Product Specifications

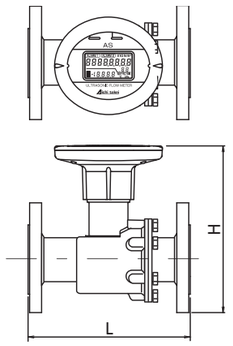
Model		AS-WE-40	AS-WE-50	AS-WE-80	AS-WE-100	AS-WE-150	AS-WE-200
Nominal diameter		40A	50A	80A	100A	150A	200A
Power supply		Built-in lithium battery					
Working pressure		0.05MPa (Gauge pressure)					
Measurable fluid		Natural gas, air					
Pressure sensor		Without pressure compensation : AS-WE-□-0B/3 With pressure compensation : AS-WE-□-200BG/3 (gauge pressure sensor) : AS-WE-□-200BA/3 (absolute pressure sensor)					
Flow rate measurement precision *1	±5%RS (m^3/h)	±1.6 ~ 16	±3 ~ 30	±6 ~ 60	±10 ~ 100	±24 ~ 240	±40 ~ 400
	±2%RS (m^3/h)	±16 ~ 80	±30 ~ 150	±60 ~ 300	±100 ~ 500	±240 ~ 1200	±400 ~ 2000
Low flow cut off (start flow rate) *2	Flow rate (m/s)	0.05 m/s or less					
	Actual flow rate (m^3/h)	±0.2	±0.4	±0.8	±1.5	±3.2	±5.7
Fluid temperature and humidity		-20 ~ +60℃, 90% RH or less					
Pressure loss		Zero (equivalent to straight tube part)					
Indicator	Accumulated flow volume	Accumulated flow volume: 00000000.0 (9 digits/m^3 or Nm^3)			Accumulated flow volume: 0000000000 (10 digits/m^3 or Nm^3)		
	Instantaneous flow rate *3	(1) Maximum indication value: ±19999Nm^3/h (converted flow rate) (2) Maximum indication value: ±19999Nm^3/h (actual flow rate) (Two decimal places for a value less than 200, one decimal place for a value from 200 to less than 2000, integer only for a value of 2000 or more)					
	Temperature *3	00.0℃ (3 digits)					
	Pressure *3	0000.0kPa (5 digits)					
Output	Contact output	Open drain output: Unit pulse (forward current), pulse unit: 100,1000,10000 (L/P or NL/P)					
	Electronic statement signal communication	RS485 MODBUS/RTU					
Connection method		ISO7005-1 (GB/T9119-2000 PN1.6MPa Flange) equivalent *4					
Installation position		Horizontal, vertical					
Installation		Indoor, outdoor (protection level IP 64 or equivalent)					
Case material		Stainless alloy					
Gas contact part material		Stainless alloy, engineering plastic					
Weight		7.6kg	9.6kg	13.3kg	13.2kg	20.4kg	35.4kg

*1. The flow rate measurement range is ±5% RS: Inclusive before "~" and not inclusive after "~" and ±2% RS: Inclusive for both before and after "~".
*2. When the flow rate is less than 0.25% of the maximum flow rate, the instantaneous flow rate is indicated as 0 m^3/h. For the normal conversion type, the low flow cut off value is the normal conversion flow rate corresponding to 0.05 m/s.
*3. Automatically switched in every 4 seconds.
*4. This flowmeter guarantees the flow measurement accuracy with the pipes listed in the right table.
(If you use pipes with the different pipe standard and size not listed in the table, the flowmeter may not satisfy the flow measurement accuracy. Consult us in advance if it is considered to use different pipes out of this range.)

