

# General Specifications

EXA ISC

## ISC40□J Inductive Conductivity Sensors ISC40F□J Holders and Adapters

GS 12D06B01-01E

### ■ GENERAL

The ISC40□J sensors are designed for use with the FLXA202/FLXA21 2-wire Analyzer, ISC202 2-wire transmitter and the ISC450G 4-wire converter. This combination exceeds all expectations for conductivity measurement in terms of reliability, accuracy, rangeability and price performance.

This innovative inductive conductivity sensor provides highly accurate measurements over a wide measuring range (1  $\mu$ S/cm to 1999 mS/cm) and process temperature range (-10 to 130°C, -10 to 105°C for ISC40SJ-TT) without changing the cell constant and conducting recalibration.

The erosion/abrasion resistant PEEK (Poly Ether Ether Ketone), which also features excellent chemical resistance in all solutions except Fluoric Acid or Oxidizing Concentrated Acids.

The PEEK sensor is provided with a rugged Stainless Steel mounting thread/nut/ gasket combination for ultimate flexibility in installation using bulk head installation technique. There is also a wide range of holders and options available for reliable in-line or off-line installation with double O-ring seals for long service life of the sensor.

The ISC40□J have a large bore for optimal resistance to fouling processes and when properly installed, the flow will keep the sensor clean, to help avoid measuring errors.



### ■ FEATURES

- Inductive Conductivity technique for elimination of fouling and polarization errors.
- Wide bore sensors for long term stability.
- Installation flexibility due to wide range of holders and due to the use of universal bulkhead construction.
- A single sensor can maintain the high resolution and accuracy, and measure the conductivity in an extremely broad range.

Minimum span: 100  $\mu$ S/cm

Maximum span: 1999 mS/cm

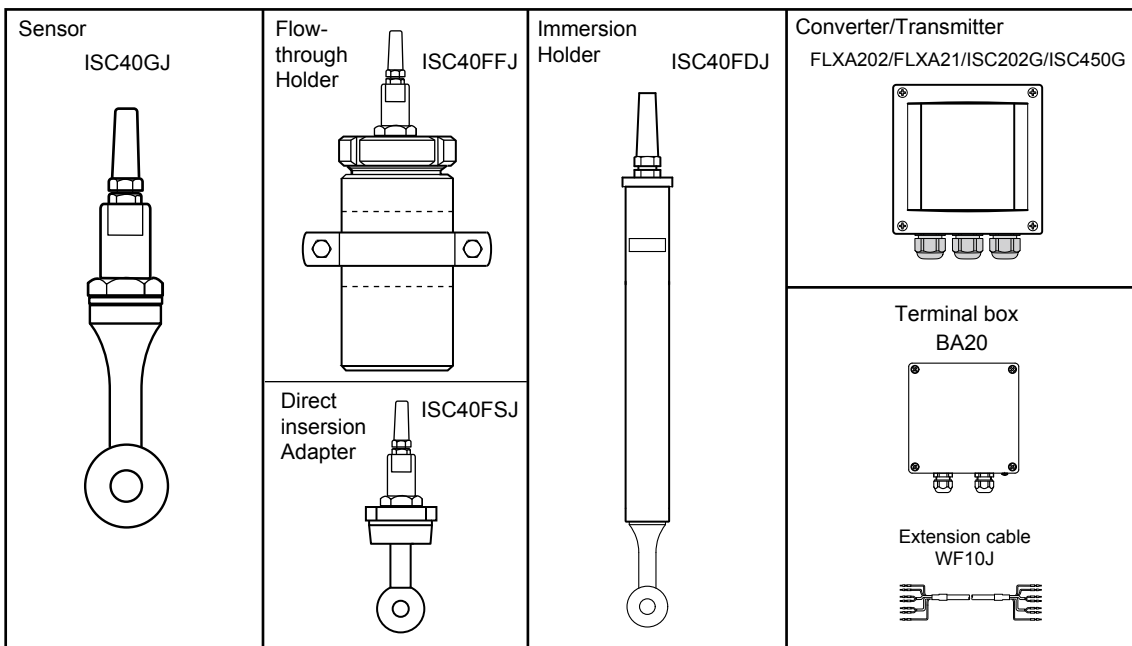
### ■ APPLICATIONS

- All applications where severe electrode fouling prevents the use of contacting electrodes.
- All ranges except (ultra) pure water applications.
- All slurry applications where conventional systems suffer from plugging or erosion.
- All applications where the 6 decade rangeability is necessary for accurate process control.

## SYSTEM CONFIGURATION

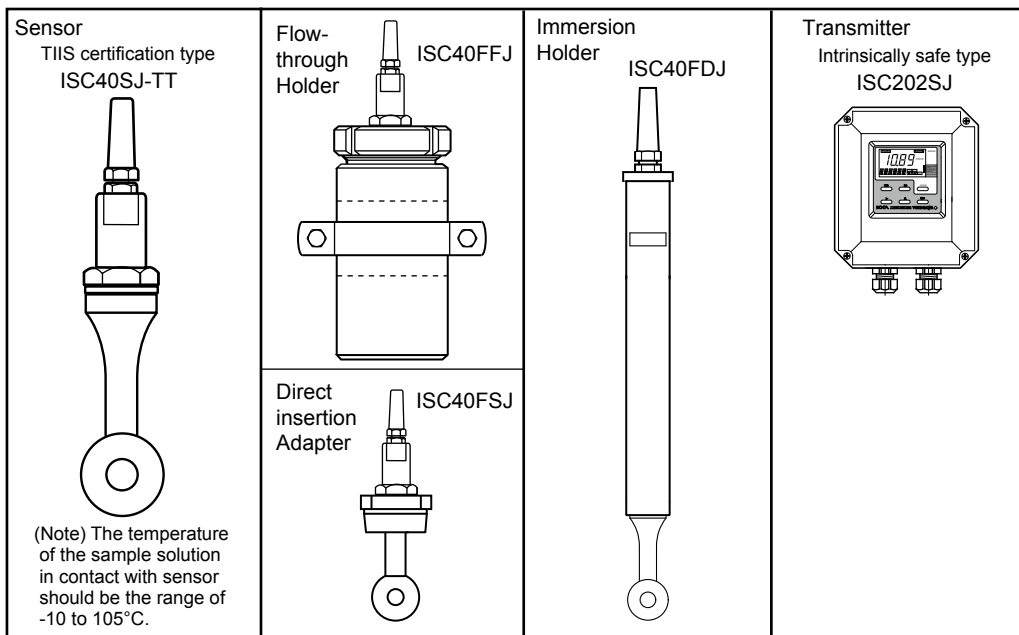
Refer to GS 12A01A03-01EN for the FLXA202, GS 12A01A02-01E for the FLXA21, GS 12D06A03-01E for the ISC202, and GS 12D06D05-01E for the ISC450G.

### Non-explosionproof System



F01.ai

### Explosionproof System



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## ■ GENERAL SPECIFICATION

### 1. ISC40□J Inductive Conductivity Sensor

#### Compatibility:

ISC40GJ is compatible with FLXA202/  
FLXA21 2-wire Analyzer, ISC202G  
Inductive Conductivity Transmitter and  
ISC450G Converter.  
ISC40SJ-TT is compatible with ISC202SJ  
Inductive Conductivity Transmitter.

Measuring range: 1  $\mu$ S/cm to 1999 ms/cm

Output span: Minimum 100  $\mu$ S/cm  
Maximum 1999 mS/cm

#### Process temperature:

-10 to 130°C for continuous exposure.  
-10 to 105°C for ISC40SJ-TT. Suitable for  
steam-sterilisable applications.

#### Process pressure:

Dependent on installation; but <2 MPa  
(300 psi).

Note: Process temperature and pressure depend on  
specification of holders and adapters.

Process flow: Maximum 5 m/s.

