



# ALMAG SERIES

Magnetic Flowmeter  
Magnetic Energy Meter



# ALMAG series Magnetic Flow/Energy Meter

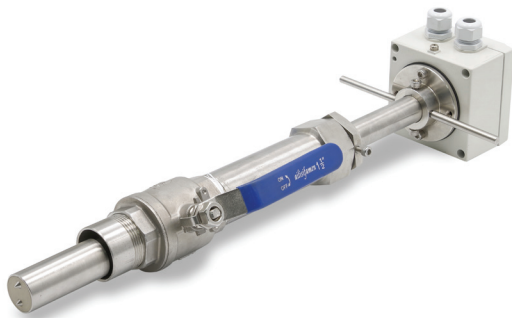


## ■ Standard Magnetic Flow/Energy Meter

- Line size: DN10~DN2000
- Flow Range(Velocity): 0.3~12 m/s
- Accuracy:  $\pm 0.5\%$  of reading (Velocity  $\geq 0.5$  m/s)  
 $\pm 3$  mm/s (Velocity  $< 0.5$  m/s)
- Connection: Flange, thread, wafer, sanitary
- Output: Pulse, 4-20mA, Relay, HART, RS485
- Power: AC, DC

## ■ Mini Magnetic Flow/Energy Meter

- Line size: DN3, DN6, DN8, DN10, DN15
- Flow Range(Velocity): 0.1~10 m/s
- Accuracy:  $\pm (0.5\%$  of reading + 1 mm/s)
- Connection: Flange, thread
- Output: Pulse, 4-20mA, Relay, HART, RS485
- Power: DC



## ■ Insertion Magnetic Flow/Energy Meter

- Line size: DN50~DN3000
- Flow Range(Velocity): 0.5~10 m/s
- Accuracy:  $\pm 1.5\%$  of reading (Velocity  $\geq 0.6$  m/s)  
 $\pm 9$  mm/s (Velocity  $< 0.6$  m/s)
- Connection: Welded, ball valve
- Output: Pulse, 4-20mA, Relay, HART, RS485
- Power: AC, DC

## ■ Battery Magnetic Flow Meter

- Line size: DN10~DN600
- Pressure: Up to 0.3~12Mpa
- Flow Range(Velocity): 0.5~8 m/s
- Accuracy:  $\pm 0.5\%$  of reading (Velocity  $\geq 0.6$  m/s)  
 $\pm 3$  mm/s (Velocity  $< 0.6$  m/s)
- Connection: Flange, wafer, sanitary
- Output: Pulse, Relay, RS485, GPRS, CDMA
- Power: Battery



# PRODUCT PRESENTATION

Model	Feature	Flow Range (Velocity:m/s)	Connection	Liner	Electrode	Transmitter	Output	Communication
ALMAG WP	Standard flow	0.3~12	flange, wafer, sanitary	CR, PU, PTFE, PFA, F46, Ceramic	316L, Nickel, Ti, HC, HB, Tan, Pt, Ceramic	Remote, Integral	Pulse 4-20mA	RS485, HART
ALMAG EG	Standard energy	0.3~12	flange, wafer, sanitary	CR, PU, PTFE, PFA, F46	316L, Nickel, Ti, HC, HB, Tan, Pt	Remote	Pulse 4-20mA	RS485, HART
ALMAG BAT	Battery power	0.5~8	flange, wafer, sanitary	CR, PU, PTFE, PFA, F46	316L, Nickel, Ti, HC, HB, Tan, Pt	Remote, Integral	/	Pulse, Relay, RS485, GPRS, CDMA
ALMAG MN	Mini style	0.1~10	flange,thread	PEEK	316L, HC	Remote, Integral	Pulse 4-20mA	RS485
ALMAG IS	Insertion style	0.5~10	ball vavle, weld	PEEK	316L, Nickel, Ti, HC, HB	Remote, Integral	Pulse 4-20mA	RS485, HART
ALMAG HP	High Pressure	0.5~8	flange	PFA, F46	316L, Nickel, Ti, HC, HB, Tan	Remote, Integral	Pulse 4-20mA	RS485, HART

