General Specifications

Yokogawa Electric Corporation
2-9-32, Nakacho, Musashino-shi, Tokyo, 180-8750 Japan

FLXA202
2-Wire Analyzer

GS 12A01A03-01EN

General

The 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.

In addition to the conventional analog connections, digital sensor measurement using SA11 SENCOM™ Smart Adapter is available.

For dual sensor measurement, the combination of two same type analog sensor inputs – pH/ORP and pH/ORP, 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.

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 (*): Only one dedicated digital sensor with SA11 SENCOM Smart Adapter is available for each measurement.

Note: Only one SC sensor is available for SC measurement.

• Calculated data from dual sensor measurement

• Redundant system on dual sensor measurement

• 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.

FLEXA, FLXA, SENCOM are trademarks or registered trademarks of Yokogawa Electric Corporation.

All other company and product names mentioned in this document are trademarks or registered trademarks of their respective companies.

Please select appropriate equipment in accordance with the laws and regulations of the relevant country/region, when it is used in a location where explosive atmospheres may be present.
General Specifications

1. Basic

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

2. Measurement

2-1. **pH/Oxidation-reduction Potential (pH/ORP)**
  
  Refer to page 3 for SA11 SENCOM SA connection.

- **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

2-2. **Conductivity (SC)**
  
  Refer to page 3 for SA11 SENCOM SA connection.

- **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 µA for Polarographic sensors.
For temperature compensation, the FLXA202 accepts Pt1000 (DO30 sensor) and NTC22k elements (OXYFERM and OXYGOLD sensors).

■ Input Range
Dissolved Oxygen: 0 to 50 mg/l (ppm)
Temperature: -20 to 150 ºC
DO30G sensor:
Measurement range: 0 to 20 mg/l (ppm)
Temperature: 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. SA11 SENCOM Smart Adapter
When -S5 as 1st input is selected, the measurement uses SA11 SENCOM Smart Adapter enabling digital communication.
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
        - (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 (analog sensor of pH/ORP, SC and DO)
      - 21 to 40V DC (SA11 SENCOM Smart Adapter connected)
    - Two (2) Sensor modules (2 inputs):
      - 22.8 to 40V DC (for analog sensor of pH/ORP, 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.

- **Maximum Load Resistance**
  - pH/ORP (analog sensor), SC and DO:
    - Refer to the Figure 1.
  - ISC and SA11:
    - Refer to the Figure 2.

![Figure 1 Supply Voltage and Load Resistance for pH/ORP, SC or DO](image1)

![Figure 2 Supply Voltage and Load Resistance for ISC or SENCOM SA](image2)

4. Mechanical and others

- **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.

- **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), NEMA Type 4X (USA), CSA 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)

5. Digital Communication

Kind of Digital Communication
• HART (HART 5) 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.

Regulatory Compliance (FLXA202)

Safety, EMC and RoHS Compliance
Safety: UL 61010-1
UL 61010-2-030
CAN/CSA-C22.2 No.61010-1
CAN/CSA-C22.2 No.61010-2-030
EN 61010-1
EN 61010-2-030

EMC: EN 61326-1 Class A, Table 2 (For use in industrial locations)
EN 61326-2-3
RCM: EN 61326-1 Class A, Table 2
Korea Electromagnetic Conformity Standard Class A
한국 전자파적합성 기준
Russian: TR CU 020/2011

RoHS: EN 50581: 2012 (Style 1.02 or newer)
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.

Information of the WEEE Directive
This product is purposely designed to be used in a large scale fixed installations only and, therefore, is out of scope of the WEEE Directive. The WEEE Directive does not apply. The WEEE Directive is only valid in the EU.
## Explosion Protected Type Compliance

