

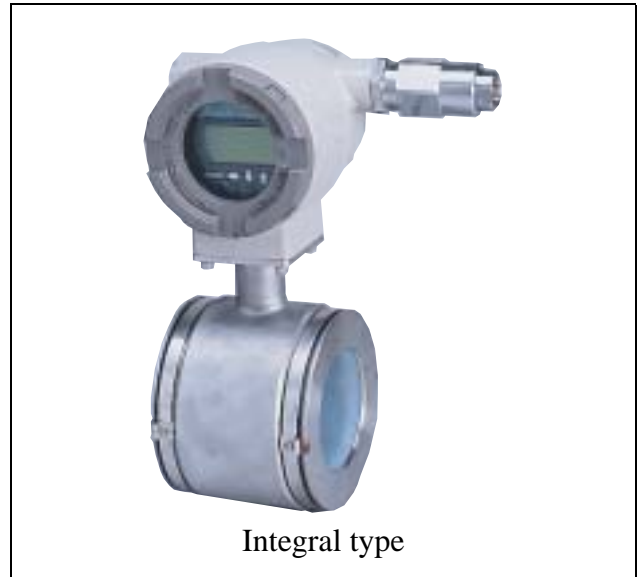
MagneW Neo⁺

Smart Two-wire Electromagnetic Flowmeter Integral type TIS Explosion-protected Apparatus

OVERVIEW

The MagneW Neo⁺ is a high performance two wired electromagnetic flowmeter based on field proven Yamatake two-wire loop powered technologies.

The MagneW Neo⁺ offers the stable and accurate measurement with low power consumption.



Integral type

FEATURES

Two-wire operation

MagneW Neo⁺ improves its noise immunity performance by 700% maximum and 250% in average. For the spike noise, MagneW Neo⁺ improves its noise immunity performance in 250% in average.

High accuracy and stable output

MagneW Neo⁺ provides high accuracy ($\pm 0.5\%$ of rate) and its output is as stable as current four wired magnetic flowmeters.

Minimum measurable process fluid conductivity

The minimum measurable process fluid conductivity is 10 $\mu\text{S}/\text{cm}$. MagneW Neo⁺ maximizes two wired magflow meter applicability.

Wider range in size

MagneW Neo⁺ offers wider range in detector size.

Detector size: 2.5 to 200 mm (0.1 to 8 inches).

APPLICATION

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

The above flow measurements are applicable.

FUNCTIONAL SPECIFICATIONS

Enclosure rating

JIS C 0920 watertight model
NEMA TYPE 4X, IEC IP67

Hazardous Areas certifications

TIIS Explosion-protected apparatus
Ex de [ia] II C T4

Certificate number

Line size (mm)	Flange (Pipe material: SCS14)	Flange (Pipe material: SUS304)	Wafer (Pipe material: SCS14)	Wafer (Pipe material: SUS304)
2.5	TC16138	-	-	-
5	TC16138	-	-	-
10	TC16138	-	-	-
15	TC16138	-	-	-
25	-	C16144	-	C16144
40	-	C16145	C16140	C16145
50	-	C16147	C16141	C16147
65	-	C16146	C16142	C16146
80	-	C16148	C16143	C16148
100	-	C16136	C16137	C16136
150	-	C16149	-	-
200	-	C16150	-	-

Output signal

Analog output

4 to 20mA DC

Digital output

DE

Analog or Digital output is selectable.

Pulse output

Open collector output (30 V DC, 100mA max.)
Pulse frequency: 0.0001 to 200 Hz
Pulse width: 1 ms to 1 s

Contact output

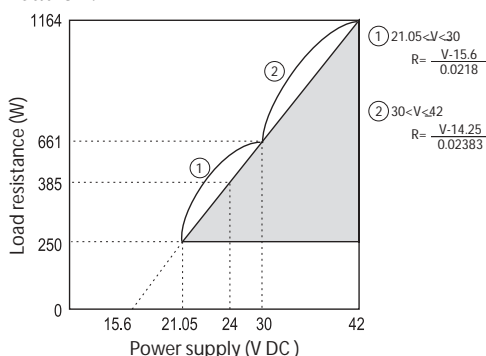
Open collector output (30 V DC, 100mA max.)
Pulse or contact output is selectable
Voltage drop during transistor ON: 1.6 Vmax.

Communication protocol

SFC communication and HART® communication

Load resistance characteristic of communication

External power supply 21.05 to 42 V 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: m³, L, cm³, G (gallon), mG, kG,
B (barrel), IG (imperial gallon), mIG, kIG
Mass flow: t, kg, g, lb
Time: d, h, m, s

Display

Display: LCD

Main display: 7-segment, 8 digits

Sub display: 16 digits, 2 lines

Display contents:

Demonstrates three values simultaneously

Percentage flow rate, Actual flow rate, 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, 1000 A

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 42 V DC (without communication)
 21.05 to 42 V 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, 10, 15, 25, 40, 50, 65, 80, 100, 150, 200 mm
 (0.1, 0.2, 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

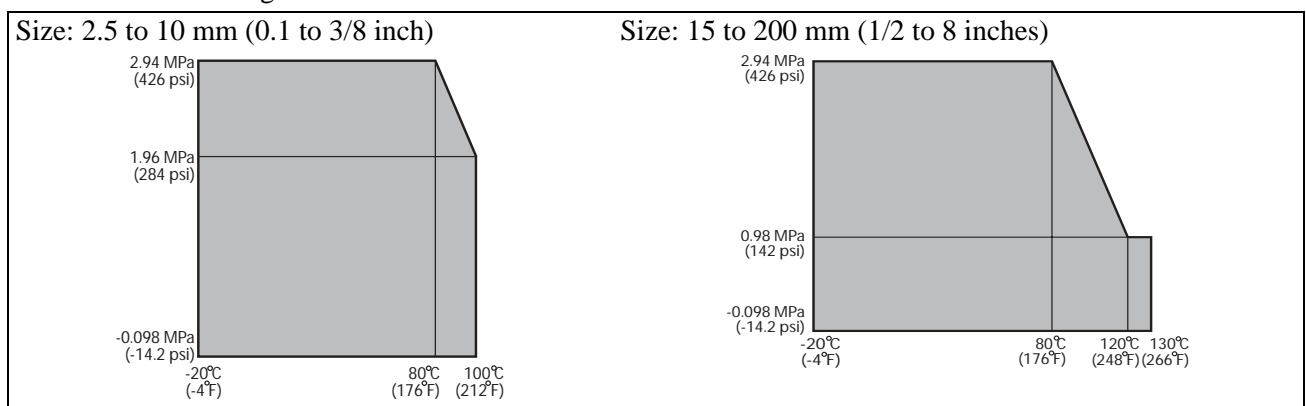
-20 to 60°C (-4 to 140°F)

Ambient humidity limits

10 to 90% RH

Temperature range and pressure range of process fluid

Refer to the following.



Measurable electrical conductivity

10 µS/cm or greater

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 ³ /h	GPM	m ³ /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 × Q

K = Conversion factor = 1/3600 × 4/(πD²) × 1000²

D = Size (mm)

Q = Flow rate (m³/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

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

Grounding resistance should be less than 10 Ω

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)

Installation Criteria

To achieve maximum performance of this instrument, please choose suitable installation location according to the following selection criteria's:

CAUTION

- (1) Avoid using this instrument as a foothold or for gaining leverage after installation, because such a use may cause physical injury or damage to the instrument.
- (2) Please wait for seven minutes after switching OFF the power supply, before opening the front cover or side terminal cover.

WARNING

When removing this instrument, do removal work after ascertaining that there is no full line pressure or residual liquid in the process pipe or inside the sensor. Removing the instrument before depressurizing may result in serious injury.

