

GENERAL

MAGMAX[®] EGM1300C is a combination of EGS1000 primary head with PFA liner and high performance converter EGC300. EGM1300C aims “Low cost - High performance.”

An excitation system extendable up to twice the commercial frequency has been introduced to reduce fluid noise.

And improved self-diagnostic functions include vacancy detection and detection unit monitoring.

High quality, virgin, clear PFA lining with Hastelloy[®] C electrodes covers almost all applications from water lines to chemical process. 8 sizes of 10 to 150mm are available.

FEATURES

- ❑ Punched plate reinforced high quality clear PFA is adopted for high anti-corrosive, anti-erosion and anti-penetration capability.
- ❑ High accuracy of $\pm 0.5\%$ of reading.
- ❑ High speed data processing for quick response. Suitable for batch process control and for pulsating flow.
- ❑ The excitation system extendable up to twice the commercial frequency allows applications to much fluid noise such as slurry.
- ❑ Blue dot matrix LCD (with backlight) used for the display. Capable of providing 1- to 3-digit display.
- ❑ Equipped with a quick setup function to readily respond to changed flow range, pulse rate, etc.
A touch panel system by an infrared sensor allows you to alter the settings without removing the cover of the conversion section.
- ❑ 10 kHz high-speed pulse output. Capable of responding to short batch processes.
- ❑ Current and pulse output, bi-directional measurement, double range, status output, control input...Full function provided in compact design.
- ❑ HART Communication (standard)



STANDARD SPECIFICATION

General Specification

- Excitation : Square wave
- Nominal size : 10, 15, 25, 40, 50, 80, 100 and 150mm
- Measurement : Flow rate, Flow velocity
function
- Measuring range : Flow velocity
Min. 0 to 0.3m/s
Max. 0 to 12m/s
Flow rate
Min. 0 to 0.085m³/h
(Minimum flow at 10mm size)
Max. 0 to 763m³/h
(Maximum flow at 150mm size)
- Protection class : IP66/67 (IEC 60529)
- Housing material
Measuring tube : Stainless steel (SS304)
Primary head : Size 10 to 40 mm ; Cast iron *
Size 50 to 150 mm ; Carbon steel *
* Anti-corrosive painting
- Wetted part material
Liner : PFA
Electrode : Hastelloy[®] C22
Earth ring : Stainless steel (SS316) [Standard]
Earth ring seal : Supplied for size 10 and 15mm only;
FPM/FKM
- Converter housing : Aluminium alloy
- Painting : Siloxane coating
- Color : Grey (Primary head housing/Converter housing)
Jade green (Converter cover / Terminal cover)

- Cable entry : 2 × G1/2 female thread
2 × 1/2 NPT female thread
2 × M20 with watertight glands
(Option : Watertight glands for G1/2)
(Option : Number of wiring connection ; 3)
- Supply voltage : 100 to 230V AC (85 to 250V AC)
24V DC (9 to 31V)
- Supply frequency : 48 to 63Hz (AC)
- Power consumption : AC; approx. 22VA
DC; approx. 12W
- Ambient temp. : -40 to +65°C (Fluid temp. ≤120°C)
-50 to +70°C (For storage)
- Grounding : Grounding resistance must be less than 100Ω.
- Process connection : Wafer type
- Matching flanges : JIS10K/20K, ANSI class 150, DIN PN16/40
* Max. Op. Press is 1.6MPa irrespective of flange rating.

Fluid Specification

- Temperature : -25 to +120°C
- Pressure : 0Pa (abs) to 1.6MPa
- Conductivity : To be more than 5μS/cm
(20μS/cm for water flow measurement)

Indication and Output Specification

- Indicator : Blue, dot matrix LCD (With backlight)
128 × 64 pixels (59 × 31mm)
Indication function :
Changeover (2 screens)
One to three lines are displayed at one screen.
Contents of indication ; Flow rate, velocity, total flow,
Conductivity, and coil temperature
- Current output : 4 to 20mA DC (Max. 22mA)
Internal power supply :
Less than 1000ohms (Load resistance)
External power supply :
32V DC (External voltage)
- Pulse output
Open collector output
Rating : Less than 32V DC, 20mA (≤10kHz)
Less than 100mA (≤100Hz)
Pulse rate
2 to 36,000,000 pulse/h (0.00056Hz to 10kHz)
Pulse width
One of the following selectable
1) Automatic : Pulse width by which duty factor to be 50%
at full scale
2) Duty factor 1:1 fixed
3) Free setting ; 0.05 to 2000m/s