#### Wetted materials :

Sensor; PEEK (Poly Ether Ether Ketone).  
O-ring; Fluoro-rubber (FKM) or ethylene  
propylene copolymer rubber.  
Adapter (optional); Stainless steel (316 SS) or  
PVC or PVDF.

#### Non-wetted materials:

Sensor thread; Stainless steel (304 SS).  
Retaining nut; Stainless steel (304 SS).  
Cable; Weatherproof vinyl.

#### Process connection:

With retaining nut on G3/4 thread of  
sensor top (refer to section Drawings  
and Dimensions) for bulkhead mounting;  
optional process adapters or process  
fittings.

#### Process adapters:

JIS 10K 50 RF flange adapter  
(Material: Stainless steel (316 SS))  
JIS 10K 50 FF flange adapter  
(Material: PVC or PVDF)  
DIN PN16 DN50 flange adapter  
ANSI Class 150 2 flange adapter  
R2 screw-in adapter

Cable length: 5 m, 10 m, 15 m, 20 m

The length into extension cable is inside of  
50 m.

Extension cable can not be used with  
ISC40SJ-TT.

#### Dimensions:

Refer to section Drawings and  
Dimensions.

Weight: Sensor: approximately 0.6 kg.

(Note) Do not submerge the sensor itself in process  
water, as the seams between the mold and the  
metal of the sensor are not waterproof. Since a  
temperature sensor is imbedded in the PEEK  
molded sensor, its response speed is not fast.  
Install another temperature sensor if necessary.

### ISC40SJ-TT Intrinsically safe type sensor

TIIS certification sensor should be used with ISC202SJ  
Protection Concept and Adapter Group:

Ex ia IIC T4 Intrinsic safe rating:

Ui=14.4 V, Ii=20 mA, Pi=190 mW, Li=28.6 mH,  
Ci=0.2  $\mu$ F

Environment and operational conditions.

The temperature of the sample solution in contact  
with sensor should be the range of -10 to 105°C.

### 2. ISC40FDJ Immersion Holder

Process temperature: Maximum 80°C.

Process pressure: Maximum 0.2 MPa at 20°C.  
Maximum 0.1 MPa at 80°C.

#### Wetted materials:

Holder: C-PVC or Stainless steel (316 SS)  
O-ring: Fluoro-rubber (FKM) or  
ethylene propylene  
copolymer rubber.  
Flange (Optional): PP or Stainless steel (316 SS)  
Gasket: Chloroprene or  
ethylene propylene  
copolymer rubber.

#### Process connection :

Fixing flange (Optional) :  
DIN PN10 DN50 (ANSI 2 inch 150 lbs. with bolt holes):  
Material PP  
JIS 10K 50 RF:  
Material Stainless steel (316 SS)  
2-inch pipe  
Mounting set (Optional) : Zinc-plated steel.

### 3. ISC40FFJ Flow Holder

#### Process temperature:

ISC40FFJ-SA, -SJ: Maximum 150°C.  
ISC40FFJ-PA, -PJ: Maximum 100°C.  
ISC40FFJ-FA, -FJ: Maximum 130°C.

#### Process pressure:

ISC40FFJ-SA, -SJ: Maximum 1.0 MPa at 150°C.  
ISC40FFJ-PA, -PJ: Maximum 0.6 MPa at 20°C.  
Maximum 0.1 MPa at 100°C.  
ISC40FFJ-FA, -FJ: Maximum 1.0 MPa at 20°C.  
Maximum 0.1 MPa at 130°C.

#### Wetted materials:

ISC40FFJ-S□: Stainless steel (316 SS)  
ISC40FFJ-P□: Polypropylene  
ISC40FFJ-F□: PVDF

O-ring: Fluoro-rubber (FKM) or ethylene  
propylene copolymer rubber.

#### Non-wetted materials:

Nut: Stainless steel (304 SS)  
Mounting set (Optional): Stainless steel (304 SS)  
Flange adapters (Optional): Stainless steel (304 SS)

#### Process connection :

1/2NPT or Rc1/2  
DIN PN10 DN25 flange adapters (Optional)  
JIS 10K 25 RF flange adapters (Optional)

#### 4. ISC40FSJ Direct Insertion Subassembly

Process temperature:

ISC40FSJ-STWJ: Maximum 110°C.

ISC40FSJ-SCWJ, -SCSJ: Maximum 150°C.

ISC40FSJ-PCSJ: Maximum 100°C.

ISC40FSJ-FCSJ: Maximum 130°C.

Process pressure:

ISC40FSJ-STWJ: Maximum 1.0 MPa at 110°C.

ISC40FSJ-SCWJ, -SCSJ: Maximum 1.0 MPa at 150°C.

ISC40FSJ-PCSJ: Maximum 0.6 MPa at 20°C.

ISC40FSJ-FCSJ: Maximum 0.1 MPa at 100°C.

ISC40FSJ-FCSJ: Maximum 1.0 MPa at 20°C.

ISC40FSJ-FCSJ: Maximum 0.1 MPa at 130°C.

Materials:

Wetted materials:

ISC40FSJ-STWJ: Stainless steel (316L SS),  
silicon rubber.

ISC40FSJ-SCWJ, -SCSJ:  
Stainless steel (316 SS),  
Fluoro-rubber or ethylene  
propylene copolymer rubber.

ISC40FSJ-PCSJ: Polypropylene, Fluoro-rubber  
or ethylene propylene  
copolymer rubber.

ISC40FSJ-FCSJ: PVDF, Fluoro-rubber or  
ethylene propylene  
copolymer rubber.

Non wetted materials:

ISC40FSJ-STWJ:  
IDF clamp;SCS13.

ISC40FSJ-SCWJ, -SCSJ, -PCSJ, -FCSJ:  
Nut: Stainless steel (304 SS).

Process connection:

ISC40FSJ-STWJ: IDF 3 inch tri-clamp.

ISC40FSJ-SCWJ: coupling.

ISC40FSJ-SCSJ-PCSJ-FCSJ: R2 screw-in coupling.

Dimensions: Refer to section Drawings and Dimensions.

#### 5. BA20 Terminal Box

Use when FLXA202/FLXA21/ISC202 transmitter or  
ISC450G converter is separated from ISC40□J sensor  
and is set up.

Ambient temperature: -10 to 50°C

Construction: IP54 agreement

Case material: Article of cast metal of aluminum alloy

Cable inlet: 2 (Pg13.5)

Case color: Straight gray

Weight: Approx. 2 kg

Note: BA20 can not be used with ISC40SJ-TT.

#### 6. WF10J Extension Cable

Number of mind Lines: 6

Finish outside diameter: 7.7 mm

Terminal processing: Special terminals

Material: Weatherproof vinyl.

Note: WF10J can not be used with ISC40SJ-TT.

## ■ MODEL AND SUFFIX CODES

### 1. Inductive Conductivity Sensors

#### Non-explosionproof type

[Style:S1]

Model	Suffix code	Option code	Description	
ISC40GJ	.....	.....	General purpose inductive conductivity sensor	
Construction	<b>-GG</b>	.....	Standard type	
Temperature sensor	<b>-T1</b>	.....	Pt1000 (*1)	
	<b>-T3</b>	.....	Thermistor	
Cable length, cable end type	<b>-05</b>	.....	5 m (pin terminals) (*2)	
	<b>-10</b>	.....	10 m (pin terminals) (*2)	
	<b>-15</b>	.....	15 m (pin terminals) (*2)	
	<b>-20</b>	.....	20 m (pin terminals) (*2)	
	<b>-X1</b>	.....	5 m (M4 ring terminals) (*3)	
	<b>-X2</b>	.....	10 m (M4 ring terminals) (*3)	
	<b>-X3</b>	.....	15 m (M4 ring terminals) (*3)	
	<b>-X4</b>	.....	20 m (M4 ring terminals) (*3)	
Option Adapter	<b>-Y1</b>	.....	5 m (M3 ring terminals) (*4)	
	<b>-Y2</b>	.....	10 m (M3 ring terminals) (*4)	
	<b>-Y3</b>	.....	15 m (M3 ring terminals) (*4)	
	<b>-Y4</b>	.....	20 m (M3 ring terminals) (*4)	
	O-ring, gasket	<b>/SFJ</b>		JIS 10K 50 RF Flange 316 SS
		<b>/PFJ</b>		JIS 10K 50 FF Flange PVC
		<b>/FFJ5</b>		JIS 10K 50 FF Flange PVDF
		<b>/SFD</b>		DIN PN16 DN50 Flange 316 SS
<b>/SFA</b>			ANSI Class 150 2 Flange 316 SS	
O-ring, gasket	<b>/SSG</b>		R2 screw-in adapter 316 SS	
	<b>/PSG</b>		R2 screw-in adapter PVC	
	<b>/FSJ</b>		R2 screw-in adapter PVDF	
	<b>/EP</b>		Ethylene propylene rubber O-ring or gasket (*5)	

\*1: Choose thermistor (-T3) only, when connecting with ISC200G.

