

Specifications

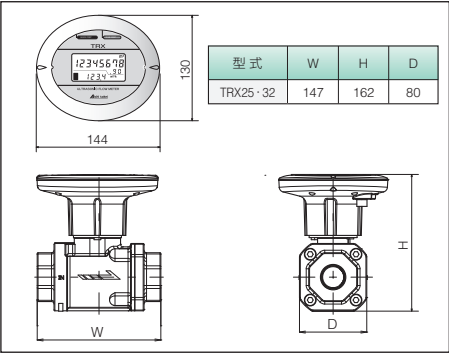
Model	External power supply specification	TRX25D-C/4P	TRX32D-C/4P	TRX40D-C/4P	TRX50D-C/4P	TRX65D-C/4P	TRX80D-C/4P	TRZ100D-C/4P	TRZ150D-C/4P	TRZ200D-C/4P
	Built-in battery specification	TRX25-C/4P	TRX32-C/4P	TRX40-C/4P	TRX50-C/4P	TRX65-C/4P	TRX80-C/4P	TRZ100-C/4P	TRZ150-C/4P	TRZ200-C/4P
Nominal diameter		25mm	32mm	40mm	50mm	65mm	80mm	100mm	150mm	200mm
Electric Power Supply	External power supply specification	24VDC±10%, Power consumption 1.1W MAX(Electric current consumption 40mA MAX)								
	Built-in battery specification	Built-in lithium battery with a battery life of 10 years (At environmental temperature 20°C)								
Measurable fluids		Air (mainly factory air), or Nitrogen ^(Note 1) *Please select at the time of placing an order								
Fluid temperature and humidity		-10 ~ 60 °C, 90%RH MAX								
Working pressure		0 ~ Less than 1MPa (Gauge pressure)								
Flow range (actual volume)		±0.6 ~ 35m³/h	±1.1 ~ 65m³/h	±1.3 ~ 80m³/h	±2.5 ~ 150m³/h	±4 ~ 240m³/h	±5 ~ 300m³/h	±10 ~ 500m³/h	±24 ~ 1200m³/h	±40 ~ 2000m³/h
Flow measurement accuracy	±2%RS	±3.5 ~ 35m³/h	±6.5 ~ 65m³/h	±8 ~ 80m³/h	±15 ~ 150m³/h	±24 ~ 240m³/h	±30 ~ 300m³/h	±50 ~ 500m³/h	±120 ~ 1200m³/h	±200 ~ 2000m³/h
	±5%RS	±0.6 ~ 3.5m³/h	±1.1 ~ 6.5m³/h	±1.3 ~ 8m³/h	±2.5 ~ 15m³/h	±4 ~ 24m³/h	±5 ~ 30m³/h	±10 ~ 50m³/h	±24 ~ 120m³/h	±40 ~ 200m³/h
Low-flow cut-off		±0.1m³/h	±0.2m³/h	±0.2m³/h	±0.4m³/h	±0.6m³/h	±0.8m³/h	±2.6m³/h	±5.0m³/h	±9.0m³/h
Conversion-to-NORMAL accuracy		±2.5% (At 500kPa, 25 °C)							±2% (300kPa or above)	
Display (switchover by the button)	Type	LCD 7 segments (With unit and alarm indications) ※ Alarm indications: ALARM1: Measurement error (Failure to receive ultrasonic wave), ALARM2: Communication circuit error (Short-circuit), Low battery voltage (For the built-in battery type)								
	Main display	【Forward flow indication mode】 Accumulated flow volume (Total) : 00000000.0(Nm³/h) 9 digits, Accumulated flow volume (Trip) : 0000000.0(Nm³/h) 8 digits, Instantaneous flow-rate : 00000.00 (NL/min) 7 digits						【Forward flow indication mode】 Accumulated flow volume (Total) : 0000000000(Nm³/h) 10 digits Accumulated flow volume (Trip) : 0000000000(Nm³/h) 9 digits Instantaneous flow-rate : 0000000(NL/min) 7 digits [200Ax10]		
		【Forward/reverse flow indication mode】 Accumulated flow volume (Forward flow) : 00000000.0(Nm³/h) 9 digits, Accumulated flow volume (Reverse flow) : -0000000.0(Nm³/h) 8 digits, Instantaneous flow-rate : 00000.00 (NL/min) 7 digits						【Forward/reverse flow indication mode】 Accumulated flow volume (Forward flow) : 0000000000(Nm³/h) 10 digits Accumulated flow volume (Reverse flow) : -000000000(Nm³/h) 9 digits Instantaneous flow-rate : 0000000 (NL/min) 7 digits [200Ax10]		
	Sub display	TRX : Instantaneous flow-rate(Nm³/h) : 000.00 (Less than 200), 0000.0 (200 to less than 200) 5 digits, 0000(2000 and above) 4 digits, Pressure(kPa) : 0000.0 5 digits, Temperature(°C) : 00.0 3 digits TRZ : Instantaneous flow-rate(Nm³/h) : 0000.0 (Less than 2000), 00000 (2000 to less than 2000) 5 digits, [200Ax10], Pressure(kPa) : 0000 4 digits, Temperature(°C) : 00.0 3 digits								
Output	Electric current output	4-20mA(±0.5%FS), Load resistance 400 ohm or less, Upper limit output current 22mA Output of Instantaneous flow-rate, pressure, or temperature is selectable by the button Note) An electric power supply device (24VDC±10%) shall be prepared separately, in case of use of electric current output with the built-in battery specification type.								
		Output range (4 ~ 20mA) : Instantaneous flow-rate 0 ~ □□□□Nm³/h(Forward flow indication mode), □□□□ ~ □□□□Nm³/h(Forward/reverse flow indication mode) □□□□ is setting value set by the button								
	Contact output	Pressure 0 ~ 1000kPa, Temperature -10 ~ 60°C								
		2 open drain outputs, MAX load: 24VDC 10mA, MAX frequency: 10Hz, Duty: 35 ~ 65% Output 1: Unit pulse (Forward flow) Output 2: Selection from Unit pulse (Reverse flow), Flow upper and lower limit alarm, or electronic statement signal								
Connection		Rc1	Rc1-1/4		Wafer (put into place between JIS10K flanges)			JIS10K flange		
Installation position		Horizontal (LCD display faces upwards) or vertical								
Materials in contact with fluid		Aluminum Alloy, PPS, Fluorosilicone rubber, etc.							Stainless steel alloy, PPS, Fluorosilicone rubber, etc.	
Mass	External power supply specifications	1.5kg	1.4kg	1.0kg	1.2kg	1.4kg	1.7kg	9.8kg	18.1kg	23.9kg
	Built-in battery specifications	1.7kg	1.6kg	1.1kg	1.3kg	1.6kg	1.8kg	10.0kg	18.3kg	24.1kg
Installation		Indoors/outdoors (protection class: IP64)								
Storage temperature		-20~70°C, No dew condensation								
Conformed standard		CE marking conformity (EN61000-6-2:2005, EN61000-6-4:2007)								

