General Specifications

Model FLXA202
2-Wire Analyzer

GS 12A01A03-01EN

■ General

The model FLXA®202 2-Wire Analyzer, one model of FLEXA® series, offers single or dual sensor measurement. The modular-designed analyzer offers 4 kinds of measurements – pH/ORP (oxidation-reduction potential), contacting conductivity (SC), inductive conductivity (ISC) or dissolved oxygen (DO) – with the respective sensor module.

For dual sensor measurement, the combination of two same type sensor inputs – pH/ORP and pH/ORP (analog sensor only), SC and SC, and DO and DO – are available with two sensor modules. Dual sensor measurement offers additional functionalities; calculated data function and redundant system.

Variety of calculated data from two measuring parameters is selectable for each measurement. On the redundant system built on two measuring parameters of two sensor inputs, main output parameter is automatically switched over to the second sensor output in case of the main sensor's failure condition.

Addition to conventional analog pH/ORP sensors, the analyzer FLXA202 can be connected to Yokogawa's digital sensor, FU20F / FU24F / SC25F Digital pH/ORP SENCOM® Sensor.

In the FLXA202 Human Machine Interface (HMI), 2-wire type analyzer FLXA202 offers easy touch screen operation and simple menu structure in 12 languages. Menus of display, execution and setting are displayed in a selected language.

The analyzer FLXA202 automatically recognizes the installed sensor module and prepares the necessary menus for right configuration, even for dual sensor measurement.

For immediate measurement, the FLXA202 offers quick setup functionality. The quick setup screen appears when the analyzer is powered. Only a few setups – date/time, language, basic sensor configurations and output – will start the measurement.

The FLXA202 offers the best accuracy in measurement with temperature compensation functionality and calibration functionality. Sensor diagnostics and sensor wellness indication make measurement reliable. Logbook of events and diagnostic data is a useful information source for maintenance.

For the wide range of industrial environment, the FLXA202 is designed with the enclosure of aluminum alloy cast with corrosion-resistant coating.

■ Features

- 4 kinds of measurements; pH/ORP, SC, ISC and DO
- Dual sensor measurement on 2-wire type analyzer; pH/ORP and pH/ORP, SC and SC, and DO and DO
- Calculated data from dual sensor measurement
- Redundant system on dual sensor measurement
- Connection of FU20F / FU24F / SC25F Digital pH/ORP SENCOM Sensor
- Easy touch screen operation on 2-wire type analyzer
- Simple HMI menu structure in 12 languages
- Quick setup menu for immediate measurement
- Indication of sensor wellness
- Enclosure – aluminum alloy cast.

YOKOGAWA

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GS 12A01A03-01EN

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■ General Specifications

1. Basic

■ **Measurement Object/Sensor Type**
- pH/Oxidation-reduction Potential (pH/ORP) (analog sensor)
- Conductivity (SC)
- Inductive Conductivity (ISC)
- Dissolved Oxygen (DO)
- pH/Oxidation-reduction Potential (pH/ORP) (digital sensor)

Note: The available measurement object depends on a sensor module installed on the analyzer.

■ **Analyzer Structure**
Module structure

● **Composition of Analyzer**
One (1) Housing assembly
One (1) or two (2) Sensor modules

● **Combination of Sensor Module when two modules are installed**
Combinations of two same sensor modules are available;
pH/ORP and pH/ORP (analog sensor)
SC and SC
DO and DO

2. Measurement

2-1. pH/Oxidation-reduction Potential (pH/ORP) with analog sensors

■ **Input Specification**
Dual high impedance input (≥10^{12} Ω)

■ **Input Range**
pH: -2 to 16 pH (with option /K: 0 to 14 pH)
ORP: -1500 to 1500 mV
rH: 0 to 100 rH
Temperature:
Pt1000: -30 to 140 ºC
Pt100: -30 to 140 ºC
6.8k: -30 to 140 ºC
PTC10k: -30 to 140 ºC
NTC 8k55: -10 to 120 ºC
3k Balco: -30 to 140 ºC
PTC500: -30 to 140 ºC

■ **Output Range**
pH: min. span 1 pH
max. span 20 pH
ORP: min. span 100 mV
max. span 3000 mV
rH: min. span 2 rH
max. span 100 rH
Temperature: min. span 25 ºC
max. span 170 ºC

■ **Performance (Accuracy)**
(The specifications are expressed with simulated inputs.)
pH
Linearity: ±0.01 pH
Repeatability: ±0.01 pH
Accuracy: ±0.01 pH
ORP
Linearity: ±1 mV
Repeatability: ±1 mV
Accuracy: ±1 mV
Temperature
with Pt1000, 6.8k, PTC10k, NTC 8k55, 3k Balco, PTC500
Linearity: ±0.3 ºC
Repeatability: ±0.1 ºC
Accuracy: ±0.3 ºC
with Pt100
Linearity: ±0.4 ºC
Repeatability: ±0.1 ºC
Accuracy: ±0.4 ºC

2-2. Conductivity (SC)

■ **Input Specification**
Two or four electrodes measurement with square wave excitation, using max 60m (200ft) cable (WU40/WF10) and cell constants from 0.005 to 50.0 cm^{-1}

■ **Input Range**
Conductivity:
min.: 0 µS/cm
max.: 200 mS x (Cell constant)
(over range 2000 mS/cm)
Resistivity:
min.: 0.005 kΩ / (Cell constant)
max.: 1000 MΩ x cm
Temperature:
Pt1000: -20 to 250 ºC
Pt100: -20 to 200 ºC
Ni100: -20 to 200 ºC
NTC 8k55: -10 to 120 ºC
Pb36(JIS NTC 6k): -20 to 120 ºC

■ **Output Range**
Conductivity:
min. 0.01 µS/cm
max. 2000 mS/cm (max 90% zero suppression)
Resistivity:
min. 0.001 kΩ x cm
max. 1000 MΩ x cm (max 90% zero suppression)
Temperature:
min. span 25 ºC
max. span 270 ºC

■ **Performance (Accuracy)**
(The specifications are expressed with simulated inputs.)
Conductivity
2 µS x K cm^{-1} to 200 mS x K cm^{-1}
Accuracy: ±0.5%F.S.
1 µS x K cm^{-1} to 2 µS x K cm^{-1}
Accuracy: ±1%F.S.
Resistivity
0.005kΩ / K cm^{-1} to 0.5MΩ /K cm^{-1}
Accuracy: ±0.5%F.S.
0.5MΩ / K cm^{-1} to 1MΩ /K cm^{-1}
Accuracy: ±1%F.S.
Temperature
with Pt1000, Pb36, Ni100
Accuracy: ±0.3 ºC
with Pt100, NTC 8k55
Accuracy: ±0.4 ºC
Temperature compensation
NaCl table: ±1 %
Matrix: ±3 %
Step response: 90 % (< 2 decades) in 7 seconds
Note: "F.S." means maximum setting value of analyzer output.
"K" means cell constant.
YOKOGAWA provides conductivity sensors of which cell constants are 0.1 to 10 cm^{-1}.

2-3. Inductive Conductivity (ISC)

■ **Input Specification**

Compatible with the Yokogawa inductive conductivity ISC40 series with integrated temperature sensor: NTC30k or Pt1000.

■ **Input Range**

Conductivity: 0 to 2000 mS/cm at 25 ºC reference temperature.
Temperature: -20 to 140 ºC
Cable length:
max. 60 meters total length of fixed sensor cable + WF10(J) extension cable. Influence of cable can be adjusted by doing an AIR CAL with the cable connected to a dry cell.

