

### DWM/A



- wide measuring range
- sturdy construction
- high operating pressure



02

### DWM/A-L



- wide measuring range
- sturdy construction
- high operating pressure



02

### DWM



- wide switch range
- sturdy construction
- high operating pressure



02

### DWM-L



- wide switch range
- sturdy construction
- high operating pressure



02

### DUM/A

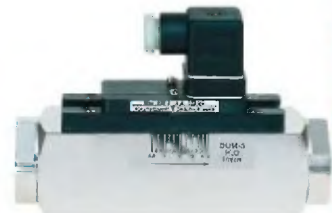


- wide measuring range
- sturdy construction
- any orientation



02

### DUM



- wide switch range
- sturdy construction
- any orientation



02



## DUM/TA



- analog output
- sturdy construction
- high operating pressure



## M-21



- high accuracy
- small overall length
- low pressure drop



## RVM/U



- compact construction
- any orientation
- high operating pressure



02

02

02

## RVM/U-L



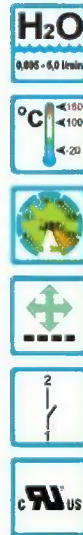
- compact construction
- any orientation
- high operating pressure



## RVM/U-S4



- high switch accuracy
- high compressive strength
- hose connection



## RVM/UM



- low switch point at high flowrates
- high operating pressure



02

02

02



## RMU



- compact construction
- any orientation
- high operating pressure



## SC-250

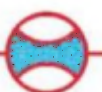


- high accuracy
- sturdy construction
- large nominal sizes



02

02



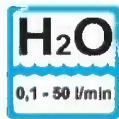
# Flow Monitor Flow Indicator

## DWM/A



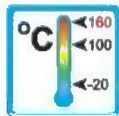
### Operation

The flow monitors and indicators type DWM/A operate with the float measuring principle



### Application

The flow monitors and indicators type DWM/A are used for measuring and monitoring volumeflow of liquid media.



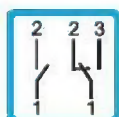
Areas of application:



– Coolingsystems and cooling circuits



– Mechanical Engineering  
e.g. Weldingmachinery,  
Laserplants



– Medicine technology



– Pharma industry

– Chemical industry

– Research and development



### Features

The DWM/A series proves itself through reliable function and easy handling

- high reliability
- high switch accuracy
- wide switch range
- infinitely variable switchpoint adjustment through user
- EX-version to ATEX available
- high pressure resistance
- Threaded connection  
Special threads on request

### Installation hints

The instrument must be installed vertically in the flow circuit. The flowdirection is from bottom to top.

The flow monitor must not be used as a supporting part in a pipeconstruction!

The medium must not contain any solid particles!  
We recommend the installation of straines type SFD or SFM.

External magnetic fields influence the switch contact. Keep adequate distance to those magnetic fields (e.g. electromotors)!

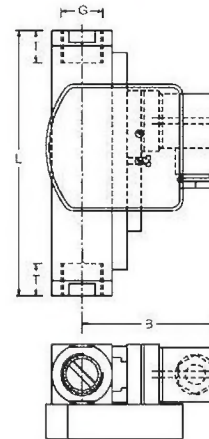
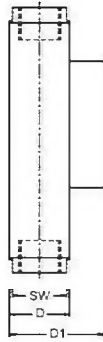
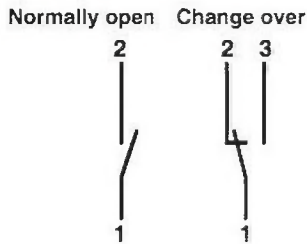
The operating instruction for DWM/A must be observed under any circumstances!

DWM/A 1 0002 08-04 E M



# Measuring Ranges, Technical Data

## Connection diagram



## Summary of types DWM/A

Typ	Switch range <sup>(1)</sup> H <sub>2</sub> O [l/min]	Overall dimensions mm								Weight approx. [g]
		SW	D	D1	B	G	DN	T	L	
DWM/A - 1,5	0,1 - 1,5	27	30	47	71	1/4"	8	14	131	850
DWM/A - 3	0,2 - 3					3/8"	10	19		
DWM/A - 8	0,3 - 8					1/2"	15	19		
DWM/A - 12	1 - 12	27	30	47	71	1/2"	15	19	148	850
DWM/A - 18	2 - 18					32	30	47	71	3/4"
DWM/A - 35	3 - 35	34	40	57	76	3/4"	20	18	152	1500
DWM/A - 50	4 - 50					40	40	57	76	1"

(1) Other media on request

Operating data		DWM/A	
Operating pressure:		PN 200 bar (Brass)	PN 300 bar (Stainless Steel)
Pressure drop:		0,02 - 0,2 bar	
Maximum temperature:		100 °C (optional 160 °C)	
Accuracy:		± 5% of full scale	
Electrical data		Normally open	Change over
IP 65 (plug connection DIN 43650)		max. 250V • 3A • 100VA	max. 250V • 1,5A • 50VA <sup>(2)</sup>
IP 67 (1m sealed in cable)			
Atex II 2G EEx m II T6 (2m sealed in cable)		max. 250V • 2A • 60VA	max. 250V • 1A • 30VA
EEx m II T6 (2m sealed in cable)		max. 250V • 2A • 60VA	max. 250V • 1A • 30VA
Output signal:		The contact opens / changes, when the flow falls below set point.	
Power supply:		Not required (potentialfree reed contact)	
Other plug types or cable lengths on request			
Material		Brass	Stainless Steel
Wetted parts:		Brass nickel-plated	1.4571
Float:	(wetted part)	Brass nickel-plated	1.4571
Gaskets	(wetted part)	Perbunan (optional Viton, EPDM) <sup>(3)</sup>	Viton (optional Perbunan, EPDM) <sup>(3)</sup>
Thread rings:	(wetted part)	Brass not nickel-plated	1.4571
Centering washer:	(wetted part)	Brass not nickel-plated	1.4571

(2) Minimum load 3VA

(3) Other gasket materials on request

DWM/A 2 0010 07-07 E M

# Flow Monitor Flow Indicator

## DWM/A-L



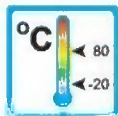
### Operation

The flow monitors and indicators type DWM/A-L operate with the float measuring principle

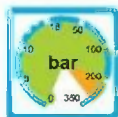


### Application

The flow monitors and indicators type DWM/A-L are used for measuring and monitoring volumeflow of gaseous media.



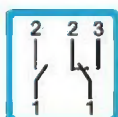
Areas of application:



– Coolingsystems and cooling-circuits



– Mechanical Engineering  
e.g. Weldingmachinery,  
Laserplants



– Medicine technology

– Pharma industry



– Chemical industry

– Research and development



### Features

The DWM/A-L series proves itself through reliable function and easy handling. Further characteristics of this sturdy type are:

- high reliability
- high switch accuracy
- wide switch range
- infinitely variable switchpoint adjustment through user
- EX-version to ATEX available
- high pressure resistance
- Threaded connection  
Special threads on request

### Installation hints

The instrument must be installed vertically in the flow circuit. The flowdirection is from bottom to top.

The flow monitor must not be used as a supporting part in a pipeconstruction!

The medium must not contain any solid particles!  
We recommend the installation of strainers type SFD or SFM.

External magnetic fields influence the switch contact. Keep adequate distance to those magnetic fields (e.g. electromotors)!

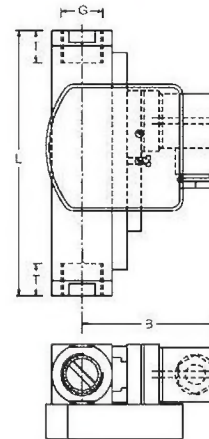
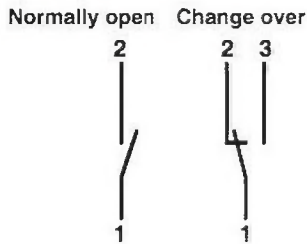
The operating instruction for DWM/A-L must be observed under any circumstances!

DWM/A-L 1 0002 02-05 E M



# Measuring Ranges, Technical Data

## Connection diagram



## Summary of types DWM/A - L

Type	Switch range <sup>(1)</sup> Air [Nl/min]	Overall dimensions mm								Weight approx. [g]
		SW	D	D1	B	G	DN	T	L	
DWM/A - L1,5	1 - 28	27	30	47	71	1/4"	8	14	130	850
DWM/A - L3	4 - 60					3/8"	10	19		
DWM/A - L8	6 - 160					1/2"	15	19		
DWM/A - L12	20 - 240									
DWM/A - L18	40 - 360	27	30	47	71	1/2" 3/4"	15 20	19 17	148	900 1010
DWM/A - L50	60 - 700	34 40	40	57	76	3/4" 1"	20 25	18 19	152 156	1400 1100
DWM/A - L100	200 - 1450	50	50	67	81	1"	25	20	200	2800

(1) Switch-off points at 1 bar abs. and 20 °C, other media and/or operating conditions on request

Operating data	DWM/A-L	
Operating pressure:	PN 200 bar (Brass)	PN 300 bar (Stainless Steel)
Pressure drop:	0,02 - 0,4 bar	
Maximum temperature:	80 °C	
Accuracy:	± 10% of full scale	
<b>Electrical data:</b>	<b>Normally open</b>	<b>Change over</b>
IP 65 (plug connection DIN 43650)	max. 250V • 3A • 100VA	max. 250V • 1,5A • 50VA <sup>(2)</sup>
IP 67 (1 m sealed in cable)		
Ex-proof, ATEX 2154X to 94/9/EG: Ex II 2 G EEx m II T6 + Ex II 2 D IP67 T80 °C (2 m sealed in cable)	max. 250V • 2A • 60VA	max. 250V • 1A • 30VA
Output signal:	The contact opens / changes, when the flow falls below the set point.	
Power supply:	Not required (potentialfree reed contact)	
Other plug types or cable lengths on request		
<b>Material:</b>	<b>Brass</b>	<b>Stainless Steel</b>
Wetted parts:	Brass nickel-plated	1.4571
Float: (wetted part)	Delrin	
Gaskets: (wetted part)	Perbunan (optional Viton, EPDM) <sup>(3)</sup>	Viton (optional Perbunan, EPDM) <sup>(3)</sup>
Thread rings: (wetted part)	Brass not nickel-plated	1.4571
Centering washer: (wetted part)	Brass not nickel-plated	1.4571

(2) Minimum load 3VA

(3) Other gasket materials on request

DWM/A-L 2 0008 07-07 E M

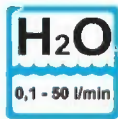
# Flow Monitor

## DWM



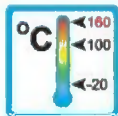
### Operation

The flow monitors type DWM operate with the float measuring principle



### Application

The flow monitors type DWM are used for monitoring volumeflow of liquid media



Areas of application:



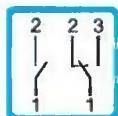
– Coolingsystems and cooling-circuits

– Mechanical Engineering  
e.g. Weldingmachinery,  
Laserplants



– Medicine technology

– Pharma industry



– Chemical industry

– Research and development



### Features

The DWM series proves itself through reliable function and easy handling. Further characteristics of this sturdy type are:

- high reliability
- high switch accuracy
- wide switch range
- infinitely variable switchpoint adjustment through user
- EX-version to ATEX available
- high pressure resistance
- Threaded connection  
Special threads on request

### Installation hints

The instrument must be installed vertically in the flow circuit. The flowdirection is from bottom to top.

