

A low-angle, blue-tinted photograph of an industrial facility, likely a refinery or chemical plant. Large pipes and complex piping structures are visible, extending from the foreground into the background. The sky is overcast.

# Electro Magnetic Flowmeter

BMAG100

**BanksiaControls** The logo for BanksiaControls, featuring the company name in a bold, sans-serif font followed by a cluster of seven white, stylized star or asterisk shapes of varying sizes.

## Electro Magnetic Flowmeter - BMAG100

### PART 1 DETECTOR

The BMAG100's flow detectors offer the strength and durability of steel with a choice of chemical or abrasive resistant liners.

### Features

- The BMAG100 flow detector uses the well proven electromagnetic method of measurement, which applies Faraday's Law as the principle of operation.
- No moving parts
- High accuracy
- Wide operating range
- No obstruction to the flow
- Little to no pressure loss
- Liners to suit chemical or abrasive applications
- A choice of electrodes to suit the process
- Variety of flange types available
- Robust construction
- Steel welded construction
- Submersible to 10 meters (5 feet) of water
- Suitable for buried service
- Minimal straight pipe installation requirements
- BMAG100 transmitter which features multiple outputs and flexible programming

### General Applications

- Water production and distribution.
- Waste water monitoring and treatment.
- Irrigation flow measurement.
- Mining slurries.
- Effluent discharge
- Pulp and paper applications



### Technical Data and Specifications

#### Accuracy

Display and Outputs	0.5% of rate or 1mm/sec whichever is greater (Option 0.2%)
Velocity Range:	0.05 to 10m/sec (0.01m/sec option)
Turndown from	> 1000:1
Full Scale:	
Pressure Effects:	Negligible effect
Repeatability:	< 0.05 %
Power Supply Variations:	Negligible

*Note : Under reference conditions*

#### Specifications

Sizes	10mm-1200mm
Metering Tube	304 Stainless steel
Lining	Chloroprene Rubber F.E.P PTFE Lina tex, Polyurethane 316L SS (Std.) Hastelloy-C Tantalum
Electrodes	Titanium Tungsten Carbide Monel
Earthing	316SS (Std.) Hastelloy-C Tungsten Tipped 304SS Discs
Process Flange Connections	KS 10K / 20K ANSI 150# / 300# (Carbon steel)
Pressure Limits	Limited by flange rating Dependent on Liner selection, Hard Ebonite
Temperature Limitations	Rubber = 80°C PTFE = 160°C FEP = 120°C
Environmental Protection Housing	IP65 / IP67 All steel welded case with two part flange

## Electro Magnetic Flowmeter - BMAG100

### PART 2 TRANSMITTER

Comprehensive range of electromagnetic flowmeters to suit applications from water to abrasive and corrosive process fluids.

### Features

- The BMAG100 uses the well proven electromagnetic method of measurement, which applies Faraday's Law as the principle of operation. This technique features a straight through section of pipe with no obstruction to restrict flow and no moving parts to wear or break.
- Highly accurate. 0.5 % of rate from 0.05 to 10 meters per second.
- Integral key pad standard. All configuration is performed via front keypad. No plug-in programmer required.
- 32 character display standard, displays rate, total and diagnostic messages.
- Display guides operator with menu prompts during configuration.
- Comprehensive output options, Include multiple analogue, relay, digital and serial outputs.
- Self calibrating system with in-field verification.
- Self monitoring and diagnostic functions. Constantly monitors system integrity and measurement validity. Diagnostics can be linked to outputs for diagnostic alarm.
- Combined type flow transmitter

### General Applications

Electromagnetic flowmeters for the accurate flow measurement of any conductive fluid, Ideally suited to water and waste water treatment plants, mining and general industry.

### Technical Data

**Display:** 64 character (4 line x 16 character) alpha-numeric backlit LCD. Displays rate of flow, total flow, alarms, analogue outputs and relay enunciators. Displays text prompts in programming mode.

**Configuration:** All functions are accessible via 4 button integral key pad. A logical 4 group menu system with display prompts ensures ease of configuration.