- Status output
Open collector output
Rating : Less than 32V DC, 100mA Max.
Contents of output
One of the following selectable:
1) No status output (Standard factory setting)
2) Identification of flow direction
3) Over range
4) Error
5) Flow alarm
6) Identification of range (For double range measurement)
7) Empty detection

- Control input
Voltage input
Low : 0 to 2.5V DC High : 19 to 32V DC
Contents
One of the following selectable:
1) No control input (Standard factory setting)
2) Signal hold
3) Signal lock to 0%
4) Total counter reset
5) Error reset
6) Range selection (For double range measurement)

- Description of input and output terminal

Terminal	Standard setup	Switchover by reprogramming
A (A / A-)	Current output	-
B (B / B-)	Status output	Control input
C (C / C-)	Status output	-
D (D / D-)	Pulse output	Status output

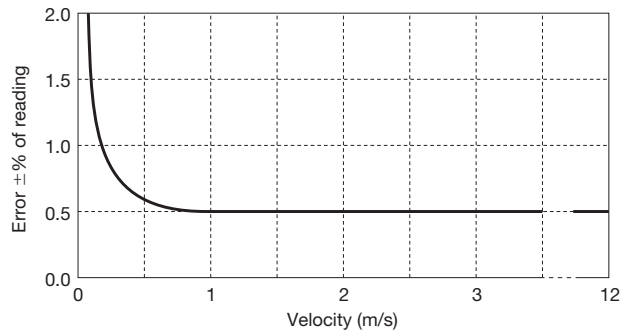
- Low flow cutoff
Current output, Pulse output, Indicator (Separate setting is possible.)
Setting value : 0.0 to 20.0%
Setting value (Standard) :
Current output, Pulse output ; ON 1%, OFF 3% FS
Indicator ; Without low flow cutoff
- Damping time constant
Current output, Pulse output, Indicator (Separate setting is possible.)
Setting value : 0.0 to 100.0s
Setting value (Standard) :
Current output, Indicator ; 3s
Pulse output ; Damping time constant 0
- Isolation of input and output
Each circuit of power supply, electrode input, terminal A, terminal B, terminal C, and terminal D are isolated.

Standard Functions

- Customer's free measuring unit setting function
Volume (or mass) and time unit in 7 characters can be created.
- Automatic zero adjustment function
Zero adjustment is automatically conducted at "ZERO ADJUST MODE" (Subject to zero flow)
- Bi-directional flow measurement function
A flow-direction distinction signal is outputted in state output and current.
- Double range measurement function
Possible range setting range ratio 1 : 20 to 1 : 1.25
(Setting range of low range : 5 to 80% of high range)
Range selection ; By automatic or control input signal
- Excitation current frequency switching function
Standard mode :
1/6 of supply frequency (Standard)
High frequency mode :
1/50 to 2 of supply frequency (For slurry, pulsating flow, etc.)
- Self diagnosis function
The following conditions are indicated by error message;
Functional diagnosis :
Coil disconnection, CPU, Memory, Software, Output module, and Output connection
Status diagnosis :
Velocity distribution, Linearity, Magnetizing current / frequency, Empty detection, Over range, Counter over flow, and Power fail detection
- Memory save function for power fail
Operation parameters and totalization figures are stored for more than 10 years by EEPROM (Non volatile memory).
- Testing function
Simulating output function for current and pulse output is integrated.
Current output test :
Arbitrary output (0.0 to 22.0 mA)
Pulse output test :
Arbitrary output (1Hz to 10kHz)
Status output test : On / Off
- Touch sensor setting function (Infrared radiation)
By four infrared sensors, data setup from exterior is possible without removing cover.
- HART communication
Standard

Accuracy (*)

- Pulse output :
For velocity $\geq 1\text{m/s}$: $\pm 0.5\%$ of reading
For velocity $< 1\text{m/s}$: $\pm 0.4\%$ of reading + velocity error of $\pm 0.001\text{m/s}$



- Current output :
Additional error of $\pm 0.01\text{mA}$ be added onto display and pulse output.

