MagneW3000 PLUS+ Smart Electromagnetic Flowmeter Converter (Smart model) Model MGG14C

OVERVIEW

MagneW 3000 PLUS+ electromagnetic flowmeter converter is a high-performance and highly reliable flowmeter converter based on Yamatake's proven MagneW 3000 PLUS flow measurement technologies. The MagneW PLUS+ converter offers expanded flow rate measurement capabilities in the various processes when used with the MagneW detectors.

(Remote converter)

FEATURES

Improve the performances and functions (compared with Yamatake conventional type converter

- Improve noise immunity performance up to 250%
- Adopts the averaging function for pulsation flow application
- According to noise in the field, MagneW 3000 PLUS+ converter provides an appropriate noise immunity technology like excitation frequency change and/or auto spike cut function.
- High speed response type is optional for batch application.
- Light in weight design (600 gram lighter than the conventional type converter)

Universal power supply

- AC 90 to 130V, AC 180 to 250V.

Liquid Crystal Display with backlighting (optional)

- Backlit display eases reading in direct sunlight or in a dark room.
- Simultaneously displays flow volume in percentage, actual flow rate and totalized value.
- Rotating display improves visibility of integral models mounted on pipes up to 90 degrees from standard.

Setting parameters by infrared touch sensor (optional)

- Allows safety setting, in severe environments, without opening the cover.
- Prevent malfunctioning of the infrared touch sensor via special security feature.

Compatibility

- Enables combination of the remote style MagneW 3000 PLUS+ converter with the conventional Yamatake detectors. Consult your Yamatake representative.

Conform with the CE marking

Conform with the RoHS (restriction of the use of certain hazardous substances in electrical and electronic equipment)

China RoHS

This device is used in the Oil & Gas, Petrochemical, Chemical, Pulp & Paper, Food & Beverage, Machinery, Steel/Metal & Mining, and Automobile industries and therefore does not fall under the China RoHS Legislation.

If this device is used in equipment or applications which fall under the China RoHS, labeling on the device and documents for the China RoHS may be required. If such documents are required, consult a Yamatake representative.

COMMUNICATION(SELECTABLE)

- Yamatake SFN protocol
- HART protocol (HART Rev. 5)

APPLICATIONS

Available for various applications

Pulp and Paper
Pulp slurries, chemicals, green liquor, white water, white liquor, black liquor, corrosive fluid, industrial water, waste water

Petroleum/Petrochemical/Chemicals
Corrosive fluid, electrolyte, dyestuffs, chemicals, industrial water, waste water

Water/Waste water
Tap water, sewage water, sludge, sediment slurries, effluent

Food and Beverage
Beer, milk, juice, wine, liquor, soy sauce, potable water, industrial water, waste water

Steel/Metal and Mining
Alumina slurry, cooling water, sea water, corrosive fluid, industrial water, waste water

Machinery
Corrosive fluid, cooling water, circulating water, waste water

Building/Construction
Building material slurry, sediment slurry, cement, industrial water

Electric Power/Gas
Corrosive fluid, cooling water, industrial water, waste water

FUNCTIONAL SPECIFICATIONS

Type of protection

Enclosure rating
JIS C 0920 Waterproof
NEMA ICS6-110.16 TYPE4X
IEC IP68

Hazardous area certification: TBD

Power supply

Normal operating voltage:
AC 100 to 120V, AC200 to 240V, 47 to 63Hz

Operational voltage limit:
AC 90 to 130V, AC180 to 250V, 47 to 63Hz

Power consumption
10W max. (AC90 to 130V)
11W max. (AC180 to 250V)

Lightning protection
12kV, 1000A
Equipped with the lightning arrester in the power source and external input and output terminals.

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

EMC conformity standards
EN61326

Input signal

Flow rate signal
Electromotive force which is proportional to the average flow velocity.

Contact input
Solid-state contact or no-voltage contact (2 max.)

Output signal

Analog output
4 to 20mA DC

Digital output
DE
Analog or digital output is selectable.

Contact output
Open collector (2 max.)

Contact capacity
DC30V max., 200mA max.

Pulse output

Open collector

Contact capacity

DC30V max., 200mA max.

Pulse Frequency

0.00006 to 3000 Hz

Pulse width

adjustable from 0.10 to 999.99 ms or fixed at 50% of the duty (In case of pulse frequency is 0.00006 to 0.5Hz, pulse width is fixed at 1sec.)
Voltage drop during transistor ON: 2.7V typ. (Voltage drop can be reduced to 2.0 V by a switch)

Analog output range/load resistance

Without SFC communication

0.8 to 22.4mA (-20 to +115%)
Load resistance: 0 to 600Ω

With SFC communication

3.2 to 22.4mA (-5 to +115%)
External power supply for SFC communication: 16 to 45V DC
Load resistance (Ω) = (External power supply voltage -8.5V)/0.025

With HART communication by using Internal power supply

3.2 to 22.4mA (-5 to +115%)
External power supply for SFC communication: 16 to 45V DC
Load resistance: 0 to 600Ω

With HART communication by using an external power supply

3.2 to 22.4mA (-5 to +115%)
External power supply for HART communication: 16 to 45V DC
Load resistance (Ω) = (External power supply voltage -8.5V)/0.025

High-speed response type/no communication function

0.8 to 22.4mA (-20 to +115%)
Load resistance: 0 to 600W

Digital output range/load resistance

With DE output
3.2 to 22.4mA (-5 to +115%)
External power supply for DE communication: 16 to 45V DC
Load resistance (Ω) = (External power supply voltage -8.5V)/0.025

Unit of flow rate

Selectable from%, volumetric flow rate unit, mass flow rate unit, time.