### Outputs:

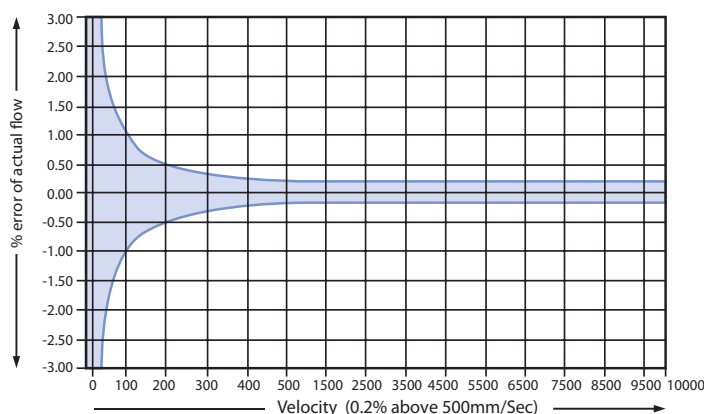
- 1 x 4-20 mA Output Fully isolated. (max. load 750 ohms)
- 1 x Digital open collector output
- RS485 MODBUS output
- 1 x RS422/RS232 (Optional)

**Power supply:** 24VDC. 85-265 VAC 50/60Hz. ( $\pm 20\%$ ). Power consumption, 25 VA.

**Enclosure:** Rated IP65 Combined type

**Accuracy:**  $\pm 0.5\%$  of rate or  $\pm 0.05$  meters per second, whichever is greater, from 0.05 to 10 meters (1 - 65 to 33 feet) per second.

### Velocity/Accuracy Graph



Resolution	18 bit
Linearity	< 0.05%
Repeatability	< 0.05%
Temp, stability	< 0.05% range, minus 10-55°C (14-131°F)
Voltage effects	Negligible
Turndown from FS	> 1000:1
Separation	100 metres (328 feet)
Conductivity	5µS/cm



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### SET-UP AND OPERATION

The operation and set-up of the system are broken into two main areas:

#### Commissioning Mode

Only accessible through a security code to avoid unauthorised access. This mode is used to set the Flow System to your application requirements, including Flow Range, Flow Units, Response Time, Simulations, Outputs etc. Settings may be made either direct via the four button keypad or remotely using the CommsPort. When information is provided, the BMAG100 is supplied configured to customer requirements.

#### Operations Menu

Displays readings in normal run mode. The default display shows the Flow rate and Totaliser with an indication of Forward Flow. The operator may also call up other displays, using the up/down arrow key, such as

- Total / Rate
- Accumulated Total
- Error Status

The display automatically reverts back to default display after ten seconds.

### Diagnostics

The BMAG100 incorporates advanced diagnostics which monitor the integrity of the system, including:

- Detector Head Current
- Detector Head Cabling
- Internal Reference Voltages
- A to D Conversion

### Configuration options

- Detector Head Size
- Low-flow Cut-off
- Detector Head Constant
- Failsafe Modes
- Flow range
- Relay functions
- Outputs

The LCD display and integral keypad allows the user complete control over all configurable functions.

### Operator interface

The BMAG100 includes an integral 2 line alphanumeric display and keypad as standard. No plug in programmer is required. Password protection is included to prevent unauthorized tampering. All parameters are sequenced in a logical, easy to follow order. Configuration prompts on the display further simplifies set-up.

## Flow Range Chart

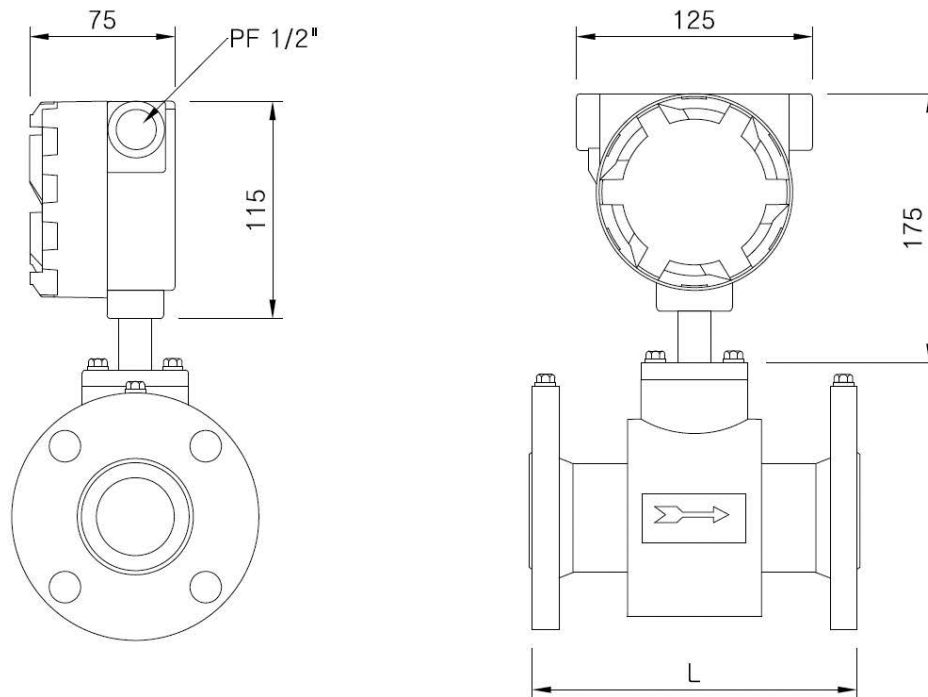
Meter		Min. Flow Range	Max. Flow Range
		Flow Velocity	Flow Velocity
		0 to 0.01 m/s	0 to 10 m/s
mm	Inch	l/min, m3/h	l/min, m3/h
10	3/8	0 to 0.04 l/min	0 to 40 l/min
15	1/2	0 to 0.01 l/min	0 to 100 l/min
20	3/4	0 to 0.15 l/min	0 to 150 l/min
25	1	0 to 0.2 l/min	0 to 200 l/min
32	1 1/4	0 to 0.4 l/min	0 to 400 l/min
40	1 1/2	0 to 0.6 l/min	0 to 600 l/min
50	2	0 to 0.06 m3/h	0 to 60 m3/h
65	2 1/2	0 to 0.12 m3/h	0 to 120 m3/h
80	3	0 to 0.18 m3/h	0 to 180 m3/h
100	4	0 to 0.24 m3/h	0 to 240 m3/h
125	5	0 to 0.42 m3/h	0 to 420 m3/h
150	6	0 to 0.60 m3/h	0 to 600 m3/h

