

GENERAL

MAGMAX EGM5010C is a combination of wafer type EGS5000 primary head with Ceramic measuring tube and general-purpose / economical converter EGC010.

2.5 to 100mm size are available. EGM5010C with high durability and high anti-corrosive capability is widely applicable for chemical liquid, slurry and many other applications.

FEATURES

- ❑ Combination of Ceramic tube and Platinum electrodes is adopted for high anti-corrosive, anti-erosion and anti-penetration capability.
- ❑ Dimensionally stable measuring tube with excellent temperature resistance and long-term stability, no creep and no abrasion as is the case with plastic liners.
- ❑ The newly designed reducing tube offers high accuracy and stability even for low velocity range and mechanical durability of measuring tube.
- ❑ Stainless steel housing is adopted for primary head.
- ❑ High accuracy of $\pm 0.5\%$ of reading.
- ❑ High speed data processing for quick response.
- ❑ Low power consumption of approx. 5VA.
- ❑ Independent output terminals for current, pulse and status (alarm, etc.) output.
- ❑ Forward/Reverse flow can be measured.



STANDARD SPECIFICATION

General Specification

- Excitation : Square wave
- Nominal size : 2.5, 4, 6, 10, 15, 25, 40, 50, 80, 100mm
- Measuring range : Flow velocity Min. 0 to 0.3m/s
Max. 0 to 12m/s
Flow rate Min. 0 to 0.0054m³/h
(Minimum flow at 2.5mm size)
Max. 0 to 339m³/h
(Maximum flow at 100mm size)
- Protection class : IP67 (equivalent to NEMA6)
- Housing material
 - Primary head : Size 2.5 to 15mm : Stainless steel cast
Size 25 to 100mm : Stainless steel
 - Converter : Aluminum alloy ^{(*)1}
(Cover : Polyamide)

- Wetted part material
 - Measuring tube : Size 2.5 to 15mm
Zirconia ceramics (ZrO₂)
Size 25 to 100mm
Alumina ceramics (Al₂O₃)
 - Electrode : Size 2.5 to 15mm ; Pt CERMET
Size 25 to 100mm ; Platinum
 - Earth ring : Stainless steel/SS316 [Standard],
Hastelloy B, Hastelloy C, Titanium,
Tantalum ^{(*)2} ^{(*)3}
 - Gasket for earth ring ^{(*)3} : PTFE jacket type with joint sheet
core or Fluorocarbon resin
- ^{(*)1} Anti-corrosive painting
- ^{(*)2} Tantalum earth ring is a combination of tantalum plate and
PTFE jacket type gasket with Viton core.
- ^{(*)3} Refer to "Operating range for the earth ring gaskets".

- Painting : Polyurethane resin painting ^(*4)
- Color ^(*4) : Jade green
(Converter ; Cover excluded)
- Cable entry : 2 × G1/2 female thread
2 × 1/2 NPT female thread
2 × M20 (with watertight glands)
(Option : Watertight glands for G1/2)
- Supply voltage : 100V AC (85 to 110V)
115V AC (100 to 130V)
200V AC (170 to 220V)
230V AC (200 to 260V)
24V DC (18 to 32V)
* () indicates voltage range.
- Supply frequency : 48 to 63 Hz
- Power consumption : AC : approx. 5VA, DC : approx. 4.5W
- Ambient temperature : -25 to +60°C (Fluid temp. ≤120°C)
-50 to +70°C (For storage)
- Process connection : Wafer type
- Flanges : JIS10K/20K/30K/40K, ANSI class 150/300,
DIN PN16/40
- Grounding : Grounding resistance must be less than
100Ω

(*4) Converter housing only

Fluid specification

- Temperature : -25 to +120°C
- Pressure : Size 2.5 to 80mm ; 0 Pa (abs) to 4 MPa
Size 100mm ; 0 Pa (abs) to 1.6 MPa
- Conductivity : To be more than 5μS/cm for size 4 to
100mm
To be more than 10μS/cm for size 2.5mm
(To be more than 20μS/cm for water)
- Permissible temperature change :
Temperature rising
in 10 minutes ; ΔT≤150°C
for sudden change ; ΔT≤120°C
Temperature falling
in 10 minutes ; ΔT≤100°C
for sudden change ; ΔT≤80°C