## FUNCTIONAL SPECIFICATIONS:

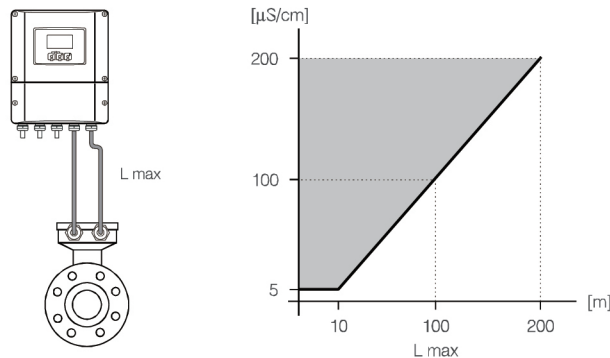
**Compatibility:** Smartmeasurement transmitters are compatible with Smartmeasurement sensors. Smartmeasurement transmitters compatible with AC and DC powered sensors of other manufacturers. Smartmeasurement sensor compatible with transmitters of some other manufacturers (TBA).

**Measuring Direction:** Bi-directional measurement

**Flow Rate Range:** Capable of processing signals from fluids that are traveling between 0.04 and 39 ft/s (0.01 to 12 m/s) for both forward and reverse flow in all sensor sizes. Full scale continuously adjustable between -39 and 39 ft/s (-12 to 12 m/s).

**Sensor Coil Resistance:** 150 Ω maximum

**Conductivity Limits:** Process liquid conductivity higher than 5 microsiemens/cm (5 μs/cm) or demineralized water conductivity higher than 20 μs/cm. Excludes the effect of interconnecting cable length in remote mount transmitter installations.



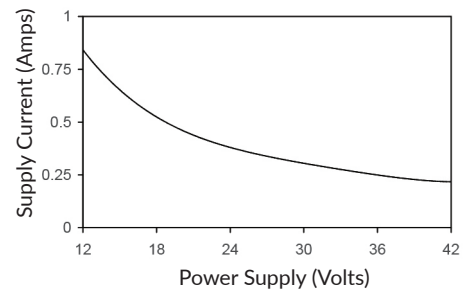
## FUNCTIONAL SPECIFICATIONS:

### Power Supply:

AC: 85~265VAC, 45~63Hz

DC: 16~30VDC, draw up to 1 amp of current steady state  
I<sub>max</sub>=23mA

FIGURE 1. DC Current Requirements



**Power consumption:** < 15W with sensor

### Switch-on current:

AC: Maximum 26A (< 5 ms) at 250VAC

DC: Maximum 30A (< 5 ms) at 42VDC

**Zero Adjustment:** Be adjusted to before operating

**Damping time:** 0.2 to 100s (default 6s)

**Grounding Resistance:** < 10Ω

**Output:** Pulse (1-5K Hz) 4~20mA<sub>DC</sub>

Relay (up to 3A/30V<sub>DC</sub>)

RS485 (up to 2km at 14400bps)

HART - opt GPRS - opt

## AMBIENT SPECIFICATIONS:

### Ambient Temperature Limits

#### Operating

-58 to 356°F (-50 to +180°C) without local transmitter

13 to 149°F (-25 to +65°C) with local transmitter

#### Storage

-40 to 185°F (-40 to +85°C)