Piping standard	EN10208					
Nominal diameter (mm)	40	50	80	100	150	200
Outer diameter (mm)	48.3	57	88.9	108	159	219.1
Thickness (mm)	4	3.5	4.5	4	4.5	10

External dimensions

Unit : mm



Model	Nominal diameter	L	H
AS-WE-40	40A	200	233
AS-WE-50	50A	220	247
AS-WE-80	80A	250	279
AS-WE-100	100A	250	313
AS-WE-150	150A	300	370
AS-WE-200	200A	350	428

ISO7005-1 (GB/T9119-2000 PN1.6MPa Flange) equivalent

Caution regarding to methane

For each nominal diameter, there are conditions of methane concentrations (%) in natural gas (NG) with which the meter cannot be used, as described in the below table. (Do not use if the methane concentration does not satisfy the usable conditions described below. Also, do not use if there is a possibility that methane concentration may change greatly after installation so that the usable conditions described below will not be satisfied.)

Methane Concentration (%)	Nominal diameter					
	40A	50A	80A	100A	150A	200A
Over 99%	Measurable	Measurable	Measurable	~~Not measurable~~	~~Not measurable~~	~~Not measurable~~
Over 98% to 99%	Measurable	Measurable	Measurable	Measurable	~~Not measurable~~	~~Not measurable~~
Over 96% to 98%	Measurable	Measurable	Measurable	Measurable	~~Not measurable~~	~~Not measurable~~
Over 94% to 96%	Measurable	Measurable	Measurable	Measurable	Measurable	~~Not measurable~~
94% or less	Measurable	Measurable	Measurable	Measurable	Measurable	Measurable

Technical specifications in this catalog are up-to-date as of July 2018.

Manufactured and Distributed by

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To Our Customers

Please understand that product specifications may be changed without notice in order to improve performance. We are always happy to provide the latest catalogs and brochures, and respond to inquiries made to our offices.

