

Flow Switches

for monitoring the flow rates of liquids or gaseous media

Applications

- Engineering
- Chemical- / pharmaceutical industry
- Medical technology
- Research and development

Technical Advantages

- High switching repeatability
- High operational reliability
- Small switching hysteresis
- Fully adjustable switch point
- Wide switch range
- Solid industrial design
- Available with viscosity compensation

General Description

KSR KUEBLER Flow Switches are used to monitor and display the flow rates of liquids or gaseous media e.g. in cooling systems of welding machines, pumps, compressors, hydraulic systems etc.



Measuring Principle

KSR KUEBLER Flow Switches are based on the variable-area flowmeter principle. A float with integrated permanent magnets is guided within a slotted tube. A reed contact is contained in an adjustable switch housing on the outside of the flowmeter body. The in-flowing medium moves the float in the direction of the flow. As soon as the float with its magnets reaches the contact position, the switch is activated. If the flow rate increases further, the float will continue to move until it reaches a built-in stop. This stop prevents the float from moving out of the switch range. The switch will stay closed until the flow rate drops below the selected flow rate (bistable behaviour).

Technical Data

Switch Range

All KSR KUEBLER Flow Switches are equipped with a normally open contact as a standard. The switch point can be adjusted to anywhere within the switch range. The actual flow rate can be much higher than the switch range (typically double).

Mounting Orientation

KSR KUEBLER Flow Switches type DWG, DWM and DWM/A must be mounted vertically with the flow direction from bottom to top. All other types can be mounted in any position but care has to be taken to ensure the correct flow direction.

Switching Hysteresis

Hysteresis is the differential between the switch closing and opening again. The difference is the result of the movement required by the float to close and open the contact. The smaller the hysteresis, the more accurate is the output of the flow switch. By selecting certain magnets and reed

contacts with particularly fine tolerances, KSR KUEBLER Flow Switches provide a minimal hysteresis. This is of advantage in all high precision applications.

Display

Local displays are available. On KSR KUEBLER Flow Switches with sight glass, the top edge of the float serves to indicate the flow rate on the measuring scale. The flow rate on types with a needle indicator can be read off on the supplied scale. Please note, that all scales are calibrated for a certain medium.

Installation

KSR KUEBLER Flow Switches require very little maintenance work. Please clean the flow switch in regular intervals if it is subject to media that contain magnetic particles. These intervals can be extended when filters with magnetic retainers are used.

Flow switches work flow dependent and not pressure dependent.

Approvals



ATEX 94/9/EC
PED 97/23/EC



GOST

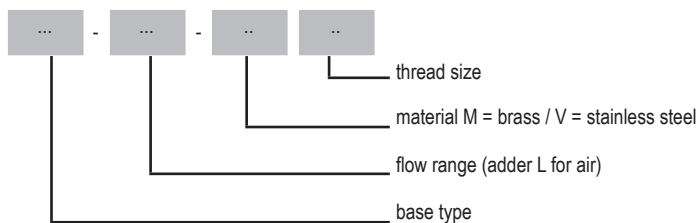


Gosgortekhnadzor OGS
Oil & Gas Safety

Content

Base type	Mounting orientation	Display	Viscosity compensation	Pressure range max. (bar)	Switch range (l/min H ₂ O)	(Nl/min Luft)	Page
DWG	vertical	sight glass	no	10	0,1 - 50	3 - 1600	4
DWM/A	vertical	needle indicator	no	300	0,1 - 50	1 - 1450	5
DWM	vertical	without	no	300	0,1 - 50	1 - 1450	6
DUG	universal	sight glass	no	10	0,2 - 250	-	7
DUM/A	universal	needle indicator	no	300	0,2 - 250	-	8
DKG	universal	sight glass	yes	16	0,5 - 90	-	9
DKM/A	universal	needle indicator	yes	300	0,1 - 110	-	10
DKM	universal	without	yes	350	0,5 - 110	-	11
RVO/U	universal	sight glass	no	16	0,005 - 150	-	12
RVO/U-L	universal	sight glass	no	16	-	0,2 - 625	13
RVM/U	universal	without	no	350	0,005 - 150	-	14
RVM/U-L	universal	without	no	350	-	0,6 - 650	15

Typencode



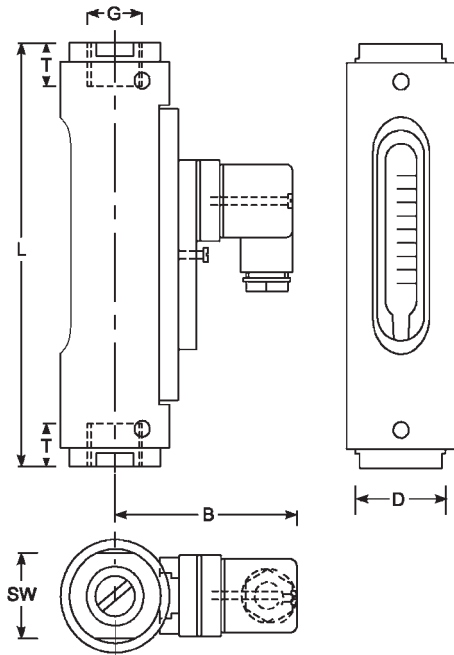
e.g. **DWG** **1,5** **V** **1/2"** = type DWG, flow range 0.1 - 1.5 l/min Water, stainless steel, threaded BSP 1/2"

Materials

All types can be supplied in 2 different material-designs:

Components	Brass design	Stainless steel design
Float	brass nickel-plated	1.4571
Slotted tube	brass nickel-plated	1.4571
Spring	1.4310 (DUG, DUM/A, DKG, DKM/A, DKM, RVO/U, RVM/U, RVO/U-L, RVM/U-L only)	1.4571
Process connection	brass nickel-plated	1.4571
Sight glass	Duran 50 (DWG, DUG, DKG and RVO/U only)	
Gaskets	Perbunan, Viton or EPDM	

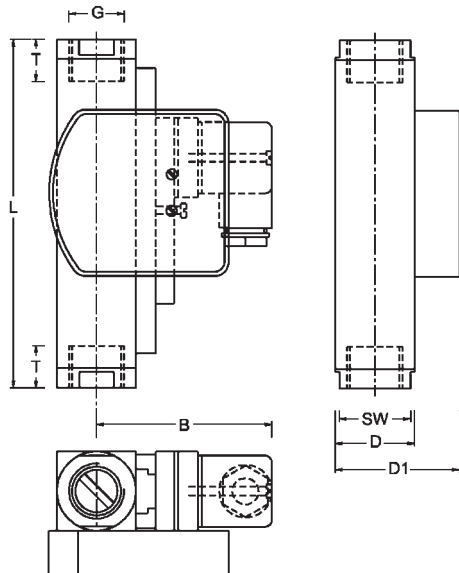
Flow Switches DWG



Operating Data		
Material	brass nickel-plated or stainless steel 316 Ti (1.4571) outer cover aluminium anodized	
Orientation	vertical	
Pressure (bar)	10	
Pressure drop (bar)	0,01 - 0,2	
Temperature max. (°C)	100 (160 optional)	
Accuracy	± 5 % FS	
Electrical Data		
	SPST	SPDT
Standard	250 V / 3 A / 100 VA	250 V / 1,5 A / 50 VA
EEx m II T6	250 V / 2 A / 60 VA ATEX II 2G Ex mb II T6	250 V / 1 A / 30 VA
Electrical connection	coupler plug to DIN 43650	
Housing protection	IP 65	

Type	Switch range l/min		Dimensions in mm						Weight approx. g
	H ₂ O	Air	SW	D	B	G	T	L	
DWG - 1,5	0,1 - 1,5	3 - 30	32	43	73	1/4"	14	132	625
DWG - 3	0,2 - 3,0	6 - 60				3/8"	14	135	
DWG - 8	0,3 - 8,0	6 - 160				1/2"	15	135	
DWG - 12	1 - 12	20 - 220							
DWG - 18	2 - 18	40 - 360	32	43	73	1/2" 3/4"	15 16	163 167	650
DWG - 35	3 - 35	60 - 700	41	50	76	3/4"	18	164	850
DWG - 50	4 - 50	60 - 825				1"	19	184	

