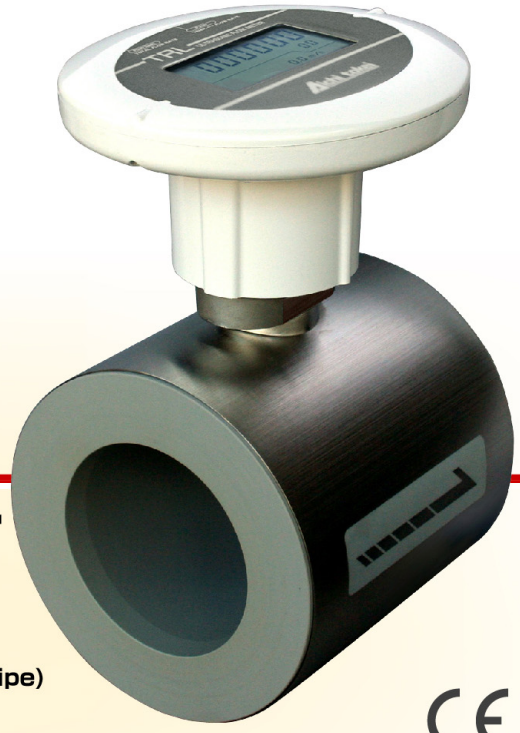
TRL40T
TRL50T
TRL80T
TRL100T



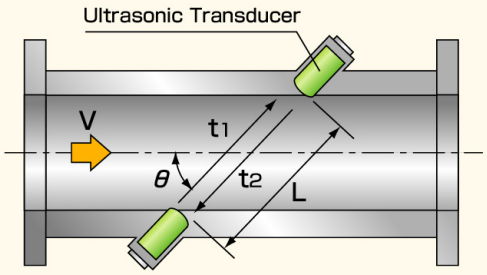
Ultrasonic Flow Meter for Liquids

- **Negligible pressure drop** (equivalent to straight pipe)
- **High durability with no moving parts**
- **Turndown ratio 50:1**
- **Ultrasonic sensor is integrated**
- **Easy to read LCD which can be oriented at a right angle for easy viewing**
- **2 outputs for easy integration with other system**
- **Can measure pure water**
- **Options for power supply :**
  - **Built-in batteries(10 years of continuous operation)**
  - **DC power**

Overview

Model			TRL40T	TRL50T	TRL80T	TRL100T
Size		mm	40A	50A	80A	100A
		in.	1 1/2	2	3	4
Measurable fluids			Drinking water, processing water, industrial water, pure water, etc.			
Max.pressure		kPa	1			
		Bar (PSI)	10 (145)			
Flow range		m^3/h	0.6 to 30	1 to 50	2 to 100	4 to 200
		US gal/min	2.64 to 132	4.4 to 220	8.8 to 440	17.6 to 880
Accuracy	±2% of rate	m^3/h	3 to 30	5 to 50	10 to 100	20 to 200
		US gal/min	13.2 to 132	22 to 220	44 to 440	88 to 880
	±5% of rate	m^3/h	0.6 to 3	1 to 5	2 to 10	4 to 20
		US gal/min	2.64 to 13.2	4.4 to 22	8.8 to 44	17.6 to 88
Fluid temperature range			0 to 50℃ (32°F to 122°F)			
Display	Main		Cyclic display : Total integrated flow/Trip integrated flow			
		Integrated flow	LCD 10digit			
	Sub	Instantaneous flow	Cyclic display : Instantaneous/Temperature			
		Temperature	LCD 4digit			
Output		Pulse	Pulse per 0.1m^3 or Pulse per 10 USgals (open drain unit pulse)			
		Analog	4 to 20mA (for DC power only)			
Power supply		Battery	Lithium battery with a life of 10 years (replacable)			
		Extermal	24V DC			
Connection			Wafer			
Installation position			Free			
Materials in contact with fluid			PVC			
Protection class			IP64			
Weight			1.4kg (3.1lbs)	1.7kg (3.7lbs)	2.4kg (5.3lbs)	3.1kg (6.8lbs)

