Electromagnetic Flow meter GT300-E series

Electrode easy cleaning by Scraper in option.

Welcome your OEM/ODM regardless of MOQ.

Features:

- *No Moving parts, Virtually No pressure loss, Strong durability.*
- *Various measuring pipe from 6mm to 2400mm.*
- *Wide measuring range: 0.2~12m/sec. Extra 0.1~15m/sec*
- *3 electrodes for measurement and ground are our STD.*
- *Corrosion protection, Abrasion resistant.*
- *High accuracy, Stable performance: Standard 0.5% of rate (Option: 0.3% of rate).*
- *High level of anti-vibration and anti-jamming, wide measuring dimensions.*
- *Multi-Output Interface: 4~20mA, Pulse, Alarm Outputs,*
- *RS-485 and Modbus Communication. GPRS/CDMA.*
- *Free test software for RS485-Modbus, Profibus.*

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Introduction

These electromagnetic flow meters follow the Faraday law of electromagnetic induction.
They can be used to accurately measure the flow rate of liquids which are electrical conducting, caustic, and mixed with liquids and solids.

They are widely used throughout industries of petroleum, chemical engineering, pharmacology, papermaking, electric power, environmental protection and so forth.

Product actual photos

Structure and Operation Principle

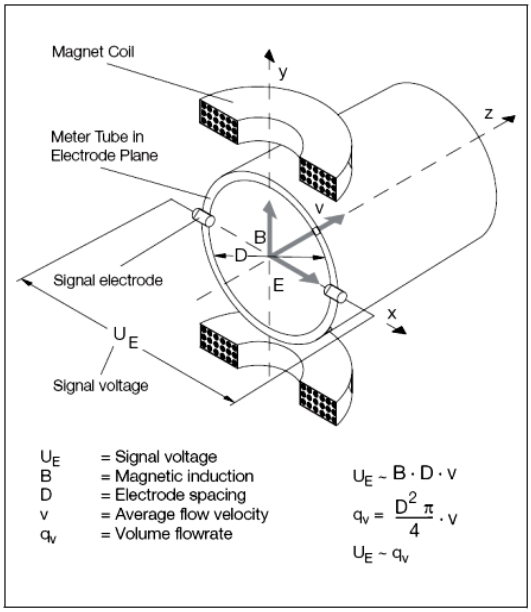
1. Structure

The electromagnetic flow meters are made up of sensor and transducer, together with LCD screen, current and pulse output, alarm signal and RS-485 communication.

2. Operating Principle

Faraday's Laws of Induction form the basis for the electromagnetic flow meters. It states that a voltage is induced in a conductor as it moves through a magnetic field. This principle is applied to a conductive fluid which flows through a magnetic field generated perpendicular to the flow direction (see Schematic). The voltage induced in the fluid is measured at two electrodes, installed diametrically opposed.

This signal voltage UE is proportional to the magnetic induction B, the electrode spacing D and the average flow velocity v. Noting that the magnetic induction B and the electrode spacing D are constants, proportionality exists between the signal voltage UE and the average flow velocity v.
The equation for the volume flow shows that the signal voltage UE is linear and proportional to the volume flow rate.
The induced signal voltage is processed in the converter into scaled, analog and digital signals.



