

■ Specifications

Common specifications for Ultrasonic Flowmeter for air ATZTA TRX/TRZ ver. 5

Nominal diameter	25A	32A	40A	50A	65A	80A	100A	150A	200A	
Measurable fluids	Air (mainly factory air), or Nitrogen (Note 1) *Please select at the time of placing an order									
Compensation	Flow amount that actual flow is compensated at 0°C, 1 atm.									
Fluid temperature	-10 ~ 60 °C									
Working pressure	0 ~ Less than 1MPa (Gauge pressure)									
Normal flow-rate (Nm <sup>3</sup> /h)	Qmax 1/10Qmax	260.0 26.0	480.0 48.0	600.0 60.0	1100.0 110.0	1800.0 180.0	2200.0 220.0	3700.0 370.0	9000.0 900.0	14800.0 1480.0
※1	Qmin	4.3	8.0	10.0	18.3	30.0	36.7	74.0	180.0	296.0
※2	Qcut	0.7	1.5	1.5	2.9	4.4	5.9	19.2	36.9	66.3
Accuracy ※2										
Connection	Rc1	Rc1-1/4	Wafer (put into place between JIS10K flanges)				JIS10K flange			
Installation position	Alarm indication: Flow measurement alarm, pressure value alarm, communication circuit alarm, external memory alarm, low battery voltage alarm (for built-in battery type), flowmeter replacement timing (for built-in battery type)									
Materials in contact with fluid	Aluminum Alloy, PPS, Fluorosilicone rubber, etc.						Stainless steel alloy, PPS, Fluorosilicone rubber, etc.			
Installation	Indoors/outdoors (protection class: IP64)									
Storage temperature	-20~70°C, No dew condensation									

※1.This is normal flow-rate indicated under the condition of 20°C as the temperature and 700kPa as the pressure.  
 ※2.At our shipping test facility.

Specifications for External Power Supply Type (D) / Built-in Battery Type(B)

Model	ATZTA TRX25D-C(N)/SP	ATZTA TRX32D-C(N)/SP	ATZTA TRX40D-C(N)/SP	ATZTA TRX50D-C(N)/SP	ATZTA TRX65D-C(N)/SP	ATZTA TRX80D-C(N)/SP	ATZTA TRZ100D-C/SP	ATZTA TRZ150D-C/SP	ATZTA TRZ200D-C/SP
Nominal diameter	25mm	32mm	40mm	50mm	65mm	80mm	100mm	150mm	200mm
Electric Power Supply	24VDC±10%, Power consumption 1.1W MAX(Electric current consumption 40mA MAX)								
Output	4-20mA(±0.5%FS), Load resistance 400 ohm or less, Upper limit output current 22mA Output of instantaneous flow-rate, pressure, meter alarms, 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 ~ □□□□Nm <sup>3</sup> /h(Forward flow indication mode), □□□□□□ ~ □□□□□□Nm <sup>3</sup> /h(Forward/reverse flow indication mode) □□□□□□ is setting value set by the button Pressure 0 ~ 1000kPa, Temperature -10 ~ 60°C 2 open drain outputs, MAX load: 24VDC 10mA, MAX frequency: 10Hz, Duty ratio: 35 ~ 65%, or One-shot (Select ON-Time from 50,100,125,250,500ms) ※Note 2)(Possible to change the setting at site) Contact output: Output 1: Unit pulse (Forward flow) Output 2: Selection from Unit pulse (Reverse flow), Flow upper and lower limit alarm, or telegram statement signal Pulse output unit 0.1Nm <sup>3</sup> /P, 1Nm <sup>3</sup> /P Pulse output unit 1Nm <sup>3</sup> /P, 10Nm <sup>3</sup> /P								
Mass	1.5kg	1.4kg	1.0kg	1.2kg	1.4kg	1.7kg	9.8kg	18.1kg	23.9kg
Conformed standard	CE marking conformity (EN61000-6-2:2005, EN61000-6-4:2007)								

