Ultrasonic Flow Meter for Liquids – Model TRA common specifications

Nominal diameter		40 mm	50 mm	80 mm	100 mm
Measurable fluids		Drinking water, industrial water, pure water, seawater, etc.			
Max. working pressure		1 MPa			
Flow-rate range		0.6 to 30 m^3/h	1 to 50 m^3/h	2 to 100 m^3/h	4 to 200 m^3/h
Accuracy	±2%RS	3 to 30 m^3/h	5 to 50 m^3/h	10 to 100 m^3/h	20 to 200 m^3/h
	±5%RS	0.6 to 3 m^3/h	1 to 5 m^3/h	2 to 10 m^3/h	4 to 20 m^3/h
Fluid temperature range		0 to 50°C			
Connection		Wafer (put and hold between JIS10K flanges)			
Installation position		Free			
Materials in contact with fluid		PVC			
Protection class		IP64 (can be installed outdoors)			

Note: The degreasing feature can be added as an option.

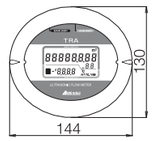
Ultrasonic Flow Meter for Liquids
– Model TRA (Accumulated flow volume / instantaneous flow-rate display type) specifications

Display	Main	Total accumulated flow volume (m^3) / Trip accumulated flow volume (m^3): switchover by the button
	Sub	Instantaneous flow-rate (m^3/h) / temperature (°C): switchover by the button
Display Digits	Main	m^3: 10 digits (00000000.00 m^3)
	Sub	m^3/h: 4 digits (000.0 m^3/h) °C: 3 digits (00.0°C)
Analog current output		4-20 mA (load resistance up to 400 Ω)
Accumulated volume pulse output		Open drain output (2 output channels) Output 1: Unit pulse (0.01 m^3/P, 0.1 m^3/P, 1 m^3/P) Output 2: Selection from flow-rate upper/lower limit alarm or exclusive electronic statement signal Maximum load : 24 V DC, 10 mA Duty cycle : 35 to 65% Saturation voltage when ON : 1V or less Saturation voltage when OFF : 50 μA or less
Power supply		External power supply specifications: 24 V DC ± 10% (Power supply from its connector with utilizing the external connection cable)

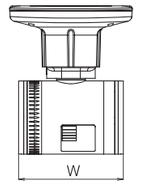
Ultrasonic Flow Meter for Liquids
– Model TRA-S (Instantaneous flow-rate display type) specifications

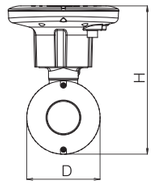
Display	Main	Instantaneous flow-rate / Temperature: switchover by the button
	Sub	Flow-rate unit (m^3/h, L/min) / Temperature unit (°C): switchover by the button
Display digits	Sub	4 digits (000.0 m^3/h) / 5 digits (0000.0 L/min): switchover by the button 3 digits (00.0°C)
Power supply		Built-in lithium battery with a life of 10 years (when used at 20°C)

External Dimensions Unit: mm



Nominal diameter	Width	Depth	Height
40	123	82	174
50	133	97	189
80	153	127	220
100	173	152	244



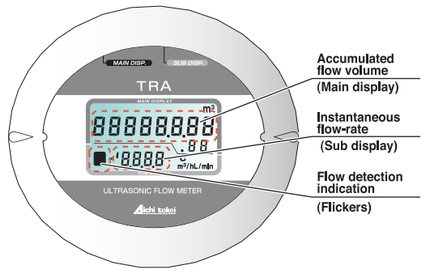


Weight (kg)

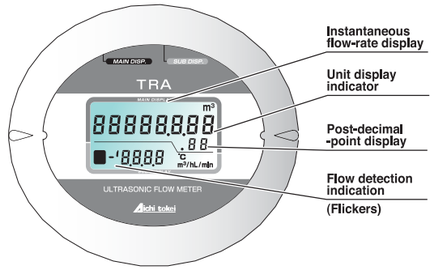
	40	50	80	100
External power supply	2.1	2.5	4.1	5.4

Display Diagrams

Accumulated flow volume / instantaneous flow-rate display type



Instantaneous flow-rate display type



The specifications outlined in this catalog are current as of April 2011.

Ultrasonic Flow Meter for Liquids

NEW model TRA

model TRA-S
Instantaneous flow-rate display type

Note: Accumulated flow volume / instantaneous flow-rate display type is also available.