Attention on surrounding environment

- Please avoid a place close to a large-current cable, motor or transformer that may bring inductive interferences, which may cause instrument failure or output errors.
- Please avoid a place where there are severe vibrations (100 Hz, 19.6 m/s² or more) or a highly corrosive atmosphere, which may result in a broken neck of the detector or instrument damage itself.
- Avoid a place exposed to direct sunlight, strong wind or rain.

Attention on measurement fluid

Please install the detector only at the following satisfied conditions of the measurement fluid, to avoid output errors or fluctuations.

- The fluid condition must satisfy the necessary minimum conductivity (the value depends on the converter used in combination) required for measurement and must have a stable conductivity distribution.
- The fluid condition must be almost electrochemically homogeneous. For instance, incase two liquids are mixed at the upstream of the piping, they must be uniformly mixed.
- If there is a contaminant, it is considered that the contaminant's distribution is uniform
- Do not use this instrument for the following fluid conditions, even if the electric conductivity, temperature, pressure and others are within the instrument specifications (refer to "specifications" and "model selection"), because they can possibly cause problems in measurement.
 - (1) Fluids that have sufficient conductivity at high temperatures, but do not satisfy the conductivity requirement at room temperature (about 20°C(68°F)). (For example, fatty acids and soap)
 - (2) Some fluids with a surfactant mixed in (For example, rinse, shampoo and CWM)
 - (3) Insulating adhesive materials (For example, oil, kaolinite, kaolin, calcium stearate)
 - (4) Fluids not mixed uniformly (For example, fluid measurements immediately after chemical injection)
 - (5) Fluids with slurry mixtures (For example, pulp slurry, etc.)

Attention on surrounding environment

- Please use the following power supply. If the power supply does not meet the following specifications, this device may not work.
- Current capacity: 24mA min.
- In case of current capacity is 22mA, the voltage must be 15.6V minimum.

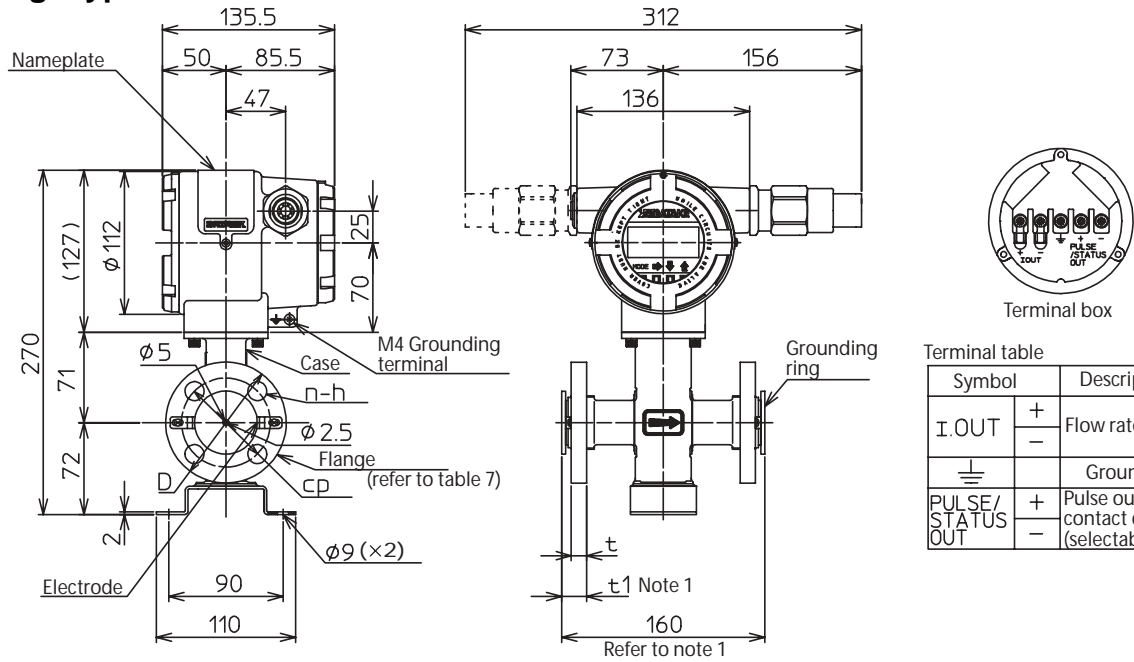
CAUTION

In accordance with the safety standards of flameproof regulation, please comply with the following instructions.:

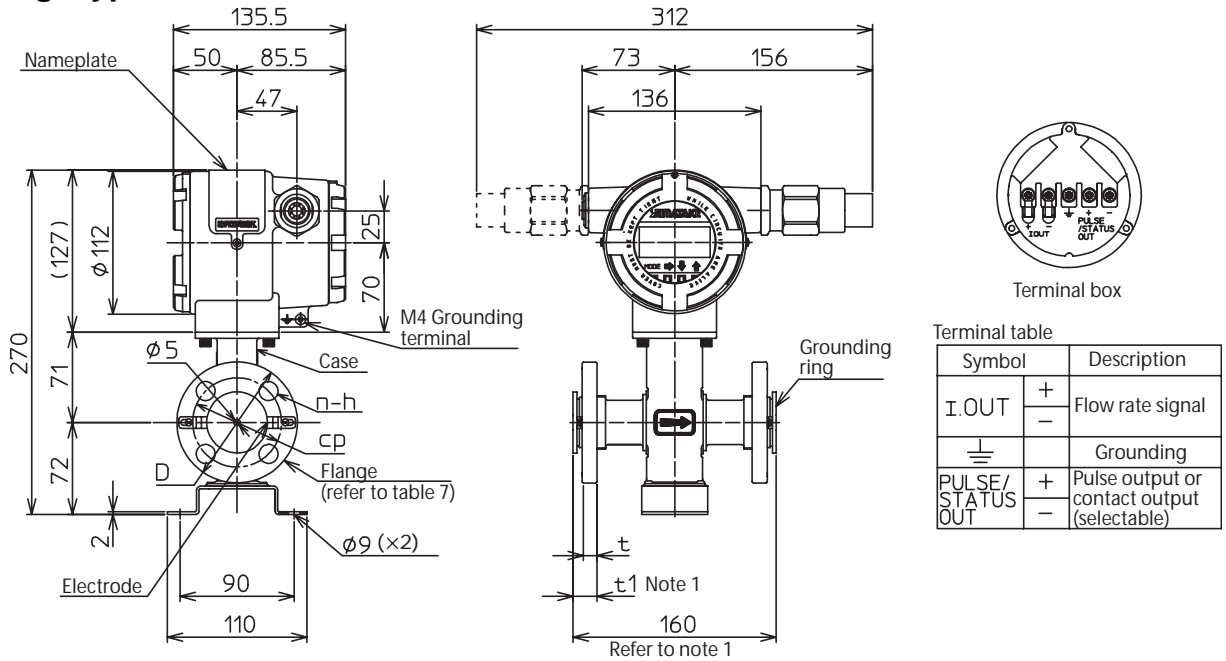
1. The voltage of general equipment such as the power supply and the receiver should not exceed 250 V AC, 50/60 Hz, 250 V DC at any time at normal or abnormal operation.
2.
 - 1) The ambient temperature around Magnetic Flow-meter is max.50°C (122°F).
 - 2) The fluid temperature is 125°C (257°F) max. (The line size 10 mm (3/8 inch) or less is 100°C (212°F).)
 - 3) Please use specified flameproof cable gland adaptors.
 - 4) Please do not open the case cover during operation.
 - 5) Please wait for seven minutes after switching OFF the power supply, before opening the front cover or side terminal cover.
3. A specified explosion-proof performance is available only when this electromagnetic flow meter is used according to the described specification.