-22 to 176°F (-30 to +80°C) with local transmitter

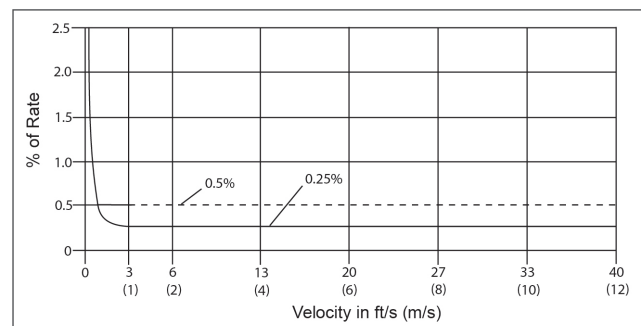
### Humidity Limits

0-90% RH to 150°F (+65°C)

**Protection:** IP65 - std IP68 - opt (only for remote type)

**Shock resistance:** up to 2g, conforms to IEC60068-2-6

**Interference-resistant:** conforms to EN61326/A1



# Standard Magnetic Flowmeter : ALMAG WP

ALMAG WP-			
<b>Connection</b>			
Flange type	F		
① Ceramic type (DN15~DN200)	C		
② Sanitary (DN15~DN100)	S		
③ Threaded type (DN10~DN50)	T		
④ Wafer type (DN10~DN200)	W		
<b>Line Size</b>			
DN10~DN2000	**		
<b>Electrode</b>			
316 stainless steel	0		
Nickel	1		
Hast C	2		
Tan	3		
Ti	4		
Ceramic ①	C		
<b>Liner material</b>			
Chloroprene Rubber(Neoprene)	3		
PU (polyurathane)	4		
PTFE ②③④	5		
PFA ②③④	6		
F46 ②③④	7		
Hard Rubber	8		
Ceramic ①	C		
<b>Transmitter</b>			
Integral type	IN		
Remote type - with 5m cable	RE		
<b>Pressure</b>			
Max Pressure 2.5Mpa (std up to DN80)	2.5		
Max Pressure 1.6Mpa (std up to DN150)	1.6		
Max Pressure 1.0Mpa (std up to DN900)	1.0		
Max Pressure 0.6Mpa (std up to DN2000)	0.6		
<b>Protection</b>			
Standard - IP65	65		
IP68 flowbody and IP65 transmitter, only for remote type	68		
<b>Grounding electrode/ring</b>			
Not Needed	0		
Grounding electrode	1		
SS # 304 grounding ring	2		
<b>Power supply</b>			
16~30 V <sub>DC</sub>	DC		
85~265V <sub>AC</sub> , @45 -63 Hz	AC		
<b>Communication</b>			
Non communication	0		
HART	1		
RS485 - Modbus	2		
RS485 - Profibus DP	3		
<b>Explosion proof</b>			
None	NX		
Explosion Proof - for integral type	EXI		
Explosion Proof - for remote type	EXR		
<b>Materials</b>			
Aluminium enclosure, 304SS flow tube, CS coil housing and process connection	NN		
Aluminium enclosure. 304SS flow tube, CS coil housing and 304SS process connection	C304		
Aluminium enclosure. 304SS flow tube, coil housing and process connection ①②③④	304		
<b>Option</b>			
None	NN		
With CS install flange	IF		



# Standard Magnetic Energy Meter : ALMAG EG

## ALMAG EG-

### Connection

Flange type	F
① Ceramic type (DN15~DN200)	C
② Sanitary (DN15~DN100)	S
③ Threaded type (DN10~DN50)	T
④ Wafer type (DN10~DN200)	W

### Line Size

DN10~DN2000	**
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### Electrode

316 stainless steel	0
Nickel	1
Hast C	2
Tan	3
Ti	4
Ceramic ①	C



### Liner material

Chloroprene Rubber(Neoprene)	3
PU (polyurathane)	4
PTFE ②③④	5
PFA ②③④	6
F46 ②③④	7
Hard Rubber	8
Ceramic ①	C

### Transmitter

Remote energy meter - 5m cable	ST
Integral flow meter and remote flow computer	IN
Remote flow meter and flow computer - 5m cable	RE