■ **Output Range**

Conductivity:
min. span: 100 µS/cm
max. span: 2000 mS/cm (max 90% zero suppression)
Temperature:
min. span 25 ºC
max. span 160 ºC

■ **Performance (Accuracy)**

(The specifications are expressed with simulated inputs.)
(Output span is 0-100 µS/cm or more)
Conductivity:
Linearity: ±(0.4 %F.S. + 0.3 µS/cm)
Repeatability: ±(0.4 %F.S. + 0.3 µS/cm)
Temperature: ±0.3 ºC
Step response: 90 % (< 2 decades) in 8 seconds
Note: "F.S." means maximum setting value of analyzer output.

2-4. Dissolved Oxygen (DO)

■ **Input Specification**

The FLXA202 accepts output from membrane covered Dissolved Oxygen sensors. These sensors can be Galvanic type, where the sensor generates its own driving voltage or Polarographic type, where the sensor uses external driving voltage from the converter.
The input range is 0 to 50 µA for Galvanic sensors and 0 to 1 micro A for Polarographic sensors.
For temperature compensation, the FLXA202 accepts Pt1000 (DO30 sensor) and NTC22k elements (OXYFERM and OXYGOLD sensors).

■ **Input Range**

DO30 sensor:
Dissolved Oxygen: 0 to 50 mg/l (ppm)
Temperature: -20 to 150 ºC
Note: Process temperature for DO30 is 0 to 40 ºC
Hamilton sensors:
Oxyferm:
Measurement range: 10 ppb to 40 ppm
Temperature range: 0 to 130 ºC
Oxygold G:
Measurement range: 2 ppb to 40 ppm
Temperature range: 0 to 130 ºC
Oxygold B:
Measurement range: 8 ppb to 40 ppm
Temperature range: 0 to 100 ºC

■ **Output Range**

DO concentration:
mg/l (ppm):
min.: 1 mg/l (ppm)
max.: 50 mg/l (ppm)
ppb:
min.: 1 ppb
max.: 9999 ppb
% saturation:
min.: 10 %
max.: 600 %
Temperature:
min. span 25 ºC
max. span 170 ºC

■ **Performance (Accuracy)**

(The specifications are expressed with simulated inputs.)
Performance in ppm mode:
Linearity: ±0.05 ppm or ±0.8% F.S., whichever is greater
Repeatability: ±0.05 ppm or ±0.8% F.S., whichever is greater
Accuracy: ±0.05 ppm or ±0.8% F.S., whichever is greater
Performance in ppb mode:
Linearity: ±1 ppb or ±0.8% F.S., whichever is greater
Repeatability: ±1 ppb or ±0.8% F.S., whichever is greater
Accuracy: ±1 ppb or ±0.8% F.S., whichever is greater
Temperature
Linearity: ±0.3 ºC
Repeatability: ±0.1 ºC
Accuracy: ±0.3 ºC
Note: "F.S." means maximum setting value of analyzer output.

2-5. pH/Oxidation-reduction Potential (pH/ORP) with digital sensor, FU20F pH/ORP SENCOM Sensor

■ **Input Specification**

Bi-directional digital communication (RS-485) between FU20F and FLXA202

■ **Input Range (depending on FU20F)**

pH: 0 to 14 pH
ORP: -1500 to 1500 mV
rH: 0 to 100 rH
Temperature: -10 to 105 ºC

■ **Output Range**

pH: min. span 1 pH
max. span 20 pH
ORP: min. span 100 mV
max. span 3000 mV
rH: min. span 2 rH
max. span 100 rH
Temperature: min. span 25 ºC
max. span 170 ºC

3. Electrical

■ Output Signal

General: One output of 4-20 mA DC
Note: Tolerance: ±0.02 mA
Bi-directional HART digital communication, superimposed on mA (4-20mA) signal

Output function:
Linear or Non-linear (21-step table)

Burn out function: (NAMUR 43 except ISC)

Without HART/PH201G:
Down: 3.6 mA
(signal: 3.8 to 20.5 mA for pH/ORP, SC and DO)
(signal: 3.9 to 20.5 mA for ISC)
Up: 22mA

With HART/PH201G:
Down: 3.6 mA for pH/ORP, SC and DO
Down: 3.9 mA for ISC
(signal: 3.8 to 20.5 mA for pH/ORP, SC and DO)
(signal: 3.9 to 20.5 mA for ISC)
Up: 22mA

■ Power Supply

Nominal 24 V DC loop powered system

One (1) Sensor module (1 input):
16 to 40V DC (for pH/ORP (analog sensor), SC and DO)
17 to 40V DC (for ISC)
21 to 40V DC (for pH/ORP SENCOM sensor)

Two (2) Sensor modules (2 inputs):
22.8 to 40V DC (for pH/ORP (analog sensor), SC and DO)

Note: When the FLXA202 is used in the multi-drop mode of HART communication, the output signal is changed from 12.5 mA DC to 4 mA DC just after the power is turned on. Enough power supply for the instruments is to be provided.

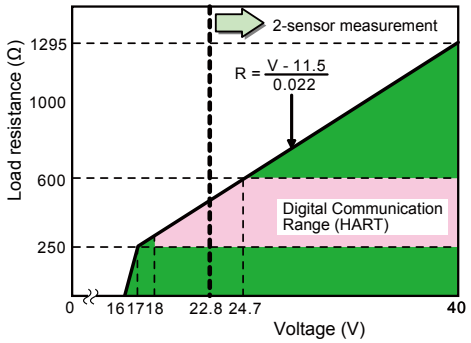


Figure 1 Supply Voltage and Load Resistance for pH/ORP (analog sensor), SC and DO

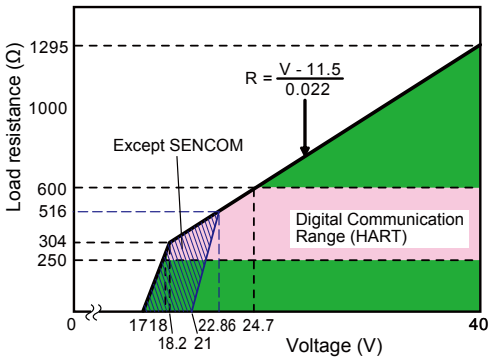


Figure 2 Supply Voltage and Load Resistance for ISC and pH/ORP SENCOM sensor

● Maximum Load Resistance

pH/ORP (analog sensor), SC and DO:
Refer to the Figure 1.

ISC and pH/ORP SENCOM sensor:
Refer to the Figure 2.

■ Display

LCD with a touch screen:
Black/White: 213 x 160 pixels

Contrast adjustment available on the touch screen

Message language:
12 (English, Chinese, Czech, French, German, Italian, Japanese, Korean, Polish, Portuguese, Russian and Spanish)
One analyzer has all 12 languages.

Note: Description for a selection of language and language names are written in English.

Note: Only English alphabet and numeric are available for a tag number, an additional description for each value on the display screen and passwords.

Note: Only for message language on the screen, 12 languages are provided.

