

# MagneW Two-wire PLUS<sup>+</sup>

## Smart Two-wire Electromagnetic Flowmeter

Model MTG18A (Integral type)

Model MTG14C/MTG18B (Remote type)

### OVERVIEW

The MagneW Two-wire PLUS<sup>+</sup> is a high performance electromagnetic flowmeter based on field proven Yamatake two-wire loop powered technology. The MagneW Two-wire PLUS offers the stable and accurate measurement of a traditional magflow meter with low power consumption. The result is a lower overall cost of ownership.

### FEATURES

#### **Two-wire operation**

MagneW Two-wire PLUS<sup>+</sup> improves its noise immunity performance by 700% maximum and 250% in average. For the spike noise, MagneW Two-wire PLUS<sup>+</sup> improves its noise immunity performance in 250% in average.

#### **High accuracy and stable output**

MagneW Two-wire PLUS<sup>+</sup> provides high accuracy ( $\pm 0.5\%$  of rate) and its output is as stable as current four wired magnetic flowmeters.

#### **Minimum measurable fluid conductivity**

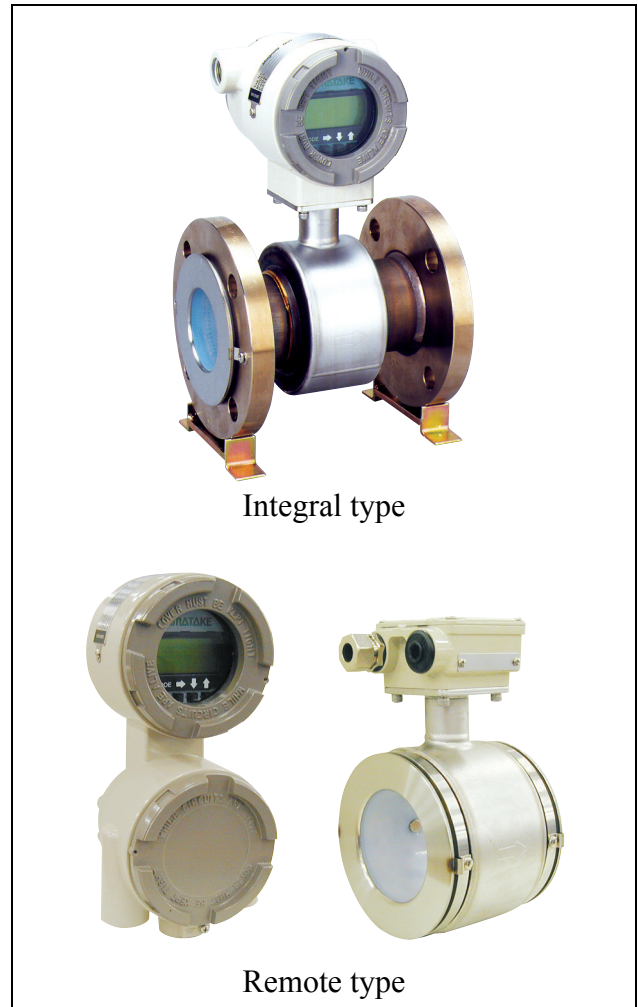
The MagneW Two-wire PLUS<sup>+</sup> offers a minimum process fluid conductivity of  $10\mu\text{S}/\text{cm}$  which is the best among two-wire magflow meters thereby maximizing applicability.

#### **Wider range in size**

MagneW Two-wire PLUS<sup>+</sup> offers wider range in detector size.  
Detector size: 2.5 to 200 mm.

#### **Wafer and flange style, integral and remote style available**

The MagneW Two-wire PLUS<sup>+</sup> is available integral or remote, flanged or wafer, making the selection of the right meter for the application simple.



Integral type

Remote type

### APPLICATIONS

- Corrosive liquid measurement
- Chemical solution measurement
- Drainage/waste disposal fluid measurement
- Drinking water and waste water service
- Industrial/agricultural water measurement
- Seawater measurement

**FUNCTIONAL SPECIFICATIONS**

**Enclosure rating**

NEMA TYPE 4X, IEC IP67

**Hazardous Areas certifications**

**Integral type**

**FM approval**

<for Division 1>

Class I, Division 1, Groups A, B, C & D, T4;  
 Class II, Division 1, Groups E, F & G, T4;  
 Class III, T4,  $-20^{\circ}\text{C} \leq T_{amb} \leq +60^{\circ}\text{C}$

<for Division 2>

Nonincendive for  
 Class I, Division 2, Groups A, B, C & D, T4;  
 Class II, Division 2, Groups F & G, T4;  
 Class III, T4; Class I, Zone 2, Group IIC, T4,  
 $-20^{\circ}\text{C} \leq T_{amb} \leq +60^{\circ}\text{C}$

**CSA certification**

<for Division 1>

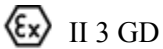
Class I, Division 1, Groups A, B, C & D, T4;  
 Class II, Division 1, Groups E, F & G, T4;  
 Class III, T4,  $-20^{\circ}\text{C} \leq T_{amb} \leq +60^{\circ}\text{C}$

<for Division 2>

Class I, Division 2, Groups A, B, C, & D, T4;  
 Class II, Division 2, Groups E, F & G, T4;  
 Class III, T4,  $-20^{\circ}\text{C} \leq T_{amb} \leq +60^{\circ}\text{C}$

**ATEX(KEMA) Certification**

<for Type n>



Ex nA II T6 T135°C at Tprocess:  $-40...+85^{\circ}\text{C}$   
 Ex nA II T5 T135°C at Tprocess:  $-40...+100^{\circ}\text{C}$   
 Ex nA II T4 T135°C at Tprocess:  $-40...+130^{\circ}\text{C}$   
 $-40^{\circ}\text{C} \leq T_{amb} \leq +60^{\circ}\text{C}$   
 KEMA 07ATEX0066  
 IP66/67

**NEPSI Certification**

<for Type n>

Ex nA II T6 DIP A21 TA 135°C at Tprocess= $85^{\circ}\text{C}$   
 Ex nA II T5 DIP A21 TA 135°C at Tprocess= $100^{\circ}\text{C}$   
 Ex nA II T4 DIP A21 TA 135°C at Tprocess= $130^{\circ}\text{C}$   
 $-40^{\circ}\text{C} \leq T_{amb} \leq +60^{\circ}\text{C}$

**Remote type**

**FM approval**

<for Division 2>

Nonincendive for  
 Class I, Division 2, Groups A, B, C & D, T4;  
 Class II, Division 2, Groups F & G, T4;  
 Class III, T4; Class I, Zone 2, Group IIC, T4,  
 $-20^{\circ}\text{C} \leq T_{amb} \leq +60^{\circ}\text{C}$

**CSA certification**

<for Division 2>

Class I, Division 2, Groups A, B, C & D, T4;  
 Class II, Division 2, Groups E, F & G, T4;  
 Class III, T4,  $-20^{\circ}\text{C} \leq T_{amb} \leq +60^{\circ}\text{C}$

**EU Pressure Equipment Directive (97/23/EC)**

Model MTG18A and MTG18B are in accordance with SEP category (Article 3, paragraph 3).

for dangerous liquids

DN	Maximum Pressure
Less than 65mm	30bar
80mm	25bar
100mm	20bar
150mm	13bar
200mm	10bar

**for non dangerous liquids**

The maximum process pressure is 30bar for all sizes.

**Output signal**

**Analog output**

4 to 20 mA DC

**Digital output**

DE

Analog or Digital output is selectable.

**Pulse output**

Open collector output (30V DC, 100 mA max.)

Pulse frequency: 0.0001 to 200 Hz

Pulse width: 1 ms to 1 s

Voltage drop during transistor ON: 1.6 Vmax.

**Contact output**

Open collector output (30V DC, 100 mA max.)

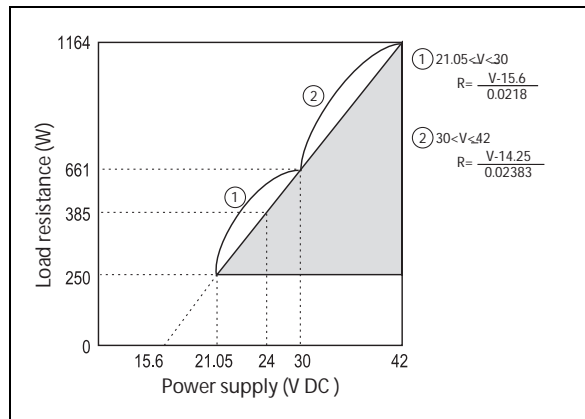
Pulse or contact output is selectable

**Communication protocol**

SFC communication and HART communication

**Load resistance characteristic of communication**

External power supply 21.05 to 42V DC for communication.



Note) The load resistance of 250 Ω or more is necessary for communications of SFC and the HART communicator.

**Flow unit**

Volume flow: m<sup>3</sup>, L, cm<sup>3</sup>, G (gallon), mG, kG,  
B (barrel), IG (imperial gallon), mIG,  
kIG

Mass flow: t, kg, g, lb

Time: d, h, min., s

**Display****Display: LCD**

Main display: 7-segment, 8 digits

Sub display: 16 digits, 2 lines

Display contents:

Simultaneously displays % flow rate, Actual flow rate (eng. unit) and Totalized value.

**Data setting**

Operation by four key switches

**Damping**

Adjustable between 0.5 and 199.9 seconds.

**Low flow cutoff**

Adjustable between 0 and 10% of setting range.

Below selected value, output is driven to the zero flow rate signal level.

**Dropout**

Adjustable between 0 and 10% of setting range.

Below selected value, pulse output is cut.

**Empty pipe detection**

Detect empty pipe condition by monitoring flow rate signal. Once the flow rate signal fluctuates over a certain threshold, the device judges that the detector is empty. When the detector is empty, the analog output (4 to 20mA output) and pulse output are set to zero flow values. The display alternately shows zero value and "Empty Status".

There are three threshold levels to meet an environment where the device is installed. Set an appropriate threshold level from below.

