SPECIFICATION SHEET

Industrial Conductivity (Electric Conductivity) Detector

A5/A6 type (For general multipurpose) AR4/AR5 type (for small purified water equipment)

Dual electrode conductivity (electrical conductivity) detector with large measurement range from the ultrapure water of semiconductor and power generating equipment to the river water and plant drainage.

The installation methods include insertion, drop-in and immersion type and flow through type.

Please refer to the electro-magnetic induction type for high electric conductivity (5000µS/cm above) agents such as acid and alkali and sea water.

Features

- \odot There are 4 types of cell constants: 0.01/cm, 0.1/cm, 1/cm and 10/cm. The ultrapure water of less than 0.2µS/cm to the drainage of 10000µS/cm can be tested accurately. (A5/A6 type)
- ○The sealing glass and PTFE are used as the insulating and sealing materials of internal and external poles, so the product has high heat resistance and pressure resistance. (A5/A6 type)
- ○The connector box is integrated type, so the wires and detector connected with the converter can be easily disassembled.
- $\odot The small portable type AR4/AR5 is not limited in terms of installation method.$



A6 type flange type



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A6 type screw-in type

A6 type with SUS case







AR4 type screw-in type

AR5 type screw-in type

Model	A5 type	A6 type	AR4 type	AR5 type
Application • features	Drop-in type General universal type		For small put	rified water equipment
Cable connection method	Waterproof direct connection type Connector box type Connector type		Connector box type	
Installation method	Attached stainless steel lock screw-in, flange, flow-through type		R3/4 screw-in	, flow liquid type
Materials of liquid receiving part	SUS316 sealing glass PTFE		Titanium PPS FKM	
Cell constant	0.01/cm, or 0.1/cm, or 1/cm, or 10/cm		0.01/cm,	or 0.1/cm
Sample water temperature	0 to 55°C* 0 to 100 (80) °C**		0 to 100°C*	
Sample water pressure	0.1MPa below 2.0 (1.0) (0.3) MPa below 0.5MPa below		a below	
Temperature compensation factor	Thermistor (5kΩ at25°C)			
Structure	Outdoor installation, rain proof		Indoor in	stallation

*No freezing

Structure diagram

Basic specifications



Cell constant and measurement range (3/11 is in unit of 5	Cell constant and Measurement range	(S/m is in unit of SI)
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Sample water classification	Ultrapure water	Purified - Boiler - water -	 Rain water (underground water) 	→ Tap water → River water	→ Industrial drainage (note)
Cell constant	0.01/cm	(1.0/m)	0.1/cm (10/m)	1/cm (100/m)	10/cm (1000/m)
	0 to 0.2 (20)	0 to 1.0 (100)	0 to 20 (2)	0 to 200 (20)	0 to 2 (200)
Measurement range	0 to 0.5 (50)	0 to 2.0 (200)	0 to 50 (5)	0 to 500 (50)	0 to 5 (500)
		0 to 5.0 (500)	0 to 100 (10)	0 to 1000 (100)	0 to 10 (1000)
		0 to 10 (1000)			
Unit	$\mu S/cm (\mu S/m)$	μ S/cm (μ S/m)	μS/cm (mS/m)	μS/cm (mS/m)	mS/cm (mS/m)

(Note): Although the cell constant 10/cm is used in the test of 2mS/cm (200mS/m) above, it is recommended to use highperformance and user-friendly electro-magnetic induction conductivity detector.