1.2

201812-AS-W-000-a

Reliability, Creativity, Service

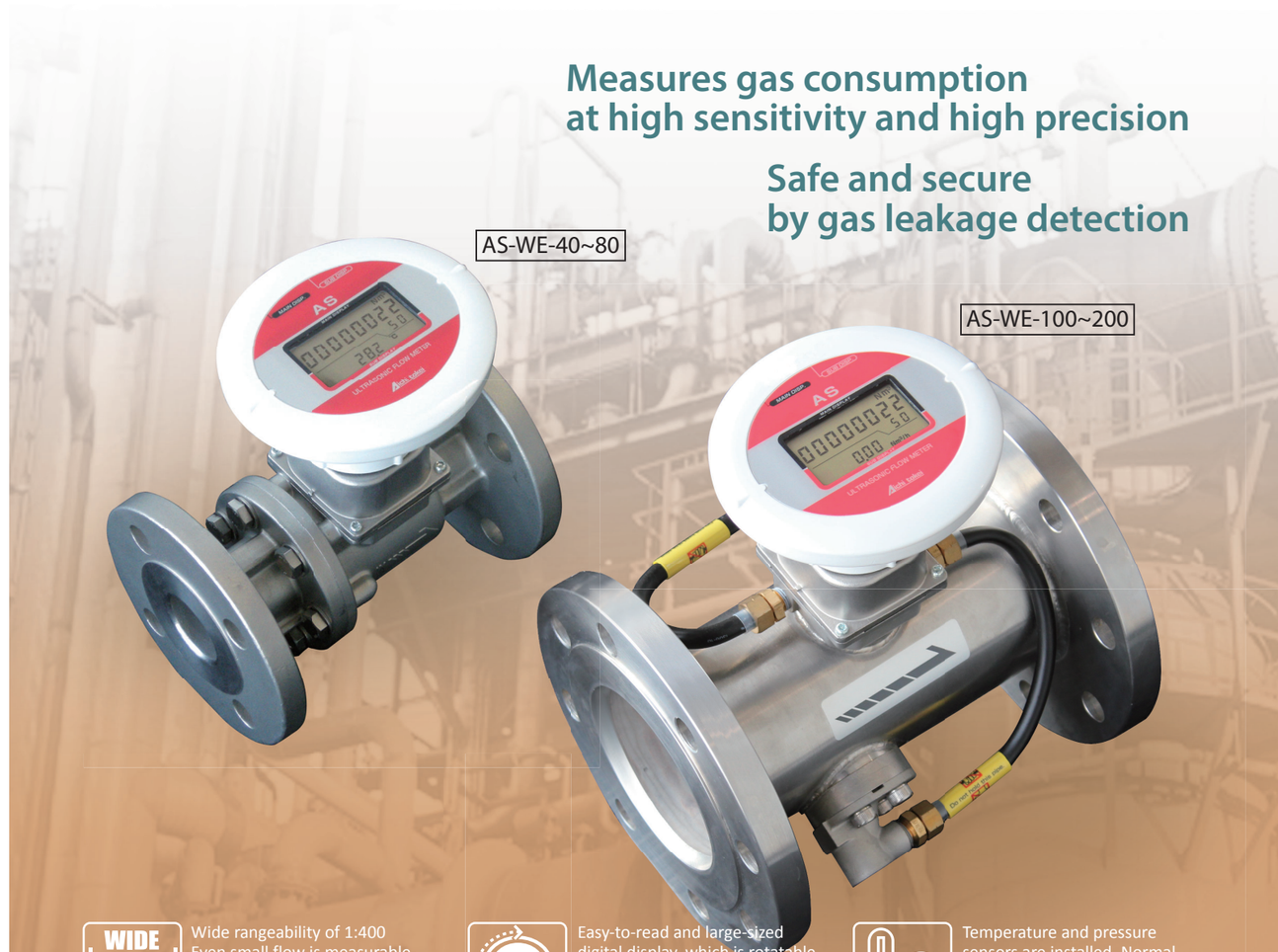
for Fuel Gas

Ultrasonic Flowmeter

AS-WE Series

Measures gas consumption at high sensitivity and high precision

Safe and secure by gas leakage detection



WIDE

Wide rangeability of 1:400
Even small flow is measurable, so it enables pipe leakage detection.

Zero pressure loss and zero energy loss achieved by no obstacle inside the measurement tube.
No change of accuracy in long time use and free from maintenance.

Easy-to-read and large-sized digital display, which is rotatable by 90 degrees on the spot.

2200 data logs

Enhanced logging function

Eleven data log items including timestamp, temperature, pressure, instantaneous flow rate, accumulated flow rate, etc. can be stored for up to 2200 sets. Data acquisition interval can be set to 5 minutes to 24 hours.

Temperature and pressure sensors are installed. Normal and standard conversion functions are equipped.

OUTPUT

Remote measurement

RS485 output in addition to unit pulses allows for remote indication and energy management.

LONGLIFE

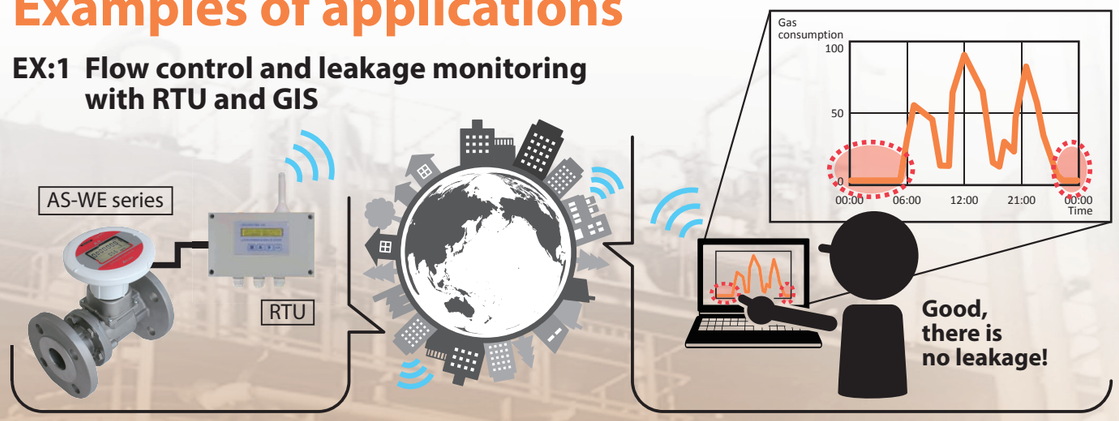
Runs with a built-in lithium battery and no necessity of electric construction.