The flow monitor must not be used as a supporting part in a pipeconstruction!

The medium must not contain any solid particles!  
We recommend the installation of strainers type SFD or SFM.

External magnetic fields influence the switch contact. Keep adequate distance to those magnetic fields (e.g. electromotors)!

The operating instruction for DWM must be observed under any circumstances!

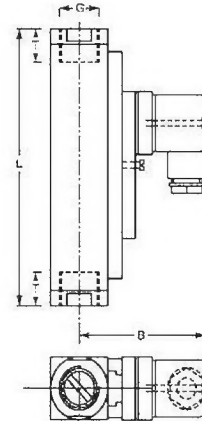
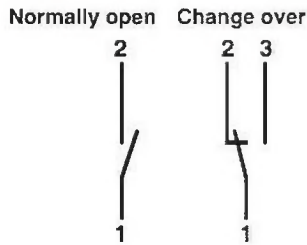
DWM 1 0002 08-04 E M





# Measuring Ranges, Technical Data

## Connection diagram



## Summary of types DWM

Type	Switch range <sup>(1)</sup> H <sub>2</sub> O [l/min]	Overall dimensions mm							Weight approx. [g]
		SW	D	B	G	DN	T	L	
DWM - 1,5	0,1 - 1,5	27	30	71	1/4"	8	14	131	800
DWM - 3	0,2 - 3				3/8"	10	19		
DWM - 8	0,3 - 8				1/2"	15	19		
DWM - 12	1 - 12				1/2"	15	19		
DWM - 18	2 - 18	27	30	71	1/2"	15	19	148	800
		32			3/4"	20	17	174	960
DWM - 35	3 - 35	34	40	76	3/4"	20	18	152	1450
DWM - 50	4 - 50	40			1"	25	19	156	1450

(1) Other media on request

Operating data	DWM	
	PN 200 bar (Brass)	PN 300 bar (Stainless Steel)
Operating pressure:		
Pressure drop:	0,02 - 0,2 bar	
Maximum temperature:	100 °C (optional 160 °C)	
Accuracy:	± 5% of full scale	
Electrical data:	Normally open	Change over
IP 65 (plug connection DIN 43650)	max. 250V • 3A • 100VA	max. 250V • 1,5A • 50VA <sup>(2)</sup>
IP 67 (1m sealed in cable)		
Atex II 2G EEx m II T6 (2m sealed in cable)	max. 250V • 2A • 60VA	max. 250V • 1A • 30VA
EEx m II T6 (2m sealed in cable)	max. 250V • 2A • 60VA	max. 250V • 1A • 30VA
Output signal:	The contact opens / changes, when the flow falls below the set point.	
Power supply:	Not required (potentialfree reed contact)	
Other plug types or cable lengths on request		
Material:	Brass	Stainless Steel
Wetted parts:	Brass nickel-plated	1.4571
Float: (wetted part)	Brass nickel-plated	1.4571
Gaskets: (wetted part)	Perbunan (optional Viton, EPDM) <sup>(3)</sup>	Viton (optional Perbunan, EPDM) <sup>(3)</sup>
Thread rings: (wetted part)	Brass not nickel-plated	1.4571
Centering washer: (wetted part)	Brass not nickel-plated	1.4571

(2) Minimum load 3VA

(3) Other gasket materials on request

DWM 2 0008 07-07 E M



# Flow Monitor

## DWM-L



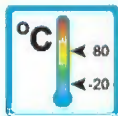
### Operation

The flow monitors type DWM-L operate with the float measuring principle



### Application

The flow monitors type DWM-L are used for monitoring volumeflow of gaseous media.



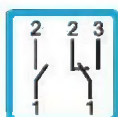
Areas of application:



– Coolingsystems and cooling-circuits



– Mechanical Engineering  
e.g. Weldingmachinery,  
Laserplants



– Medicine technology

– Pharma industry

– Chemical industry



– Research and development

### Features

The DWM-L series proves itself through reliable function and easy handling. Further characteristics of this sturdy type are:

- high reliability
- high switch accuracy
- wide switch range
- infinitely variable switchpoint adjustment through user
- EX-version to ATEX available
- high pressure resistance
- Threaded connection  
Special threads on request

### Installation hints

The instrument must be installed vertically in the flow circuit. The flowdirection is from bottom to top.

The flow monitor must not be used as a supporting part in a pipeconstruction!

The medium must not contain any solid particles!  
We recommend the installation of strainers type SFD or SFM.

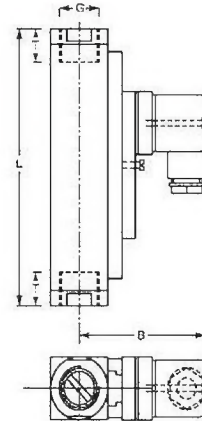
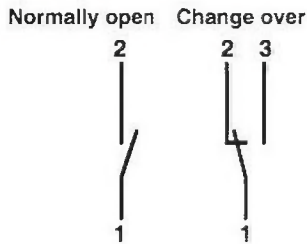
External magnetic fields influence the switch contact. Keep adequate distance to those magnetic fields (e.g. electromotors)!

The operating instruction for DWM-L must be observed under any circumstances!



# Measuring Range, Technical Data

## Connection diagram



## Summary of types DWM-L

Typ	Switch range <sup>(1)</sup> Air [NI/min]	Overall dimensions mm							Weight approx. [g]
		SW	D	B	G	DN	T	L	
DWM - L1,5	1 - 28	27	30	71	1/4"	8	14	130	800
DWM - L3	4 - 60				3/8"	10	19		
DWM - L8	6 - 160				1/2"	15	19		
DWM - L12	20 - 240				1/2"	15	19		
DWM - L18	40 - 360	27	30	71	1/2"	15	19	148	850
DWM - L50	60 - 700	34	40	76	3/4"	20	18	152	1350
		40			1"	25	19	156	1050
DWM - L100	200 - 1450	50	50	81	1"	25	20	200	2750

(1) Switch-off points at 1 bar abs. and 20 °C, other media and/or operating conditions on request

Operating data		DWM-L	
Operating pressure:		PN 200 bar (Brass)	PN 300 bar (Stainless steel)
Pressure drop:		0,02 - 0,4 bar	
Maximum temperature:		80 °C	
Accuracy:		± 10% of full scale	
Electrical data:		Normally open	Change over
IP 65 (plug connection DIN 43650)		max. 250V • 3A • 100VA	max. 250V • 1,5A • 50VA <sup>(2)</sup>
IP 67 (1 m sealed in cable)			
Ex-proof, ATEX 2154X to 94/9/EG:		max. 250V • 2A • 60VA	max. 250V • 1A • 30VA
Ex II 2 G EEx m II T6 + Ex II 2 D IP67 T80 °C (2 m sealed in cable)			
Output signal:		The contact opens / changes, when the flow falls below the set point.	
Power supply:		Not required (potentialfree reed contact)	
Other plug types or cable lengths on request			
Material:		Brass	Stainless Steel
Wetted parts:		Brass nickel-plated	1.4571
Floater:	(wetted part)	Delrin	
Gaskets:	(wetted part)	Perbunan (optional Viton, EPDM) <sup>(3)</sup>	Viton (optional Perbunan, EPDM) <sup>(3)</sup>
Thread rings:	(wetted part)	Brass not nickel-plated	1.4571
Centering washer:	(wetted part)	Brass not nickel-plated	1.4571

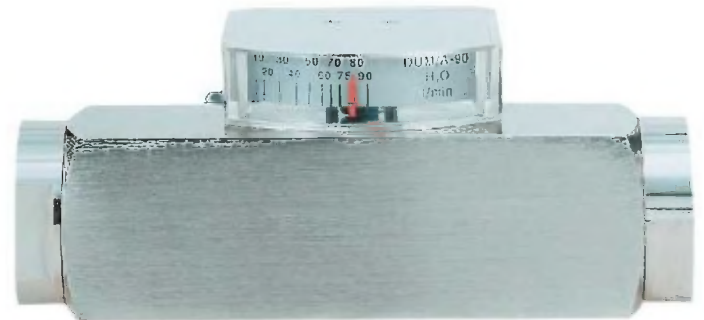
(2) Minimum load 3VA

(3) Other gasket materials on request



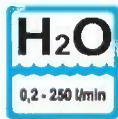
# Flow Monitor Flow Indicator

## DUM/A



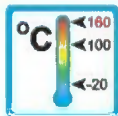
### Operation

The flow monitors and indicators type DUM/A operate with the float measuring principle



### Application

The flow monitors and indicators type DUM/A are used for measuring and monitoring volumeflow of liquid media.



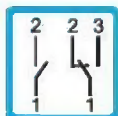
Areas of application:



– Coolingsystems and cooling-circuits



– Mechanical Engineering  
e.g. Weldingmachinery  
and Laserplants



– Medicine technology

– Pharma industry

– Chemical industry

– Research and development



### Features

The DUM/A series proves itself through reliable function and easy handling. Further characteristics of this sturdy type are:

- universal orientation
- high reliability
- high switch accuracy
- wide measuring range
- infinitely variable switchpoint adjustment through user
- EX-version to ATEX available
- high pressure resistance
- Threaded connection  
Special threads on request

### Installation hints

The installation of the instrument can be done in any way in the system. The flow direction must be observed.

The instrument must not be used as a supporting part in a pipeconstruction!

The medium must not contain any solid particles!  
We recommend the installation of strainers type SFD or SFM.

External magnetic fields influence the switch contact. Keep adequate distance to those magnetic fields (e.g. electromotors)!