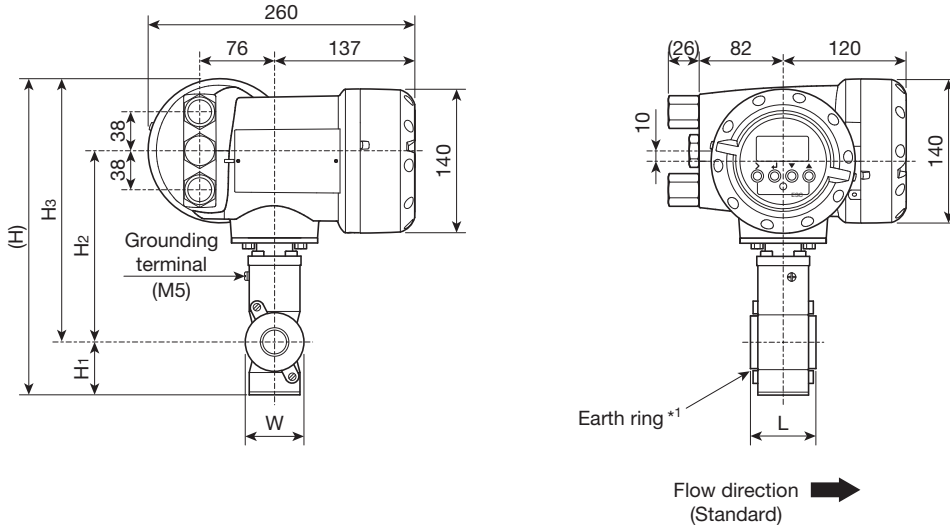
- (*) Basis condition
- Fluid : Water
 - Fluid temperature : 10 to 30°C
 - Conductivity : 150 $\mu\text{S/cm}$ or more
 - Supply voltage : Rated voltage $\pm 2\%$
 - Ambient temperature : 18 to 28°C
 - Upstream / Downstream pipe length: 10D / 2D (D: Diameter)
 - Warm-up time : About 10 minutes
 - Measuring time : 100s

FLOW RANGE

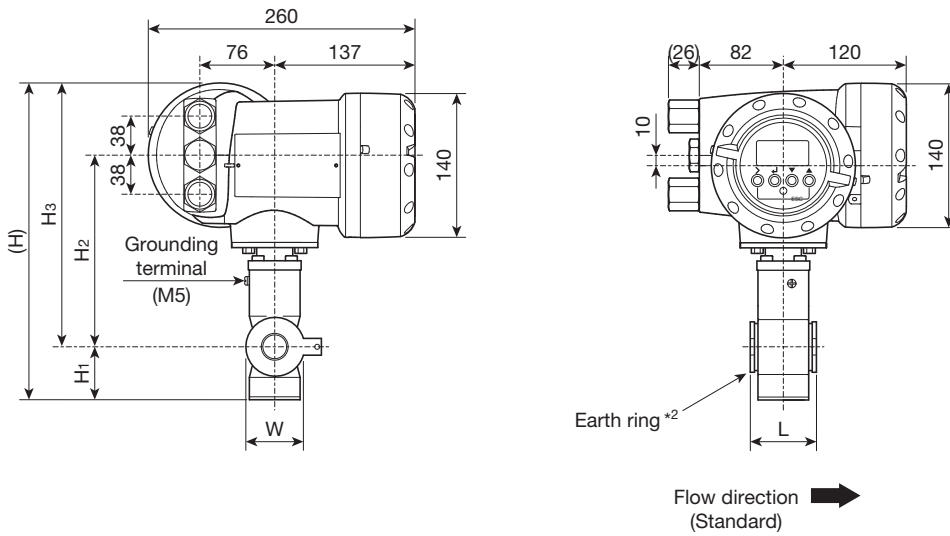
Nominal size (mm)	Possible setting range (m ³ /h)	
	Min. (Velocity : 0 to 0.3 m/s)	Max. (Velocity : 0 to 12 m/s)
10	0 to 0.0849	0 to 3.39
15	0 to 0.191	0 to 7.63
25	0 to 0.531	0 to 21.2
40	0 to 1.36	0 to 54.2
50	0 to 2.13	0 to 84.8
80	0 to 5.43	0 to 217
100	0 to 8.49	0 to 339
150	0 to 19.1	0 to 763