SENSITIVITY HIGH

SENSITIVITY MID

SENSITIVITY LOW

Default setting: OFF

Operating condition:

The following conditions must be met when using the empty pipe detection function.

- Diameter: 10mm or larger
- Electric conductivity of fluid: 30 μS/cm or greater
- Grounding: Grounding resistance must be less than 100Ω
- The noise level must be over the set threshold when the pipe is empty.

The noise level must be under the set threshold when the process fluid flows in the detector.

**Lightning protection**

12 kV, 1000A

Equipped with the lightning arrester in the power source and external output terminals.

**Power failure**

An EEPROM retains data record of totalized value when pulse output is used (retention period approximately 10 years).

**Power supply**

15.6 to 42V DC (without communication)

21.05 to 42V DC (with communication)

Current capacity: 24mA min.

In case of current capacity is 22mA, the voltage must be 15.6V minimum.

**Size****Wafer style**

25, 40, 50, 65, 80, 100 mm (1, 1½, 2, 2½, 3, 4 inches)

**Flange style**

2.5, 5 mm (0.1, 0.2 inch) (Model MTG18A only)

10, 15, 25, 40, 50, 65, 80, 100, 150, 200 mm (3/8, 1/2, 1, 1½, 2, 2½, 3, 4, 6, 8 inches)

**Flange rating**

ANSI150, ANSI300, DIN PN10, DIN PN16, DIN PN25, JIS10K, JIS20K, JIS30K

**Ambient temperature limits**

-20 to 60°C (-4 to 140°F)

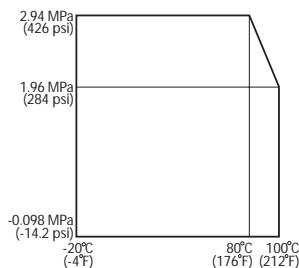
**Ambient humidity limits**

10 to 90% RH

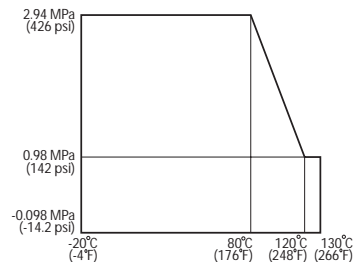
**Temperature range and pressure range of process fluid**

Refer to the following.

Size: 2.5 to 10 mm (0.1 to 3/8 inch)



Size: 15 to 200 mm (1/2 to 8 inch)



**Measurable electrical conductivity**

10 μS/cm or greater

50 μS/cm or greater (10 mm (3/8 inch), 15 mm (1/2 inch) for remote type)

**Measurement flow range**

Size		Maximum flow velocity range is 0 to 0.3 m/s (0 to 0.98 ft/s)		Maximum flow velocity range is 0 to 10 m/s (0 to 32.8 ft/s)		Conversion factor K
		Minimum range		Maximum range		
mm	inches	m <sup>3</sup> /h	GPM	m <sup>3</sup> /h	GPM	
2.5	0.1	0 to 0.00531	0 to 0.02335	0 to 0.1767	0 to 0.778	56.59
5	0.2	0 to 0.02121	0 to 0.09337	0 to 0.7068	0 to 3.112	14.15
10	3/8	0 to 0.08483	0 to 0.3735	0 to 2.827	0 to 12.44	3.537
15	1/2	0 to 0.1909	0 to 0.8404	0 to 6.361	0 to 28.01	1.572
25	1	0 to 0.5302	0 to 2.335	0 to 17.67	0 to 77.80	0.5659
40	1½	0 to 1.358	0 to 5.976	0 to 45.23	0 to 199.1	0.2210
50	2	0 to 2.121	0 to 9.337	0 to 70.68	0 to 311.2	0.1415
65	2½	0 to 3.584	0 to 15.78	0 to 119.4	0 to 525.9	0.08371
80	3	0 to 5.429	0 to 23.90	0 to 180.9	0 to 796.7	0.05526
100	4	0 to 8.483	0 to 37.35	0 to 282.7	0 to 1244	0.03537
150	6	0 to 19.09	0 to 84.04	0 to 636.1	0 to 2801	0.01572
200	8	0 to 33.93	0 to 149.4	0 to 1130	0 to 4979	0.008842

Velocity  $V$  (m/s) =  $K \times Q$

$K = \text{Conversion factor} = 1/3600 \times 4/(\pi D^2) \times 1000^2$ ,  $D = \text{Size (mm)}$ ,  $Q = \text{Flow rate (m}^3/\text{h)}$

## PERFORMANCE SPECIFICATIONS

### Analog output accuracy

Size: 2.5, 5 mm (0.1, 0.2 inch)

$V_s$  = velocity of setting range (m/s)

$V_s$ (m/s)	Velocity during measurement $\geq V_s \times 50\%$	Velocity during measurement $\leq V_s \times 50\%$
$1.0 \leq V_s \leq 10$	$\pm 0.5\%$ of rate	$\pm 0.5\%$ of $V_s$
$0.3 \leq V_s \leq 1.0$	$\pm \frac{0.5}{V_s} \%$ of rate	$\pm 0.5 + \left(\frac{0.5}{V_s}\right) \%$ of $V_s$

Size: 10, 15 mm (3/8, 1/2 inch)

$V_s$  = velocity of setting range (m/s)

$V_s$ (m/s)	Velocity during measurement $\geq V_s \times 40\%$	Velocity during measurement $\leq V_s \times 40\%$
$1.0 \leq V_s \leq 10$	$\pm 0.5\%$ of rate	$\pm 0.5\%$ of $V_s$
$0.3 \leq V_s \leq 1.0$	$\pm \frac{0.5}{V_s} \%$ of rate	$\pm 0.4 + \left(\frac{0.5}{V_s}\right) \%$ of $V_s$

Size: 25 to 200 mm (1 to 8 inches)

$V_s$  = velocity of setting range (m/s)

$V_s$ (m/s)	Velocity during measurement $\geq V_s \times 30\%$	Velocity during measurement $\leq V_s \times 30\%$
$1.0 \leq V_s \leq 10$	$\pm 0.5\%$ of rate	$\pm 0.5\%$ of $V_s$
$0.3 \leq V_s \leq 1.0$	$\pm \frac{0.5}{V_s} \%$ of rate	$\pm 0.3 + \left(\frac{0.5}{V_s}\right) \%$ of $V_s$

## PHYSICAL SPECIFICATIONS

### Converter case finishing

#### Standard

Baked acrylic paint

#### Corrosion-proof

Baked epoxy paint

### Converter case material

Aluminum alloy

### Display cover material

Tempered glass

### Terminal box finishing (Model MTG18B only)

**Standard:** Baked acrylic paint

**Corrosion-proof:** Baked epoxy paint

### Terminal box material (Model MTG18B only)

Aluminum alloy

### Detector main body materials

#### Case material

Size 2.5 to 15 mm (0.1 to 1/2 inch):

SCS13 stainless steel

Size 25 to 200 mm (1 to 8 inches):

SUS304 stainless steel

#### Measuring pipe material

SUS304 stainless steel

### Flange

SUS304 stainless steel

(size 2.5 to 65 mm (0.1 to 2½ inches))

Carbon steel + corrosion-preventive painting

(size 80 to 200 mm (3 to 8 inches))

### Process wetted materials

**Lining:** PFA

#### Electrodes

SUS316L, ASTM B574 (Hastelloy C-276 equivalent), Titanium, Tantalum, Nickel, Zirconium, Platinum-Iridium

#### Grounding rings

SUS316, ASTM B575 (Hastelloy C-276 equivalent), Titanium, Tantalum, Zirconium, Platinum

## INSTALLATION

### Electrical connection

1/2NPT internal thread (must be selected for FM approval)

CM20 internal thread

G1/2 internal thread

### Remote converter mounting

Wall mounting, 2-inch pipe mounting

### Grounding

The grounding is essential for flow measurement.

The most effective grounding method is direct connection to earth ground with minimal impedance.

For approval selection code "1", to maintain Intrinsic safety of system connect conductor to earth ground so that it has less than 1 Ohm to earth ground. See ANSI/ISA RP12.06.01 Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations for guidance on installation of intrinsically safe apparatus and systems.

### Pipe connection

Wafer style (Size: 25 to 100 mm (1 to 4 inches))

Flange style (Size: 2.5 to 200 mm (0.1 to 8 inches))

### Length of straight pipe

Required straight pipe length clearance on the upstream side and the downstream side, while installing the detector.

#### Upstream side

A minimum 5D straight pipe length is required.

A minimum 10D straight pipe length is required if a diffuser/valve/pump is installed upstream side.

#### Downstream side

2D straight pipe length is recommended.

(Where D is the nominal bore diameter of the detector)

### Cable between converter and detector

(Remote type)

#### Length

70 m (233 ft) or shorter

(25 mm (1 inch) to 200 mm (8 inches))

30 m (98 ft) or shorter

(10 mm (3/8 inch), 15 mm (1/2 inch))

#### Outside diameter

11.4 mm (0.45 inch)

# MODEL SELECTION

## MagneW Two-wire PLUS<sup>+</sup>

Model MTG18A - I II III IV V VI VII VIII IX X XI - XII XIII - Options (some options can be selected per each model)

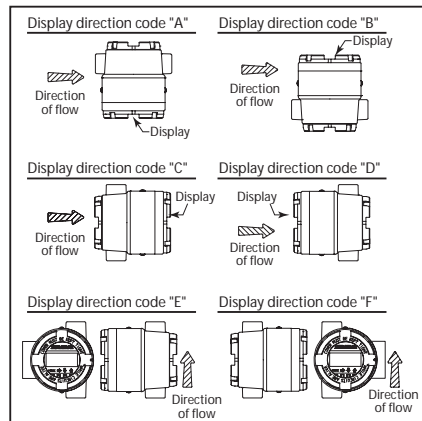
Basic model no.