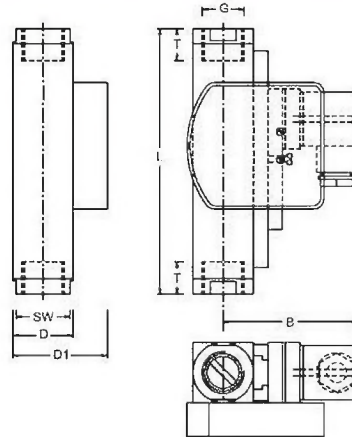
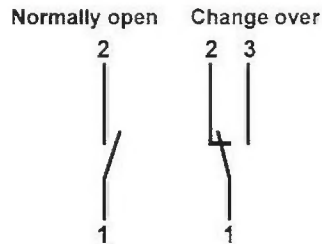
The operating instruction for DUM/A must be observed under any circumstances!

DUM/A 1 0002 10-04 E M



# Measuring Ranges, Technical Data

## Connection diagram



## Summary of types DUM/A

Type	Switch range <sup>(1)</sup> H <sub>2</sub> O [l/min]	Overall dimensions mm								Weight approx. [g]
		SW	D	D1	B	G	DN	T	L	
DUM/A - 4	0,2 - 4	27	30	47	71	1/4"	8	14	130	900
DUM/A - 5	0,6 - 5					3/8"				
DUM/A - 8	0,5 - 8					1/2"				
DUM/A - 14	1 - 14					1/2"				
DUM/A - 28	1 - 28	27	30	47	71	1/2"	15	14	148	950
DUM/A - 40	2 - 40					3/4"				
DUM/A - 55	4 - 55					3/4"				
DUM/A - 70	1 - 70	34	40	57	76	3/4"	20	18	152	1450
DUM/A - 90	8 - 90					1"				
DUM/A - 110	5 - 110	40	40	57	76	1"	25	19	156	1150
DUM/A - 150	10 - 150	40	40	57	76	1 1/4"	32	21	200	2800
DUM/A - 220	35 - 220	50	50	67	81	1 1/4"	32	21	200	3050
DUM/A - 250	35 - 250	60	60	77	82	1 1/2"	40	24	200	3850

(1) Other media on request

Operating data		DUM/A	
Operating pressure:		PN 200 bar (Brass)	PN 300 bar (Stainless Steel)
Pressure drop:		0,02 - 0,8 bar	
Maximum temperature:		100 °C (optional 160 °C)	
Accuracy:		± 5% of full scale	
Electrical data		Normally open	Change over
IP 65 (plug connection DIN 43650)		max. 250V • 3A • 100VA	max. 250V • 1,5A • 50VA <sup>(2)</sup>
IP 67 (1 m sealed in cable)			
Atex II 2G EEx m II T6 (2 m sealed in cable)		max. 250V • 2A • 60VA	max. 250V • 1A • 30VA
EEx m II T6 (2 m sealed in cable)		max. 250V • 2A • 60VA	max. 250V • 1A • 30VA
Output signal:		The contact opens / changes, when the flow falls below the set point.	
Power supply:		Not required (potentialfree reed contact)	
Other plug types or cable lengths on request			
Material		Brass	Stainless Steel
Wetted parts:		Brass nickel-plated	1.4571
Spring:	(wetted part)	1.4571	1.4571
Gaskets:	(wetted part)	Perbunan (optional Viton, EPDM) <sup>(3)</sup>	Viton (optional Perbunan, EPDM) <sup>(3)</sup>
Thread rings DUM/A 70 and above	(wetted part)	Brass not nickel-plated	1.4571
Centering washer:	(wetted part)	Brass not nickel-plated DUM/A 70, 90 & 110	1.4571
Display:		Makrolon / Brass nickel plated	

(2) Minimum load 3VA

(3) Other gasket materials on request

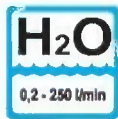
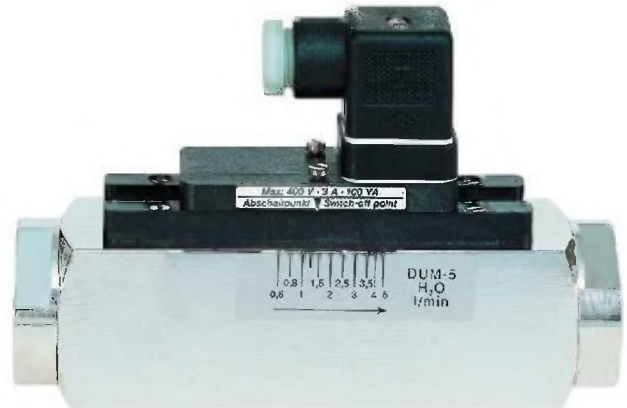


# Flow Monitor

## DUM

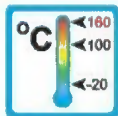
### Operation

The flow monitors type DUM operate with the float measuring principle

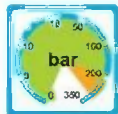


### Application

The flow monitors type DUM are used for monitoring volumeflow of liquid media.



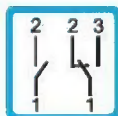
Areas of application:



– Mechanical Engineering  
e.g. Weldingmachinery  
and Laserplants



– Medicine technology



– Pharma industry  
– Chemical industry  
– Research and development



### Features

The DUM series proves itself through reliable function and easy handling. Further characteristics of this sturdy type are:

- universal orientation
- high reliability
- high switch accuracy
- wide switch range
- infinitely variable switchpoint adjustment through user
- EX-version to ATEX available
- high pressure resistance
- Threaded connection  
Special threads on request

### Installation hints

The installation of the flow monitor can be done in any way in the system. The flow direction must be observed.

The flow monitor must not be used as a supporting part in a pipeconstruction!

The medium must not contain any solid particles!  
We recommend the installation of strainers type SFD or SFM.

External magnetic fields influence the switch contact. Keep adequate distance to those magnetic fields (e.g. electromotors)!

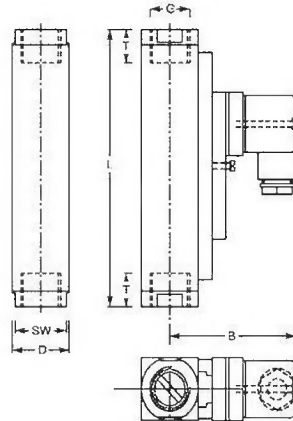
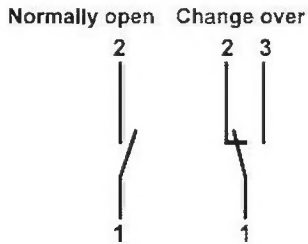
The operating instruction for DUM must be observed under any circumstances!

DUM.1 0002 10-04 E.M



# Measuring Ranges, Technical Data

## Connection diagram



## Summary of types DUM

Type	Switch range <sup>(1)</sup> H <sub>2</sub> O [l/min]	Overall dimensions mm							Weight approx. [g]	
		SW	D	B	G	DN	T	L		
DUM - 4	0,2 - 4	27	30	71	1/4"	8	14	130	850	
DUM - 5	0,6 - 5				3/8"	10				
DUM - 8	0,5 - 8				1/2"	15				
DUM - 14	1 - 14									
DUM - 28	1 - 28	27	30	71	1/2"	15	14	148	900	
DUM - 40	2 - 40				3/4"	20				16
DUM - 55	4 - 55									
DUM - 70	1 - 70	34	40	76	3/4"	20	18	152	1400	
DUM - 90	8 - 90				1"	25				19
DUM - 110	5 - 110	40	40	76	1 1/4"	32	21	200	2750	
DUM - 150	10 - 150				1 1/4"	32				21
DUM - 220	35 - 220	60	60	82	1 1/2"	40	24	200	3800	
DUM - 250	35 - 250									

(1) Other media on request

Operating data	DUM	
	PN 200 bar (Brass)	PN 300 bar (Stainless Steel)
Operating pressure:		
Pressure drop:	0,02 - 0,8 bar	
Maximum temperature:	100 °C (optional 160 °C)	
Accuracy:	± 5% of full scale	
Electrical data	Normally open	Change over
IP 65 (plug connection DIN 43650)	max. 250V • 3A • 100VA	max. 250V • 1,5A • 50VA <sup>(2)</sup>
IP 67 (1 m sealed in cable)		
Atex II 2G EEx m II T6 (2 m sealed in cable)	max. 250V • 2A • 60VA	max. 250V • 1A • 30VA
EEx m II T6 (2 m sealed in cable)	max. 250V • 2A • 60VA	max. 250V • 1A • 30VA
Output signal:	The contact opens / changes, when the flow falls below the set point.	
Power supply:	Not required (potentialfree reed contact)	
Other plug types or cable lengths on request		
Material	Brass	Stainless Steel
Wetted parts:	Brass nickel-plated	1.4571
Spring: (wetted part)	1.4571	1.4571
Gaskets: (wetted part)	Perbunan (optional Viton, EPDM) <sup>(3)</sup>	Viton (optional Perbunan, EPDM) <sup>(3)</sup>
Thread rings DUM 70 and above (wetted part)	Brass not nickel-plated	1.4571
Centering washer: (wetted part)	Brass not nickel-plated DUM 70, 90 & 110	1.4571

(2) Minimum load 3VA

(3) Other gasket materials on request

DUM 2 0012 09-07 E.M



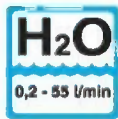
# Flowmeter with analog output

## DUM/TA



### Function

The flowmeters type DUM/TA operate with the float measuring principle.

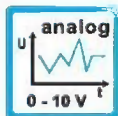
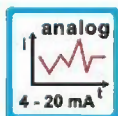
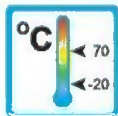


### Application

The flowmeters type DUM/TA are employed to measure and monitor volume flow of liquids. An analog transmitter produces an appropriate signal for the respective flow. The signal can be employed by the user for most different measuring applications and tasks of regulation.

Areas of application:

- Coolingsystems and cooling-circuits
- Medicine technology
- Pharma industry
- Chemical industry
- Research and development



### Features

The DUM/TA series proves itself through reliable function and high repeatability. Further characteristics of this series are:

- Analog output (4 - 20 mA / 0 - 10 V)
- High electromagnetic compatibility
- Zero and span of the measuring range separately adjustable (2 potentiometer)
- Universal mounting
- High pressure resistance
- Threaded connection  
Special threads on request

### Installation hints

The installation of the flowmeter can be done in any way in the system. The flow direction must be observed.

The flowmeter must not be used as a supporting part in a pipeconstruction!

The medium must not contain any solid particles! We recommend the installation of strainers type SFD or SFM.

External magnetic fields influence the switch contact. Keep adequate distance to those magnetic fields (e.g. electromotors)!