S&S Sensors, Systems & Services

Aichi tokei

Examples of applications

EX:1 Flow control and leakage monitoring with RTU and GIS



EX:2 Adaptability under wide changes in flow volume

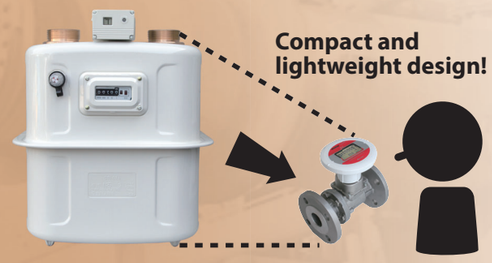
☐ No need to prepare meters separately for each production site and canteen.

☐ 1 piece of AS meter with wide rangeability allows for covering expansion of plant equipments.

EX:3 Space saving and work-efficiency-improvement

☐ Improvement in space and accuracy by replacing from a large-sized diaphragm gas meter at a hotel, a restaurant, a canteen, etc.

☐ Wide rangeability enables size down of pipes and equipments, and it contributes to construction cost reduction and work-efficiency improvement.

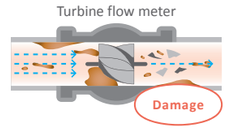


AS series solved these problems.

CASE1 | Customer A

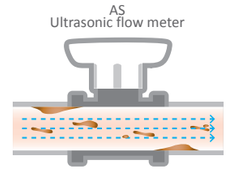
Problem

When natural gas was supplied, failure that impurities in the pipes damage the rotating parts of existing rotary meters and turbine meters often occurred.



After implementation

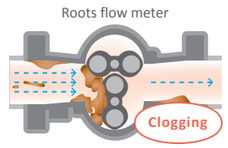
AS meter does not have any obstacle inside the measurement tube, so impurities contained in gas are blown away to downstream side of AS meter, and do not damage AS meter. Performance stability of AS meter was proved.



CASE2 | Customer B

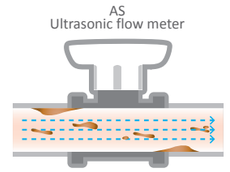
Problem

Because the factory used LPG gas until 2015, a lot of drains from LPG were remaining in the pipes. Rotary meters were affected by the drains.



After implementation

Correct measurement of AS meter is not affected by residue such as LPG drains in pipes. Operation status of all installed AS meters in the factory are in good condition.



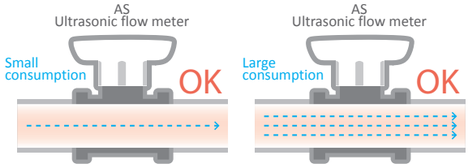
CASE3 | Customer C

Problem

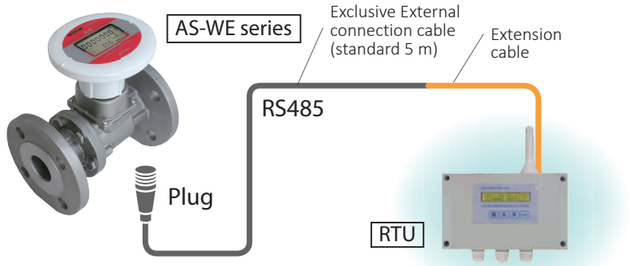
Gas consumption of the manufacturer, whose products are mainly for overseas markets, varies widely depends on quantities of orders from overseas, which changes very much due to economic trends.

After implementation

Wide flow-rate range of AS ultrasonic flow meters enabled accurate measurement both under small and large consumption.