4. Mechanical and others

■ Housing

Case, Cover:
- Aluminum alloy cast + epoxy coating
- Aluminum alloy cast + urethane coating
- Aluminum alloy cast + high anti-corrosion coating

Color: Silver gray

Protection: IP66 (except Canada), Type 4X (except Canada), Type 3S/4X (Canada)

■ Cable and Terminal

Cable size:
Outer diameter:
6 to 12 mm (suitable for M20 cable gland)

Terminal screw size: M4
torque of screw up: 1.2 N•m

Wire terminal:
Pin terminal, ring terminal and spade terminal can be used for analyzer's power supply terminals and sensor terminals.

Grounding terminal:
Ring terminal should be used.

Pin terminal: pin diameter: max. 1.9 mm

Ring and spade terminal: width: max. 7.8 mm

■ Cable Entry

3 holes,
M20 cable gland x 3 pcs
Close up plug x 1 pc

Note: Cable gland and plug are delivered with an analyzer, but not assembled into the analyzer.

■ Mounting

Mounting hardware (option):
- Universal mounting kit (Note)
- Pipe and wall mounting hardware
- Panel mounting hardware

Note: This kit contains the pipe and wall mounting hardware and the panel mounting hardware.

Hood (option):
- Stainless steel
- Stainless steel with urethane coating
- Stainless steel with epoxy coating

■ Stainless Steel Tag Plate

When the additional code "/SCT" with a tag number is specified, the tag plate on which the tag number is inscribed is delivered with the analyzer.
Tag plate is hanging type.

■ **Conduit Adapter**
Using optional adapter
- G1/2 (quantity: 3)
- 1/2NPT (quantity: 3)
- M20 x 1.5 (quantity: 3)

These conduit adapters are delivered with an analyzer, but not assembled into the analyzer.

■ **Size of Housing Case**
165 x 165 x 155 mm (W x H x D) (without cable gland)

■ **Weight**
Approx. 2.5 kg

■ **Ambient Operating Temperature**
-20 to +55 ºC

■ **Storage Temperature**
-30 to +70 ºC

■ **Humidity**
10 to 90% RH at 40ºC (Non-condensing)

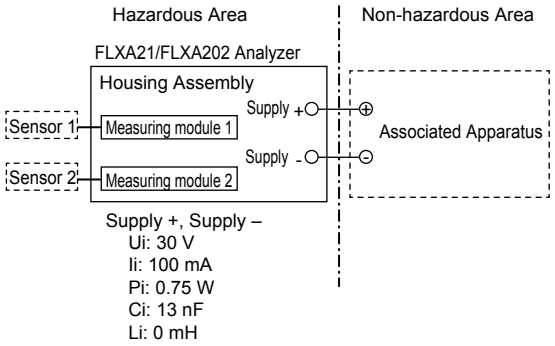
■ **Document**
Following documents are delivered with an analyzer;
Paper copy:
Start-up Manual
written in English
Safety Precautions
written in English
CD-ROM:
Start-up Manual
written in English
User's Manual
written in English
Safety Regulations Manual
for European region
written in 25 languages
General Specifications
written in English
Technical Information
for HART Communication
written in English
User Setting Table
of 5 kinds of measurement/sensor type
written in English

■ **Regulatory Compliance**
Safety: UL 61010-1
UL 61010-2-030
CAN/CSA-C22.2 No.61010-1
CAN/CSA-C22.2 No.61010-2-030
EMC: EN61326-1 Class A,Table 2 (For use in industrial locations)
EN61326-2-3
AS/NZS CISPR11
Korea Electromagnetic Conformity Standard Class A 한국 전자파적합성 기준
Installation altitude: 2000 m or less
Category based on IEC 61010: I (Note 1)
Pollution degree based on IEC 61010: 2 (Note 2)
Note 1: Installation category, called over-voltage category, specifies impulse withstand voltage. Equipment with “Category I” (ex. two wire transmitter) is used for connection to circuits in which measures are taken to limit transient over-voltages to an appropriately low level.
Note 2: Pollution degree indicates the degree of existence of solid, liquid, gas or other inclusions which may reduce dielectric strength. Degree 2 is the normal indoor environment.

Intrinsic safety (for suffix code: -CB):
ATEX Intrinsic safety approval
Applicable standard
Explosive Atmospheres
EN 60079-0:2012/A11: 2013 Equipment - General requirements
EN 60079-11:2012 Equipment protection by Intrinsic safety “i”
EN 60079-26:2007 Equipment with equipment protection level (EPL) Ga
EN 60529:1992 Degrees of protection provided by enclosures (IP Code)
Type of protection
II 1G Ex ia IIC Ga
Group: II
Category: 1G
T4: for ambient temperature:–20 to 55ºC
Atmosphere pressure: 80kPa (0.8bar) to 110kPa (1.1bar)
Degree of Protection of the Enclosure: IP66
IECEx Intrinsic safety approval
Applicable standard
IEC 60079-0: 2011 Part 0: Equipment - General requirements
IEC 60079-11: 2011 Part 11: Equipment protection by Intrinsic safety “i”
IEC 60079-26: 2006 Part 26: Equipment with equipment protection level (EPL) Ga
IEC 60529: 2001 Degrees of protection provided by enclosures (IP Code)
Type of protection
Ex ia IIC Ga
T4: for ambient temperature:–20 to 55ºC
Atmosphere pressure: 80kPa (0.8bar) to 110kPa (1.1bar)
Degree of Protection of the Enclosure: IP66

ATEX and IECEx

Control Drawing (for 4–20mA Type)



Measuring Module 1, 2

	Type of Measuring Module		
	pH, SC, DO	**ISC**	**SENCOM**
Uo	11.76 V	11.76 V	5.36 V
Io	116.5 mA	60.6 mA	106.16 mA
Po	0.3424 W	0.178 W	0.1423 W
Co	100 nF	100 nF	31 µF
Lo	1.7 mH	8 mH	0.45 mH

Specific Conditions of Use

- When the enclosure of FLXA21/202 Analyzer is made of aluminum alloy, and when it is used in an explosive atmosphere requiring equipment of Category 1 G or EPL Ga, the Analyzer must be installed in such a way that, even in the event of rare incidents, an ignition source due to impact friction sparks is excluded.
- Precautions shall be taken to minimize the risk from electrostatic discharge of non-metallic parts of the enclosure or painted parts of the metallic enclosure.

Notes:

1. The associated apparatus must be a linear source.
2. Measuring Module 2 is not necessarily installed. As for ISC module and SENCOM module, only one module is permitted to be installed at a time.
3. Sensor 1 and Sensor 2 may be simple apparatus or intrinsically safe apparatus.
4. WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD – SEE USER'S MANUAL

5. Digital Communication

■ **Kind of Digital Communication**

• HART or PH201G dedicated distributor

Note: Only one kind of digital communication is available for one analyzer.

■ **Output Value Parameter (HART)**

Four value parameters (measured values) are available for one digital communication.

• For 1-sensor measurement, these parameters are measured values.

• For 2-sensor measurement, refer to the next item.

■ **Digital Communication of 2-Sensor Measurement (HART)**

Even when two sensor modules are installed, only one digital communication is available for 2-sensor measurement.

Four value parameters can be selected from the followings;

Measured values of two sensors
Calculated data of 2-sensor measurement
Redundant system output

■ **Specific Contact Output with dedicated distributor, model PH201G (Style B)**

The distributor, model PH201G, is designed to connect with the 2-Wire Analyzer.

This distributor supplies drive power to the analyzer and receives simultaneously 4-20 mA DC signal from the analyzer.

This signal is converted to 1-5 V DC signal in the distributor.