### Pressure

Max Pressure 2.5Mpa (std up to DN80)	2.5
Max Pressure 1.6Mpa (std up to DN150)	1.6
Max Pressure 1.0Mpa (std up to DN900)	1.0
Max Pressure 0.6Mpa (std up to DN2000)	0.6

### Protection

Standard - IP65	65
IP68 flowbody and IP65 transmitter, only for remote type	68

### Grounding electrode/ring

Not Needed	0
Grounding electrode	1
SS # 304 grounding ring	2

### Power supply

16~30 V <sub>DC</sub>	DC
85~265V <sub>AC</sub> , @45 -63 Hz	AC

### Communication

Non communication	0
HART	1
RS485 - Modbus	2
RS485 - Profibus DP	3

### Explosion proof

No Explosion Proof	NX
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### Materials

Aluminium enclosure, 304SS flow tube, CS coil housing and process connection, with RTD	NN
Aluminium enclosure. 304SS flow tube, CS coil housing and 304SS process connection, with RTD	C304
Aluminium enclosure. 304SS flow tube, coil housing and process connection, with RTD ①②③④	304

### Option

None	NN
With CS install flange	IF

# Battery Power Magnetic Flowmeter : ALMAG BAT

ALMAG BAT-			
<b>Connection</b>			
Flange type	F		
① Ceramic type (DN15~DN200)	C		
② Sanitary (DN15~DN100)	S		
③ Threaded type (DN10~DN50)	T		
④ Wafer type (DN10~DN200)	W		
<b>Line Size</b>			
DN10~DN600	**		
<b>Electrode</b>			
316 stainless steel	0		
Nickel	1		
Hast C	2		
Tan	3		
Ti	4		
Ceramic ①	C		
<b>Liner material</b>			
Chloroprene Rubber(Neoprene)	3		
PU (polyurathane)	4		
PTFE ②③④	5		
PFA ②③④	6		
F46 ②③④	7		
Hard Rubber	8		
Ceramic ①	C		
<b>Transmitter</b>			
Integral type	IN		
Remote type - with standard 5m cable	RE		
<b>Pressure</b>			
Max Pressure 2.5Mpa - up to DN80	2.5		
Max Pressure 1.6Mpa - up to DN150	1.6		
Max Pressure 1.0Mpa - up to DN600	1.0		
<b>Temperature</b>			
Up to +80℃	E		
Up to +150℃	H		
<b>Grounding electrode/ring</b>			
Not Needed	0		
Grounding electrode	1		
SS # 304 grounding ring	2		
<b>Excitation frequency</b>			
Every 15 seconds	15		
Every 30 seconds	30		
<b>Communication</b>			
None	0		
RS485	1		
GPRS	2		
CDMA	3		
<b>Explosion proof</b>			
None	NX		
None	NX		
None	NX		
<b>Materials</b>			
304SS flow tube, CS coil housing and connection	NN		
304SS flow tube, CS coil housing and 304SS connection	C304		
304SS flow tube, coil housing and connection ①②③④	304		
<b>Option</b>			
None	NN		
With CS install flange	IF		



# Magnetic Insertion Flowmeter : ALMAG IS

ALMAG IS-			
<b>Connection</b>			
Weld	W		
Ball valve - Welded	BW		
Ball valve - threaded	BT		
Ball valve - Flanged	BF		
<b>Line Size</b>			
DN50~DN3000	**		
<b>Electrode</b>			
316 stainless steel	0		
Nickel	1		
Hast C	2		
Tan	3		
Ti	4		
<b>Probe material</b>			
304 stainless steel	0		
316 stainless steel	1		
Ti	2		
HastalloyC	3		
<b>Transmitter</b>			
Integral type	IN		
Remote type - with 5m cable	RE		
<b>Pressure</b>			
Max Pressure 1.6Mpa	1.6		
<b>Protection</b>			
Standard - IP65	65		
IP68 flowbody and IP65 transmitter, only for remote type	68		
<b>Grounding electrode/ring</b>			
Not Needed	0		
<b>Power supply</b>			
16~30 VDC	DC		
85~265VAC, @45 -63 Hz	AC		
<b>Communication</b>			
Non communication	0		
HART	1		
RS485 - Modbus	2		
RS485 - Profibus DP	3		
<b>Explosion proof</b>			
None	NX		
Explosion Proof - for integral type	EXI		
Explosion Proof - for remote type	EXR		
<b>Materials</b>			
Aluminium enclosure, PEEK liner	NN		
<b>Option</b>			
Energy meter with RTD (only remote)	EG		
With welding installation part	WP		