Selections

Optional selections Options

MTG18A													
I	Line size	2.5 mm (0.1 inch) (flange type only)	002	*1									
		5 mm (0.2 inch) (flange type only)	005	*1									
		10 mm (3/8 inch) (flange type only)	010	*1									
		15 mm (0.5 inch) (flange type only)	015	*1									
		25 mm (1 inch)	025										
		40 mm (1½ inches)	040										
		50 mm (2 inches)	050										
		65 mm (2½ inches)	065										
		80 mm (3 inches)	080										
		100 mm (4 inches)	100										
		150 mm (6 inches) (flange type only)	150										
		200 mm (8 inches) (flange type only)	200										
		II	Lining	PFA		P							
		III	Pipe connection	Wafer JIS10K									11
Wafer JIS16/20K												12	
Wafer JIS30K												13	
Wafer ANSI 150												21	
Wafer ANSI 300												22	
Wafer DIN PN10												41	
Wafer DIN PN16												42	
Wafer DIN PN25												43	
Wafer DIN PN40												44	
Flange JIS10K												J1	
Flange JIS20K												J2	
Flange JIS30K												J3	
Flange JIS10K for 10 mm size flange											*2	J4	
Flange JIS20K for 10 mm size flange											*2	J5	
Flange ANSI 150												A1	
Flange ANSI 300												A2	
Flange DIN PN10												D1	
Flange DIN PN16												D2	
Flange DIN PN25										D3			
Flange DIN PN40										D4			
IV	Electrode	SUS316L										L	
		ASTM B574 (Hastelloy C-276 equivalent)											C
		Titanium											K
		Zirconium											H
		Tantalum											T
		Nickel											N
		Platinum-iridium											P
V	Grounding ring	SUS316										S	
		ASTM B575 (Hastelloy C-276 equivalent)											C
		Titanium											K
		Zirconium											H
		Tantalum											T
		Platinum											P
		Nickel											N
VI	Wiring connection	G1/2 internal thread										A	
		G1/2 internal thread with plastic water tight gland											B
		G1/2 internal thread with brass Ni-plated watertight gland											C
		1/2NPT internal thread (must be selected for FM approval)*4											D
		CM20 internal thread											E
		G1/2 internal thread with two plastic watertight glands											J
		G1/2 internal thread with two brass Ni-plated watertight gland											K
VII	Face-to-face dimension	Standard										A	
		Replacement for SMT3000 (for wafer type 40 to 100 mm)											S
VIII	Installation / Display direction	Horizontal piping / Right side viewed from upstream										A	
		Horizontal piping / Left side viewed from upstream											B
		Horizontal piping / Downstream side											C
		Horizontal piping / Upstream side											D
		Vertical piping / Right side of piping / Flow direction: Upward											E
		Vertical piping mounting / Left side of piping / Flow direction: Upward											F
IX	Calibration	Standard										A	
X	Output / communication	Volume flow 4-20mA DC output/with SFC communication										A	
		Volume flow DE output/with communication											C
		Volume flow 4-20mA DC output with HART communication											H
XI	Approval/ Certification	None										X	
		FM approval, Class I, II, III, Division 1, Groups A, B, C, D, E, F & G, T4 CSA certification, Class I, II, III, Division 1, Groups A, B, C, D, E, F & G, T4											*5
		FM approval, NI for Class I, II, III, Division 2, Groups A, B, C, D, F & G, T4 CSA certification, Class I, II, III, Division2, Groups A, B, C, D, E, F & G, T4											*5
		ATEX Type nA certification											4
		NPSI Type nA certification Ex nAII T4 to T6											6

X	None		
A	Test report		Options
B	Traceability certificate		
C	Material certificate (electrode/grounding ring)		
G	Gasket for plastic piping		
J	Tropical treatment		
K	with tagging on the converter housing *3		
L	with tag number plate wired to the flowmeter		
X	Finish / paint	Standard paint	
2		Corrosion-proof paint	
X	Bolt and nut	None	XIII
2		SUS304 (only for wafer type)	



Note) \*1: Flange of size 2.5 to 15 mm detector is 15 mm flange.  
 \*2: Available for size 2.5 to 10 mm detector.  
 \*3: Must be selected if tagging is required.  
 \*4: Must select "Approval 1 or 2".  
 \*5: Must select "Wiring connection D".

**MagneW Two-wire PLUS<sup>+</sup> Wafer/Flange remote type converter**

Model MTG14C - I II III IV - Options (some options can be selected per each model)

Basic model no.

		Selections			Options	
<b>MTG14C</b>					-	
I	Analog output / communication	Volume flow 4-20 mA DC output / with SFC communication	A			
		Volume flow DE output / with communication	C			
		Volume flow 4-20 mA DC output / with HART communication	H			
II	Wiring connection	G1/2 internal thread	A			
		G1/2 internal thread with a plastic water-tight gland	B			
		G1/2 internal thread with a brass Ni-plated water-tight gland	C			
		1/2NPT internal thread	D			
		CM20 internal thread	E			
III	Converter mounting	Wall mounting with standard bracket	G			
		2-inch pipe mounting with standard bracket	H			
IV	Approval	None			X	
		FM approval, Class I, II, III, Division 2, Groups A, B, C, D, F & G, T4 CSA certification, Class I, II, III, Division 2, Groups A, B, C, D, E, F & G, T4		*2	2	
V	Option	None			X	
		Traceability certificate			B	
		With the Tag number plate on the converter housing			*1	K
		Corrosion-proof paint				2

Note) \*1: Must be selected if tagging is required.

\*2: Must select "Wiring connection D".

**MagneW Two-wire PLUS<sup>+</sup> Wafer/Flange remote type cable**

Model SMC11 - I II III

Basic model no.

		Selections		
<b>SMC11</b>				
I	Cable	2 m (6 feet 8 inches)	02	
		3 m (10 feet)	03	
		4 m (13 feet 4 inches)	04	
		5 m (16 feet 8 inches)	05	
		10 m (33 feet 4 inches)	10	
		15 m (50 feet)	15	
		20 m (66 feet 8 inches)	20	
		30 m (100 feet)	30	
		40 m (133 feet 4 inches)	40	
		50 m (166 feet 8 inches)	50	
		60 m (200 feet)	60	
		70 m (233 feet 4 inches)	70	
		II	Terminals for detector	With terminals
III	Terminals for converter	With terminals		A

**MagneW Two-wire PLUS<sup>+</sup> Wafer/Flange remote type detector**

Model MTG18B - I II III IV V VI VII VIII IX - Options (some options can be selected per each model)

Basic model no.

Selections

Options

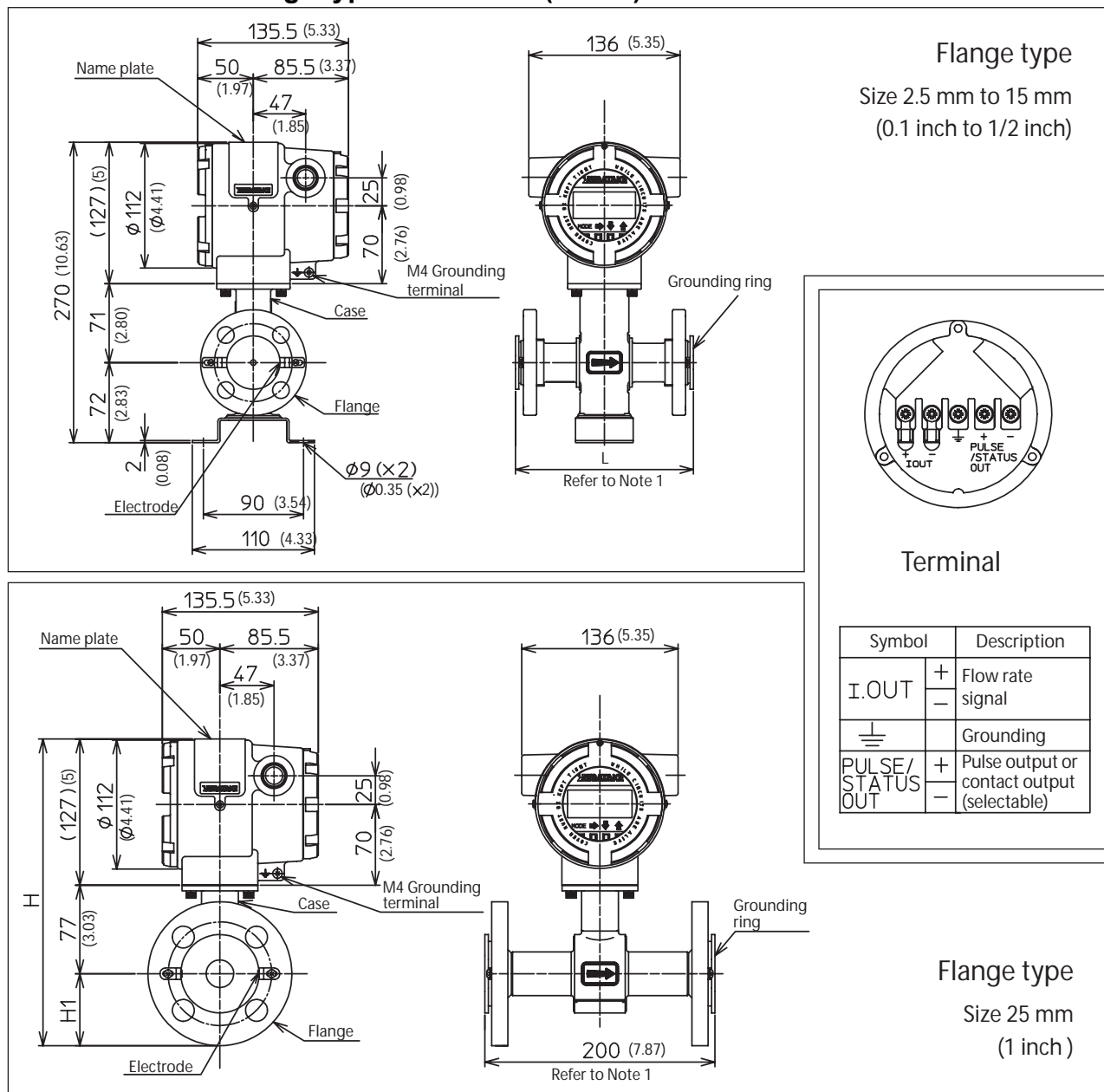
<b>MTG18B</b>													
I	Diameter	10 mm (3/8 inch)	010										Options
		15 mm (1/2 inch)	015										
		25 mm (1 inch)	025										
		40 mm (1½ inches)	040										
		50 mm (2 inches)	050										
		65 mm (2½ inches)	065										
		80 mm (3 inches)	080										
		100 mm (4 inches)	100										
		150 mm (6 inches)	150										
		200 mm (8 inches)	200										
II	Lining	PFA		P									
III	Pipe connection	Wafer JIS10K											
		Wafer JIS16/20K											
		Wafer JIS30K											
		Wafer ANSI 150											
		Wafer ANSI 300											
		Wafer DIN PN10											
		Wafer DIN PN16											
		Wafer DIN PN25											
		Flange JIS10K											
		Flange JIS20K											
		Flange JIS30K											
		Flange JIS10K for 10 mm size flange											
		Flange JIS20K for 10 mm size flange											
		Flange ANSI 150											
		Flange ANSI 300											
		Flange DIN PN10											
Flange DIN PN16													
Flange DIN PN25													
IV	Electrode	SUS316L										L	
		ASTM B574 (Hastelloy C-276 equivalent)											C
		Titanium											K
		Zirconium											H
		Tantalum											T
		Nickel											N
		Platinum-iridium											P
V	Grounding ring	SUS316											S
		ASTM B575 (Hastelloy C-276 equivalent)											C
		Titanium											K
		Zirconium											H
		Tantalum											T
		Platinum											P
VI	Wiring connection	G1/2 internal thread											A
		G1/2 internal thread with plastic water-tight gland											B
		G1/2 internal thread with brass Ni-plated water-tight gland											C
		1/2NPT internal thread											D
		CM20 internal thread											E
VII	Face-to-face dimension	Standard											A
		Yamatake SMT3000 wafer type											
VIII	Calibration	Standard calibration											A
IX	Approval/ Certification	None											X
		FM approval, NI for Class I, II, III, Division 2, Groups A, B, C, D, F & G, T4 CSA certification, Class I, II, III, Division 2, Groups A, B, C, D, E, F & G, T4 *3											