A type detector





• Screw-in type A6-11 type



Cell constants: 0.01, 0.1, 1.0/cm



Cell constant: 10 /cm

● Immersion type A6 - 17□ type



Standard specification

Product name Model	 Industrial conductivity detector A (for general use) 	Flow rate or flo	w 0.01 to 5m/s (When a case is equipped, flow is 0.5 to 10L/min)
Test objects	: Electrical conductivity of ultrapure water, purified water, industrial water and drainage	Temperature sensing element Material	: Thermistor
Cell constant Ambient temperature, humidity	and drainage : 0.01/cm,0.1/cm,1.0/cm,10/cm : -10 to 60°C, 95%RH below	Wateria	Connector boxaluminum casting ElectrodeSUS316 Insulating material of electrode
Sample water conditions	: No freezing		glass (sealing) PTFE ShellSUS316 or PP
Temperature rar	nge0 to 80°C (PP case) 0 to 100°C (in case of overall	Cable connection method	: Connector box, etc.
Pressure range.	manufacturing of SUS316) 2.0MPa below (The upper limit of flange connection type is the nominal pressure value of flange. The pressure of PP case is 0.3MPa below)	Weight Powder spray color Structure	: Screw in type R3/4 about 0.5kg : Connector boxmetallic silver : Rain-proof type

Product code

• Screw-in type type A6-11 type

● Flange insertion type A6-12□ type



*1. If L size below the screw exceeds 1025 (1050) mm and the extended part is thickened, the screw size is R1 (cannot be R3/4)

In addition, if the L size is 525 mm above and sample water flow rate exceeds 0.1m/s (standard), the protective tube for reinforcing the detector needs to be used.

- *2. Oil-prohibiting treatment means cleaning the electrode part in contact with the liquid with ethyl alcohol.
- *3. If not manufacturing simultaneously with the convertor, please notify the model and production No. of combined convertor.

Notes

- 1. A6 electrode is connector box type, so please order the dedicated cable EC-10 type (outer diameter: φ 8).
- 2. Temperature range of sample water is 0 to 100°C, and the maximum pressure is 2.0MPa.
- 3. For the high conductivity test range with the cell constant of 10/cm (1000/m), the electromagnetic induction type is recommended.

- *1. If the L size is 500 mm above and sample water flow rate exceeds 0.1m/s (standard), the protective tube for reinforcing the detector needs to be used.
- *2. Oil-prohibiting treatment means cleaning the electrode part in contact with the liquid with ethyl alcohol.
- *3. If not manufacturing simultaneously with the convertor, please notify the model and production No. of combined convertor.

Notes

- 1. A6 electrode is connector box type, so please order the dedicated cable EC-10 type (outer diameter: $\varphi 8$).
- 2. Temperature range of sample water is 0 to 100°C, and the nominal pressure value of maximum pressure flange is 1.0MPa.
- 3. For the high conductivity test range with the cell constant of 10/cm (1000/m), the electromagnetic induction type is recommended.

● Immersion type A6-17□ type

• Drop-in type A5-17 type



- *1. If the L size is 500 mm above and sample water flow rate exceeds 0.1m/s (standard), the protective pipe for reinforcing the detector needs to be used.
- *2. Oil-prohibiting treatment means cleaning the electrode part in contact with the liquid with ethyl alcohol.
- *3. If not manufacturing simultaneously with the convertor, please notify the model and production No. of combined convertor.
- Notes
- 1. A6 electrode is connector box type, so please order the dedicated cable EC-10 type (outer diameter: $\varphi 8$). A6-17 type is immersion type, accessories (prepared or
 - additionally purchased by the customer) need to be installed.
- 2. Temperature range of sample water is 0 to 100°C, and the pressure is atmospheric pressure.
- 3. For the high conductivity test range with the cell constant of 10/cm (1000/m), the electromagnetic induction type is recommended

- please notify the data of combined convertor (production

ordered convertor additionally.

Notes

- 1. For the drop-in type conductivity detector, the length of electrode part is 125mm or 150mm (total length: 210 mm, maximum diameter: φ 36) and below.
- 2. The service temperature and pressure range are as shown below

Temperature: 0 to 55°C

- Pressure resistance: 0.1MPa below (water depth: MAX.10m)
- 3. The tested cell constant of high conductivity is 10/cm (A5-174 type). Bubbles are easy to enter, and the replaceability is poor. It is recommended to use the electromagnetic induction ME-111□ type.