RS485 Output Type Specifications

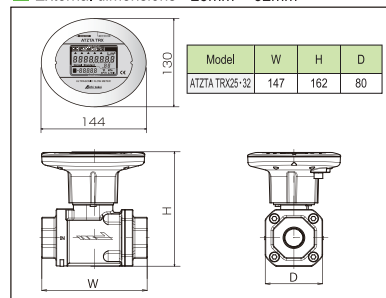
Model	ATZTA TRX25R-C(N)/SP	ATZTA TRX32R-C(N)/SP	ATZTA TRX40R-C(N)/SP	ATZTA TRX50R-C(N)/SP	ATZTA TRX65R-C(N)/SP	ATZTA TRX80R-C(N)/SP	ATZTA TRZ100R-C/SP	ATZTA TRZ150R-C/SP	ATZTA TRZ200R-C/SP
Nominal diameter	25mm	32mm	40mm	50mm	65mm	80mm	100mm	150mm	200mm
Power supply	24VDC±10%, 24VDC±10%, Power consumption not more than 1.5W								
Current output	Same as the specifications for External Power Supply Type (D) and Built-in Battery Type(B)								
Contact pulse output	Unit pulse Nch Open-drain output 1 line : Maximum load: 24VDC 50mA Output type: Duty ratio (35 to 65% maximum frequency) or One-shot (Select ON-Time from 50,100,125,250,500ms) Pulse output unit 100L (normal) /P, 1000L (normal) /P ※Note 1 Pulse output unit 1m <sup>3</sup> (normal) /P, 10m <sup>3</sup> (normal)/P ※Note 1								
Communication ※Note 3	1 line: Conform to Modbus/RTU Communication bit rate: Selection from 9600,19200,38400,57600,115200bps by button operation								
Weight	1.5kg	1.4kg	1.0kg	1.2kg	1.4kg	1.7kg	9.8kg	18.1kg	23.9kg

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)  
 Note 3)Communication specifications can be downloaded from our company website.  
 Note 4)In case of connection with a logger device, command sending interval shall be set to 200msec or longer.

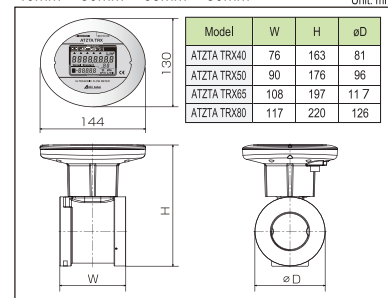
■ Actual Flow Volume – Normal Flow Volume Conversion Table

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	
20	0.7 (Nm <sup>3</sup> /h)	4.4	260	8.1	480	9.6	590	18	1100	30	1770	37	2210	74	3680	180	8840	290	14700
		3.2	190	5.9	350	7	430	13	800	21	1280	27	1600	53	2670	130	6420	210	10700
30	0.5 (Nm <sup>3</sup> /h)	4.3	250	7.8	460	9.3	570	18	1070	29	1710	36	2140	71	3560	170	8550	290	14250
		0.7 (Nm <sup>3</sup> /h)	0.6	35	1.1	65	1.3	80	2.5	150	4	240	5	300	10	500	24	1200	40

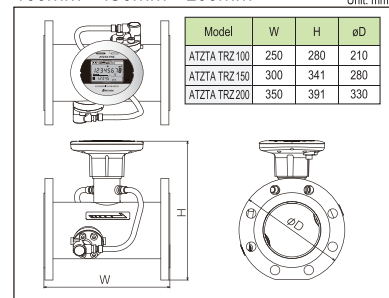
■ External dimensions 25mm • 32mm



40mm • 50mm • 65mm • 80mm



100mm • 150mm • 200mm



For Compressed Air and Nitrogen

# Ultrasonic Flowmeter ATZTA TRX/TRZ

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

Global brand **ATZTA**

"ATZTA (Atsuta)" is the head letter of "A to Z to Aichitokei", and such thought that "Aichi Tokei Denki solves all the issues of fluid measurements" is put in it. Also, whereas "Atsuta" has been the location of the headquarter since the establishment, "ATZTA (Atsuta)" is the starting point of our manufacturing.

Manufactured and Distributed by

Aichi tokei denki co.,ltd.

URL : <https://www.aichitokei.net/>  
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Technical specifications in this catalog are up-to-date as of Feb 2020.

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.

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202002-TRXTRZ-000



# 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.

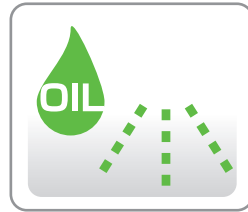


## The standard for air measurement from now on

### 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.



### 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.



### 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 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

Addition to flow, the present circumstances can be seen at a glance. Furthermore, the display portion is able to be rotated 90 degrees.

### RS485 output function is equipped

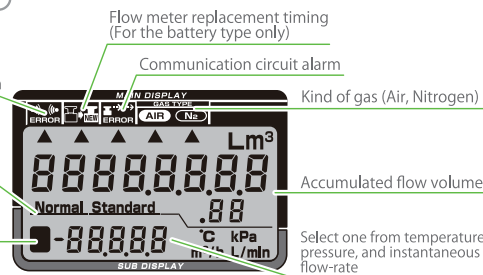
Flow (Instantaneous flow-rate / Accumulated flow volume), pressure, and temperature can be outputted at the same time. Also, meter alarms (flow measurement, pressure, temperature, communication circuit) are able to be outputted.