Note)  
 \*1: Must be selected if tagging is required.  
 \*2: Available for wafer type.  
 \*3: Must select "Wiring connection D".

### DIMENSIONS

All dimensions are in millimeters, dimensions in brackets ( ) are in inches (inch).

**Model MTG18A - Flange type size 2.5 mm (0.1 inch) to 15 mm (1/2 inch)**  
**- Flange type size 25 mm (1 inch)**

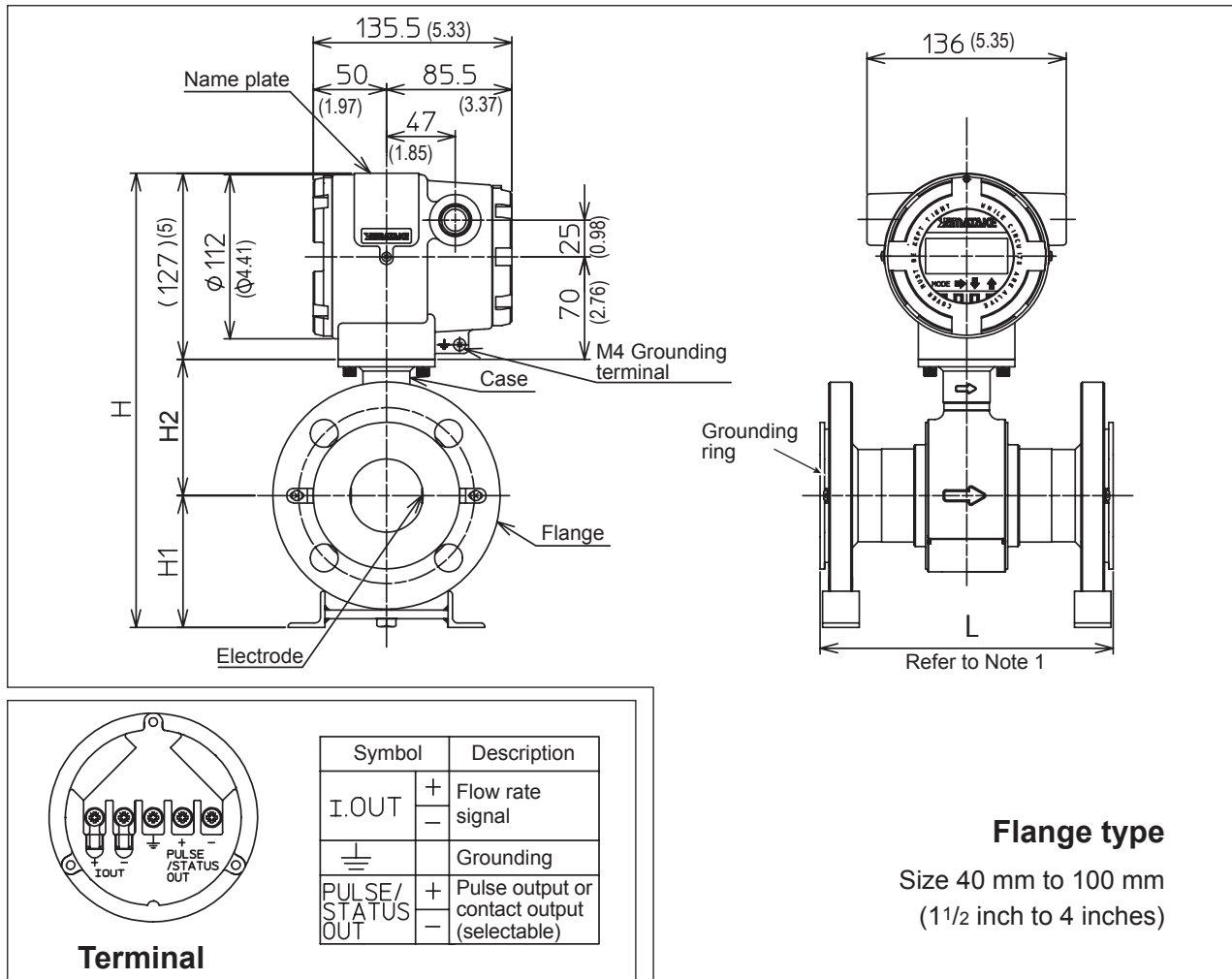


*Note 1* • When grounding ring material is SUS316, gasket dimension is not included to the face-to-face dimension.  
 • When grounding ring material is other than SUS316, a 3 mm of Teflon gasket dimension is included to the face-to-face dimension.

Table 1

Size mm (inch)	Model no.	J1	J2	J3	J4	J5	A1	A2	D1/D2	D3/D4						
											JIS		ANSI		DIN	
											10K	20K	30K	10K 10 mm flange	20K 10 mm flange	150
2.5 to 10 (0.1 to 3/8)	Dimension	L	160	160	160	160	160 (6.3)	160 (6.3)	160	160						
	Weight	(kg)	6.8	7	8	6.7	6.8	6.4 (14.1 lb)	6.9 (15.2 lb)	6.9	7.1					
15 (1/2)	Dimension	L	200	200	200	200	200 (7.87)	200 (7.87)	200	200						
	Weight	(kg)	7	7.2	8.2	6.9	7	6.6 (14.6 lb)	7.1 (15.7 lb)	7.1	7.3					
25 (1)	Dimension	H	267	267	269	-	-	258 (10.16)	266 (10.47)	262	262					
		H1	63	63	65	-	-	54 (2.13)	62 (2.44)	58	58					
	Weight	(kg)	9.2	9.5	10.3	-	-	8.4 (18.5 lb)	9.5 (20.9 lb)	9.1	9.4					

Model MTG18A - Flange type size 40 mm (1½ inch) to 100 mm (4 inches)