This distributor also receives digital signals superimposed on the 4-20 mA DC signal, and provides contact outputs

Input/Output signal:

Number of available drive/signal point: 1
Output signal: 1-5 V DC (2 points) (Note)
Load resistance: 2 kΩ or less (1-5 V DC output)
Isolation system: Loop isolation type

Note: Two output signals for one analyzer's analog output are provided. Two 1-5 V DC output signals are same.

Contact output:

Contact rating:
250 V AC, maximum 100 VA
220 V DC, maximum 50 VA

Hold contact output:
NC contact, normally energized
Contact closes when power is off or during Hold situation.

Fail contact output:
NC contact, normally energized
Contact closes when power is off or during Fail/Warning conditions.

Wash contact output:
NO contact
Contact closes during wash cycles.

6. Model & Suffix Codes

Model	Suffix code	Option code	Description
FLXA202	·····	·····	2-Wire Analyzer
Power supply	**-D**	·····	Always -D
Housing (Note 12)	**-B**	·····	Aluminum alloy cast + urethane coating
	-C	·····	Aluminum alloy cast + epoxy coating
	-D	·····	Aluminum alloy cast + high anti-corrosion coating
Display(Note 13)	**-D**	·····	Anti-glare LCD
Type(Note 1)	**-AB**	·····	General purpose for CE, RCM
	-AD	·····	General purpose for CSA
	-AG	·····	General purpose for KC
	-AQ	·····	General purpose for EAC with PA (pending)
	-AR	·····	General purpose for EAC (pending)
	-CB	·····	IS for ATEX, IECEx
	-CD	·····	IS for FM, CSA (Note 2) (pending)
	-CF	·····	IS for TIIS (pending)
	-CG	·····	IS for KOSHA (Note 3) (pending)
	-CH	·····	IS for NEPSI (pending)
	-CQ	·····	IS for EAC with PA (pending)
	-CR	·····	IS for EAC (pending)
	-DB	·····	Type n for ATEX, IECEx (pending)
	-DD	·····	NI for FM, CSA (pending)
	-DE	·····	Type n for CSA (pending)
1st input	**-P1**	·····	pH/ORP (Note 4)
	-C1	·····	Conductivity (SC)
	-C5	·····	Inductive conductivity (ISC)
	-D1	·····	Dissolved oxygen (DO)
	-S1	·····	pH/ORP (SENCOM sensor) (Note 5)
2nd input (Note 6)	**-NN**	·····	Without input
	-P1	·····	pH/ORP (Note 4)
	-C1	·····	Conductivity (SC)
	-D1	·····	Dissolved oxygen (DO)
Output	**-A**	·····	4-20 mA + HART
—	**-N**	·····	Always -N
Language set (Note 7)	**-LA**	·····	English and 11 languages
Country (Note 8)	**-N**	·····	Global except Japan
	-J	·····	Japan
—	**-NN**	·····	Always -NN
Option	Mounting hardware	**/UM**	Universal mounting kit (Note 9)
		/U	Pipe and wall mounting hardware
		/PM	Panel mounting hardware
	Hood	**/H6**	Hood, stainless steel
		/H7	Hood, stainless steel + urethane coating
		/H8	Hood, stainless steel + epoxy coating
	Tag plate	**/SCT**	Stainless steel tag plate
	Conduit adapter(Note 10)	**/CB4**	G1/2 x 3 pcs
		/CD4	1/2NPT x 3 pcs
		/CF4	M20 x 1.5 x 3 pcs
		/CB5	G1/2 x 3 pcs for Type n (pending)
		/CD5	1/2NPT x 3 pcs for Type n (pending)
		/CF5	M20 x 1.5 x 3 pcs for Type n (pending)
	Measurement law	**/K**	With Measurement Law certificate (Note 11) (pending)

Notes:

1: Type "-C * " is intrinsic safety (IS), Type "-DB" is type n of ATEX and IECEx, Type "-DD" is nonincendive (NI) of FM and CSA Type "-DE" is type n of CSA.
2: Type "-CD " is intrinsic safety, but is available as nonincendive.
3: Korean IM is attached to FLXA202 instead of English IM.
4: This input is to be come from an analog pH/ORP sensor.
5: When the analyzer is connected with the digital sensor (FU20F pH/ORP SENCOM Sensor)
6: When a 2nd input is selected, only the same kind of the 1st input is available.
For example, when a 1st input is "-P1", the 2nd input must be the same "-P1".
The combination of ISC and ISC is not available. And, the combination of SENCOM sensor and SENCOM sensor is not available, either.

7: These languages are message languages on the analyzer's display.
One analyzer has English and 11 languages.
All languages are as follows; English, Chinese, Czech, French, German, Italian, Japanese, Korean, Polish, Portuguese, Russian and Spanish.

8: When an analyzer is used in Japan, it must meet the Japanese Measurement Law, please select the "-J".
Only SI units must be used on the analyzer and its documents in Japan.

9: The universal mounting kit contains the pipe and wall mounting hardware (/U) and the panel mounting hardware (/PM).

10: "/CB5", "/CD5", "/CF5" can use "type n" model (-DB, -DE), other model can use "/CB4", "/CD4", "/CF4".

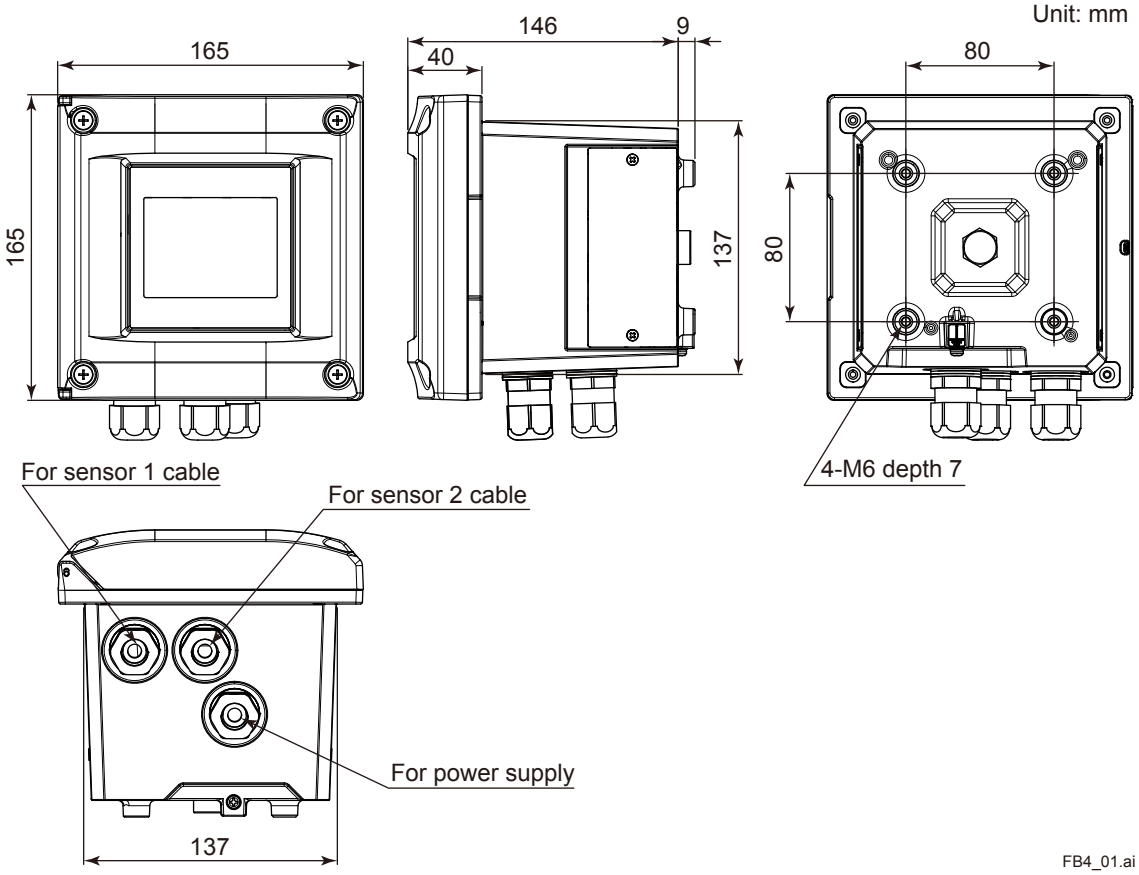
11: The analyzer with Japanese Measurement Law certificate is available only for the following model;
FLXA202-D-[Housing code]-D-AB-P1-NN-A-N-LA-J-NN/[option code except /K]/K
Only one pH measurement with an analog sensor is certified. The digital sensor (FU20F) is not certified.
The output signal of 4 - 20 mA is certified. HART communication is not certified