### Explanation drawing of the display

#### Flow measurement alarm

Selection of flow compensation  
Select one from NORMAL, Standard, and No display of compensated value (Actual flow)

#### Flow detection indication (Blinking)



## Measurement principle

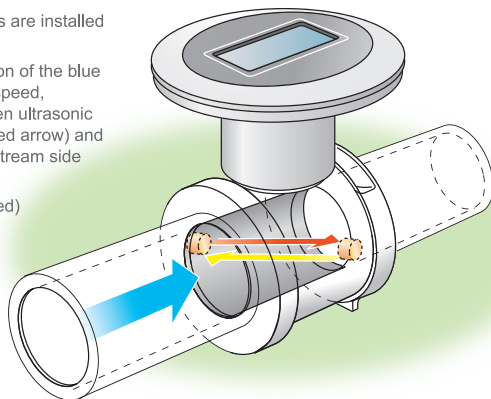
### "Propagation time difference" method superior in repeatability

For this flowmeter, 2 ultrasonic sensors are installed at its upstream and downstream sides.

When fluid is flow 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.

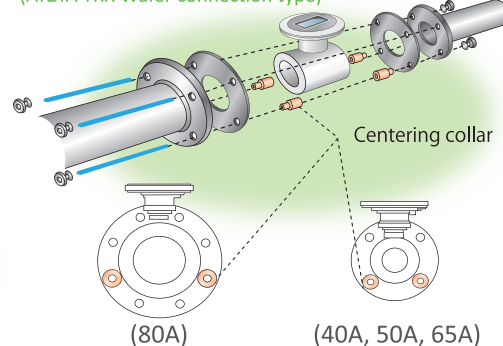
By detecting fluid's flow-rate (flow speed) with this time difference, flow volume is calculated based on the flow-rate and cross-sectional area of the flowmeter's measuring pipe.

Also, with the pressure sensor built in the flowmeter body, conversion to NORMAL (pressure/temperature compensation) can be performed.



## Example of installation

(ATZTA TRX Wafer connection type)

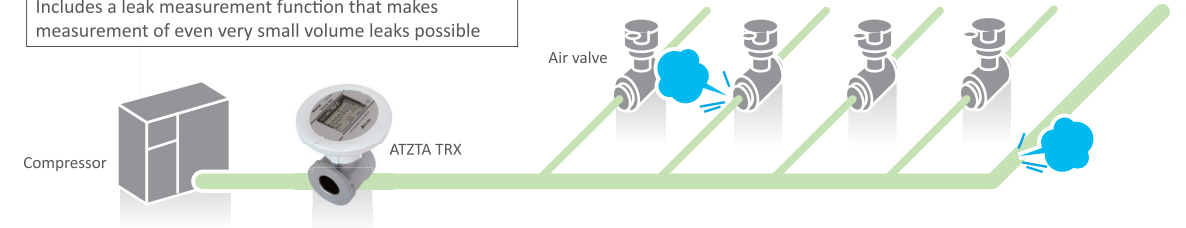


As the centering collars have function to isolate the meter body from piping, utilize them without fail because the meter may be unable to measure by conduction of static electricity, etc., if they are not used.

## Examples of applications

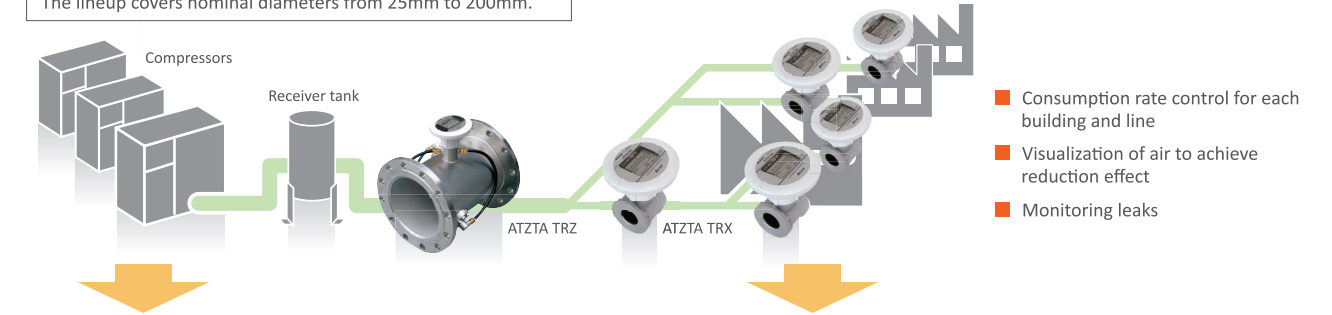
### 1. For detection and countermeasure of factory air leakage

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



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

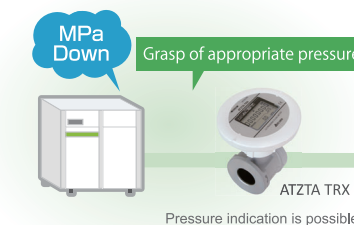
The lineup covers nominal diameters from 25mm to 200mm.



