ND Flowsensor

Handling Manual -CE compliance-

Specifications

Model	ND05-			ND10-				ND20-		
	NATAAC -RC	PATAAC -RC/-RCS	TATAAA -RC	NATAAA -RC	PATAAA -RC/-RCS	PATAAC -RC	TATAAA -RC	NATAAA -RC	PATAAA -RCS	PATAAC -RC
Nominal diameter	5 mm			10 mm				20 mm		
Flow rate range (L/min)	0.3 to 3.0			1.5 to 20			1.0 to 10	3.0 to 60		
Accuracy	±2%R.S. (At the standard installation position)									
Target fluid	As appropriate for the wetted part material									
Maximum pressure	1MPa (at the fluid temperature of 20°C)									
Pressure drop (at the accuracy guaranteed maximum flow-rate)	12 kPa or less			20 kPa or less			15 kPa or less	60 kPa or less		
Fluid viscosity range	0.5 to 1.5 mPa·s (equivalent to water)									
Fluid temperature range	0 to +70°C	0 to +60°C		0 to +70°C	0 to +60°C			0 to +70°C	0 to +60°C	
Environmental temperature and humidity	-10 to +70°C, 35 to 85%RH (no dew condensation)									
Output signal	Open collector (capacity: 6mADC or less)									
Pulse constant	2.5 mL/P			7.69 mL/P				25 mL/P		
Power supply	3 to 24V DC									
Pipe connection	R1/2							R3/4		
Weight	Approx. 150 g			Approx. 120 g				Approx. 360 g		

Product code

●ND□□−□ATAA□−RC(S)

- Magnet material: A : Ba-Fe (Barium-Ferrite)
  C : Sm-Co (Samarium-Cobalt)
  ※However, for ND05 / 10-T, The symbol is A but the magnet material is Sm-Co.
- Body material: P: PP (Polypropylene)
  N: Modified PPO (Polyphenylene oxide)
  T: ETFE (Ethylene-tetrafluoro ethylene)
- Nominal diameter: 05: 5 mm, 10: 10 mm, 20: 20 mm

Notes on Handling

(1) Notes on piping

1 Make sure to align the flow direction of the fluid with the arrow on the main body indicating the flow direction.

2 Provide straight pipe portion of 5D or more at the upstream and 3D or more at the downstream of the flowsensor.
If the pipe immediately before the flowsensor bends two- or three-dimensionally or its diameter enlarged or reduced radically, the measurement accuracy may be affected.

3 Make sure to make the pipe diameter on the up stream side larger than the nozzle diameter of the flowsensor.

Model	Inner diameter of the pipe on the upstream side
ND05	5.5 mm or more
ND10	10.5 mm or more
ND20	15.5 mm or more

4 If the flow in the pipe has pulsation, the measurement accuracy may be affected.
When feeding the fluid with a metering pump which can cause pulsation, cancel the pulsation using an accumulator.

5 When installing, recommended tightening torque at piping is 5 ± 2 N · m for DN05 and DN10, and 7 ± 2 N · m for DN20. Also, Please be careful not to apply excessive stress on the flow sensor body.

6 Keep warm the entire system where the fluid can freeze in winter. If the fluid leaks due to freezing, the measurement accuracy may be affected.

7 Avoid installing the flowsensor where it is exposed to a direct sunlight (indoor specifications).

8 Observe the appropriate conditions for the flow rate range, pressure, and fluid temperature as indicated on the plate attached to the side of the flowsensor.

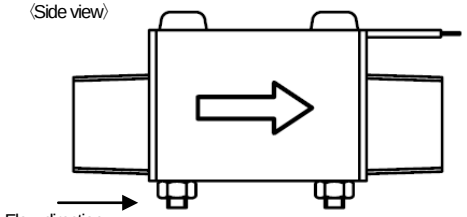
9 Avoid installing the flowsensor where it is exposed to excessive pressure such as water hammer.