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Europe</strong>&lt;br&gt;(ATEX)</td>
<td><strong>[Intrinsic safety “ia”]</strong>&lt;br&gt;Applicable Standard: EN 60079-0: 2012 + A11: 2013, EN 60079-11: 2012&lt;br&gt;Certificate No: DEKRA 11ATEX0108X&lt;br&gt;Marking/Rating: II 1 G Ex ia IIC T4 Ga&lt;br&gt;Ambient Temperature: -20 to 55°C&lt;br&gt;Power Supply / Signals: See the control drawing.&lt;br&gt;Electrical parameters: See the control drawing.&lt;br&gt;Dielectric strength: 500 V a.c. r.m.s. between&lt;br&gt;- Supply terminals and the earth terminal&lt;br&gt;- the terminals of Measuring Modules excluding PH, SC and ISC and the earth terminal&lt;br&gt;- Supply terminals and the terminals of Measuring Modules&lt;br&gt;- the terminals of Measuring Module 1 and the terminals of Measuring Module 2&lt;br&gt;700 V d.c. between&lt;br&gt;- the terminals of PH, SC and ISC Measuring Modules and the earth terminal&lt;br&gt;Specific conditions of use: Electrostatic charges on the non-metallic or coated parts of the two wire analyzer shall be avoided.&lt;br&gt;Since the enclosure of the Model FLXA202 is made of aluminium, if it is mounted in an area where the use of EPL Ga (category 1 G) equipment is required, it shall be installed such that, even in the event of rare incidents, ignition sources due to impact and friction sparks are excluded.&lt;br&gt;On-site assembling: See Use’s Manual IM 12A01A03-01EN.&lt;br&gt;Maintenance and Repair: Warning: A modification of the equipment would no longer comply with the construction described in the certificate documentation.&lt;br&gt;Installation and erection: See the control drawing.&lt;br&gt;On-site assembling: See Use’s Manual IM 12A01A03-01EN.&lt;br&gt;Maintenance and Repair: Warning: A modification of the equipment would no longer comply with the construction described in the certificate documentation.&lt;br&gt;Installation and erection: See the control drawing.&lt;br&gt;Control Drawing: Refer to (1)</td>
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<td><strong>International</strong>&lt;br&gt;(IECEx)</td>
<td><strong>[Intrinsic safety “ia”]</strong>&lt;br&gt;Applicable Standard: IEC 60079-0: 2011, IEC 60079-11: 2011&lt;br&gt;Certificate No: IECEx DEK 11.0044X&lt;br&gt;Marking/Rating: Ex ia IIC T4 Ga&lt;br&gt;Ambient Temperature: -20 to 55°C&lt;br&gt;Power Supply / Signals: See the control drawing.&lt;br&gt;Electrical parameters: See the control drawing.&lt;br&gt;Dielectric strength: 500 V a.c. r.m.s. between&lt;br&gt;- Supply terminals and the earth terminal&lt;br&gt;- the terminals of Measuring Modules excluding PH, SC and ISC and the earth terminal&lt;br&gt;- Supply terminals and the terminals of Measuring Modules&lt;br&gt;- the terminals of Measuring Module 1 and the terminals of Measuring Module 2&lt;br&gt;700 V d.c. between&lt;br&gt;- the terminals of PH, SC and ISC Measuring Modules and the earth terminal&lt;br&gt;Specific conditions of use: Electrostatic charges on the non-metallic or coated parts of the two wire analyzer shall be avoided.&lt;br&gt;Since the enclosure of the Model FLXA202 is made of aluminium, if it is mounted in an area where the use of EPL Ga (category 1 G) equipment is required, it shall be installed such that, even in the event of rare incidents, ignition sources due to impact and friction sparks are excluded.&lt;br&gt;On-site assembling: See Use’s Manual IM 12A01A03-01EN.&lt;br&gt;Maintenance and Repair: Warning: A modification of the equipment would no longer comply with the construction described in the certificate documentation.&lt;br&gt;Installation and erection: See the control drawing.&lt;br&gt;On-site assembling: See Use’s Manual IM 12A01A03-01EN.&lt;br&gt;Maintenance and Repair: Warning: A modification of the equipment would no longer comply with the construction described in the certificate documentation.&lt;br&gt;Installation and erection: See the control drawing.&lt;br&gt;Control Drawing: Refer to (1)</td>
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<td><strong>United States (FM)</strong></td>
<td>[Intrinsically safe / Nonincendive]</td>
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<td>Certificate No:</td>
<td>3039632</td>
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<tr>
<td>Marking/Rating:</td>
<td>IS CL I, DIV 1, GP AB CD CL I, ZN 0, AEx ia IIC NI CL I, DIV 2, GP AB CD CL I, ZN 2 IIC</td>
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<td>T4: for ambient temperature:</td>
<td>-20 to 55°C</td>
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<td>Enclosure:</td>
<td>Type 4X</td>
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<td>Power Supply / Signals:</td>
<td>See the control drawing.</td>
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<td>Battery:</td>
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<td>Electrical parameters:</td>
<td>See the control drawing.</td>
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<td>Dielectric strength:</td>
<td>500 V AC, r.m.s. between - Supply terminals and the earth terminal - the terminals of Measuring Modules excluding PH, SC and ISC and the earth terminal - Supply terminals and the terminals of Measuring Modules - the terminals of Measuring Module 1 and the terminals of Measuring Module 2 700 V DC between - the terminals of PH, SC and ISC Measuring Modules and the earth terminal - the terminals of Measuring Module 1 and the terminals of Measuring Module 2</td>
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<td><strong>Canada (CSA)</strong></td>
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<td>2425510</td>
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<td>Marking/Rating:</td>
<td>Ex ia IIC T4 Ga - Intrinsically safe for Class I, Division 1, Groups A, B, C, D, T4 - Nonincendive for Class I, Division 2, Groups A, B, C, D, T4</td>
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<tr>
<td>Ambient Temperature:</td>
<td>-20 to 55°C</td>
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<td>Ambient Humidity:</td>
<td>0 ~ 100% (No Condensation)</td>
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</tr>
<tr>
<td>Battery:</td>
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<tr>
<td>Electrical parameters:</td>
<td>See the control drawing.</td>
</tr>
<tr>
<td>Dielectric strength:</td>
<td>500 V AC, r.m.s. between</td>
</tr>
<tr>
<td></td>
<td>- Supply terminals and the earth terminal</td>
</tr>
<tr>
<td></td>
<td>- the terminals of Measuring Modules excluding PH, SC and ISC and the earth terminal</td>
</tr>
<tr>
<td></td>
<td>- Supply terminals and the terminals of Measuring Modules</td>
</tr>
<tr>
<td></td>
<td>- the terminals of Measuring Module 1 and the terminals of Measuring Module 2</td>
</tr>
<tr>
<td>700 V DC between:</td>
<td>- the terminals of PH, SC and ISC Measuring Modules and the earth terminal</td>
</tr>
<tr>
<td>Specific conditions of use:</td>
<td>See the control drawings.</td>
</tr>
<tr>
<td>On-site assembling:</td>
<td>See Use’s Manual IM 12A01A03-01EN.</td>
</tr>
<tr>
<td>Installation and erection:</td>
<td>See the control drawing.</td>
</tr>
<tr>
<td>Maintenance and Repair:</td>
<td>Warning: A modification of the equipment would no longer comply with the construction described in the certificate documentation.</td>
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<tr>
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<td>Only personnel authorized by Yokogawa Electric Corporation can repair the equipment.</td>
</tr>
<tr>
<td>Control Drawing:</td>
<td>Refer to (3)</td>
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Canada (CSA)