Note 1) Nominal diameters 25 ~ 80mm correspond measurement of Nitrogen.
Note 2) At the actual flow measurement setting, number of digits for accumulated flow volumes, number of digits for instantaneous flow-rate, and pulse output unit differ from the above table.
*Piping conditions : 25mm & 32mm: Furnishing of straight pipe of 20D or more at the upstream side and 5D or more at the downstream side (In case of utilization of forward/reverse flow indication mode, 20D or more for the both upstream and downstream)
40mm and above : Furnishing of straight pipe of 10D or more at the upstream side and 5D or more at the downstream side (In case of utilization of forward/reverse flow indication mode, 10D or more for the both upstream and downstream)

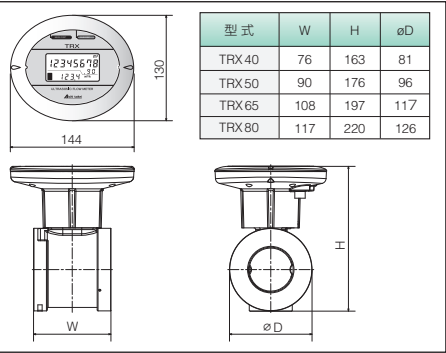
Actual Flow Volume – Normal Flow Volume Conversion Table

Conversion condition		25mm		32mm		40mm		50mm		65mm		80mm		100mm		150mm		200mm	
Temperature (°C)	Gauge pressure (MPa)	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
20	0.7 (Nm³/h)	4.4	260	8.1	480	9.6	590	18	1100	30	1770	37	2210	74	3680	180	8840	290	14700
	0.5 (Nm³/h)	3.2	190	5.9	350	7	430	13	800	21	1280	27	1600	53	2670	130	6420	210	10700
	0.7 (Nm³/h)	4.3	250	7.8	460	9.3	570	18	1070	29	1710	36	2140	71	3560	170	8550	290	14250
Actual flow (m³/h)		0.6	35	1.1	65	1.3	80	2.5	150	4	240	5	300	10	500	24	1200	40	2000