Electromagnetic Flow meter Schematic

Technical Specification

GT300-E Electromagnetic Flow meter		 Integrated type.	 Remote separate type.
Accuracy		Standard 0.5% of Rate (Span: 0.5~10m/s) Option: 0.3% of Rate (Span: 0.5~5m/s) (Less than DN350)	
Repeatability		±0.15%.	
Electrode Q'ty		3pcs.	
Min. Conductivity		5 Micro Siemens.	
Measuring range		0.2~12m/sec, Extra 0.1~15m/sec	
Flow direction		Bi-direction.	
Diameter (mm)		DN6~2,400mm.	
Medium Pressure		DN10~1000: 1.0 1.6 2.5 4.0MPa.	
		Please consult with us if you order special pressure.	
Medium Temperature		-40 ~ +180°C.	
Material	Body	Steel painted, Stainless steel.	
	Electrode	SUS316L, Titanium, Tantalum, Hastelloy, Tungsten Carbide, Platinum-Iridium.	
	Flux Measuring Tube	SUS304.	
	Lining	Chloroprene Rubber, PTFE, FEP, PFA, Polyurethane, Ceramic.	
	Flange	Standard material: Steel Option: SUS304, SUS316, Others. Standard norm.: JIS Option: DIN, ANSI, Others.	
Meter Protection Level		IP65, IP67 (Remote type), IP68 (Remote type)	
Ambient Temperature		-25~60°C.	
Influence of Ambient Temperature		< ±0.1% / 10°C or < ±0.25% / 10°C.	
Repetition		≤ ±0.15%.	
Measurement Range of Velocity		≤12m/s.	
Transmitting Signal Converter		Power: 85~240VAC, 50~60hz (Option: DC 20~36V).	
		Output: Standard output (4~20mA and 0~10mA DC), Dual current output, RS485 Option: RS232, HART, Proflbus-PA.	
		Analog output error: ≤ ±0.02mA.	
		Display: LCD-Flow rate (4-digits), Totalizer (9-digits), Velocity, Alarm status. Rate: selectable of m^3/h, L/sec, US Gal/min, user's). Volume: m^3, liter, US Gal, user's Positive, Total, Negative and Auxiliary (clearable, daily) volume.	
		Control: Key board.	
		Time constant: programmable from 1 to 20sec.	
		Mounting: integral or separate,	
		Power consumption: below 20VA.	
		Enclosure: weather proof IP65/IP66.	
Electric Connections		Standard: 1/2" NPT Option: M20×1.5, PG13.5 (Plastic)	

Remarks: Meter body and Converter housing color may be changed without any prior notice.
The signal converter design and construction may be changed by order specification

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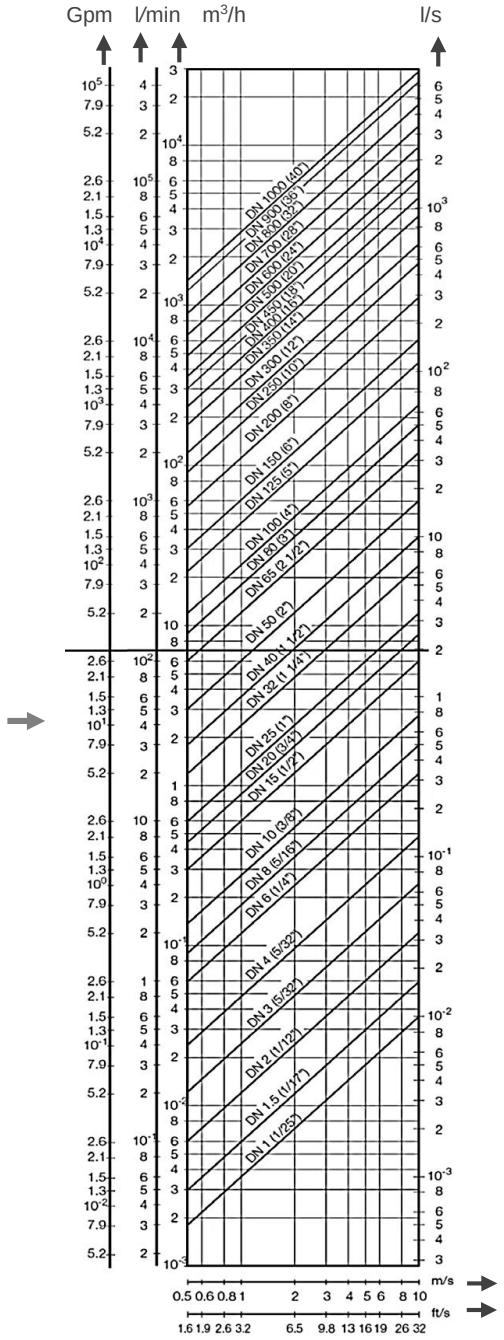
Flow Ranges and Flow rate Monograph