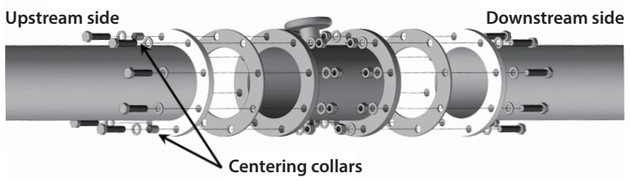


System configuration example



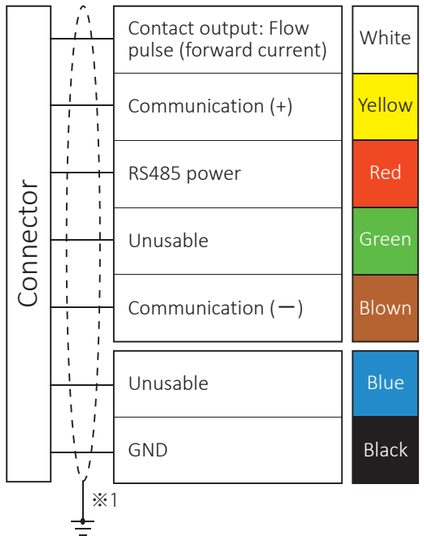
Installation method

Make sure to align the central axis of the meter with that of the piping. In order to minimize the deviation of the central axes of the flow meter and piping, please use the centering collars provided as an accessory. Not using the centering collars leads to be out of the warranty accuracy.Insert the centering collars into the holes of flange and gasket at the upper stream side diagonally as shown in the figure below.



Connection between power supply and indicator

External Cable Connection Diagram



※1. The main body and GND are electrically common. Use an isolated power supply and indicator as required.

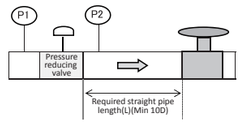
Piping condition

Conditions	Upstream	Downstream
90°elbow · Full-bore valve fully opened	Flange connection type (AS-W-40, 50, 80, 100,150,200): 10D or longer	5D or longer
Joining	20D or longer	10D or longer
Enlarge pipe	20D or longer	5D or longer
Narrowing pipe	10D or longer	10D or longer

$$\text{Required straight pipe length L (mm)} = 10D + \frac{\text{differential pressure (kPa)}}{\text{D}} \times \frac{\text{Maximum working flow-rate (m/s)}}{20\text{(m/s)}} \times (0.8)^{\text{number of elbows}}$$

To install the meter down stream of a pressure reducing valve

Without elbow



(Calculation example)

Example 1: DN50A, Flow-rate 10m/s, No elbow used where P1 = 25kPa and P2 = 5kPa

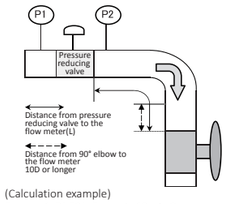
500+(25-5)x50x10/20=1000mm(20D)

Example 2: DN50A, Flow-rate 10m/s, No elbow used where P1 = 160kPa and P2 = 10kPa

500+(160-10)x50x10/20=4250mm(85D)

With elbow

(Elbows attenuate ultrasonic noises. If multiple elbows are used, the required length will be shorter.)

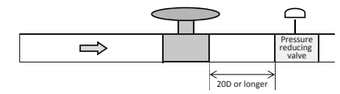


(Calculation example)

Example 1: DN50A, Flow-rate 10m/s, One elbow used where P1 = 160kPa and P2 = 10kPa

500+(160-10)x50x10/20x0.8=3500mm(70D)

Installing the flow meter at upstream of a pressure reducing valve



Other solutions we offer

Please contact us for requirements of measuring other type of gas and smaller flow-rate, or of meter installation where straight pipe section cannot be secured. The following product lineup is available.

model UX/UZ

Ultrasonic Flow Meter for Fuel Gas Management

☐ No straight pipe section required, wide rangeability, and easy to replace batteries!

☐ City gas, Butane, Propane, Argon(only for DN40, 50), and Nitrogen can be measured.