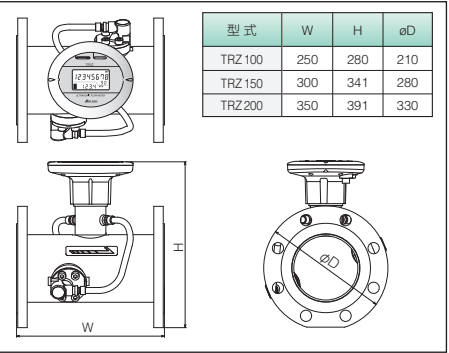
External dimensions 25mm・32mm



40mm・50mm・65mm・80mm



100mm・150mm・200mm



The specifications indicated in this catalogue are as of September 2011.

Note

These specifications are subject to change without notice to allow us to add performance improvements. If your catalog or materials are out of date, please update to the latest edition or send an inquiry to our company.

1.8

MK-TRX_TRZ-050YA



Ultrasonic Flow Meter for Air

TRX-IV/TRZ-IV



For appropriate management of Compressor Air!
Introducing a new flow meter with higher cost performance!!



Standard equipping of Conversion-To-NORMAL (Temperature & Pressure Compensation) function

Energy-saving Tool



Take a Close Look at Our Evolving Ultrasonic Flow Meter Measurement Technology



Lineup includes smaller nominal diameters!
TRX/TRZ flowmeters support achieving of "Visualization" to meet your needs.

The standard for air measurement from now on

Pressure loss = "0", therefore, energy loss = "0"

Ultrasonic type measuring principle is adopted. No obstructions inside the measuring pipe, so there is absolutely no pressure loss.



Strong resistance to oil and vapor provides high durability

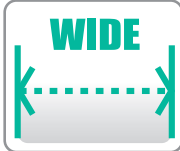
No moving parts means high resistance to fluids containing oil, vapor, and dust. Use with old piping and oil-supplying compressors is also possible.

* If contamination by oil, vapor, and the like is particularly high, vertical piping is recommended.



Measurement and output of forward flow and reverse flow possible

Through the settings, measurement and output of forward flow and reverse flow is possible. This allows for use in loop piping and for determining the consumption volume for air transferred between factories.



Wide range ability with ratio of 1:60

The wide range ability allows for accurate measurement of even smaller flow rates. In addition, from the detection flow rate (measurement start flow rate) to the maximum flow rate, a wide range with a ratio of 1:400 is provided.



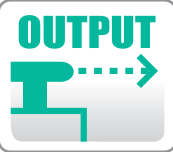
Battery power supply makes power line construction unnecessary

The built-in battery type (with a life of 10 years) makes power line construction unnecessary. In addition, the external power supply type (24V DC) is also available in this product lineup.



Easy-to-read display configuration

Digital indications on the large easy-to-read liquid crystal display, which enables reading of accumulated flow volume and instantaneous flow-rate at the same time.

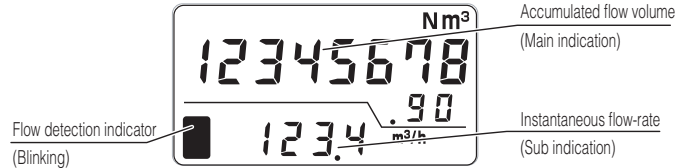


Various output functions enable system maintenance and control

In addition to unit pulse, 4-20mA analogue output, upper/lower limit alarm output, and electronic statement signal (exclusive signal) output are equipped.

*For 4-20mA analogue output, switchover of instantaneous flow-rate, pressure, or temperature is available at site.

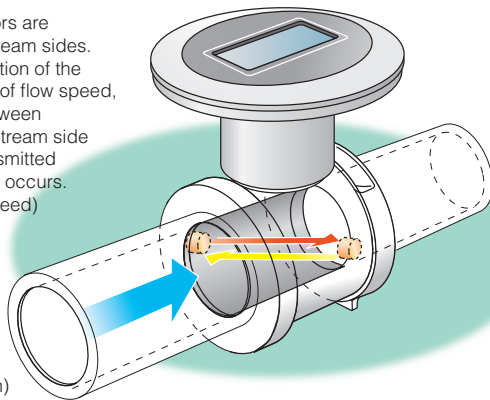
Explanation drawing of the display portion