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<tr>
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<td>Marking/Rating:</td>
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<tr>
<td>Ambient Temperature:</td>
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<tr>
<td>Ambient Humidity:</td>
<td>0 – 100% (No Condensation)</td>
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<tr>
<td>Enclosure:</td>
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<tr>
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</tr>
<tr>
<td>Electrical parameters:</td>
<td>See the control drawing.</td>
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</tr>
<tr>
<td>Dielectric strength:</td>
<td>500 V AC, r.m.s. between</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Supply terminals and the earth terminal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- the terminals of Measuring Modules excluding PH, SC and ISC and the earth terminal</td>
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<tr>
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<td>- Supply terminals and the terminals of Measuring Modules</td>
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<td>- the terminals of Measuring Module 1 and the terminals of Measuring Module 2</td>
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</tr>
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<td>- the terminals of PH, SC and ISC Measuring Modules and the earth terminal</td>
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<td>Specific conditions of use:</td>
<td>See the control drawings.</td>
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<tr>
<td>On-site assembling:</td>
<td>See Use’s Manual IM 12A01A03-01EN.</td>
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</tr>
<tr>
<td>Installation and erection:</td>
<td>See the control drawing.</td>
<td></td>
</tr>
<tr>
<td>Maintenance and Repair:</td>
<td>Warning: A modification of the equipment would no longer comply with the construction described in the certificate documentation.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Only personnel authorized by Yokogawa Electric Corporation can repair the equipment.</td>
<td></td>
</tr>
<tr>
<td>Control Drawing:</td>
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<tr>
<td>Item</td>
<td>Description</td>
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<td>[Type of protection 'n' / Nonincendive]</td>
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<td>-DE</td>
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<td>Ambient Temperature:</td>
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<td>Ambient Humidity:</td>
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<td>Electrical parameters:</td>
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<td>- 500 V AC, r.m.s. between - Supply terminals and the earth terminal - the terminals of Measuring Modules excluding PH, SC and ISC and the earth terminal - Supply terminals and the terminals of Measuring Modules - the terminals of Measuring Module 1 and the terminals of Measuring Module 2 - 700 V DC between - the terminals of PH, SC and ISC Measuring Modules and the earth terminal</td>
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<tr>
<td><strong>Europe (ATEX)</strong></td>
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<tr>
<td>Cable entry:</td>
<td>See the control drawing.</td>
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</tr>
<tr>
<td>Pollution degree:</td>
<td>Pollution degree 2 shall be maintained inside the enclosure.</td>
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</tr>
<tr>
<td>Overvoltage category:</td>
<td>I</td>
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<tr>
<td>Power Supply / Signals:</td>
<td>See the control drawing.</td>
<td></td>
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<tr>
<td>Electrical parameters:</td>
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</tr>
<tr>
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<td></td>
</tr>
<tr>
<td>Specific conditions of use:</td>
<td>Electrostatic charges on the non-metallic or coated parts of the two wire analyzer shall be avoided. Since the enclosure of the Model FLXA202 is made of aluminium, if it is mounted in an area where the use of EPL Ga (category 1 G) equipment is required, it shall be installed such that, even in the event of rare incidents, ignition sources due to impact and friction sparks are excluded.</td>
<td></td>
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<tr>
<td>On-site assembling:</td>
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<td>Control Drawing:</td>
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<td>Enclosure:</td>
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<td>Cable entry:</td>
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<tr>
<td>Pollution degree:</td>
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</tr>
<tr>
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<td>I</td>
<td></td>
</tr>
<tr>
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</tr>
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<tr>
<td>Specific conditions of use:</td>
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<td>On-site assembling:</td>
<td>See Use’s Manual IM 12A01A03-01EN.</td>
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</tr>
<tr>
<td>Control Drawing:</td>
<td>Refer to (5)</td>
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</tr>
</tbody>
</table>
### Control Drawings