12: Urethane coating is for acid resistance, and epoxy coating is for alkali resistance. For high anti-corrosion coating, both urethane coating and epoxy coating are applied.

13: Type "-CF" is anti-reflection coated. Other types are anti-glare coated.

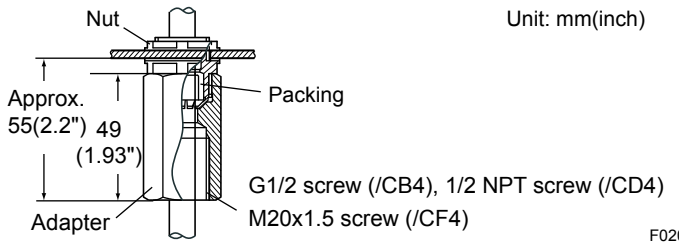
■ Dimensions and Mounting

Unit: mm



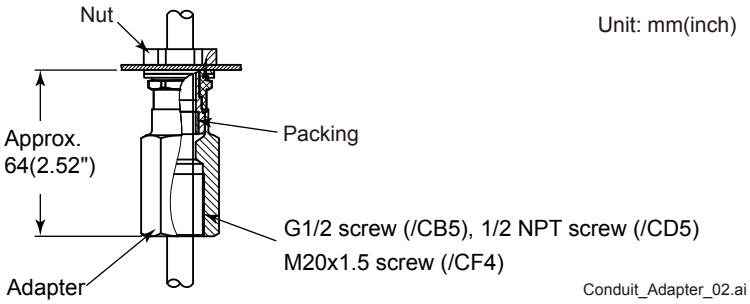
Conduit Adapter (Option code: ☐/CB4, ☐/CD4, ☐/CF4)

Unit: mm(inch)



Conduit Adapter (Option code: ☐/CB5, ☐/CD5, ☐/CF5)

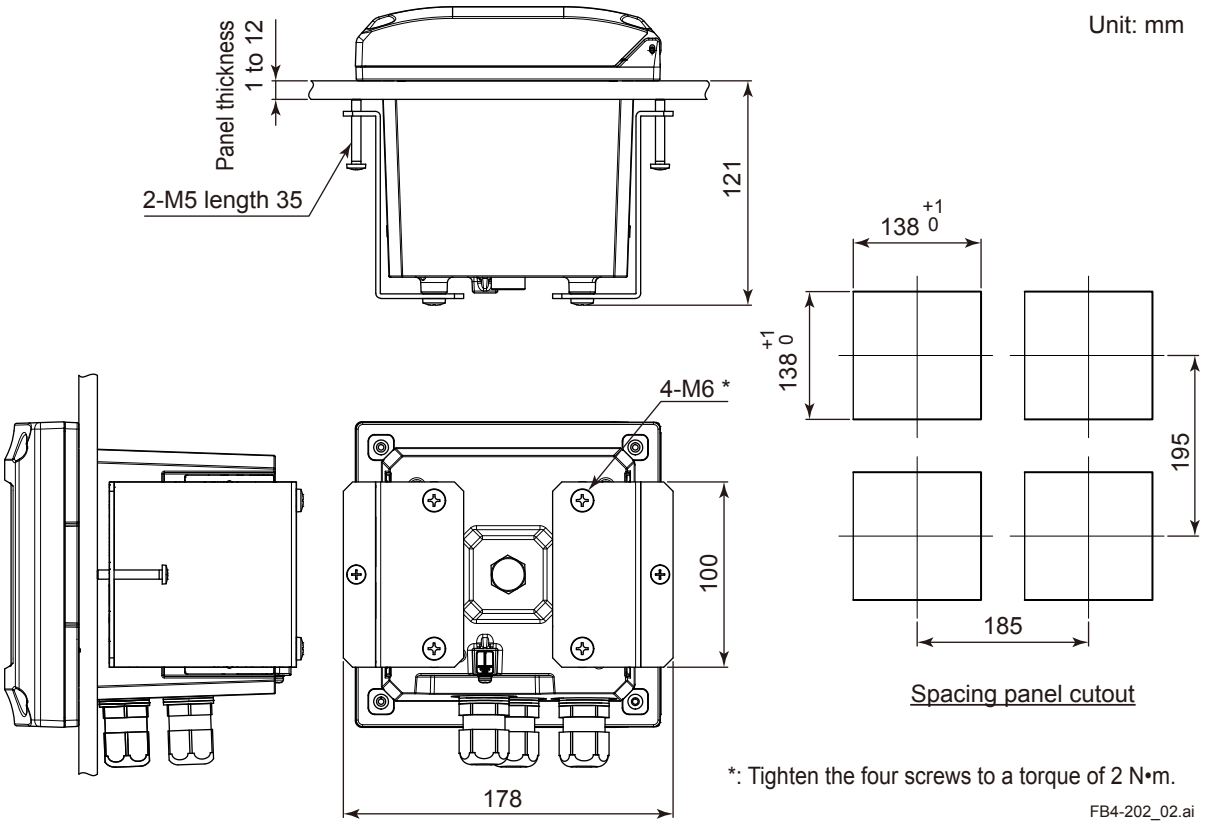
Unit: mm(inch)



(Note) The universal mounting kit (/UM) contains the pipe and wall mounting hardware (/U) and the panel mounting hardware (/PM).

