

- Fluid specification
 - Conductivity : 0.05 $\mu\text{S}/\text{cm}$ or more
(1 $\mu\text{S}/\text{cm}$ or more for water)
* Refer to "Minimum fluid conductivity" table.
 - Temperature : -40 to +100°C
 - Pressure : Size 25 to 80mm: 0 Pa (abs) to 4MPa
Size 100mm: 0 Pa (abs) to 1.6 MPa
 - Permissible temperature change :
Temperature rising in 10 minutes : $\Delta T \leq 125^\circ\text{C}$
for sudden change : $\Delta T \leq 120^\circ\text{C}$
 - Temperature falling in 10 minutes : $\Delta T \leq 100^\circ\text{C}$
for sudden change : $\Delta T \leq 80^\circ\text{C}$

Indication and Output Specification

- Indicator : Blue, dot matrix LCD with back light
128 × 64 pixels (59 × 31 mm)
- Display : Changeover of Max. 2 screens with 1 to 3 lines of display at one screen.
Flow rate, total flow volume, flow velocity and coil temperature are indicated.
- Current output : 4 to 20 mA DC (Max. 22 mA ; Scale out at error status)
When using internal power supply : Load resistance 1000 Ω or less
When using external power supply : External voltage 32 V DC or less
- Pulse output
 - Open collector output
 - Rating : 32 V DC or less, 20 mA or less (\leq 10 kHz)
100 mA or less (\leq 100 Hz)
 - Pulse rate : 2 to 36,000,000 pulse/h (0.00056 Hz to 10 kHz)
 - Pulse width
 - One of the following selectable :
 - 1) AUTO : Pulse width by which duty factor to be 50% at full scale
 - 2) Duty factor 1: 1 fixed
 - 3) Free setting : 0.05 to 2000 ms
- Status output
 - Open collector output
 - Rating : 32 V DC or less, 100 mA or less
 - 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 flow detection
- Control input
 - Voltage input
 - Low : 0 to 2.5 V DC, High: 19 to 32 V 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

Terminals	Standard settings	Changeover by setting
A (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 cut off
 - Capable of individual setting of current output, pulse output, indication
 - Setting value : 0.0 to 20.0 % F.S.
 - Standard setting values
 - Current output, pulse output : ON 1%, OFF 2 % F.S.
 - Indication : No low cut-off
- Damping time constant :
 - Capable of individual setting of current output, pulse output, indication
 - Setting value : 0.0 to 100.0 seconds
 - Standard setting values
 - Current output, indication : 4 seconds
 - Pulse output : 0 second
- Isolation of input and output
 - Each circuit of power supply, electrode input, exciting current output, terminal A, terminal B, terminal C, terminal D is isolated.

Standard Functions

- Customer's free measuring unit setting function
 - Volume (or mass) and time units in 7 characters can be created.
 - Available any flow measuring units for indication.
- 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 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 external signal (Control Input)
- Excitation current frequency switching function
 - Standard mode : 1/6 of power supply frequency
 - Special mode : 1/50 to 1/2 of power supply frequency *5
- Self-diagnosis function
 - Following major error messages are indicated
 - Functional diagnosis : Coil disconnection, CPU, Memory, Soft ware, Output module, Output connection
 - Status diagnosis : Velocity distribution, Linearity, Exciting current/ frequency, Over range, Counter over flow, 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
 - Simulation tests for current, pulse, status outputs are available.
 - Current output : any value between 0.0 to 22.0 mA
 - Pulse output : any value between 1 Hz to 10 kHz
 - Status output : On/Off
- Setting by touch sensor with infrared
 - Four infrared sensors allow you to alter settings from outside without removing cover.
- HART Communication : Standardized

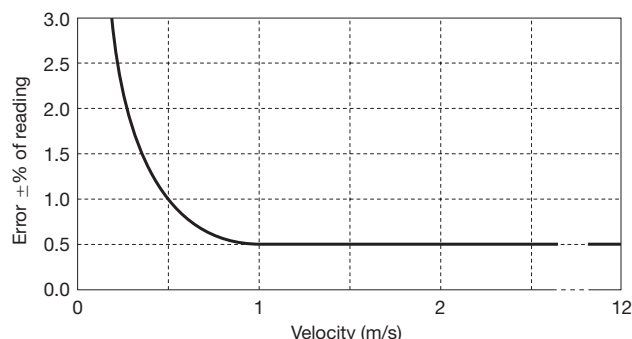
*5 The excitation current frequency can be altered according to an application such as pulsation flow or etc.

