



# ALMAG

## Electromagnetic Flowmeter

### Model ALMAGSK Series

#### GENERAL

**SMC ALMAGSK** is an inline-type electromagnetic flowmeter with flange connections. This versatile flow sensor is available for nominal pipe sizes ranging from ¼" through 80" and flow rates ranging from less than 0.1 GPM to over 600,000 GPM. The AliaMGSK is available in a wide variety of configurations including AC or DC powered, local or remote display, and RS485, HART, Profibus or analog outputs. This broad array of options makes the AliaMGSK an excellent choice for measuring conductive fluid flow rates in food & beverage, pulp & paper and industrial applications.

#### FEATURES

- ❑ Various liner materials are available to satisfy nearly all industrial applications
- ❑ Wide fluid velocity range of 0-40 ft/sec with excellent low-flow accuracy
- ❑ Flange-type process connections available in ANSI, DIN, and JIS style
- ❑ Suitable for high-pressure service
- ❑ IP68 environmental protection class
- ❑ FEP liner - vacuum tube suitable
- ❑ Excellent accuracy;  $\pm 0.5\%$  of reading or  $\pm 0.2\%$  of reading @ low velocity
- ❑ Upright/reverse flowrate test function standard with every unit

#### SPECIFICATIONS

- |                      |   |                         |   |
|----------------------|---|-------------------------|---|
| ● Size               | : ¼, ⅜, ½, ¾, 1, 1½, 1½, 2, 2½, 3, 3, 4, 5, 6, 8, 10, 12, 14, 16, 18, 20, 24, 28, 32, 36, 40, 48, 56, 64, 72, 80 in | ● Electrode & Grounding | : Stainless Steel 316L<br>Hastelloy B<br>Hastelloy C<br>Titanium<br>Tantalum<br>Tungsten Carbide  |
| ● Measuring Range    | : Velocity 0 - 0.82 feet/sec<br>0 - 40 feet/sec max.  | ● Cable Entry           | : 2 X PG11  |
| ● Material           |   | ● Ambient Temperature   | : -10 to +140 °F  |
| Measuring Tube       | : Stainless Steel #304  | ● Process Connection    | : Flange  |
| Flange               | : Carbon Steel(standard)<br>Stainless Steel #304(optional)<br>Stainless Steel #316(optional)                        | Flange types            | : JIS 10K / JIS 20K / JIS 40K<br>ANSI 150# / ANSI 300# / ANSI 600#<br>DIN PN 10 / PN 16 / PN25 / PN 40  |
| Coil Housing         | : Carbon Steel(standard)<br>Stainless Steel #304(optional)<br>Stainless Steel #316(optional)                        | ● Grounding Resistance  | : Must be $\leq 10 \Omega$  |
| ● Liner              | : Polyurethane(1-24")<br>Neoprene(2-60")<br>FEP(¼-12")<br>PTFE(1-32")   | ● Accuracy              | : $\pm 0.5\%$ of reading (Velocity $\geq 0.5$ m/s)<br>$\pm 0.0082$ feet/sec (Velocity < 0.5 m/s)<br>$\pm 0.2\%$ of reading (Velocity < 0.5 m/s) |
| ● Protection         | : IP 65 or IP 68<br>IP 68 (Submersible)   | ● Temperature           | : 14 ~ 140 °F (Polyurethane)<br>-5 ~ 160 °F (Neoprene)<br>-40 ~ 356 °F (FEP)<br>-40 ~ 356 °F (PTFE)   |
| ● Conductivity       | : Must be $\geq 5 \mu\text{S/cm}$   |                         |   |
| ● Power requirements | : 110-240V <sub>AC</sub> or 24 V <sub>DC</sub>  |                         |   |
| ● Outputs            | : Analog, HART, RS485, Profibus   |                         |   |