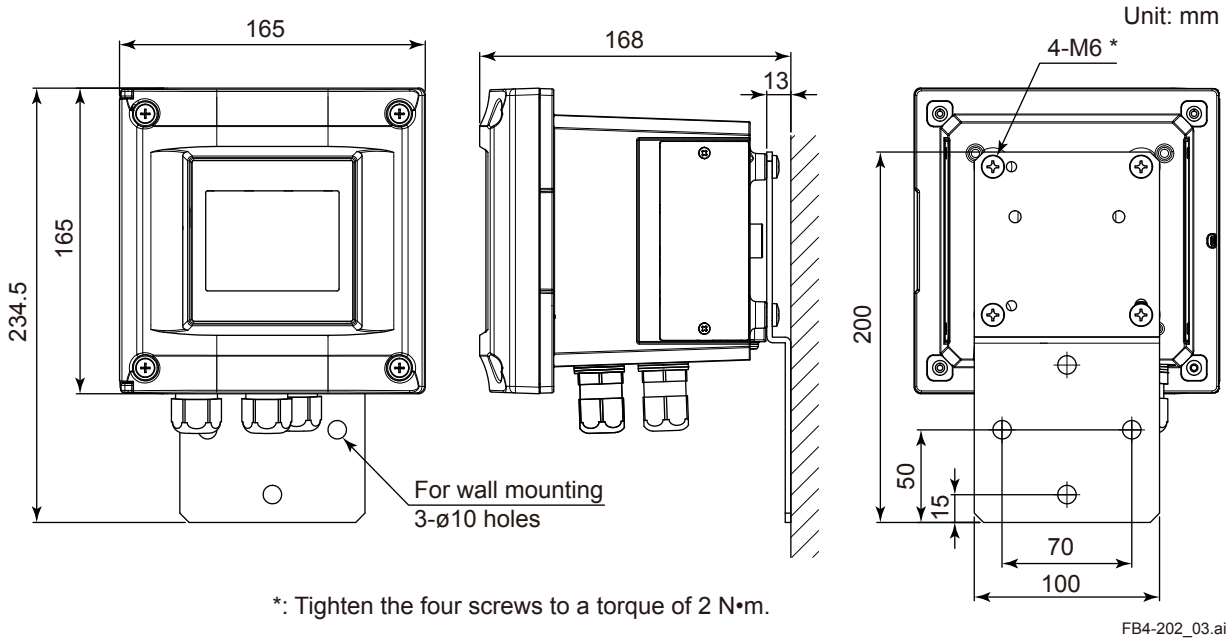
Panel mounting hardware (Option code: □/PM, □/UM)

Unit: mm



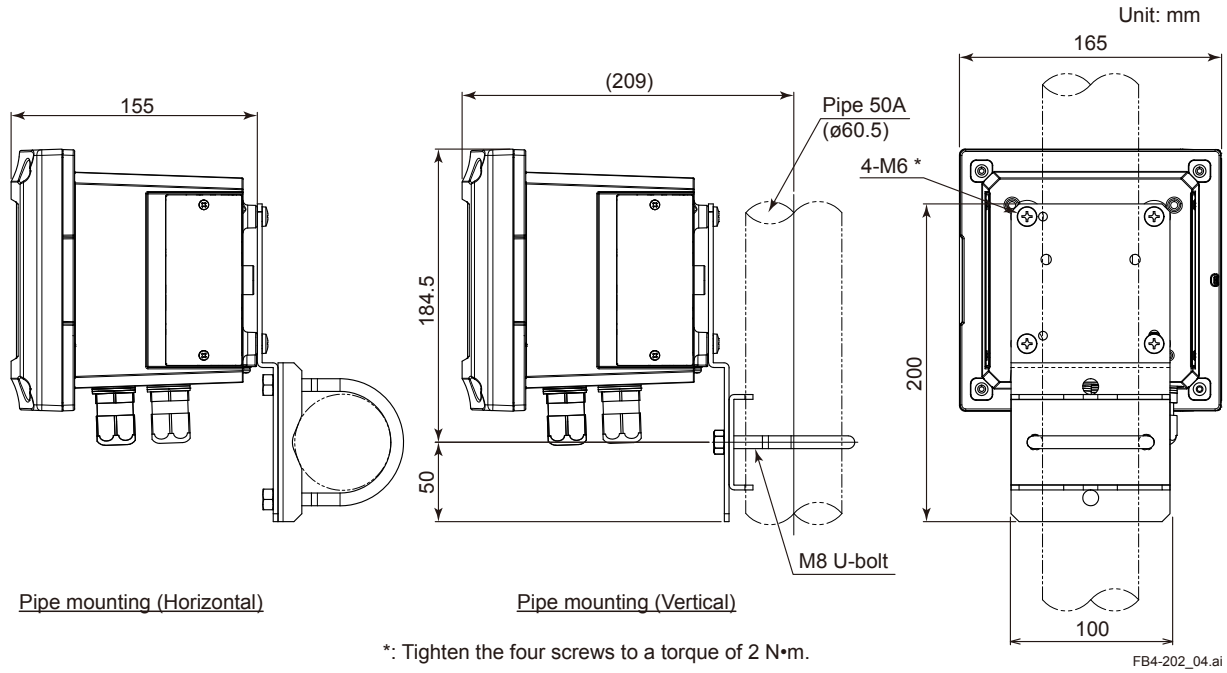
Wall mounting hardware (Option code: □/U, □/UM)

Unit: mm



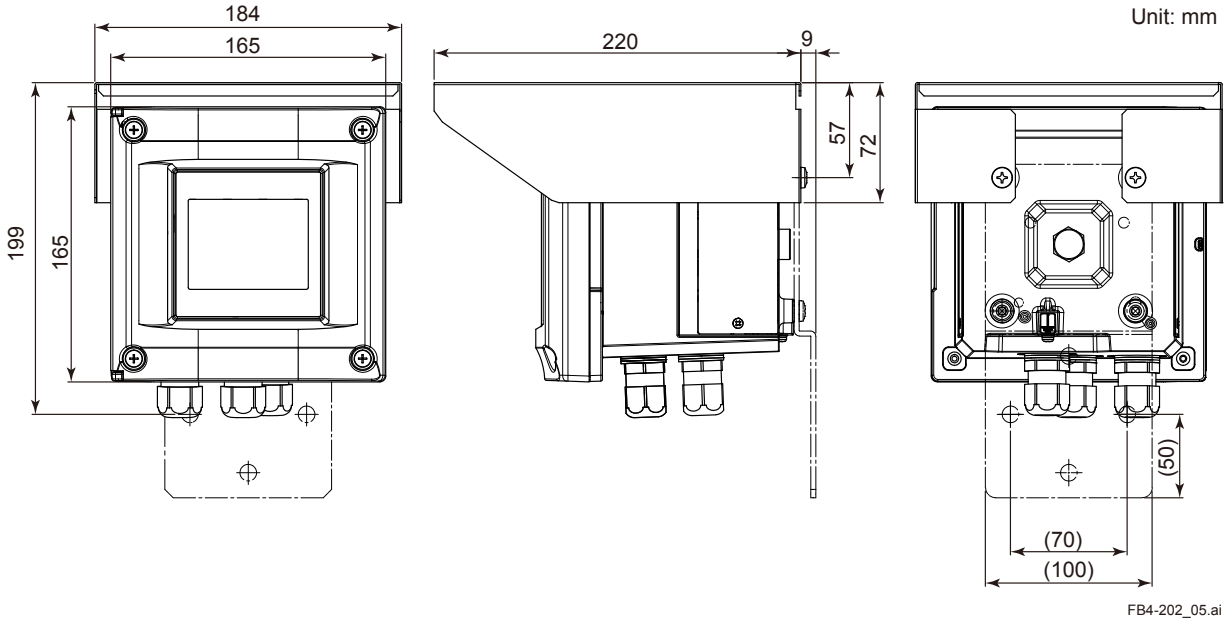
Note: The wall on which the analyzer is mounted should be strong enough to bear the weight of more than 8 kg.