• Flow-through type with stainless steel case (screwed connection) A6-13 type



- *1. Oil-prohibiting treatment means cleaning the electrode part in contact with the liquid with ethyl alcohol.
- *2. If not manufacturing with the convertor simultaneously, please notify the model and production number of combined convertor.

Notes

- 1. A6 electrode is connector box type, so please order the dedicated cable EC-10 type (outer diameter $\phi 8$).
- 2. Temperature range of sample water is 0 to 100°C, and the maximum pressure is 1.0 MPa.
- 3. For the high conductivity test range with the cell constant of 10/cm (1000/m), the electromagnetic induction type is recommended.

● Flow-through type with a stainless case (flange connection) A6-14□ type



- *1. Even if the flange size is 25A (1"), the pipe size (sample water inlet \cdot outlet pipe diameter) shall be 15A (1/2 ")
- *2. Oil-prohibiting treatment means cleaning the electrode part in contact with the liquid with ethyl alcohol.
- *3. If not manufacturing with the convertor simultaneously, please notify the model and production number of combined convertor.

Notes

- 1. A6 electrode is connector box type, so please order the dedicated cable EC-10 type (outer diameter $\phi 8$).
- 2. Temperature range of sample water is 0 to 100°C, and the maximum pressure is 1.0 MPa.
- 3. For the high conductivity test range with the cell constant of 10/cm (1000/m), the electromagnetic induction type is recommended.

• Flow-through type with a polypropylene case (screw connection) A6-15 type



- *1. The finished product has PP case, so the matched screw specification is only limited to Rc 1/2.
- *2. Oil-prohibiting treatment means cleaning the electrode part in contact with the liquid with ethyl alcohol.

*3. If not manufacturing with the convertor simultaneously, please notify the model and production number of combined convertor.

Notes

- 1. A6 electrode is connector box type, so please order the dedicated cable EC-10 type (outer diameter $\phi 8$).
- 2. Temperature range of sample water is 0 to 80°C, and the maximum pressure is 0.3 MPa.
- 3. For the high conductivity test range with the cell constant of 10/cm (1000/m), the electromagnetic induction type is recommended.

• Flow-through type with polypropylene case (flange connection) A6-16 type



- *1. The dimension of 25A flange face is 110 (W) ×170 (H) Even if the flange size is 25A, the pipe size (sample water inlet, outlet tube diameter) shall be 15A (1/2 "). *2. Oil-prohibiting treatment means cleaning
- the electrode part in contact with the liquid with ethyl alcohol.
- *3. If not manufacturing with the convertor simultaneously, please notify the model and production number of combined convertor. Notes
- 1. A6 electrode is connector box type, please order the dedicated cable EC-10 type (outer diameter $\phi 8$).
- 2. The temperature range of sample water is 0 to 80°C, and the maximum pressure is 0.3 MPa.
- 3. For the high conductivity test range with the cell constant of 10/cm (1000/m), the electromagnetic induction type is recommended.

AR type detector

Model of AR electrode for small purified water equipment

AR	Cable connection method Join connection Connector box changeover General 2 (Temperature compensation: for ultra pure water) General 1 (Pipe insertion type screwed connection) Cell constant (design value)
1	Cell constant (design value) $0.1/cm$ (10/m)
2	0.01/cm (1/m)

Standard specification

Product name	Detector for conductivity meter
Model	AR4-21□, AR5-21□
Cell constant	About 0.1/cm, about 0.01/cm
Temperature	Equivalent to the thermistor at the level
sensing element	of 0.1 (embedded to the internal electrode)
Sample water	Temperature0 to 100°C (no freezing)
conditions	Pressure0.5MPa below
Material	Electrodetitanium
	Screw assemblySUS316 (PTFE coating)
	SealingFKM
	Connector (AR4) plastic
	Connector box (AR5) aluminum
	casting
Pipe connection	R3/4 screwed connection
Heat-resistance	: 0 to 100°C
temperature	
Dedicated cable	Outer diameter φ8, Standard length 5m