Volumetric flow rate: m^3, l, cm^3
Mass flow rate: t, kg, g
Time: d, h, min., s

Operation Mode

MEASURING MODE:
Mode for flow rate measurement
BASIC SETUP MODE:
Mode for quick start-up
ENGINEERING MODE
Mode for parameter configuration (Range, pulse scale, etc.)
MAINTENANCE MODE
Mode for maintenance
ADVANCED MODE
Mode for advanced functions

Auto zeroing function (in the BASIC SETUP MODE)

Adjust zero automatically

Damping (in the BASIC SETUP MODE)

Adjustable between 0.1 and 199.9 seconds
High-speed response type: Adjustable between 0 and 199.9 seconds

Averaging function (in the ADVANCED MODE)

Moving average processing of the measured flow rate
ON/OFF, Adjustable between 1.0 and 30.0 seconds

Spike cut function (in the ADVANCED MODE)

Eliminates steep noise spikes.
Auto/Manual/OFF

Low flow cutoff

Adjustable between 0 and 10% of setting range
Below selected value, output is driven to the zero flow rate signal level.

Drop out

Adjustable between 0 and 10% of setting range
Below selected value, pulse output is fixed at 0%.

Fail-safe mode

Determine analog/pulse output direction when the flow meter detects a critical status condition.
LOW/HIGH/HOLD

Compensation coefficient (in the ADVANCED MODE)

Compensation coefficient used to multiply the output flow rate as required.

Built-in counter function

Totalizer

According to the pulse scale setting, it totals one count at a time. If double range of normal/reverse

flow measurement function is set, it totals one count at a time for normal and reverse flows. If single range of flow measurement is set, it totals one count at a time only for normal flow direction.

Totalizer with presetting function
A preset value (target totalized value) can be set between 0000000000 and 9999999999.
The counting method is same as that of the standard totalizer.

Normal/reverse flow difference totalizer
The difference in flow volumes in the normal or reverse flow directions is calculated and counted.

Contact input function

External 0% lock input
Forces outputs (analog, digital, pulse) to the zero flow rate signal level.

External automatic zero adjustment input
Adjust zero.

External range switching input
Switches two flow measurement ranges.

Two flow measurement ranges:
Dual range for nominal direction.
Normal/reverse range

Built-in counter reset input
Resets the totalized value in the built-in counter.

Contact output function

Alarm output
Outputs an alarm under the following conditions.

- Self-diagnostic result
- Empty pipe detection
- High/low limit alarm

Range switching output
Outputs the status of flow range.
- Large/small in the dual range
- Normal/reverse

Counter preset status output
Activates when the counter reaches the preset value.

Self-diagnostic result output
Activates only when a critical failure appears by the self-diagnostic.

Empty detection output
Activates only when empty status (when electrodes are in contact with air) is detected.
Please make sure that there is no air trap inside of the detector and process fluid conductivity should be 30 mS/cm or greater for functioning properly.

High/low limit alarm output
Activates when a high/low limit occurs.

Two-stage flow rate alarm output (with two contact outputs)
Activates when the first high/low limit alarm (H/L) occurs and the second high/low limit alarm (HH/LL) occurs.

Function table by contact-input/contact output

Table 1: one contact input and one contact output
Table 2: two contact inputs
Table 3: two contact outputs

Table 1 : one contact input and one contact output

Range function	Built-in counter function	Contact input function	Contact output function
0: Single range	A: Addition	X: Not activated	X: Not activated
			1: Alarm output
			4: Self-check result output
			5: Empty detection function
			6: High/low limit alarm
		1: External 0% lock	X: Not activated
			1: Alarm output
			4: Self-check result output
			5: Empty detection function
			6: High/low limit alarm
		2: External auto zeroing	X: Not activated
			1: Alarm output
			4: Self-check result output
			5: Empty detection function
			6: High/low limit alarm
		4: Counter reset	X: Not activated
			1: Alarm output
			4: Self-check result output
			5: Empty detection function
			6: High/low limit alarm
	B: Addition with preset	X: Not activated	3: Preset output
		1: External 0% lock	3: Preset output
		2: External auto zeroing	3: Preset output

Range function	Built-in counter function	Contact input function	Contact output function
1: Automatic switching double range function	A: Addition	X: Not activated	2: Range switching output
		1: External 0% lock	2: Range switching output
		2: External auto zeroing	2: Range switching output
		4: Counter reset	2: Range switching output

Range function	Built-in counter function	Contact input function	Contact output function
2: External switch-ing double range	A: Addition	3: External range switching	X: Not activated
			1: Alarm output
			2: Range switching output
			4: Self-check result output
			5: Empty detection function
			6: High/low limit alarm
	B: Addition with preset	3: External range switching	3: Preset output

Range function	Built-in counter function	Contact input function	Contact output function
3: Normal/reverse automatic switching range	A: Addition	X: Not activated	2: Range switching output
		1: External 0% lock	2: Range switching output
		2: External auto zeroing	2: Range switching output
		4: Counter reset	2: Range switching output
	C: Normal/reverse totalization	X: Not activated	2: Range switching output
		1: External 0% lock	2: Range switching output
		2: External auto zeroing	2: Range switching output
		4: Counter reset	2: Range switching output

Range function	Built-in counter function	Contact input function	Contact output function
4: Normal/reverse external switching range	A: Addition	3: External range switching	X: Not activated
			1: Alarm output
			2: Range switching output
			4: Self-check result output
			5: Empty detection function
			6: High/low limit alarm
	B: Addition with preset	3: External range switching	3: Preset output
	C: Normal/reverse totalization	3: External range switching	X: Not activated
			1: Alarm output
			2: Range switching output
			4: Self-check result output
			5: Empty detection function
			6: High/low limit alarm

