

Conductivity sensor with amplifier

Model: **AA**

BS05-022

Features

- This model features an integral amplifier. This enables the unit to provide a direct output signal corresponding to conductivity.
- Immune from the effects of capacitance between cable conductors, making this type of sensor particularly suitable for low conductivity measurements.
- Hermetic seal providing excellent temperature and pressure resistance.
- Four cell constants (0.01, 0.1, 1.0, 10cm⁻¹) can be selected corresponding to the measurement range. This sensor can provide accurate measurements of low conductivity ultra pure water up to high conductivity plant waste liquids.

Standard Specifications

Product Name : Conductivity sensor with built-in amplifier

Model : AA-1 (general use), AA-2 (for ultrapure water)

Measurement Object : Conductivity of ultrapure water, pure water, industrial water, drain etc.

Cell Constant and Measurement Range:

Cell constant (Design value)	Measurement range (μS/cm) *	Model
0.01cm ⁻¹	0~0.2, 0~0.5, 0~1	AA-2
	0~2, 0~5, 0~10	
0.1cm ⁻¹	0~20, 0~50, 0~100	AA-1
1.0cm ⁻¹	0~200, 0~500, 0~1000	
10cm ⁻¹	0~2000, 0~5000, 0~10000	

* Measured values are standardized values at 25°C

Ambient Temperature/

Humidity : -10 ~ 55°C, 95%RH or less

Sample Conditions :

Temperature range 0 ~ 85°C (0 ~ 80°C for PP case)

Pressure range 20kgf/cm²G or less

(When a flange connection is used, the pressure must not exceed the flange rating. When the case material is made of PP the pressure must not exceed 3Kgf/cm²G.)

Flow speed or

flow rate 0.01 ~ 5m/sec (flow rate 0.5 ~ 10 ℓ when case is furnished)



Temperature compensation:

Temperature range 0 ~ 55, 25 ~ 85°C (AA-1), 5 ~ 65°C (AA-2) (Consult DKK when a higher temperature is required.)

Temperature characteristics

..... Conductivity vs temperature characteristics of NaCl solution (model AA-1). Conductivity vs temperature characteristics of NaCl solution and pure water (model AA-2). (For a solutions with special temperature characteristics, contact DKK.)

Accuracy ±3%FS within the range of temperature compensation

Output

: Isolated from input
 4 ~ 20mA DC (max. load 600Ω)
 0 ~ 10mV DC (min. load 100KΩ)
 1 ~ 5V DC (min. load 500KΩ)
 Specify one of the above.

Power Requirements

: 100V AC ±10% 50/60Hz

Power Consumption

: 3VA

Materials

:
 Electrode and body SUS316
 Electrode insulation Glass (hermetic seal), PTFE (Teflon)
 Case SUS316 or PP
 Amplifier case Cast aluminum

Dimensions

: Refer to dimensional drawing

Weight

: Approx. 2.5kg (for thread mount)

Standard Paint Colour

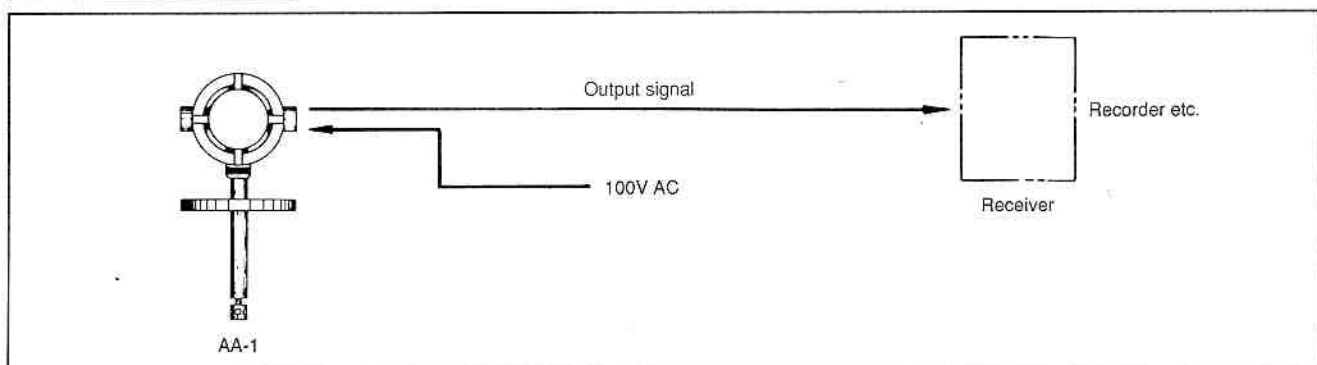
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Amplifier case Metallic silver