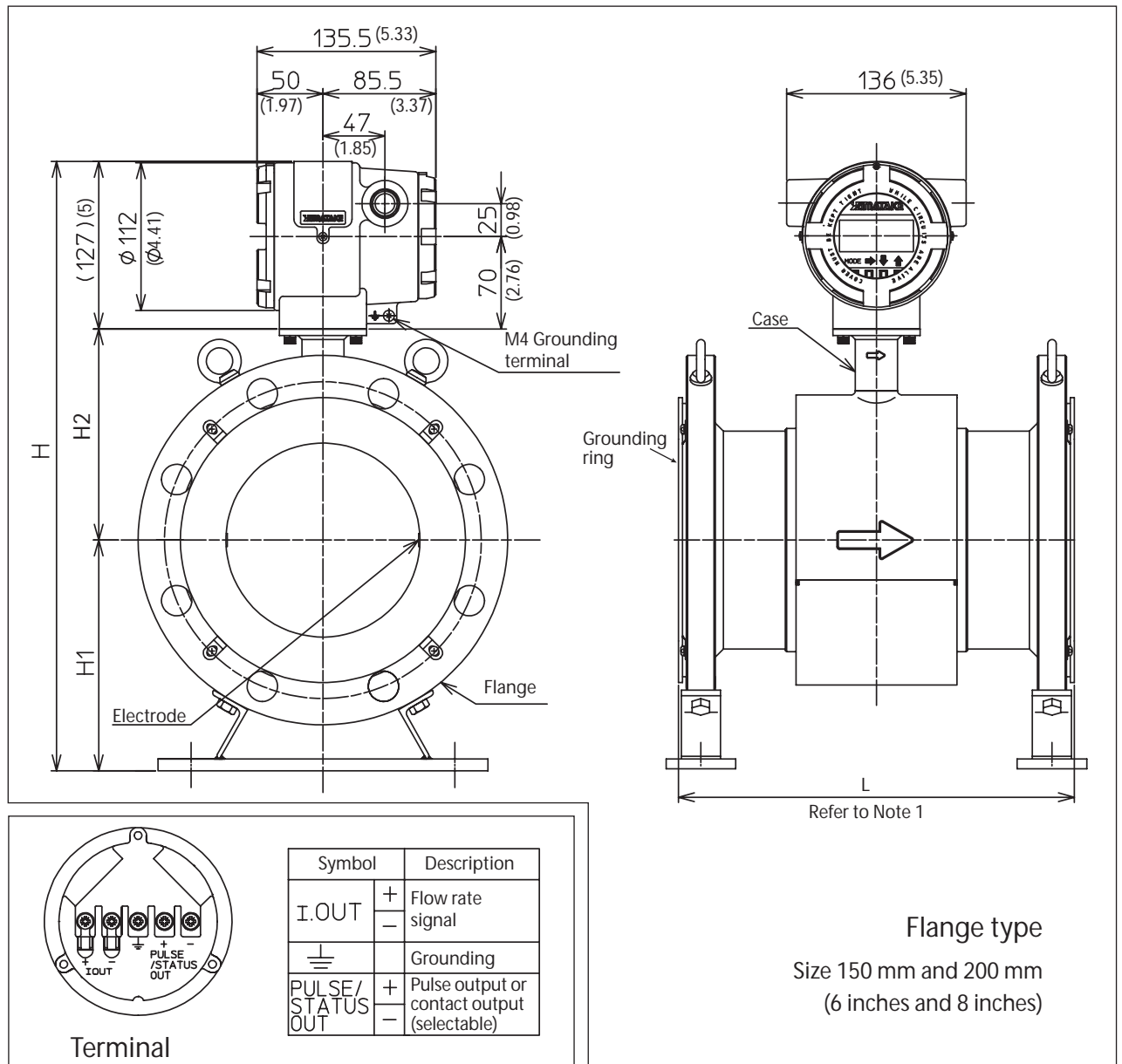


Note 1 • When grounding ring material is SUS316, gasket dimension is not included to the face-to-face dimension.  
• When grounding ring material is other than SUS316, a 3 mm of Teflon gasket dimension is included to the face-to-face dimension.

Table 2

Size mm (inches)	Model no.		J1	J2	J3	A1	A2	D1/D2	D3/D4
			JIS			ANSI		DIN	
	Flange rating		10K	20K	30K	150	300	PN 10/16	PN 25/40
40 (1.5)	Dimension	L	200	200	200	200 (7.87)	200 (7.87)	200	200
		H	296	296	307	288 (11.34)	305 (12.01)	302	302
		H1	85	85	96	77 (3.03)	94 (3.7)	91	91
		H2	84	84	84	84 (3.31)	84 (3.31)	84	84
	Weight	(kg)	8.3	8.6	11	7.8 (17.2 lb)	10.1 (22.3 lb)	8.7	9.7
50 (2)	Dimension	L	200	200	200	200 (7.87)	200 (7.87)	200	200
		H	310	310	316	308 (12.13)	316 (12.44)	316	316
		H1	90	90	96	88 (3.46)	96 (3.78)	96	96
		H2	93	93	93	93 (3.66)	93 (3.66)	93	93
	Weight	(kg)	11.9	12	13.7	12.3 (27.1 lb)	13.8 (30.4 lb)	13.3	13.8
65 (2.5)	Dimension	L	200	200	200	200 (7.87)	200 (7.87)	200	200
		H	329	329	343	330 (12.99)	388 (13.31)	334	334
		H1	102	102	116	103 (4.06)	111 (4.37)	107	107
		H2	100	100	100	100 (3.94)	100 (3.94)	100	100
	Weight	(kg)	13.9	14	15.7	14.3 (31.5 lb)	15.8 (34.8 lb)	15.3	15.8
80 (3)	Dimension	L	200	200	200	200 (7.87)	200 (7.87)	200	200
		H	345	354	359	346 (13.62)	359 (14.13)	354	354
		H1	110	119	124	113 (4.45)	124 (4.88)	119	119
		H2	108	108	108	108 (4.25)	108 (4.25)	108	108
	Weight	(kg)	14.4	16.7	20.4	17.3 (38.1 lb)	21.3 (47.0 lb)	14.4	16.5
100 (4)	Dimension	L	250	250	250	250 (9.84)	250 (9.84)	250	250
		H	367.5	376.5	384.5	378.5 (14.90)	392.5 (15.45)	373.5	381.5
		H1	120	129	137	131 (5.16)	145 (5.71)	126	134
		H2	120.5	120.5	120.5	120.5 (4.74)	120.5 (4.74)	120.5	120.5
	Weight	(kg)	20.2	23.7	28.6	25.1 (55.3 lb)	34.2 (75.4 lb)	19.6	23.4

Model MTG18A - Flange type size 150 mm (6 inches) and 200 mm (8 inches)

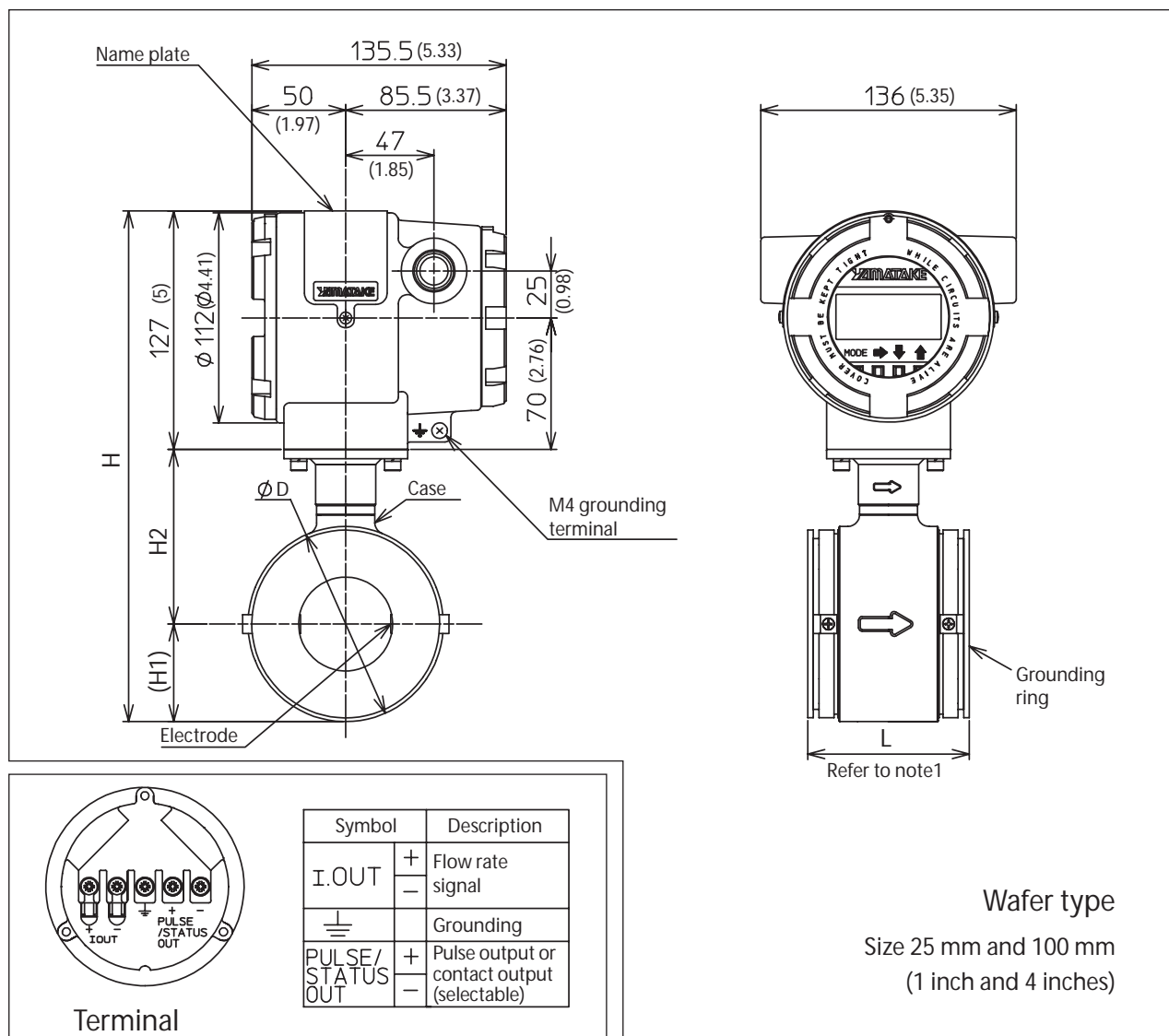


Note 1 • When grounding ring material is SUS316, gasket dimension is not included to the face-to-face dimension.  
• When grounding ring material is other than SUS316, a 3 mm of Teflon gasket dimension is included to the face-to-face dimension.