- Consumption rate control for each building and line
- Visualization of air to achieve reduction effect
- Monitoring leaks

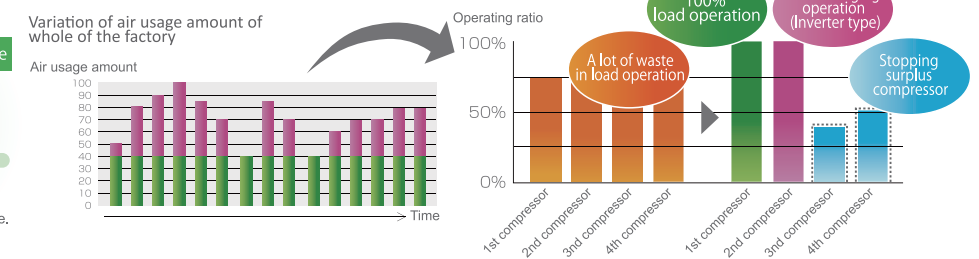
#### Reviewing of the pressure at the source

By knowing necessary amount of air at each line, changing the compressor's pressure to appropriate pressure leads to cost reduction.



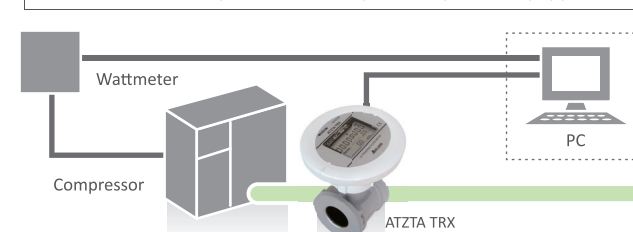
#### Grasp of the compressor operating load

By grasping load efficiency from air usage amount of each hour, reviewing way of operation of compressors leads to improvement of energy saving.



### 3. For "Visualization" control of load factor at compressor operation

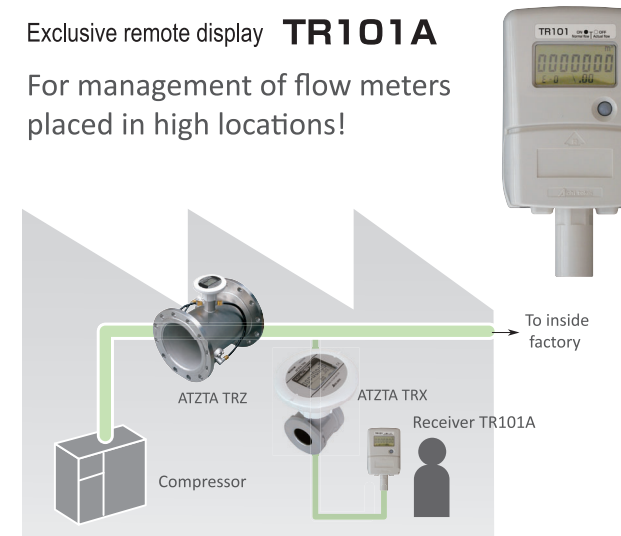
Electric current output and contact pulse output are equipped.



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.

## Exclusive remote display TR101A

For management of flow meters placed in high locations!



## Specifications

Accumulated flow volume (Forward flow)*2	0000000000	10 digits	Unit: m <sup>3</sup> or Nm <sup>3</sup>
Accumulated flow volume (Reverse flow)*3	-0000000000	9 digits	Unit: m <sup>3</sup> or Nm <sup>3</sup>
Accumulated flow volume (Total of forward and reverse flows)*3	0000000000	10 digits	Unit: m <sup>3</sup> or Nm <sup>3</sup>
Instantaneous flow-rate [m <sup>3</sup> /h]	00000	5 digits	Unit: m <sup>3</sup> /h or m <sup>3</sup> /h
Instantaneous flow-rate [L/min]	0000000	7 digits	Unit: L/min or NL/min
Pressure [kPa]	0000	4 digits	
Temperature [°C]	00.0	3 digits	
Alarm indication	E-0:	No connection or disconnection of the communication cable	
	E-1:	Ultrasonic measurement error of the meter	
	E-2:	Low battery voltage of the meter (Built-in battery type)	
	E-3:	Low battery voltage and ultrasonic measurement error of the meter (Built-in battery type)	
	E-4:	Short circuit of the communication cable	
		: Low battery voltage of remote display	
Input	Exclusive electronic statement signal from ultrasonic flowmeter		
Output	None		
Power supply	Lithium battery: The battery life is 10 years (at average environmental temperature 20°C)		
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 250g		

\*NOTE: Display data is automatically updated every 10 minutes, or display data can be updated manually.  
\*1: In Case of Normal flow setting, \* flashes.  
\*2: The maximum number of digits for the total integrated value that display on the ATZTA 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)