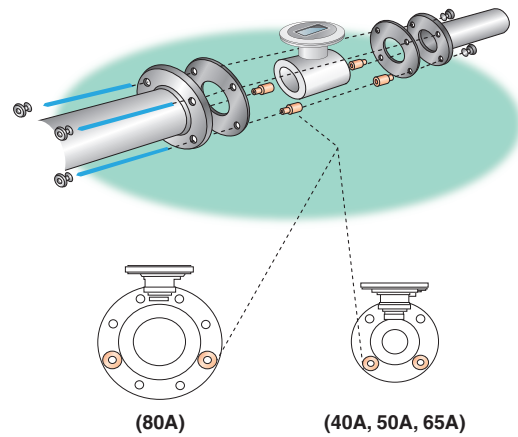
Measurement principle

"Propagation time difference" method superior in repeatability

For this flowmeter, 2 ultrasonic sensors are installed at its upstream and downstream sides. When fluid is flown towards the direction of the blue arrow on the drawing, because of flow speed, difference in time of propagation between ultrasonic wave transmitted from upstream side (red arrow) and ultrasonic wave transmitted from downstream side (yellow arrow) occurs. By detecting fluid's flow-rate (flow speed) with this time difference, flow volume is calculated based on the flow-rate and cross-sectional area of the flowmeter's measuring pipe. Also, with the pressure sensor built in the flowmeter body, conversion to NORMAL (pressure/temperature compensation) can be performed.



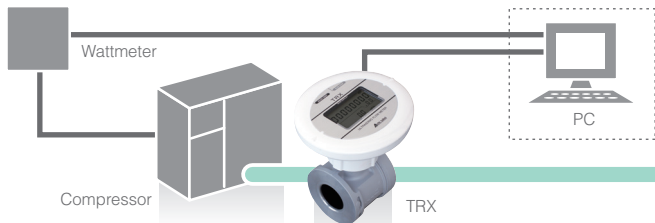
Example of installation (TRX Wafer connection type)



Examples of applications

1. For "Visualization" control of load factor at compressor operation

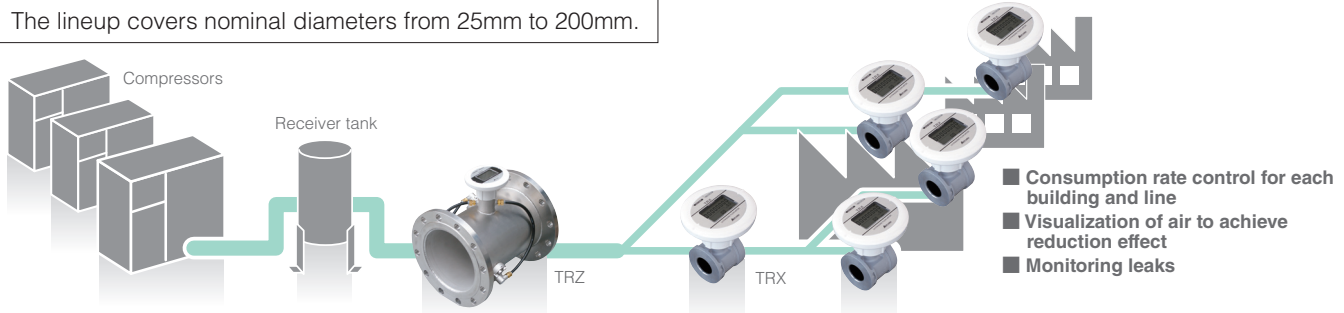
Electric current output and contact pulse output are equipped.



Management of electricity consumption per unit air (specific dynamic cost) by taking such data into a data logger, etc., contributes to effective operation of the compressor and electricity amount reduction.

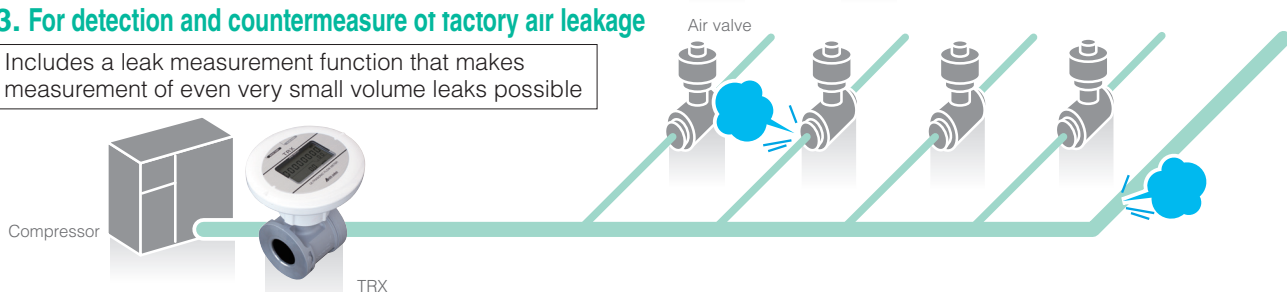
2. For energy specific unit management by measuring air consumption amount of each building (Factory A, Factory B, etc.) on a factory's premises.