Meter		Min. Flow Range	Max. Flow Range
		Flow Velocity	Flow Velocity
		0 to 0.01 m/s	0 to 10 m/s
mm	Inch	l/min, m3/h	l/min, m3/h
200	8	0 to 1.08 m3/h	0 to 1080 m3/h
250	10	0 to 1.80 m3/h	0 to 1800 m3/h
300	12	0 to 2.40 m3/h	0 to 2400 m3/h
350	14	0 to 3.30 m3/h	0 to 3300 m3/h
400	16	0 to 4.50 m3/h	0 to 4500 m3/h
450	18	0 to 6.00 m3/h	0 to 6000 m3/h
500	20	0 to 6.60 m3/h	0 to 6600 m3/h
600	24	0 to 9.60 m3/h	0 to 9600 m3/h
700	28	0 to 13.20 m3/h	0 to 13200 m3/h
800	32	0 to 18.00 m3/h	0 to 18000 m3/h
900	36	0 to 24.00 m3/h	0 to 24000 m3/h
1000	40	0 to 27.00 m3/h	0 to 27000 m3/h

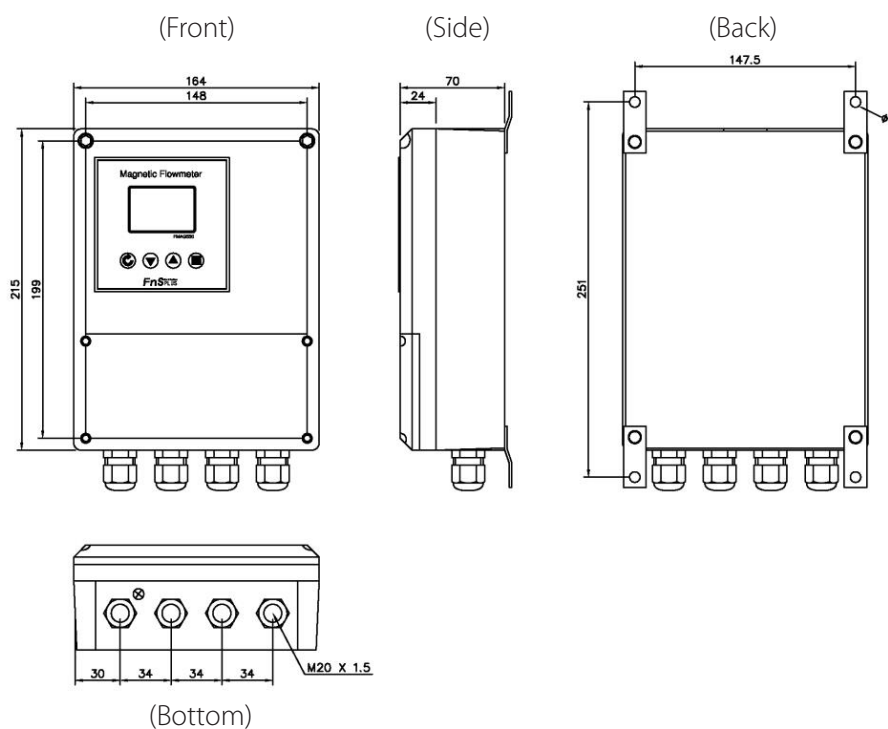


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### Remote Type Sensor Dimension