Table 3

Size mm (inches)	Model no.	J1	J2	J3	A1	A2	D1/D2	D3	D4	
										JIS
	Flange rating	10K	20K	30K	150	300	PN 10/16	PN 25	PN40	
150 (6)	Dimension	L	300	300	300	300 (11.81)	300 (11.81)	300	300	300
		H	462	476	487	461 (18.15)	483 (19.02)	465	473	473
		H1	175	189	200	174 (6.85)	196 (7.72)	178	186	186
		H2	160	160	160	160 (6.3)	160 (6.3)	160	160	160
	Weight	(kg)	34.4	41.7	54.3	37.2 (82.0 lb)	56.2 (123.9 lb)	30.7	38.6	38.6
200 (8)	Dimension	L	350	350	350	350 (13.78)	350 (13.78)	350	350	350
		H	508	515	531	516 (20.31)	537 (21.14)	514	526	534
		H1	196	203	219	204 (8.03)	225 (8.86)	202	214	222
		H2	185	185	185	185 (7.28)	185 (7.28)	185	185	185
	Weight	(kg)	49.8	59.8	87	61.8 (136.2 lb)	90.8 (200.2 lb)	48.1	68.5	72

Model MTG18A - Wafer type size 25 mm (1 inch) to 100 mm (4 inches)

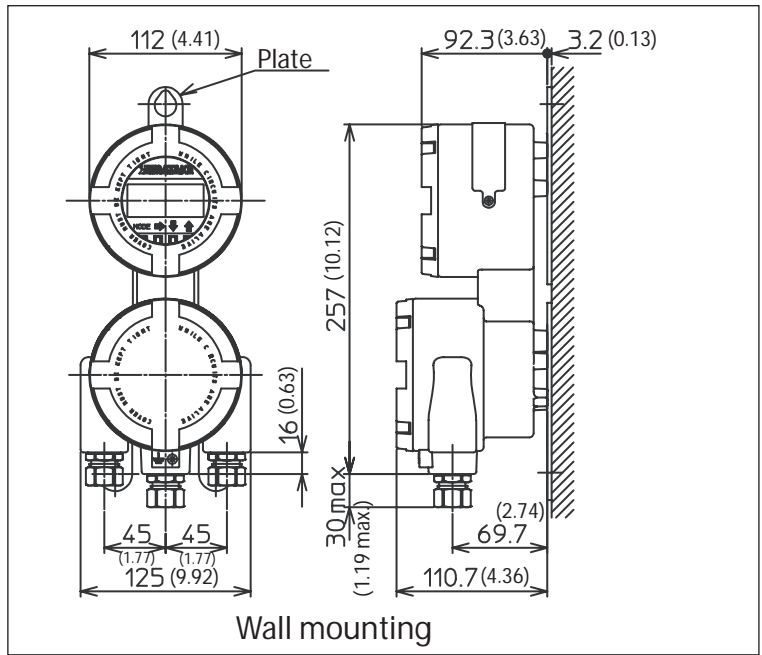
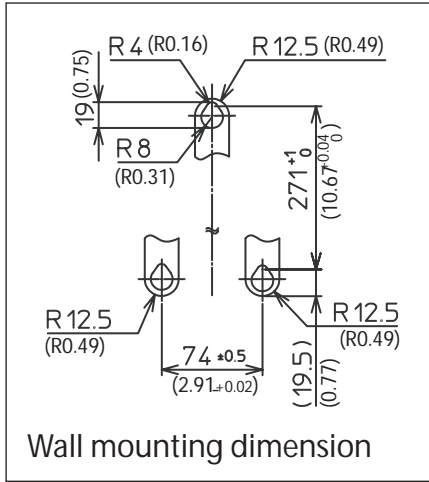


Note 1 • When grounding ring material is SUS316, gasket dimension is not included to the face-to-face dimension.  
 • When grounding ring material is other than SUS316, a 3 mm of Teflon gasket dimension is included to the face-to-face dimension.

Table 4

Flange rating	25 mm (1 inch)	40 mm (1½ inch)		50 mm (2 inches)		65 mm (2½ inches)	80 mm (3 inches)		100 mm (4 inches)		
	A	A	S	A	S	A	A	S	A	S	
Dimension size	L	94 (3.7)	80 (3.15)	98 (3.86)	86 (3.39)	104 (4.09)	96 (3.78)	106 (4.17)	130 (5.12)	120 (4.72)	150 (5.91)
	H	238 (9.37)	254.5 (10.02)		272 (10.71)		289 (11.38)	302 (11.89)		327 (12.87)	
	H1	34 (1.34)	43.5 (1.71)		52 (2.05)		62 (2.44)	67 (2.64)		79.5 (3.13)	
	H2	77 (3.03)	84 (3.31)		93 (3.66)		100 (3.94)	108 (4.25)		120.5 (4.74)	
	D	68 (2.68)	87 (3.43)		104 (4.09)		124 (4.88)	134 (5.28)		159 (6.26)	
Weight	(kg)	3.7	3.8	4.3	4.4	5.0	5.5	6.4	7.1	8.2	9.2
		(8.2 lb)	(8.4 lb)	(9.5 lb)	(9.7 lb)	(11.0 lb)	(12.1 lb)	(14.1 lb)	(15.7 lb)	(18.1 lb)	(20.3 lb)

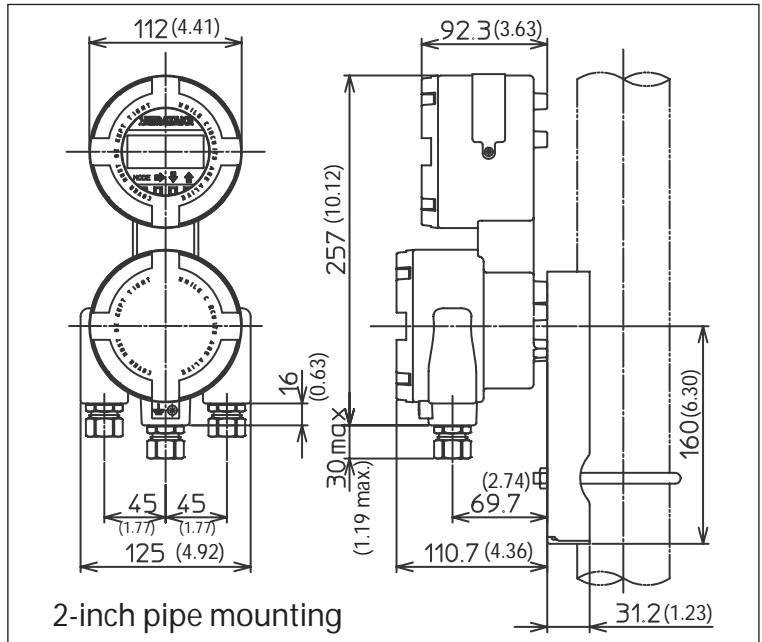
Model MTG14C - Converter



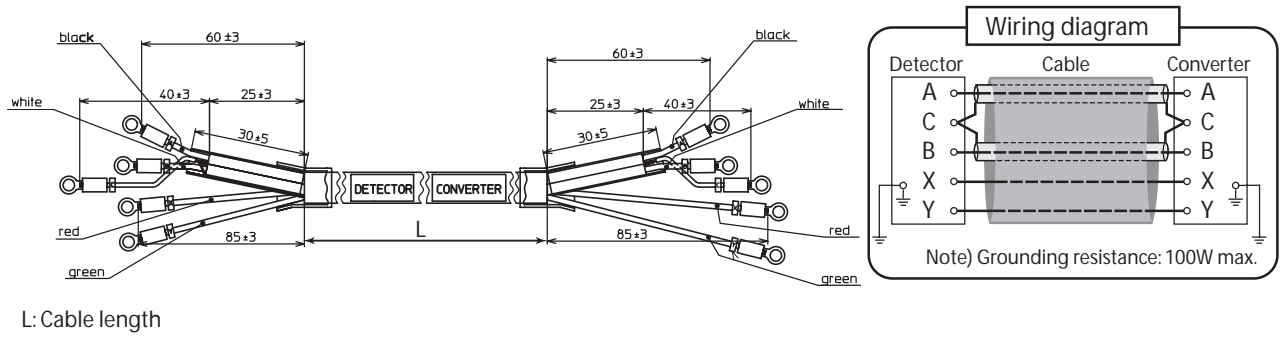
Terminal

Symbol	Description
I-OUT $\begin{matrix} + \\ - \end{matrix}$	Flow rate signal
$\text{---}$	Grounding
PULSE/STATUS OUT $\begin{matrix} + \\ - \end{matrix}$	Pulse output or contact (selectable)
X	Excitation output
Y	
A	Flow rate signal input
B	
C	