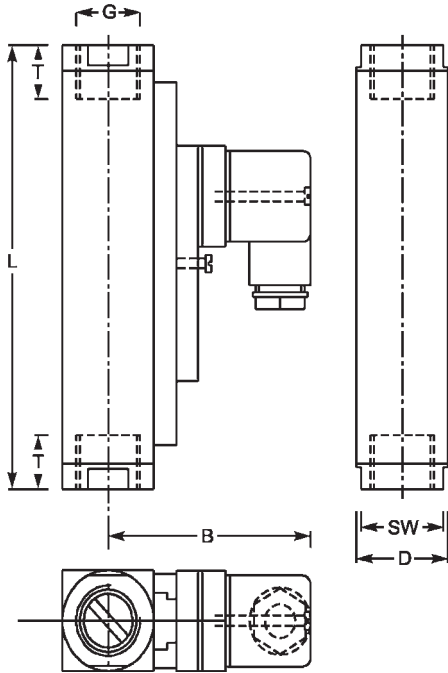
Flow Switches DWM/A



Operating Data		
Material	brass nickel-plated or stainless steel 316 Ti (1.4571)	
Orientation	vertical	
Pressure (bar)	200 (stainless steel 300)	
Pressure drop (bar)	0,02 - 0,4	
Temperature max. (°C)	100 (160 optional)	
Accuracy	± 5 % FS	
Electrical Data		
	SPST	SPDT
Standard	250 V / 3 A / 100 VA	250 V / 1,5 A / 50 VA
EEx m II T6	250 V / 2 A / 60 VA ATEX II 2G Ex mb II T6	250 V / 1 A / 30 VA
Electrical connection	coupler plug to DIN 43650	
Housing protection	IP 65	

Type	Switch range l/min		Dimensions in mm							Weight approx. g
	H ₂ O	Air	SW	D	D1	B	G	T	L	
DWMA - 1,5	0,1 - 1,5	1 - 28	27	30	47	71	1/4" 3/8" 1/2"	14	131	850
DWMA - 3	0,2 - 3,0	4 - 60						19		
DWMA - 8	0,3 - 8,0	6 - 160						19		
DWMA - 12	1 - 12	20 - 240								
DWMA - 18	2 - 18	40 - 360	27 32	30 35	47	71	1/2" 3/4"	19 17	148 174	800 1010
DWMA - 35	3 - 35	-	34 40	76	57	76	3/4" 1"	18	156	1500
DWMA - 50	4 - 50	60 - 700						19		

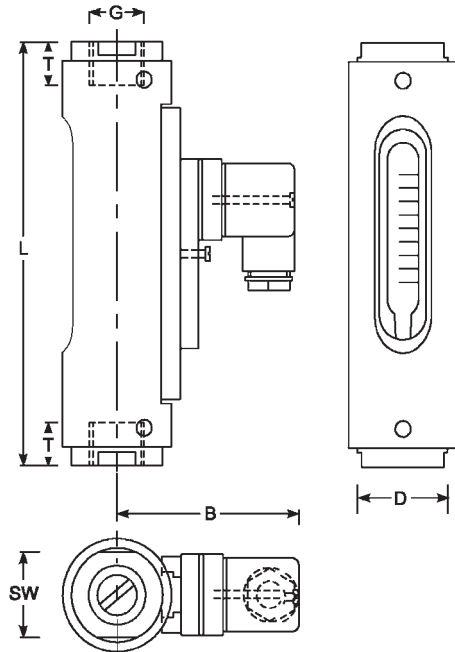
Flow Switches DWM



Operating Data		
Material	brass nickel-plated or stainless steel 316 Ti (1.4571)	
Orientation	vertical	
Pressure (bar)	200 (stainless steel 300)	
Pressure drop (bar)	0,02 - 0,4	
Temperature max. (°C)	100 (160 optional)	
Accuracy	± 5 % FS	
Electrical Data		
	SPST	SPDT
Standard	250 V / 3 A / 100 VA	250 V / 1,5 A / 50 VA
EEx m II T6	250 V / 2 A / 60 VA ATEX II 2G Ex mb II T6	250 V / 1 A / 30 VA
Electrical connection	coupler plug to DIN 43650	
Housing protection	IP 65	

Type	Switch range l/min		Dimensions in mm						Weight approx. g
	H ₂ O	Air	SW	D	B	G	T	L	
DWM - 1,5	0,1 - 1,5	1 - 28	27	30	71	1/4" 3/8" 1/2"	14	131	800
DWM - 3	0,2 - 3	4 - 60					19		
DWM - 8	0,3 - 8	6 - 160					19		
DWM - 12	1 - 12	20 - 240					19		
DWM - 18	2 - 18	40 - 360	27 32	30 30	71	1/2" 3/4"	19 17	148 174	800 960
DWM - 35	3 - 35	-	34	40	76	3/4"	18	152	1450
DWM - 50	4 - 50	60 - 700	40			1"	19	156	1450

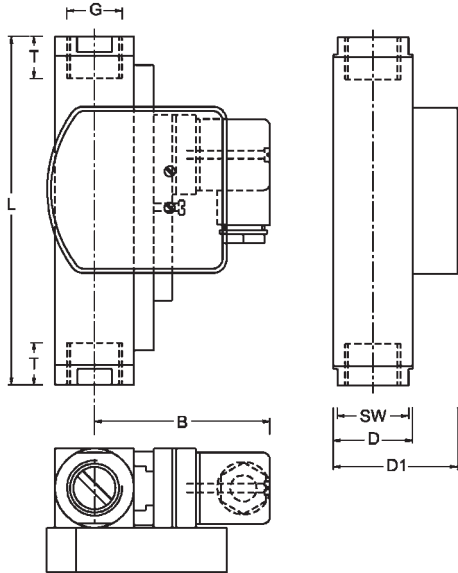
Flow Switches DUG



Operating Data		
Material	brass nickel-plated or stainless steel 316 Ti (1.4571) outer cover aluminium anodized	
Orientation	universal mounting	
Pressure (bar)	10	
Pressure drop (bar)	0,02 - 0,8	
Temperature max. (°C)	100 (160 optional)	
Accuracy	± 5 % FS	
Electrical Data	SPST	SPDT
Standard	250 V / 3 A / 100 VA	250 V / 1,5 A / 50 VA
EEx m II T6	250 V / 2 A / 60 VA ATEX II 2G Ex mb II T6	250 V / 1 A / 30 VA
Electrical connection	coupler plug to DIN 43650	
Housing protection	IP 65	

Type	Switch range l/min		Dimensions in mm						Weight approx. g
	H ₂ O	Air	SW	D	B	G	T	L	
DUG - 4	0,2 - 4	not suitable for gases	32	43	73	1/4"	14	132	625
DUG - 6	0,5 - 6					3/8"	14	132	
DUG - 8	0,5 - 8					1/2"	15	135	
DUG - 14	0,5 - 14		32	43	73	1/2"	15	135	650
DUG - 22	2 - 22								
DUG - 28	1 - 28		32	43	73	3/4"	18	167	850
DUG - 45	1 - 45								
DUG - 80	2 - 80		41	50	76	3/4"	18	164	1000
DUG - 90	6 - 90							1"	
DUG - 110	6 - 110		41	50	76	1"	19	184	1000
DUG - 150	15 - 150								
DUG - 220	30 - 220		50	55	79	1 1/4"	21	216	1300
DUG - 250	35 - 250								
		55	60	81	1 1/4"	21	210	1700	
		50	55	79	1 1/4"	21	222	1400	

