

FMAG550 Series

Energy Electro Magnetic Flow Meter

FMAG550E ▶▶▶



Fns Signet Korea & Flos +
에프엔에스 플러스

Energy Electro Magnetic Flow Meter

FMAG550E ▶▶▶

PART I . DETECTOR

The FMAG550's flow detectors offer the strength and durability of steel with a choice of chemical or abrasive resistant liners.

Features

- The FMAG550 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
- FMAG530 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 Full Scale:	> 1000:1
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
Temperature Limitations	Dependent on Linear selection, Hard Ebonite Rubber = 80°C PTFE = 160°C FEP = 120°C
Environmental Protection	IP65 / IP67
Housing	All steel welded case with two part flange

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PART II. TRANSMITTER

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

Features

- The FMAG550 uses the well proven electro-magnetic 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:

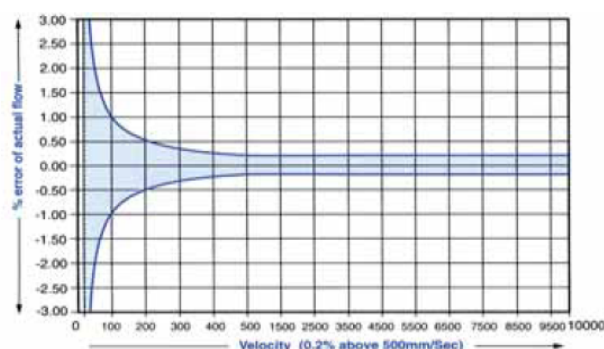
- 1 x 4-20 mA Output Fully isolated. (max. load 750 ohms)
- 1 x Digital open collector output
- RS485 MODBUS output
- 1 x RS422/RS232 (Optional)

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

Enclosure: Rated IP65 Combined type

Accuracy: *0.5% of rate or *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 Comms Port. When information is provided, the FMAG 550 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 FMAG550 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 FMAG550 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.

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ENERGY METER FUNCTION

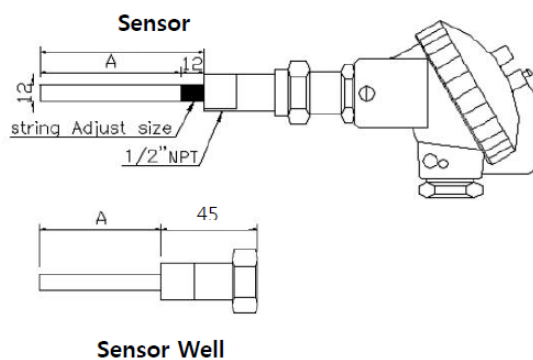
With Energy Compute Function is designed to measure energy used in heating system or cooling system.

This two temperature input feature can be used to calculate energy consumption. Temperature input in both the feed and returns lines are measure via RTD(pt100).

Features

- Energy Unit selected calorie or watt
- Accumulated energy total
- Energy flow rate
- Feed, Return temperature
- Differential temperature (ΔT)

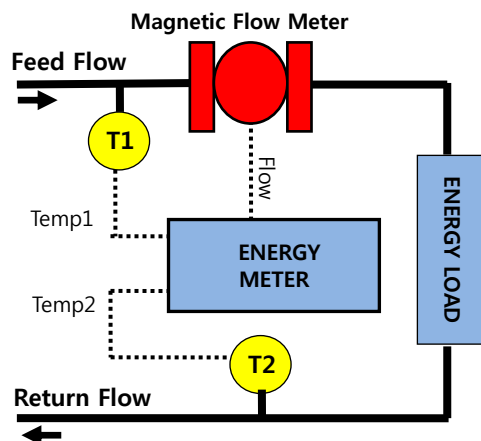
Temperature input



Sensor	
Size	A
20 ~ 80mm	75
100 ~ 150mm	95
200 ~ 250mm	175

Sensor Well	
Size	A
20 ~ 80mm	50
100 ~ 150mm	70
200 ~ 250mm	150

System diagram



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Flow Range Chart

Meter Size		Min. Flow Range Flow Velocity 0 to 0.01 m/s	Max. Flow Range Flow Velocity 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 0.1 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	to 0.42 m3/h	0 to 420 m3/h
150	6	0 to 0.60 m3/h	0 to 600 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