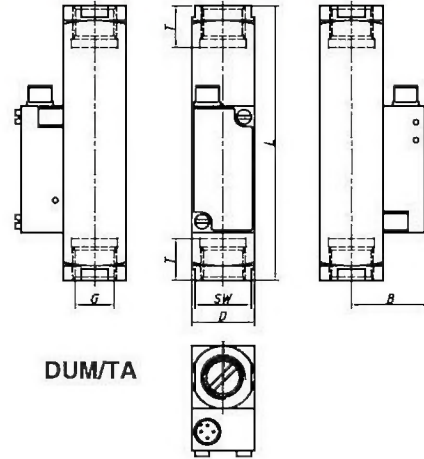
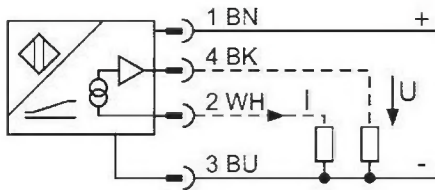
The operating instruction for DUM/TA must be observed under any circumstances!





# Ranges, Technical data

## Connection diagram



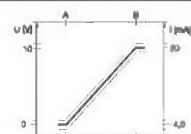
## Summary of types DUM/TA

Type	Switch range* H <sub>2</sub> O [l/min]	Overall dimensions mm							Weight approx. [g]
		SW	D	B	G	DN	T	L	
DUM/TA - 4	0,2 - 4	27	30	37	1/4"	8	14	130	850
DUM/TA - 5	0,6 - 5								
DUM/TA - 8	0,5 - 8								
DUM/TA - 14	1 - 14								
DUM/TA - 28	1 - 28	27	30	37	1/2"	15	14	148	900
DUM/TA - 40	2 - 40								
DUM/TA - 55	4 - 55								

\* Other media on request

Technical data	DUM/TA		
Measuring range [A...B]:	10...50 mm (adjustable by 2 potentiometers)		
Repeatability:	≤ 0,5 % of range [A...B] (≤ depending on positioner)		
Linearity error:	≤ 10 % of full scale of the flowmeter		
Temperature drift:	≤ ± 0,09 % / K	Analog output (current):	4...20 mA
Operating temperature:	-20 °C...+70 °C	Load resistance voltage output:	≥ 4,7 kΩ
Operating voltage U <sub>g</sub> :	15...30 VDC	Load resistance current output:	≤ 0,4 kΩ
Residual ripple:	≤ 10 % U <sub>SS</sub>	Measuring frequency:	800 Hz
No-load current I <sub>0</sub> :	≤ 23 mA	Recovery time at output:	≤ 12 ms
Design breakdown voltage:	≤ 0,5 kV	Housing material:	Plastic, PBT-GF20-V0
Output function:	four wire, analog output	Connection:	Plug, M12 x 1
Short-circuit protection:	yes	Vibration stability:	55 Hz (1 mm)
Wire rupture safety / polarity reversal protection:	yes / complete	Shock resistance:	30 x g (11 ms)
Analog output (voltage):	0...10 V	Ingress protection:	IP 67
Operating pressure:	PN 200 bar (Brass-Version), PN 300 bar (Stainless Steel-Version)		
Pressure drop:	0,02 - 0,8 bar		
<b>Materials:</b>	<b>Brass-Version</b>	<b>Stainless Steel-Version</b>	
Wetted parts:	Brass nickel-plated	1.4571	
Spring (wetted part)	1.4571	1.4571	
Gasket (wetted part)	Perbunan (optional Viton, EPDM)*	Viton (optional Perbunan, EPDM)*	
Thread rings: (wetted part)	Brass not nickel-plated	1.4571	
Centering washer: (wetted part)	Brass not nickel-plated	1.4571	

\* Other gasket materials on request



DUM/TA 2 0002 05-07 E M



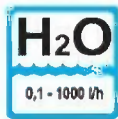
# Flowmeter

## M-21



### Operation

The M-21 flowmeters are operating with the float measuring principle. Optional they have a valve for flow regulation.

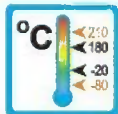


### Application

The M-21 flowmeters are used to measure flow of liquids and gases.

The flow meters are for example used in following areas:

- Water treatment
- Chemical industry
- Food industry
- Paper industry
- Heating- and cooling systems



### Features

The M-21 series proves itself through reliable function and easy handling. Further characteristics of this sturdy type are:

- Easy installation
- Small size
- Low pressure drop
- Media specific scale
- Options:  
adjustable limit switches (AMD), analog transmitter (TEH-2), pressure regulators (RCA / RCD)

### Installation hints

The M-21 flowmeters must be mounted vertically. The flow direction must be upwards.

The unit must not be used as a supporting part in a pipe construction.

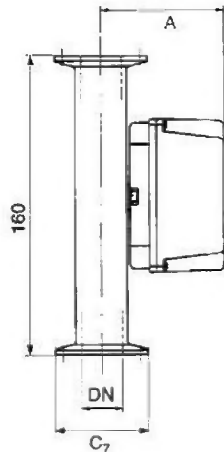
The liquids must not contain any particles!

The operating instruction for M-21 must be observed under any circumstances!



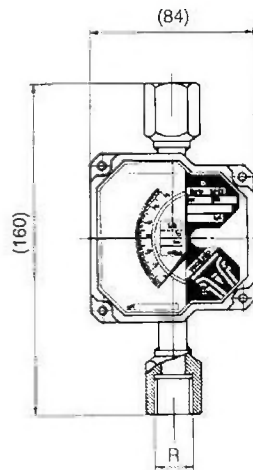
## Technical data and materials

**M-21 with Clamp-connection  
(ISO 2852)**



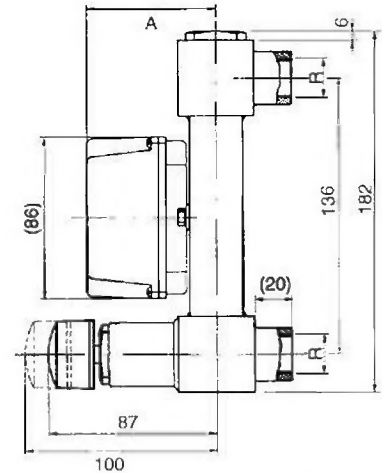
DN	A	C <sub>7</sub>
12	66	34
21,3	68	34
25	72	50,5

**M-21 with female thread  
(BSP / NPT)**



R	A
1/4"	63
1/2"	67
3/4"	72

**M-21 with valve and threaded  
connection (BSP / NPT)**

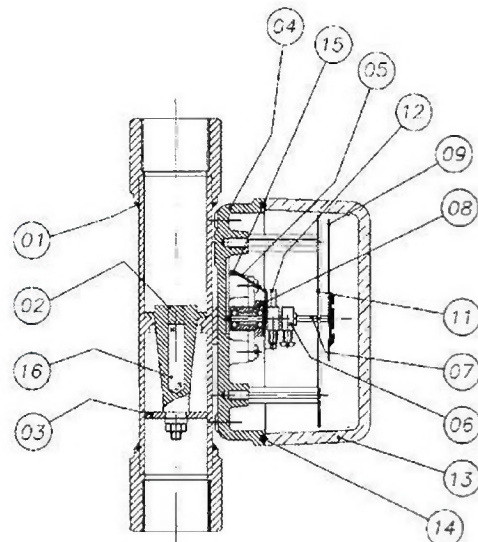


R	A
1/4"	63
1/2"	67
3/4"	72

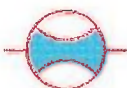
Operating data	M-21
Operating pressure with needle valve	PN 16
Operating pressure without needle valve	PN 40
Media temperature without electronic	- 80 °C to +210 °C
Media temperature with electronic	-20 °C to +180 °C (at 20 °C ambient temperature)
Ambient temperature with electronic	see page 3 and 4
Connections	see above
Pressure drop	see table at page 3
Accuracy classified VDE / VDI 3513	4 %

### Material

Nr.	Description	Material
1	Measuring tube	Stainless steel 1.4404
2	float	Stainless steel 1.4404
3	Ring	Stainless steel 1.4404
4	Housing baseplate	Aluminium (Teflon-coated)
5	Disc	Aluminium
6	Counter weight	Brass
7	Axle	Stainless steel 1.4401
8	Bearing	Brass
9	Pointer	Aluminium
11	Scale / name plate	Aluminium
12	Magnet	Neodym
13	Housing cover	Polycarbonate
14	Gaskets	NBR
15	Magnet	Neodym
16	Magnet	AlNiCo
Wetted parts		



M-21 2 0003 05-06 E M



## Measuring ranges and options

### Measuring ranges

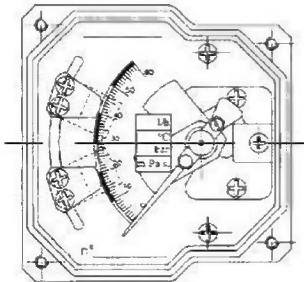
Tube	Measuring range H <sub>2</sub> O at 20 °C [l/h]	Measuring range air at 20 °C and 1 bar abs. [NI/h]	Δp [mm H <sub>2</sub> O]	DIN	CLAMP	BSP / NPT
M 21001	0,1 - 1	4 - 30	280	10	12	1/4"
M 21002	0,2 - 2,5	8 - 80	280	10	12	1/4"
M 21004	0,4 - 4	12 - 120	280	10	12	1/4"
M 21006	0,6 - 6	18 - 180	280	10	12	1/4"
M 21010	1 - 10	30 - 300	300	10	12	1/4"
M 21016	1,6 - 16	50 - 500	300	10	12	1/4"
M 21025	2,5 - 25	80 - 800	300	10	12	1/4"
M 21040	4 - 40	120 - 1200	320	10	12	1/4"
M 21060	6 - 60	160 - 1800	320	10	12	1/4"
M 21100	10 - 100	300 - 3000	320	10	12	1/4"
M 21160	16 - 160	500 - 5000	340	15	21,3	1/2"
M 21250	25 - 250	750 - 7500	340	15	21,3	1/2"
M 21400	40 - 400	1200 - 12000	400	25	25	1/2"
M 21630	60 - 630	1800 - 18000	400	25	25	1/2"
M 21M01	100 - 1000	3000 - 30000	400	25	25	3/4"

### Options

#### Adjustable inductive switch type M-21-AMD

Inductive proximity switch, 3,5 mm, according to NAMUR  
DIN 19234, mounted in the indicator housing of the flowmeter.