Meter Size		Min. Flow	Max. Flow	Flow rate Monograph
DN		0.3 m/s	12 m/s	
mm	Inch	m^3/h	m^3/h	Nomo graph DN1 to DN 1000 (1/25” to 40”)
10	3/8 ”	0.0848	3.39	
15	1/2 ”	0.1908	7.63	
20	3/4 ”	0.3391	13.56	
25	1 ”	0.5299	21.20	
32	1 1/4 ”	0.8681	34.73	
40	1 1/2 ”	1.3565	54.26	
50	2 ”	2.1195	84.78	
65	2 1/2 ”	3.5820	143.28	
80	3 ”	5.4259	217.04	
100	4 ”	8.4780	339.12	
125	5 ”	13.2469	529.88	
150	6 ”	19.0755	763.02	
200	8 ”	33.9120	1356.48	
250	10 ”	52.9875	2119.50	
300	12 ”	76.3020	3052.08	
350	14 ”	103.8555	4154.22	
400	16 ”	135.6480	5425.95	
450	18 ”	171.6795	6867.18	
500	20 ”	211.9500	8478.00	
600	24 ”	305.2080	12208.22	
700	28 ”	415.4220	16616.88	
800	32 ”	542.5920	21703.68	
900	36 ”	686.7180	27468.82	
1,000	40 ”	847.8000	33912.00	
1,100	44 ”	Please request us if need.		
1,200	48 ”			
1,400	56 ”			
1,600	64 ”			
1,800	72 ”			
2,000	80 ”			
2,200	88 ”			
2,400	96 ”			



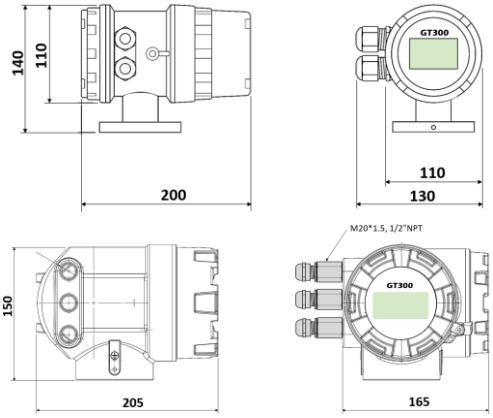
Signal Converters

1. Integral direct mounting: S400

(S) Single housing

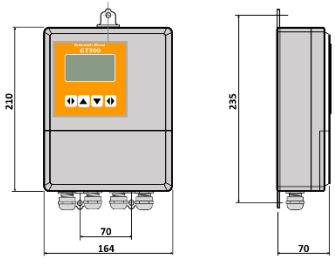
(D) Double housing

- Matched Size: **DN6~2,400mm**
- Power Supply: **85~240VAC, 11~40VDC.**
- Accuracy: **0.5% of rate (Span: 0.5~10m/s),**
  Option: 0.3% of rate (Span: 0.5~5m/s), (Less than DN350)
- Exciting current: **250mA**
- Menu Language: **English**
- Display: **Forward and Reverse Flow rate, Total Flow, Velocity**
- Alarm Function: **Empty Pipe Alarm, System Alarm**
- Signal Output: **Pulse, Frequency, 4-20mA**
- Communication: **RS-485 (Modbus)**
- Enclosure: **IP65/ IP66**
- Style: Single housing/ Double housing



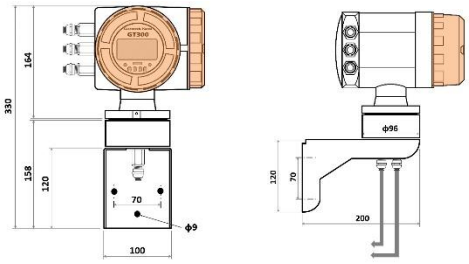
2. Remote mounting – Surface type: R400-R(S)