#### Site ATEX and IECEx

**Intrinsic safety “ia”**

---

**Notes:**

1. Icons related to this product should be used in all drawings and documentation related to this product.

2. Measuring Module 2 is not always installed.

3. ISC module, SENCOM module and SSA module are not installed as “Measuring Module 2”.

4. Sensor 1 and Sensor 2 may be simple apparatus or intrinsically safe apparatus.

5. In case of SSA module, Sensor 1 is SENCOM SA (SENCOM Smart Adaptor).

6. When accessing the display window or other non-metallic parts of the enclosure of FLXA202/FLXA21, take the following measures to minimize the risk of explosion from electrostatic discharges, in addition to avoiding any actions that cause the generation of electrostatic charges, such as rubbing with a dry cloth.

- Earth the operator through a wrist-strap,
- Operate FLXA202/FLXA21 on the conductive floors, wearing anti-static work clothes and electrostatic safety shoes,
- Neutralize the operator and FLXA202/FLXA21 by a static elimination bar which has a metal part earthed through a resistor from 100KΩ to 100MΩ.

In case that those measures cannot be taken or static electricity cannot be suppressed, bring a gas detector and make sure there is no ignition capable atmosphere around FLXA202/FLXA21 before the operation.

---
(2) CSA
Intrinsic safety, Nonincendive, Type 'n'

Specific conditions of use
- Electrostatic charges on the non-metallic or coated parts of the two wire analyzer shall be avoided.

Specific conditions of use for FLXA202-D-x-x-DE-xx-xx-A-... when it is used as "Ex nA ic"
- The cable glands accompanying the equipment may not provide sufficient clamping. Additional clamping of the cable shall be provided to ensure that pulling and twisting are not transmitted to the termination. Alternatively, Ex d, Ex e, or Ex n cable glands which provide sufficient clamping shall be used instead of the accompanying cable gland.
- The gaskets of the cable glands shall be protected from light.
- Analyzer must be installed in such a way that the air vent is physically protected from any possible impact.
Notes:

1. Installation must be in accordance with the Canadian Electric Code Part I (C22.1), ANSI/ISA-RP12.06.01 and relevant local codes.

2. The associated apparatus must be a linear source meeting the following conditions:
   - $U_o$ (or $V_{oc}$)
   - $I_o$ (or $I_{sc}$)
   - $P_o$ (or $P_{in}$)
   - $C_{o}$ (or $C_{a}$)
   - $L_o$ (or $L_{a}$)
   - $C_{cable}$

3. Control equipment connected to the associated apparatus must not use or generate a voltage which exceeds $U_m$ of the associated apparatus.