Related Equipment and Specifications

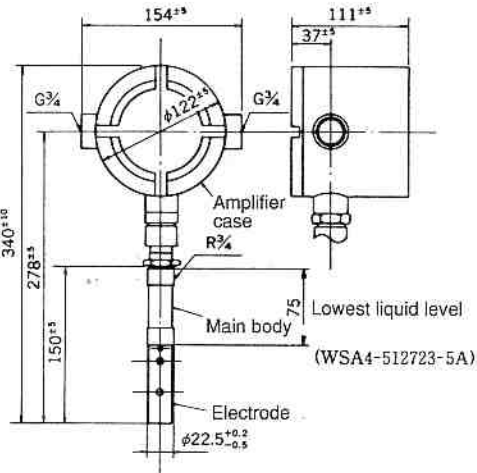
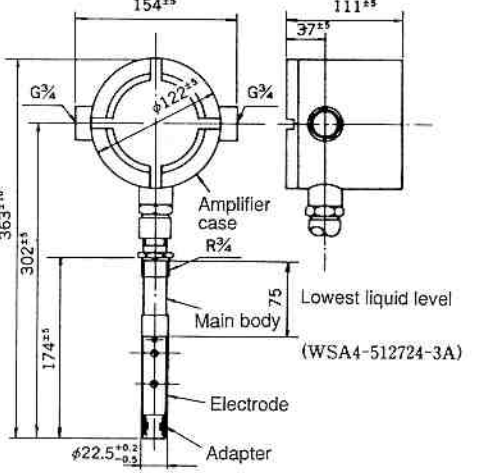
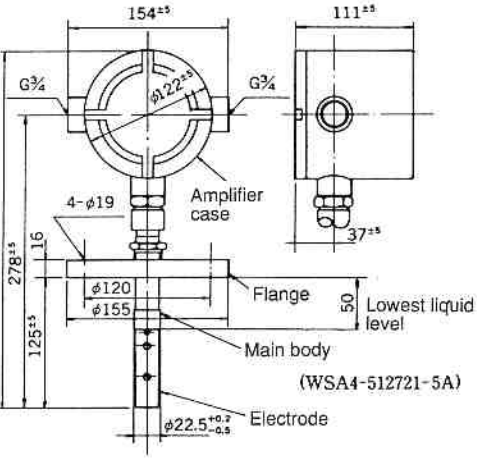
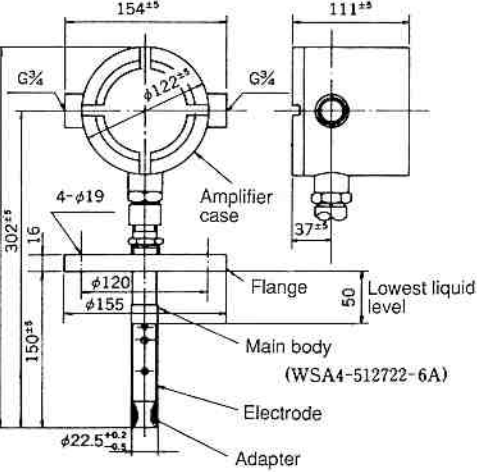
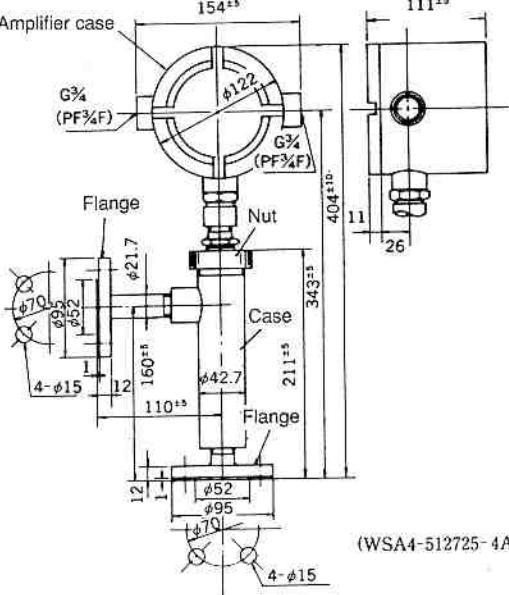
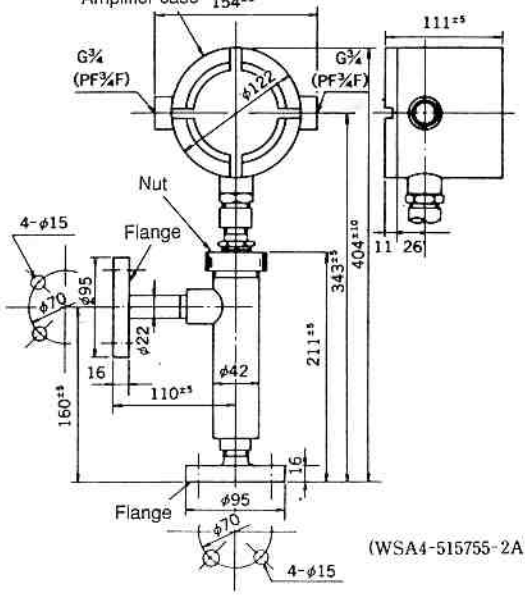
- Recorder etc.
- Conduit adapter