DIMENSIONS

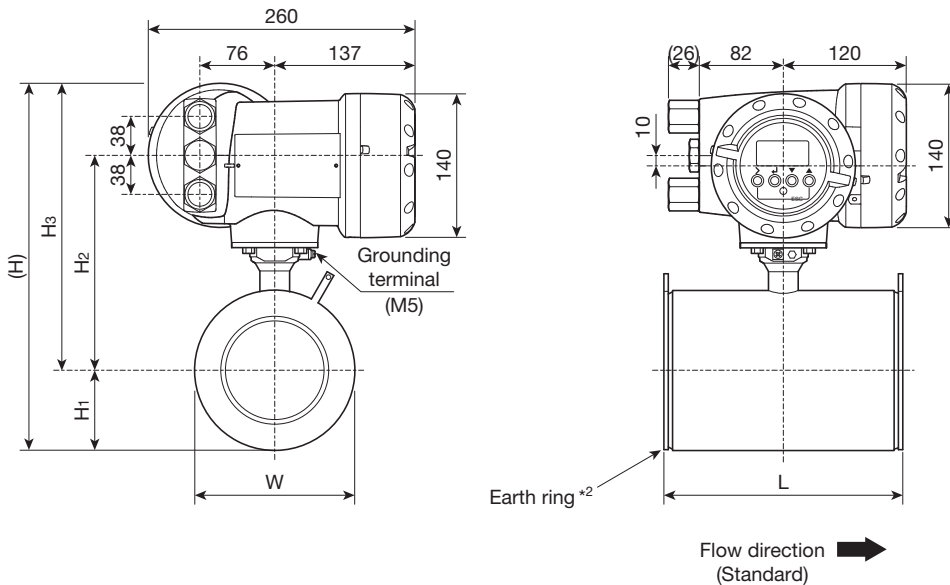
Nominal size: 10/15mm



Nominal size: 25/40mm



Nominal size: 50 to 150mm



Nominal size (mm)	Dimensions (mm)						Mass (kg)
	L	(H)	H ₁	H ₂	H ₃	W	
10	68	315	69	176	246	49	6
15	68	315	69	176	246	49	6
25	60	325	64	191	261	69	6
40	84	340	70	200	270	85	7
50	106	302	51	181	251	102	9
80	156	342	65	207	277	130	10
100	206	369	78	221	291	156	15
150	206	433	110	253	323	220	20

*1 Dimension L for nominal size 10 and 15 mm includes earth rings thickness.

The earth rings are fixed onto the primary head.

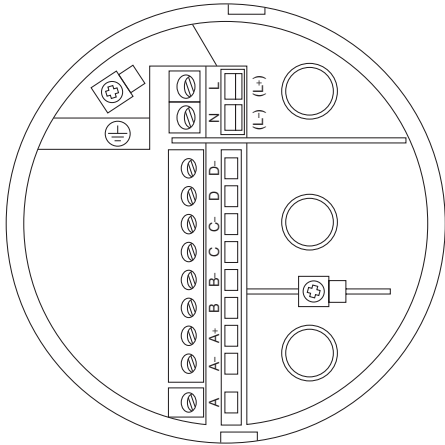
*2 Dimension L for nominal size 25 to 150 mm includes earth rings thickness.

The earth rings are not fixed onto the primary head.

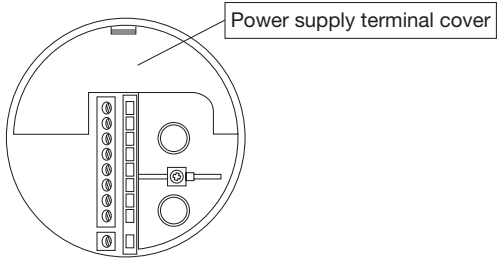
They are to be installed between the primary head and connection flanges on installation.

Dimension L is shorter by 6mm in case of the primary head only. (Earth ring thickness = 3 mm × 2)

ELECTRICAL CONNECTION

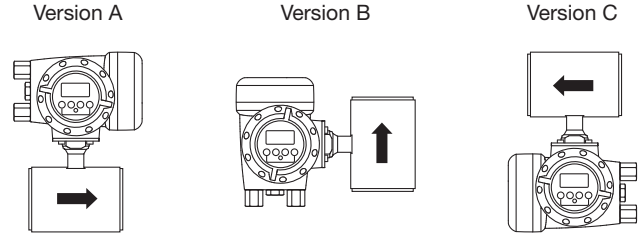


Protection cover is provided for power supply terminals.