Flow Switches DUM/A



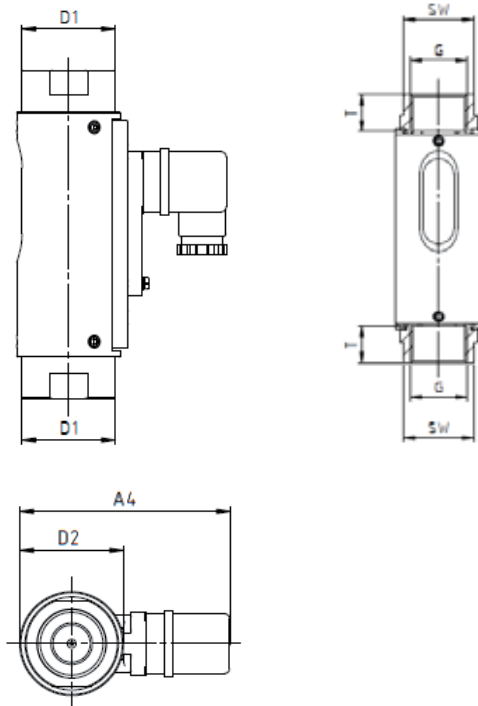
Betriebsdaten		
Material	brass nickel-plated or stainless steel 316 Ti (1.4571)	
Orientation	universal	
Pressure (bar)	200 (stainless steel 300)	
Pressure drop (bar)	0,02 - 0,8	
Temperature max. (°C)	100 (160 optional)	
Accuracy	± 5 % FS	
Electrical Data		
	SPST	SPDT
Standard	250 V / 3 A / 100 VA	250 V / 1,5 A / 50 VA
Ex m II T6	250 V / 2 A / 60 VA ATEX II 2G Ex mb II T6	250 V / 1 A / 30 VA
Electrical connection	coupler plug to DIN 43650	
Housing protection	IP 65	

Type	Switch range l/min		Dimensions in mm							Weight approx. g
	H ₂ O	Air	SW	D	D1	B	G	T	L	
DUMA - 4	0,2 - 4	not suitable for gases	27	30	47	71	1/4" 3/8" 1/2"	14	131	900
DUMA - 5	0,6 - 5									
DUMA - 8	0,5 - 8									
DUMA - 14	1 - 14									
DUMA - 28	1 - 28									
DUMA - 40	2 - 40		27	30	47	71	1/2"	14	146	950
DUMA - 55	4 - 55		32	35			3/4"	16	174	
DUMA - 70	1 - 70		34 40	40	57	76	3/4"	18	152	1450
DUMA - 90	8 - 90						1"	19	156	
DUMA - 110	5 - 110		50	50	57	76	1 1/4"	21	200	2800
DUMA - 150	10 - 150	50	50	67	81	1 1/4"	21	200	3050	
DUMA - 220	35 - 220	60	60	77	82	1 1/2"	24	200	3850	
DUMA - 250	35 - 250									

Flow Switches

DKG-1

viscosity compensated up to 600 mm²/s



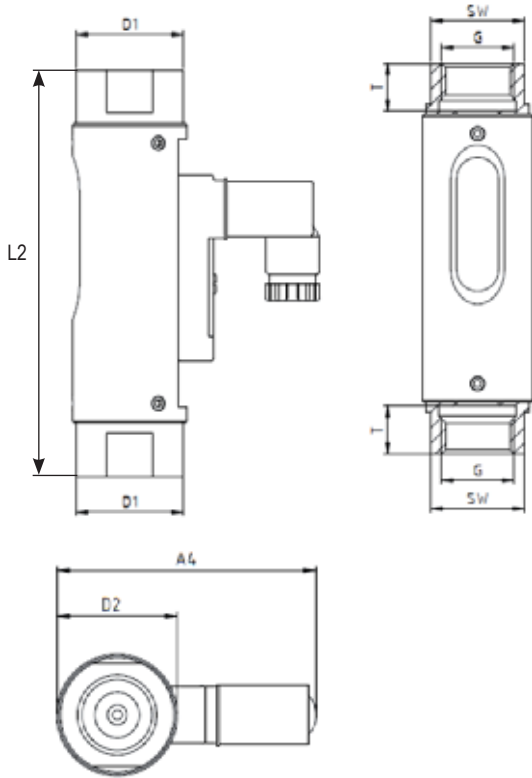
Operating Data		
Material	brass nickel-plated or stainless steel 316 Ti (1.4571) outer cover aluminium anodized	
Orientation	universal mounting	
Pressure (bar)	10 (DKG - 1) 16 (DKG - 2)	
Pressure drop (bar)	0,02 - 0,4 (DKG - 1) 0,02 - 0,2 (DKG - 2)	
Temperature max. (°C)	120 (160 optional)	
Accuracy	± 5 % FS	
Electrical Data		
	SPST	SPDT
Standard	250 V / 3 A / 100 VA	250 V / 1,5 A / 50 VA
Ex m II T6	250 V / 2 A / 60 VA ATEX II 2G Ex mb II T6	250 V / 1 A / 30 VA
Electrical connection	coupler plug to DIN 43650	
Housing protection	IP 65	

Type	Switch range l/min		Dimensions in mm								Weight ap- prox. g
	Oil	Air	SW	D1	D2	A4	G	T	L1	L2	
DKG -1/1	0,1 - 0,8	not suitable for gases	41	45	50	99	1/4" 1/2" 3/4" 1"	10 14 15 17	118,5	144,5 138,5 158,5	850
DKG -1/2	0,5 - 1,5										
DKG -1/4	1 - 4										
DKG -1/8	2 - 8										
DKG -1/10	3 - 10										
DKG -1/15	5 - 15										
DKG -1/24	8 - 24										
DKG -1/30	10 - 30										
DKG -1/45	15 - 45										
DKG -1/60	20 - 60										
DKG - 1/90	30 - 90	41	45	50	99	3/4" 1"	15 17	118,5	138,5 158,5	850	

Flow Switches

DKG-2

viscosity compensated up to 600 mm²/s



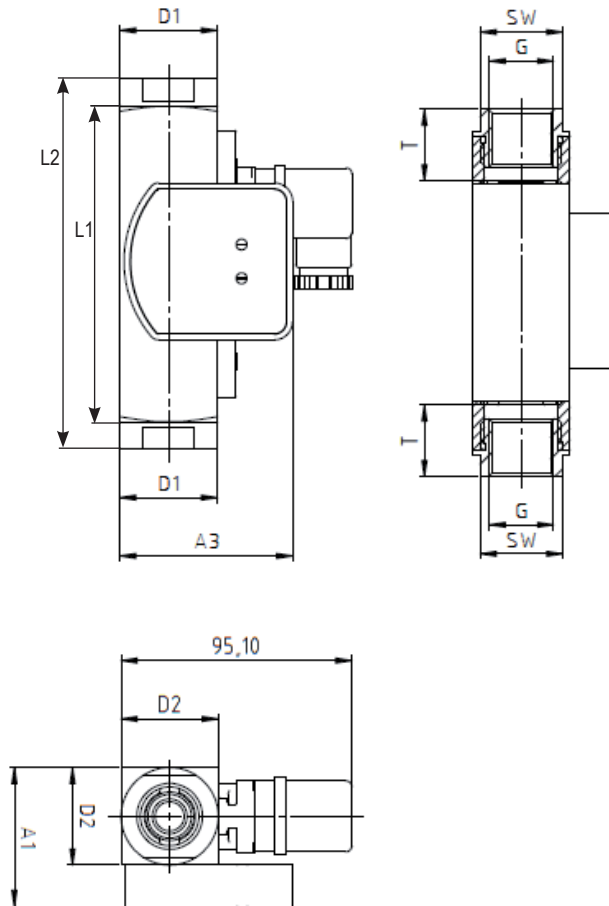
Operating Data	
Material	brass nickel-plated or stainless steel 316 Ti (1.4571) outer cover aluminium anodized
Orientation	universal mounting
Pressure (bar)	10 (DKG - 1) 16 (DKG - 2)
Pressure drop (bar)	0,02 - 0,4 (DKG - 1) 0,02 - 0,2 (DKG - 2)
Temperature max. (°C)	120 (160 optional)
Accuracy	± 5 % FS
Electrical Data	
	SPST SPDT
Standard	250 V / 3 A / 100 VA 250 V / 1,5 A / 50 VA
Ex m II T6	250 V / 2 A / 60 VA 250 V / 1 A / 30 VA ATEX II 2G Ex mb II T6
Electrical connection	coupler plug to DIN 43650
Housing protection	IP 65

Type	Switch range l/min		Dimensions in mm								Weight approx. g
	Oil	Air	SW	D1	D2	A4	G	T	L1	L2	
DKG -2/2	0,5 - 1,7	not suitable for gases	27	30	32	70	1/2"	14	84	114	300
DKG - 2/3	0,8 - 1,7										
DKG -2/4	1,3 - 4										
DKG -2/8	2,5 - 8										