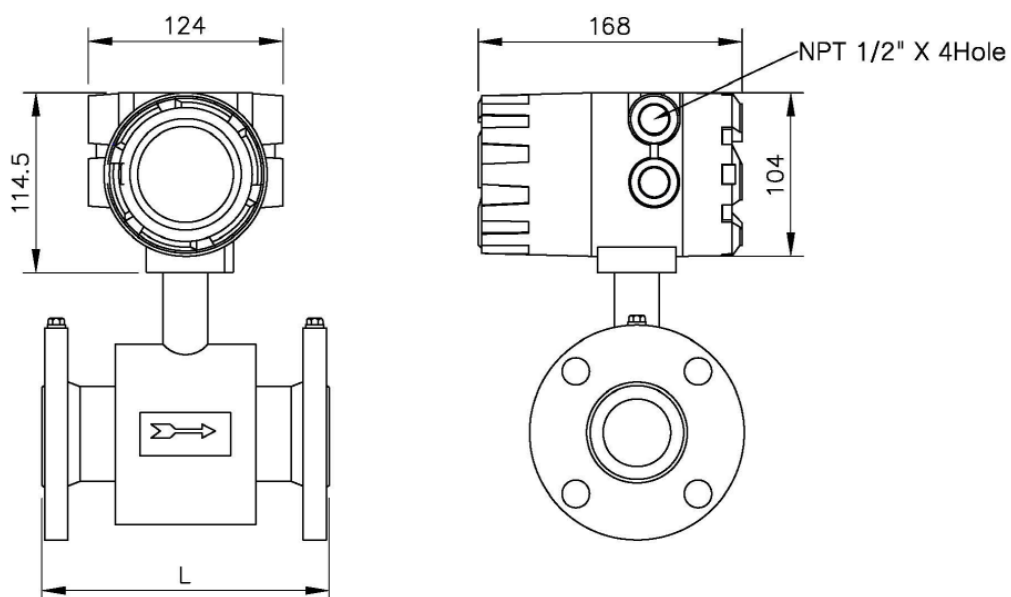
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Dimension Chart

Length (mm)		Length (mm)	
Sensor Size	L	Sensor Size	L
10	200	250	400
15	200	300	400
20	200	350	400
25	200	400	450
32	200	450	450
40	200	500	450
50	200	600	600
65	200	650	650
80	250	700	700
100	250	800	800
125	300	900	1180
150	300	1000	1310
200	350		