\*2: Used for connection to FLXA202/FLXA21, ISC202G. When terminal box is used, select BA20.

\*3: Used for connection to FLXA202/FLXA21. When terminal box is used, select BA20/XT.

\*4: Used for connection to ISC450G, ISC202G/TB. When terminal box is used, select BA20/YT.

\*5: For use in highly alkaline solutions, be sure to check the process conditions and contact us.

## Explosionproof type

[Style:S2]

Model	Suffix code	Option code	Description
ISC40SJ	.....	.....	Intrinsic safe inductive conductivity sensor
Construction	<b>-GG</b> <b>-TT</b>	..... .....	TIIS certification type (for ISC200S) TIIS certification type (for ISC202SJ)
Temperature sensor	<b>-T1</b> <b>-T3</b>	..... .....	Pt1000 (*1) Thermistor
Cable length, cable end type	<b>-05</b> <b>-10</b> <b>-15</b> <b>-20</b>	..... ..... ..... .....	5 m (pin terminals) 10 m (pin terminals) 15 m (pin terminals) 20 m (pin terminals)
Option Adapter	<b>/SFJ</b> <b>/PFJ</b> <b>/FFJ5</b> <b>/SFD</b> <b>/SFA</b> <b>/SSG</b> <b>/PSG</b> <b>/FSJ</b> <b>/EP</b>	..... ..... ..... ..... ..... ..... ..... ..... .....	JIS 10K 50 RF Flange 316 SS JIS 10K 50 FF Flange PVC JIS 10K 50 FF Flange PVDF DIN PN16 DN50 Flange 316 SS ANSI Class 150 2 Flange 316 SS R2 screw-in adapter 316 SS R2 screw-in adapter PVC R2 screw-in adapter PVDF Ethylene propylene rubber O-ring or gasket (*2)
O-ring, gasket			

\*1: Choose thermistor (-T3) only, when connecting with ISC200S.

\*2: For use in highly alkaline solutions, be sure to check the process conditions and contact us.

Note: "TIIS Certification" as a certified explosion approval from the Technology Institution of Industrial Safety.

## 2. Immersion Holder

Model	Suffix code	Option code	Description
ISC40FDJ	.....	.....	Immersion holder
Material	<b>-V</b> <b>-S</b>	..... .....	Immersion probe C-PVC Immersion probe 316 SS
Pipe length	<b>-10</b> <b>-15</b> <b>-20</b>	..... ..... .....	1.0 m 1.5 m 2.0 m
Option Flange	<b>/FA</b> <b>/FBJ</b>	..... .....	DIN PN10 DN50 Flange PP (Can be selected for -V) (ANSI Class 150 2 with Bolt-holes) JIS 10K 50 RF Flange 316 SS
Mounting hardware	<b>/MS1</b> <b>/MS2</b>	..... .....	Mounting hardware for immersion type: 1 set Mounting hardware for immersion type: 2 set
O-ring	<b>/EP</b>	.....	Ethylene propylene rubber (*1)

\*1: For use in highly alkaline solutions, be sure to check the process conditions and contact us.

## 3. Flow-through Holder

Model	Suffix code	Option code	Description
ISC40FFJ			Flow-through holder
Material	<b>-PJ</b> <b>-PA</b> <b>-SJ</b> <b>-SA</b> <b>-FJ</b> <b>-FA</b>		Rc1/2 Polypropylene (PP) 1/2NPT female Polypropylene (PP) Rc1/2 316 SS 1/2NPT female 316 SS Rc1/2 PVDF 1/2NPT female PVDF
Option Mounting hardware	<b>/MS</b> <b>/MP</b>		Wall/pipe mounting hardware for Stainless steel holder Wall/pipe mounting hardware for PP or PVDF holder
Flange	<b>/FSJ2</b> <b>/FS2</b> <b>/FPJ2</b> <b>/FP2</b> <b>/FFJ2</b> <b>/FF2</b>		JIS 10K 25 RF Flange 316 SS (for -SJ) (*1) DIN PN10 DN25 Flange 316 SS (for -SA) (*1) JIS 10K 25 RF Flange PP (for -PJ) (*1) DIN PN10 DN25 Flange PP (for -PA) (*1) JIS 10K 25 RF Flange PVDF (for -FJ) (*1)
O-ring Polishing	<b>/EP</b> <b>/POL</b>		DIN PN10 DN25 Flange PVDF (for -FA) (*1) Ethylene propylene rubber (*2) Polished surface (*3)

\*1: All flanges are adjustable. Each material in the above description represents the one of wetted part of the adjustable flange which itself is made of 304 SS.

\*2: For use in highly alkaline solutions, be sure to check the process conditions and contact us.

\*3: Option in case of 316 SS material.

## 4. Direct Insertion Adapter

Model	Suffix code	Option code	Description
ISC40FSJ			Direct insertion adapter
Process connection	<b>-PCSJ</b> <b>-SCWJ</b> <b>-SCSJ</b> <b>-STWJ</b> <b>-FCSJ</b>		R2 screw-in coupling PP Coupling welded 316 SS R2 screw-in coupling 316 SS IDF 3 inch clamp 316 SS LR2 screw-in coupling PVDF
Option		<b>/EP</b>	Ethylene propylene rubber (*1)

\*1: For use in highly alkaline solutions, be sure to check the process conditions and contact us.

## 5. Terminal Box

Model	Suffix code	Option code	Description
BA20			Terminal box
Option		<b>/XT</b> <b>/YT</b>	M4 screw terminals (*1) M3 screw terminals (*2)

Note: Pin terminals is supplied when option code is'nt specified.  
BA20 can not be used with ISC40SJ-TT.

\*1: Use to connect with FLXA202/FLXA21.

\*2: Use to connect with ISC450G, ISC202G/TB.

## 6. Extension Cable

Model	Suffix code	Option code	Description
WF10J	.....	.....	Extension cable
Cable end	<b>-F</b> <b>-X</b> <b>-Y</b>	..... ..... .....	Pin terminals M4 ring terminals *1 M3 ring terminals *2
Cable length	<b>-05</b> <b>-10</b> <b>-20</b> <b>-30</b> <b>-40</b>	..... ..... ..... ..... .....	5 m 10 m 20 m 30 m 40 m

\*1: Used for connection to FLXA202/FLXA21.