Table 2 : two contact inputs

Range function	Built-in counter function	Contact input function	Contact output function
0: Single range	A: Addition	X: Not activated	X: Not activated
		1: External 0% lock	X: Not activated
		2: External auto zeroing	X: Not activated
		4: Counter reset	X: Not activated
		5: External 0% lock + Auto zeroing	X: Not activated
		7: External 0% lock + Counter reset	X: Not activated
		9: External auto zeroing + Counter reset	X: Not activated

Range function	Built-in counter function	Contact input function	Contact output function
2: External switching double range	A: Addition	3 External range switching	X: Not activated
		6: External 0% lock + Range switching	X: Not activated
		8: External auto zeroing + Range switching	X: Not activated
		A: External range switching + Counter reset	X: Not activated

Range function	Built-in counter function	Contact input function	Contact output function
4: Normal/reverse external switching range	A: Addition	3 External range switching	X: Not activated
		6: External 0% lock + Range switching	X: Not activated
		8: External auto zeroing + Range switching	X: Not activated
		A: External range switching + Counter reset	X: Not activated
	C: Normal/reverse totalization	3 External range switching	X: Not activated
		6: External 0% lock + Range switching	X: Not activated
		8: External auto zeroing + Range switching	X: Not activated
		A: External range switching + Counter reset	X: Not activated

Table 3 two contact outputs

Range function	Built-in counter function	Contact input function	Contact output function
0: Single range	A: Addition	X: Not activated	X: Not activated
			E: High 1 and High 2 alarm or Low 1 and Low 2 alarm
			1: Alarm output
			4: Self-check result output
			5: Empty detection function
			6: High/low limit alarm
	B: Addition with preset	X: Not activated	3: Preset output
			D: Alarm + Preset output
			F: Preset + Self-check
			G: Preset + Empty detection
			H: Preset + High/low limit alarm

Range function	Built-in counter function	Contact input function	Contact output function
1: Automatic switching double range	A: Addition	X: Not activated	2: Range switching output
			7: Alarm + Range switching output
			8:Self-check result + Range switching output
			9: Empty detection + Range switching output
			A: High/low limit alarm + Range switching output
			C: Range switching output + Self-check, Empty detection
	B: Addition with preset	X: Not activated	B: Range switching output + Preset output

Range function	Built-in counter function	Contact input function	Contact output function
3: Normal/ reverse automatic switching range	A: Addition	X: Not activated	2: Range switching output
			7: Alarm + Range switching output
			8:Self-check result + Range switching output
			9: Empty detection + Range switching output
			A: High/low limit alarm + Range switching output
			C: Range switching output + Self-check, Empty detection
	B: Addition with preset	X: Not activated	B: Range switching output + Preset output
	C: Normal/reverse totalization	X: Not activated	2: Range switching output
			7: Alarm + Range switching output
			8:Self-check result + Range switching output
			9: Empty detection + Range switching output
			A: High/low limit alarm + Range switching output
			C: Range switching output + Self-check, Empty detection

Detectors coupled with MGG14C converter

MGG14C works with the following Yamatake detectors.
In case of interchanging the converter only, recalibration with the detector at Yamatake factory is recommended for ensuring accurate measurement.

Integral style:
MGG11/18D, MGG11/18F, MGG11/18U, MGS11/28U,
Remote style:
MGG11/18D, MGG11/18F, MGG11/18U, MGG12/19D, MGG12/19F, MGG12/19U, MGS11/28U, MGG15D, MGG15F, KID15B, KID20B, KID30B, KID10B, KID11B, KID12B, NNK140, NNM (some types are not compatible.)

Optional specifications

Display (optional): LCD with backlighting

Main display
7-segment, 6 digits

Sub display
16 digits, two lines

Display
Flow rate in%, Actual flow rate, Totalized value
Configuration parameters, Self-diagnostic, Write protect status
Main display is selectable among “flow rate in%”, “actual flow rate” and “totalized value”.

Data setting device

Configuration by infrared ray touch sensor
Infrared ray touch sensor: Four switches
Write protect: Write protection level is set by switches in the converter.
Write protect level is indicated on the display.

Empty pipe detection

When the detector is empty, the analog output, digital output and pulse output are fixed at zero.
Display is latched to zero.

Traceability certificate

The following three documents are provided.
- Traceability system chart
- Traceability certificate
- Calibration certificate

Indication other than SI units

The following non-SI units are available.
Volume unit: B (barrel), G (gallon), kG (kilo-gallon), mG (milli-gallon), IG(imperial gallon)
Mass unit: lb (pound)

Tag number on the terminal box

The designated tag numbers (maximum 16 characters) should be stamped on a tag plate, which is attached to the terminal box. One line can contain 8 characters. Tag numbersexceed 8haracters will be stamped on the two lines.

Air purge hole with PT1/4 internal thread

Prepare air purge hole with PT1/4 internal thread by using one of the conduits of the converter.