Pipe mounting hardware (Option code: ☐/U, ☐/UM)

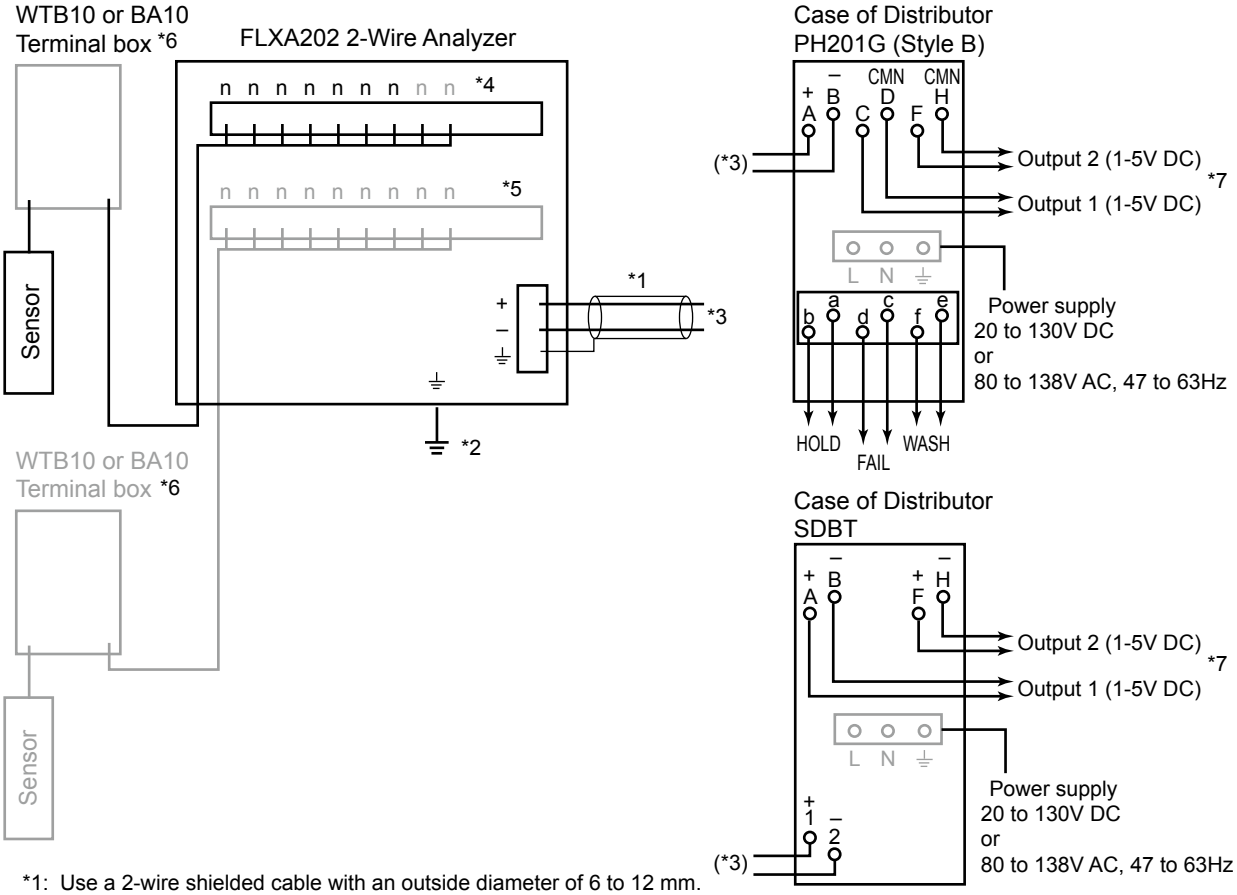


*: Tighten the four screws to a torque of 2 N•m.

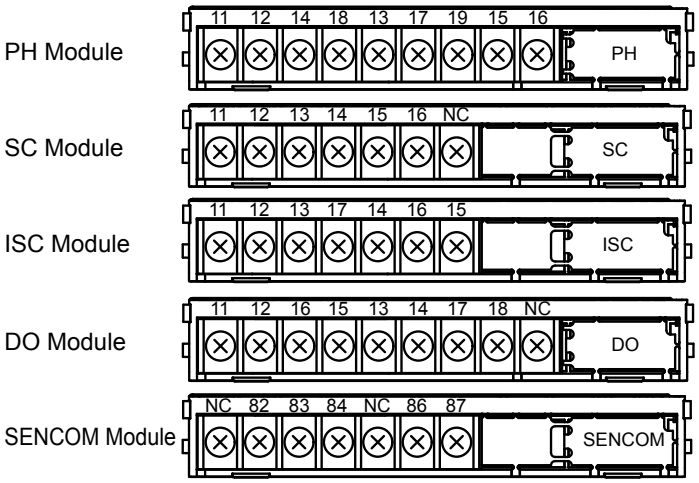
Stainless steel hood (Option code: ☐/H6, ☐/H7, ☐/H8)



■ Wiring Diagrams



*1: Use a 2-wire shielded cable with an outside diameter of 6 to 12 mm.
*2: Connect the analyzer to ground. (Class D ground: 100 ohm or less)
*3: This line is connected to a distributor or 24V DC power supply.
*4: Terminal numbers for each sensor module are shown below.
*5: Two modules of the same kind of measurement/sensor type can be installed. When measuring inductive conductivity or pH/ORP with the SENCOM sensor, only one module can be installed.
*6: The terminal box may be necessary depending on the sensor cable length and the distance between the analyzer and the sensor.
The SENCOM sensor is to be connected directly to the analyzer without a terminal box.
*7: Two outputs, output 1 and output2, of PH201G or SDBT are same signals.



■ Inquiry Specifications Sheet for FLXA202 2-Wire Analyzer

Make inquiries by placing checkmarks (✓) in the pertinent boxes and filling in the blanks.

1. General Information

Company name _____
Contact Person; _____ Department; _____
Plant name; _____
Measurement location; _____
Purpose of use; ☐ Indication, ☐ Recording, ☐ Alarm, ☐ Control

2. Measurement Conditions

(1) Process temperature; _____to_____Normally_____[°C]
(2) Process pressure; _____to_____Normally_____[kPa]
(3) Flow rate; _____to_____Normally_____[l/min]
(4) Flow speed; _____to_____Normally_____[m/s]
(5) Slurry or contaminants; ☐ No, ☐ Yes
(6) Name of process fluid; _____
(7) Components of process fluid; _____
(8) Others;

3. Installation Site

(1) Ambient temperature; _____to_____[°C]
(2) Location; ☐ Outdoors, ☐ Indoors
(3) Others;

4. Requirements

1st Input; ☐ pH/ORP (analog sensor) ☐ Conductivity (SC) ☐ Inductive conductivity (ISC)
☐ Dissolved oxygen (DO) ☐ pH/ORP (digital sensor, FU20F)
2nd Input; ☐ With (same as 1st Input) ☐ Without

4.1 pH/ORP (analog sensor)

☐ 1st Input

(1) Measuring range; ☐ pH 0 to 14 ☐ ORP _____to_____mV ☐ _____
(2) Transmission output; ☐ 4 to 20 mA DC ☐ pH ☐ ORP ☐ Temperature
(3) System configuration selection; ☐ Electrode, ☐ Holder, ☐ pH Converter, ☐ Cleaning system, ☐ Terminal box, ☐ Accessories
(4) Electrode cable length; ☐ 3m, ☐ 5m, ☐ 7m, ☐ 10m, ☐ 15m, ☐ 20m, ☐____m
(5) Electrode operating pressure; ☐10 kPa or less, ☐ More than 10 kPa
(6) Type of holder; ☐ Guide pipe, ☐ Submersion, ☐ Flow-through, ☐ Suspension, ☐ Angled floating ball, ☐ Vertical floating ball
(7) Cleaning method; ☐ No cleaning, ☐ Ultrasonic cleaning, ☐ Jet cleaning, ☐ Brush cleaning
(8) Sample temperature; ☐ -5 to 105°C, ☐ -5 to 100°C, ☐ -5 to 80°C
(9) Others;