Mounting position of LCD display

Indication part of EGM1300C can be changed according to the flow direction.



The mounting position will be arranged according to the customer's request when ordering.

The arrow indicates standard flow direction.

Flow direction can be changed by data setting.

Terminal	Description
L / L+	L+ (+) • L- (-) (AC power supply / DC power supply)
N / L-	
⊕	Grounding

Terminal	Description	Polarity
D-	Pulse output or Status output	-
D		+
C-	Status output	-
C		+
B-	Status output or Control input	-
B		+
A+	Current output (4 to 20mA DC / HART: Internal power supply)	+
A-	Current output (4 to 20mA DC / HART: External power supply)	-
A		+

- Terminal type : Plug-in type screw terminal
- Connection capacity: 0.5 to 2.5mm²

MODEL AND SPECIFICATION CODE

- Nominal size : 10 to 150mm

Model : EGM1300C

Primary head Spec. code	V	N	1	7	4	N	0	1	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Description	Standard								
Primary head code	V	N	1	7																						Wafer type / PFA liner / Hastelloy® C electrodes	○								
(Fixed code)					4																					always 4	○								
Nominal size																								Connection flange size			○								
																								10mm	10 to 15A	1/2"	○								
																								15mm	15A	1/2"	○								
																								25mm	25A	1"	○								
																								40mm	40A	1-1/2"	○								
																								50mm	50A	2"	○								
																								80mm	80A	3"	○								
																								100mm	100A	4"	○								
																							150mm	150A	6"	○									
Process connection																								N	Wafer type			○							
(Fixed code)																								0	always 0			○							
Type																								1	C	Compact version (EGC300 Converter)			○						
(Fixed code)																								0	always 0			○							
Earth ring (Seal for earth ring)																								1	Stainless steel (SS316) (FPM/FKM sealing)			For size 10 and 15mm	○						
																								K	Stainless steel (SS316)			For size 25 to 150mm	○						
																								9	Others				○						
(Fixed code)																								0	0	0	0	always 0000			○				
Calibration																								0	Standard calibration			○							
(Fixed code)																								0	2	0	0	0	0	0	0	always 0200000			○
Special feature																								(Blank)	None			○							
																								/Z	Involved *1			○							

Converter Spec. code	V	N	3	0	4	4	0	2	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	Description	Standard					
Converter code	V	N	3	0																						Type: EGC300 (Cylindrical housing)	○				
(Fixed code)					4																					always 4	○				
Type																								4	LCD indication			○			
Power supply																								1	24V DC (18 to 31V)			○			
(Fixed code)																								A	100 to 230V AC (85 to 250V)			○			
Cable entry																								0	always 0			○			
																								4	1/2 NPT female thread			○			
																								5	G1/2 female thread						
(Fixed code)																								6	M20 with watertight glands			○			
(Fixed code)																								2	0	0	always 200			○	
Housing																								1	Standard (Aluminium alloy)			○			
(Fixed code)																								2	always 2			○			
Output type																								1	Standard (Current output + Pulse output + Control input + Status output)			○			
(Fixed code)																								0	0	0	0	always 00000			○
Special feature																								(Blank)	None			○			
																								/Z	Involved *1			○			

*1 In case that special feature are involved, put [/z] at the end of spec. code and specify the details.
It is recommended to consult TOKYO KEISO for such availability before ordering.

STANDARD ACCESSORIES

- Parameter sheet : 1
- Instruction manual : 1

OPTION

- G1/2 watertight glands for cable entry : 1 set [Symbol : WG]
- Number of wiring connection : 3 [Symbol : 3G]
- No converter data (parameter) setting [Symbol : NS]
We will supply with standard data setting in case you have no request.
Please set the data of flow range, pulse rate and flow direction etc. that required operating.

ORDERING INSTRUCTIONS

Specify the following when ordering :

1. Model and spec. code

Example : Model : EGM1300C

Primary head spec. code :

VN1745N01C01000000200000

Converter spec. code : VN3044A0520012100000

2. Flow range (Full scale) (Unnecessary when option is NS.)

3. Option (Specify if necessary.)

Specify the symbol with reference to the option.

4. Fluid name

* Specification is subject to change without notice.

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