DIMENSIONS

Flange type 2.5 mm



Flange type 5 mm

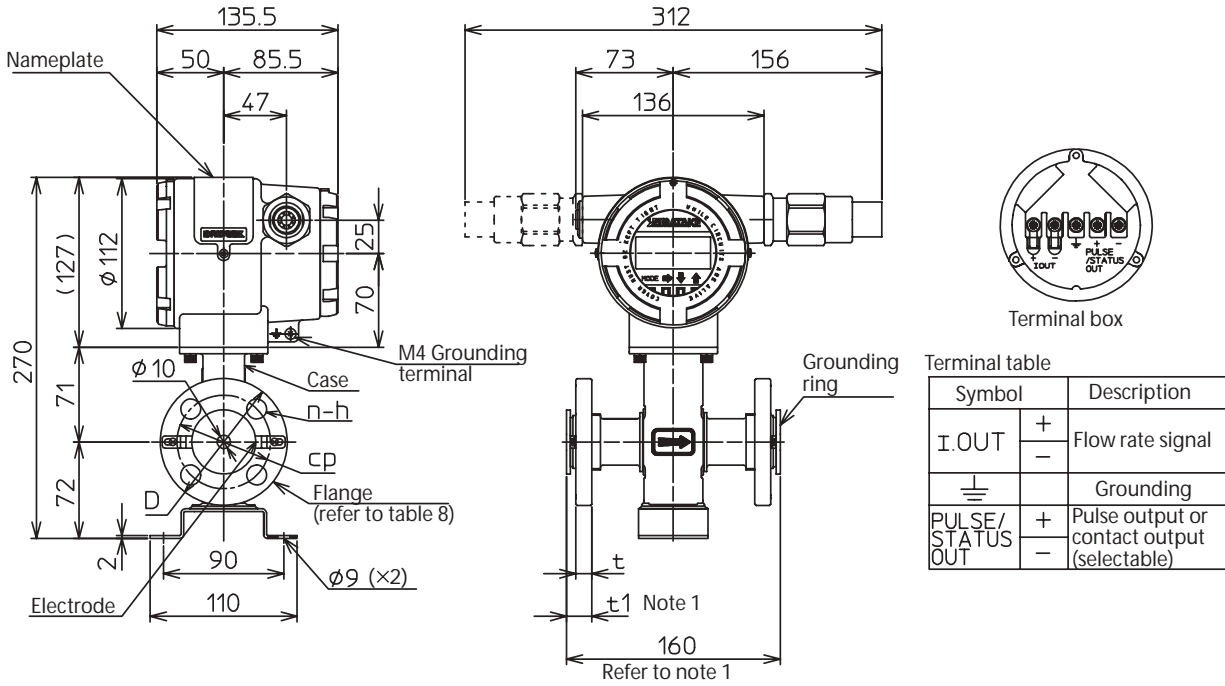


*Note 1. When grounding ring material is SUS316, gasket is not required.
When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)*

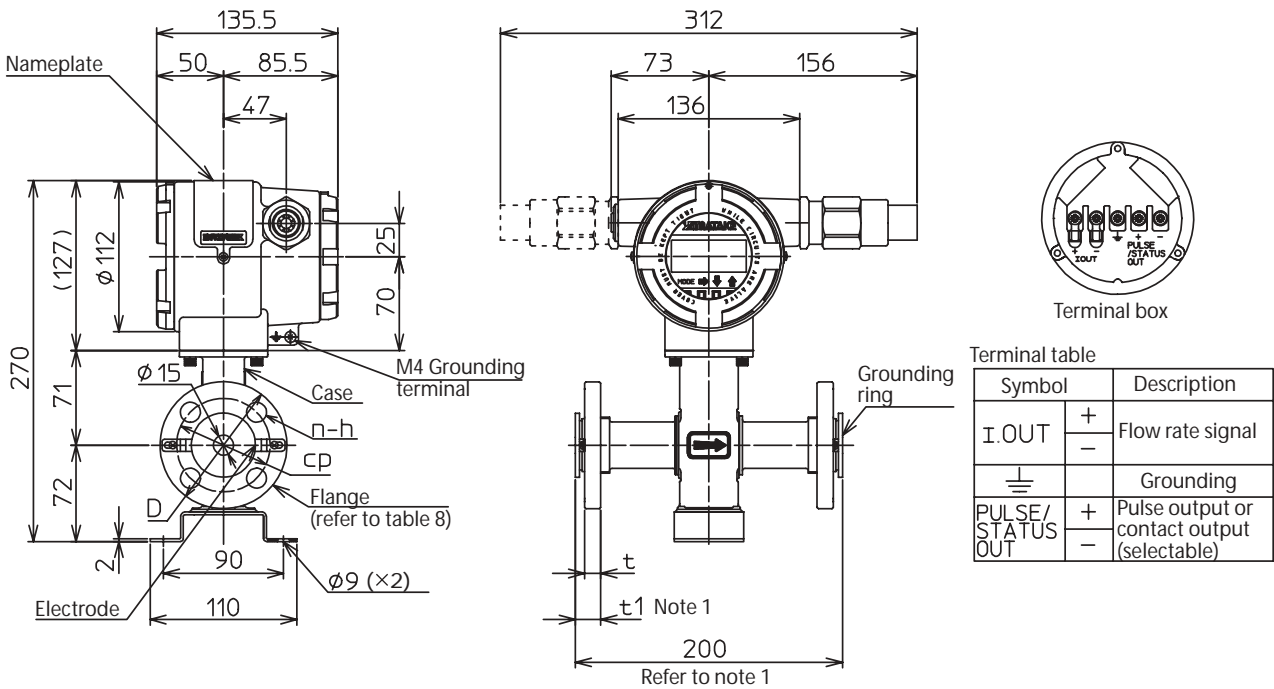
Table 1

Model no.	J1	J2	J3	J4	J5	A1	A2	P1	P2
Flange rating	JIS					ANSI		JPI	
	10K	20K	30K	10K 10 mm flange	20K 10 mm flange	150	300	150	300
Dimension size	D	95	95	115	90	89	95	89	95
	t	11	15	19	12	14	10	13	10
	t1	18.5	22.5	26.5	19.5	21.5	17.5	20.5	17.5
	Cp	70	70	80	65	65	60.5	66.5	60.3
	n	4	4	4	4	4	4	4	4
	h	15	15	19	15	15	16	16	16
Bolt	M12	M12	M16	M12	M12	1/2	1/2	UNC1/2	UNC1/2
Weight (kg)	6.8	7	8	6.7	6.8	6.4	6.9	6.4	6.9

