

General Specifications

GS 12A01A02-71E

Model FLXA21
2-Wire Analyzer
FOUNDATION Fieldbus
Communication



■ General

FOUNDATION Fieldbus is the digital communication line for the field instruments, whose signal is internationally standardized by Fieldbus Foundation.

The Fieldbus bi-directional digital communication performance makes possible for the field instruments and the control devices to be a complete on-line system, superseding the existing analog transmission lines.

Vendor-independence and openness allow communication between devices of different manufactures with no special interface adjustment.

FLXA21 FOUNDATION Fieldbus model offers more flexible instrumentation through a higher level communication capability and proposes the cost reduction by multidrop wirings with fewer cables.

In the FLXA21 Human Machine Interface (HMI), 2-wire type analyzer FLXA21 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 FLXA21 automatically recognizes the installed sensor module and prepares the necessary menus for right configuration.

For immediate measurement, the FLXA21 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 FLXA21 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.

■ Features

- Interoperability
FOUNDATION Fieldbus specifications grant the interoperability of the field instruments without preparing designated software for the instrument.
- Multi-sensing function
FLXA21 FOUNDATION Fieldbus model, has three independent AI function blocks.
- Alarm function
FLXA21 FOUNDATION Fieldbus model securely supports various alarm functions, such as high/low alarm, notice of block error, etc. based on Fieldbus specifications.



- Link master function
FLXA21 FOUNDATION Fieldbus model support the Link Master function. This function enables backup of network manager and local control only by field devices.
- Self-diagnostic function
A reliable self-diagnostic function based on the NAMUR NE107 standard detects failures in the hardware of pH/ORP sensor, conductivity sensor, and communications.
- 2 kinds of measurements; pH/ORP, Conductivity (SC)
- Connection of digital FU20F pH/ORP SENCOM Sensor
- Simple HMI menu structure in 12 languages
- Quick setup menu for immediate measurement
- Indication of sensor wellness
- Software download function
Software download function permits to update FLXA21 software via a FOUNDATION fieldbus. Typical use of this function is to add new features such as function blocks and diagnostics to existing devices
- Supported tools
DTM for FieldMate

■ General Specifications

1. Basic

■ Measurement Object/Sensor Type

- pH/Oxidation-reduction Potential (pH/ORP) (analog sensor)
- Conductivity (SC)
- 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) Sensor module

2. Measurement

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

■ Input Specification

Dual high impedance input ($\geq 10^{12} \Omega$)

■ Input Range

pH: -2 to 16 pH
 ORP: -1500 to 1500 mV
 rH: 0 to 100 rH

Temperature:

Pt1000: -30 to 140 °C
 Pt100: -30 to 140 °C
 6k8: -30 to 140 °C
 PTC10k: -30 to 140 °C
 NTC 8k55: -10 to 120 °C
 3k Balco: -30 to 140 °C
 PTC500: -30 to 140 °C

■ 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, 6k8, PTC10k, NTC 8k55, 3k Balco, PTC500

Repeatability: ± 0.1 °C
 Accuracy: ± 0.3 °C

with Pt100

Linearity: ± 0.4 °C
 Repeatability: ± 0.1 °C
 Accuracy: ± 0.4 °C

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 $\mu\text{S}/\text{cm}$
 max.: 200 $\text{mS} \times (\text{Cell constant})$
 (over range 2000 mS/cm)

Resistivity:

min.: 0.005 $\text{k}\Omega / (\text{Cell constant})$
 max.: 1000 $\text{M}\Omega \times \text{cm}$

Temperature:

Pt1000: -20 to 250 °C
 Pt100: -20 to 200 °C
 Ni100: -20 to 200 °C
 NTC 8k55: -10 to 120 °C
 Pb36(JIS NTC 6k): -20 to 120 °C

■ Performance (Accuracy)

(The specifications are expressed with simulated inputs.)