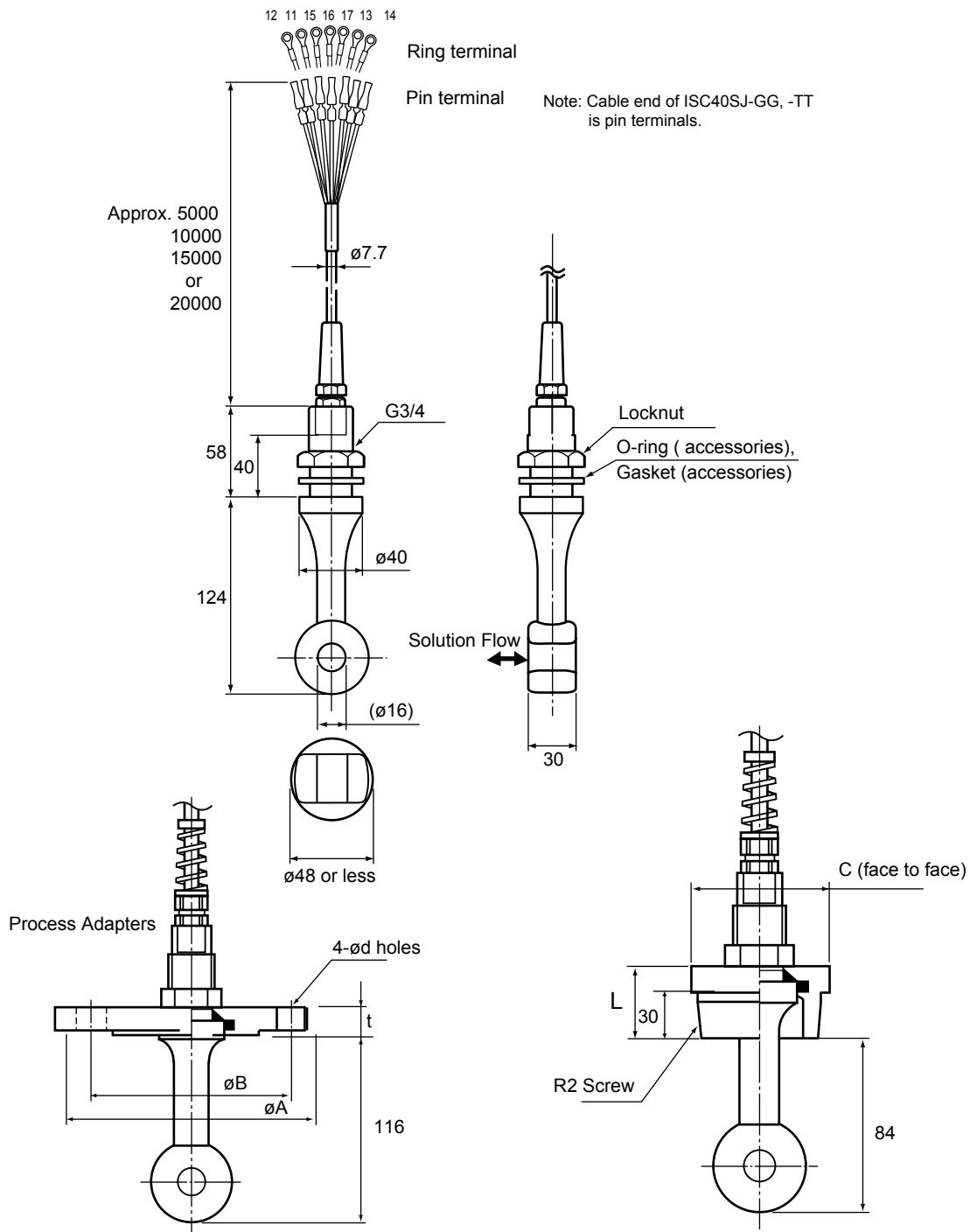
\*2: Used for connection to ISC450G, ISC202G/TB.

Note: The maximum extension cable length is 50 m including sensor cable length and can not be used with ISC40SJ-TT.

**■ DIMENSIONS**

**1. ISC40□J Inductive Conductivity Sensor**

Unit : mm



Option Code	A	B	d	t	Material	Flange Rating	Weight (kg)
/SFJ	155	120	19	16	316 SS	JIS 10K 50 RF	Approx. 1.9
/PFJ	155	120	19	20	PVC	JIS 10K 50 FF	Approx. 0.5
/FFJ5	155	120	19	20	PVDF	JIS 10K 50 FF	Approx. 0.5
/SFD	165	125	18	18	316 SS	DIN PN16 DN50	Approx. 2.7
/SFA	152.4	120.6	19	19	316 SS	ANSI Class 150 2	Approx. 3.0

Flange adapter

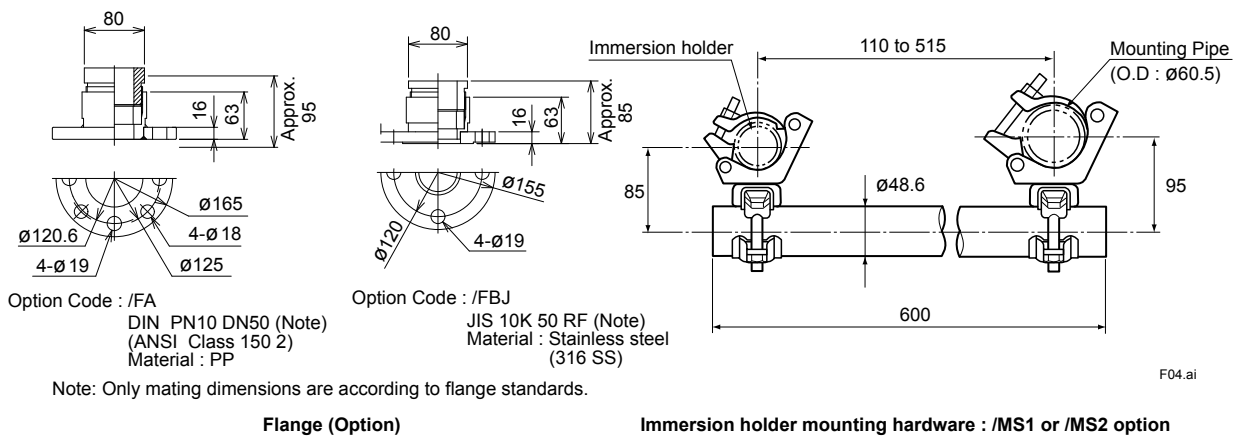
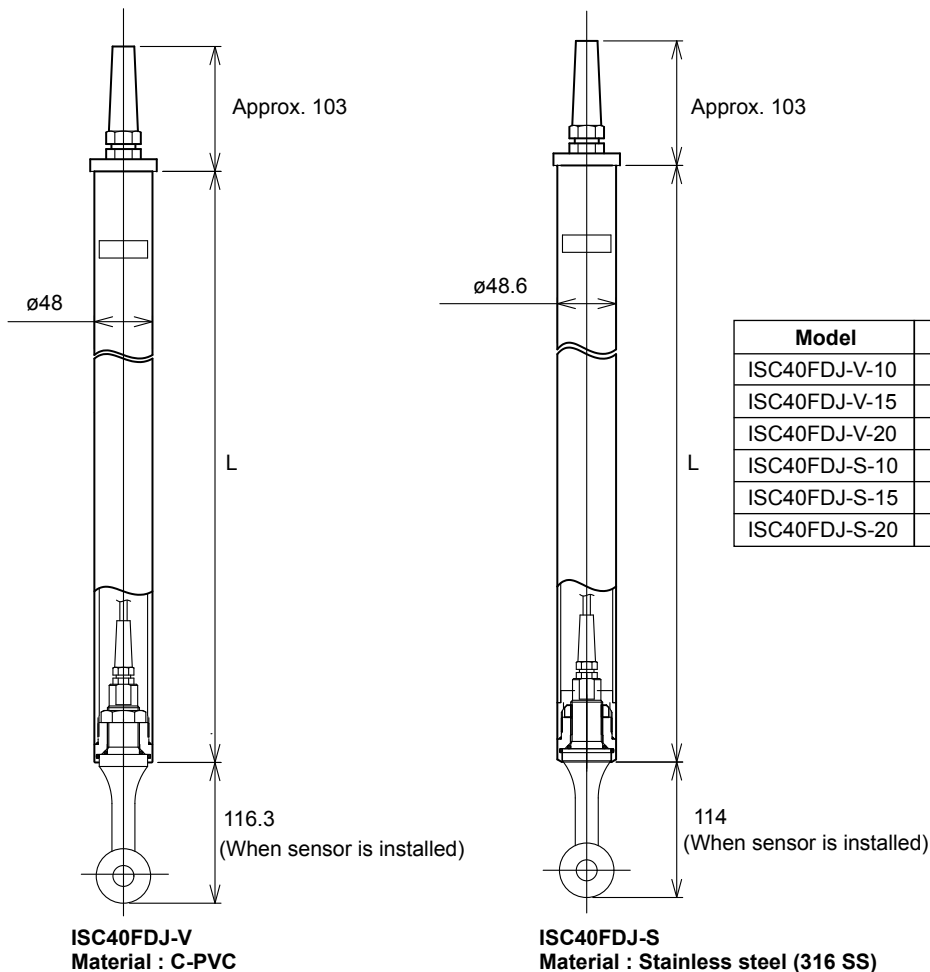
Option Code	C	L	Material	Weight (kg)
/SSG	60	46	316 SS	Approx. 0.4
/PSG	70	48	PVC	Approx. 0.15
/FSJ	70	48	PVDF	Approx. 0.15