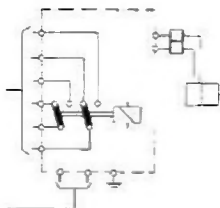
- M-21-AMD 1...2: 1...2 adjustable limit switches
- Power supply: 8 V DC (via switch amplifier)
- Temperature: -25 °C to +70 °C



#### Switch amplifier (on request)

Model NAMUR (DIN 19234) for 1 or 2 adjustable limit switches

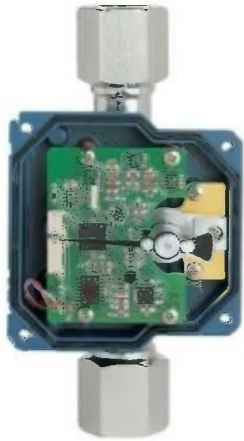
- Power supply: 24...230 V AC, 50-60 Hz  
24...250 V DC
- Input: intrinsically safe circuit EEx ia IIC
- Output: 1 or 2 relays
- Load: 2...5 A / 40 V DC
- Temperature: -25 °C to +70 °C



M-21 3 0003 05-06 E M



## Options (continued)



### Analog transmitter 4-20 mA (HALLTEC II) Type TEH 2 (2 wire-system)

- Power supply: 15 - 50 V DC
- Analog output: 4 - 20 mA (2 wire)
- Ambient temperature: -5 °C to 70 °C
- Protection class: IP 65
- Accuracy: < 0,6% (with reference to the pointer position)
- Max. electronic circuit load:  $R_L = (V_s - 10) / 0,02 \text{ } \Omega$   
( $V_s$  = Power supply voltage)

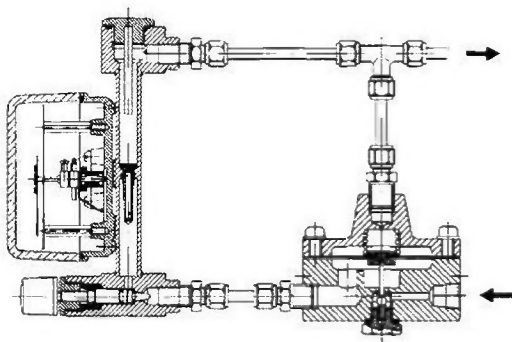
### Differential pressure regulator RCA / RCD

The construction of the series M-21 allows the use of the regulator types RCA or RCD. The regulator keeps the flow constant during appearing pressure changes. The RCA will be used for gases with variable input pressure and constant output pressure. The RCD will be used for gases with constant input pressure and variable output pressure.

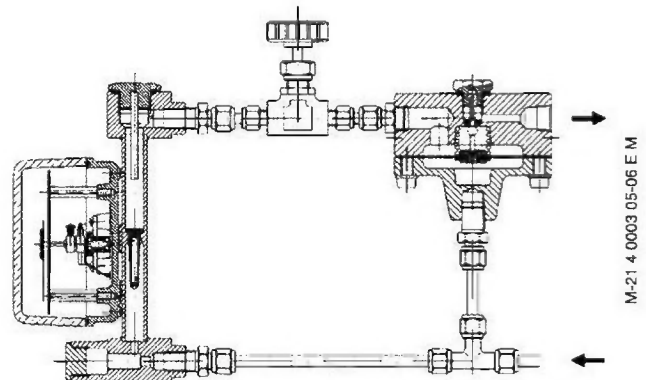
For liquid media only the type RCA can be used.

The flow is constant, when the pressure difference between the input and counter pressure is larger than 200 mbar.

#### RCA - variable input pressure



#### RCD - variable output pressure



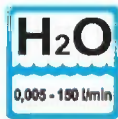
# Flow Monitor

## RVM/U



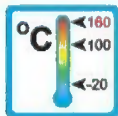
### Operation

The flow monitors type RVM/U operate with the float measuring principle



### Application

The flow monitors type RVM/U are used for measuring volumeflow of liquid media.



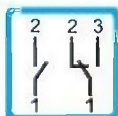
Areas of application:



– Coolingsystems and cooling-circuits



– Mechanical Engineering  
e.g. Weldingmachinery,  
Laserplants



– Medicine technology

– Pharma industry

– Chemical industry

– Research and development



### Features

The RVM/U series proves itself through reliable function and easy handling. Further characteristics of this sturdy type are:

- univseral mounting
- high switch accuracy
- infinitely variable switchpoint adjustment through user
- EX-version to ATEX for RVM/U-1... and for RVM/U-2... available
- high pressure resistance
- Threaded connection  
Special threads on request

### Installation hints

The installation of the flow monitor can be done in any way in the system. The flow direction must be observed.

The flow monitor must not be used as a supporting part in a pipeconstruction!

The medium must not contain any solid particles!  
We recommend the installation of strainers type SFD or SFM.

External magnetic fields influence the switch contact. Keep adequate distance to those magnetic fields (e.g. electromotors)!

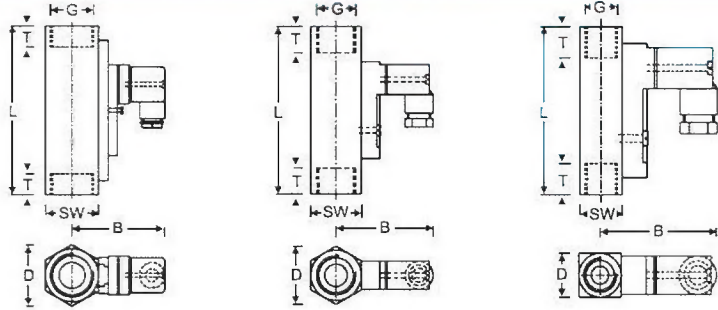
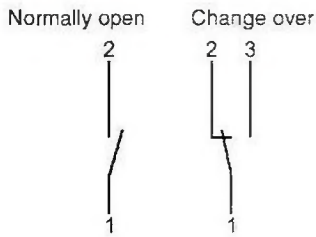
The operating instruction for RVM/U must be observed under any circumstances!

RVM/U 1 0001 08-04 E M



# Measuring Ranges, Technical Data

## Connection diagram:



## Summary of types RVM/U

Type	Range <sup>(1)</sup> l/min H <sub>2</sub> O	Overall dimensions mm							Weight approx. [g]
		SW	D	B	G	DN	T	L	
RVM/U-4/01	0,005 - 0,06	17	17	47	1/4"	8	10	65	140
RVM/U-4/02	0,04 - 0,13								
RVM/U-4/06	0,1 - 0,6								
RVM/U-4/1	0,2 - 1,2								
RVM/U-4/2	0,4 - 2,0								
RVM/U-4/3	0,5 - 3,0								
RVM/U-4/5	1,0 - 5,0	27	31	52	1/2"	15	14	90	350
RVM/U-2/02	0,02 - 0,2								
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	41	47	76	3/4"	20	21	152	1200
RVM/U-1/30	11 - 30								
RVM/U-1/45	15 - 45								
RVM/U-1/60	20 - 60								
RVM/U-1/90	30 - 90								
RVM/U-1/150	60 - 150								
RVM/U-1/150	60 - 150	41	47	76	1"	25	17	130	1050
RVM/U-1/30	11 - 30								
RVM/U-1/45	15 - 45								
RVM/U-1/60	20 - 60								
RVM/U-1/90	30 - 90								
RVM/U-1/150	60 - 150								

(1) The stated values are switch-off points, other switch ranges on request.

Operating data	RVM/U-1	RVM/U-2	RVM/U-4
Operating pressure: Brass	PN 250 bar	PN 300 bar	PN 300 bar
Operating pressure: Stainless Steel	PN 300 bar	PN 350 bar	PN 350 bar
Pressure drop:	0,02 - 0,4 bar	0,02 - 0,3 bar	0,02 - 0,2 bar
Maximum temperature:	100 °C (optional 160 °C)		
Accuracy:	10% of full scale		
<b>Electrical data</b>			
Normally open:	max. 250V • 3A • 100VA	max. 230V • 3A • 60VA	max. 200V • 1A • 20VA
Change over:	max. 250V • 1,5A • 50VA <sup>(2)</sup>	max. 250V • 1,5A • 50VA <sup>(2)</sup>	max. 200V • 1A • 20VA
Atex II 2 G EEx m II T6 (only for RVM/U-1 / RVM/U-2)	Change over: 250V • 1A • 30VA, IP67 / Normally open: 250V • 2A • 60 VA, IP67		
Atex II 2 D IP67 T80 °C (only for RVM/U-1 / RVM/U-2)	Change over: 250V • 1A • 30VA, IP67 / Normally open: 250V • 2A • 60 VA, IP67		
Protection type:	IP65 (plug connection DIN 43650 Form A or C)		
	IP67 (1m sealed in cable, with EEx-version 2 m)		
Output signal:	The contact opens / changes, when the flow falls below the set point.		
Power supply:	Not required (potentialfree reed contacts)		
other plug types or cable lengths on request			
<b>Material</b>	<b>Brass</b>	<b>Stainless Steel</b>	
Wetted parts:	Brass	1.4571	
Spring:	(wetted part) 1.4571	1.4571	
Magnets:	(wetted part) Hardferrit	Hardferrit	
Housing:	(wetted part) Brass nickel-plated	1.4571	

(2) Minimum load 3VA



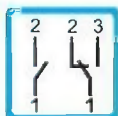
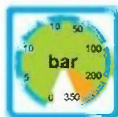
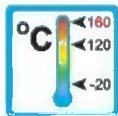
# Flow Monitor

## RVM/U-L



### Operation

The flow monitors type RVM/U-L operate with the float measuring principle



### Application

The flow monitor type RVM/U-L are used for measuring volume flow of gaseous media.

Areas of application:

- Coolingsystems and cooling-circuits
- Mechanical Engineering eg. Weldingmachinery, Laserplants
- Medicine technology
- Pharma industry
- Chemical Industry
- Research and development

### Features

The RVM/U-L series proves itself through reliable function and easy handling. Further characteristics of this sturdy type are:

- universal mounting
- high reliability
- high switch accuracy
- infinitely variable switchpoint adjustment through user
- EX-version to ATEX for RVM/U-L1... and for RVM/U-L2... available
- high pressure resistance
- Threaded connection  
Special threads on request

### Installation hints

The installation of the flow monitor can be done in any way in the system. The flow direction must be observed.

The flow monitor must not be used as a supporting part in a pipeconstruction!

The medium must not contain any solid particles! We recommend the installation of strainer type SFD or SFM.

External magnetic fields influence the switch contact. Keep adequate distance to those magnetic fields (e.g. electromotors)!

