



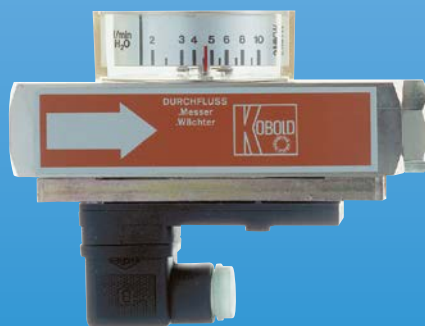
## Flow Meters and Switches

Flow Direction: Horizontal  
or from Top to Bottom



measuring  
•  
monitoring  
•  
analysing

### SMW/SMO



- Measuring range:  
0.2 - 3 ... 10 - 120 l/min water
- Accuracy:  $\pm 5\%$  of full scale
- $p_{\max}$ : 350 bar;  $t_{\max}$ : 100 °C
- Connection:  
G 1/4 ... G 1 female  
1/4" NPT ... 3/4" NPT female
- Material: brass or stainless steel

S2



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### Description

The KOBOLD flow meters and switches models SMW-.. and SMO-.. operate in the same way as the flow meter model SMV-... The extra advantage of universal mounting has been added, that is, the direction of flow can be horizontal (model SMW-..) as well as from top to bottom (model SMO-..). This is achieved with a return spring.

### SMW and SMO versions

Six versions are available

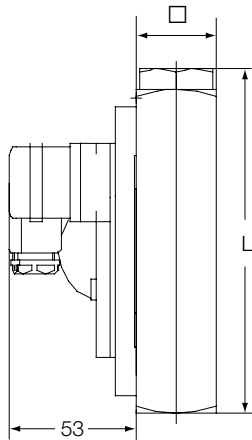
Direction of flow: horizontal

1. SMW-1... Flow switch
2. SMW-2... Flow meter
3. SMW-3... Flow meters and switches

Direction of flow: from top to bottom

4. SMO-1... Flow switch
5. SMO-2... Flow meter
6. SMO-3... Flow meters and switches

### Dimensions [mm]



Model	Square [mm]	Thread G	L [mm]	Weight [kg]
SMx-..01	30 x 30	¼ (½*)	132 (136*)	1
SMx-..03	30 x 30	¼ (½)	132 (136)	1
SMx-..05	30 x 30	¼ (½)	132 (136)	1
SMx-..07	30 x 30	¼ (½)	132 (136)	1
SMO-..09	30 x 30	¼ (½)	132 (136)	1
SMW-..09	30 x 30	½	150	1
SMO-..11	30 x 30	¼ (½)	156 (150)	1.7
SMW-..11	40 x 40	¾ (1)	156 (150)	1.7
SMO-..13	30 x 30	½	150	1
SMW-..13	40 x 40	¾ (1)	156 (150)	1.7
SMO-..15	40 x 40	¾ (1)	156 (150)	1.7
SMO-..17	40 x 40	¾ (1)	156 (150)	1.7

### Technical Details

Housing:	SMx-x1...: brass, Ms 58 SMx-x2...: stainless steel, 1.4301
Connections:	SMx-x1...: brass, Ms 58 SMx-x2...: stainless steel, 1.4301
Float:	SMx-x1...: brass, Ms 58 SMx-x2...: stainless steel, 1.4301
Slotted nozzle:	SMx-x1...: brass, Ms 58 SMx-x2...: stainless steel, 1.3955
Seals:	SMx-x1...: NBR SMx-x2...: FPM
Spring:	stainless steel 1.4310
Max. temperature:	100 °C
Max. pressure:	SMx-x1...: 250 bar SMx-x2...: 350 bar
Installation position:	SMW: horizontal SMO: vertical, flow from top
Accuracy:	± 5% of full scale
Reproducibility:	≤1%

### Contacts for SMW-1.., SMW-3.. and SMO-1.., SMO-3..

Electrical connection: 2 m cable (SMx-...F0...)  
with all other types:  
connector DIN EN 175301-803

Electrical switching values:

N/O contact  
max. 250V<sub>AC/DC</sub>/1.5A/100W/100VA  
changeover contact  
max. 250V<sub>AC/DC</sub>/1A/30W/60VA  
N/O contact and  
changeover contact (cCSAus)  
max. 230V<sub>DC</sub>/0.26A/60W,  
60V<sub>DC</sub>/1A/60W,  
max. 240V<sub>AC</sub>/0.42A/100W,  
100V<sub>AC</sub>/1A/100W  
N/O contact (EX):  
II 2G Ex mb IIC T6 Gb  
II 2D Ex mb IIC T80°C Db IP67  
max. 250V<sub>AC</sub>/1.5A/100VA