PERFORMANCE SPECIFICATION

Measurable process fluid conductivity

It depends on the cable length between the converter and the detector.)
With the detector size of 2.5 to 1100mm
3 μS/cm or greater

Accuracy (coupled with MGG, MGS and KID90 type detectors)

Table 4
in combination with a detector
<Size 2.5 to 15 mm (0.1 to 1/2 inch)>
Vs = Velocity of setting range

Vs (m/s)	Velocity during measurement ≥ Vs × 40%	Velocity during measurement ≤ Vs × 40%
1.0 ≤ Vs ≤ 10	±0.5% of rate	±0.2% of Vs
0.1 ≤ Vs ≤ 1.0	±(0.1/Vs+0.4)% of rate	±0.4(0.1/Vs+0.4)% of Vs

<Size 25 to 600 mm (1 to 24 inches)>
Vs = Velocity of setting range

Vs (m/s)	Velocity during measurement ≥ Vs × 20%	Velocity during measurement ≤ Vs × 20%
1.0 ≤ Vs ≤ 10	±0.5% of rate	±0.1% of Vs
0.1 ≤ Vs ≤ 1.0	±(0.1/Vs+0.4)% of rate	±0.2(0.1/Vs+0.4)% of Vs

<Size 700 to 1100 mm (28 to 44 inches)>
Vs = Velocity of setting range

Vs (m/s)	Velocity during measurement ≥ Vs × 50%	Velocity during measurement ≤ Vs × 50%
1.0 ≤ Vs ≤ 10	±1.0% of rate	±0.5% of Vs
0.1 ≤ Vs ≤ 1.0	±(0.2/Vs+0.8)% of rate	(0.2/Vs+0.8)% of Vs

Magnetic field effect

±0.2%FS max. (400A/m)

Fluctuation

Range set as 1Vs10m/s: ±0.1%FS max.
Range set as 0.1Vs<1m/s: ±0.1/Vs %FS max.
(Damping: 3seconds, with clean water (150μS/cm))

PHYSICAL SPECIFICATION

Housing and cover material
Aluminum alloy (ADC12)

Glass
Tempered glass (thickness 5mm)

Name plate material
SUS304 (thickness 0.5mm)

Screw material
SUS304

Gasket material between housing and cover
EPDM

Paint
Standard: baked acrylic resin
Corrosion-proof: Epoxy resin

Color
Cover: light beige (Munsell 4Y7.2/1.3)
Housing: dark beige (Munsell 10YR4.7/0/5)

INSTALLATION SPECIFICATION

Ambient temperature
-25~+60 degree C

Ambient humidity
5~100%RH (no condensation)

Vibration
Integral style: 500Hz max. 4.9m/s2 (0.5G) max.
Remote style: 500Hz max., 19.6m/s2 (2G) max.

Conduit connection
G1/2 (PF1/2) internal thread, 1/2NPT internal thread, CM20 internal thread,
pg13.5 internal thread

Mounting
Remote style: Wall mounting, 2-inch pipe mounting
Integral style: Mount on the detector

Grounding
Grounding resistance: 100W max.

Weight
3.1kg

Site selection
When selecting an installation site for the flowmeter, observe the following safety measures:

- Do not install the flowmeter near high-current power lines, motors or transformers to prevent damage from electromagnetic induction, which can cause equipment malfunction or output errors.
- Do not use the flowmeter to ground a welder. It can damage the flowmeter.
- Be sure to ground the welding power transformer when welding near the flowmeter to avoid output errors.
- Avoid locations subject to severe vibration or highly corrosive atmospheres to prevent detector breakage or equipment damage.
- Do not install the flowmeter in a location subject to direct sunlight, wind and rain. The converter and detector can be damaged.

MODEL SELECTION

MagneW3000 PLUS+ Smart Converter (Integral style)

Model MGG14C - I II III IV - V VI VII VIII - / Options (Some options can be selected per each model.)

Basic model no.			Selections				Optional selections			
	MGG14C	-								
I	Power supply	100 to 120 V AC, 200 to 240V AC, 47 to 63Hz	M							
		24 V DC, noise filter 50 Hz	P							
		24 V DC, noise filter 60 Hz	R							
		110 V DC, 50 Hz	S							
		110 V DC, 60 Hz	T							
II	Output signal / Communication	Volume flow 4 to 20mA DC output / with open collector pulse output / with HART communication		H						
		Volume flow 4 to 20mA DC output / with open collector pulse output / with SFC communication		B						
		Volume flow DE output / with open collector pulse output / without communication		C						
		Volume flow 4 to 20mA DC output / with open collector pulse output /without communication		R						
III	Electrical connection / Watertight gland	G1/2 internal thread / without watertight gland			1					
		G1/2 internal thread / with brass (Ni-plated) watertight gland			2					
		G1/2 internal thread / with plastic watertight gland			3					
		1/2NPT internal thread / without watertight gland (Note 2)			4					
		CM20 internal thread / without watertight gland			5					
		Pg13.5 internal thread / without watertight gland			6					
		G1/2 internal thread / with SUS304 watertight gland			7					
IV	Installation / Wiring direction	Horizontal piping mounting / upstream side				A				
		Horizontal piping mounting / downstream side				B				
		Horizontal piping mounting / left side viewed from upstream				C				
		Horizontal piping mounting / right side viewed from upstream				D				
		Vertical piping mounting / downstream side (flow direction: downstream to upstream)				E				
		Vertical piping mounting / downstream side (flow direction: upstream to downstream)				F				
		Vertical piping mounting / (flow direction: downstream to upstream)				T				
		Vertical piping mounting / (flow direction: upstream to downstream)				V				
V	Finish	Corrosion-resistant finish					1			
		Corrosion-proof finish					2			
VI	Display with data setting device	None						X		
		Main display: instantaneous flow rate in%						A		
		Main display: instantaneous actual flow rate						B		
		Main display: indication of totalized value (Note 3)						C		
VII	Contact inputs / outputs	1 input and 1 output (ranging function, warning for contact input/output, etc.)							1	
		2 inputs (ranging function, external automatic zero adjustment input, etc.)							2	
		2 outputs (ranging function, warning for contact outputs.)							3	
VIII	Style code	None								X