Indication Specification

- Indicator : LCD 2 lines with illumination
Line 1 ; 8 digit numerical figures
Line 2 ; Alphabet for unit indication
Flow rate or total flow volume indication
selectable. Or alternative indication of these
two items with approx. 10 sec, intervals.
Flow rate indication : By flow unit (m³/h, L/s, or others) or % of
full scale (Bar graph available)
Total flow volume : Forward total, reverse total or difference
total of forward and reverse. (m³, L, others)
* Factory setting : Continuous indication of
flow rate

Output Signal

- Current output : 4 to 20mA DC
Load : Max. 500Ω
Time constant : 0.2 to 99.9 s adjustable (0.1 s step)
- Pulse output
Open collector output
Rating : 5 to 30V DC, 150mA Max.

Pulse rate (Output pulse at full scale)
20 to 36,000,000 Pulse/h
0.0056Hz to 10kHz (full scale)

Pulse width
One of the following selectable :
1) Automatic : Pulse width shall be duty 50% in full scale
frequency
2) Duty factor 1:1 (Constant)
3) Setup of arbitrary value : 0.01 to 1.00 s (0.01 s step)
- Status output
Open collector output
Rating : 5 to 30V DC, 150mA Max.
Contents of output
One of the following selectable :
1) No status output (Factory setting)
2) Flow direction identification
3) Error
4) Flow alarm (1 point)
- Low flow cutoff
Effective for current output and pulse output
0 to 19% of full scale adjustable
(1% step, factory set 1%)

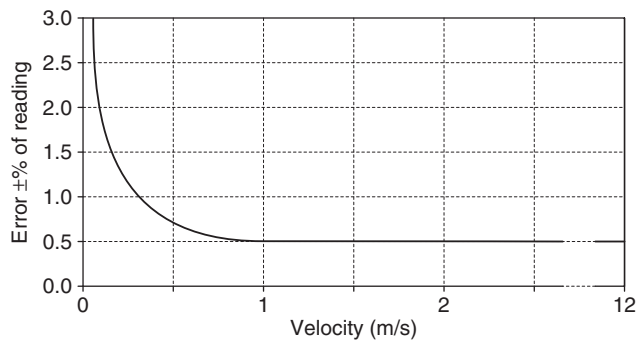
Standard Functions

- Customer's free measuring unit
Volume (or mass) unit in 5 characters and time unit in 3 characters can be created.
- Automatic zero adjustment
Zero adjustment is automatically conducted at "ZERO ADJUST MODE" (Subject to zero flow)
- Self diagnosis function
The following ERROR MESSAGE is indicated when applicable :
 - Internal error
 - A/D converter error
 - Wrong setting
 - Power fail detection
 - Output overranged
 - Total counter overflow
- Memory save for power fail
Operation parameters and totalization figures are stored by EEPROM (Non-volatile memory) for more than 10 years.
- Testing function
Current and pulse dummy output function provided, loop check can be conducted without calibrator.
* Current and pulse output correspond to 0, ± 10 , ± 50 , ± 100 , and $\pm 110\%$ of full scale.

Accuracy^(*5)

- Pulse output
For velocity $\geq 1.0\text{m/s}$: $\pm 0.5\%$ of reading
For velocity $< 1.0\text{m/s}$:

$$\pm(0.3\% \text{ of reading} + 0.2\% \times \frac{1}{\text{Velocity (m/s)}})$$



- Current output
Additional error of $\pm 0.05\%$ of full scale to be added onto above pulse output accuracy