Flow Switches

DKM/A

viscosity compensated up to 600 mm²/s



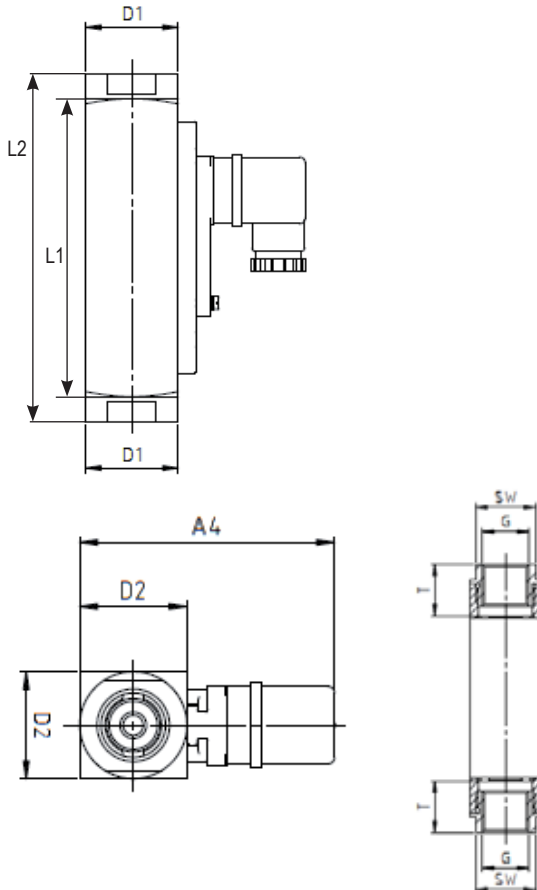
Operating Data		
Material	brass nickel-plated or stainless steel 316 Ti (1.4571)	
Orientation	universal mounting	
Pressure (bar)	250 (stainless steel 300)	
Pressure drop (bar)	0,02 - 0,4	
Temperature max. (°C)	120 (160 optional)	
Accuracy	± 10 % FS	
Electrical Data		
	SPST	SPDT
Standard	250 V / 3 A / 100 VA	250 V / 1,5 A / 50 VA
Ex m II T6	250 V / 2 A / 60 VA ATEX II 2G Ex mb II T6	250 V / 1 A / 30 VA
Electrical connection	coupler plug to DIN 43650	
Housing protection	IP 65	

Type	Switch range l/min		Dimensions in mm								Weight approx. g	
	Oil	Air	SW	D1	D2	A1	A3	G	T	L1		L2
DKM/A - 1/2	0,5 - 1,5	not suitable for gases	34	40	40	57	70,5	1/4"	10	130	152	1590
DKM/A - 1/4	1 - 4		1/2"					14	152		1515	
			3/4"					15	152		1430	
			1"					17	130		1250	
DKM/A - 1/8	2 - 8		34	40	40	57	70,5	1/2"	14	130	152	1515
DKM/A - 1/10	3 - 10		3/4"					15	152		1430	
DKM/A - 1/15	5 - 15		1"					17	130		1250	
DKM/A - 1/24	8 - 24											
DKM/A - 1/30	10 - 30		34	40	40	57	70,5	3/4"	15	130	152	1430
DKM/A - 1/45	15 - 45		1"					17	130		1250	
DKM/A - 1/60	20 - 60											
DKM/A - 1/90	30 - 90											
DKM/A - 1/110	35 - 110	40	40	40	57	70,5	1"	17	130	130	1250	

Flow Switches

DKM-1

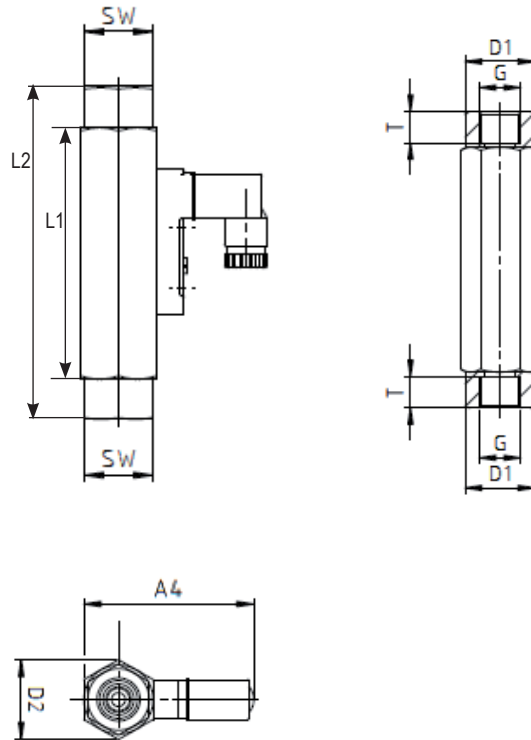
viscosity compensated up to 600 mm²/s



Operating Data		
Material	brass nickel-plated or stainless steel 316 Ti (1.4571) outer cover aluminium anodized	
Orientation	universal mounting	
Pressure (bar)	250 (stainless steel 300) (DKM - 1) 300 (stainless steel 350) (DKM - 2)	
Pressure drop (bar)	0,02 - 0,4 (DKM - 1) 0,02 - 0,2 (DKM - 2)	
Temperature max. (°C)	120 (160 optional)	
Accuracy	± 10 % FS	
Electrical Data		
	SPST	SPDT
Standard	250 V / 3 A / 100 VA	250 V / 1,5 A / 50 VA
Ex m II T6	250 V / 2 A / 60 VA ATEX II 2G Ex mb II T6	250 V / 1 A / 30 VA
Electrical connection	coupler plug to DIN 43650	
Housing protection	IP 65	

Type	Switch range l/min		Dimensions in mm							Weight approx. g	
	Oil	Air	SW	D1	D2	A4	G	T	L1		L2
DKM - 1/2	0,5 - 1,5	not suitable for gases	34	40	40	93	1/4"	10	130	152	1500
DKM - 1/4	1 - 4		34				14	1425			
			34				15	1340			
			40				17	1160			
DKM - 1/8	2 - 8		34	40	40	93	1/2"	14	130	152	1425
DKM - 1/10	3 - 10		34				15	1340			
DKM - 1/15	5 - 15		34				17	1160			
DKM - 1/24	8 - 24		40				15	130			152
DKM - 1/30	10 - 30		40	17							
DKM - 1/45	15 - 45		40	17							
DKM - 1/60	20 - 60		40	40	40	93	3/4"	15	130	152	1340
DKM - 1/90	30 - 90		40				17				
DKM - 1/110	35 - 110		40				17	130			

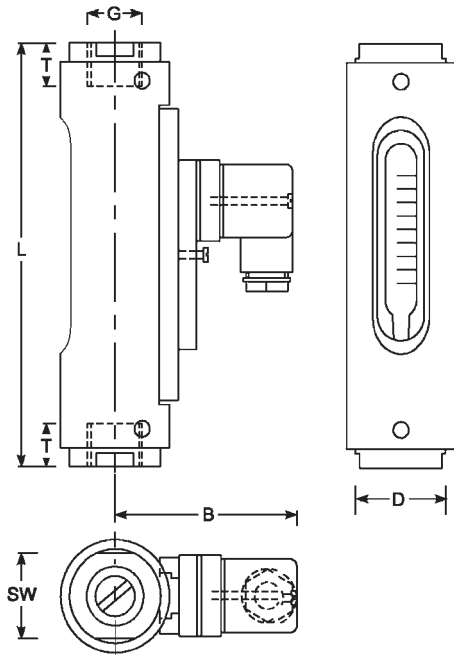
Flow Switches DKM-2 viscosity compensated up to 600 mm²/s



Operating Data	
Material	brass nickel-plated or stainless steel 316 Ti (1.4571) outer cover aluminium anodized
Orientation	universal mounting
Pressure (bar)	250 (stainless steel 300) (DKM - 1) 300 (stainless steel 350) (DKM - 2)
Pressure drop (bar)	0,02 - 0,4 (DKM - 1) 0,02 - 0,2 (DKM - 2)
Temperature max. (°C)	120 (160 optional)
Accuracy	± 10 % FS
Electrical Data	
	SPST SPDT
Standard	250 V / 3 A / 100 VA 250 V / 1,5 A / 50 VA
Ex m II T6	250 V / 2 A / 60 VA 250 V / 1 A / 30 VA ATEX II 2G Ex mb II T6
Electrical connection	coupler plug to DIN 43650
Housing protection	IP 65