4. The control drawing of the associated apparatus must be followed when installing the equipment.

5. Measuring Module 2 is not always installed.

6. ISC module, SENCOM module and SSA module are not installed as "Measuring Module 2".

7. When installed in Zone 0 or 1, or Division 1, Sensor 1 and Sensor 2 may be simple apparatus or intrinsically safe apparatus meeting the conditions below.
   - $U_i$ (or $V_{max}$)
   - $I_i$ (or $I_{max}$)
   - $P_i$
   - $C_{i}$
   - $L_i$

8. The control equipment must be an associated non-incendive field wiring apparatus meeting the conditions below. Alternatively, it may be general-purpose equipment, if a suitable wiring method other than non-incendive field wiring is employed.
   - $U_o$ (or $V_{oc}$)
   - $I_o$
   - $C_{o}$ (or $C_{a}$)
   - $L_o$ (or $L_{a}$)

9. When FLXA202-D-x-x-DE-xx-xx-A-... is used as "Ex nA ic", it must be installed in accordance with one of the following:
   a) in a SELV or PELV system, or
   b) via a safety isolating transformer complying with the requirements of IEC 61558-2-6, or a technically equivalent standard, or
   c) directly connected to apparatus complying with IEC60950 series, IEC61010-1, or a technically equivalent standard, or
   d) fed directly from cells or batteries.

10. When FLXA202-D-x-x-DE-xx-xx-A-... is used as "Ex nA ic" and with the accompanying cable glands, cable with an external diameter of 6 to 12 mm must be used for field wiring. The cable glands must be secured with a tightening torque of 6 Nm so that they can be released only with the aid of a tool. Unused cable gland shall be sealed with the accompanying metal plug.

11. WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD

12. WARNING – SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY

13. WARNING – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR ZONE 2 / DIVISION 2
Intrinsic safety, Nonincendive

Model: FLEXA Series
Date: April 17, 2015
Rev.2: Dec. 26, 2019
Doc. No.: IFM039-A71

Installation for Division 1 / Zone 0, 1
Applicable models: FLXA21-D-x-x-CD-xx-xx-A-..., FLXA202-D-x-x-CD-xx-xx-A-...

Unclassified Location
Hazardous (Classified) Location
Class I, Division 1, Groups A, B, C, D, or Class I, Zone 0, 1, Group IIC
Temperature Class: T4

Measuring Module 1, 2 (Note 8):
Type of Measuring Module
pH, SC, DO ISC SENCOM, SSA

<table>
<thead>
<tr>
<th></th>
<th>Module 1</th>
<th>Module 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>11.76 V</td>
<td>11.76 V</td>
</tr>
<tr>
<td>Current</td>
<td>116.5 mA</td>
<td>60.6 mA</td>
</tr>
<tr>
<td>Power</td>
<td>0.3424 W</td>
<td>0.178 W</td>
</tr>
<tr>
<td>Capacitor</td>
<td>100 nF</td>
<td>100 nF</td>
</tr>
<tr>
<td>Inductance</td>
<td>1.7 mH</td>
<td>8 mH</td>
</tr>
</tbody>
</table>

Specific conditions of use:
- Precautions shall be taken to minimize the risk of non-metallic parts and painted parts of the enclosure. When the equipment is used in hazardous locations, avoid any action which generates electrostatic discharge such as rubbing with a dry cloth.
- In the case where the enclosure of the analyzer is made of Aluminum, if it is mounted in ZONE 0, it must be equipped with a ground wire in order to prevent electromagnetic induction.
- The equipment shall be fixed to minimize the risk of metal-to-metal arcs and discharges of static electricity.

Supply +, Supply – (Note 4):
Ui: 30 V  Ii: 100 mA  Pi: 0.75 W
Ci: 13 nF  Li: 0 mH

Installation for Division 2 / Zone 2
Applicable models: FLXA21-D-x-x-DD-xx-xx-A-..., FLXA21-D-x-x-DD-xx-xx-A-...

Unclassified Location
Hazardous (Classified) Location
Class I, Division 2, Groups A, B, C, D, or Class I, Zone 2, Group IIC
Temperature Class: T4

Measuring Module 1, 2 (Note 8):
Type of Measuring Module
pH, SC, DO ISC SENCOM, SSA

<table>
<thead>
<tr>
<th></th>
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<th>Module 2</th>
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</thead>
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<td>0.3424 W</td>
<td>0.178 W</td>
</tr>
<tr>
<td>Capacitor</td>
<td>100 nF</td>
<td>100 nF</td>
</tr>
<tr>
<td>Inductance</td>
<td>4.5 mH</td>
<td>19 mH</td>
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</table>

Specific conditions of use:
- Precautions shall be taken to minimize the risk of non-metallic parts and painted parts of the enclosure. When the equipment is used in hazardous locations, avoid any action which generates electrostatic discharge such as rubbing with a dry cloth.