☐ 2nd Input

(1) Measuring range; ☐ pH 0 to 14 ☐ ORP _____to_____mV ☐ _____
(2) Transmission output; ☐ 4 to 20 mA DC ☐ pH ☐ ORP ☐ Temperature
(3) System configuration selection; ☐ Electrode, ☐ Holder, ☐ pH Converter, ☐ Cleaning system, ☐ Terminal box, ☐ Accessories
(4) Electrode cable length; ☐ 3m, ☐ 5m, ☐ 7m, ☐ 10m, ☐ 15m, ☐ 20m, ☐____m
(5) Electrode operating pressure; ☐10 kPa or less, ☐ More than 10 kPa
(6) Type of holder; ☐ Guide pipe, ☐ Submersion, ☐ Flow-through, ☐ Suspension, ☐ Angled floating ball, ☐ Vertical floating ball
(7) Cleaning method; ☐ No cleaning, ☐ Ultrasonic cleaning, ☐ Jet cleaning, ☐ Brush cleaning
(8) Sample temperature; ☐ -5 to 105°C, ☐ -5 to 100°C, ☐ -5 to 80°C
(9) Others;

4.2 Conductivity

☐ 1st Input

(1) Measuring range; _____

(2) Transmission output; 4 to 20 mA DC

(3) Detector/sensor; SC4AJ ☐ Two electrode system (0.02 cm^{-1}) ☐ Two electrode system (0.1 cm^{-1})
SC8SG ☐ Two electrode system (0.01 cm^{-1}) ☐ Two electrode system (10 cm^{-1}),
☐ Four electrode system (10 cm^{-1})
SC210G ☐ Two electrode system (0.05 cm^{-1}) ☐ Two electrode system (5 cm^{-1})

(4) Detector/sensor mounting method;
SC4AJ ☐ Adapter mounting, ☐ Welding socket, ☐ Welding clamp
SC8SG ☐ Screw-in, ☐ Flow-through
SC210G ☐ Screw-in, ☐ Flange, ☐ Flow-through, ☐ Screw-in with gate valve

(5) Electrode cable length; SC4AJ☐ 3m, ☐ 5m, ☐ 10m, ☐ 20m
SC8SG ☐ 5.5m, ☐ 10m, ☐ 20m
SC210G ☐ 3m, ☐ 5m, ☐ 10m, ☐ 15m, ☐ 20m

(6) Others;

☐ 2nd Input

(1) Measuring range; _____

(2) Transmission output; 4 to 20 mA DC

(3) Detector/sensor; SC4AJ ☐ Two electrode system (0.02 cm^{-1}) ☐ Two electrode system (0.1 cm^{-1})
SC8SG ☐ Two electrode system (0.01 cm^{-1}) ☐ Two electrode system (10 cm^{-1}),
☐ Four electrode system (10 cm^{-1})
SC210G ☐ Two electrode system (0.05 cm^{-1}) ☐ Two electrode system (5 cm^{-1})

(4) Detector/sensor mounting method;
SC4AJ ☐ Adapter mounting, ☐ Welding socket, ☐ Welding clamp
SC8SG ☐ Screw-in, ☐ Flow-through
SC210G ☐ Screw-in, ☐ Flange, ☐ Flow-through, ☐ Screw-in with gate valve

(5) Electrode cable length; SC4AJ☐ 3m, ☐ 5m, ☐ 10m, ☐ 20m
SC8SG ☐ 5.5m, ☐ 10m, ☐ 20m
SC210G ☐ 3m, ☐ 5m, ☐ 10m, ☐ 15m, ☐ 20m

(6) Others;

4.3 Inductive conductivity

(1) Measuring range; _____

(2) Transmission output; 4 to 20 mA DC

(3) System configuration selection; ☐ ISC40GJ Sensor, ☐ Holder, ☐ Converter, ☐ BA20 Terminal box,
☐ WF10J Extension cable

(4) Sensor mounting method; ☐ ISC40FDJ Immersion holder, ☐ ISC40FFJ Flow-through holder,
☐ ISC40FSJ Direct insertion adapter

(5) ISC40GJ Sensor cable length; ☐ 5m, ☐ 10m, ☐ 15m, ☐ 20m

(6) WF10J Extension cable length; ☐ 5m, ☐ 10m, ☐ 20m, ☐ 30m, ☐ 40m

(7) Others;

4.4 Dissolved oxygen

☐ 1st Input

(1) Measuring range; ☐ 0 to 50 mg/L ☐ _____
(2) Transmission output; 4 to 20 mA DC
(3) System configuration selection; ☐ Electrode, ☐ Holder, ☐ Converter, ☐ Cleaning system, ☐ Terminal box, ☐ Maintenance parts set, ☐ Calibration set
(4) Electrode cable length; ☐ 3m, ☐ 5m, ☐ 10m, ☐ 15m, ☐ 20m
(5) Type of holder; ☐ Guide pipe, ☐ Submersion, ☐ Flow-through, ☐ Suspension, ☐ Angled floating ball, ☐ Vertical floating ball
(6) Cleaning method; ☐ No cleaning, ☐ Jet cleaning
(7) Others;

☐ 2nd Input

(1) Measuring range; ☐ 0 to 50 mg/L ☐ _____
(2) Transmission output; 4 to 20 mA DC
(3) System configuration selection; ☐ Electrode, ☐ Holder, ☐ Converter, ☐ Cleaning system, ☐ Terminal box, ☐ Maintenance parts set, ☐ Calibration set
(4) Electrode cable length; ☐ 3m, ☐ 5m, ☐ 10m, ☐ 15m, ☐ 20m
(5) Type of holder; ☐ Guide pipe, ☐ Submersion, ☐ Flow-through, ☐ Suspension, ☐ Angled floating ball, ☐ Vertical floating ball
(6) Cleaning method; ☐ No cleaning, ☐ Jet cleaning
(7) Others;

4.5 pH/ORP (digital sensor, FU20F)

(1) Measuring range; ☐ pH 0 to 14 ☐ ORP _____to_____mV ☐ _____
(2) Transmission output; ☐ 4 to 20 mA DC ☐ pH ☐ ORP ☐ Temperature
(3) System configuration selection; ☐ Electrode, ☐ Holder, ☐ pH Converter, ☐ Cleaning system, ☐ Accessories
(4) Electrode cable length; ☐ 3m, ☐ 5m, ☐ 10m, ☐ 20m, ☐____m
(5) Electrode operating pressure; ☐10 kPa or less, ☐ More than 10 kPa
(6) Type of holder; ☐ Guide pipe, ☐ Submersion, ☐ Flow-through, ☐ Suspension, ☐ Angled floating ball, ☐ Vertical floating ball
(7) Cleaning method; ☐ No cleaning, ☐ Jet cleaning
(8) Sample temperature; ☐ -5 to 105°C, ☐ -5 to 100°C, ☐ -5 to 80°C
(9) Others;