



Handling of water meter and caution upon installation

Please be sure to observe the following directives for safe and correct use of the device

Please be sure to observe the contents of this manual for safe use of the product

 Warning	Indicates that there is a risk of death or serious injury if the indication is ignored and the product is handled incorrectly.
 Caution	If you ignore this indication and handle the product incorrectly, there may be a risk of minor injury or property damage.

About picture display

In order to prevent you from harming yourself and other people and damage to your property, various pictograms are used in the instruction manuals and product labeling to ensure that you use the product safely and correctly. The display and the meaning are as follows.

Pictogram example



This symbol tells you that there is content that urges you to pay attention (danger/warnings)



This symbol indicates that the action is prohibited. The specific details of the prohibition are drawn in the figure.





This symbol will advise you what actions to take in a particular situation.


Safety Precautions



Warning


 Please be careful when carrying or installing the meter. There is a risk of injury if the product is dropped.


 When carrying the weight, be careful not to hit it against the human body or other equipment. Please note that not only will this unit be damaged, but it may also cause injury.


 All meters are subject to disassembly prohibition. If you use a meter that uses electronic components inside, there is a risk of fire and burns. (Electronic water meter/battery electromagnetic water meter)





Attention

 Do not touch the contact screws and edges. Use gloves when handling as this may result in injury.

 Use an appropriate tool such as a wrench for the piping work. It may cause a failure or accident.

 Be careful not to get your body or clothes caught on the screws and edges. There is a risk of injury.

 Do not use this device in anything other than tap water. It may cause a malfunction.

 When removing the meter, be sure to sufficiently release the pressure in the piping. If the pressure in the pipe is high, water may spurt out of the meter's mounting part.



Do not give a strong shock while storing the meter.

Dropping or striking the meter may damage the impeller bearings, damage the components inside the transmitter, or remove the solder, making it impossible to measure.



Do not give strong vibration while storing the meter.

If the meter is subjected to strong vibration or vibration over a long period of time, the impeller bearing may be damaged, the transmitter may be damaged, or the solder may come off, resulting in the inability to measure.



Do not store the meter in places with high or low temperatures.

The ideal storage temperature range of the meter is -20°C to +40°C. If you store the product outside this temperature range, the functions of the transmitter parts, etc. may deteriorate and you may not be able to measure with it.



While storing the meter, make sure that there is no air flow inside of it.

When air passes through the meter, it may cause the impeller to rotate which may alter the measured value. Please attach a protective cap etc. to the entrance and exit mouth of the meter during storage.



Make sure that no foreign matter enters the meter while it is being stored.

If foreign matter enters the meter, it may interfere with the rotation of the impeller and make measuring impossible. While storing the meter, attach a protective cap etc. to the entrance and exit mouth of the meter.



When carrying the meter, do not carry it by the lid or the signal cable.

The lid and signal cable mounting parts may be damaged, so hold the meter body when carrying it.

Handling Precautions



Attention

Equipment location caution

When installing the meter, please install it in a location that satisfies the following criterias.

⚠ Caution

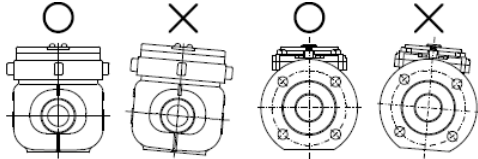
⊘ Do not install in a place filled with flammable gas.

It may cause fire, electric shock or injury.

⚠ Attention

❗ Install the device horizontally.

Follow the arrow displayed on the meter and install it horizontally with the indicator facing upward so that it is not reversed.



❗ Install the device in a place that is easy to install and remove.

The meter needs to be replaced every 8 years. Due to this, choose a place where the meter can be easily accessed.

❗ Install the device in a place where it can be easily read.

The meter is bound to be checked upon regularly as to retrieve its data. For this reason also, select a location that is not affected by humidity and rainwater, or a location where the device can be easily read.

⊘ Do not install in places where there is a risk of freezing.

Freezing and swelling of water during winter may damage the meter. Take measures to prevent freezing, such as installation below the freezing depth and heat insulation.

⊘ Do not install in a place where air remains in the meter.

Always keep the meter full of water.

❗ Install it in a place where there is little fluctuation in water pressure.

Accurate metering may not be possible because the rotation of the impeller is amplified due to fluctuations in water pressure. Maximum working pressure is 1MPa.