Thread adapter

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2. ISC40FDJ Immersion Holder

Unit : mm

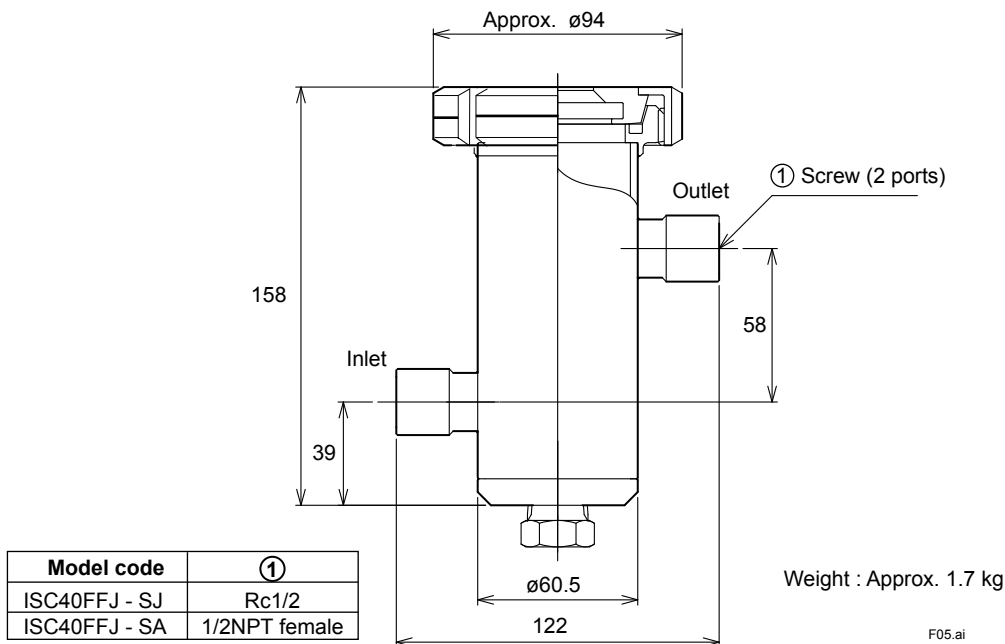


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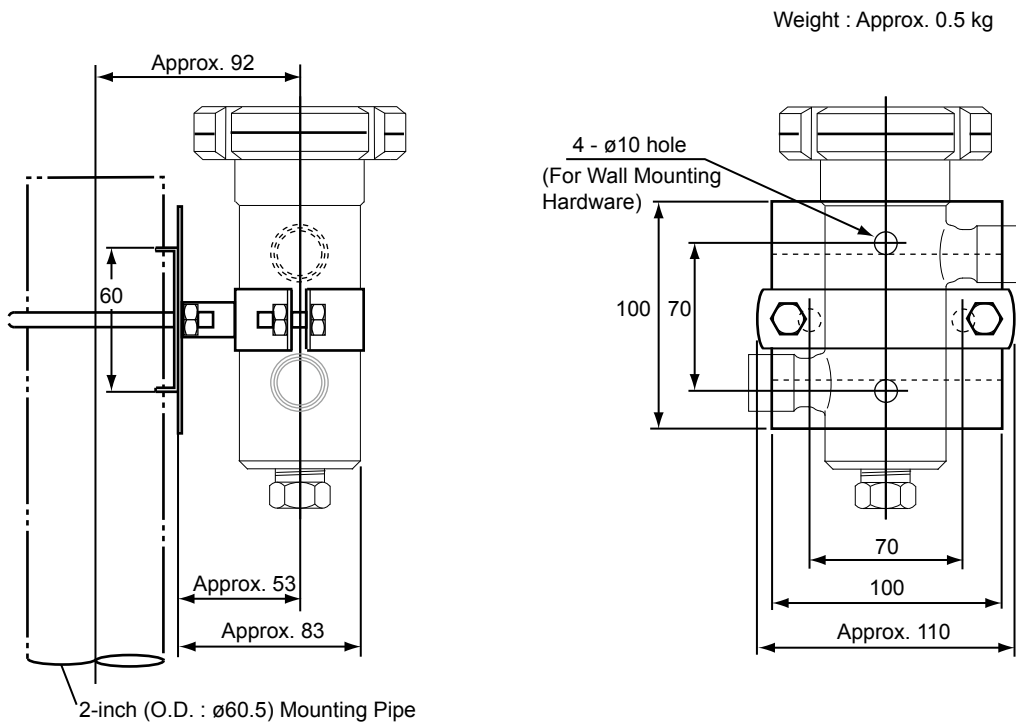
3. ISC40FFJ Flow Holder

Unit : mm

Material : Stainless steel (ISC40FFJ-SJ, -SA)