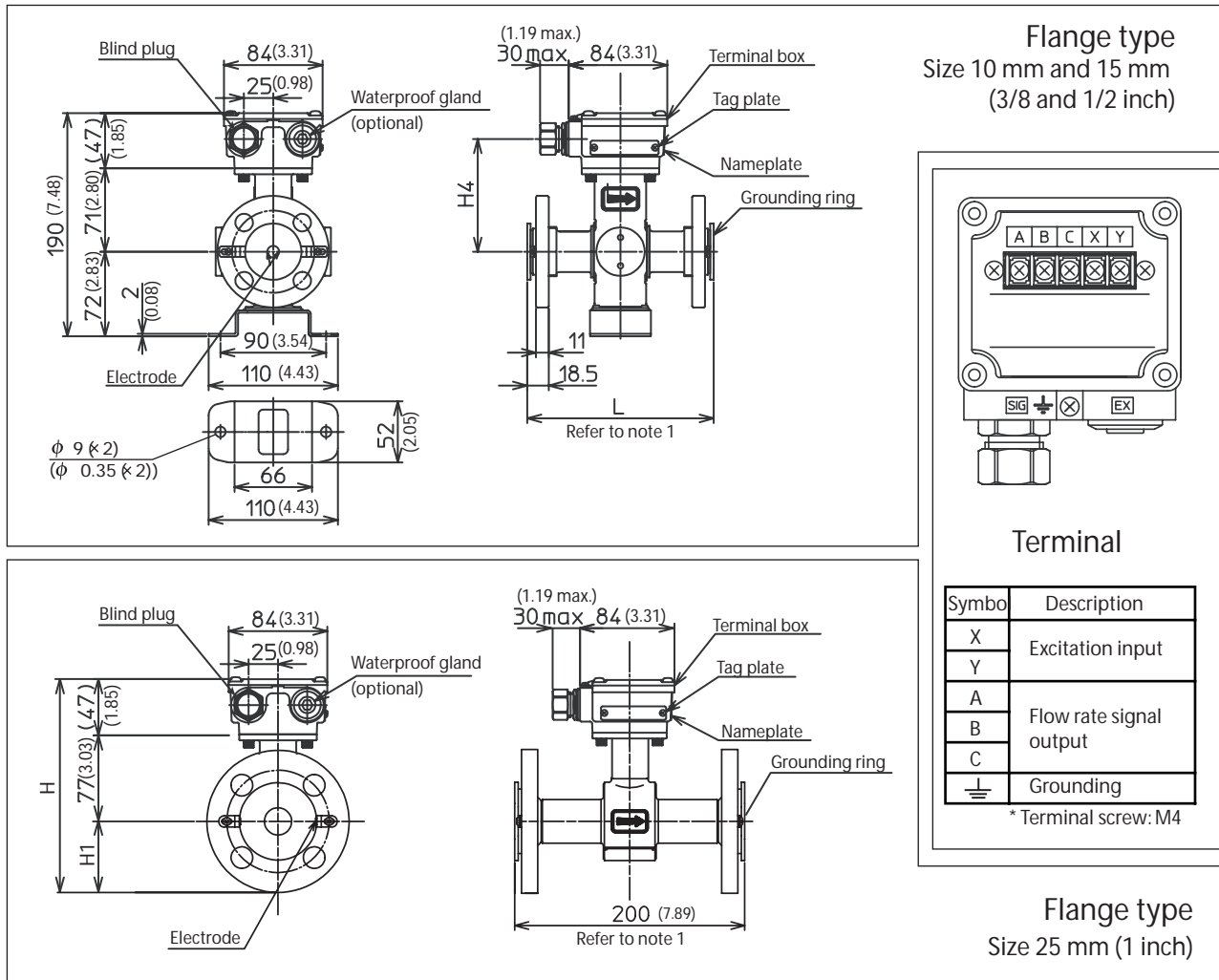
\* Terminal screw: M4



Model SMC11 - Cable



**Model MTG18B - Detector - Flange type size 10 mm (3/8 inch) and 15 mm (1/2 inch)  
- Flange type size 25 mm (1 inch)**

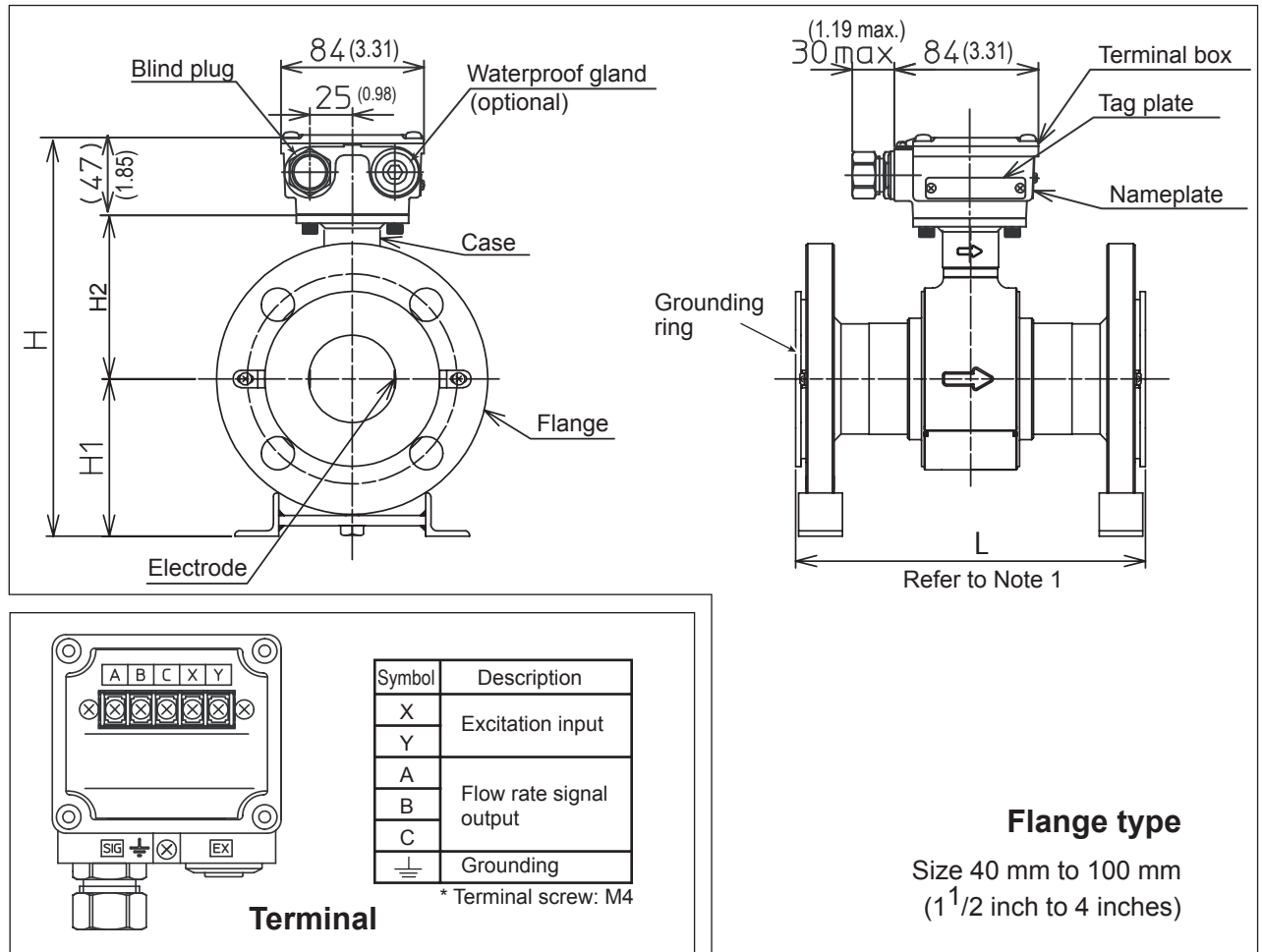


Note 1 • When grounding ring material is SUS316, gasket dimension is not included to the face-to-face dimension.  
• When grounding ring material is other than SUS316, a 3 mm of Teflon gasket dimension is included to the face-to-face dimension.

Table 5

Size mm (inches)	Model no.		J1	J2	J3	J4	J5	A1	A2	D1/D2	D3/D4
	Flange rating		JIS					ANSI		DIN	
			10K	20K	30K	10K 10 mm flange	20K 10 mm flange	150	300	PN 10/16	PN 25/40
10 (3/8)	Dimension	L	160	160	160	160	160	160 (6.3)	160 (6.3)	160	160
	Weight	(kg)	5	5.2	6.2	4.9	5	4.6 (10.1 lb)	5.1 (11.2 lb)	5.1	5.3
15 (1/2)	Dimension	L	200	200	200	200	200	200 (7.87)	200 (7.87)	200	200
	Weight	(kg)	5.2	5.4	6.4	5.1	5.2	4.8 (10.6 lb)	5.3 (11.7 lb)	5.3	5.5
25 (1)	Dimension	H	187	187	189	-	-	188 (7.4)	186 (7.32)	182	182
		H1	63	63	65	-	-	54 (2.13)	62 (2.44)	58	58
	Weight	(kg)	7.4	7.7	8.5	-	-	6.6 (14.6 lb)	7.7 (17.0 lb)	7.3	7.6

Model MTG18B - Detector - Flange type size 40 mm (1½ inch) to 100 mm (4 inches)

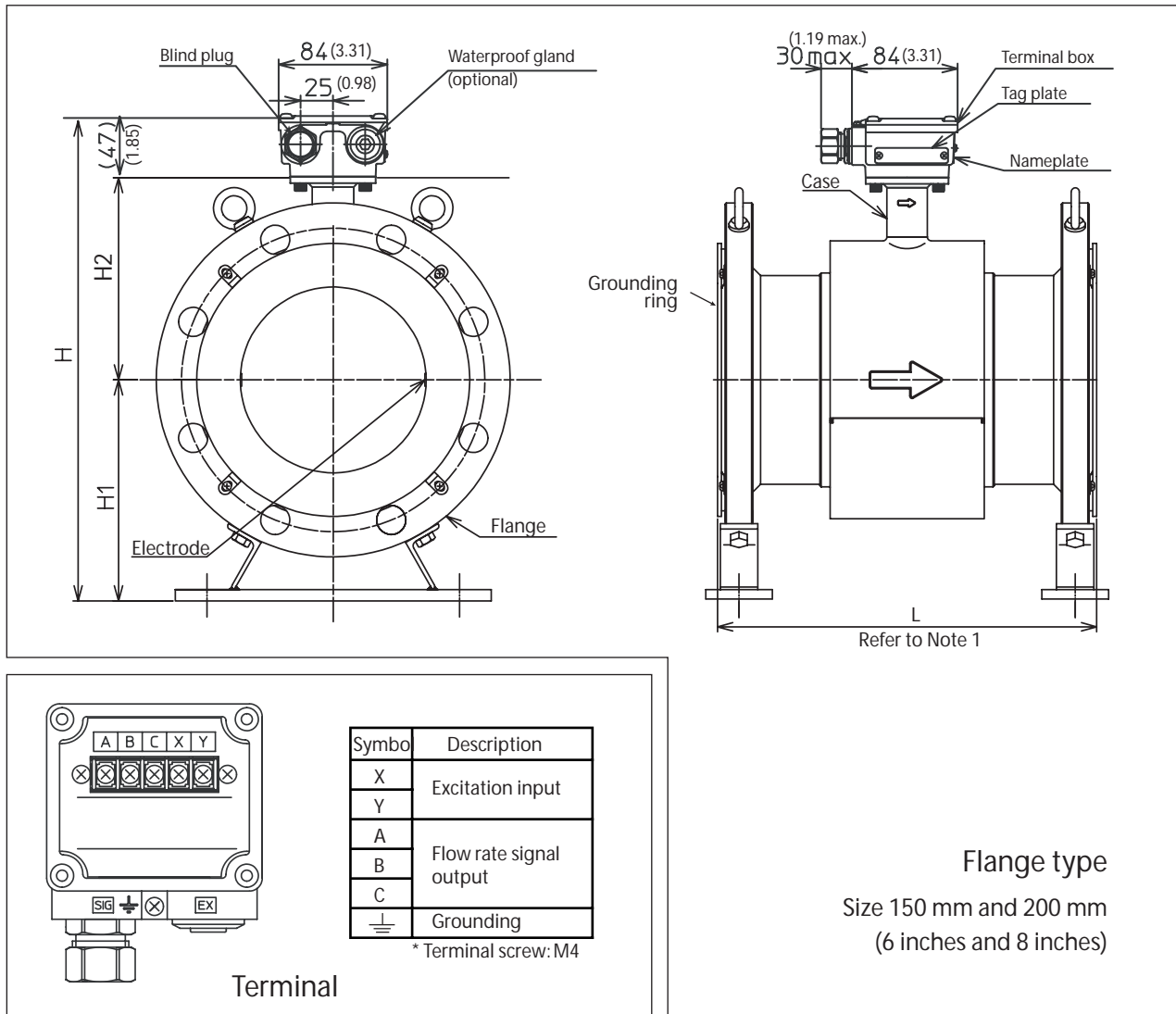


Note 1 • When grounding ring material is SUS316, gasket dimension is not included to the face-to-face dimension.  
 • When grounding ring material is other than SUS316, a 3 mm of Teflon gasket dimension is included to the face-to-face dimension.