(maximum length; 100m), With connector (anti-dripping structure) (for AR4)

Dimensions Unit : mm

• Screw-in type AR4-211 type



● Screw-in type□AR4-212 type

(EC-10)







- Screw-in type AR5-211 type
- Screw-in type AR5-212 type





Product code









Notes

- 1. L size below screw is different from cell constant. Cell constant: 0.1/cm $^{\circ}$ L size: 30mm
- Cell constant: 0.01/cm L size: 46mm
- 2. The electrode is mainly made of titanium. Case(optional) (flow through type chamber) is mainly made of SUS316.
- 3. This is not rainproof structure and not installed outdoor. Please install this indoors
- 4. Sample water conditions: temperature...0 to $100^{\circ}\mathrm{C}$ $\ \mathrm{pressure...0.5MPa}$ below
- 5. The combined cable is EC-10 type. Please purchase it additionally.

AR5 type (connector box type)



Notes

- L size below screw is different from cell constant. Cell constant: 0.1/cm - L size: 26mm Cell constant: 0.01/cm - L size: 46mm
- 2. The electrode is mainly made of titanium. Case(optional) (flow through type chamber) is mainly made of SUS316.
- 3. This is not rainproof structure and not installed outdoor. Please install this indoors.
- 4. Sample water conditions: temperature...0 to 100°C pressure...0.5MPa below.
- 5. The combined cable is EC-10 type. Please purchase it additionally.

Dedicated cable EC-10 for AR5



Dedicated cable

The special cable is used for conductivity meter and between the convertor and detector.

Model	: EC-10
Outer diameter	: φ8
Insulating material	: PP and plastic
Casing	: Plastic
Insulation resistance	: $10^{5}M \Omega$ above/ 100m
between cores	
Extended distance	: Maximum 50m, changeover
	unavailable in the midway
Standard length	: 5m to 50m, in the unit of 5m
Weight	: About 0.5kg/5m



During installation of conductivity meter detector, please pay attention to the following points.

- 1. Please install it at the position free from violent vibration and easy to maintain.
- 2. Install it at the position free from corrosive gas and chemical.
- 3. Insertion type detector installation method

It is recommended to install the insertion type detector in screw or flange connection at the upper part of horizontal tube. (Figure A)

When it is installed at the side of vehicle pipe, the detector shall be at the horizontal lying position. (Figure B)

If the cell constant is 0.01/cm and 0.1/cm type, the detector can be at the horizontal lying position.

If the cell constant is 1.0/cm and 10/cm type, please incline at the horizontal angle of 45° above during installation. (Figure C)

If the bubbles enter the electrode, bubbles are hard to penetrate. The inclined installation is to make the bubbles easily to penetrate.

(If the bubbles enter, changes will be displayed)

4.Assembly essentials of flow through type with a case. Please install the bypass valve on the bypass tube, and install the stop valve on IN/OUT. (Figure D) You can remove the detector for maintenance by stopping the valve even during equipment operation. In the case of the detector for ultra-pure water, the installed bypass tube shall be as short as possible.



Figure A Horizontal piping, vertical assembly







Figure C Vertical piping, inclined installation



Figure D Mounting the by-pass line for a flow through type detector

Combined conductivity meter Transmitters





• Small DIN96 size

- WBM-210A can be connected with 2 detectors (double channels)
- Range of changeable transmission output (4 to 20mADC)
- Attached alarm contact of lower and upper limits
- RS-232C device (WBM-210A)
- The power supply is 100 to 240VAC free power
- Corresponding S/cm unit system and S/m unit systemMeasurement range
- 0 to 20/200/2000µS/cm, 0 to 20mS/cm
- 0 to 2000µS/m, 0 to 20/200/2000mS/m



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0 to 2000µS/m, 0 to 20/200/2000mS/m



Please read the operation manual carefully before using producuts.