

ELECTROMAGNETIC FLOW METER

MODEL AEFM-100

FULL-BORE · MICROCONTROLLER-BASED · OBSTRUCTION-FREE



FIG. 01 — AEFM-100, INTEGRAL CONFIGURATION

CONDUCTIVE LIQUIDS & SLURRIES · CLOSED PIPES

SIZE RANGE	ACCURACY	PROTECTION	OUTPUT	POWER
DN 15 – DN 500	±0.5% of MV	IP 67	4–20 mA · RS 485 · Pulse	230 V AC / 24 V DC

01 INTRODUCTION

The Arrowmech AEFM-100 is a microcontroller-based, full-bore electromagnetic flow meter for industrial applications. It accurately measures the flow rate of conductive liquids and slurries in closed pipes. With its simple, rigid design, the meter is an obstruction-free, maintenance-free replacement for conventional mechanical flow measuring devices — no moving parts, and no pressure drop. Advanced electronics deliver high measuring accuracy as an electrical signal — 4–20 mA DC, Pulse and RS 485 — linearly proportional to volumetric flow.

02 FEATURES

- Surge protector
- Auto "zero" calibration
- Empty / full pipe detection by capacitance technology
- Bidirectional — forward & reverse flow
- Multiple flow rate units available
- Adjustable damping time
- Low flow rate cutoff
- Resettable totalizer
- Pre-set totalizer
- Stable "zero" output, low power consumption
- LCD readout: flow rate, velocity, total flow, empty line, direction

03 CHARACTERISTICS

- Volume-based measurement — independent of fluid pressure, temperature, density and viscosity.
- Short straight-run requirement: only 10×D upstream and 5×D downstream of the meter.
- Corrosion & abrasion resistance by selecting appropriate wetted materials — lining and electrode.
- Suitable for acidic, alkali and neutral salt solutions with appropriate lining.
- Converter: high reliability, stable "zero" output, easy operation.

04 TECHNICAL SPECIFICATIONS

PARAMETER	SPECIFICATION
Nominal diameter	DN 15 to DN 500 (15 – 500 mm)
Process pressure	16 kg/cm ²
Conductivity	Min. 10 µS/cm
Response time	0.3 second
Empty pipe detection	Yes
Ambient temperature	0 °C to 55 °C
Measuring tube material	SS 304 / SS 316
Sensor housing material	MS / SS 304 / SS 316
Connection	Flange ANSI 150
Internal lining	PTFE / Rubber
Electrode material	SS 316L / Hastelloy C / Titanium / Tantalum / Platinum
Process temperature	Up to 150 °C (PTFE lining)
Display version	Remote / Integral
Processor	ARM microprocessor
Electronic housing	Die-cast aluminium, IP 65
Display	Backlit LCD, multiple information
Measuring units	m ³ /h, m ³ /m, m ³ /s, kg/h, kg/m, kg/s, L/h, L/m, L/s (selectable)
Power supply	230 V AC or 24 V DC
Output	4–20 mA (isolated) · RS 485 · Pulse · HART (optional)
Remote display	Std. 10 metre cable
Measuring range	0.2 to 12 m/s (bidirectional)
Accuracy	±0.5% of measured value
Repeatability	±1% of span
Protection class (transmitter)	IP 67

05 APPLICATIONS

- Raw water
- Potable water
- Sea water
- Waste water
- Heat exchangers
- Industrial & domestic effluent
- Syrup
- Molasses
- Fruit juice
- Pulp & beverages
- Acidic & alkaline solutions
- Cooling water
- Brine solutions
- Paper pulp
- Black, green & white liquor
- Neutral salt solutions

06 INDUSTRIES WE SERVE

- Effluent Treatment Plants
- Water Supply Schemes
- Food & Drug
- Chemical & Fertilizer
- Dairy
- Sugar
- Textile Processing
- Petrochemical
- Pharmaceutical
- Metallurgy

07 FLOW RATE CHART (m³/h)

DN (mm)	FLOW RANGE (m ³ /hr) Velocity 0.3 m/s to 10 m/s	ACCURACY RANGE (m ³ /hr) Velocity 1 m/s to 6 m/s
DN 15	0.19 – 6.35	0.3 ~ 3.2
DN 20	0.33 – 11.34	0.5 ~ 5.7
DN 25	0.52 – 17.66	0.7 ~ 8.8
DN 32	0.86 – 29.93	1.2 ~ 14
DN 40	1.35 – 45.21	1.8 ~ 23
DN 50	2.12 – 70.65	2.8 ~ 35
DN 65	3.58 – 119	4.8 ~ 60
DN 80	5.43 – 180	7.2 ~ 90
DN 100	8.48 – 282	11 ~ 140
DN 125	13.25 – 441	17 ~ 220
DN 150	19.08 – 635	25 ~ 310
DN 200	33.91 – 1130	45 ~ 560
DN 250	52.99 – 1766	71 ~ 880
DN 300	76 – 2543	100 ~ 1200
DN 350	103 – 3461	140 ~ 1700
DN 400	135 – 4521	180 ~ 2200
DN 450	171 – 5722	230 ~ 2800
DN 500	211 – 7065	280 ~ 3500