System Configuration

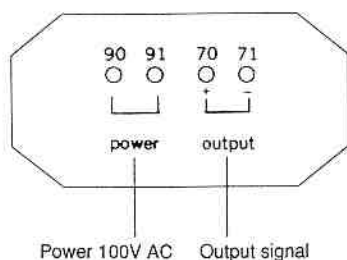


Dimensions

Unit: mm

	Cell constant: 0.01, 0.1, 1cm ⁻¹	Cell constant: 10cm ⁻¹
Thread mount	<p>AA-111 AA-112 AA-113</p>  <p>Amplifier case Main body Electrode Lowest liquid level (WSA4-512723-5A)</p>	<p>AA-114</p>  <p>Amplifier case Main body Electrode Lowest liquid level (WSA4-512724-3A)</p>
Flange mount	<p>AA-121 AA-122 AA-123</p>  <p>Amplifier case Flange Main body Electrode Lowest liquid level (WSA4-512721-5A)</p>	<p>AA-124</p>  <p>Amplifier case Flange Main body Electrode Lowest liquid level (WSA4-512722-6A)</p>
Case including Flange mount	<p>Case material: SUS316</p> <p>AA-14□</p>  <p>Amplifier case Flange Nut Case Flange (WSA4-512725-4A)</p>	<p>Case material: PP</p> <p>AA-16□</p>  <p>Amplifier case Flange Nut Case Flange (WSA4-515755-2A)</p>

Terminal Connections



Product Code

AA-1 (General use)

AA-1-1	□□□□□□□□	Power source
1	.....	100V AC 50/60Hz
2	.....	110V AC 50/60Hz
3	.....	115V AC 50/60Hz
4	.....	120V AC 50/60Hz
5	.....	200V AC 50/60Hz
6	.....	220V AC 50/60Hz
7	.....	230V AC 50/60Hz
8	.....	240V AC 50/60Hz
		Output signal
1	.....	4 ~ 20mA DC
2	.....	0 ~ 10mV DC
3	.....	1 ~ 5V DC
		Measurement range
A	.....	0 ~ 1 μS/cm at 25°C NaCl Cell const. 0.01
B	.....	0 ~ 2 μS/cm at 25°C NaCl Cell const. 0.01
C	.....	0 ~ 5 μS/cm at 25°C NaCl Cell const. 0.01
D	.....	0 ~ 10 μS/cm at 25°C NaCl Cell const. 0.01
E	.....	0 ~ 20 μS/cm at 25°C NaCl Cell const. 0.1
F	.....	0 ~ 50 μS/cm at 25°C NaCl Cell const. 0.1
G	.....	0 ~ 100 μS/cm at 25°C NaCl Cell const. 0.1
H	.....	0 ~ 200 μS/cm at 25°C NaCl Cell const. 1
J	.....	0 ~ 500 μS/cm at 25°C NaCl Cell const. 1
K	.....	0 ~ 1,000 μS/cm at 25°C NaCl Cell const. 1
L	.....	0 ~ 2,000 μS/cm at 25°C NaCl Cell const. 10
M	.....	0 ~ 5,000 μS/cm at 25°C NaCl Cell const. 10
N	.....	0 ~ 10,000 μS/cm at 25°C NaCl Cell const. 10
Z	.....	Custom spec.*
		Temperature compensation range
1	.....	0 ~ 55°C
2	.....	25 ~ 85°C
		Cell constant
A	.....	0.01
B	.....	0.1
C	.....	1
D	.....	10
		Major body and electrode materials
1	.....	SUS316 (Standard)
2	.....	SUS316L
		Standard (Pipe joint standard, case, material)
1	.....	R ³ / ₄ (PT ³ / ₄) thread mount (no case)
2	.....	50A JIS 10kgf/cm ² FF flange (no case)
3	.....	Rc ¹ / ₂ (PT ¹ / ₂) with case (SUS316)
4	.....	15A JIS 10kgf/cm ² RF with case (SUS316)
5	.....	Rc ¹ / ₂ (PT ¹ / ₂) with case (PP)
6	.....	15A JIS 10kgf/cm ² FF with case (PP)
9	.....	Custom spec.
		Non-standard (Pipe joint standard, case, material)
Y	.....	Standard specifications
A	.....	No case, thread mount, thread standard specified
B	.....	No case, flange type, flange standard specified
C	.....	Thread metal case: Material and thread standard specified
D	.....	Flange metal case: Material and flange standard specified
E	.....	Thread resin case: Material and thread standard specified
F	.....	Flange resin case: Material and flange standard specified
		Assembling with cable port adapter
0	.....	Nil, G ³ / ₄ (PF ³ / ₄) (Standard)
1	.....	G ¹ / ₂ (PF ¹ / ₂) SUS304
2	.....	NPT ¹ / ₂ SUS304
3	.....	NPT ³ / ₄ SUS304
		Markings
0	.....	Standard
1	.....	English
9	.....	Custom spec.