Options		
	None	X
	Empty pipe detection function	A
	Traceability certificate for converter	C
	Plastic (Poly carbonate) window	G
	Indication other than SI units	H
	Attachment of the TAG number to the terminal box for converter (Note 4)	J
	Specific color paint (Note 5)	L
	with photo of the device	N
	with PT1/4 thread for air parge	Q

Note) *1. In case of this code, it is necessary to supply 16 to 45 V DC on 4 to 20mA DC signal line.*
2. Must be selected for FM / CSA NI approval.
3. In case of this code, option "B" must be selected.
4. Must be selected for Tag no. requirement
5. Must specify Munsell No.

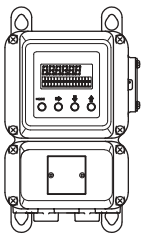
MagneW3000 PLUS^{+} Smart Converter (Remote style)

Model MGG14C - I II III IV - V VI VII VIII - Options (Some options can be selected per each model.)

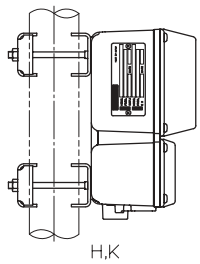
Basic model no.			Selections				Optional selections			
	MGG14C	-								
I	Power supply	100 to 120 V AC, 200 to 240V AC, 47 to 63Hz	M							
		24 V DC, noise filter 50 Hz	P							
		24 V DC, noise filter 60 Hz	R							
		110 V AC, 50 Hz	S							
		110 V AC, 60 Hz	T							
II	Output signal / Communication	Volume flow 4 to 20mA DC output / with open collector pulse output / with HART communication		H						
		Volume flow 4 to 20mA DC output / with open collector pulse output / with SFC communication		B						
		Volume flow DE output / with open collector pulse output / without communication		C						
		Volume flow 4 to 20mA DC output / with open collector pulse output /without communication		R						
III	Electrical connection / Watertight gland	G1/2 internal thread / without watertight gland			1					
		G1/2 internal thread / with brass (Ni-plated) watertight gland			2					
		G1/2 internal thread / with plastic watertight gland			3					
		1/2NPT internal thread / without watertight gland (Note 2)			4					
		CM20 internal thread / without watertight gland			5					
		Pg13.5 internal thread / without watertight gland			6					
		G1/2 internal thread / with SUS304 watertight gland			7					
IV	Installation / Wiring direction	Wall mounting with standard bracket				G				
		2-inch pipe mounting with standard bracket				H				
		Wall mounting with SUS304 bracket				J				
		2-inch pipe mounting with SUS304 bracket				K				
V	Finish	Corrosion-resistant finish					1			
		Corrosion-proof finish					2			
VI	Display with data setting device	None						X		
		Main display: instantaneous indication of flow volume in%						A		
		Main display: instantaneous indication of actual flow volume						B		
		Main display: indication of integrated flow volume (Note 3)						C		
VII	Contact inputs / outputs	1 input and 1 output (ranging function, warning for contact input/output, etc.)							1	
		2 inputs (ranging function, external automatic zero adjustment input, etc.)							2	
		2 outputs (ranging function, warning for contact outputs.)							3	
VIII	Style code	None								X

Options		
	None	X
	Empty pipe detection function	A
	Traceability certificate for converter	C
	Plastic (Bicarbonate) window	G
	Indication other than SI units	H
	Attachment of the TAG number to the terminal box for converter (Note 4)	J
	Specific color paint (Note 5)	L
	with photo of the device	N
	with PT1/4 thread for air pauge	Q