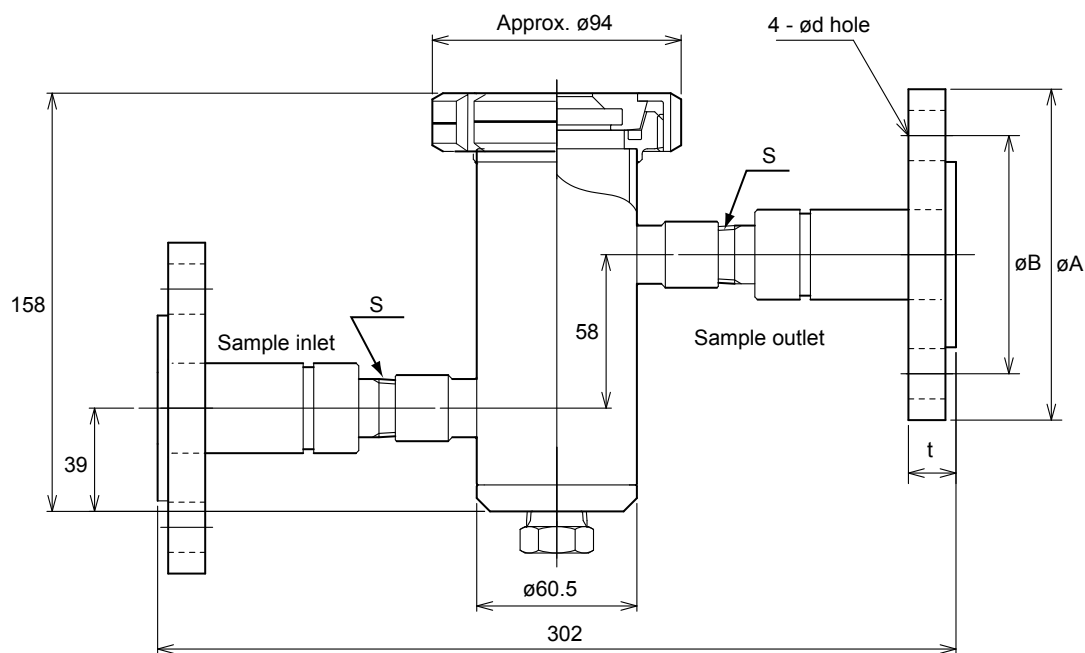


Mounting hardware when /MS option specified





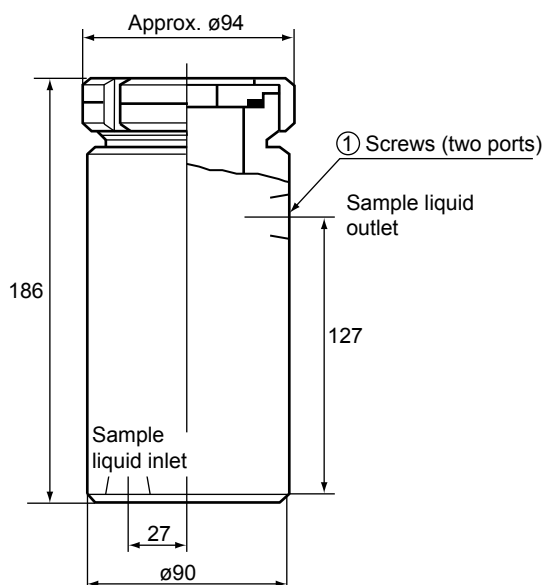
Material : Stainless steel, with Flange (ISC40FFJ-SJ/FSJ2, ISC40FFJ-SA/FS2)



Model code	Flange standard	A	B	d	t	S	Weight (kg)
ISC40FFJ - SJ / FSJ2	JIS 10K 25 RF	125	90	19	Approx. 18	R 1/2	Approx. 4.7
ISC40FFJ - SA / FS2	DIN PN10 DN25	115	85	14	Approx. 19	1/2 NPT	Approx. 4.7

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Material : PP or PVDF (ISC40FFJ-PJ, -PA, -FJ, -FA)



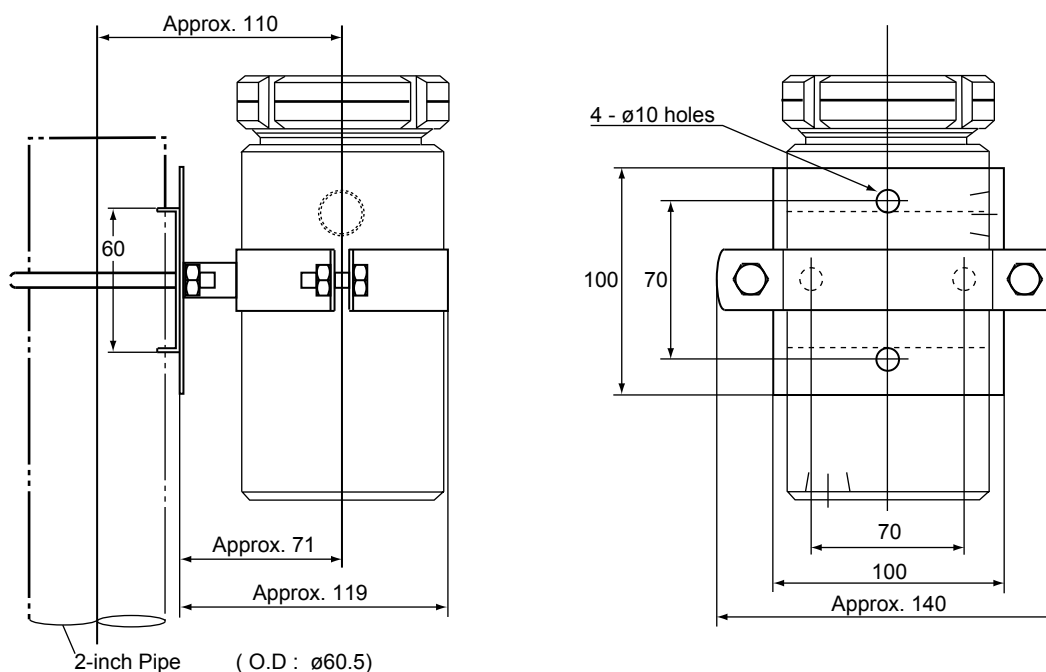
Model code	①	Weight (kg)
ISC40FFJ - PJ	Rc1/2	Approx. 0.9
ISC40FFJ - FJ		Approx. 1.4
ISC40FFJ - PA	1/2NPT female	Approx. 0.9
ISC40FFJ - FA		Approx. 1.4

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### Mounting hardware when /MP option specified

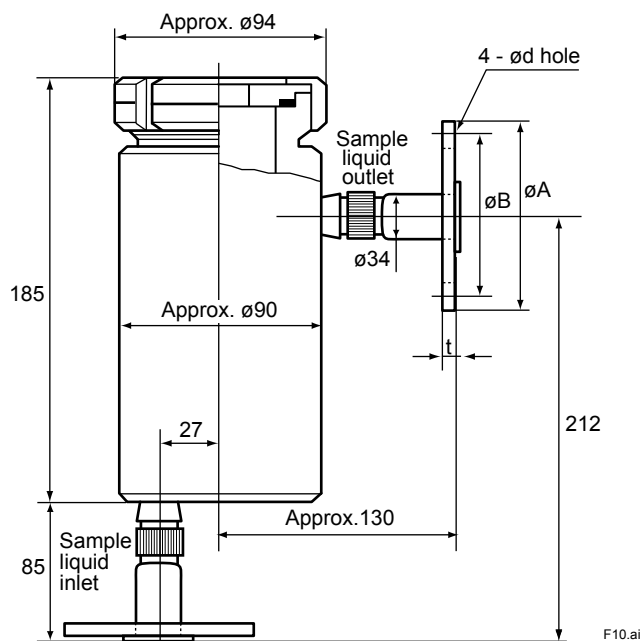
Unit : mm

□ Option code : /MP      Mounting Bracket      Weight : Approx. 0.5 kg



F09.ai

**Material : PP or PVDF, with Flange (ISC40FFJ -PJ/FPJ2, ISC40FFJ -PA/FP2, ISC40FFJ -FJ/FFJ2, ISC40FFJ -FA/FF2)**



F10.ai

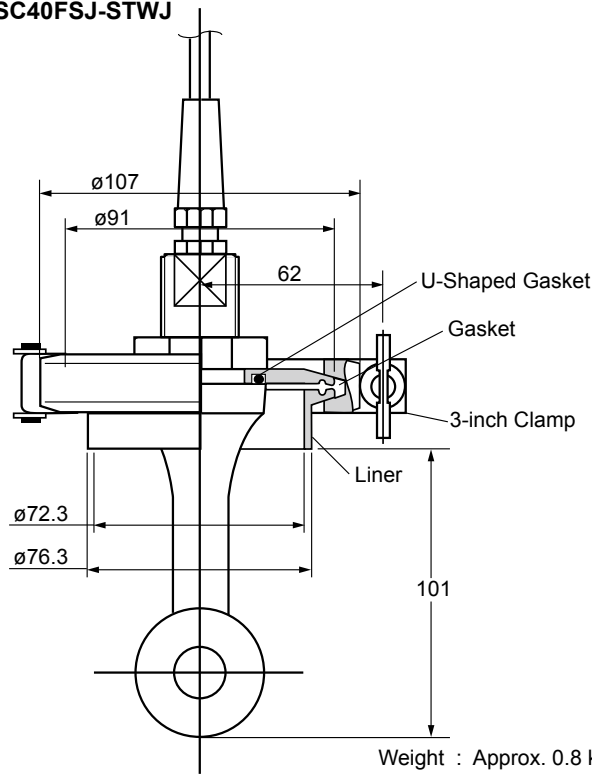
ISC40FFJ - PA, - PJ, -FA, -FJ / FP2, / FPJ2, / FF2, / FFJ2 (with flange)