⊘ Do not install in a place subject to vibration.

Vibration may amplify the rotation of the impeller, which may prevent accurate measuring.

⊘ Do not install in a place where the device may be affected by electrical noise.

In the vicinity of high voltage power supplies, motors, etc., electronic parts may not work properly due to the influence of electrical noise, and accurate measuring may not be possible.

⊘ Do not install in a place subject to magnetic fields.

Due to the influence of magnetism, electronic parts may not work properly and accurate measuring may not be possible. The meter installation space should be 0.2 Tesla (2000 Gauss) or less.

⊘ Do not install the meter in a place that is constantly submerged in water.

⊘ Do not install in locations subject to oil (kerosene, fuel oil, etc.) or where corrosive gas may affect device.

It may adversely affect the meter and cause immobility or malfunction.

⊘ Do not install in a place subject to direct sunlight or near a heating element.

When using the meter outdoors, place a roof over it as to not expose it to direct sunlight.

Caution during installation

When installing the meter, be sure to observe the following measures to maintain correct measuring accuracy.

⚠ Attention

❗ For the meter installation dimension, make sure that the total length of the meter and the thickness of the packing are combined.

If the mounting dimensions are inaccurate, the meter will not fit in the pipe.

❗ When performing pipe welding, be sure to remove the meter.

The high temperature during welding may damage the meter.

❗ Prepare a designated straight pipe section on each of the upstream and downstream sides of the meter.

Accurate weighing may not be possible due to the influence of curved pipes or valves.

Impeller type straight pipe section

Meter Type	Upstream net	Downstream net
Small diameter (screw type)	X 3 times diameter	X 1time diameter
Large diameter (flange type)	X 5times diameter	X 3 times diameter

If foreign matter may be mixed in the fluid, install a strainer on the upstream side of the meter (at a position where the diameter is 5 times or more).

❗ Before installing the meter, be sure to pass water to clean the inside of the pipe.

Foreign matter such as dust in the water supply pipe may damage the measuring unit or impede the rotation of the impeller, which may prevent accurate measuring.

❗ When running water in the pipe, slowly open the water valve.

If you open it too quickly, a water hammer may occur and may damage the meter.

❗ When installing, do not hit the meter body with a hammer etc.

The impact may cause the powder coating film to peel off.

⊘ Do not apply force to the output cable.

The cable may break. (Electronic water meter/pulse water meter)

⊘ Do not shorten the output cable.

Doing so may damage the device or drain the built-in battery.


(Electronic water meter/battery electromagnetic water meter)

⊘ Do not use the meter as a scaffold or place heavy objects on it.

It may cause damage to the unit.


 Do not sling on the upper flange of the unit.

It may cause damage to the unit.

 Tighten the union nut within the tightening torque range below.

Union nut tightening torque (reference)

Diameter	Tightening torque
13	6~10N.M
20	14~22N.M
25	17~27N.M
30	25~35N.M
40	40~50N.M

 When installing the water meter with a flange connection, tighten all nuts evenly.


Water leakage can occur if the nuts are tightened unevenly.

Number of bolt holes


Diameter(mm)	Bolt hole		ϕ d
	N		
	Clean water	JIS10K	
50	4		19
65	4		19 (oval)
75	4	8	19
100	4	8	19

Usage caution

 Attention

 Select a meter within the proper flow rate range and maximum monthly usage.

	Diameter (mm)	Type	Appropriate flow rate (m ³ /h)	Maximum monthly usage (m ³)
Tangential flow impeller type	13	KKDA(L)	0.1 – 1.0	100
	20	NKDA(L)	0.2 – 1.6	170
	25	EKDA(L)	0.23 – 2.5	260
	30	GKDA(L)	0.4 – 4.0	420
	40		0.5 – 4.0	420
Axial flow impeller type	40	NKDS	0.4 – 6.5	700
	50	EKDS	0.4 – 6.5	700
		GKDS		
	50	NFDW(T)	1.25 – 17.0	2,600
	65	EFDW(T)	2.0 – 24.0	3,300
		GFDW(T)		
	75	NKDW	2.5 – 27.5	4,100
100	EKDW	4.0 – 44.0	6,600	

 Do not use the meter if the expiration date set by your country has been exceeded.

 Do not run warm water in the water meter.