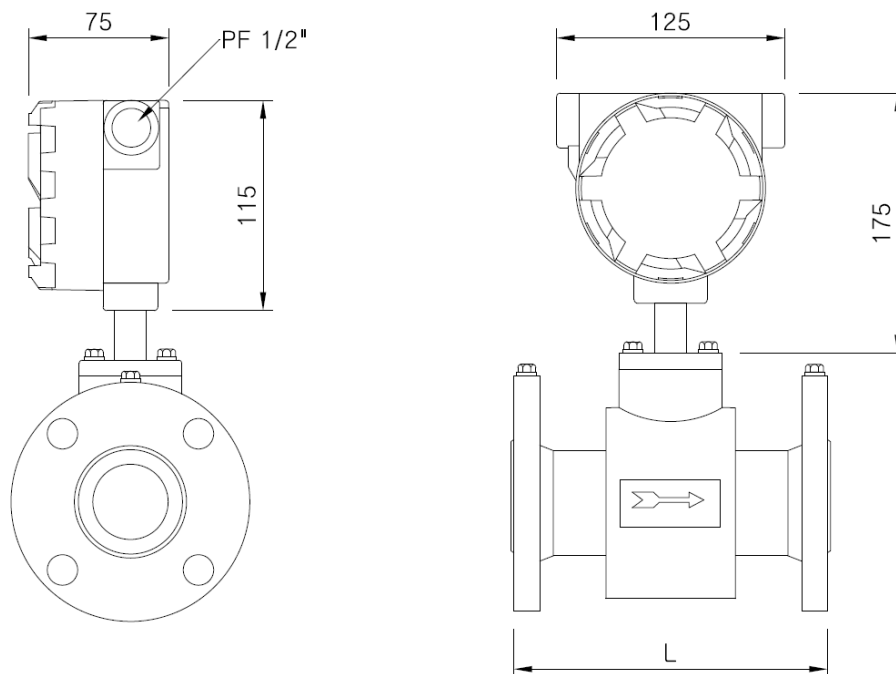
Integral Type Dimension



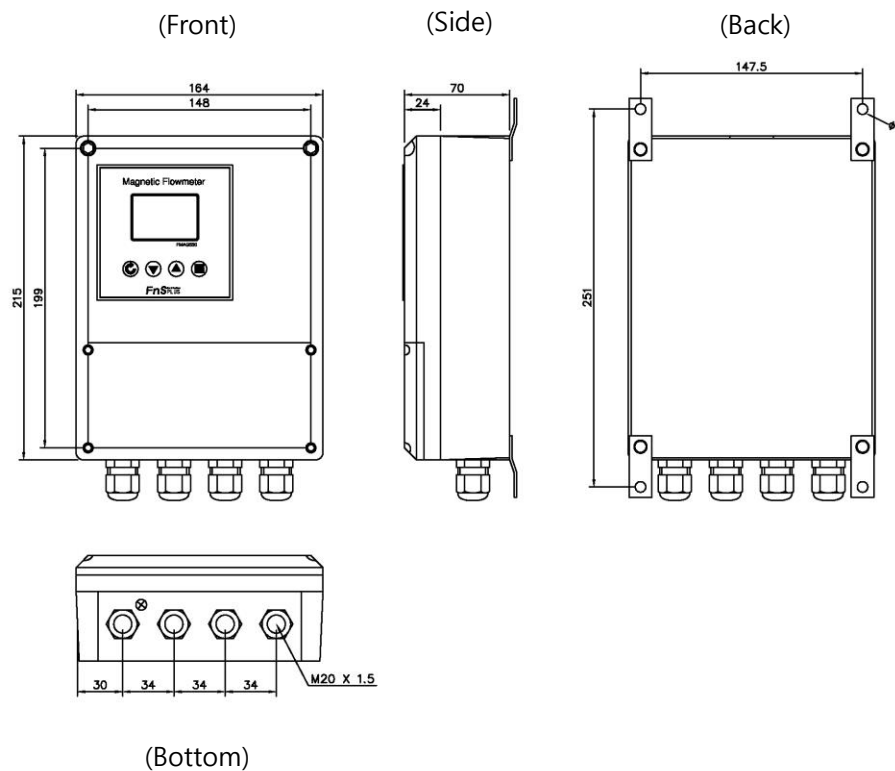
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Remote Type Sensor Dimension