Type	Switch range l/min		Dimensions in mm							Weight approx. g	
	Oil	Air	SW	D1	D2	A4	G	T	L1		L2
DKM - 2/2	0,5 - 1,6	not suitable for gases	24	27,5	31	67,6	1/4"	10	90	98	400
			24	27,5				11		118,6	450
			27	31				14		90	350
DKM - 2/3	0,8 - 3	not suitable for gases	27	31	31	67,6	1/2"	14	90	90	350
DKM - 2/7	2 - 7										

Flow Switches RVO/U-1

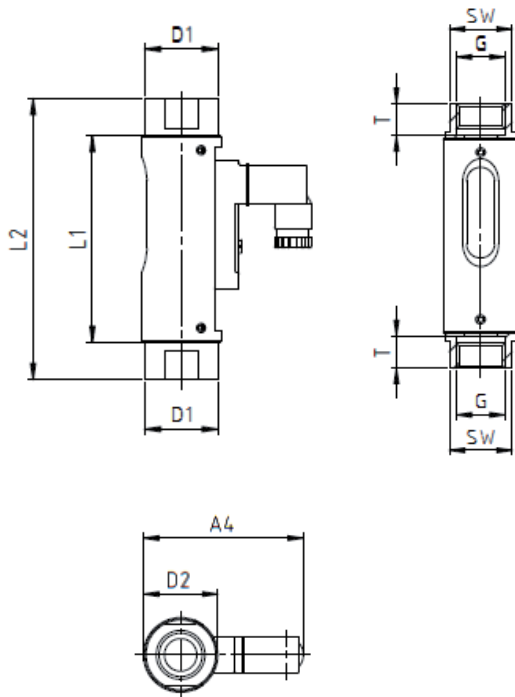


Operating Data		
Material	brass nickel-plated or stainless steel 316 Ti (1.4571) outer cover aluminium anodized	
Orientation	universal mounting	
Pressure	10 bar	
Pressure drop	0,02 - 0,4 bar	
Temperature max. (°C)	100 (160 optional)	
Accuracy	± 10 % FS	
Electrical Data		
	SPST	SPDT
Standard	250 V / 3 A / 100 VA	250 V / 1,5 A / 50 VA
Ex m II T6	250 V / 2 A / 60 VA ATEX II 2G Ex mb II T6	250 V / 1 A / 30 VA
Electrical connection	coupler plug to DIN 43650	
Housing protection	IP 65: plug connection DIN 43650 Form A IP 67: 1 m sealed-in cable, (with Ex-version 2 m) or plug connection M 12x1	

Type	Switch range l/min		Dimensions in mm						Weight approx. g
	H ₂ O	Air*	SW	D	B	G	T	L	
RVO/U - 1/30	8 - 30	for gases see RVO/U-L	41	50	77	3/4 " / 1 "	18	139 / 158	800 / 900
RVO/U - 1/45	15 - 45								
RVO/U - 1/90	30 - 90								
RVO/U - 1/150	60 - 150								

* for gases see RVO/U-L

Flow Switches RVO/U-2

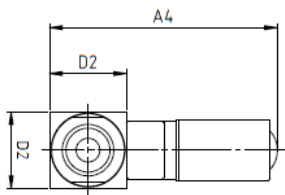
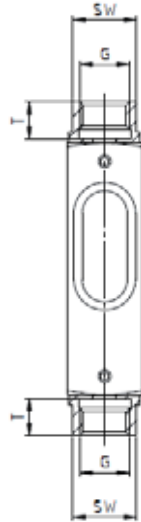
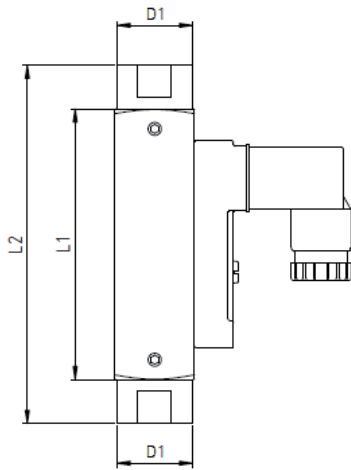


Operating Data		
Material	brass nickel-plated or stainless steel 316 Ti (1.4571) outer cover aluminium anodized	
Orientation	universal mounting	
Pressure	16 bar	
Pressure drop	0,02 - 0,3 bar	
Temperature max. (°C)	100 (160 optional)	
Accuracy	± 10 % FS	
Electrical Data	SPST	SPDT
Standard	250 V / 3 A / 60 VA	250 V / 1,5 A / 50 VA
Housing protection	IP 65: plug connection DIN 43650 Form A or plug connection M 12x1 IP 67: 1 m sealed-in cable	

Type	Switch range l/min		Dimensions in mm							Weight approx. g	
	H ₂ O	Air*	SW	D1	D2	A4	G	T	L1		L2
RVO/U - 2/05	0,2 - 0,5	for gases see RVO/U-L	27	30	32	69	1/2"	14	84	114	300
RVO/U - 2/1	0,3 - 1,0										
RVO/U - 2/2	0,7 - 2,0										
RVO/U - 2/4	1,6 - 4,0										
RVO/U - 2/8	3,0 - 8,0										
RVO/U - 2/12	4,5 - 12										
RVO/U - 2/15	6,0 - 15										
RVO/U - 2/20	8,0 - 20										
RVO/U - 2/24	9,5 - 24										
RVO/U - 2/28	12 - 28										

* for gases see RVO/U - L

Flow Switches RVO/U-4

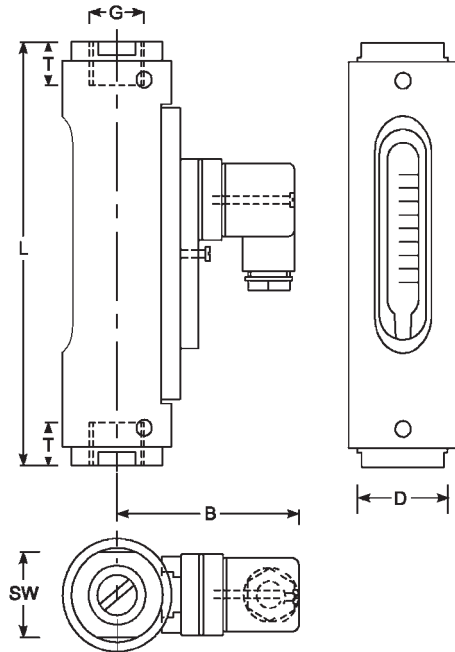


Operating Data		
Material	brass nickel-plated or stainless steel 316 Ti (1.4571) outer cover aluminium anodized	
Orientation	universal mounting	
Pressure	16 bar	
Pressure drop	0,02 - 0,2 bar	
Temperature max. (°C)	100 (160 optional)	
Accuracy	± 10 % FS	
Electrical Data		
	SPST	SPDT
Standard	250 V / 1 A / 20 VA	200 V / 1 A / 20 VA
Housing protection		
	IP 65: plug connection DIN 43650 Form A or plug connection M 12x1	
	IP 67: 1 m sealed-in cable	

Type	Switch range l/min		Dimensions in mm							Weight approx. g	
	H ₂ O	Air*	SW	D1	D2	A4	G	T	L1		L2
RVO/U - 4/01	5 - 60 ml	for gases see RVO/U-L	17	19	20	60	1/4"	10	68	90	140
RVO/U - 4/02	25 - 130 ml										
RVO/U - 4/03	0,06 - 0,3										
RVO/U - 4/06	0,1 - 0,6										
RVO/U - 4/1	0,2 - 1,2										
RVO/U - 4/2	0,4 - 2,0										
RVO/U - 4/3	0,5 - 3,0										
RVO/U - 4/5	1,0 - 5,0										