Hot water above 30°C may damage the inside of the meter.

Disposal precautions

 Depending on your country's law, when disposing of the device, treat it as an industrial waste.

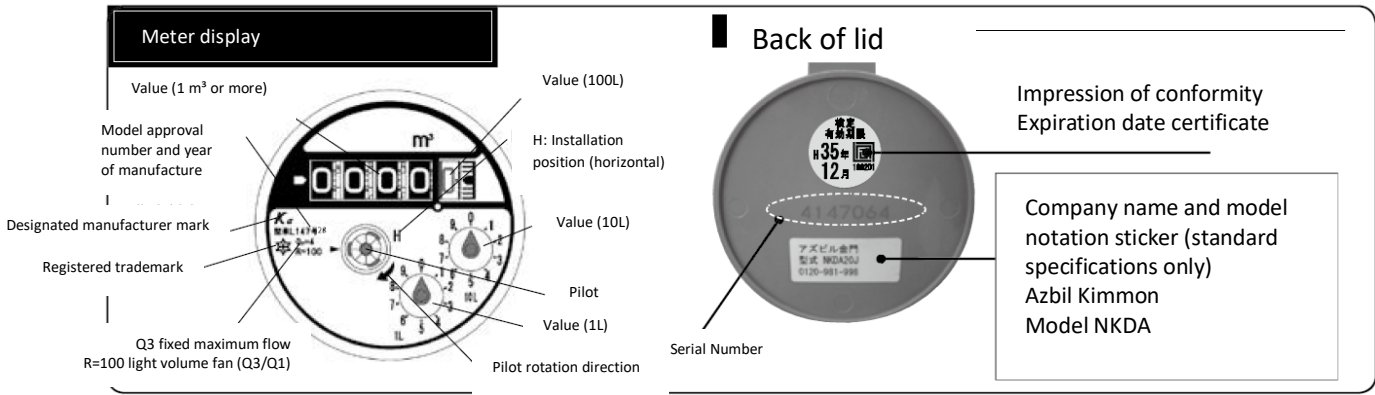
Electromagnetic water meters are equipped with lithium batteries.

About insurance coverage

The warranty period is one year starting the date of delivery of the device.

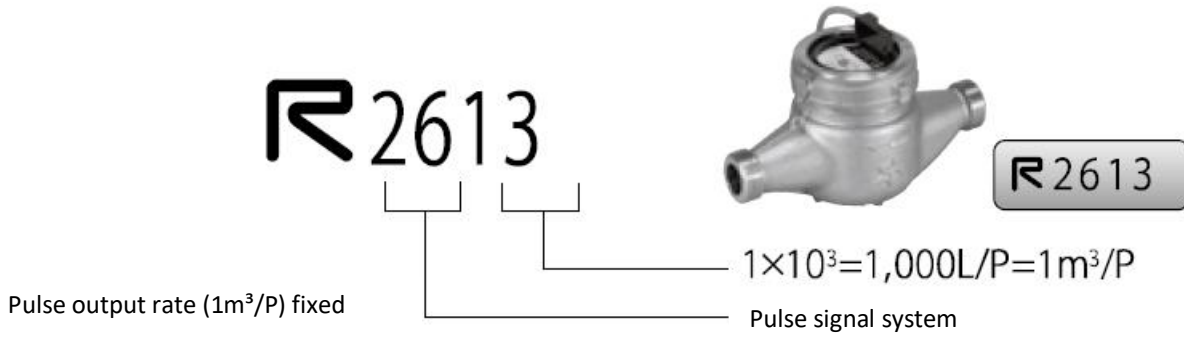
Exemption of responsibility in case of

- Breakdown caused by force majeure such as disaster
- Breakdown caused by inappropriate handling by the user
- Failure caused by remodeling / repair by individual who are not part of our company
- Secondary induction faults and obstacles caused by failures of delivered products
- Failure caused by anything unrelated to the delivered product



Pulse transmission type water meter (G series)