The lineup covers nominal diameters from 25mm to 200mm.



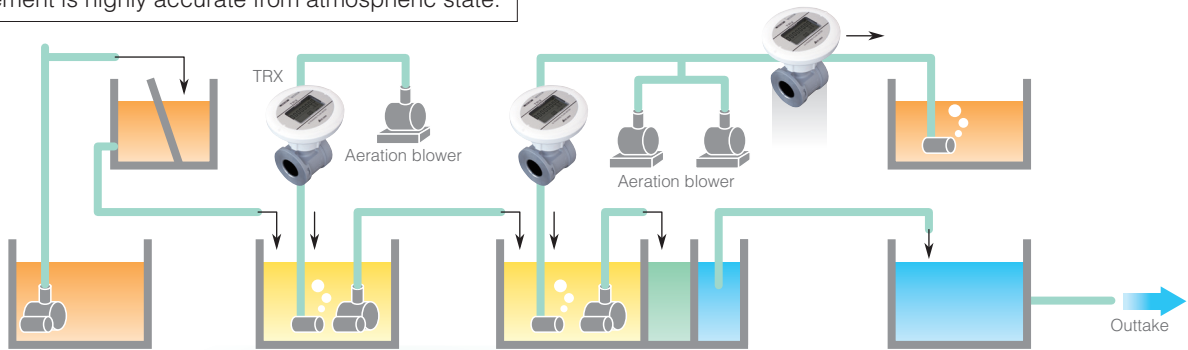
3. For detection and countermeasure of factory air leakage

Includes a leak measurement function that makes measurement of even very small volume leaks possible



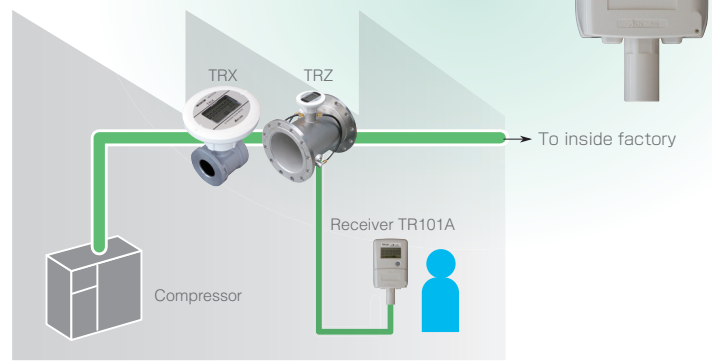
4. Monitoring of each aeration blower's air amount

Measurement is highly accurate from atmospheric state.



Exclusive remote display TR101A NEW

For management of flow meters placed in high locations!



Specifications

Display	Accumulated flow volume (Forward flow)	0000000000 10 digits Unit: m³ or Nm³
	Accumulated flow volume (Reverse flow)	-0000000000 9 digits Unit: m³ or Nm³
	Accumulated flow volume (Total of forward and reverse flows)	0000000000 10 digits Unit: m³ or Nm³
	Instantaneous flow-rate	00000 5 digits Unit: m³/h or m³/min
	Instantaneous flow-rate (L/min)	0000000 7 digits Unit: L/min or NL/min
Alarm indication	Pressure	0000 4 digits
	Temperature	00.0 3 digits
	E-1 : Communication error between flowmeter and remote display	
	E-2 : Indication of flowmeter's [ALARM1] Failure to receive ultrasonic wave	
Input	E-3 : Indication of flowmeter's [ALARM2] Communication circuit error, Low battery voltage	
	E-4 : E-1 and E-2	
	Low battery voltage of remote display	
Output	Exclusive electronic statement signal from ultrasonic flowmeter	
Power supply	Lithium battery	
Ambient temperature and humidity of installation location	-10 to 60°C, 90%RH or less	
Casing material	ABS resin	
Structure	IP X3 (rainproof-model)	
External dimensions	H188×W100×D43	
Mass	Approximately 300g	

* 1 : Display data is automatically updated every 10 minutes, or display data can be updated manually.
* 2 : The maximum number of digits for the total integrated value that display on the TRX will not be displayed or reflected in the transmitter due to the position of the decimal point.
* 3 : In case the setting is no reverse flow measurement, an under-bar is indicated for accumulated flow volume (Reverse flow) and accumulated flow volume (Total of forward and reverse flows)