Flange type 10 mm



Flange type 15 mm



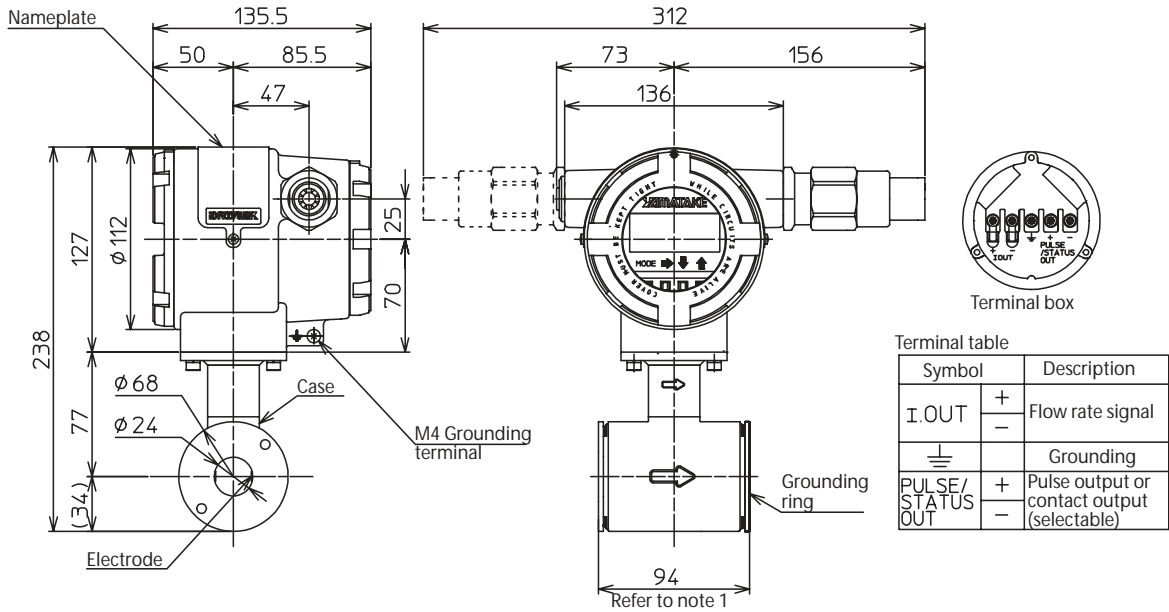
Note 1. When grounding ring material is SUS316, gas-

ket is not required.

When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Model no.	J1	J2	J3	A1	A2	P1	P2	
Flange rating	JIS			ANSI		JPI		
	10K	20K	30K	150	300	150	300	
Dimension size	D	95	95	115	89	95	89	95
	t	11	15	19	10	13	10	13
	t1	18.5	22.5	26.5	17.5	20.5	17.5	20.5
	Cp	70	70	80	60.5	66.5	60.3	66.7
	n	4	4	4	4	4	4	4
	h	15	15	19	16	16	16	16
	Bolt	M12	M12	M16	1/2	1/2	UNC1/2	UNC1/2
Weight (kg)	6.8	7	8	6.4	6.8	6.4	6.9	

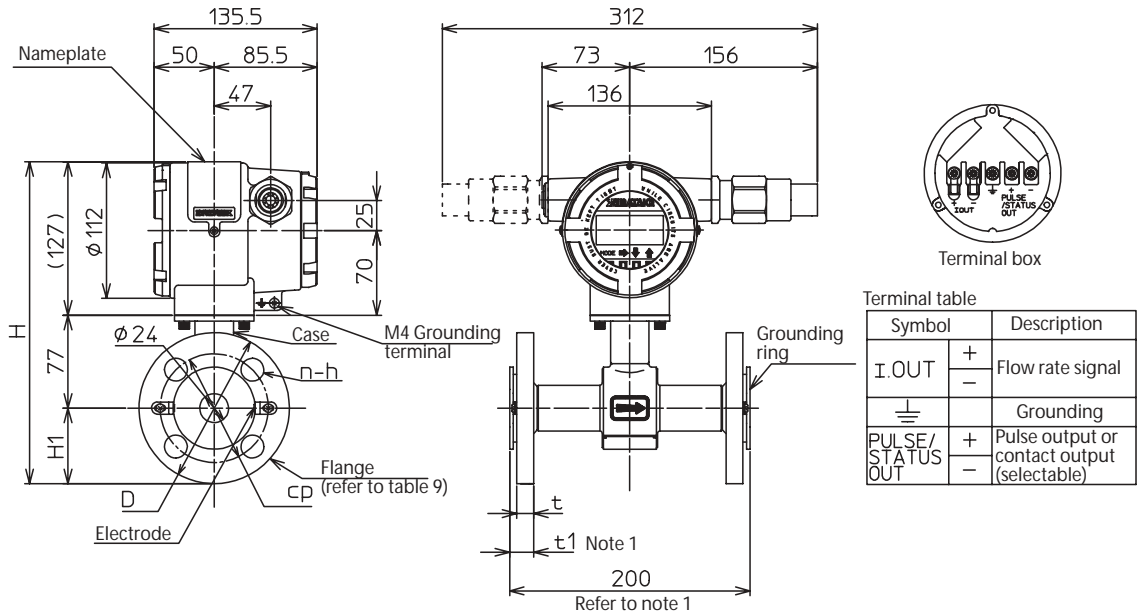
Wafer type 25 mm



Note 1. When grounding ring material is SUS316, gasket is not required.
When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Model no.	11	12	13	21	22	61	62
Flange rating	JIS			ANSI		JPI	
	10K	20K	30K	150	300	150	300
length	200	200	200	170	210	170	210
Bolt	M16	M16	M16	1/2 13UNC	5/8 11UNC	12 13UNC	5/8 11UNC

Flange type 25 mm

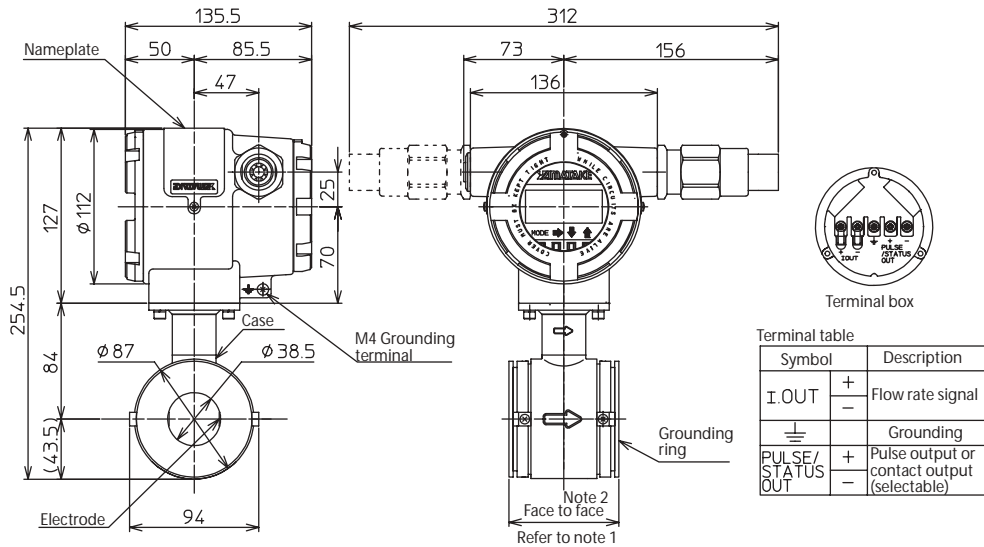


Note 1. When grounding ring material is SUS316, gasket is not required.
When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Table 3

Model no.	J1	J2	J3	A1	A2	P1	P2
Flange rating	JIS			ANSI		JPI	
	10K	20K	30K	150	300	150	300
Dimension size	H	267	267	258	266	258	266
	H1	63	63	54	62	54	62
	D	125	125	130	108	124	108
	t	13	15	19	12.9	15.9	12.9
	t1	19	21	25	20.5	23.5	20.5
	Cp	90	90	95	79.2	88.9	79.4
	n	4	4	4	4	4	4
	h	19	19	19	16	20	16
	Bolt	M16	M16	M16	1/2	5/8	UNC1/2
Weight (kg)	9.2	9.5	10.3	8.4	9.5	8.4	9.5

Wafer type 40 mm



Note 1. When grounding ring material is SUS316, gasket is not required.
When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Note) 2