Ex-range: ATEX-zone 1 as »simple apparatus«  
or with N/O contact Ex

Protection: IP 65 (electr. contact)  
IP 54 (side indicator)

### Applications

- Lubrication circuits
- Paper-making machines
- Machine tools
- Glass-melting tanks
- Cooling circuits
- Welding machines
- Induction furnaces
- Pumps



Order Details

Flow switches with 1 contact, flow from top model: SMO-1... (Example: SMO-1101H R0 R08)

Measuring range l/min water	Pressure loss Δ P (bar)	Brass	Stainless steel	Contact	Connection female thread	
					..R08 = G ¼	..N08 = ¼" NPT
0.2...3	0.2	SMO-1101H...	SMO-1201H...	..R0.. = 1 N/O contact	..R08 = G ¼	..N08 = ¼" NPT
1...4.5	0.2	SMO-1103H...	SMO-1203H...	..U0.. = 1 changeover contact		
1...7.5	0.3	SMO-1105H...	SMO-1205H...	..F0.. = 1 Ex N/O contact	..R15 = G ½	..N15 = ½" NPT
1...14	0.4	SMO-1107H...	SMO-1207H...	..C0.. = 1 N/O contact (cCSAus)		
2...18	0.2	SMO-1109H...	SMO-1209H...	..D0.. = 1 changeover contact (cCSAus)	..R15 = G ½	..N15 = ½" NPT
7...25	0.4	SMO-1111H...	SMO-1211H...	..RR.. = 2 N/O contact		
10...60	0.7	SMO-1113H...	SMO-1213H...	..UU.. = 2 changeover contact	..R20 = G ¾	..N20 = ¾" NPT
10...90	0.5	SMO-1115H...	SMO-1215H...	..CC.. = 2 N/O contact (cCSAus)		
10...120	0.5	SMO-1117H...	SMO-1217H...	..DD.. = 2 changeover contact (cCSAus)	..R25 = G 1	..N25 = 1" NPT

Flow meter, flow from top model: SMO-2... (Example: SMO-2107H 00 R08)

Measuring range l/min water	Pressure loss Δ P (bar)	Brass	Stainless steel	Contact	Connection female thread	
					..R08 = G ¼	..N08 = ¼" NPT
0.2...3	0.2	SMO-2101H...	SMO-2201H...	..00.. = without contact	..R08 = G ¼	..N08 = ¼" NPT
1...4.5	0.2	SMO-2103H...	SMO-2203H...			
1...7.5	0.3	SMO-2105H...	SMO-2205H...		..R15 = G ½	..N15 = ½" NPT
1...14	0.4	SMO-2107H...	SMO-2207H...		..R15 = G ½	..N15 = ½" NPT
2...18	0.2	SMO-2109H...	SMO-2209H...			
7...25	0.4	SMO-2111H...	SMO-2211H...		..R20 = G ¾	..N20 = ¾" NPT
10...60	0.7	SMO-2113H...	SMO-2213H...			
10...90	0.5	SMO-2115H...	SMO-2215H...		..R25 = G 1	..N25 = 1" NPT
10...120	0.5	SMO-2117H...	SMO-2217H...			

Flow meters and switches with 1 contact, flow from top model: SMO-3... (Example: SMO-3101H R0 R08)

Measuring range l/min water	Pressure loss Δ P (bar)	Brass	Stainless steel	Contact	Connection female thread	
					..R08 = G ¼	..N08 = ¼" NPT
0.2...3	0.2	SMO-3101H...	SMO-3201H...	..R0.. = 1 N/O contact	..R08 = G ¼	..N08 = ¼" NPT
1...4.5	0.2	SMO-3103H...	SMO-3203H...	..U0.. = 1 changeover contact		
1...7.5	0.3	SMO-3105H...	SMO-3205H...	..F0.. = 1 Ex N/O contact	..R15 = G ½	..N15 = ½" NPT
1...14	0.4	SMO-3107H...	SMO-3207H...	..C0.. = 1 N/O contact (cCSAus)		
2...18	0.2	SMO-3109H...	SMO-3209H...	..D0.. = 1 changeover contact (cCSAus)	..R15 = G ½	..N15 = ½" NPT
7...25	0.4	SMO-3111H...	SMO-3211H...	..RR.. = 2 N/O contact		
10...60	0.7	SMO-3113H...	SMO-3213H...	..UU.. = 2 changeover contact	..R20 = G ¾	..N20 = ¾" NPT
10...90	0.5	SMO-3115H...	SMO-3215H...	..CC.. = 2 N/O contact (cCSAus)		
10...120	0.5	SMO-3117H...	SMO-3217H...	..DD.. = 2 changeover contact (cCSAus)	..R25 = G 1	..N25 = 1" NPT



