Specification Sheet

Ultrasonic flow meter for liquid	Model	TRA40 (G,T) to 100 (G,T)

1. General

This flow meter has actualized wide range ability, durability and low pressure loss by utilizing ultrasonic characteristics.
The meter can operate for 10 years with built-in type batteries, further its light body and clear LCD indication makes the meter available for energy saving management for various factories and facilities.
The meter is also provided with outputs of 2 systems (voltage pulse, analog current [4 – 20 mA]), which can actualize output to management system and so on.

2. Specifications

2-1. Main materials

- Main body casing ····· PVC
- Shield ····· Stainless Steel
- Register Unit ····· Aluminum die cast, Glass

2-2. Performance and Function

Item \ Model		Externally-powered spec.	TRA40G	TRA50G	TRA80G	TRA100G
		Built-in battery spec.	TRA40T	TRA50T	TRA80T	TRA100T
Measurement range (m^3/h)		Error ± 2%	3 to 30	5 to 50	10 to 100	20 to 200
		Error ± 5%	0.6 to 3 or less	1 to 5 or less	2 to 10 or less	4 to 20 or less
Low–Flow Cut Off (m^3/h)			0.12	0.2	0.4	0.8
Pressure Drop (MPa)			Same as straight pipe			
Maximum Working Pressure (MPa)			1.0			
Fluid Temperature (℃)			0 to 50 （Fluid shall not be frozen.）			
Target Fluid			Clean water, industrial waste water, pure water, seawater (Salt level: 3.5 ± 0.5%) (There must not be any contaminated air bubbles or solids inhibiting propagation of ultrasonic wave.)			
Regis-tration	Accumulated Value		00000000.00 m^3 (Indicating all digits before decimal point to zero)			
	Trip accumulated Value		0000000.00 m^3 (Not indicating all digits before decimal point to zero)			
	Instantaneous Flow-rate		± 000.0 m^3/h			
	Temperature		± 00.0℃			
	Error		ALARM 1 is lit. : Measurement fault			
			ALARM 2 flickers. : Communication circuit fault ALARM 2 is lit. : Battery voltage drop fault (only for the built-in battery spec.)			

Output	Analog Current Output	Output form: 4 to 20 mA, conversion system from instantaneous flow-rates in currents （Externally-powered spec.) 2 wire mode (Built-in battery spec.) Output current lower limit: 4 mA (The output is clipped at 4 mA.) Output current upper limit: 22 mA (The output is clipped at 22 mA.) Output accuracy: ±0.1 mA Power supply voltage: 24 VDC ± 10% External load: 400 Ω or less (For built-in battery spec., when using the current output, prepare power supply separately.) * Choose either of the following 2 types for current output. 1) Instantaneous flow-rate (The setting max. flow-rate for each size is the max. flow-rate respectively.) Zero output current (Reverse flow to low–flow cut off) 0 m^3/h: 4mA Max. flow-rate: 20 mA 2) Temperature 0℃: 4 mA, 50℃: 20 mA (Setting is not allowed.)

Item \ Model		Externally-Powered Spec.	TRA40G	TRA50G	TRA80G	TRA100G
		Built-in Battery Spec.	TRA40T	TRA50T	TRA80T	TRA100T
	Contact Output		Output form: Open drain output Max. rated voltage: 24 VDC + 10% Max. rated current: 10 mA Saturation voltage at turning ON: 1 V or less Current at turning OFF: 50 μA or less Output 1 1) Unit pulse outputting Output unit: 10L/P, 100L/P, 1000L/P (Selection) Duty: 35 to 65% Output 2 (Selection of either one below.) 2) Upper and lower limits alarm output (Selection of 'normal open' or 'normal close') ・In case the upper flow-rate setting value is exceeded by an instantaneous flow-rate, and the lower flow-rate setting value exceeds an instantaneous flow-rate, an alarm signal is output. 3)Datagram output ・For an external power supply, datagrams are always output at every measurement. ・For built-in battery spec, datagrams are output every 10 minutes. Datagram format: Start-stop synchronization system For baud rate, 2,400 h/s Transmission data: Accumulated flow-rate, instantaneous flow-rate, temperature, error information Instantaneous flow-rate [L/min] Decimal digit information			
Power Source (Flow meter main body)		Externally-Powered Spec.	External power source 24 VDC ± 10%			
		Built-in Battery Spec.	Built-in lithium battery, 10-year battery life (at the average ambient temperature of 20℃ and humidity of 65% RH)			
Pipe Connection			Wafer (held between JIS10K flanges) It is recommended to install straight pipes of 10D or more at upstream side of a flow meter, and 5D or more at its downstream.			
Installation Position			Installed vertically and horizontally			
Usage Ambient Temperature and Humidity Range			-10 to + 60 ℃, 90% RH or less (There shall be no dew formation.)			
Installation Site			Indoors and outdoors (equivalent to IP64) When a site is subject to direct sunlight, installing a sunshade device is recommendable.			
Liquid Contact Part Material			Main body casing: PVC O ring: EPDM Gasket: NBR			

Dimensions of Outside Appearance		See the appearance figure.			
Meter Weight (kg)	Externally-Powered Spec.	Approx. 1.9	Approx. 2.3	Approx. 3.5	Approx. 4.5
	Built-in Battery Spec.	Approx. 2.1	Approx. 2.4	Approx. 3.7	Approx. 4.6
Enclosures		Instruction manual, gasket (2 plates), centering collar, hexagonal rod spanner			
Options		Installation tools, external connection cables			

Note that specifications are subject to change for improving performance without notice.

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