Supply +, Supply – (Note 9):
Ui: 30 V  Ci: 13 nF  Li: 0 mH

(Note 4, 6, 7, 8, 9)
1. This drawing replaces the former control drawing IKE039-A12.

2. No revision to this drawing without prior approval of FM.

3. Installation must be in accordance with the National Electric Code (NFPA 70), ANSI/ISA-RP12.06.01 and relevant local codes.

4. The associated apparatus must be an FM-approved linear source meeting the following conditions.

   \[ \begin{align*}
   U_0 \text{ (or } V_{oc} \text{)} &< U_i \\
   I_o \text{ (or } I_{sc} \text{)} &< I_i \\
   P_o &< P_i \\
   C_o \text{ (or } C_a \text{)} &< C_i + C_{cable} \\
   L_o \text{ (or } L_{a} \text{)} &< L_i + L_{cable}
   \end{align*} \]

5. Control equipment connected to the associated apparatus must not use or generate a voltage which exceeds \( U_{m} \) of the associated apparatus.

6. The control drawing of the associated apparatus must be followed when installing the equipment.

7. Measuring Module 2 is not always installed.

8. ISC module, SENCOM module and SSA module are not installed as "Measuring Module 2".

9. When installed in Division 1, Zone 0 or Zone 1, Sensor 1 and Sensor 2 may be simple apparatus or intrinsically safe apparatus meeting the conditions below.

   \[ \begin{align*}
   U_{i} \text{ (or } V_{max} \text{)} &< U_0 \\
   I_{i} \text{ (or } I_{max}\text{)} &< I_o \\
   P_i &< P_o \\
   C_i &< C_o - C_{cable} \\
   L_i &< L_o - L_{cable}
   \end{align*} \]

10. The control equipment must be an FM-approved associated nonincendive field wiring apparatus meeting the conditions below. Alternatively, it may be general-purpose equipment, if a suitable wiring method other than nonincendive field wiring is employed.

   \[ \begin{align*}
   U_0 \text{ (or } V_{oc} \text{)} &< U_i \\
   C_0 \text{ (or } C_a \text{)} &< C_i + C_{cable} \\
   L_0 \text{ (or } L_{a} \text{)} &< L_i + L_{cable}
   \end{align*} \]

11. WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD – WHEN THE EQUIPMENT IS USED IN HAZARDOUS LOCATIONS, AVOID ANY ACTION WHICH GENERATE ELECTROSTATIC DISCHARGE SUCH AS RUBBING WITH A DRY CLOTH.

12. WARNING – IN THE CASE WHERE THE ENCLOSURE OF THE ANALYZER IS MADE OF ALUMINUM, IF IT IS MOUNTED IN ZONE 0, IT MUST BE INSTALLED SUCH THAT, EVEN IN THE EVENT OF RARE INCIDENTS, IGNITION SOURCES DUE TO IMPACT AND FRICTION SPARKS ARE EXCLUDED.

IEEE62351-1: Intrinsic safety " ia"

1. Installation must be in accordance with IEC 60079-14 and relevant local codes.
2. Measuring Module 2 is not always installed.
3. ISC module, SENCOM module and SSA module are not installed as "Measuring Module 2".
4. When installed in area where EPL Gc is required, Sensor 1 and Sensor 2 may be simple apparatus, intrinsically safe apparatus meeting conditions below, or other equipment.

UI (or Vmax)  
Uo  
Ii (or Imax)  
Io  
Pi  
Po  
Ci  
Co - Ccable  
Li  
Lo - Lcable

5. In case of SSA module, Sensor 1 is SENCOM SA (SENCOM Smart Adaptor).
6. FLXA202 Analyzer must be installed in accordance with one of the following:
   a) in a SELV or PELV system, 
   b) via a safety isolating transformer complying with the requirements of IEC 61558-2-6, or a technically equivalent standard, or 
   c) directly connected to apparatus complying with IEC 60950 series, IEC 61010-1, or a technically equivalent standard, or 
   d) fed directly from cells or batteries.

7. When FLXA202 Analyzer is installed with accompanying cable glands, cable with an external diameter of 6 mm to 12 mm must be used for field wiring. The cable glands must be secured with a tightening torque of 6 Nm so that they can be released only with the aid of a tool. Unused cable gland shall be sealed with the accompanying metal plug.