(*5) 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

Operating range for the earth ring gaskets

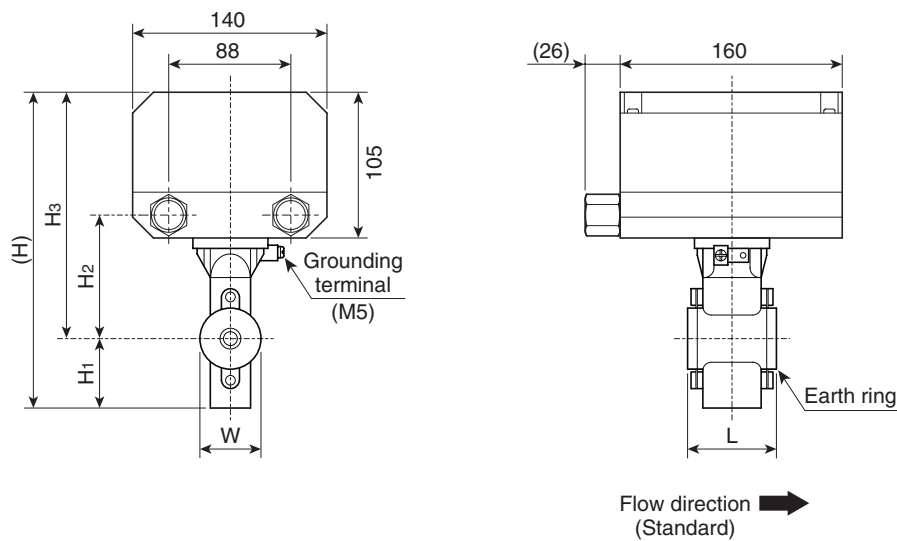
Gasket	Fluid pressure	Fluid temperature
PTFE jacket type with joint sheet core (equivalent to VALQUA No. N7035)	$\leq 1.5\text{MPa}$	$\leq 120^\circ\text{C}$
Fluorocarbon resin (equivalent to VALQUA No. 7020)	$\leq 4\text{MPa}$	$\leq 120^\circ\text{C}$
Tantalum earth ring (PTFE jacket type gasket with Viton core)	$\leq 0.7\text{MPa}$	$\leq 120^\circ\text{C}$

FLOW RANGE

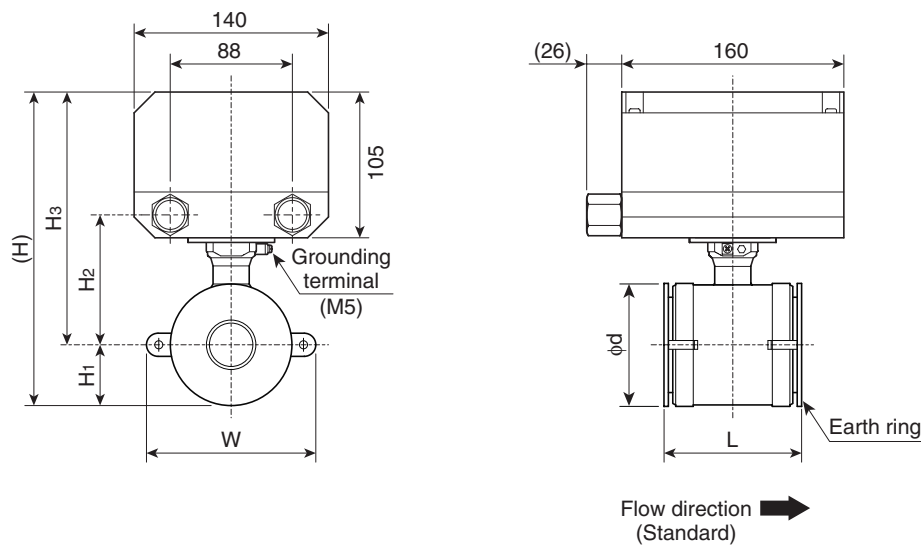
Nominal size (mm)	Possible setting range (m ³ /h)	
	Min. (Flow velocity : 0 to 0.3 m/s)	Max. (Flow velocity : 0 to 12 m/s)
2.5	0 ~ 0.0054	0 ~ 0.212
4	0 ~ 0.0136	0 ~ 0.542
6	0 ~ 0.0306	0 ~ 1.22
10	0 ~ 0.0849	0 ~ 3.39
15	0 ~ 0.191	0 ~ 7.63
25	0 ~ 0.531	0 ~ 21.2
40	0 ~ 1.36	0 ~ 54.2
50	0 ~ 2.13	0 ~ 84.6
80	0 ~ 5.43	0 ~ 217
100	0 ~ 8.49	0 ~ 339