Explosionproof

- ATEX Explosionproof [in preparation]

Accuracy *6

- Indication and pulse output
 - For velocity ≥ 1 m/s : $\pm 0.5\%$ of reading
 - For velocity < 1 m/s : Velocity error of ± 0.005 m/s



- Current output: Additional error of ± 0.01 mA is added onto the accuracy of indication and pulse output.

*6 Reference condition

- Fluid : Water
- Fluid temperature : 10 to 30°C
- Conductivity : 150 $\mu\text{S}/\text{cm}$ or more
- Power supply voltage : Rated voltage $\pm 2\%$
- Ambient temperature : 18 to 28°C
- Upstream and downstream straight runs : 10 D and 2 D (D: Inside diameter)
- Warm up time : about 10 minutes
- Measuring time : 100 seconds

Operating range for the earth ring gaskets

Gasket	Fluid pressure	Fluid temperature
PTFE jacket type with joint sheet core (equivalent to VALQUA No.N7035)	$\leq 1.5\text{MPa}$	$\leq 100^\circ\text{C}$
Fluorocarbon resin (equivalent to VALQUA No.7020)	$\leq 4\text{MPa}$	$\leq 100^\circ\text{C}$
Tantalum earth ring (Teflon PTFE jacket type gasket with Viton core)	$\leq 0.7\text{MPa}$	$\leq 100^\circ\text{C}$

Minimum fluid conductivity

Nominal size (mm)	Type of liquid and minimum conductivity ($\mu\text{S}/\text{cm}$)	
	Pure water (mm)	Other than pure water
25	1.0 (5.0)	0.05 (0.5)
40	1.0 (5.0)	0.05 (0.5)
50	1.0 (2.5)	0.05 (0.2)
80	1.0 (2.5)	0.05 (0.2)
100	1.0 (2.5)	0.05 (0.2)

Remark : Figures in () indicates minimum recommended liquid conductivity for process control purpose which requires short time response.

It will be required to set relatively long time constant in case the conductivity of the liquid is lower than indicated value in ().

Suggestions and cautions for low conductivity liquid measurement

1. Straight runs

Flow noise may affect measurement in case of low conductivity liquid with low viscosity such as pure water and alcohol.

The following straight runs for upstream and downstream are needed.

Type of liquid	Upstream		Down stream
Low viscosity and Low conductivity (Pure water, alcohol etc.)	Reducers Elbows, Tees Fully opened gate valves	10D	2D
	Expansions Control valves Half opened gate valves	20D	
Other liquids than above	Reducers Elbows, Tees Fully opened gate valves	5D	2D
	Expansions Control valves Half opened gate valves	10D	

[D : Nominal diameter (mm)]

2. Control valves and half-opened gate valves are recommended to install downstream of flowmeter.

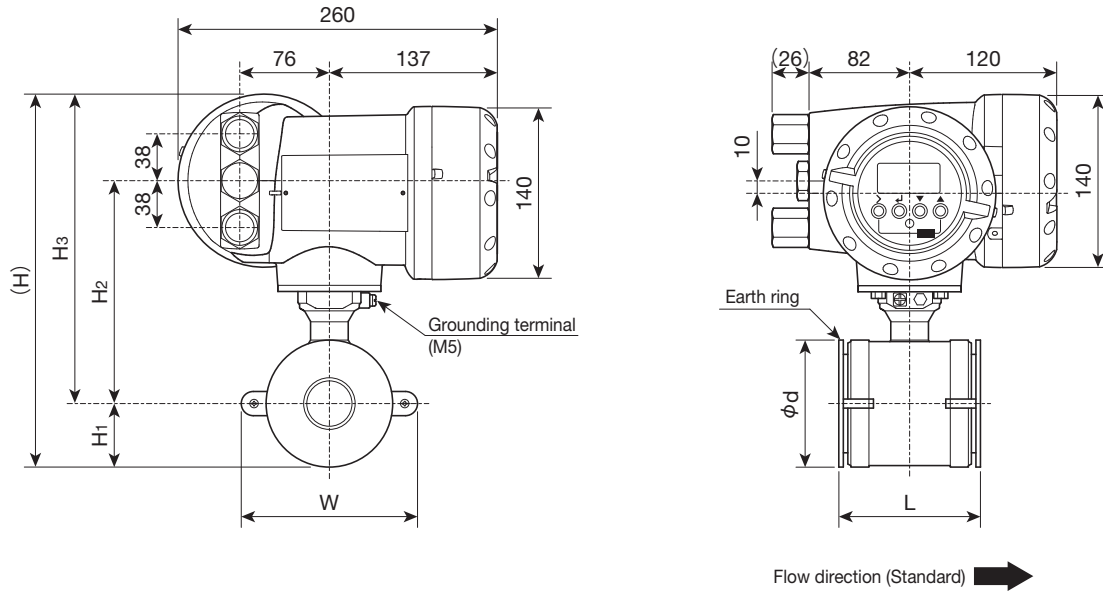
3. More than 30D straight run is recommended in case a pump is installed.