Face-to-face dimension code.	Size
A	80
S	98

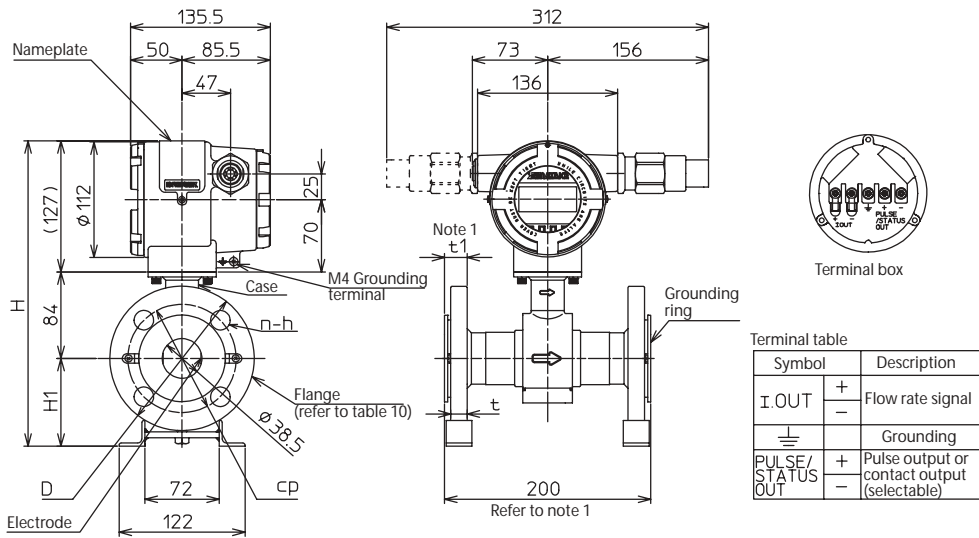
Face-to-face dimension code "A"

Model no.	JIS			ANSI		JPI	
	11	12	13	21	22	61	62
Flange rating	10K	20K	30K	150	300	150	300
Length	200	200	200	170	210	170	210
Bolt	M16	M16	M16	1/2 13UNC	5/8 11UNC	12 13UNC	5/8 11UNC

Face-to-face dimension code "S"

Model no.	JIS			ANSI		JPI	
	11	12	13	21	22	61	62
Flange rating	10K	20K	30K	150	300	150	300
Length	200	200	200	170	210	170	210
Bolt	M16	M16	M16	1/2 13UNC	5/8 11UNC	12 13UNC	5/8 11UNC

Flange type 40 mm

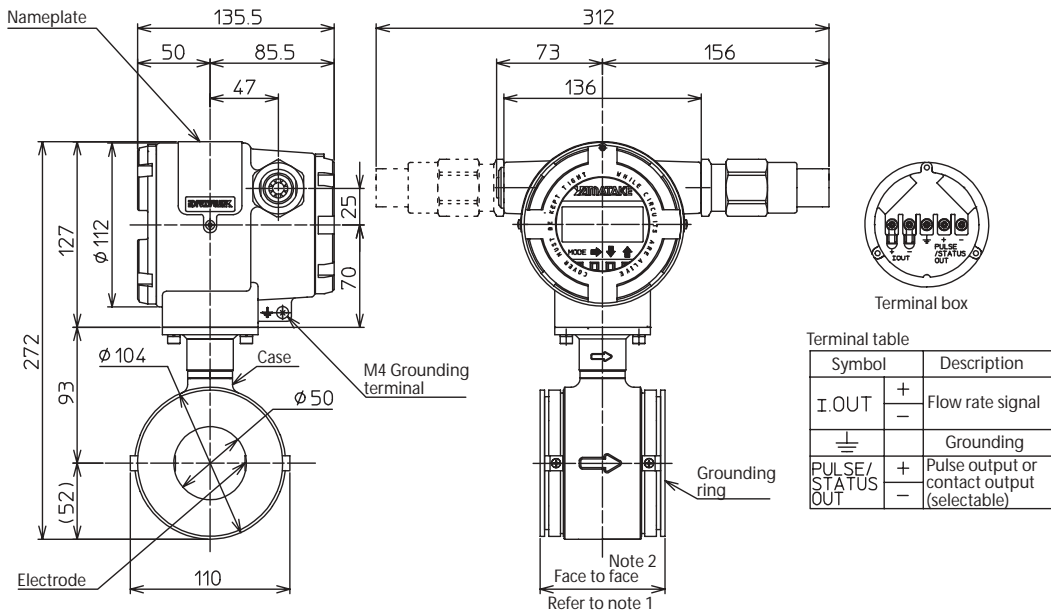


Note 1. When grounding ring material is SUS316, gasket is not required.
When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Table 4

Model no.	Flange rating	J1	J2	J3	A1	A2	P1	P2
		JIS			ANSI		JPI	
Dimension size	H	296	296	307	288	305	288	305
	H1	85	85	96	77	94	77	94
	D	140	140	160	127	155	127	156
	t	14	16	20	15.9	19.4	15.9	19.4
	t1	20	22	26	21.9	25.4	21.9	25.4
	Cp	105	105	120	98.6	114.3	98.4	114.3
	n	4	4	4	4	4	4	4
	h	19	19	23	16	23	16	23
	Bolt	M16	M16	M20	1/2	1/2	UNC1/2	UNC3/4
	Weight (kg)	8.3	8.6	11.0	7.8	10.1	7.8	10.1

Wafer type 50 mm



Note 1. When grounding ring material is SUS316, gasket is not required.
When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Note 2

Face-to-face dimension code.	Size
A	80
S	98

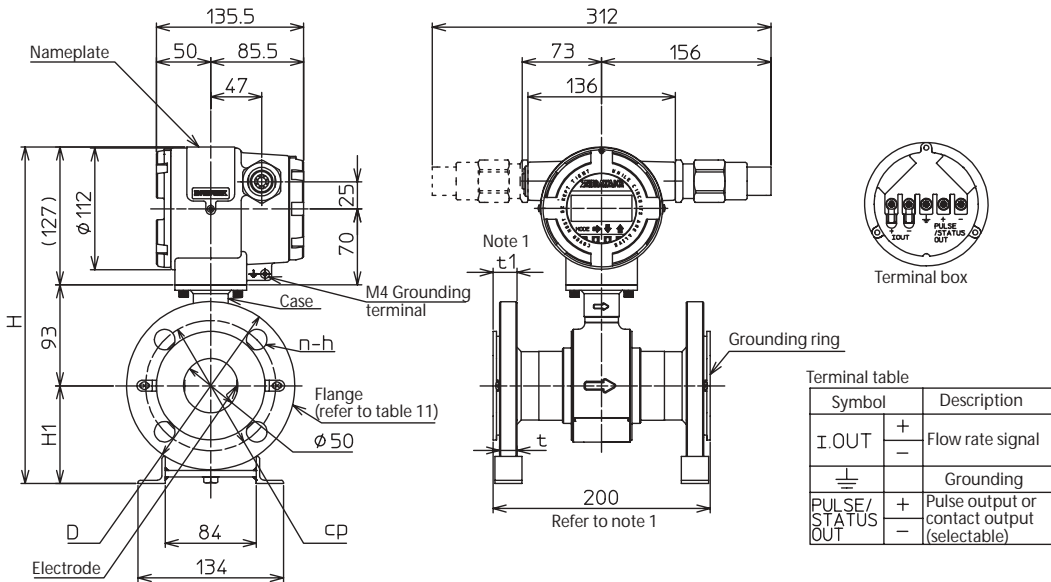
Face-to-face dimension code "A"

Model no.	JIS			ANSI		JPI	
	11	12	13	21	22	61	62
Flange rating	10K	20K	30K	150	300	150	300
Length	200	200	200	210	210	210	210
Bolt	M16	M16	M16	5/8 11UNC	5/8 11UNC	5/8 11UNC	5/8 11UNC

Face-to-face dimension code "S"