10 An air pocket in the flowsensor affects its measurement accuracy. Use the flowsensor with its measurement chamber filled with the fluid. Air passing through the chamber also affects the accuracy. Be careful not to allow air to ingress.

11 Do not get a strong magnet or magnetic field close to the flowsensor.

12 Install the flow sensor as shown in the figure below.

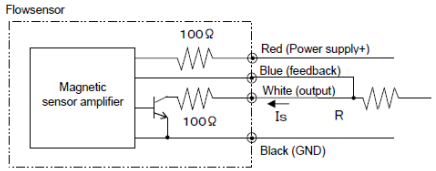
〈Side view〉



13 Avoid using the flowsensor where a strong noise electric field or magnetic field occurs.

(2) Notes on wiring

(1) Refer to the figure below for electrical connection.



The pull-up resistance R for the open collector output side should be 50KΩ or less.
However, output suction current must be not more than 6mA.

$$Is(\text{output sink current: mA : mA}) = \frac{V(\text{Power supply voltage : V})}{R(\text{Pull-up resistance : k}\Omega)} \leqq 6\text{mA}$$

Applied voltage of sensor power supply (Red – Black) and pulse output (Blue/White-Black) shall be the same.

(2) Keep the flowsensor 20 cm or more apart from other power lines.

(3) A shield wire is recommended for wiring. Provide grounding on the receiver side.

(3) Notes on measurement

The target fluid must satisfy the following conditions:

(1) The target fluid must be anticorrosion against the wetted part.

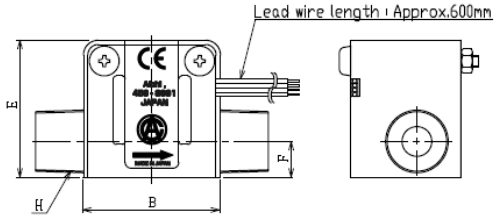
(2) The fluid viscosity must be 0.5 to 1.5 mPa･s.

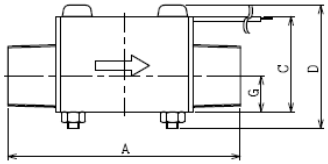
(3) No slurry must exist.

(4) No constituent attracted by a magnet (e.g., iron) must exist.

Note that the accuracy adjusted with water at a room temperature.

(4) External dimensions





unit:mm

model	ND05	ND10	ND20
A	80	80	110
B	47	47	68
C	37.5	37.5	50
D	49	49	65
E	47	47	68
F	12.5	12.5	18
G	16	16	23
H	R1/2	R1/2	R3/4

(5) Warranty

● Warranty period

One year after the dispatch date from Aichi Tokei Denki facility.

● Warranty scope

We are making every effort to produce our products with high quality, however if a defect which is subject to our liability should occur during the warranty period under normal use, we shall repair the product or replace it with a normal product for free.
Please understand that we shall determine whether the free remedy shall apply to your situation after our investigation of the product.
Also please understand that the free remedy shall not be applied to a defect:

1) Caused by use which does not follow the instructions given in our catalog, product specifications, and/or handling manual,
2) Caused by disaster such as a fire, earthquake, storm, flood, or lightening, or a destructive act such as a crime,
3) Caused by corrosion due to use in a corrosive environment,
4) Caused by acts of animals such as a dog, cat, rat, or insect,
5) Caused by a factor other than our product,
6) Which could not be foreseen with the science and technology levels at the time of shipment,
7) Caused by a repair or alteration other than done by or specified by us, and/or
8) Caused by an inappropriate inspection and/or maintenance or replacement of a consumable.

Please note that "warranty" in this context means warranty for our product alone and we shall not reliable for any damage resulting from a defect of our product, including but not limited to a damage to equipment other than our product, loss of profit, loss of opportunity, transportation fee, and construction fee.

○ Contact

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The latest information is posted on the homepage.