Energy conservation tool

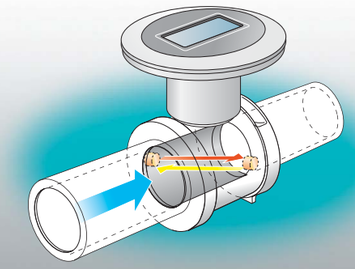
Ultrasonic measurement, the measure from now on!

Ultrasonic Flow Meter for Liquids – **model TRA**

Measurement Principals

“Ultrasonic propagation time difference” method superior in repeatability

The flow meter is equipped with two ultrasonic sensors, one each for the inflow side and outflow side.
When a fluid flows in the direction indicated by the arrow, velocity of the fluid causes difference between diffusion time of ultrasonic wave from the inflow side sensor to the outflow side sensor and that of ultrasonic wave from the outflow side sensor to the inflow side sensor.
By detecting flow-rate of the fluid from such time difference, based on the cross sectional area of the flow meter’s measuring pipe and the detected flow-rate, the flow volume is calculated.



Wide rangeability, high durability, and low pressure drop are realized taking advantage of the properties of ultrasonic waves.
Pursuing user-friendliness, the built-in lithium battery provides enough power for 10 years of continuous measurement. (Note: This applies for the built-in battery type. An external-power supply type [DC24V] is also available).
Model TRA helps energy conservation controls at various kinds of factories and facilities.

■ Maintenance Free

Features a sensor that is free from fluid contact, resulting in superior durability!

■ Extremely Low Pressure Drop, as there is no Mechanically Moving Parts

Nothing to disturb flow!

■ Wide Rangeability

Approx. 10 times wider than that of a rotameter!

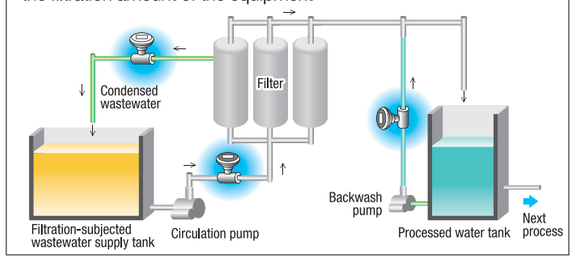
■ Display turns in 90° steps to fix its facing direction

Adjustments can be made easily with a hex wrench!

Application Examples

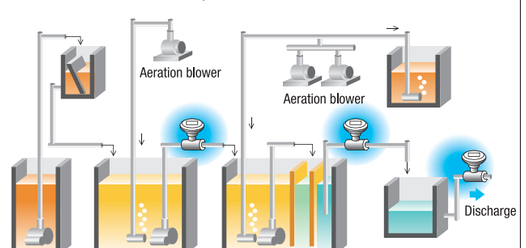
Filtration facility

Flow monitoring for the purpose of operation adjustment of the filtration amount of the equipment



Wastewater processing facility

Volume control for the transport of treated wastewater



The best match for the model TRA

Aichi remote display
model TR101 NEW

TR101

■ Specifications

Display (Note 1)	Accumulated flow volume (Note 2)	0000000000 (10 digits, unit: m^3 or Nm^3)
	Instantaneous flow-rate	00000 (5 digits, unit: m^3 or Nm^3)
	Pressure	0000 (4 digits, unit: kPa)
	Temperature	00.0 (3 digits, unit: °C)
	Alarm display	E-1: Communication error between the flow meter and the remote display
		E-2: Flow meter [ALARM 1] display – ultrasonic receiving error
		E-3: Flow meter [ALARM 2] display – low battery voltage
		E-4: Both E-1 and E-2
		: Low battery voltage of the remote display
Input		Exclusive electronic statement signal from the ultrasonic flow meter
Output		None
Power supply		Lithium battery
Installation environment Temperature and humidity		-10 to 60°C, 90% relative humidity or less
Casing material		ABS resin
Structure		IPX3 (rainproof)
External dimensions		H188 × W100 × D43 (mm)
Weight		Approximately 300 g

Note 1: Displayed data is automatically updated every 10 minutes. You can also manually update the display data.
Note 2: The most significant integer digit of the accumulated flow volume displayed on a TRW cannot be displayed on the remote display because of its position in relation to its decimal point position.