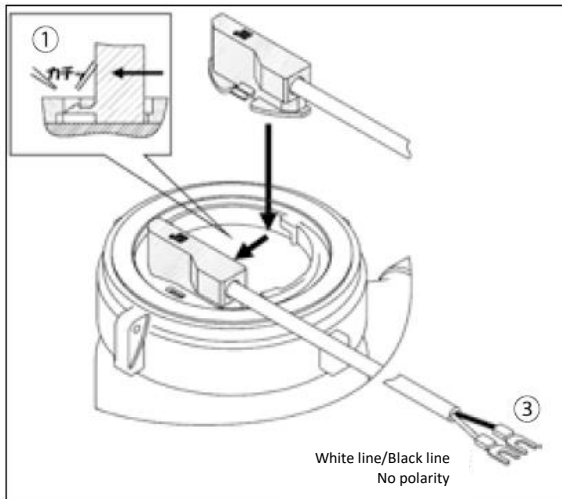
Systemized measuring instrument symbol



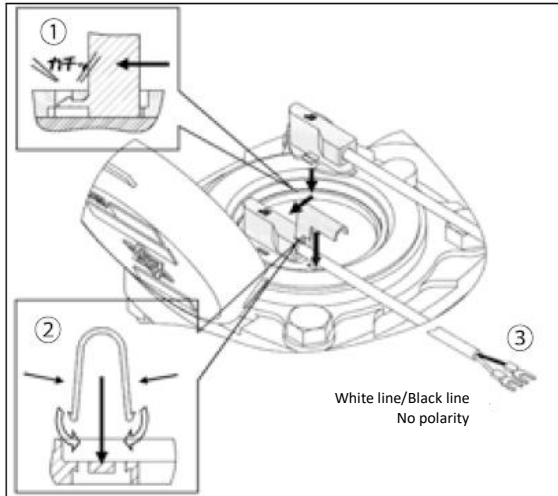
How to install the transmitter

- 1) Slide the claw of the transmitter until it clicks.
- 2) While pressing the cord retainer lightly inside, attach it to the adapter. (50-100 mm type only)
- 3) Connect an electronic counter, centralized verification board, etc

■ Target device type: GKDA/GKDL type GKDS type



■ Target device type: GFDW/GFDT type

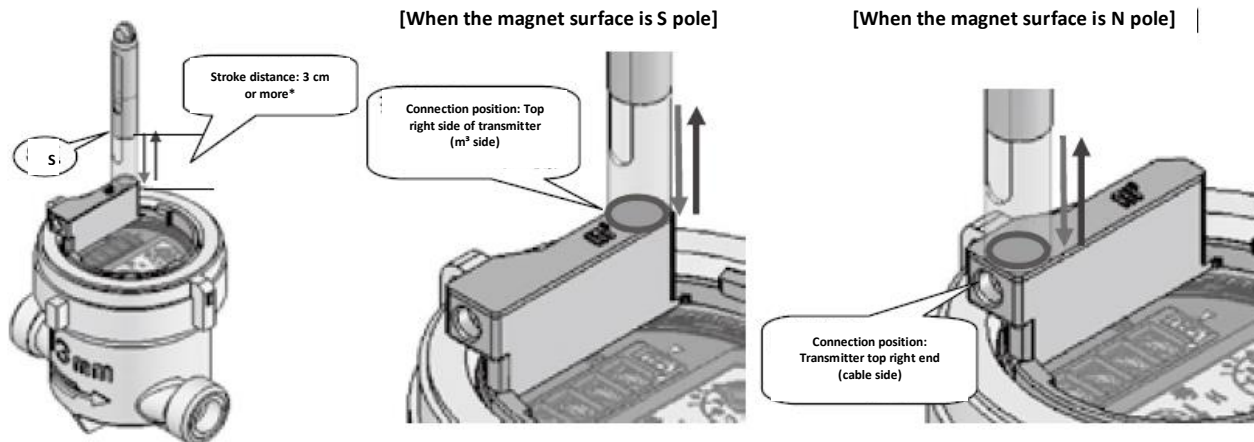


【Please refrain from doing the following!】

- * Do not pull the cord with the transmitter attached.
- * Do not carry the meter by grasping the transmitter cord.
- * If excessive force is applied, the transmitter may come off.

Pulse input guidelines

If you want to check only the transmission and reception of pulse signals when water is not flowing through the meter, you can forcibly turn ON/OFF the transmitter following the procedure below.



- ◆ Please use a magnet at hand.
 - ◆ Please operate the magnet slowly.
 - ◆ Raising and lowering quickly may cause insufficient pulse width chattering.
- * Stroke distance of 3 cm or more is a guide.
Please raise and lower with sufficient margin.