Installation / Wiring direction



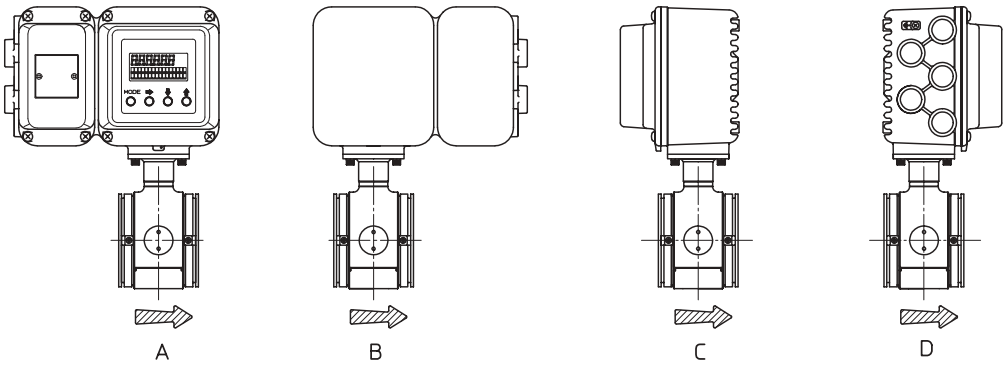
G,J

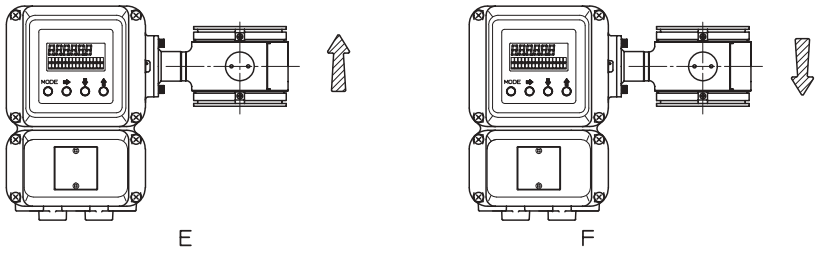


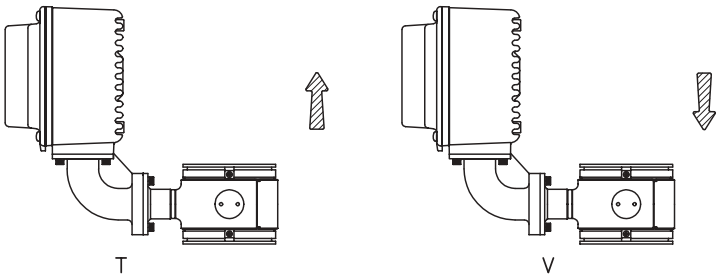
H,K

Note) *1. In case of this code, it is necessary to supply 16 to 45 V DC on 4 to 20mA D*
2. Must be selected for FM / CSA NI approval.
3. In case of this code, option "B" must be selected.
4. Must be selected for Tag no. requirement
5. Must specify Munsell No.

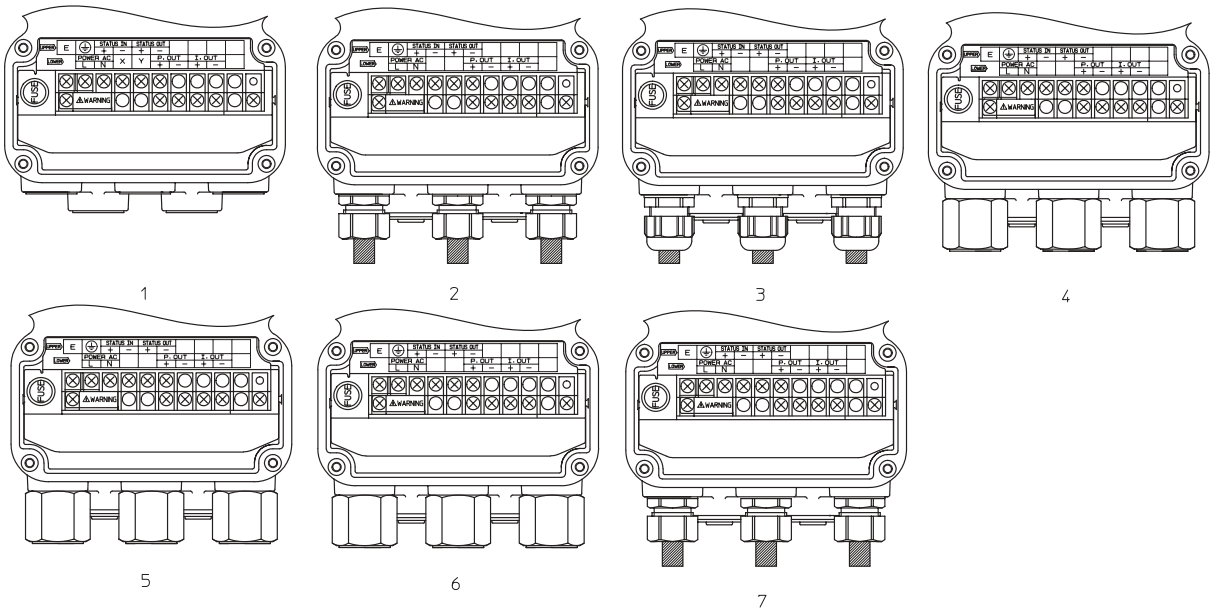
MOUNTING / WIRING DIRECTION







CONDUIT CONNECTION / WATERTIGHT GLAND



CONVERTER TERMINAL DESCRIPTION

Table 5 Remote converter terminal descriptions

(1-contact output / 1-contact input)

Symbol		Description
A		Flow signal input from detector
B		
C		
SA		
SB		
I. OUT	+	Analog output
	–	
P. OUT	+	Pulse output
	–	
X		Excitation output
Y		
STATUS OUT	+	Contact output
	–	
STATUS IN	+	Contact input
	–	
POWER AC	L	Power supply
	N	
E		Not used
⏚		Grounding (grounding resistance must be < 100 Ω)

(2-contact inputs)