Measurement principle



$$t_1 = \frac{L}{C + V\cos\theta}$$

$$t_2 = \frac{L}{C - V\cos\theta}$$

$$V = \frac{L}{2\cos\theta}\left(\frac{1}{t_1} - \frac{1}{t_2}\right)$$

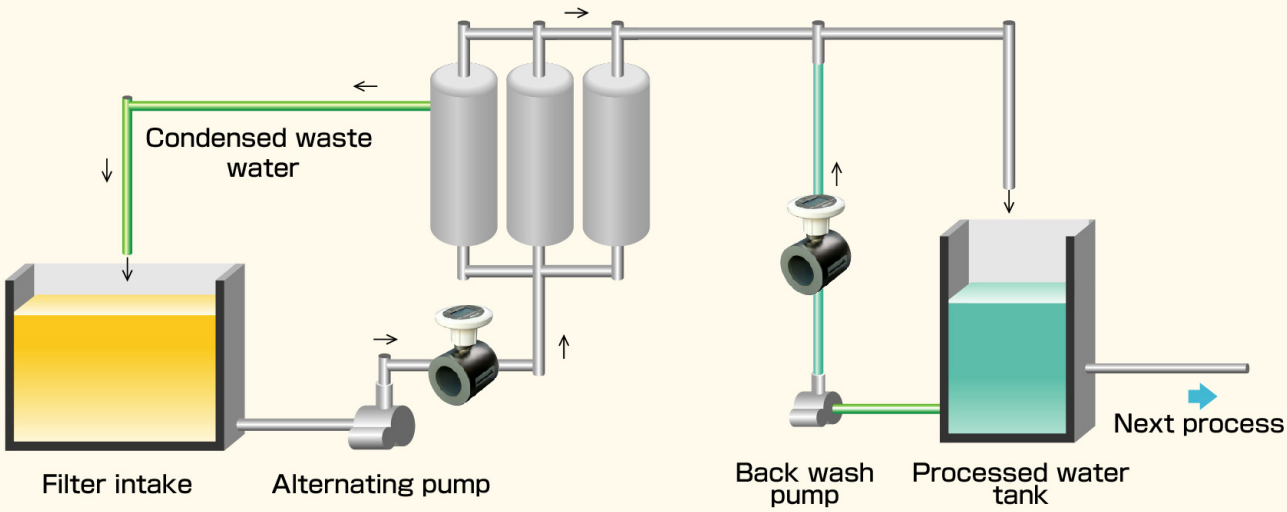
Flow-rate

$$Q = A \cdot K \cdot V$$

L : Distance between two sensors
C : Sound velocity
V : Mean current velocity
θ : Angle of the ultrasonic propagation axis and the measuring pipe's center axis
A : Cross section area
K : Correction coefficient

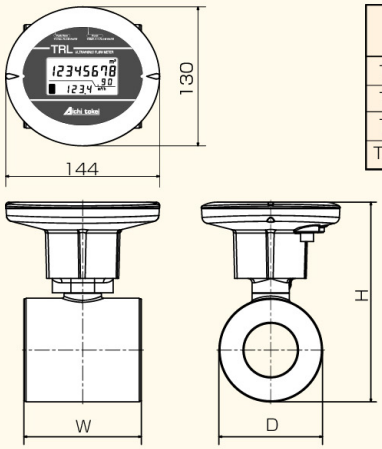
Examples of applications

- Control of water in facilities such as water treatment plants and operations such as cleaning
- Measurement of pumping amounts of underground water



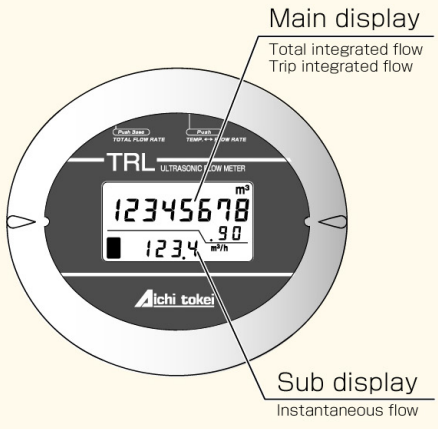
External dimensions

Unit : mm (in.)



Model	W	D	H
TRL40T	100(3.94)	82(3.23)	172(6.77)
TRL50T	110(4.33)	97(3.82)	187(7.36)
TRL80T	130(5.12)	127(5.00)	217(8.54)
TRL100T	150(5.91)	152(5.98)	242(9.53)

Display



Aichi Tokei Denki Co., Ltd.

No. 2 - 70, Chitose 1 - chome,
Atsuta - ku, Nagoya 456 - 8691
Japan
Tel : +81-52-661-5150
Fax : +81-52-661-6418
https://www.aichitokei.co.jp/eng/index.html
E-mail: overseas@inet1.aichitokei.co.jp

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