- Matched Size: **DN6~2,400mm**
- Power Supply: **85~240VAC, 20~36VDC.**
- Accuracy: **0.5% of rate (Span: 0.5~10m/s),**
  Option: 0.3% of rate (Span: 0.5~5m/s), (Less than DN350)
- Exciting current: **187mA**
- Menu Language: **English**
- Display: **Forward and Reverse Flow rate, Total flow, Velocity**
- Alarm Function: **Empty Pipe Alarm, System Alarm**
- Signal Output: **Pulse, Frequency, 4-20mA**
- Communication: **RS-485 (Modbus), HART, Profibus**
- Enclosure: **IP65**



3. 2” Pipe mounting – R400-R(P)

- Matched Size: **DN6~2,400mm**
- Power Supply: **85~240VAC, 20~36VDC.**
- Accuracy: **0.5% of rate (Span: 0.5~10m/s),**
  Option: 0.3% of rate (Span: 0.5~5m/s), (Less than DN350)
- Exciting current: **187mA**
- Menu Language: **English**
- Display: **Forward and Reverse Flow rate, Total flow, Velocity**
- Alarm Function: **Empty Pipe Alarm, System Alarm**
- Signal Output: **Pulse, Frequency, 4-20mA**
- Communication: **RS-485 (Modbus), HART, Profibus**
- Enclosure: **IP65**



4. Battery type Signal Converter:

A) Battery type: BT800

- Matched Size: **DN6~2,400mm**
- Power Supply: **Battery Supply**
- Accuracy: **0.5% of rate (Span: 0.5~10m/s),**
  Option: 0.3% of rate (Span: 0.5~5m/s), (Less than DN350)
- Battery Lifetime: **3~5 years**
- Display: **Forward and Reverse Flow rate, Total flow, Velocity**
- Alarm Function: **Empty Pipe Alarm, Battery Volume Alarm**
- Signal Output: **RS485 only for calibrating**
- Enclosure: **IP68**
- **Direct or remote surface mounting.**

B) Battery type: BT801

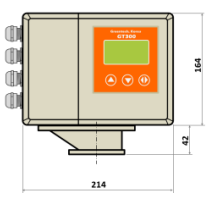
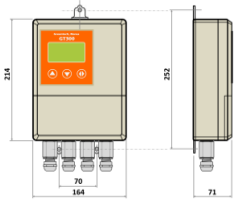
- Matched Size: **DN6~2,400mm**
- Power Supply: **Battery Supply**
- Accuracy: **0.5% of rate (Span: 0.5~10m/s),**
  Option: 0.3% of rate (Span: 0.5~5m/s), (Less than DN350)
- Battery Lifetime: **3~5 years**
- Display: **Forward and Reverse Flow rate, Total flow, Velocity**
- Alarm Function: **Empty Pipe Alarm, Battery Volume Alarm**
- Signal Output: **RS485 only for calibrating**
- Enclosure: **IP65**
- **Remote surface mounting.**

C) Battery type with GPRS/CDMA communication faction: BT803

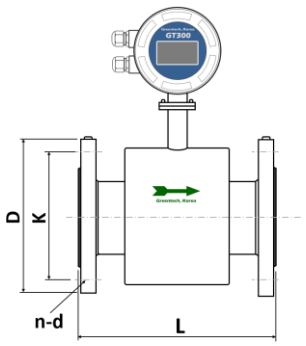
- Matched Size: **DN6~2,400mm**
- Power Supply: **Battery Supply and AC power**
- Accuracy: **0.5% of rate. (Span: 0.5~10m/s)**
- Battery Lifetime: **3~5 years**
- Display: **Forward and Reverse Flow rate, Total flow, Velocity**
- Alarm Function: **Empty Pipe Alarm, Battery Volume Alarm**
- Signal Output: **RS485 only for calibrating**
- Data logger function.
- Communication: **GPRS/ CDMA**
- Enclosure: **IP68**
- **Direct or remote surface mounting.**