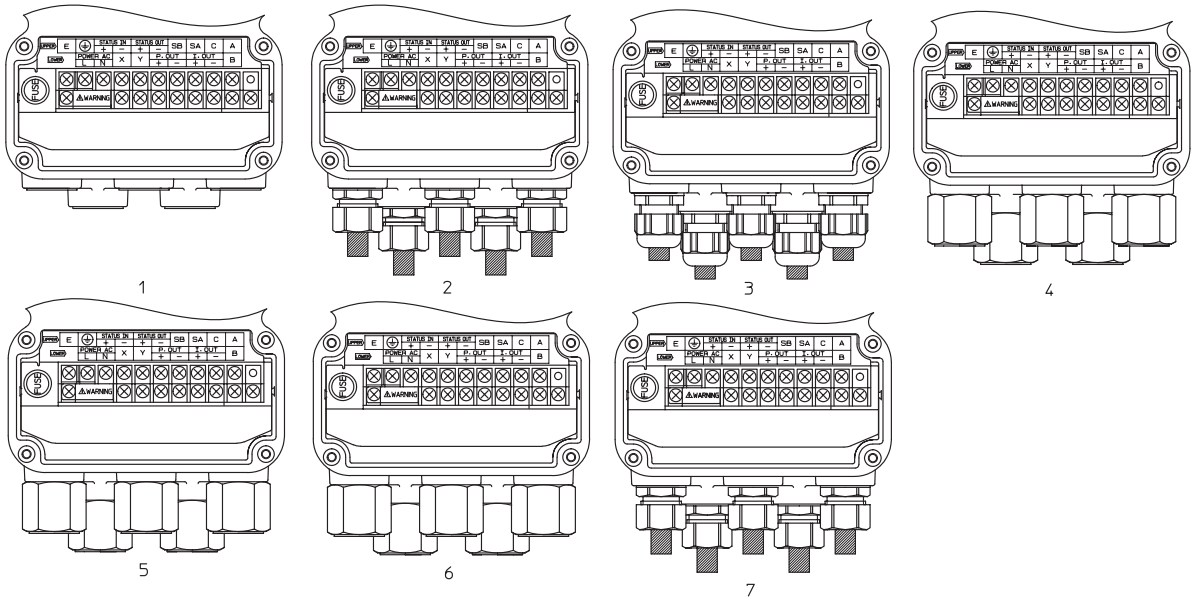
Symbol		Description
A		Flow signal input from detector
B		
C		
SA		
SB		
I. OUT	+	Analog output
	–	
P. OUT	+	Pulse output
	–	
X		Excitation output
Y		
STATUS IN 2	+	Contact input 2
	–	
STATUS IN 1	+	Contact input 1
	–	
POWER AC	L	Power supply
	N	
E		Not used
⏚		Grounding (grounding resistance must be < 100 Ω)

(2-contact outputs)

Symbol		Description
A		Flow signal input from detector
B		
C		
SA		
SB		
I. OUT	+	Analog output
	–	
P. OUT	+	Pulse output
	–	
X		Excitation output
Y		
STATUS OUT1	+	Contact output1
	–	
STATUS IOUT2	+	Contact output2
	–	
POWER AC	L	Power supply
	N	
E		Not used
⏚		Grounding (grounding resistance must be < 100 Ω)

Note)