Model code	Flange standard	A	B	d	t	Weight (kg)
ISC40FFJ - PJ / FPJ2	JIS 10K 25 RF	125	90	19	Approx. 20	Approx. 3.2 kg
ISC40FFJ - FJ / FFJ2						Approx. 3.9 kg
ISC40FFJ - PA / FP2	DIN PN10 DN25	115	85	14	Approx. 19	Approx. 3.2 kg
ISC40FFJ - FA / FF2						Approx. 3.9 kg

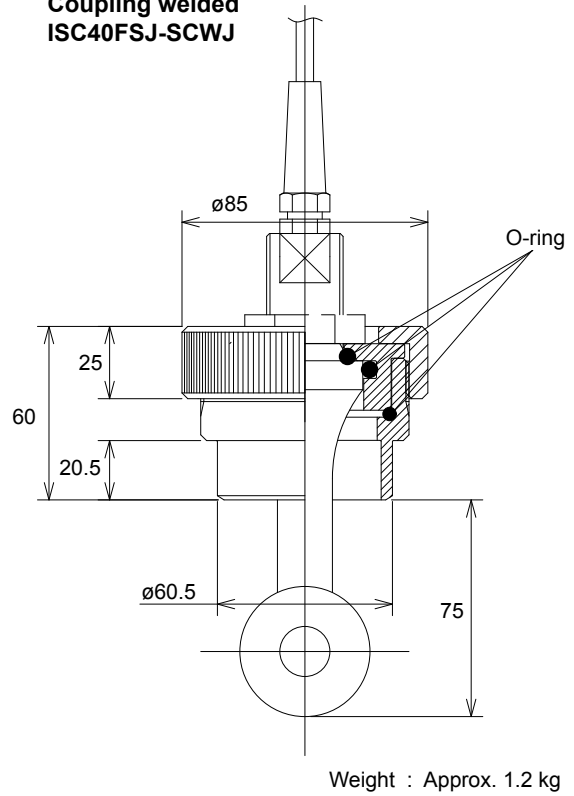
4. ISC40FSJ Direct Insertion Subassembly

Unit : mm

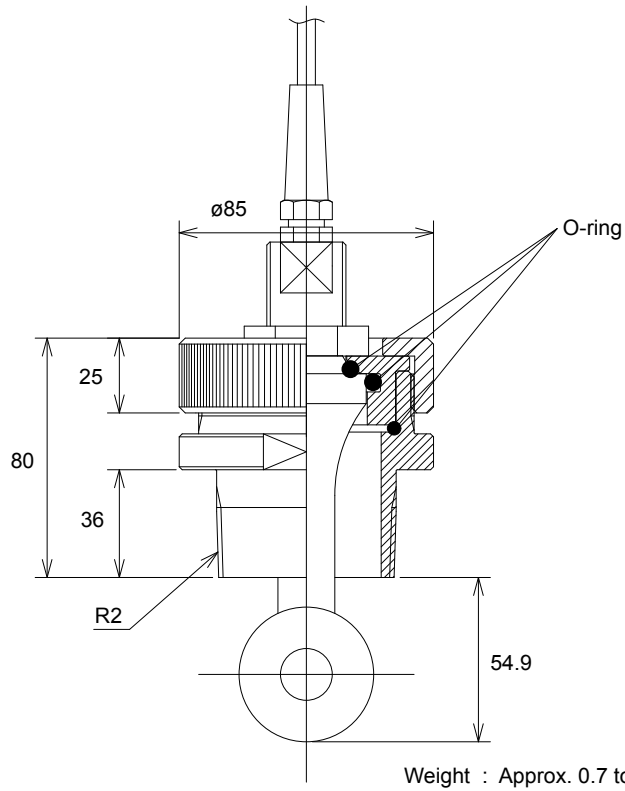
**IDF Clamp  
ISC40FSJ-STWJ**



**Coupling welded  
ISC40FSJ-SCWJ**



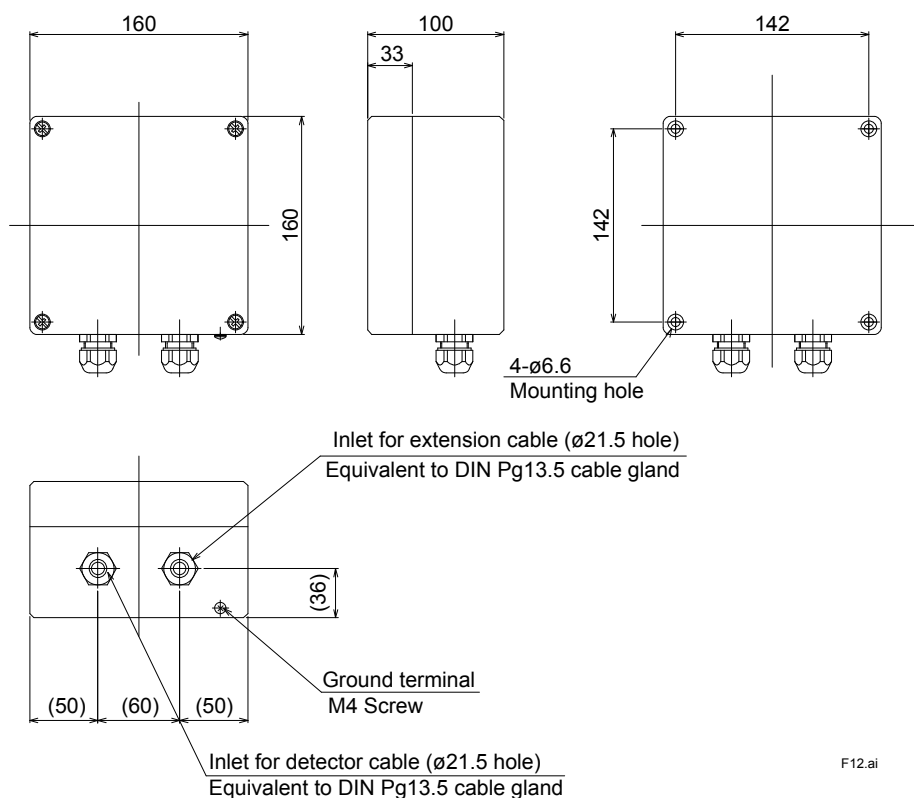
**Screw-in socket  
ISC40FSJ-SCSJ, ISC40FSJ-PCSJ, ISC40FSJ-FCSJ**



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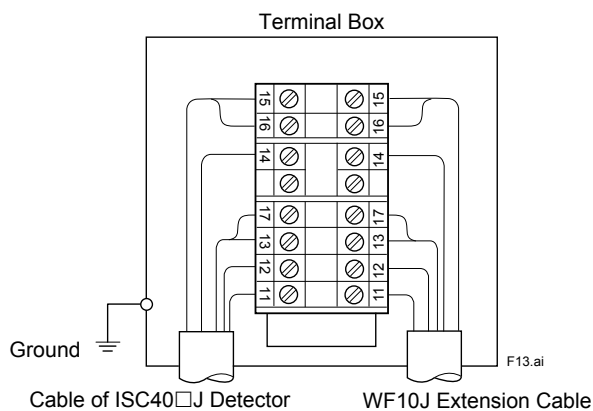
5. BA20 Terminal Box