DIMENSIONS

Nominal size: 2.5 to 15mm



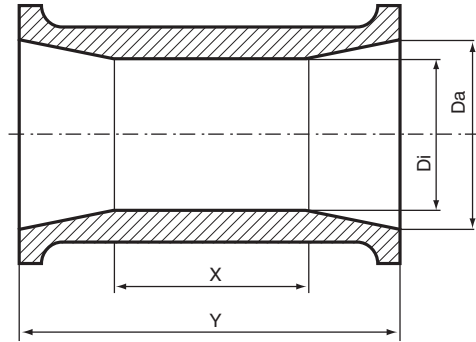
Nominal size: 25 to 100mm



Nominal size (mm)	Dimensions (mm)							Mass (kg)
	L*	(H)	H ₁	H ₂	H ₃	W	d	
2.5 ~ 15	68	234	51	113	183	44	—	4
25	69	221	34	117	187	102	68	4
40	94	236	42	124	194	117	84	4
50	114	254	51	133	203	136	102	5
80	164	286	67	149	219	168	134	8
100	214	311	79	162	232	193	158	11

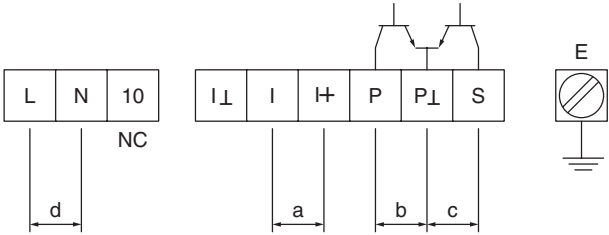
*1 Dimension L is for with PTFE jacket type gaskets for earth rings.
Dimension L is shorter by 2mm in case of Fluorocarbon resin gaskets for earth rings.
*2 Dimension L is shorter by 5mm (size 2.5 to 15mm) or 1mm (size 25 to 100mm) in case of Tantalum earth rings.

DIMENSIONS FOR CERAMIC TUBE



Nominal size (mm)	Dimensions (mm)			
	D_a	D_i	X	Y
2.5	6	2	20	50
4	7	3	20	50
6	9	5	20	50
10	12	7	20	50
15	14	12	20	50
25	24	20	26	55
40	37	30	36	80
50	49	40	51	100
80	78	60	70	150
100	98	80	103	200

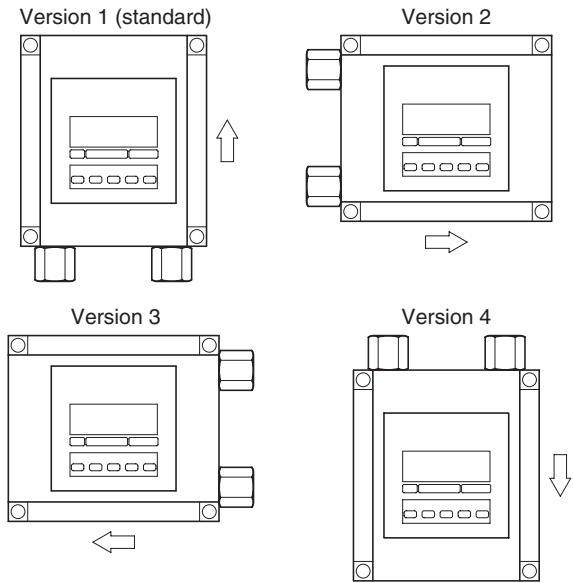
ELECTRICAL CONNECTION



Mark	Terminal symbol	Polarity	Description
a	I+	+	Current output (4 to 20mA DC)
	I-	-	
b	P	+	Pulse output (Open collector)
	P-	-	
c	S	+	Status output (Open collector)
	P-	-	
d	L (L+)	AC	Power supply (+) indicates DC type
	N (L-)		
E	-	-	Grounding

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

Mounting position of LCD display



* The arrow indicates standard flow direction.
Flow direction can be changed by data setting.