Conductivity

More than 2 $\mu\text{S} \times \text{K} \text{cm}^{-1}$ to 200 $\text{mS} \times \text{K} \text{cm}^{-1}$

Accuracy: $\pm 0.5\%$ of reading

1 $\mu\text{S} \times \text{K} \text{cm}^{-1}$ to 2 $\mu\text{S} \times \text{K} \text{cm}^{-1}$

Accuracy: $\pm 1\%$ of reading

Resistivity

0.005 $\text{k}\Omega / \text{K} \text{cm}^{-1}$ to less than 0.5 $\text{M}\Omega / \text{K} \text{cm}^{-1}$

Accuracy: $\pm 0.5\%$ of reading

0.5 $\text{M}\Omega / \text{K} \text{cm}^{-1}$ to 1 $\text{M}\Omega / \text{K} \text{cm}^{-1}$

Accuracy: $\pm 1\%$ of reading

Temperature

with Pt1000, Pb36, Ni100

Accuracy: ± 0.3 °C

with Pt100, NTC 8k55

Accuracy: ± 0.4 °C

Temperature compensation

NaCl table: $\pm 1\%$

Matrix: $\pm 3\%$

Step response: 90% (<2 decades) in 7 seconds (of reading on the display)

Note: "K" means cell constant.

YOKOGAWA provides conductivity sensors of which cell constants are 0.1 to 10 cm^{-1} .

2-3. 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 FLXA21

■ Input Range (depending on FU20F)

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

3. Electrical

■ Output Signal

Digital communication signal based on FOUNDATION Fieldbus protocol.

■ Communication Requirements:

Supply Voltage: 9 to 32 V DC
 Current Draw: 24 mA (max)
 Bus connection and Fieldbus cable type according to recommendation based on IEC 1158-2.

■ Functional Specifications:

Functional specifications for Fieldbus communication conform to the standard specifications (H1) of FOUNDATION fieldbus.

DD and CFF: The actual file can be downloaded from www.fieldbus.com

■ Function Block:

Three AI blocks

■ 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: Plastic (Polycarbonate)

Case color: Silver gray (equivalent to Munsell 3.2PB7.4/1.2)

Window: Polycarbonate (flexible)

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

■ Plate

Main name plate: inside case cover

Regulation plate: on the case outside

■ Cable and Terminal

Cable size:

Outer diameter:

6 to 12 mm (suitable for M20 cable gland)

3.4 to 7 mm (grounding cable)

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.

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,

Sleeve x 1 pc (for grounding cable line)

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: 4)
- 1/2NPT (quantity: 4)
- M20 x 1.5 (quantity: 4)

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

■ Size of Housing Case

144 x 144 x 151 mm (W x H x D) (without cable gland)

■ Weight

Approx. 1 kg

■ Ambient Operating Temperature

-20 to +55 °C

■ Storage Temperature

-30 to +70 °C

■ Humidity

10 to 90% RH at 40°C (Non-condensing)

■ Document

Following documents are delivered with an analyzer;

Paper copy:

User's Manual for FOUNDATION Fieldbus

Communication

written in English

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

EN 61010-1

EN 61010-2-030

EMC: EN 61326-1 Class A, Table 2 (For use in industrial locations)

EN 61326-2-3

EN 61326-2-5

AS/NZS CISPR11

RCM: EN 55011 Class A, Group 1

Korea Electromagnetic Conformity

Standard Class A 한국 전자파적합성 기준

Installation altitude: 2000 m or less

Category based on IEC 61010: 1 (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 and nonincendive (suffix code Type: -CB, -CD, -DD, -CH):

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"
Type of protection
II 1 G Ex ia IIC T4 Ga
Group: II
Category: 1 G
T4: for ambient temperature: -20 to 55°C
Atmosphere pressure: 80kPa (0.8bar) to 110kPa (1.1bar)

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"
Type of protection
Ex ia IIC T4 Ga
T4: for ambient temperature: -20 to 55°C
Atmosphere pressure: 80kPa (0.8bar) to 110kPa (1.1bar)

