Out 1	Black

● Dimensions

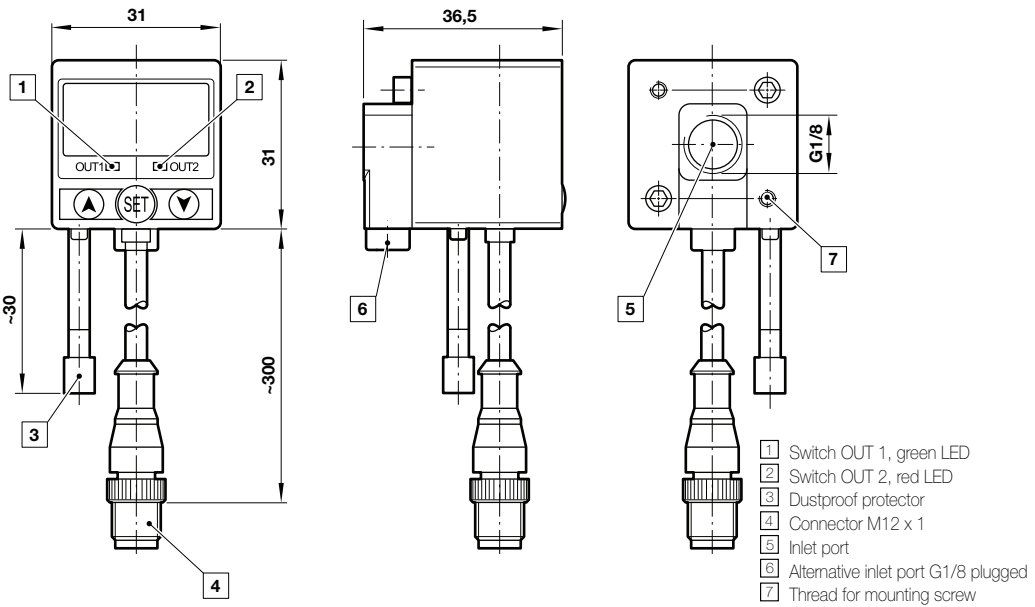
PNP



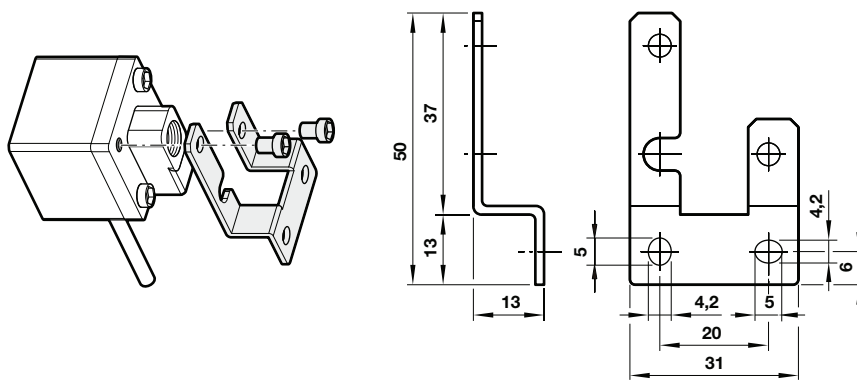
NPN



Pressure switch



Mounting bracket
(Wall mounting)

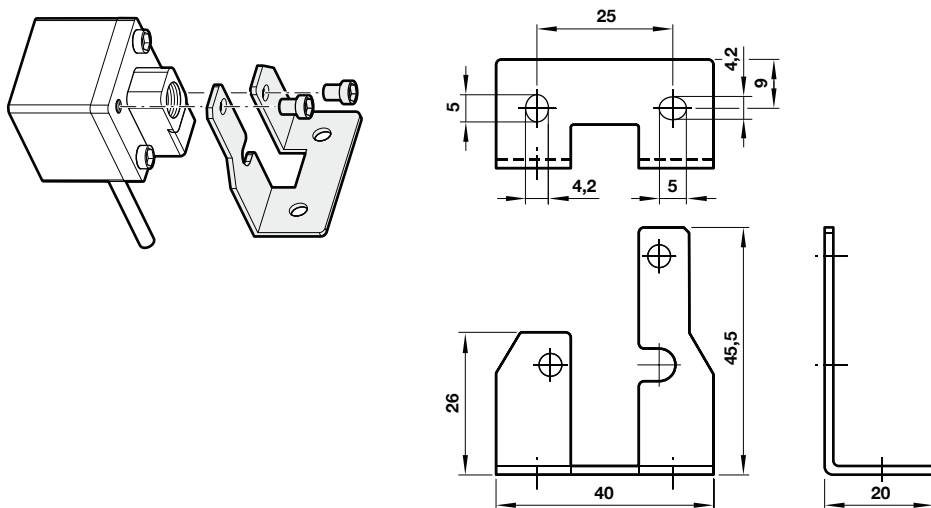


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Electromechanically actuated, -1 ... 10 bar G1/8

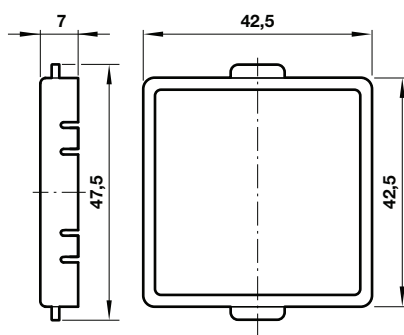
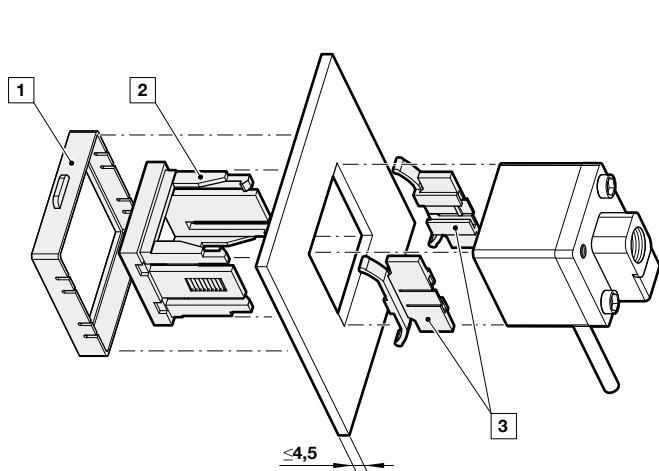
● Dimensions

Mounting bracket
(Bottom mounting)

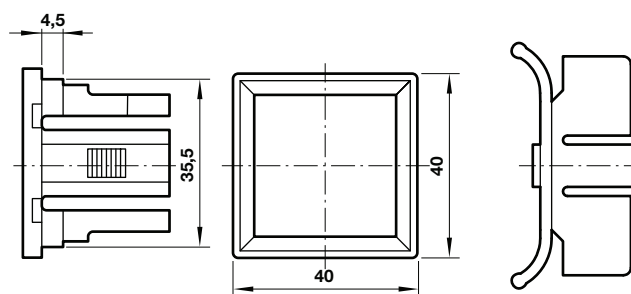


Panel mounting kit

Front protective lid



Panel adaptor



- 1 Front protection lid
- 2 Panel adaptor
- 3 Safety adaptors