08 DIMENSION CHART (mm)

DN (mm)	L	B	C	D	PCD
DN 15	193	88.9	193.9	253.9	60.5
DN 20	193	98.4	293.4	263.4	70.0
DN 25	193	107.9	212.9	272.9	79.5
DN 32	193	117.5	222.5	282.5	89.0
DN 40	193	127.0	232.0	292.0	98.5
DN 50	193	152.4	257.4	317.4	120.5
DN 65	243	177.8	282.8	342.8	139.5
DN 80	244	190.5	295.5	355.5	152.5
DN 100	244	228.6	333.6	393.6	190.5

DN (mm)	L	B	C	D	PCD
DN 125	244	254.0	359.0	419.0	216.0
DN 150	290	279.6	384.6	444.6	241.5
DN 200	341	342.9	447.9	507.9	298.5
DN 250	441	406.9	511.9	571.9	362.0
DN 300	490	482.6	587.6	647.6	432.0
DN 350	490	533.4	638.4	698.4	476.0
DN 400	490	596.4	701.4	761.4	539.5
DN 450	540	635.0	740.4	800.4	578.0
DN 500	540	698.5	803.5	863.5	635.0

PCD = PITCH CIRCLE DIAMETER OF FLANGE · ALL DIMENSIONS IN MM

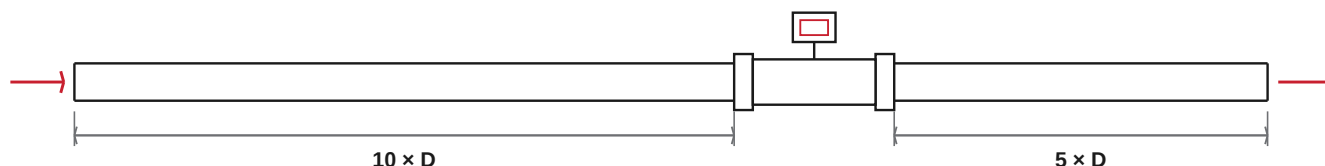


FIG. 04 — INSTALLATION: STRAIGHT RUN REQUIREMENT

D = DIAMETER OF FLOW METER IN INCH

09 CONFIGURATIONS



FIG. 02 — AEFM-100, INTEGRAL CONFIGURATION
Transmitter mounted directly on the meter body.



FIG. 03 — AEFM-100, REMOTE CONFIGURATION
Wall-mounted transmitter · standard 10 m cable.

10 ORDERING CODE

EXAMPLE — STANDARD FLOW METER CODE:

AEFM-100 - **I** - **PA** - **050** - **F1** - **L3** - **E1** - **R1** - **T1** - **H1** - **C1** - **O1**

TRANSMITTER TYPE		
I	Integral	(s)
R	Remote	

POWER SUPPLY		
PD	24 V DC	
PA	230 V AC	(s)

FLANGE MATERIAL		
F1	Carbon steel	(s)
F2	SS 304	
F3	SS 316	

SENSOR LINING		
L1	Hard rubber	
L2	Neoprene	
L3	PTFE	(s)
L4	Polyurethane	
L5	PFA	

LINE SIZE		
015	15 (1/2")	
020	20 (3/4")	
025	25 (1")	
032	32 (1.25")	
040	40 (1.5")	
050	50 (2")	
065	65 (2.5")	
080	80 (3")	
100	100 (4")	
125	125 (5")	
150	150 (6")	
200	200 (8")	
250	250 (10")	
300	300 (12")	
350	350 (14")	
400	400 (16")	
450	450 (18")	
500	500 (20")	

ELECTRODE MATERIAL		
E1	SS 316L	(s)
E2	Hastelloy C	
E3	Titanium	
E4	Tantalum	
E5	Platinum	

EARTHING RING		
R1	None (earth electrode)	(s)
R2	SS 316	

MEASURING TUBE		
T1	SS 304	(s)
T2	SS 316	

COIL HOUSING		
H1	Carbon steel	(s)
H2	SS 304	
H3	SS 316	

CABLE LENGTH		
C1	10 metre	(s)
C2	20 metre	
C3	30 metre	
C4	50 metre	
C5	80 metre	
C6	N/A	

OUTPUT		
O1	RS485 / Pulse / 4–20 mA	(s)
O2	HART	

(s) = STANDARD SELECTION