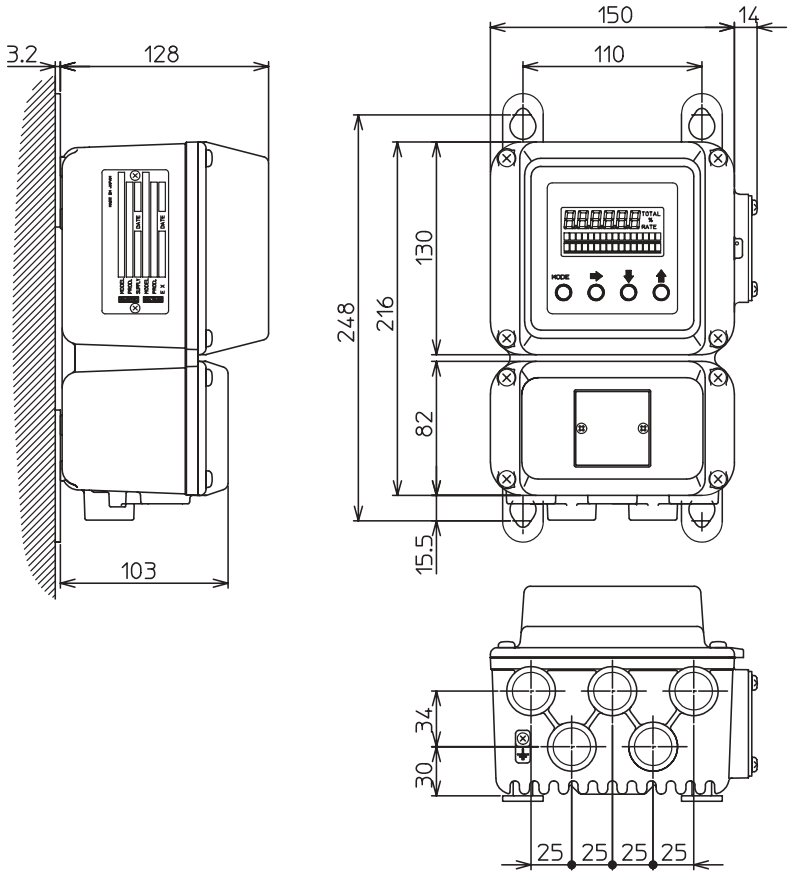
CONDUIT CONNECTION / WATERTIGHT GLAND



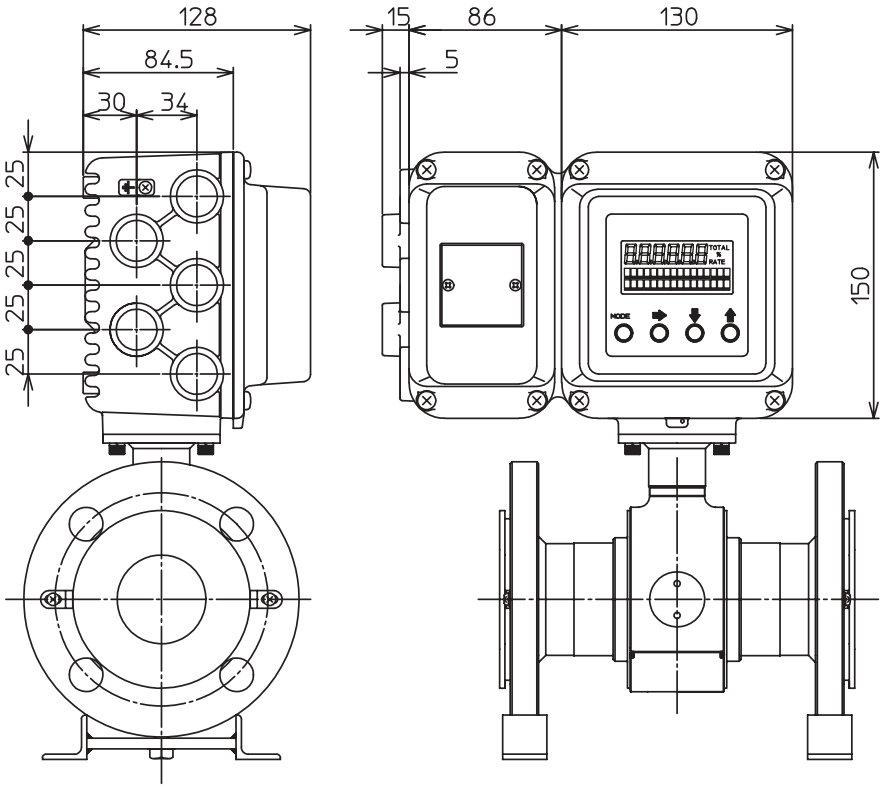
Dimension drawings

[Unit: mm]

Wall mounting

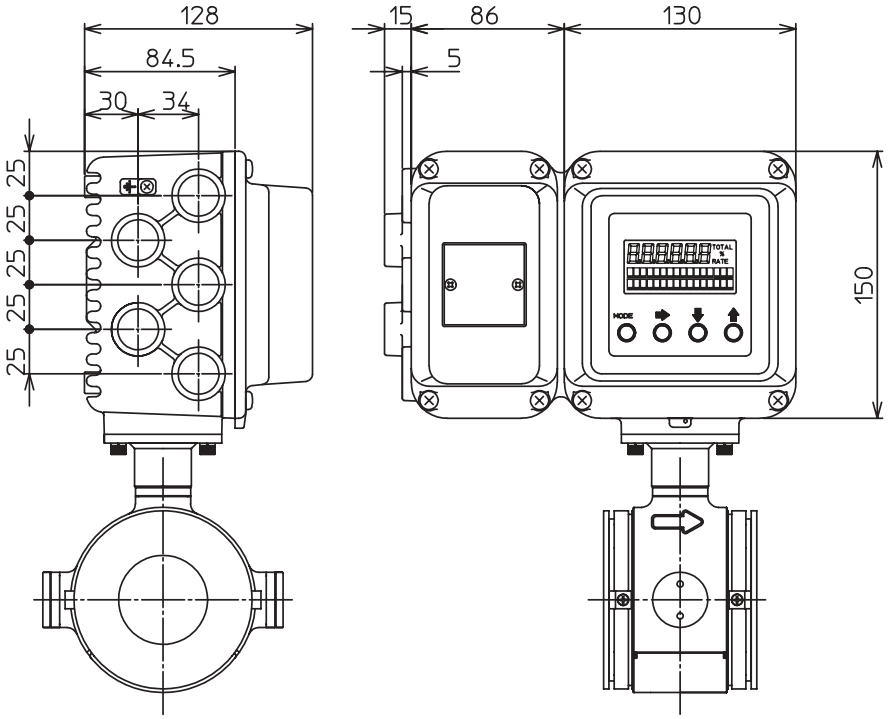


2 inch pipe mounting

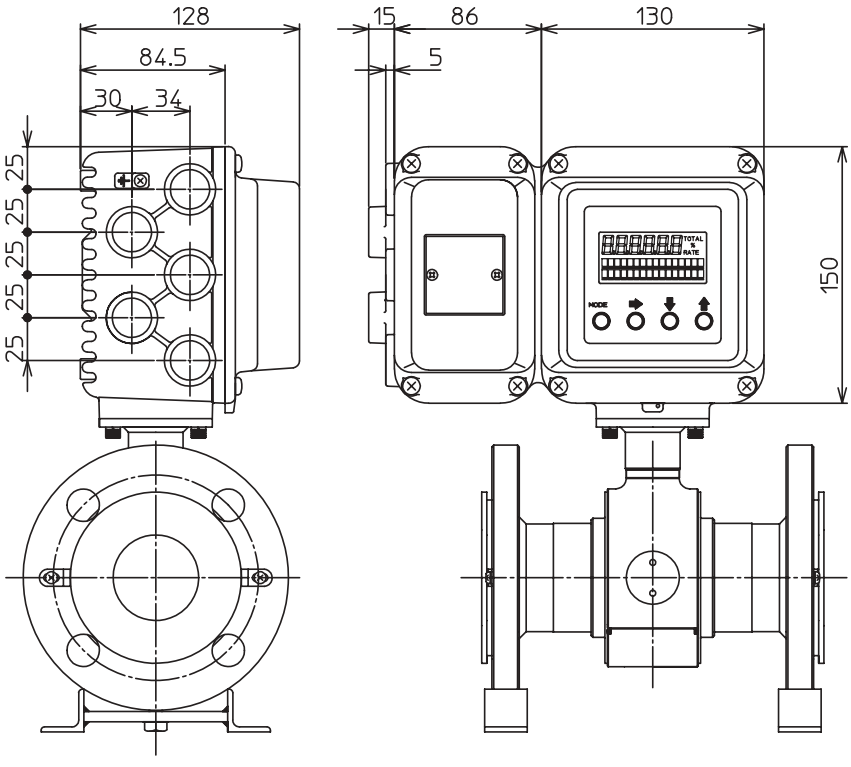


Integral type

[Unit: mm]



Flange type



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