MODEL AND SPECIFICATION CODE

● Nominal size : 2.5 to 100mm

Model : EGM5010C

Primary head Spec. code																			Description										Standard	
Primary head code				V	N	1	8			N	0	1	1	0		0	0	0	0	0	0	2	0	0	0	0	0		Wafer / Ceramic type / Platinum electrodes	○
(Fixed code)				4																		always 4	Connection flange size				○			
Nominal side				1																		2.5mm	10 or 15A		1/2"		○			
				2																		4mm					○			
				3																		6mm					○			
				5																		10mm					○			
				6																		15mm	15A	1/2"	○					
				8																		25mm	25A	1"	○					
				B																		40mm	40A	1-1/2"	○					
				C																		50mm	50A	2"	○					
				E																		80mm	80A	3"	○					
F																		100mm	100A	4"	○									
Process connection					N																	Wafer type				○				
Flameproof specification							0															always 0				○				
Type								1	1													Compact version (EGC010 Converter)				○				
(Fixed code)									0													always 0				○				
Earth ring / Gasket for earth ring *1				1																		Stainless steel (SS316) / PTFE		Max. press.: 1.5MPa		○				
				2																			Hastelloy C / PTFE							
				3																			Hastelloy B / PTFE							
				6																			Titanium / PTFE							
				K																				Stainless steel (SS316) / Fluorocarbon resin		Max. press.: 4MPa				
				L																				Hastelloy C / Fluorocarbon resin						
				R																				Hastelloy B / Fluorocarbon resin						
				S																				Titanium / Fluorocarbon resin						
				T																					Tantalum with PTFE gaskets		Max. press.: 0.7MPa			
9																					Others									
Electrode material																0						Standard				○				
Protection class																	0					IP67				○				
(Fixed code)																		0	0			always00				○				
Calibration																			0			Standard calibration				○				
(Fixed code)																						0	2	0	0	0	0	0	always 020000	○
Special feature																			(Blank)	None				○						
																			/Z	Involved *2										

Converter Spec. code	V	3	1	1	4	4			0	6			2	0	0	0		Description	Standard
Converter code	V	3	1	1														Type: EGC010 (square housing)	○
(Fixed code)					4													always 4	○
Type						4												LCD indication / current and pulse output	○
Supply voltage							2											100V AC (85 to 110V)	○
							4											24V DC (18 to 32V)	
							8											115V AC (100 to 130V)	
							B											200V AC (170 to 220V)	
							C											230V AC (200 to 260V)	
Cable entry								3										1/2 NPT female thread	
								4										G1/2 female thread	○
								5										M20 with watertight glands	
Additional function									0									None	○
(Fixed code)										6								always 6	○
Mounting position of LCD display																		Version 1	Refer to drawing "Mounting position of LCD display" on page 6.
																		Version 2	
																		Version 3	
																		Version 4	
(Fixed code)																		always 2000	○
Special function																		(Blank)	None
																		/Z	Involved *2

*1 Refer to "Operating range for the earth ring gaskets".

*2 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

- Bolt and nut for piping : 1 set [Symbol : BN]
Material : SUS304, for JIS10K flange
- PTFE jacket type gaskets for piping : 2 pcs [Symbol : FG]
No. N7030, for JIS10K flange
Note) Inform us of the flange rating in case of the piping
side flange is except JIS10K with bolts and nuts.
- G1/2 watertight glands for cable entry : 1 set [Symbol : WG]
- 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 to operate.

ORDERING INSTRUCTIONS

Specify the following when ordering :

1. Model and spec. code
Example : Model : EGM5010C
Primary head spec. code : VN1848N011000000200000
Converter spec. code : V31144240612000
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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