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)
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

DIMENSIONS

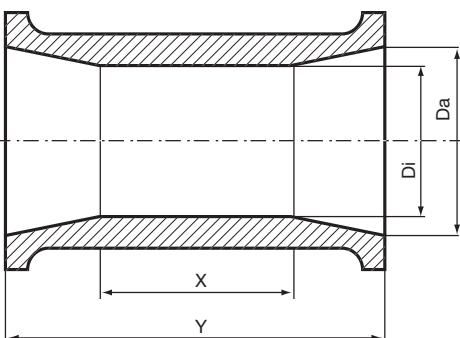
Nominal size 25 to 100 mm



Nominal size (mm)	Dimensions (mm)							Mass (kg)
	L *1	(H)	H ₁	H ₂	H ₃	W	d	
25	69	271	34	167	237	102	68	6
40	94	286	42	174	244	117	84	7
50	114	304	51	183	253	136	102	8
80	164	336	67	199	269	168	134	11
100	214	361	79	212	282	193	158	13

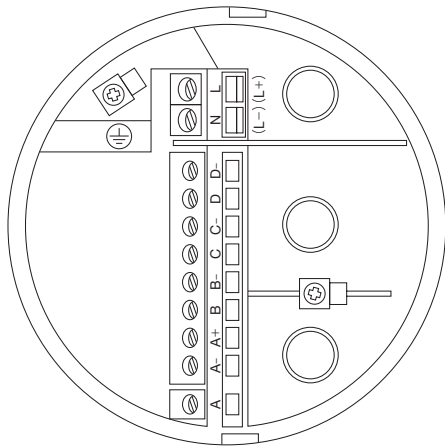
*1 (1) Face to face dimension of the flowmeter in which PTFE jacket type gasket is used for earth ring, is the same as "L" mm.
 Face to face dimension of the flowmeter in which fluorocarbon resin type gasket is used for earth ring, is "L-2" mm.
 (2) Face to face dimension of flowmeter in which tantalum type is used for earth ring is, "L-5" mm for the size 2.5 to 15 mm, and "L-1" mm for the size 25 to 100 mm.

DIMENSIONS FOR CERAMIC TUBE

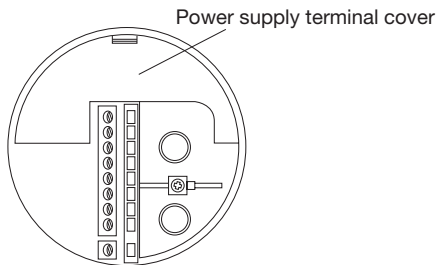


Nominal size (mm)	Dimensions (mm)			
	Da	Di	X	Y
25	24	20	26	55
40	37	30	36	80
50	49	40	51	100
80	78	60	70	150
100	98	80	103	200

ELECTRICAL CONNECTION



A protection cover is provided for power supply terminals



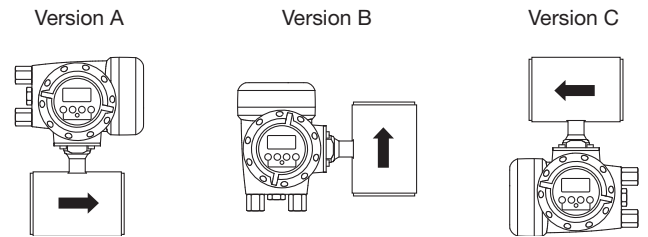
Terminals	Description
L/L+	AC power/DC power L+(+)·L-(-)
N/L-	
⊕	Grounding

Terminals	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 20 mA/ HART: internal power supply)	+	
A-	Current output (4 to 20 mA/ HART: external power supply)		-
A		-	+

- Terminal type : Plug-in type screw terminal
- Applicable core size : 0.5 to 2.5 mm²

Mounting positions of display

The orientation of the display in contrast to flow direction can be changed as follows.