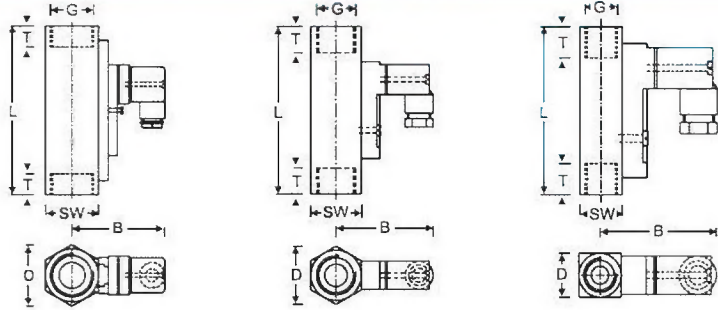
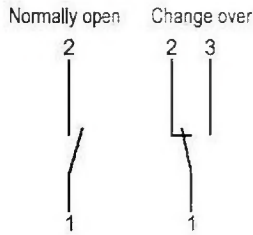
The operating instruction for RVM/U-L must be observed under any circumstances!





# Measuring Ranges, Technical Data

## Connection diagram:



## Summary of types RVM/U-L

Type	Range <sup>(1)</sup> NI/min Air	Overall dimensions mm							Weight approx. [g]
		SW	D	B	G	DN	T	L	
RVM/U-L40002	0,6 - 2,2	17	17	47	1/4"	8	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	27	31	52	1/2"	15	14	90	350
RVM/U-L20010	2,5 - 10								
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	41	47	76	3/4"	20	21	152	1200
RVM/U-L10180	60 - 180								
RVM/U-L10300	100 - 300								
RVM/U-L10650	200 - 650				1"	25	17	130	1050

(1) At 1 bar abs. and 20 °C, other ranges on request

Operating data	RVM/U-L1	RVM/U-L2	RVM/U-L4
Operating pressure: Brass	PN 250 bar	PN 300 bar	PN 300 bar
Operating pressure: Stainless steel	PN 300 bar	PN 350 bar	PN 350 bar
Pressure drop:	0,02 - 0,4 bar	0,02 - 0,3 bar	0,02 - 0,2 bar
Maximum temperature:	120 °C (optional 160 °C)		
Accuracy:	10% of full scale		
<b>Electrical data:</b>			
Normally open:	max. 250V • 3A • 100VA	max. 230V • 3A • 60VA	max. 200V • 1A • 20VA
Change over:	max. 250V • 1,5A • 50VA <sup>(2)</sup>	max. 250V • 1,5A • 50VA <sup>(2)</sup>	max. 200V • 1A • 20VA
Atex II 2G EEx m II T6	(only for RVM/U-L1 / RVM/U-L2) Change over: 250V • 1A • 30VA, IP67 / Normally open: 250V • 2A • 60 VA, IP67		
EEx m II T6	(only for RVM/U-L1 / RVM/U-L2) Change over: 250V • 1A • 30VA, IP67 / Normally open: 250V • 2A • 60 VA, IP67		
Protection type:	IP65 (plug connection DIN 43650 Form A or C) IP67 (1m sealed in cable, with EEx-version 2m)		
Output signal:	The contact opens / changes, when the flow falls below the set point.		
Power supply:	Not required (potential free reed contacts)		
Other plug-types or cable length on request			
<b>Material:</b>	<b>Brass</b>	<b>Stainless Steel</b>	
Wetted parts:	Brass	1.4571	
Spring:	(wetted part) 1.4571	1.4571	
Magnets:	(wetted part) Hardferrit	Hardferrit	
Housing:	(wetted part) Brass nickel-plated	1.4571	

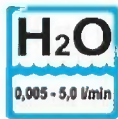
(2) Minimum load 3VA



## RVM/U-S4

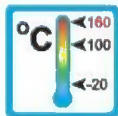
### Function

The flow monitors type RVM/U-S4 operate with the float measuring principle.



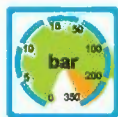
### Application

The flow monitors RVM/U-S4 are used for monitoring volume flow of liquid media.



Areas of application:

- Coolingsystems and cooling-circuits
- Mechanical Engineering e.g. Weldingmachinery, Laserplants
- Medicine technology
- Pharmaceutical industry
- Chemical industry
- Research and development



### Features

The RVM/U-S4 series proves itself through reliable function and easy handling. Further characteristics of this sturdy type are:

- Universal mounting
- High reliability
- High switch accuracy
- Infinitely variable switch point adjustment by user
- High pressure resistance
- Hose connection

### Installation hints

The installation of the flow monitor can be done in any way in the system. The flow direction must be observed.

The flow monitor must not be used as a supporting part in a pipeconstruction!

The medium must not contain solid particles! We recommend the installation of strainers type SFD or SFM.

External magnetic fields influence the switch contact. Keep adequate distance to those magnetic fields (e.g. electromotors)!

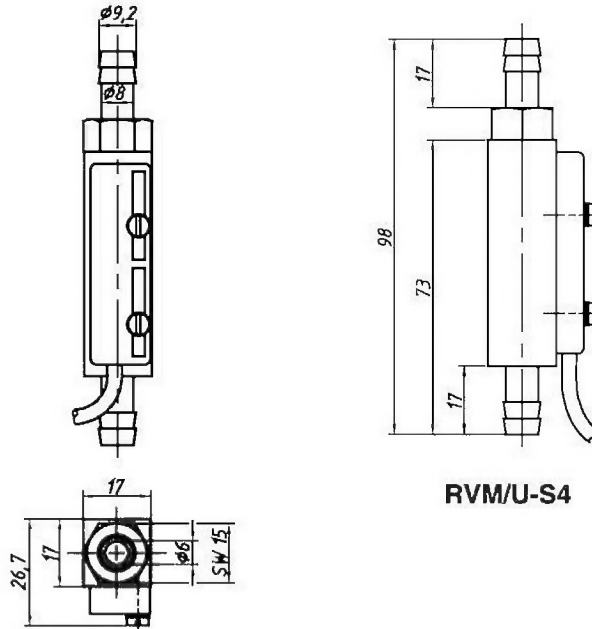
The operating instructions for RVM/U-S4 must be observed under any circumstances!



## Ranges, Technical data

### Connection diagram:

Normally open



RVM/U-S4

### Summary of types RVM/U-S4

Type	Ranges H <sub>2</sub> O* [l/min]	Nominal size DN	Weight [g]
RVM/U-S4/01	0,005 - 0,06	8	160
RVM/U-S4/02	0,04 - 0,13		
RVM/U-S4/06	0,1 - 0,6		
RVM/U-S4/1	0,2 - 1,2		
RVM/U-S4/2	0,4 - 2,0		
RVM/U-S4/3	0,5 - 3,0		
RVM/U-S4/5	1,0 - 5,0		

\* The mentioned values are switch off points, other ranges on request.

Operating data		RVM/U-S4	
Operating pressure: Brass		PN 300 bar	
Operating pressure: Stainless Steel		PN 350 bar	
Pressure drop:		0,02 - 0,2 bar	
Max. medium temperature:		100 °C (optional 160 °C)	
Accuracy:		10% f.s.d.	
Electrical data			
Normally open:		max 200V • 1A • 20VA	
Ingress protection:		IP 67 (1 m molded cable)	
Output signal:		Contact opens, when flow falls below the set point.	
Power supply:		Not necessary (potential-free reed contacts)	
Other Plugs and cable configurations on request			
Materials		Brass	Stainless Steel
Wetted parts		Brass	1.4571
Spring:		1.4571	1.4571
Gaskets:		Perbunan (optional Viton, EPDM)	Viton (optional Perbunan, EPDM)*
Magnets:		Hard ferrite	Hard ferrite
Housing:		Brass	1.4571
Other gasket materials on request			

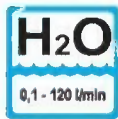
RVM/U-S4 2 0001 04-05 E.M

# Flow Monitor

## RVM/UM

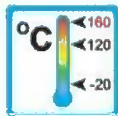
### Operation

The flow monitors type RVM/UM operate with the float measuring principle



### Application

The flow monitors type RVM/UM are used for monitoring volume flow of liquid media.



Areas of application:

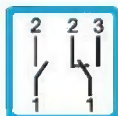


– Coolingsystems and cooling-circuits

– Mechanical Engineering  
e.g. Weldingmachinery,  
Laserplants



– Research and development



### Features

The RVM/UM series proves itself through reliable function and easy handling. Further characteristics of this sturdy type are:

- universal mounting
- high switch accuracy
- high flowrate at low switch-point
- EX-version to ATEX available
- high pressure resistance
- Threaded connection  
Special threads on request

### Installation hints

The installation of the flow monitor can be done in any way in the system. The flow direction must be observed.

The flow monitor must not be used as a supporting part in a pipeconstruction!

The medium must not contain any solid particles!  
We recommend the installation of strainers type SFD or SFM.

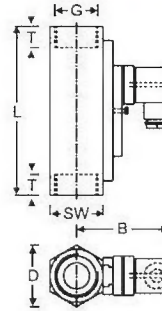
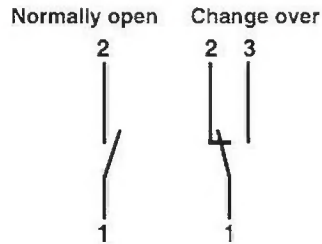
External magnetic fields influence the switch contact. Keep adequate distance to those magnetic fields (e.g. electromotors)!

The operating instruction for RVM/UM must be observed under any circumstances!