# High Pressure Magnetic Flowmeter : ALMAG HP

ALMAG HP-			
<b>Connection</b>			
ANSI Flanged	AS		
JIS Flanged	JS		
DIN flange	DN		
Other type flange	**		
<b>Size</b>			
DN25~DN200	**		
<b>Electrode</b>			
316 stainless steel	0		
Nickel	1		
Hast C	2		
Tan	3		
Ti	4		
<b>Liner material</b>			
PFA	6		
<b>Transmitter</b>			
Integral type	IN		
Remote type - with 5m cable	RE		
<b>Pressure</b>			
Max Pressure 16 Mpa	16		
Max Pressure 25 Mpa	25		
Max Pressure 32 Mpa	32		
Max Pressure 42 Mpa	42		
<b>Protection</b>			
Standard - IP65	65		
IP68 flowbody and IP65 transmitter, only for remote type	68		
<b>Grounding electrode/ring</b>			
Not Needed	0		
Grounding electrode	1		
304SS grounding ring	2		
<b>Power supply</b>			
16~30 V <sub>DC</sub>	DC		
85~265V <sub>AC</sub> , @45-63 Hz	AC		
<b>Communication</b>			
Non communication	0		
HART	1		
RS485 - Modbus	2		
RS485 - Profibus DP	3		
<b>Explosion proof</b>			
None	NX		
Explosion Proof - for integral type	EXI		
Explosion Proof - for remote type	EXR		
<b>Materials</b>			
Aluminium enclosure, 304SS flow tube, CS coil housing and flange	NN		
Aluminium enclosure. 304SS flow tube, CS coil housing and 304SS flange	C304		
Aluminium enclosure. 304SS flow tube, coil housing and flange	304		
<b>Option</b>			
None	NN		
With CS install flange	IF		





# Mini Magnetic Flowmeter : ALMAG MN

ALMAG MN-			
<b>Connection</b>			
Thread - ½" NPT Male	N		
Thread - G½" Male	G		
Flange - ANSI 150#	F		
Other connection	**		
<b>Size</b>			
DN3	3		
DN6	6		
DN8	8		
DN10	10		
DN15	15		
<b>Electrode</b>			
316 stainless steel	0		
Hast C	2		
<b>Liner material</b>			
PEEK	3		
PK	4		
Other liner	**		
<b>Transmitter</b>			
Integral type with LED display + 4-20mA	L		
Integral bline type with 4-20mA	B		
<b>Pressure</b>			
Max Pressure 1.0Mpa	1.0		
Other pressure	**		
<b>Protection</b>			
Standard - IP65	65		
<b>Grounding electrode/ring</b>			
Not Needed	0		
<b>Power supply</b>			
24VDC ± 20%, 200mA	DC		
<b>Communication</b>			
Non communication	0		
RS485 - Modbus	2		
<b>Explosion proof</b>			
None	NX		
<b>Materials</b>			
Aluminium enclosure, 304SS flow tube and process connection	NN		
Aluminium enclosure, 316SS flow tube and process connection	316		
Aluminium enclosure, other materials flow tube and process connection	**		
<b>Option</b>			
None	N		
With temperature sensor in flowbody	T		
Relay output - 1 relay 250VAC, 5A / 30VDC, 5A	R		



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