Model no.	JIS			ANSI		JPI	
	11	12	13	21	22	61	62
Flange rating	10K	20K	30K	150	300	150	300
Length	200	200	200	210	210	210	210
Bolt	M16	M16	M16	5/8 11UNC	5/8 11UNC	5/8 11UNC	5/8 11UNC

Flange type 50 mm

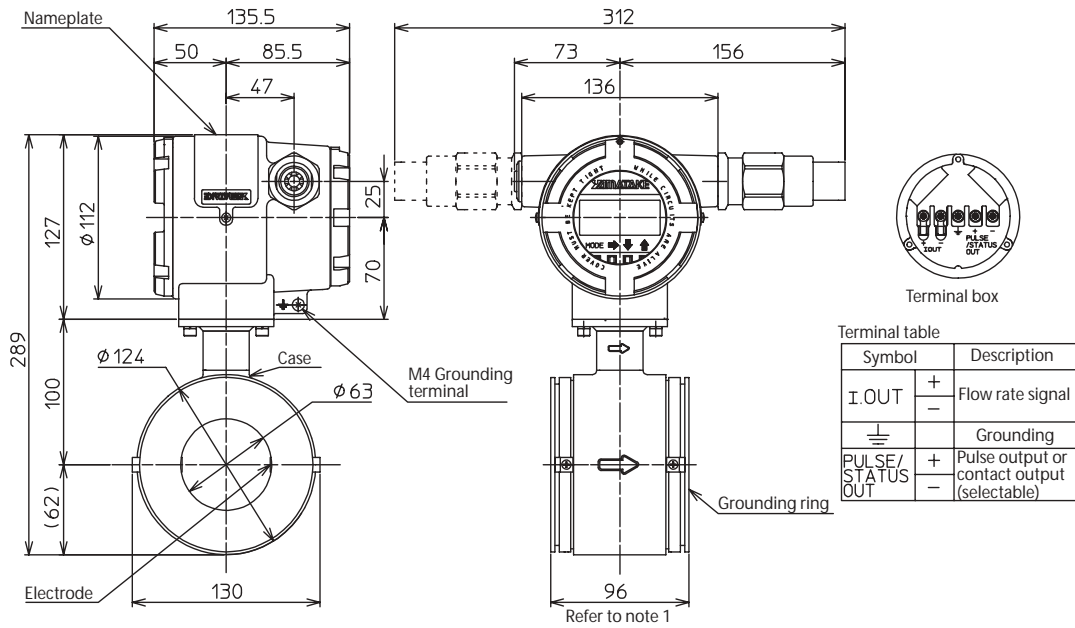


Note 1. When grounding ring material is SUS316, gasket is not required.
When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Table 5

Model no.	J1	J2	J3	A1	A2	P1	P2
	JIS			ANSI		JPI	
Flange rating	10K	20K	30K	150	300	150	300
Dimension size	H	310	316	308	316	308	316
	H1	90	96	88	96	88	96
	D	155	165	152	165	152	165
	t	14	20	17.9	20.9	17.9	20.9
	t1	20	26	25.5	28.5	25.5	28.5
	Cp	120	130	120.7	127	120.6	127
	n	4	8	4	8	4	8
	h	19	19	20	20	20	20
	Bolt	M16	M16	M16	5/8	5/8	UNC5/8
Weight (kg)	11.9	12.0	13.7	12.3	13.8	12.3	13.8

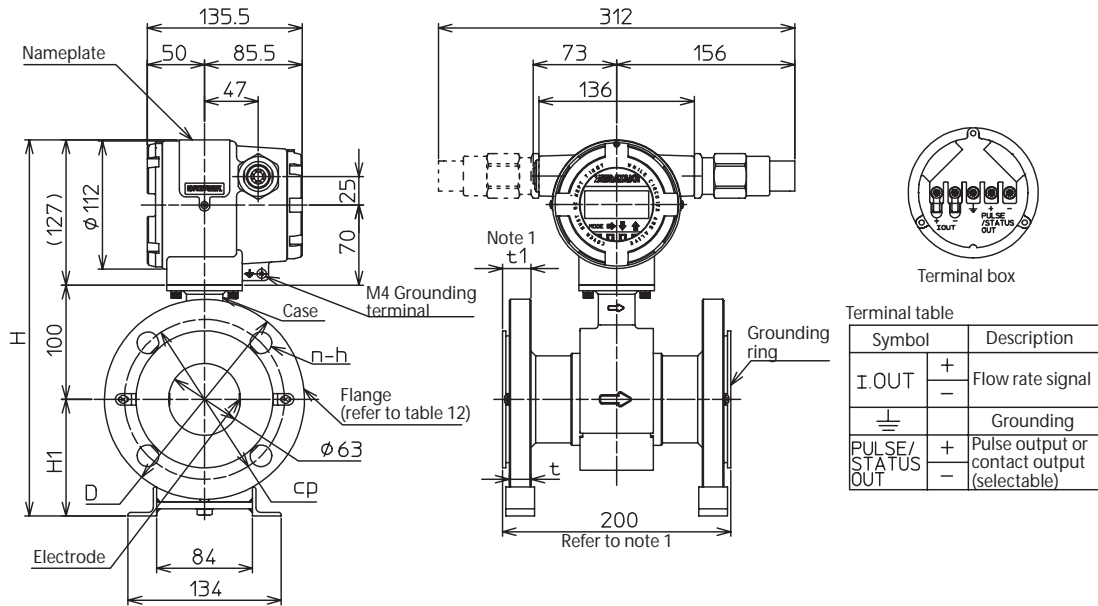
Wafer type 65 mm



Note 1. When grounding ring material is SUS316, gasket is not required.
When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Model no.	11	12	13	21	22	61	62
Flange rating	JIS			ANSI		JPI	
	10K	20K	30K	150	300	150	300
Length	200	200	200	210	240	210	240
Screw size	M16	M16	M20	5/8 11UNC	3/4 10UNC	5/8 11UNC	3/4 10UNC

Flange type 65 mm

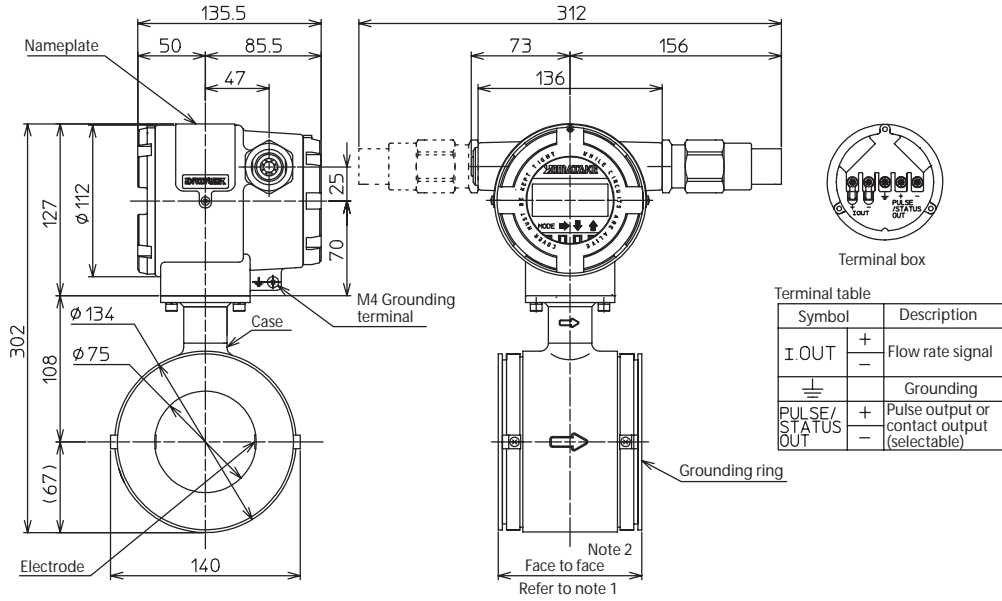


Note 1. When grounding ring material is SUS316, gasket is not required.
When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Table 6