Remote Type Transmitter Dimension

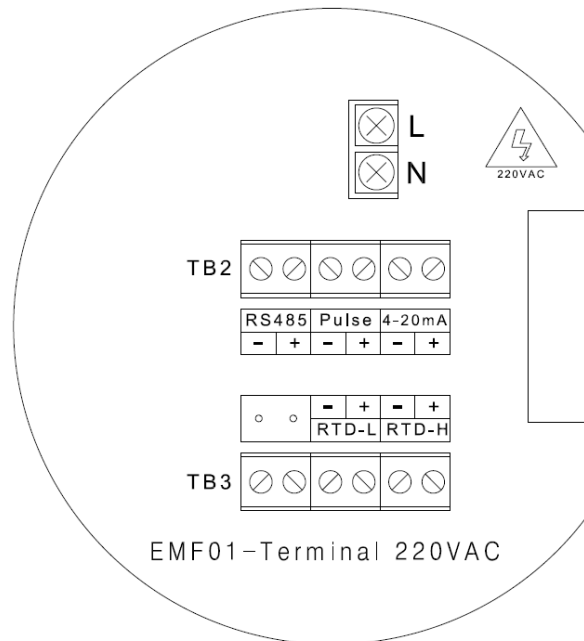


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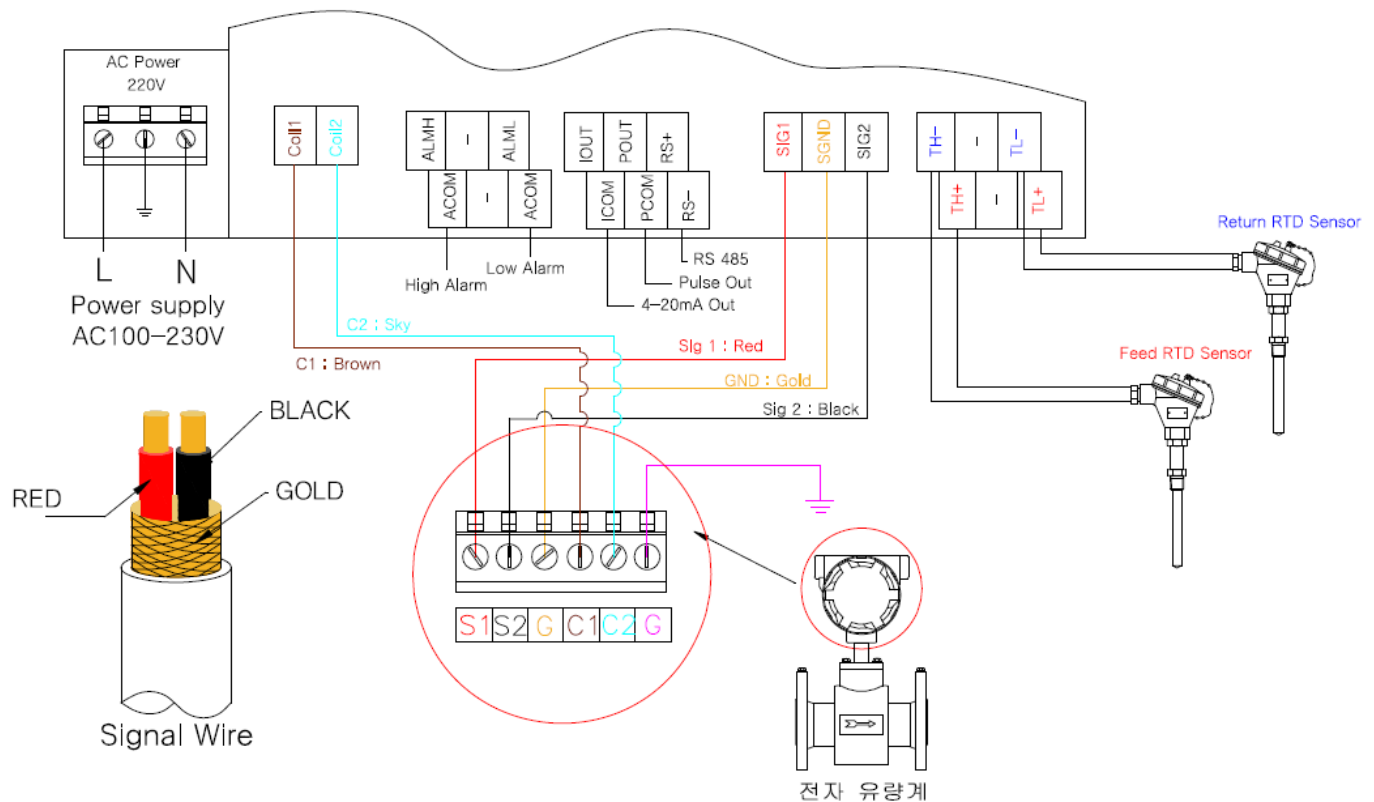
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Wiring Diagram

Integral Type



Remote Type



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Ordering Information

Example : FMAG550E-F1A0-100A13SNI

Model			Order Code								Description	
FMAG530E											Energy Magnetic Flow Meter	
Transmitter	Power	D A E F									DC 24V AC 110V AC 220V AC 85-264V FREE	
	Output		1A 2A								4-20mmA Pulse (Std.) 4-20mmA Pulse, 2-Relay (Opt.)	
	Communication			0 1							RS-485 MODBUS (Std.) RS-232C (Opt.)	
Detector	Size (10 ~ 1000mm)				010 015 020 025 032 040 050 065 080 100 125 150 ~						10 mm 15 mm 20 mm 25 mm 32 mm 40 mm 50 mm 65 mm 80 mm 100 mm 125 mm 150 mm ~1000 mm	
	Connection					A1 A2 B1 B2 P1 S1					KS 10K KS 20K ANSI 150# ANSI 300# PT Thraded TRICLOVER (Sanitary)	
	Lining Material						1 2 3 4 5				Chloroprene Rubber F.E.P PTFE Lina tex Polyurethane	
	Electrodes							S H T A U C M			316L SS (Std.) Hastelloy-C Titanium Tantalum Tungsten Carbide Monel	
	Earth Ring								N S H D		None Earth Ring 316SS (Opt.) Hastelloy-C (Opt.) 304SS Discs (Opt.)	
	Mounting									R I	Remote Integral	