4. BTU Signal Converter:

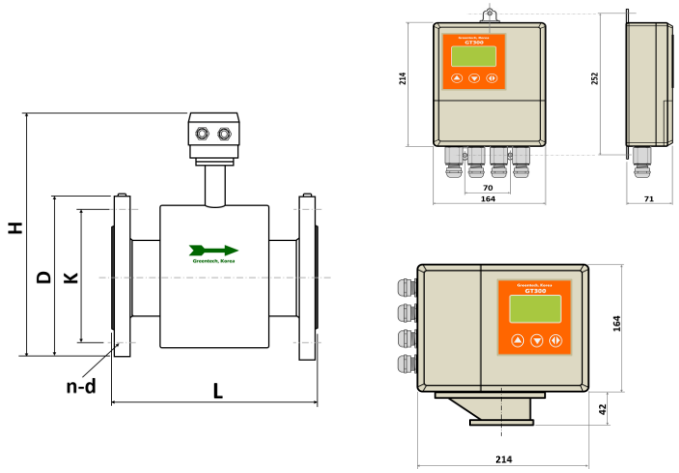
- **Two integrators insides to record flow and heat**
- Low frequency square wave excitation, excitation frequency: 1/10 Power frequency, 1/12 Power frequency.
- Exciting Current: **125mA, 250mA**
- Empty pipe measuring with no additional pole, continuously measuring and alarm by fixed value
- Flow velocity measuring range: **0.1 to15m/s**, velocity resolution: **0.5mm/s**
- AC high-frequency switching power supply: **85VAC to 250VAC**
- 24V DC switching power supply: **20VDC to 36VDC**
- Network function: **MODBUS**, Option: **HART, GPRS, PROFIBUS**
- 3 button operation
- **Temperature sensor:**
  3 wire PT100 insertion type
  Measuring temperature range: -30 ~ +160°C
  Easy installation without stop production
  Measure accuracy: 100°C, ±0.8°C

Integral direct mounting type	Remote – Surface mounting type
	
BTU Signal Converter: 3 button operation 	**BTU Signal Converter:** 3 button operation 

Dimensions of Meter and Connection



Integral direct mounting



Remote mounting – Surface mounting

DN		PN	Dimension (mm) Flange						Weight (Kg)
Inch	mm	MPa	L		Ø D	Ø K	n- Ød	H	
			PTFE	Rubber					
3/8”	**10**	**1.6**	160		Pls refer to flange norm. and size.			225	5
1/2”	**15**		160					245	5
3/4”	**20**		200					260	6
1”	**25**		200					260	6.5
1 1/4”	**32**		200					270	7.5
1 1/2”	**40**		200					275	8.5
2”	**50**		200					290	10
2 1/2”	**65**		200	200				310	13
3”	**80**		250	250				320	15
4”	**100**		250	250				340	16
5”	**125**		250	250				360	21
6”	**150**		300	300				400	27
8”	**200**		350	350				445	35
10”	**250**		400	400				515	48
12”	**300**		400	400				565	62
14”	**350**		400	400				620	73
16”	**400**	**1.0**	450	450				675	79
18”	**450**			450				710	87
20”	**500**			450				770	100
24”	**600**			600				880	180
28”	**700**			700				960	250
30”	**800**			800				1055	300

Ordering Code.