Order Details

Flow switches with 1 contact, horizontal flow model: SMW-1... (Example: SMW-1101H LR0 R08)

Measuring range l/min water	Pressure loss Δ P (bar)	Brass	Stainless steel	Direction of flow	Contact	Connection female thread			
0.5...3.5	0.2	SMW-1101H...	SMW-1201H...	..L = from left ..R = from right	..R0.. = 1 N/O contact ..U0.. = 1 changeover contact ..F0.. = 1 Ex N/O contact ..C0.. = 1 N/O contact (cCSAus) ..D0.. = 1 changeover contact (cCSAus) ..RR.. = 2 N/O contact ..UU.. = 2 changeover contact ..CC.. = 2 N/O contact (cCSAus) ..DD.. = 2 changeover contact (cCSAus)	..R08 = G ¼	..N08 = ¼" NPT		
2...9	0.4	SMW-1103H...	SMW-1203H...					..R15 = G ½	..N15 = ½" NPT
2.5...15	0.5	SMW-1105H...	SMW-1205H...						
3.5...24	0.3	SMW-1107H...	SMW-1207H...			..R15 = G ½	..N15 = ½" NPT		
10...60	0.7	SMW-1109H...	SMW-1209H...						
5...90	0.6	SMW-1111H...	SMW-1211H...					..R20 = G ¾	..N20 = ¾" NPT
10...120	0.6	SMW-1113H...	SMW-1213H...						

Flow meter, horizontal flow model: SMW-2... (Example: SMW-2101H L00 R08)

Measuring range l/min water	Pressure loss Δ P (bar)	Brass	Stainless steel	Direction of flow	Contact	Connection female thread			
0.5...3.5	0.2	SMW-2101H...	SMW-2201H...	..L = from left ..R = from right	..00.. = without contact	..R08 = G ¼	..N08 = ¼" NPT		
2...9	0.4	SMW-2103H...	SMW-2203H...					..R15 = G ½	..N15 = ½" NPT
2.5...15	0.5	SMW-2105H...	SMW-2205H...						
3.5...24	0.3	SMW-2107H...	SMW-2207H...			..R15 = G ½	..N15 = ½" NPT		
10...60	0.7	SMW-2109H...	SMW-2209H...						
5...90	0.6	SMW-2111H...	SMW-2211H...					..R20 = G ¾	..N20 = ¾" NPT
10...120	0.6	SMW-2113H...	SMW-2213H...						

Flow meters and switches with 1 contact, horizontal flow model: SMW-3... (Example: SMW-3101H RR0 R08)

Measuring range l/min water	Pressure loss Δ P (bar)	Brass	Stainless steel	Direction of flow	Contact	Connection female thread			
0.5...3.5	0.2	SMW-3101H...	SMW-3201H...	..L = from left ..R = from right	..R0.. = 1 N/O contact ..U0.. = 1 changeover contact ..F0.. = 1 Ex N/O contact ..C0.. = 1 N/O contact (cCSAus) ..D0.. = 1 changeover contact (cCSAus) ..RR.. = 2 N/O contact ..UU.. = 2 changeover contact ..CC.. = 2 N/O contact (cCSAus) ..DD.. = 2 changeover contact (cCSAus)	..R08 = G ¼	..N08 = ¼" NPT		
2...9	0.4	SMW-3103H...	SMW-3203H...					..R15 = G ½	..N15 = ½" NPT
2.5...15	0.5	SMW-3105H...	SMW-3205H...						
3.5...24	0.3	SMW-3107H...	SMW-3207H...			..R15 = G ½	..N15 = ½" NPT		
10...60	0.7	SMW-3109H...	SMW-3209H...						
5...90	0.6	SMW-3111H...	SMW-3211H...					..R20 = G ¾	..N20 = ¾" NPT
10...120	0.6	SMW-3113H...	SMW-3213H...						