Unit : mm



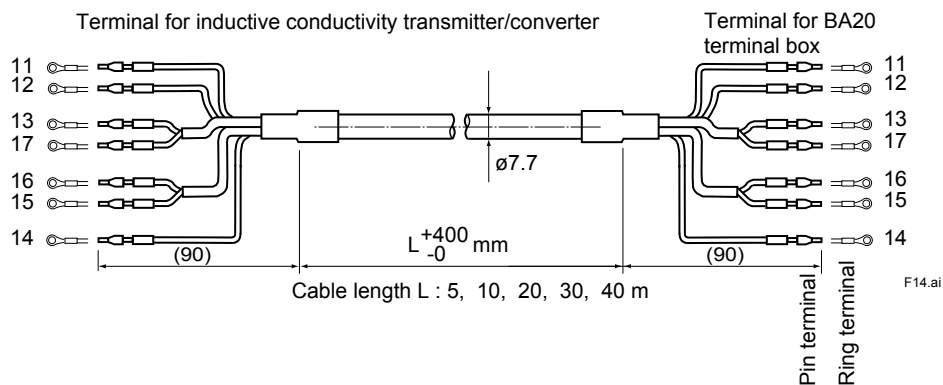
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Wiring



6. WF10J Extension Cable

Unit : mm



## ■ TABLE OF CORROSION-RESISTANT MATERIALS

This chemical resistance table is based on reference data provided by manufacturers and shows the chemical resistance of materials to individual chemical. If a sample contains multiple chemicals, the resistance characteristics may differ from the table specifications. Since sample conditions in an actual application are influenced by various factors, the sensor may not be applicable to some applications. The data should be used for reference only.

Chemical Resistance Table for ISC40															
Reagent	Temp °C concentration	Holder Material				Sealing Material		Sensor Body							
		PVDF		316 SS		PP		PVC		FPM		EPDM		PEEK	
		20	60	100	20	60	100	20	60	100	20	60	100	20	100
Sulfuric acid	10% 50% 98%	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ⊙	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	less than 40% △ 40% or more ×
Fuming sulfuric acid	(98%)	× × ×	○ ○ ×	× × ×	× × ×	× × ×	× × ×	× × ×	× × ×	× × ×	× × ×	× × ×	× × ×	× × ×	× × ×
Hydrochloric acid	15% 38%	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	× × ×	× × ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ △	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×
Nitric acid	30% 50% 98%	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ △	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	10% ⊙ ⊙ 30% ⊙ ⊙ 50% × ×
Phosphoric acid	10% 50% 98%	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×
Hydrofluoric acid	40% 50%	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	× × ×	× × ×	⊙ ⊙ ×	⊙ ⊙ ×	○ × ×	⊙ ⊙ ○	⊙ ⊙ ○	⊙ ⊙ ○	⊙ ⊙ ○	⊙ ⊙ ○	× × × × × ×
Acetic acid	20% 80%	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	○ △ ×	○ △ ×	○ △ ×	○ △ ×	○ △ ×	○ △ ×	○ △ ×	10% ⊙ ⊙
Glacial acetic acid	96%	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	× × ×	× × ×	○ × ×	○ × ×	× × ×	○ × ×	○ × ×	○ × ×	○ × ×	○ × ×	⊙ ⊙
Formic acid	90%	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	× × ×	× × ×	⊙ × ×	⊙ × ×	⊙ × ×	× × ×	× × ×	× × ×	× × ×	× × ×	⊙ ⊙
Citric acid	10%	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙
Calcium hydroxide	Saturated	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	× × ×	× × ×	⊙ ⊙ ○	⊙ ⊙ ○	⊙ ⊙ ×	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ×
Potassium hydroxide	25%	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	× × ×	× × ×	× × ×	× × ×	× × ×	× × ×	10% ⊙ ⊙ × 70% ⊙ ⊙ ×
Sodium hydroxide	50%	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	× × ×	× × ×	× × ×	× × ×	× × ×	× × ×	⊙ ⊙
Ammonia water	10%	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	○ × ×	○ × ×	⊙ ⊙ ×	⊙ ⊙ ×	○ × ×	○ × ×	○ × ×	○ × ×	○ × ×	○ × ×	⊙ ⊙
Ammonium chloride	Saturated	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ × ×	⊙ × ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	10% ⊙ ⊙
Zinc chloride	Saturated	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	○ ○ ×	○ ○ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙
Iron (II) chloride	20%	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	× × ×	× × ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ○	⊙ ⊙ ○	⊙ ⊙ ○	⊙ ⊙ ○	⊙ ⊙ ○	⊙ ⊙ ○	△ △
Sodium carbonate	Saturated	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙
Potassium chloride	30%	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙
Sodium sulfate	Saturated	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙
Calcium chloride	Saturated	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	× × ×	× × ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙
Sodium chloride	Saturated	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	× × ×	× × ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙
Sodium nitrate	Saturated	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙
Aluminum chloride	Saturated	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	○ × ×	○ × ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙
Hydrogen peroxide	30%	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	× × ×	× × ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙
Sodium hypochlorite (*1)	13%	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	△ × ×	△ × ×	○ × ×	○ × ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙
Potassium dichromate	Saturated	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	× ×
Ethanol	100%	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	○ ○ ×	○ ○ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙
Cyclohexane	100%	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	× × ×	× × ×	△ × ×	△ × ×	× × ×	× × ×	× × ×	× × ×	× × ×	× × ×	⊙ ×
Toluene	100%	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	× × ×	× × ×	⊙ × ×	⊙ × ×	× × ×	× × ×	× × ×	× × ×	× × ×	× × ×	⊙ ×
Water	100%	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ⊙	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙ ×	⊙ ⊙

- ⊙ Very suitable
- Suitable
- △ Slightly unsuitable
- × Unusable

\*1: Unusable with any material when this coexists with an acidic solution or oxides.



**CAUTION**  
Select the material of wetted parts with careful consideration of process characteristics. Inappropriate selection may cause leakage of process fluids, which greatly affects facilities. Considerable care must be taken particularly in the case of strongly corrosive process fluid such as hydrochloric acid, sulfuric acid, hydrogen sulfide, and sodium hypochlorite. If you have any questions about the wetted part construction of the product, be sure to contact Yokogawa.

## Inductive Conductivity Sensors and Holders System Inquiry Specifications

Make inquiries by filling in related boxes with checks (✓) and writing in the underlined parts.

### 1. General Items

Name of your company: \_\_\_\_\_  
 Person in charge: \_\_\_\_\_ Belongs to: \_\_\_\_\_ (Phone No. \_\_\_\_\_)  
 Name of plant: \_\_\_\_\_  
 Measuring point: \_\_\_\_\_  
 Purpose of use:  Indication  Record  Alarm  Control  
 Power supply to Distributor: \_\_\_\_\_ V AC

### 2. Measuring conditions

(1) Liquid temperature: \_\_\_\_\_ to \_\_\_\_\_, normal \_\_\_\_\_ [°C]  
 (2) Liquid pressure: \_\_\_\_\_ to \_\_\_\_\_, normal \_\_\_\_\_ [kPa {kgf/cm<sup>2</sup>G}]  
 (3) Flow rate: \_\_\_\_\_ to \_\_\_\_\_, normal \_\_\_\_\_ [L/min]  
 (4) Flow speed: \_\_\_\_\_ to \_\_\_\_\_, normal \_\_\_\_\_ [m/s]  
 (5) Slurry of fouling components:  No  Yes  
 (6) Name of measured liquid: \_\_\_\_\_  
 (7) Components of measured liquid: \_\_\_\_\_  
 (8) Others: \_\_\_\_\_

### 3. Installing Location

(1) Ambient temperature: \_\_\_\_\_  
 (2) Installing location:  Outdoors  Indoors \_\_\_\_\_  
 (3) Others: \_\_\_\_\_

### 4. Specification Requirements

(1) Measuring range:  \_\_\_\_\_  
 (2) System configuration selection:  Sensor  Holder  Terminal box  Extension cable  
 (3) Sensor mounting:  Immersion  Flow-through  Direct insertion  
 (4) Sensor cable length:  5 m  10 m  15 m  20 m  
 (5) Extension cable length:  5 m  10 m  20 m  30 m  40 m  
 (6) Others: \_\_\_\_\_