1. Selection codes of Flow meter

Code: GT300-E- □ - □ - □ - □- □			Description
Meter Style	**F**		General flange connection (DN6~2,400mm)
	T		Thread connection version (DN25~100mm)
	TR		Tri-clamp connection (DN25~10mm)
	HP		High pressure version (DN10~200mm)
	W		Wafer connection (DN25~200mm)
Meter size	**-XXX**		DN6. 10. 15. 20. 25. 32, 40, 50, 65, 80, 100……2,400mm
Flow sensor Housing material	**CS**		Carbon steel with painted
	S ( )		(**04**): SUS304, (**16**): SUS316 (DN10~200mm)
Electrodes Material	**L**		SUS316L
	T		SUS316TI
	TI		Titanium
	TA		Tantalum
	HB		Hastelloy B
	HC		Hastelloy C
	ST		Stainless coating tungsten carbide.
	PT		Platinum-Iridium
	Option: Scraper More than DN100	**N**	No
		Y	For electrode cleaning
Lining Material	**R**		Chloroprene Rubber (DN125~2,400mm)
	E		EPDM
	F		FEP (DN10~500mm)
	T		PTFE
	V		PVDF
	PA		PFA
	U		Polyurethane
	C		Alumina ceramic
Connection flange Material	**C**		Carbon steel Flange
	S ( )		Stainless steel Flange (**04**): SUS304, (**16**): SUS316
Process Connection Norm. & size	**-D ( )**		DIN PN 0.6, 1.0, 1.6, 2.0, 2.5, 4.0MPa
	-A ( )		ANSI CL150, CL300, CL600
	-J ( )		JIS 10K, 20K, 30K, 40K
	O		Others
Liquid temperature	**L**		<60°C: Chloroprene Rubber: <80°C EPDM
	T		<120°C: PTFE, FEP, PFA, Polyurethane, Ceramic
	E		<180°C: Integral type with cooling fin
	H		<180°C: Remote type
Flow sensor protection Class	**A**		IP65/ IP66
	B		IP67 (Remote version only)
	C		IP68 (Remote version only)

2. Selection codes of Signal Converter

Signal converter type	S400( )	S	Single head
		D	Double head
	R400		Remote type
	BTU		Magnetic flowmeter for Heat Meter and Cold Meter
	BT800		Battery type (0.5% of reading value) Direct mounting, RS485
	BT801		Battery type (0.5% of reading value) Remote surface mounting, RS485
	BT803		Battery type (0.5% of reading value) Direct mounting, RS485 & GPRS. CDMA
Mounting Construction	-I		Integral direct mounting
	-R ( )		Remote mounting – (**S**): Surface mounting, (**P**): 2” Pipe mounting
Enclosure	A		IP65
	C		IP68 (BT800, BT803 converter)
Power supply	A		85~240VAC
	B		11~40VDC
	C		Lithium battery (RS485 output only for calibration)
Standard output	-C		4-20mA Current output or 0-10mA Dual current output Pulse output, Frequency output, RS485 MODBUS
	-X		For BT800, BT801, BT803, Battery converter.
Option	-N		No option (in case of battery power, this is right).
	-F		Profibus
	-H		HART
	-G		GPRS
	-A		0.2% of F.S.(Less than DN300), 0.3% of F.S.(Less than DN350)
Cable gland	N		1/2” NPT(SUS304)
	M		M20 X 1.5(SUS304)
	G		PG11(Plastic)
Cables length	-N		No cable (Integral type)
	-( )		XX meters. (Remote type). Standard: 5 meter. Please mark your cable meters here.

Note 1: Users must consider the characteristics of selected wetted parts material and the influence of process fluids. The use of inappropriate materials can result in the leakage of corrosive process fluids and cause injury to personnel and/or damage to plant facilities.
It is also possible that the instrument itself can be damaged and that fragments from the instrument can contaminate the user's process fluids. Be very careful with highly corrosive process fluids such as hydrochloric acid, sulfuric acid, hydrogen sulfide, sodium hypochlorite, and high-temperature steam (150°C [302°F] or above).

Note 2: Our technical specification may be updated or changed without any prior notice.

Note 3: The color may be changed by your request with MOQ.

The our technical specifications may be revised for update without prior notice