Model no.	J1	J2	J3	A1	A2	P1	P2	
Flange rating	JIS			ANSI		JPI		
	10K	20K	30K	150	300	150	300	
Dimension size	H	329	329	330	338	330	338	
	H1	102	102	103	111	103	111	
	D	175	175	200	178	191	178	
	t	16	18	24	20.9	23.9	20.9	23.9
	t1	22	24	30	28.5	31.5	28.5	31.5
	Cp	140	140	160	139.7	149.2	139.7	149.2
	n	4	8	8	4	8	4	8
	h	19	19	23	20	23	20	23
	Bolt	M16	M16	M20	5/8	5/8	UNC5/8	UNC5/8
Weight (kg)	13.9	14.0	15.7	14.3	15.8	14.3	15.8	

Wafer type 80 mm



Note 1. When grounding ring material is SUS316, gasket is not required.
When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Note) 2

Face-to-face dimension code.	Size
A	106
S	130

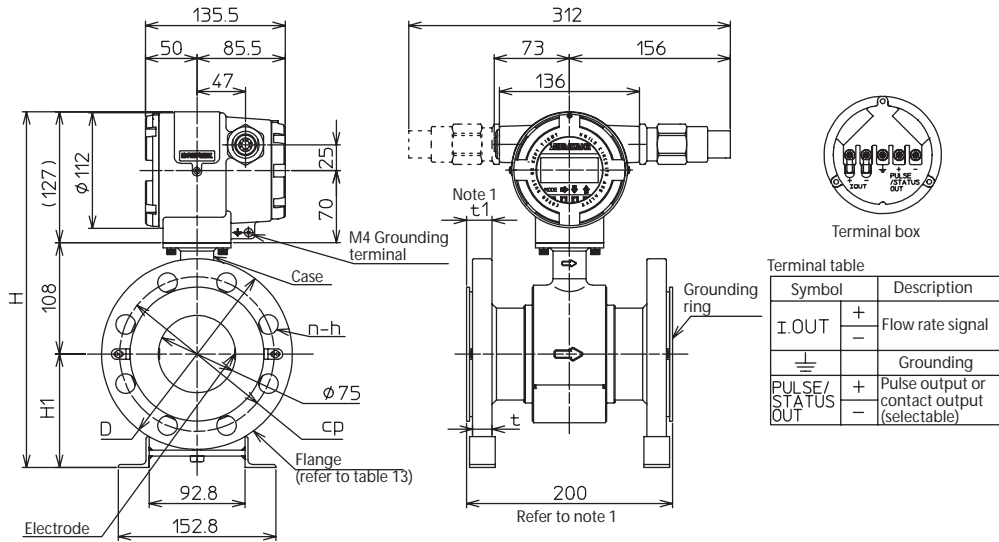
Face-to-face dimension code "A"

Model no.	JIS			ANSI		JIS G 3151 F12	JPI	
	11	12	13	21	22		61	62
Flange rating	10K	20K	30K	150	300		150	300
Length	200	250	250	210	240	280	210	240
Bolt	M16	M20	M20	5/8 11UNC	3/4 10UNC	M16	5/8 11UNC	3/4 10UNC

Face-to-face dimension code "S"

Model no.	JIS			ANSI		JIS G 3151 F12	JPI	
	11	12	13	21	22		61	62
Flange rating	10K	20K	30K	150	300		150	300
Length	240	250	250	250	300	240	250	300
Bolt	M16	M16	M16	5/8 11UNC	3/4 10UNC	M16	5/8 11UNC	3/4 10UNC

Flange type 80 mm

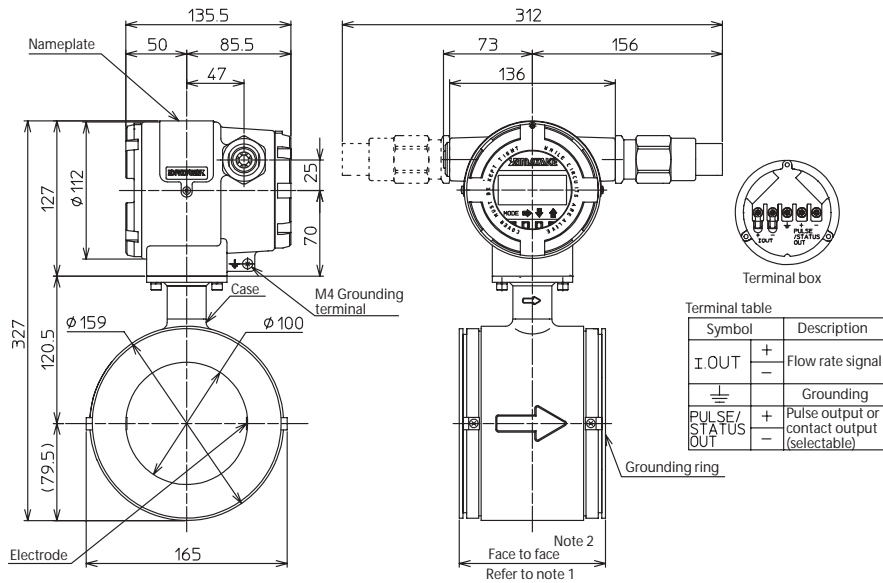


Note 1. When grounding ring material is SUS316, gasket is not required.
When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Table 7

Model no.	J1	J2	J3	A1	A2	G1	P1	P2	
Flange rating	JIS			ANSI		JIS G 3451	JPI		
	10K	20K	30K	150	300	F12	150	300	
Dimension size	H	345	354	359	346	359	360	348	359
	H1	110	119	124	113	124	125	113	124
	D	185	200	210	191	210	211	191	210
	t	16	22	26	22.4	27.4	16	22.4	27.4
	t1	22	28	32	30	35	22	30	35
	Cp	150	160	170	152.4	168.3	168	152.4	168.3
	n	8	8	8	4	8	4	4	8
	h	19	23	23	20	23	19	20	23
Bolt	M16	M20	M20	5/8	3/4	M16	UNC5/8	UNC3/4	
Weight (kg)	14.4	16.7	20.4	17.3	21.3	15.2	17.3	21.3	

Wafer type 100 mm



Note 1. When grounding ring material is SUS316, gasket is not required. When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Note) 2

Face-to-face dimension code.	Size
A	120
S	150

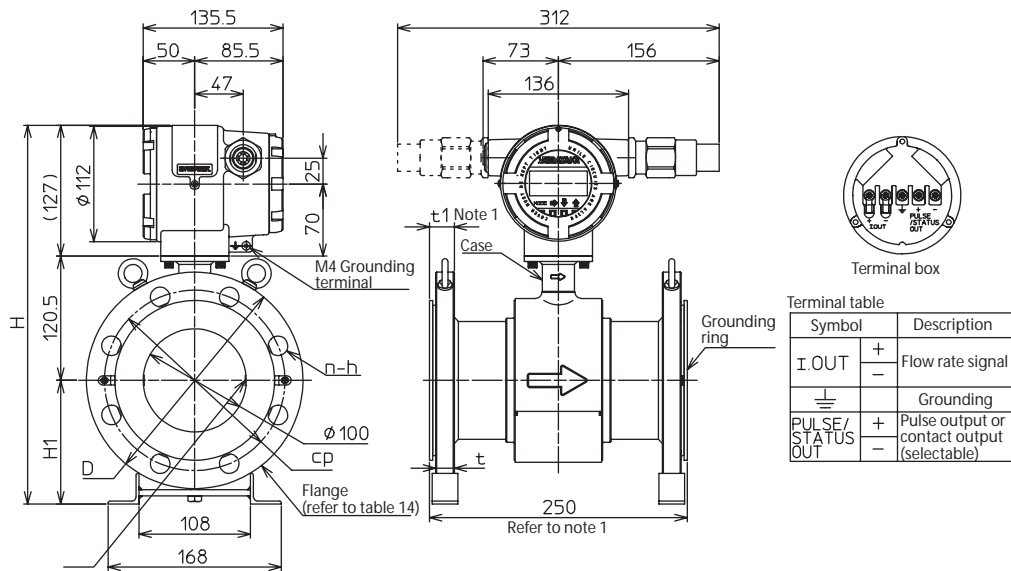
Face-to-face dimension code "A"