# Measuring Ranges, Technical Data

## Connection diagram



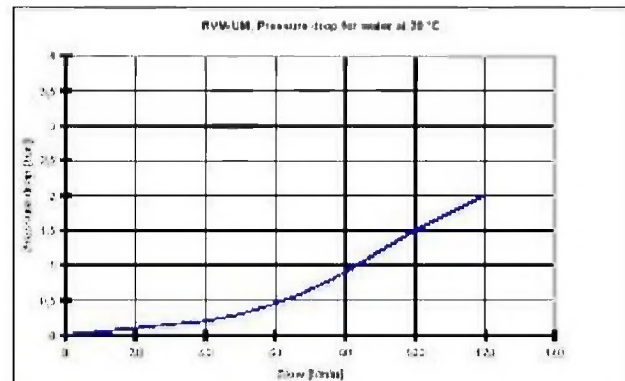
RVM/UM

## Dimensions and weights

Type	Overall dimensions mm							Weight approx. [g]
	SW	D	B	G	DN	T	L	
RVM/UM	41	47	72	1"	25	20	130	1000

## Switch points and pressure drop

Type	RVM/UM
Lowest switch point (at decreasing flow)*:	0,1 l/min
Highest switch point (at decreasing flow)*:	30 l/min
* The switch point is factory adjusted.	
Please specify switch point when ordering!	
The recommended maximum flow is 120 l/min	



Operating data	RVM/UM	
	Operating pressure:	PN 250 bar (Brass)
Pressure drop:	see diagram above	
Maximum temperature:	120°C (optional 160°C)	
Accuracy:	switch point > 3 l/min: ±5% of switch value	switch point ≤ 3 l/min: ±0,1 l/min
Electrical data	Normally open	Change over
IP 65 (plug connection DIN 43650 Form A)	max. 250V • 3A • 100VA	max. 250V • 1,5A • 50VA <sup>(1)</sup>
IP 67 (1m sealed in cable)		
Atex II 2G EEx m II T6 (2m sealed in cable)	max. 250V • 2A • 60VA	max. 250V • 1A • 30VA
EEx m II T6 (2m sealed in cable)	max. 250V • 2A • 60VA	max. 250V • 1A • 30VA
Output signal:	The contact opens / changes, when the flow falls below the set point.	
Power supply:	Not required (potentialfree reed contacts)	
Other plug types or cable lengths on request		
Material	Brass	Stainless Steel
Wetted parts:	Brass	1.4571
Spring: (wetted part)	1.4571	
Magnets: (wetted part)	Hardferrit	
Housing: (wetted part)	Brass nickel-plated	1.4571

(1) Minimum load 3VA

RVM/UM 2 0005 07-07 E M

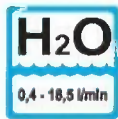


# Flow Monitor

## RMU

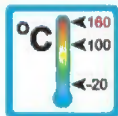
### Operation

The flow monitors type RMU operate with the float measuring principle



### Application

The flow monitors type RMU are used for monitoring volumeflow of liquid media.



Areas of application:

- Power cleaner
- Coolingsystems and cooling-circuits
- Mechanical Engineering e.g. Weldingmachinery, Laserplants
- Research and development



### Features

The RMU series proves itself through reliable function and easy handling. Further characteristics of this sturdy type are:

- universal mounting
- low sensivity to dirt
- infinitely variable switchpoint adjustment through user
- high pressure resistance
- Threaded connection  
Special threads on request

### Installation hints

The installation of the flow monitor can be done in any way in the system. The flow direction must be observed.

The flow monitor must not be used as a supporting part in a pipeconstruction!

The medium must not contain any solid particles!  
We recommend the installation of strainers type SFD or SFM.

External magnetic fields influence the switch contact. Keep adequate distance to those magnetic fields (e.g. electromotors)!

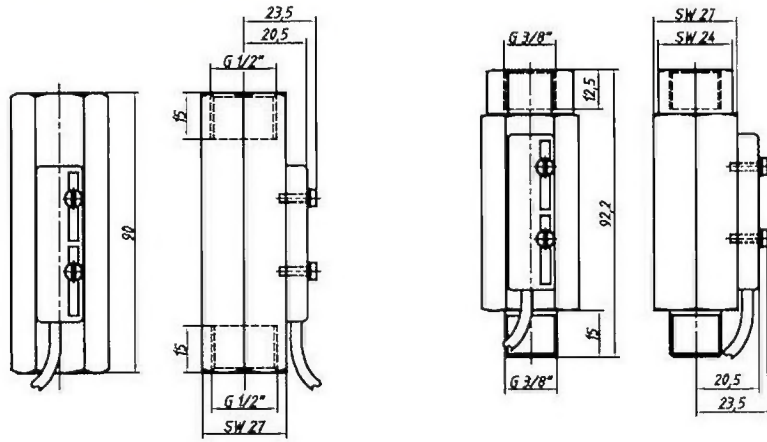
The operating instruction for RMU must be observed under any circumstances!



# Measuring Ranges, Technical Data

## Connection diagram:

Normally open



RMU-A

RMU-B

## Summary of types RMU

Type	Switch range (H <sub>2</sub> O) [l/min]	Pressure drop [mbar]	Thread (inlet)	Thread (outlet)	Weight (approx.) [g]
RMU-A11	2,5 — 11,0	25 — 175	G 1/2" Female	G 1/2" Female	320
RMU-A15	5,0 — 15,5	85 — 250	G 1/2" Female	G 1/2" Female	320
RMU-B02	0,4 — 2,1	25 — 175	G 3/8" Male	G 3/8" Female	320
RMU-B12	3,0 — 12,5	75 — 275	G 3/8" Male	G 3/8" Female	320
RMU-B18	8,5 — 18,5	125 — 300	G 3/8" Male	G 3/8" Female	320

## Technical Data

Operating Data	RMU-A	RMU-B
Operating pressure:	PN 250 bar	PN 250 bar
Maximum temperature:	100 °C (optional 160 °C)	100 °C (optional 160 °C)
Accuracy:	10 % of full scale	10 % of full scale
Electrical Data		
Normally open:	max. 230V • 3A • 60VA	max. 230V • 3A • 60VA
Protection type:	IP67 (1m sealed in cable)	IP67 (1m sealed in cable)
Output signal:	The contact opens, when the flow falls below the set point	
Power supply:	Not required (potentialfree reed contact)	
Other cable lengths on request		
Material		
Body (wetted part)	Brass	Brass
Float (wetted part)	Brass	Brass
Spring (wetted part)	1.4571	1.4571
Magnets (wetted part)	Hardferrit	Hardferrit
Gasket (wetted part)	—	NBR*
*Other gasket materials on request		

RMU 2 0001 08-04 E M

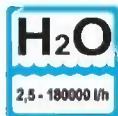


# Flowmeter

## SC-250

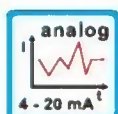
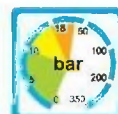
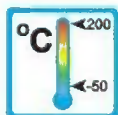
### Operation

The instruments, type SC-250, are variable area flowmeter



### Application

The flowmeters, type SC-250, are employed to monitor volumeflow of liquids and gases. The instruments are used in many different applications:



- watertreatment
- chemical industry
- food processing industry
- pharmaceutical industry
- cooling systems and circuits

### Features

The SC-250 prove themselves through reliability and simply handling. Further properties of this sturdy series are:

- high reliability
- product designated scale at no charge
- high chemical compatibility with Teflon-lining (optional)
- flange connection  
special process connection on request

### Installation hints

The instrument must be installed vertical. The flowdirection is from bottom to top.

The flowmeter must not be used as a supporting part in a pipeconstruction!

The medium must not contain any solid particles!

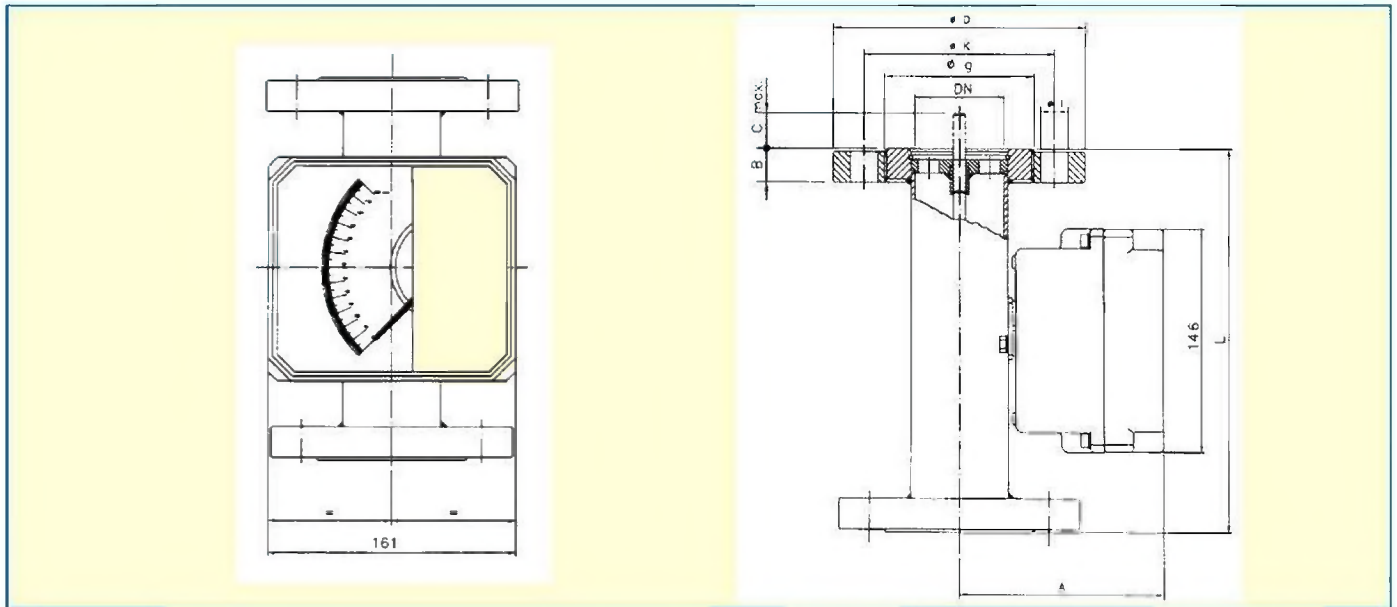
Keep adequate distance to magnetic fields (e.g. electro-motors)!