Please specify your requirements. We are ready to deliver the flowmeters accordingly.

The arrow indicates the direct flow direction as standard. The reverse flow direction can be set by altering setting data if required so.

MODEL AND SPECIFICATION CODE

● Nominal size : 25 to 100 mm
 Model: EGM7300C

Primary head Spec. code	V	N	1	9	4	N	1	C	0	0	0	0	0	0	0	0	2	0	0	0	0	0	Description	Standard			
Primary head code	V	N	1	9	4																		Wafer / Ceramic, Capacitance detection type	○			
(Fixed code)					4																		always 4	Connection flange size	○		
Nominal size						8																	25 mm	25A	1"	○	
						B																	40 mm	40A	1-1/2"	○	
						C																	50 mm	50A	2"	○	
						E																	80 mm	80A	3"	○	
						F																	100 mm	100A	4"	○	
Process connection						N																	Wafer type (sandwiched between flanges)	○			
Explosionproof specification																								General purpose (Non explosionproof)	○		
																								ATEX	○		
Type																								Compact version (EGC300/CAP converter)	○		
(Fixed code)																								always 0	○		
Earth ring / Gasket for earth ring *1																								Stainless steel SS316 / PTFE	Max. press. : 1.5MPa	○	
																								Hastelloy® C / PTFE		○	
																								Hastelloy® B / PTFE		○	
																									Titanium / PTFE	Max. press. : 4MPa	○
																									Stainless steel SS316Ti / Fluorocarbon resin		○
																									Hastelloy® C / Fluorocarbon resin		○
																									Hastelloy® B / Fluorocarbon resin	Max. press. : 0.7MPa	○
																									Titanium / Fluorocarbon resin		○
																									Tantalum with PTFE gaskets		○
(Fixed code)																								Others		○	
Protection class																									always 0	○	
(Fixed code)																									IP66 / IP67	○	
Calibration																									always 00	○	
(Fixed code)																									Standard calibration	○	
(Fixed code)																									always 0200000	○	
Special feature																								(Blank)	None	○	
																								/Z	Involved *2	○	

Converter Spec. code	V	N	3	0	4	5					2	0	0	1	2	1	0	0	0	0	0	Description	Standard			
Converter code	V	N	3	0	4	5																	Type : EGC300/CAP (cylindrical housing)	○		
(Fixed code)					4																		always 4	○		
Type						5																		with LCD display	○	
Power supply																								24 V DC (11 to 31 V)	○	
																								100 to 230 V AC (85 to 253 V)	○	
(Fixed code)																								General purpose (Non explosionproof)	○	
Cable entry																									ATEX	○
																									1/2 NPT female thread	○
																									G1/2 female thread	
																								with M20 watertight cable gland		
(Fixed code)																								always 200	○	
Housing																									Aluminum alloy as standard	○
(Fixed code)																									always 2	○
Outputs																									Current output + pulse output + control input + status output as standard	○
(Fixed code)																									always 00000	○
Special feature																								(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

- Bolts and nuts for mounting on pipe : 1 set [Symbol : BN]
Material : Stainless steel SUS 304 for JIS10K flange
- PTFE jacket gaskets for mounting on pipe 2 pieces [Symbol : FG]
VALQUA No. N7030 for JIS10K flanges
Note : Suitable size of bolts, nuts and gaskets matching mating flanges will be provided. Please specify the flange rating and size other than JIS10K if those fittings are requested.
- G1/2 water tight glands for cable entry : [Symbol : WG]
- Number of cable entries : 3 pieces [Symbol : 3G]

ORDERING INSTRUCTIONS

1. Model and specification codes
Example
Model : EGM7300C
Primary head spec. code
: VN1948N01C01000000200000
Converter spec. code
: VN3045A0520012100000
2. Full scale flow range
3. Optional requirements will be added using above mentioned symbols if required.
4. Fluid name

* Specification is subject to change without notice.

 **TOKYO KEISO CO., LTD.**

Head Office : Shiba Toho Building, 1-7-24 Shibakoen, Minato-ku, Tokyo 105-8558
Tel : +81-3-3431-1625 (KEY) ; Fax : +81-3-3433-4922
e-mail : overseas.sales@tokyokeiso.co.jp ; URL : <http://www.tokyokeiso.co.jp>