* for gases see RVO/U - L

Flow Switches RVO/U-L 1

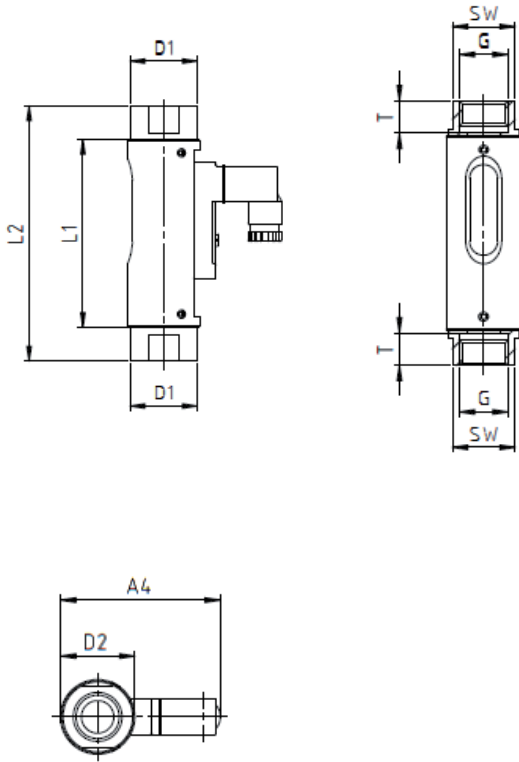


Operating Data		
Material	brass nickel-plated or stainless steel 316 Ti (1.4571) outer cover aluminium anodized	
Orientation	universal mounting	
Pressure	10 bar	
Pressure drop	0,02 - 0,4 bar	
Temperature max. (°C)	100 (160 optional)	
Accuracy	± 10 % FS	
Electrical Data	SPST	SPDT
Standard	250 V / 3 A / 100 VA	250 V / 1,5 A / 50 VA
Ex m II T6 (nur RVO/U-1)	250 V / 2 A / 60 VA ATEX II 2G Ex mb II T6	250 V / 1 A / 30 VA
Housing protection	IP 65: Plug connection DIN 43650 IP 67: 1 m sealed-in cable, (with Ex-version 2 m) or plug connection M 12x1	

Type	Switch range l/min		Dimensions in mm						Weight approx. g
	H ₂ O*	Luft	SW	D	B	G	T	L	
RVO/U-L10080	for liquids see RVO/U	22,5 - 80	41	50	77	3/4" 1"	18 18	139 158	800 900
RVO/U-L10130		50 - 130							
RVO/U-L10420		130 - 420							
RVO/U-L10625		200 - 625							

* for liquids see RVO/U

Flow Switches RVO/U-L 2

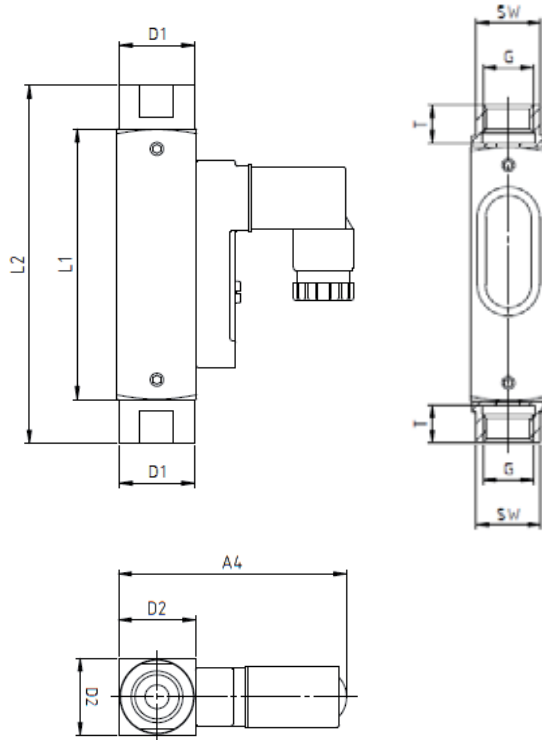


Operating Data		
Material	brass nickel-plated or stainless steel 316 Ti (1.4571) outer cover aluminium anodized	
Orientation	universal mounting	
Pressure	16 bar	
Pressure drop	0,02 - 0,3 bar	
Temperature max. (°C)	100 (160 optional)	
Accuracy	± 10 % FS	
Electrical Data		
	SPST	SPDT
Standard	230 V / 3 A / 60 VA	250 V / 1,5 A / 50 VA
Housing protection		
	IP 65: Plug connection DIN 43650 or plug connection M 12x1	
	IP 67: 1 m sealed-in cable	

Type	Switch range l/min		Dimensions in mm								Weight approx. g
	H ₂ O*	Luft	SW	D1	D2	A4	G	T	L1	L2	
RVO/U-L20012	for liquids see RVO/U	3 - 12	27	84	32	69	1/2"	14	84	114	300
RVO/U-L20030		7 - 30									
RVO/U-L20040		12 - 40									
RVO/U-L20080		20-80									
RVO/U-L20125		28 - 125									
RVO/U-L20200		50 - 200									
RVO/U-L2/15L		100 - 420									
RVO/U-L2/20L		120 - 480									

*for liquids see RVO/U

Flow Switches RVO/U-L 4

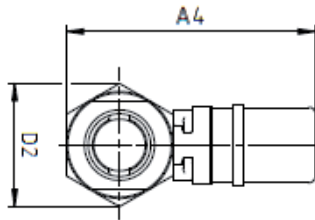
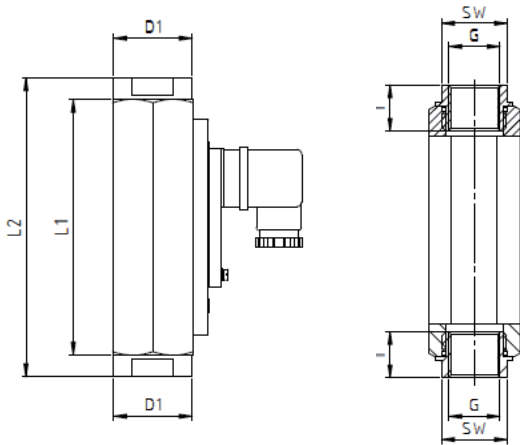


Operating Data	
Material	brass nickel-plated or stainless steel 316 Ti (1.4571) outer cover aluminium anodized
Orientation	universal mounting
Pressure	16 bar
Pressure drop	0,02 - 0,2 bar
Temperature max. (°C)	100 (160 optional)
Accuracy	± 10 % FS
Electrical Data	
	SPST SPDT
Standard	200 V / 1 A / 20 VA 200 V / 1 A / 20 VA
Housing protection	IP 65: Plug connection DIN 43650 or plug connection M 12x1 IP 67: 1 m sealed-in cable

Type	Switch range l/min		Dimensions in mm							Weight approx. g	
	H ₂ O*	Luft	SW	D1	D2	A4	G	T	L1		L2
RVO/U-L40001	for liquids see RVO/U	0,2 - 1,3	17	19	20	60	1/4"	10	68	90	140
RVO/U-L40002		0,5 - 2									
RVO/U-L40003		0,8 - 3									
RVO/U-L40005		1,5 - 5									
RVO/U-L40012		3 - 12									
RVO/U-L40014		3,5 - 14									
RVO/U-L40020		5,5 - 20									
RVO/U-L40024		7 - 24									
RVO/U-L40035		10 - 35									
RVO/U-L40042		10 - 42									

*for liquids see RVO/U

Flow Switches RVM/U-1

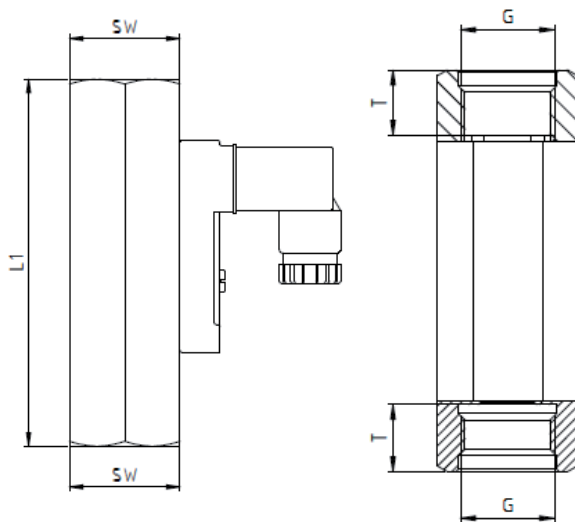


Operating Data		
Material	brass nickel-plated or stainless steel 316 Ti (1.4571)	
Orientation	universal mounting	
Pressure	brass 250 bar, stainless steel 300 bar	
Pressure drop	0,02 - 0,4 bar	
Temperature max. (°C)	100 (160 optional)	
Accuracy	± 10 % FS	
Electrical Data		
	SPST	SPDT
Standard	250 V / 3 A / 100 VA	250 V / 1,5 A / 50 VA
Ex m II T6	250 V / 2 A / 60 VA ATEX II 2G Ex mb II T6	250 V / 1 A / 30 VA
Housing protection	IP 65: Plug connection DIN 43650 IP 67: 1 m sealed-in cable, (with Ex-version 2 m) or plug connection M 12x1	