SC-250 1 0002 08-06 E M





## Technical Data



**Dimensions and weights of the version to DIN 2501**

DN	D [mm]	K [mm]	g [mm]	l	B [mm]	PN	A [mm]	C [mm]	L [mm]	weight [kg]
15	95	65	45	14x4	14	40	133	45	250	3,5
25	115	85	68	14x4	16	40	146	45	250	4,5
40	150	110	88	18x4	16	40	154	45	250	7,3
50	165	125	102	18x4	18	40	167	45	250	8,3
65	185	145	122	18x4	18	16	176	45	250	10
80	200	160	138	18x8	20	16	192	45	250	12
100	220	180	158	18x8	20	16	211	–	250	15
125	250	210	188	18x8	22	16	236	–	250	20
150	285	240	212	23x8	22	16	262	–	300	32

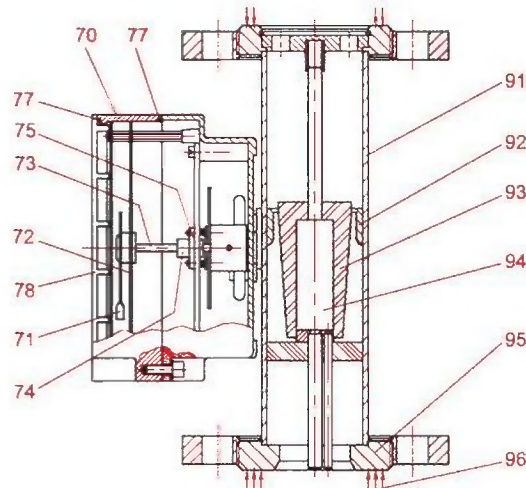
### Technical Data

<b>Measuring ranges:</b>		<b>Accuracy:</b>	
Water	refer to table on page 4	standard	± 2,5 % of full scale
Air	refer to table on page 4	optional	± 1,6 % of full scale
<b>Medium temperature:</b>		<b>Ambient temperature:</b>	
Stainless Steel	-50 °C to +200 °C	Stainless Steel	-20 °C to +80 °C
PVC (fully)	0 °C to +50 °C	PVC	0 °C to +45 °C
PTFE (lined)	-20 °C to +150 °C	PTFE	-20 °C to +80 °C
<b>Pressure (1.4404):</b>	refer to table above	<b>Viscosity max.:</b>	10 cP
<b>Operating pressure PVC- und PP-version:</b>			
DN-15 bis DN-50	PN16	DN-65 bis DN-150	PN10
<b>Operating pressure PTFE-version:</b>			
DN-15 bis DN-40	PN40	DN-50 bis DN-125	PN16
DN-150	PN10		
<b>Connection (standard):</b>	flanges to DIN 2501		
on request	ANSI-, ASA-, BTS-flanges, thread connection, sanitary connection to DIN 11851		
<b>Scale:</b>	medium customised, 120 mm, various units e.g.: l/h, m³/h, kg/h		
<b>Special versions (on request):</b>			
High temperature version	-180 °C to +400 °C (only 1.4404)		
PP-version (fully)	0 °C to +80 °C		
<b>Ingress protection:</b>	IP 65	<b>Cable entry:</b>	PG9-cable gland
<b>Heating jacket:</b>	on request		

SC-250 2 0001 07-04 E M



## Materials and float types



### Materials measuring tube

Nr.	Description	Materials		
		Stainless Steel	PVC / PP	PTFE
91	Measuring tube	1.4404	PVC / PP	1.4404+PTFE
92	Orifice	1.4404	PVC / PP	PTFE
93	Float	1.4404	PVC / PP	PTFE
94	Magnet	Alnico		
95	Ring flange	Steel*	PVC / PP	1.4401
96	Flange - sealing surface	1.4404	PVC / PP	1.4404+PTFE

\* Stainless Steel on request

### Materials indicator

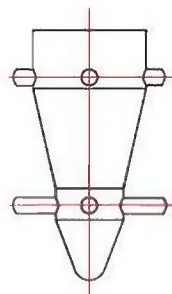
Nr.	Description	Materials
70	Housing	Aluminum
71	Pointer	Aluminum
72	Scale disc	Aluminum
73	Axle	Stainless Steel 1.4401
74	Ball bearing	Stainless Steel 1.4401
75	Magnetic brake	Neodymium
77	Gasket	NBR
78		Polycarbonate / glass

### Float types

Type FC  
DN-15 to DN-80



Type FC  
DN-100 to DN-150



## Measuring ranges

### Standard ranges for Stainless Steel float and PVC-float

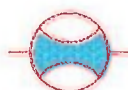
DN	Float №	Float in 1.4404			Float in PVC *3	
		H <sub>2</sub> O [l/h]	Air *1*2 [Nm <sup>3</sup> /h]	Pressure drop [mm H <sub>2</sub> O]	Air *1 [Nm <sup>3</sup> /h]	Pressure drop [mm H <sub>2</sub> O]
15	15025	2,5 – 25	0,07 – 0,7	400	–	–
	15040	4 – 40	0,12 – 1,2	400	0,2 – 2	240
	15060	6 – 60	0,18 – 1,8	400	0,4 – 4	240
	15100	10 – 100	0,3 – 3	400	0,6 – 6	240
	15160	16 – 160	0,5 – 5	500	1 – 10	240
	15250	25 – 250	0,7 – 7,5	500	1,6 – 16	240
	15400	40 – 400	1,2 – 12	500	2 – 20	240
	15600	60 – 600	1,8 – 18	500	–	–
25	25100	100 – 1000	3 – 30	600	0,6 – 6	180
	25160	160 – 1600	5 – 50	700	1 – 10	180
	25250	250 – 2500	7 – 75	900	1,6 – 16	180
	25400	400 – 4000	12 – 120	1100	2,5 – 25	180
	25101	–	–	–	4 – 40	180
	25161	–	–	–	6 – 60	180
	25251	–	–	–	9 – 96	180
40	40400	400 – 4000	12 – 120	450	5 – 50	260
	40600	500 – 6300	15 – 180	550	8 – 80	260
	40800	800 – 8000	24 – 240	900	14 – 140	260
50	50800	800 – 8000	24 – 240	700	9 – 90	220
	50100	1000 – 10000	30 – 300	900	15 – 150	220
	50150	1500 – 15000	45 – 450	1000	20 – 200	220
	50101	–	–	–	35 – 350	220
65	65150	1500 – 15000	45 – 450	700	25 – 250	220
	65200	2000 – 20000	60 – 600	1000	40 – 400	220
80	80020	2000 – 20000	60 – 600	800	40 – 400	230
	80025	2500 – 25000	75 – 750	1000	60 – 600	230
	80030	3000 – 30000	90 – 900	1200	–	–
100	81040	4000 – 40000	120 – 1200	1000	60 – 600	240
	81050	5000 – 50000	150 – 1500	1200	100 – 1000	240
	81060	6000 – 60000	180 – 1800	1500	–	–
125	82080	8000 – 80000	240 – 2400	1200	150 – 1500	280
	82100	10000 – 100000	300 – 3000	1500	200 – 2000	280
	82120	12000 – 120000	360 – 3600	1800	–	–
150	83150	15000 – 150000	450 – 4500	2200	250 – 2600	320
	83180	18000 – 180000	500 – 5400	2200	300 – 3200	320

\*1 At 1,013 bar abs., 20 °C

\*2 Damper is recommended (DN-15 to DN-80)

\*3 Up to 40 °C, for higher temperatures a PTFE-float must be used

Measuring ranges for other media and operating conditions on request!



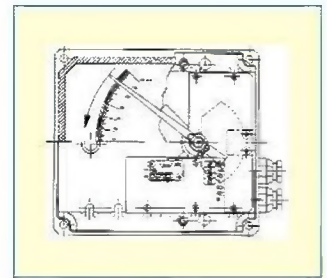
# Electronic measuring transducers and limitswitches

## Adjustable micro-limitswitch type SC-AMM

Bistable microswitch installed in the indicator housing of the flowmeter

- SC-AMM1: 1 adjustable limitswitch
- SC-AMM2: 2 adjustable limitswitches
- Switch values: 3 (1) A / 250 V (VDE/CEE)
- Hysteresis:  $\pm 10\%$  of endvalue
- Ambient temperature:  $-25\text{ }^{\circ}\text{C}$  to  $+80\text{ }^{\circ}\text{C}$
- Mechanical lifetime:  $10^7$  switch operations
- Supply: 220 V AC, load: 6 A      24 V DC, load: 0,5 A

(gold plated on request)



## Adjustable inductive limitswitch type SC-AMD

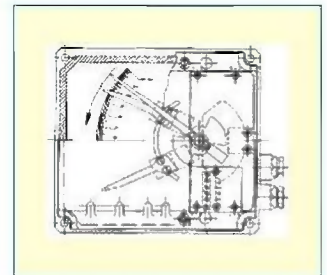
Inductive proximityswitch, 3,5 mm, according to standard NAMUR DIN 19234, installed in the indicator housing of the flowmeter

- SC-AMD1...2: 1...2 adjustable limitswitches
- Power supply: 8 V DC (via amplifier)
- Temperature:  $-25\text{ }^{\circ}\text{C}$  to  $+70\text{ }^{\circ}\text{C}$

### Amplifier (on request)

Model NAMUR (DIN 19234) for 1 or 2 adjustable inductive contacts

- Power supply: 24...230 V AC, 50 - 60 Hz      24...250 V DC
- Input: intrinsic safe circuit EEx ia IIC
- Output: 1 or 2 relays
- Load: 2...5 A / 40 V DC
- Temperature:  $-25\text{ }^{\circ}\text{C}$  to  $+70\text{ }^{\circ}\text{C}$



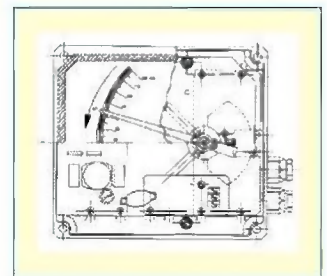
## Electronic measuring transducer HALLTEC IV

The HALLTEC IV is a transducer in 2 wire technique with a hall effect sensor. The hall sensor is based on the non contact sensing through the indicator mechanism.

### Model:

- TH4 transducer
- TH4T transducer + totalizer

- Power supply: 12...36 V DC
- max. current / load consumption: max. 20 mA
- Analog output: 4 - 20 mA
- Accuracy:  $< 0,6\%$  referenced to the magnet position
- Load max.: 1,1 k $\Omega$  at 36 V DC
- Pulse output: MOSFET potentialfree N-channel
- I max.: 200 mA
- max. frequency: 2 Hz
- Pulse length: approx. 250 ms
- Totalizer: 9 digits (8 + 1 decimal), 4,5 mm peak with reset via potentialfree contact
- Ambient temperature:  $-5\text{ }^{\circ}\text{C}$  to  $+70\text{ }^{\circ}\text{C}$



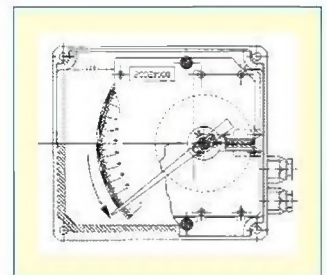
## Electronic measuring transducer HALLTEC III (EEx ia IIC T4 ATEX)

The HALLTEC III is a transducer in 2 wire or 4 wire technique with a hall sensor effect. The hall sensor is based on the non contact sensing through the indicator mechanism.

### Model:

- 2 wire:
- TH32Ex transducer
- TH32TEEx transducer + totalizer

- max. current: 20 mA
- Analog output: 4 - 20 mA
- Accuracy: 0,6 % referenced to the magnet position
- Load max.: 700  $\Omega$  at 24 V DC power supply
- Totalizer: 9 digits, 4,5 mm peak with reset via potentialfree contact
- Ambient temperature:  $-5\text{ }^{\circ}\text{C}$  to  $+40\text{ }^{\circ}\text{C}$



SC-250 5 0002 05-07 E M