Table 6

Size mm (inches)	Model no. Flange rating	J1	J2	J3	A1	A2	D1/D2	D3/D4	
		JIS			ANSI		DIN		
		10K	20K	30K	150	300	PN 10/16	PN 25/40	
40 (1.5)	Dimension	L	200	200	200	200 (7.87)	200 (7.87)	200	200
		H	216	216	227	208 (8.19)	225 (8.86)	222	222
		H1	85	85	96	77 (3.03)	94 (3.7)	91	91
		H2	84	84	84	84 (3.31)	84 (3.31)	84	84
	Weight	(kg)	6.5	6.8	9.2	6 (13.2 lb)	8.3 (18.3 lb)	6.9	7.9
50 (2)	Dimension	L	200	200	200	200 (7.87)	200 (7.87)	200	200
		H	230	230	236	228 (8.98)	236 (9.29)	236	236
		H1	90	90	96	88 (3.46)	96 (3.78)	96	96
		H2	93	93	93	93 (3.66)	93 (3.66)	93	93
	Weight	(kg)	10.1	10.2	11.9	10.5 (23.1 lb)	12 (26.5 lb)	11.5	12
65 (2.5)	Dimension	L	200	200	200	200 (7.87)	200 (7.87)	200	200
		H	249	249	263	250 (9.84)	258 (10.16)	254	254
		H1	102	102	116	103 (4.06)	111 (4.37)	107	107
		H2	100	100	100	100 (3.94)	100 (3.94)	100	100
	Weight	(kg)	12.1	12.2	13.9	12.5 (27.6 lb)	14 (30.9 lb)	13.5	14
80 (3)	Dimension	L	200	200	200	200 (7.87)	200 (7.87)	200	200
		H	265	274	279	266 (10.47)	279 (10.98)	274	274
		H1	110	119	124	113 (4.45)	124 (4.88)	119	119
		H2	108	108	108	108 (4.25)	108 (4.25)	108	108
	Weight	(kg)	16.6	14.9	18.6	15.5 (34.2 lb)	19.5 (43.0 lb)	12.6	14.7
100 (4)	Dimension	L	250	250	250	250 (9.84)	250 (9.84)	250	250
		H	287.5	296.5	304.5	298.5 (11.75)	312.5 (12.30)	293.5	301.5
		H1	120	129	137	131 (5.16)	145 (5.71)	126	134
		H2	120.5	120.5	120.5	120.5 (4.74)	120.5 (4.74)	120.5	120.5
	Weight	(kg)	18.4	21.9	26.8	23.3 (51.4 lb)	32.4 (71.4 lb)	17.8	21.6

Model MTG18B - Detector - Flange type size 150 mm (6 inches) and 200 mm (8 inches)

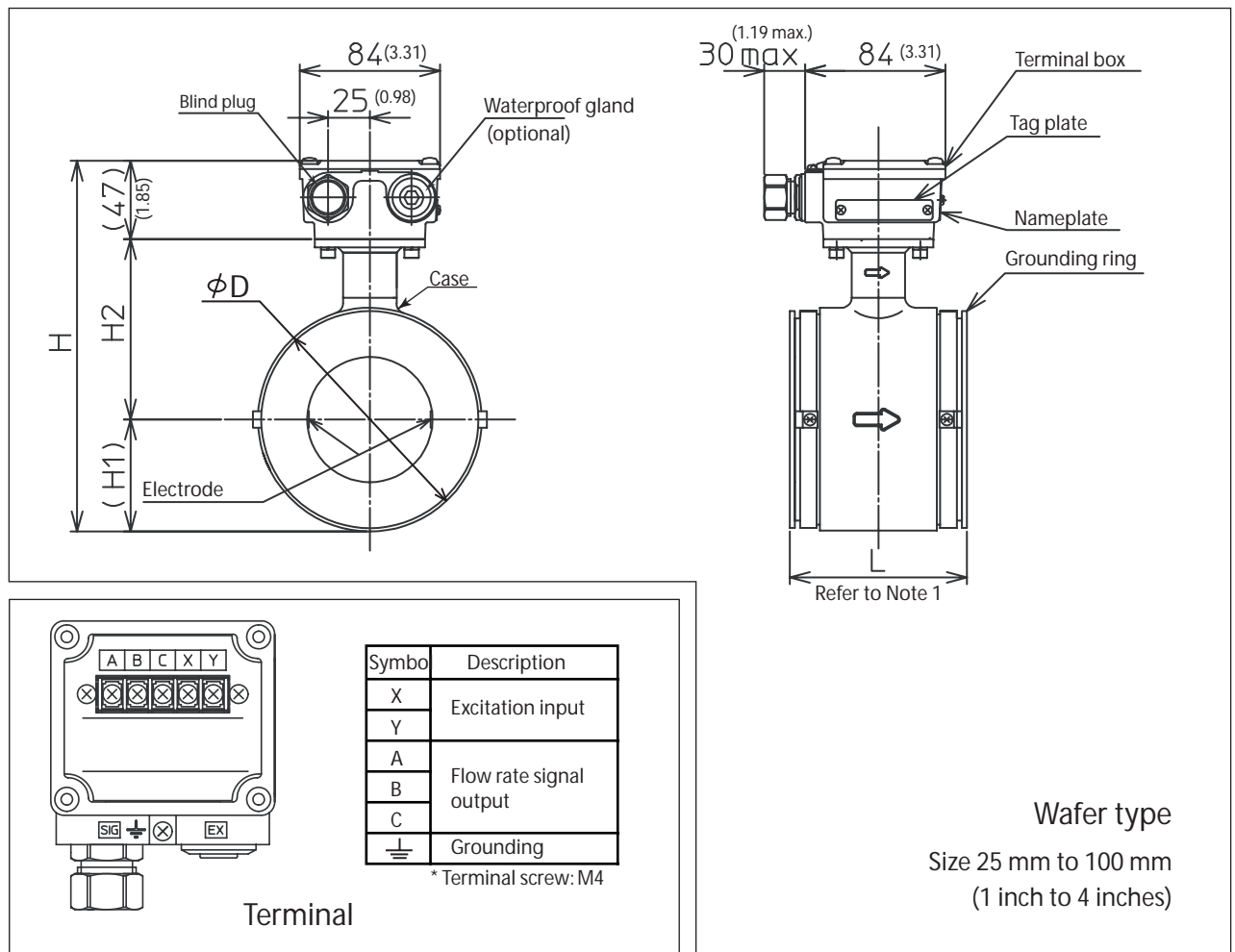


Note 1 • When grounding ring material is SUS316, gasket dimension is not included to the face-to-face dimension.  
• When grounding ring material is other than SUS316, a 3 mm of Teflon gasket dimension is included to the face-to-face dimension.

Table 7

Size mm (inches)	Model no. Flange rating	J1	J2	J3	A1	A2	D1/D2	D3	D4	
		JIS			ANSI		DIN			
		10K	20K	30K	150	300	PN 10/16	PN 25	PN 40	
150 (6)	Dimension	L	300	300	300	300 (11.81)	300 (11.81)	300	300	300
		H	382	396	407	381 (15)	403 (15.87)	385	393	393
		H1	175	189	200	174 (6.85)	196 (7.72)	178	186	186
		H2	160	160	160	160 (6.3)	160 (6.3)	160	160	160
	Weight	(kg)	32.6	39.9	52.5	35.4 (78 lb)	54.4 (119.9 lb)	28.9	36.8	36.8
200 (8)	Dimension	L	350	350	350	350 (13.78)	350 (13.78)	350	350	350
		H	428	435	451	436 (17.17)	457 (17.99)	434	446	454
		H1	196	203	219	204 (8.03)	225 (8.86)	202	214	222
		H2	185	185	185	185 (7.28)	185 (7.28)	185	185	185
	Weight	(kg)	48	58	85.2	60 (132.3 lb)	89 (196.2 lb)	46.3	66.7	70.2

Model MTG18B - Detector - Wafer type size 25 mm (1 inch) to 100 mm (4 inches)



Note 1 • When grounding ring material is SUS316, gasket dimension is not included to the face-to-face dimension.  
 • When grounding ring material is other than SUS316, a 3 mm of Teflon gasket dimension is included to the face-to-face dimension.

Table 8

Flange rating	25 mm (1 inch)		40 mm (1½ inch)		50 mm (2 inches)		65 mm (2½ inches)		80 mm (3 inches)		100 mm (4 inches)	
	A		A	S	A	S	A	A	S	A	S	
Dimension size	L	94 (3.7)	80 (3.15)	98 (3.86)	86 (3.39)	104 (4.09)	96 (3.78)	106 (4.17)	130 (5.12)	120 (4.72)	150 (5.91)	
	H	158 (6.22)	174.5 (6.87)		192 (7.56)		209 (8.23)	222 (8.74)		247 (9.72)		
	H1	34 (1.34)	43.5 (1.71)		52 (2.05)		62 (2.44)	67 (2.64)		79.5 (3.13)		
	H2	77 (3.03)	84 (3.31)		93 (3.66)		100 (3.94)	108 (4.25)		120.5 (4.74)		
	D	68 (2.68)	87 (3.43)		104 (4.09)		124 (4.88)	134 (5.28)		159 (6.26)		
Weight	(kg)	2 (4.4 lb)	2 (4.4 lb)	2.5 (5.5 lb)	2.6 (5.7 lb)	3.2 (7.1 lb)	3.7 (8.2 lb)	4.6 (10.1 lb)	5.3 (11.7 lb)	6.4 (14.1 lb)	7.4 (16.3 lb)	

# Note



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