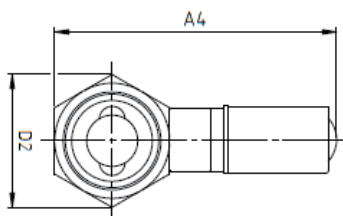
Type	Switch range l/min		Dimensions in mm							Weight approx. g	
	H ₂ O	Air*	SW	D1	D2	A4	G	T	L1		L2
RVM/U - 1/30	10 - 30	for gases see RVM/U-L	41	40	40	100	3/4 " 1 "	29 18	130	152 130	1200 1050
RVM/U - 1/45	15 - 45										
RVM/U - 1/60	20 - 60										
RVM/U - 1/90	30 - 90										
RVM/U - 1/150	60 - 150										

* for gases see RVM/U - L

Flow Switches RVM/U-2



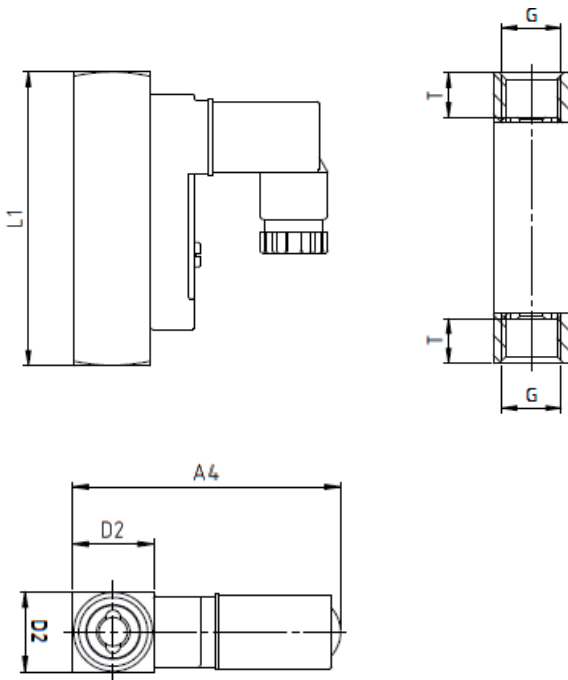
Operating Data		
Material	brass nickel-plated or stainless steel 316 Ti (1.4571)	
Orientation	universal mounting	
Pressure	brass 300 bar, stainless steel 350 bar	
Pressure drop	0,02 - 0,3 bar	
Temperature max. (°C)	100 (160 optional)	
Accuracy	± 10 % FS	
Electrical Data		
	SPST	SPDT
Standard	250 V / 3 A / 60 VA	250 V / 1,5 A / 50 VA
Ex m II T6	250 V / 2 A / 60 VA ATEX II 2G Ex mb II T6	250 V / 1 A / 30 VA
Housing protection	IP 65: Plug connection DIN 43650 or plug connection M 12x1 IP 67: 1 m sealed-in cable, (with Ex-version 2 m)	



Type	Switch range l/min		Dimensions in mm						Weight approx. g
	H ₂ O	Air*	SW	D2	A4	G	T	L1	
RVM/U - 2/02	0,02 - 0,2	for gases see RVM/U-L	27	32	67	1/2 "	14	90	350
RVM/U - 2/06	0,2 - 0,6								
RVM/U - 2/1	0,4 - 1,8								
RVM/U - 2/3	0,8 - 3,2								
RVM/U - 2/7	2 - 7								
RVM/U - 2/13	3 - 13								
RVM/U - 2/20	4 - 20								
RVM/U - 2/30	8 - 30								

* for gases see RVM/U - L

Flow Switches RVM/U-4

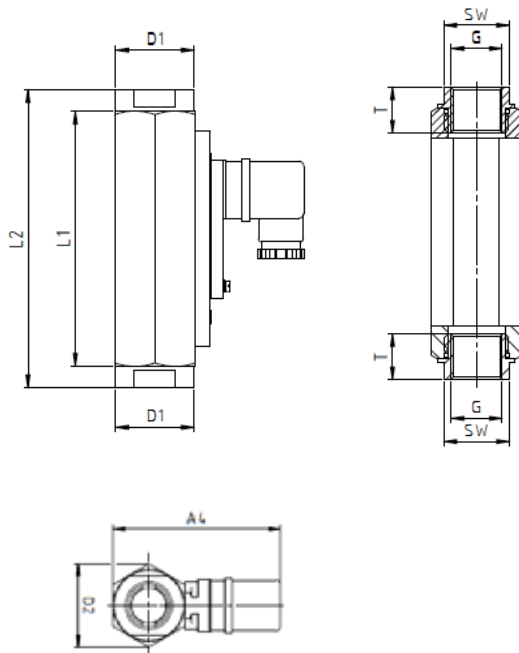


Operating Data	
Material	brass nickel-plated or stainless steel 316 Ti (1.4571)
Orientation	universal mounting
Pressure	brass 300 bar, stainless steel 350 bar
Pressure drop	0,02 - 0,2 bar
Temperature max. (°C)	100 (160 optional)
Accuracy	± 10 % FS
Electrical Data	
	SPST SPDT
Standard	200 V / 1 A / 20 VA 200 V / 1 A / 20 VA
Housing connection	IP 65: Plug connection DIN 43650 or plug connection M 12x1 IP 67: 1 m sealed-in cable

Type	Switch range l/min		Dimensions in mm						Weight approx. g
	H ₂ O	Air*	SW	D2	A4	G	T	L1	
RVM/U - 4/01	5 - 60 ml	for gases see RVM/U-L	17	17	57	1/4 "	10	65	140
RVM/U - 4/02	40 - 130 ml								
RVM/U - 4/06	0,1 - 0,6								
RVM/U - 4/1	0,2 - 1,2								
RVM/U - 4/2	0,4 - 2								
RVM/U - 4/3	0,5 - 3								
RVM/U - 4/5	1 - 5								

* for gases see RVM/U - L

Flow Switches RVM/U-L 1

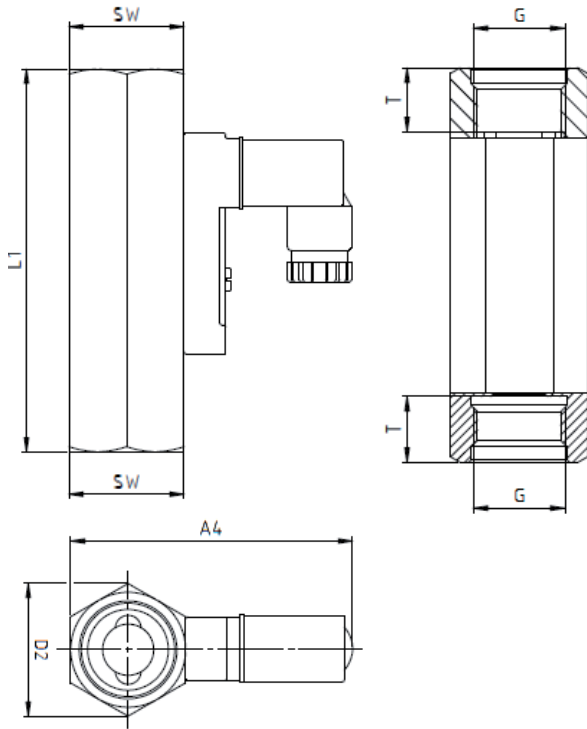


Operating Data		
Material	brass nickel-plated or stainless steel 316 Ti (1.4571)	
Orientation	universal mounting	
Pressure	brass 250 bar, stainless steel 300 bar	
Pressure drop	0,02 - 0,4 bar	
Temperature max. (°C)	120 (160 optional)	
Accuracy	± 10 % FS	
Electrical Data		
	SPST	SPDT
Standard	250 V / 3 A / 100 VA	250 V / 1,5 A / 50 VA
Ex m II T6	250 V / 2 A / 60 VA ATEX II 2G Ex mb II T6	250 V / 1 A / 30 VA
Housing protection	IP 65: Plug connection DIN 43650 IP 67: 1 m sealed-in cable, (with Ex-version 2 m) or plug connection M 12x1	