(Refer to (1) ATEX and IECEx Control Drawing)
# Model & Suffix Codes

<table>
<thead>
<tr>
<th>Model</th>
<th>Suffix code</th>
<th>Option code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLXA202</td>
<td></td>
<td>2-Wire Analyzer</td>
<td></td>
</tr>
</tbody>
</table>

## Power supply

<table>
<thead>
<tr>
<th>Housing (*1)</th>
<th>Suffix</th>
<th>Option code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-D</td>
<td></td>
<td>Always -D</td>
</tr>
</tbody>
</table>

## Display (*2)

<table>
<thead>
<tr>
<th>Type (*3)</th>
<th>Suffix code</th>
<th>Option code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-AB</td>
<td></td>
<td>General purpose for CE, RCM</td>
</tr>
<tr>
<td></td>
<td>-AD</td>
<td></td>
<td>General purpose for CSA</td>
</tr>
<tr>
<td></td>
<td>-AG</td>
<td></td>
<td>General purpose for KC</td>
</tr>
<tr>
<td></td>
<td>-AJ</td>
<td></td>
<td>General purpose</td>
</tr>
<tr>
<td></td>
<td>-AQ</td>
<td></td>
<td>General purpose for EAC with PA</td>
</tr>
<tr>
<td></td>
<td>-AR</td>
<td></td>
<td>General purpose for EAC</td>
</tr>
<tr>
<td></td>
<td>-CB</td>
<td></td>
<td>IS for ATEX, IECEx (4)</td>
</tr>
<tr>
<td></td>
<td>-CD</td>
<td></td>
<td>IS for FM, CSA (5)</td>
</tr>
<tr>
<td></td>
<td>-CF</td>
<td></td>
<td>IS for TiS (6)</td>
</tr>
<tr>
<td></td>
<td>-CG</td>
<td></td>
<td>IS for KOSHA (7)</td>
</tr>
<tr>
<td></td>
<td>-CH</td>
<td></td>
<td>IS for NEPSI</td>
</tr>
<tr>
<td></td>
<td>-CQ</td>
<td></td>
<td>IS for EAC with PA</td>
</tr>
<tr>
<td></td>
<td>-CR</td>
<td></td>
<td>IS for EAC</td>
</tr>
<tr>
<td></td>
<td>-DB</td>
<td></td>
<td>Type n for ATEX, IECEx</td>
</tr>
<tr>
<td></td>
<td>-DD</td>
<td></td>
<td>Ni for FM, CSA</td>
</tr>
<tr>
<td></td>
<td>-DE</td>
<td></td>
<td>Type n for CSA</td>
</tr>
</tbody>
</table>

#### 1st input

<table>
<thead>
<tr>
<th>-P1</th>
<th>-C1</th>
<th>-C5</th>
<th>-D1</th>
<th>-S5</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH/ORP (8)</td>
<td>Conductivity (SC) (8)</td>
<td>Inductive conductivity (ISC)</td>
<td>Dissolved oxygen (DO)</td>
<td>SENCOM SA (SSA) (9)</td>
</tr>
</tbody>
</table>

#### 2nd input (*10)

<table>
<thead>
<tr>
<th>-NN</th>
<th>-P1</th>
<th>-C1</th>
<th>-D1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without input</td>
<td>pH/ORP (8)</td>
<td>Conductivity (SC) (8)</td>
<td>Dissolved oxygen (DO)</td>
</tr>
</tbody>
</table>

#### Output

<table>
<thead>
<tr>
<th>-A</th>
<th>-N</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-20 mA + HART</td>
<td>Always -N</td>
</tr>
</tbody>
</table>

#### Language set (*11)

| -LA |
| English and 11 languages |

#### Country (*12)

<table>
<thead>
<tr>
<th>-N</th>
<th>-J</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global except Japan</td>
<td>Japan</td>
</tr>
</tbody>
</table>

#### Option

<table>
<thead>
<tr>
<th>Mounting hardware</th>
<th>Hood</th>
<th>Tag plate</th>
<th>Conduit adapter (*14)</th>
<th>Measurement law</th>
</tr>
</thead>
<tbody>
<tr>
<td>/UM</td>
<td>/HM</td>
<td>/CT</td>
<td>/CB4</td>
<td>/IK</td>
</tr>
<tr>
<td>/UM</td>
<td>/HM</td>
<td>/CT</td>
<td>/CD4</td>
<td>/IK</td>
</tr>
<tr>
<td>/UM</td>
<td>/HM</td>
<td>/CT</td>
<td>/CF4</td>
<td>/IK</td>
</tr>
<tr>
<td>/UM</td>
<td>/HM</td>
<td>/CT</td>
<td>/CB5</td>
<td>/IK</td>
</tr>
<tr>
<td>/UM</td>
<td>/HM</td>
<td>/CT</td>
<td>/CD5</td>
<td>/IK</td>
</tr>
<tr>
<td>/UM</td>
<td>/HM</td>
<td>/CT</td>
<td>/CF5</td>
<td>/IK</td>
</tr>
</tbody>
</table>