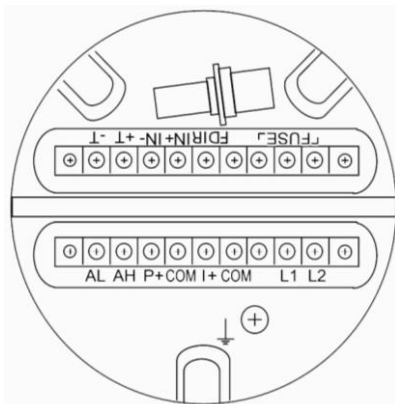


**FLOW RANGE**

Nominal Size		Flow Range & Velocity Table							
mm	Inch	Min. (GPM)						Max. (GPM)	
		0 - 0.25M/S	1.0 M/S	2.0 M/S	3.0 M/S	5.0 M/S	10.0 M/S	0 - 12 M/S	
6	¼"	0 to 0.112	0.45	0.90	1.34	2.24	4.48	0 to 5.38	
10	⅜"	0 to 0.311	1.24	2.49	3.73	6.22	12.45	0 to 14.94	
15	½"	0 to 0.700	2.80	5.60	8.40	14.00	28.01	0 to 33.61	
20	¾"	0 to 1.245	4.98	9.96	14.94	24.90	49.79	0 to 59.75	
25	1"	0 to 1.945	7.78	15.56	23.34	38.90	77.80	0 to 93.36	
32	1-¼"	0 to 3.187	12.75	25.49	38.24	63.74	127.5	0 to 153.0	
40	1-½"	0 to 4.979	19.92	39.84	59.75	99.59	199.2	0 to 239.0	
50	2"	0 to 7.780	31.12	62.24	93.36	155.61	311.2	0 to 373.5	
65	2-½"	0 to 13.15	52.60	105.2	157.8	262.98	526.0	0 to 631.1	
80	3"	0 to 19.92	79.67	159.3	239.0	398.35	796.7	0 to 956.0	
100	4"	0 to 31.12	124.5	249.0	373.5	622.43	1,245	0 to 1,494	
125	5"	0 to 48.63	194.5	389.0	583.5	972.54	1,945	0 to 2,334	
150	6"	0 to 70.02	280.1	560.2	840.3	1,400	2,801	0 to 3,361	
200	8"	0 to 124.5	497.9	995.9	1,494	2,490	4,979	0 to 5,975	
250	10"	0 to 194.5	778.0	1,556	2,334	3,890	7,780	0 to 9,336	
300	12"	0 to 280.1	1,120	2,241	3,361	5,602	11,204	0 to 13,444	
350	14"	0 to 381.2	1,525	3,050	4,575	7,625	15,249	0 to 18,299	
400	16"	0 to 497.9	1,992	3,984	5,975	9,959	19,918	0 to 23,901	
450	18"	0 to 630.2	2,521	5,042	7,562	12,604	25,208	0 to 30,250	
500	20"	0 to 778.0	3,112	6,224	9,336	15,561	31,121	0 to 37,346	
600	24"	0 to 1,120	4,481	8,963	13,444	22,407	44,815	0 to 53,778	
700	28"	0 to 1,525	6,100	12,200	18,299	30,499	60,998	0 to 73,198	
800	32"	0 to 1,992	7,967	15,934	23,901	39,835	79,671	0 to 95,605	
900	36"	0 to 2,521	10,083	20,167	30,250	50,417	100,833	0 to 121,000	
1000	40"	0 to 3,112	12,449	24,897	37,346	62,243	124,486	0 to 149,383	
1200	48"	0 to 4,481	17,926	35,852	53,778	89,630	179,259	0 to 215,111	
1400	56"	0 to 6,100	24,399	48,798	73,198	121,996	243,992	0 to 292,790	
1600	64"	0 to 7,967	31,868	63,737	95,605	159,341	318,683	0 to 382,420	
1800	72"	0 to 10,083	40,333	80,667	121,000	201,667	403,333	0 to 484,000	
2000	80"	0 to 12,449	49,794	99,588	149,383	248,971	497,942	0 to 597,531	

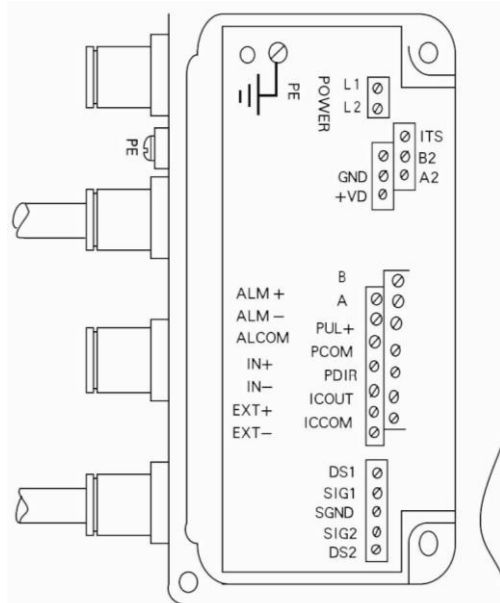
**ELECTRICAL CONNECTION**

**Integral**



Up line: T-, T+; RS485 Communication  
 FUSE: Power Fuse  
 Low line: AL, AH; L, H alarm  
 P+, COM : Pulse Frequency,  
 COM : be commonly used with AL,AH  
 I+, COM : 4-20mA  
 L1, L2 : 220V<sub>AC</sub> (24V<sub>DC</sub> optional)