Type	Switch range l/min		Dimensions in mm								Weight approx. g
	H ₂ O*	Luft	SW	D1	D2	A4	G	T	L1	L2	
RVM/U-L10180	for li- quids see RVM/U	60 - 180	41	40	40	100	3/4" 1"	29 18	130	152 130	1200 1050
RVM/U-L10300		100 - 300									
RVM/U-L10650		200 - 650									

* for liquids see RVM/U

Flow Switches RVM/U-L 2

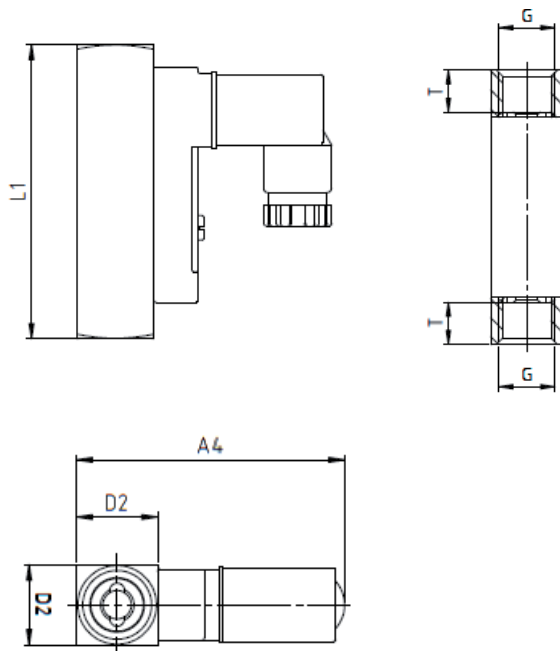


Operating Data		
Material	brass nickel-plated or stainless steel 316 Ti (1.4571)	
Orientation	universal mounting	
Pressure	brass 300 bar, stainless steel 350 bar	
Pressure drop	0,02 - 0,3 bar	
Temperature max. (°C)	120 (160 optional)	
Accuracy	± 10 % FS	
Electrical Data		
	SPST	SPDT
Standard	230 V / 3 A / 60 VA	250 V / 1,5 A / 50 VA
Ex m II T6	250 V / 2 A / 60 VA ATEX II 2G Ex mb II T6	250 V / 1 A / 30 VA
Housing protection	IP 65: Plug connection DIN 43650 or plug connection M 12x1 IP 67: 1 m sealed-in cable, (with Ex-version 2 m)	

Type	Switch range l/min		Dimensions in mm						Weight approx. g
	H ₂ O*	Luft	SW	D2	A4	G	T	L1	
RVM/U-L20010	for liquids see RVM/U	2,5 - 10	27	32	67	1/2"	14	90	350
RVM/U-L20020		5,5 - 20							
RVM/U-L20030		8 - 30							
RVM/U-L20035		10 - 35							
RVM/U-2/3L		24 - 90							
RVM/U-L20220		55 - 220							
RVM/U-L20240		65 - 240							
RVM/U-L20300		80 - 300							
RVM/U-L20525		140 - 525							

* for liquids see RVM/U

Flow Switches RVM/U-L 4



Operating Data	
Material	brass nickel-plated or stainless steel 316 Ti (1.4571)
Orientation	universal mounting
Pressure	brass 300 bar, stainless steel 350 bar
Pressure drop	0,02 - 0,2 bar
Temperature max. (°C)	120 (160 optional)
Accuracy	± 10 % FS
Electrical Data	
	SPST SPDT
Standard	200 V / 1 A / 20 VA 200 V / 1 A / 20 VA
Housing protection	IP 65: Plug connection DIN 43650 or plug connection M 12x1 IP 67: 1 m sealed cable

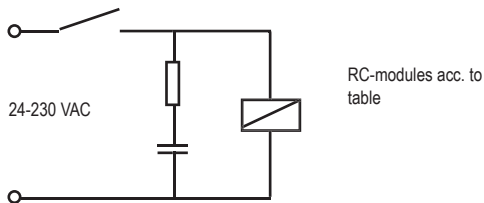
Type	Switch range l/min		Dimensions in mm						Weight approx. g
	H ₂ O*	Luft	SW	D2	A4	G	T	L1	
RVM/U-L40002	for liquids see RVM/U	0,6 - 2,2	17	17	57	1/4"	10	65	140
RVM/U-L40006		1,7 - 6							
RVM/U-L40008		2,5 - 8							
RVM/U-L40012		3 - 12							
RVM/U-4/06L		3 - 22							
RVM/U-L40024		7 - 24							
RVM/U-L40034		12 - 34							
RVM/U-4/2L		16 - 56							
RVM/U-4/3L		20 - 80							

* for liquids see RVM/U

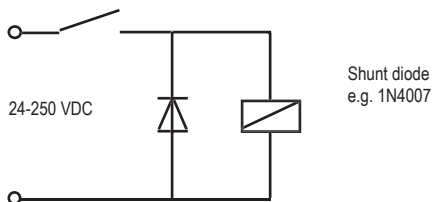
Contact protection measures

To ensure reliable operation and highest possible service life, we recommend using one of the following circuits..

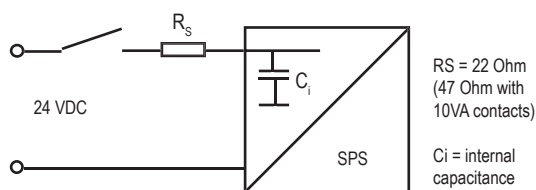
Inductive load AC



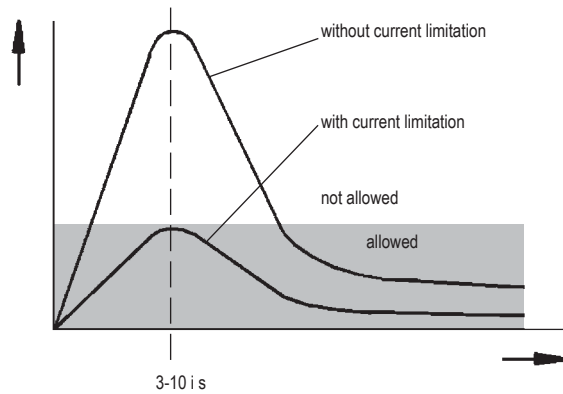
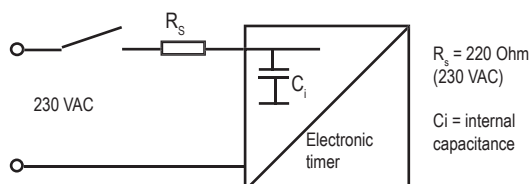
Inductive load DC



Current limitation with capacitive load e.g. PLC and cables > 50 m



Current limitation with electronic timers



Protective RC-modules

Please use RC-modules according to the table below. Rating of the switches and supply voltage will determine the type to be used.

For reed contacts 10-40VA

Capacitance	Resistance	Voltage	Type
0,33 μ F	100 Ohm	24V AC	A 3/24
0,33 μ F	220 Ohm	48V AC	A 3/48
0,33 μ F	470 Ohm	115V AC	A 3/115
0,33 μ F	1500 Ohm	230V AC	A 3/230

For reed contacts 40-100VA

Capacitance	Resistance	Voltage	Type
0,33 μ F	47 Ohm	24V AC	B 3/24
0,33 μ F	100 Ohm	48V AC	B 3/48
0,33 μ F	470 Ohm	115V AC	B 3/115
0,33 μ F	1000 Ohm	230V AC	B 3/230

Other types might lead to destruction or lower service life of the reed contacts.

Modifications may take place and materials specified may be replaced by others without prior notice.
Specifications and dimensions given in this leaflet represent the state of engineering at the time of printing.



KSR KUEBLER
Niveau-Messtechnik AG
Heinrich-Kuebler-Platz 1
69439 Zwingenberg
Tel. (+49) 6263 87-0
Fax (+49) 6263 8799
E-Mail info@ksr-kuebler.com
www.ksr-kuebler.com