**1:** 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.

**2:** Type "CF" is anti-glare coated. Other types are anti-glare coated.

**3:** 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.

**4:** Product registration is done by Yokogawa Taiwan Corporation as an importer in Taiwan.

**5:** Type "-CD " is intrinsic safety, but is available as nonincendive.

**6:** For detailed information refer to Japanese GS 12A01A03-01JA.

**7:** Korean IM is attached to FLXA202 instead of English IM.

**8:** This input is to be come from an analog pH/ORP or Conductivity (SC) sensor.

**9:** SA1 SENCOM Smart Adapter enables digital measurement by connecting to dedicated sensor for pH/ORP or Conductivity (SC). When SENCOM SA is selected as 1st input, one sensor can be connected. Multiple sensor connection is not available with BA11 Active Junction Box. When selecting "-S5" as 1st input, only Type "-AB", "-AD", "-AG", "-CB" and "-DB" are available.

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GS 12A01A03-01EN May 15, 2021-02
*10: 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.

*11: 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.

*12: 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.

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

*14: "CB5", "CD5", "CF5" are exclusively for type "DB" or "DE". "CB4", "CD4", "CF4" cannot be used with type "DB" or "DE". "CB4", "CD4", "CF4" can be used with other types of the analyzer except for "DB" or "DE".

*15: The analyzer with Japanese Measurement Law certificate is available only for the following model; FLXA202-D-[Housing code]-D1-L-P1-NN-A-N-LA-J-NN/[option code except /K]/K Only one pH measurement is certified. The output signal of 4 - 20 mA is certified. HART communication is not certified.
Dimensions and Mounting

For sensor 1 cable

For sensor 2 cable

For power supply

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

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

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

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)

Pipe mounting (Horizontal)  Pipe mounting (Vertical)

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

Stainless steel hood (Option code: □/H6, □/H7, □/H8)
**Wiring Diagrams**

- **WTB10 or BA10 Terminal box**
  - FLXA202 2-Wire Analyzer
  - Sensor

- **Case of Distributor PH201G (Style B)**
  - Output 1 (1-5V DC)
  - Output 2 (1-5V DC)
  - Power supply 20 to 130V DC or 80 to 138V AC, 47 to 63Hz

- **Case of Distributor SDBT**
  - Output 1 (1-5V DC)
  - Output 2 (1-5V DC)
  - Power supply 20 to 130V DC or 80 to 138V AC, 47 to 63Hz

---

*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.

*6: The terminal box may be necessary depending on the sensor cable length and the distance between the analyzer and the sensor. The terminal box cannot be used for connection to SA11 SENCOM Smart Adaptor.

*7: Two outputs, output 1 and output 2, 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 ______ [°C]

(2) Process pressure; ______ to ______ [kPa]

(3) Flow rate; ______ to ______ [l/min]

(4) Flow speed; ______ to ______ [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 □ Conductivity (SC) □ Inductive conductivity (ISC) □ Dissolved oxygen (DO) □ SENCOM SA (SSA) □ With (same as 1st Input) □ Without

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;

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 (Analog)

☐ 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 with SENCOM SA)

(1) Measuring range; □ pH 0 to 14 □ ORP ______ to ______ mV □ __________
(2) Transmission output; 4 to 20 mA DC □ pH □ Temperature
(3) System configuration selection; □ Electrode, □ Holder, □ pH Converter, □ Cleaning system, □ Accessories
(4) Electrode cable length; □ 3m, □ 5m, □ 10m, □ 20m, □ 30m
(5) Electrode operating pressure; □ 10 kPa or less, □ More than 10 kPa
(6) Type of holder; □ Submersion, □ Flow-through,
(7) Cleaning method; □ No cleaning, □ Jet cleaning
(8) Sample temperature; □ -5 to 105°C, □ -5 to 100°C, □ -5 to 80°C
(9) Others;

4.6 Conductivity (digital with SENCOM SA)

(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), □ Four electrode system (10 cm⁻¹)
(4) Detector/sensor mounting method;
   SC4AJ □ Adapter mounting, □ Welding socket, □ Welding clamp
   SC8SG □ Screw-in, □ Flow-through
(5) Electrode cable length; SC4AJ □ 3m, □ 5m, □ 10m, □ 20m, □ 30m
   SC8SG □ 3m, □ 5m, □ 10m, □ 20m, □ 30m
(6) Others;