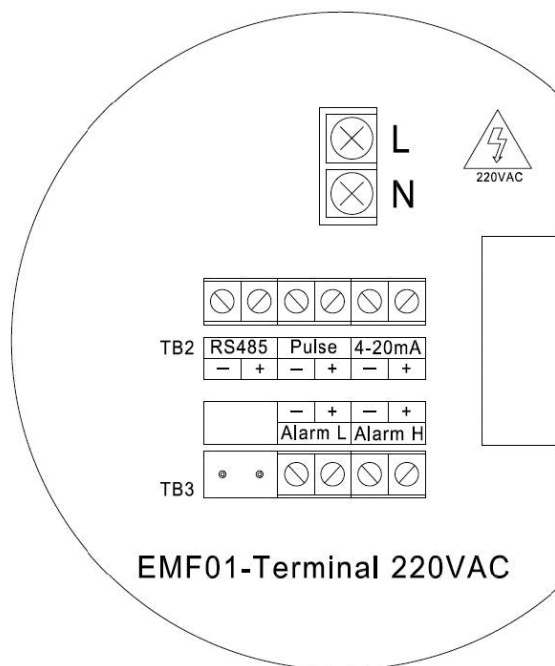
### Remote Type Transmitter Dimension



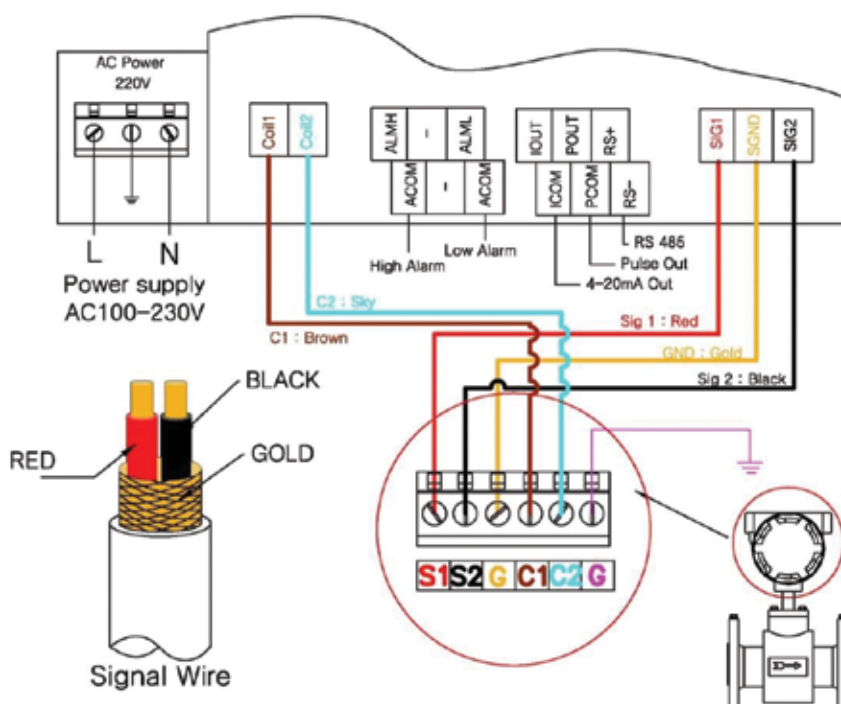
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### Wiring Diagram

#### Integral Type



#### Remote Type



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### Ordering Information

Model		Order Code				Description			
BMAG100						Magnetic Flow Meter			
Transmitter	Power	D					DC 24V		
		A					AC 110V		
		E					AC 220V		
		F					AC 85-264V FREE		
	Output		1A			4-20mm A Pulse (Std.)			
			2A			4-20mm A Pulse, 2-Relay (Opt.)			
Communication			0			RS-485 MODBUS (Std.)			
			1			RS-232C (Opt.)			
Detector	Size (10 ~ 1000mm)			010			10mm		
				015			15mm		
				020			20mm		
				025			25mm		
				032			32mm		
				040			40mm		
				050			50mm		
				065			65mm		
				080			80mm		
				100			100mm		
				125			125mm		
				150			150mm		
				~			~1000mm		
	Connection			A1			KS 10K		
				A2			KS 20K		
				B1			ANSI 150#		
				B2			ANSI 300#		
				P1			PT Thraded		
				S1			TRICLOVER (Sanitary)		
	Lining Material				1			Chloroprene Rubber	
					2			F.E.P	
					3			PTFE	
					4			Lina tex	
					5			Polyurethane	
	Electrodes					S			316L SS (Std.)
						H			Hastelloy-C
						T			Titanium
A						Tantalum			
U						Tungsten			
C						Carbide			
M						Monel			
Earth Ring						N		None Earth Ring	
						S		316SS (Opt.)	
						H		Hastelloy-C (Opt.)	
						D		304SS Discs (Opt.)	
Mounting							R	Remote	
							I	Integral	

Example:

BMAG100-F1A0-100A135NI

Part No. BCFBMAG0817