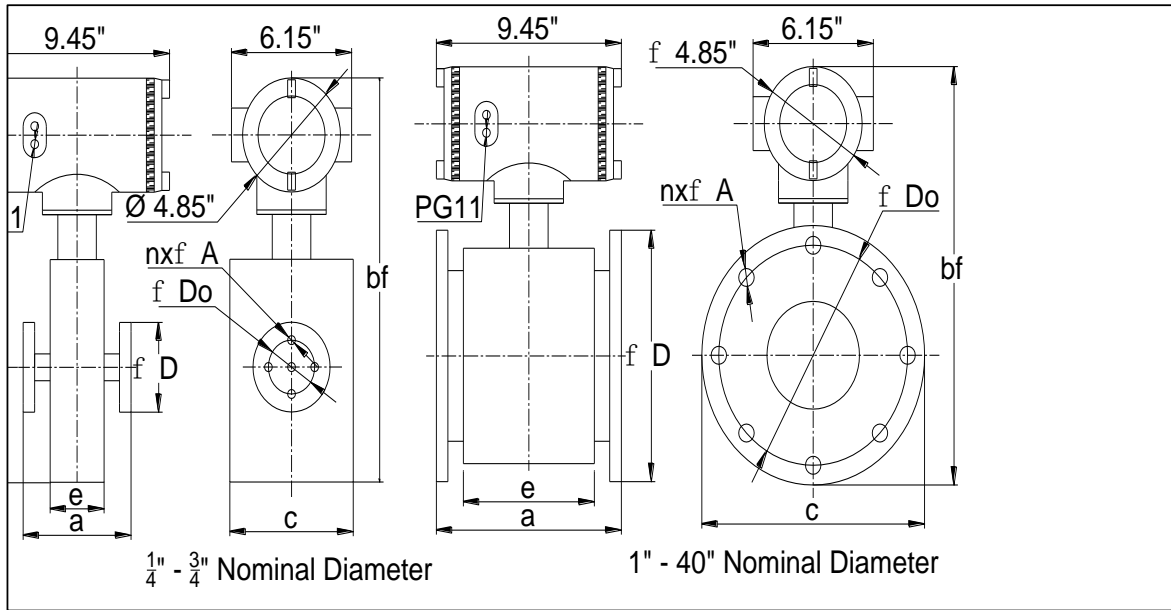
**Remote**



EXT+ : Excitation output+  
 EXT- : Excitation output-

DS1 : Signal shield 1  
 SIG1 : Signal 1  
 SIG 2 : Signal 2  
 DS 2 : Signal shield 2  
 PDIR : Flow direction  
 ALM+ : H alarm  
 ALM- : L alarm  
 A : RS485+  
 B : RS485-  
 IN+ : Contact input +  
 IN- : Contact input-  
 L1 : AC/DC power +  
 L2 : AC/DC power -  
 A2 : PROFIBUS data line DP – A  
 B2 : PROFIBUS data line DP – B  
 ALCOM : State output terminal  
 RTS : Relay control (direction)  
 +VD : Isolated power source 5V  
 GND : Isolated power grounding  
 IOUT+ : Currency output+  
 SIG GND: Signal grounding