Custom spec. code

Numeric digit : 9 0 Standard
 Alphabetic digit : Z 1 English

* When measurement units other than "μS/cm at 25°C NaCl" or an alternative temperature compensation coefficient is required, select "Z" for this digit of code.

AA-2 (for ultrapure water)

AA2-1	□□□□□□□□	Power source
1	.....	100V AC 50/60Hz
2	.....	110V AC 50/60Hz
3	.....	115V AC 50/60Hz
4	.....	120V AC 50/60Hz
5	.....	200V AC 50/60Hz
6	.....	220V AC 50/60Hz
7	.....	230V AC 50/60Hz
8	.....	240V AC 50/60Hz
9	.....	Custom spec.
		Output signal
1	.....	4 ~ 20mA DC
2	.....	0 ~ 10mV DC
3	.....	1 ~ 5V DC
		Measurement range
A	.....	0 ~ 0.2 μS/cm at 25°C Ultrapure water
B	.....	0 ~ 0.5 μS/cm at 25°C Ultrapure water
Z	.....	As specified
		Temperature compensation range
1	.....	5 ~ 65°C
9	.....	Custom spec.
		Major body and electrode materials
1	.....	SUS316 (Standard)
2	.....	SUS316L
9	.....	Custom spec.
		Standard (Pipe joint standard, case, material)
1	.....	R ³ / ₄ (PT ³ / ₄) thread mount (no case)
2	.....	50A JIS 10kgf/cm ² FF flange (no case)
3	.....	Rc ¹ / ₂ (PT ¹ / ₂) with case (SUS316)
4	.....	15A JIS 10kgf/cm ² RF with case (SUS316)
5	.....	Rc ¹ / ₂ (PT ¹ / ₂) with case (PP)
6	.....	15A JIS 10kgf/cm ² FF with case (PP)
9	.....	Custom spec.
		Non-standard (Pipe joint standard, case, material)
Y	.....	Standard specifications
A	.....	No case, thread mount, thread standard specified
B	.....	No case, flange type, flange standard specified
C	.....	Thread metal case: Material and thread standard specified
D	.....	Flange metal case: Material and flange standard specified
E	.....	Thread resin case: Material and thread standard specified
F	.....	Flange resin case: Material and flange standard specified
		Assembling with cable port adapter
0	.....	Nil, G ³ / ₄ (PF ³ / ₄) (Standard)
1	.....	G ¹ / ₂ (PF ¹ / ₂) SUS304
2	.....	NPT ¹ / ₂ SUS304
3	.....	NPT ³ / ₄ SUS304
		Markings
0	.....	Standard
1	.....	English
9	.....	Custom spec.

[Due to continuous product development and improvement, our product codes are subject to change. Please confirm product code with our authorized agents or our International Sales Department prior to order placement.]

Model Numbering Format

AA-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
				Temperature compensation
1	.....			General use
2	.....			For ultrapure water (cell constant 0.01 only)
				Piping connections
1	.....			Rc ^{3/4} (PT ^{3/4} F) thread mount
2	.....			50A JIS 10kgf/cm ² FF flange connection
3	.....			With case (SUS316), connection by Rc ^{1/2} (PT ^{1/2} F)
4	.....			With case (SUS316), connection by 15A JIS 10kgf/cm ² RF
5	.....			With case (PP), connection Rc ^{1/2} (PT ^{1/2} F)
6	.....			With case (PP), connection 15A JIS 10kgf/cm ² FF
X			Miscellaneous
				Cell constant
1			0.01cm ⁻¹
2			0.1cm ⁻¹
3			1cm ⁻¹
4			10cm ⁻¹
X			Miscellaneous

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