Model no.	JIS			ANSI		JIS G	JPI	
	11	12	13	21	22	51	61	62
Flange rating	10K	20K	30K	150	300	3151 F12	150	300
Length	240	250	310	250	300	330	250	300
Bolt	M16	M20	M20	5/8 11UNC	3/4 10UNC	M16	5/8 11UNC	3/4 10UNC

Face-to-face dimension code "S"

Model no.	JIS			ANSI		JIS G	JPI	
	11	12	13	21	22	51	61	62
Flange rating	10K	20K	30K	150	300	3151 F12	150	300
Length	240	300	310	250	300	240	250	300
Bolt	M16	M20	M22	5/8 11UNC	3/4 10UNC	M16	5/8 11UNC	3/4 10UNC

Flange type 100 mm

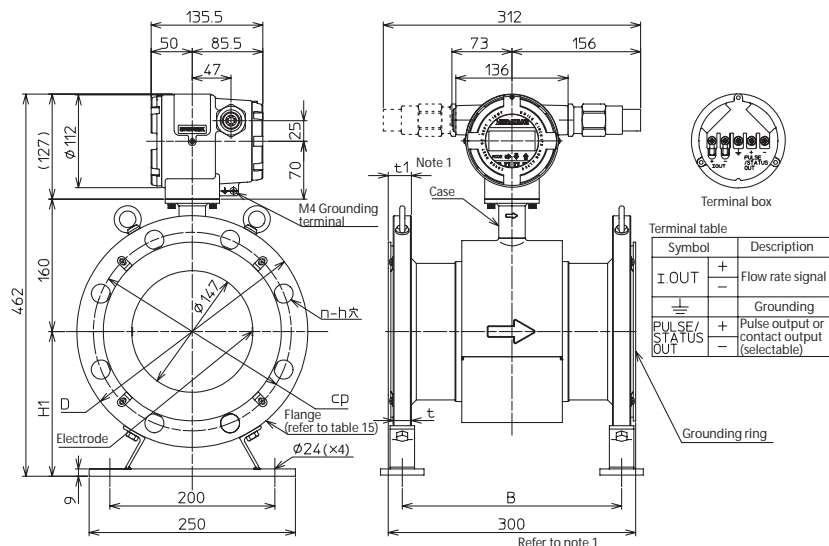


Note 1. When grounding ring material is SUS316, gasket is not required. When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Table 8

Model no.	J1	J2	J3	A1	A2	G1	P1	P2	
	JIS			ANSI		JIS G	JPI		
Flange rating	10K	20K	30K	150	300	3451 F12	150	300	
Dimension size	H	367.5	376.5	384.5	378.5	392.5	383.5	378.5	392.5
	H1	120	129	137	131	145	136	131	145
	D	210	225	240	229	254	238	229	254
	t	16	22	30	22.4	30.4	18	22.4	30.4
	t1	22	28	36	30	38	24	30	38
	Cp	175	185	195	190.5	200	195	190.5	200
	n	8	8	8	8	8	4	8	8
	h	19	23	25	20	23	19	20	23
	Bolt	M16	M20	M22	5/8	3/4	M16	UNC5/8	UNC3/4
Weight (kg)	20.2	23.7	28.6	25.1	34.2	19.8	25.1	34.2	

Flange type 150 mm



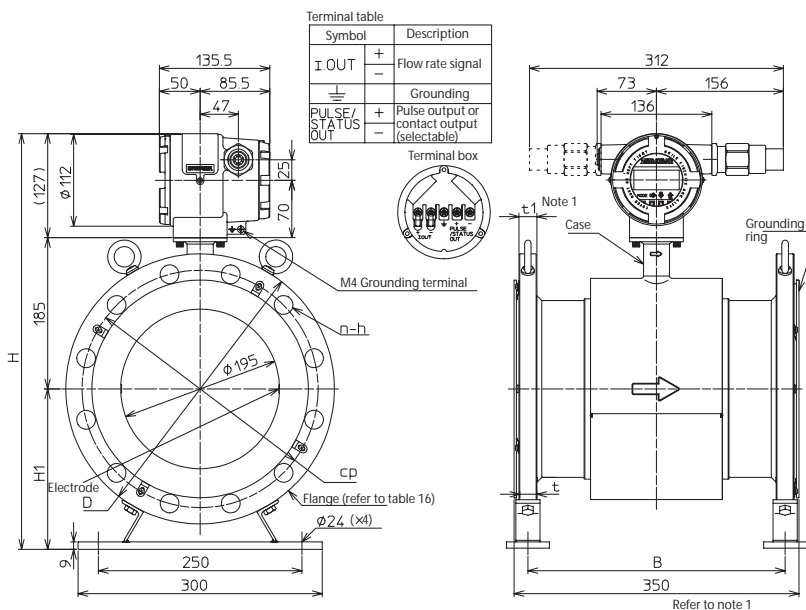
Note 1. When grounding ring material is SUS316, gasket is not required.

When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Table 9

Model no.	J1	J2	J3	A1	A2	G1	P1	P2
Flange rating	JIS			ANSI		JIS G	JPI	
	10K	20K	30K	150	300	3451 F12	150	300
Dimension size	H	462	476	487	461	483	461	483
	H1	175	189	200	174	196	181	174
	D	280	305	325	279	318	290	279
	t	20	26	36	23.9	35.4	22	23.9
	t1	26	32	42	31.5	43	28	31.5
	Cp	240	260	275	241.3	269.9	247	241.3
	n	8	12	12	8	12	6	8
	h	23	25	27	23	23	19	23
	Bolt	M20	M22	M24	3/4	3/4	M16	UNC3/4
Weight (kg)	34.4	41.7	54.3	37.2	56.2	36.7	37.2	56.2

Flange type 200 mm



Note 1. When grounding ring material is SUS316, gasket is not required.

When grounding ring material is other than SUS316, 3 mm of Teflon gasket is included to the dimensions. (Dimensions of gasket for plastic piping includes grounding ring)

Table 10

Model no.	J1	J2	J3	A1	A2	G1	P1	P2
Flange rating	JIS			ANSI		JIS G 3451	JPI	
	10K	20K	30K	150	300	F12	150	300
Dimension size	H	508	515	531	516	537	515	537
	H1	196	203	219	204	225	203	204
	D	330	350	370	343	381	342	343
	t	20	28	40	27.4	39.9	22	27.4
	t1	26	34	46	35	47.5	28	35
	Cp	290	305	320	298.4	330.2	299	298.4
	n	12	12	12	8	12	8	8
	h	23	25	27	23	26	19	23
	Bolt	M20	M22	M24	3/4	7/8	M16	UNC3/4
B	316	308	296	308	295	316	308	295
Weight (kg)	49.8	59.8	87.0	61.8	90.8	52.8	61.8	90.8

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