7 DIMENSIONS



Nominal Pipe Size	Nomal pressure (psig)	Dimension (inches)					Dimension of flange (inches)			Weight Kg
		a	bf	c	d	e	D	Do	nxA	
3/8"	580	5 29/32	16 1/16	6 1/8	4 7/32	2 13/16	3 9/16	2 6/16	5/32 x 9/16	15
1/2"		5 29/32	16 1/16	6 1/8	4 7/32	2 13/16	3 3/4	2 9/16	5/32 x 9/16	17
3/4"		5 29/32	16 1/16	6 1/8	4 7/32	2 13/16	4 1/8	2 15/16	5/32 x 9/16	18
1"		5 29/32	11 15/16	4 4/8		3 1/16	4 17/32	3 3/8	5/32 x 9/16	20
1-1/4"		5 29/32	12 9/16	5 1/2		3 1/16	5 1/2	3 15/16	5/32 x 23/32	21
1-1/2"		5 29/32	13 1/14	5 7/8		2 1/2	5 7/8	4 5/16	5/32 x 23/32	26
2"		7 7/8	13 5/8	6 1/2		4 5/16	6 1/2	4 15/16	5/32 x 23/32	30
2-1/2"		7 7/8	14 7/16	7 5/16		4 1/8	7 5/16	5 11/16	5/16 x 23/32	34
3"	7 7/8	15 1/16	7 7/8		4	7 7/8	6 5/16	5/16 x 23/32	38	
4"	232	9 13/16	15 10/16	8 11/16		5 7/8	8 11/16	7 1/16	5/16 x 23/32	48
5"		9 13/16	16 14/16	9 13/16		5 7/8	9 13/16	8 1/4	5/16 x 23/32	64
6"		11 13/16	18 1/14	11 1/4		7 1/16	11 1/4	9 7/16	5/16 x 27/32	77
8"	145	13 3/4	20 3/8	13 3/8		8 3/4	13 3/8	11 5/8	5/16 x 27/32	105
10"		15 3/4	22 7/16	15 9/16		10	15 9/16	13 3/4	15/32 x 27/32	149
12"		19 11/16	24 5/16	17 8/16		12 7/16	17 1/2	15 3/4	15/32 x 27/32	187
14"		19 11/16	26 5/16	19 7/8		12	19 7/8	18 1/8	5/8 x 27/32	280
16"		23 5/8	28 7/16	22 1/4		14 15/16	22 2/8	20 1/4	5/8 x 27/32	280
18"		23 5/8	30 7/16	24 3/16		14 15/16	24 3/16	22 1/4	25/32 x 29/32	429
20"		23 5/8	32 1/2	26 3/8		15 3/4	26 3/8	24 7/16	25/32 x 29/32	463
24"		23 5/8	36 5/8	30 11/16		17 15/16	30 11/16	28 9/16	25/32 x 1-3/16	668
28"		27 9/16	40 7/8	35 1/4		21 7/16	35 2/8	33 1/14	15/16 x 1-3/16	1,036
32"		31 1/2	45 3/16	39 15/16		22 13/16	39 15/16	37 6/16	15/16 x 1-9/32	1,102
36"	35 7/16	49 1/8	43 7/8		27 3/16	43 7/8	41 5/16	1-5/32 x 1-9/32	1,543	
40"	39 3/8	53 3/8	48 7/16		29 1/2	48 7/16	45 11/16	1 1/8 x 1-13/32	2,030	
48"	87	47 1/4	65 7/8	55 5/16		34 1/4	55 5/16	52 3/4	1-1/4 x 1-9/32	
56"		55 1/8	73 6/8	64 3/16		41 1/2	64 3/16	61 7/16	1-13/32 x 1-13/32	
64"		63	82 1/16	72 1/16		47 3/16	72 1/16	69 5/16	1-9/16 x 1-13/32	
72"		70 7/8	90 11/16	80 1/2		52 13/16	80 1/2	77 9/16	1-3/4 x 1-17/32	
80"		78 3/4	98 9/16	89 3/16		60 1/16	89 3/16	85 13/16	1-7/8 x 1-21/32	
88"	37	86 5/8	106 7/16	94 11/16		67 1/2	94 11/16	91 1/8	2-1/32 x 1-25/32	

**\*\* Please contact your local SMC application engineer**

You also need to provide the following information:

Type of Fluid	Please specify the name of your fluid media, the operating PH, and conductivity.
Full Scale Flow	Maximum and minimum flow rates should be specified in units of Lb/hr, GPM or LPM, etc..
Line Size	Please state nominal pipe size as well process connection type (flange, threaded, etc..)
Pressure & Temperature	We will calibrate your flowmeter as close to your operating conditions as possible
Type of Electronics	Please indicate integral or remote electronics as well level of environmental protection required
Power Requirements	Specify your power requirements as either 24 V <sub>DC</sub> or 230 V <sub>AC</sub>

**Model Selection Guide**

ALMAGSK Series																
Example: ALMAGSK-100-33-PN1.6-E00-100-001-0																
ALMAGSK-	**-	*	*-	**	**-	*	*	*-	*	*	*-	*	*	*-	*	Description
¼ ~ 80"	6 ~ 2000														Size	
Stainless Steel 316L	0														Electrode	
Pt	1															
HB	2															
Ta	3															
Ti	4															
HC	5															
TuC	6															
Chloroprene Rubber(Neoprene)	3														Liner Material	
Polyurethane	4															
PTFE	5															
FEP	6															
ETFE	7															
PO	8															
PPS	9															
DN, ANSI or JIS flanges			**													Flange style
580 psig max pressure with flanges (½~3")			4.0													Nominal Pressure (psig)
232 psig max pressure with flanges (4~6")			1.6													
145 psig max pressure with flanges (8~40")			1.0													
87 psig max pressure with flanges (42~79")			0.6													
37 psig max pressure with flanges (79~134")			0.25													
176 °F or less			E													Working Temperature
300 °F or less			H													
Not Needed			0													Grounding Rings
Needed			1													
IP65			0													Protection
IP68			1													
Integral			0													Transmitter
Remote			1													
None			0													Communication
RS-485			1													
HART			2													
PB			3													
Carbon Steel			0													Housing Material
Stainless Steel 304 SS			1													
Carbon Steel			0													Flange Material
Stainless Steel 304 SS			1													
Needed			0													Mating Flange
Not Needed			1													
85-240 V <sub>AC</sub>			0													Power Supply
24 V <sub>DC</sub>			1													
Not Needed			0													Explosion proof
Explosion Proof			Ex													