FM Intrinsic safety and nonincendive approval

Applicable standard
Class-3600: 2011 Approval Standard for Electric Equipment for use in Hazardous (Classified) Locations General Requirement
Class-3610: 2010 Approval Standard for Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous (Classified) Locations
Class-3611: 2004 Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2, Hazardous (Classified) Locations
Class-3810: 2005 Electrical Equipment for Measurement, Control and Laboratory Use
ANSI/NEMA 250:2014 Enclosures for Electrical Equipment (1000 Volts Maximum)
ANSI/ISA 60079-0 2013 Part 0: General Requirements
ANSI/ISA 60079-11 2014 Part 11: Equipment protection by intrinsic safety "i"
Type of protection
Class I, Division 1, Groups A, B, C and D (Intrinsically Safe)
Class I, Division 2, Groups A, B, C and D (Nonincendive)
Class I, Zone 0, Group IIC in Hazardous (Classified) Locations (Intrinsically Safe)
Class I, Zone 2, Group IIC, Group in Hazardous (Classified) Locations (Nonincendive)
For all protection type,
T4: for ambient temperature: -20 to 55°C

Atmosphere pressure: 80 kPa (0.8 bar) to 110 kPa (1.1 bar)

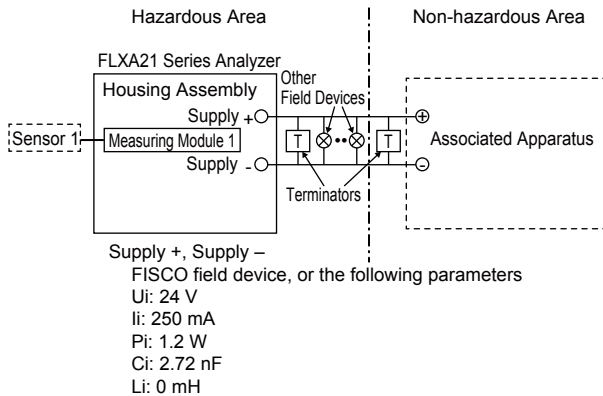
CSA Intrinsic safety and nonincendive approval

Applicable standard
C22.2 No. 0-10 (R2015) General Requirements - Canadian Electrical Code Part II
CAN/CSA C22.2 No. 94-M91 (R2011) Special Purpose Enclosures
C22.2 No213-M1987 (R2013) Non-incendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations
CAN/CSA C22.2 No.60079-0:11 Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
CAN/CSA C22.2 No.60079-11:14 Electrical apparatus for explosive gas atmospheres - Part 11: Intrinsic safety "i"
Type of protection
Class I, Division 1, Groups A, B, C and D Ex ia IIC T4 Ga (Intrinsically Safe)
Class I, Division 2, Groups A, B, C and D (Nonincendive)
For all protection type,
T4: for ambient temperature: -20 to 55°C
Atmosphere pressure: 80 kPa (0.8 bar) to 110 kPa (1.1 bar)
Ambient Humidity: 0 to 100% (No condensation)

NEPSI Intrinsic safety approval

Applicable Standard
GB 3836.1-2010 Explosive atmospheres- Part 1: Equipment - General requirements
GB 3836.4-2010 Explosive atmospheres- Part 4: Equipment protection by intrinsic safety "i"
GB 3836.20-2010 Explosive atmospheres- Part 20: Equipment with equipment protection level (EPL) Ga
Type of protection
Ex ia IIC T4 Ga
T4: for ambient temperature: -20°C to 55°C
Atmosphere pressure: 80kPa (0.8bar) to 110kPa (1.1bar)

**ATEX and IECEx
Control Drawing (FOUNDATION Fieldbus /
PROFIBUS PA Type)**



Measuring Module 1

	Type of Measuring Module		
	pH, SC, DO	ISC	SENCOM
U_o	11.76 V	11.76 V	5.36 V
I_o	116.5 mA	60.6 mA	106.16 mA
P_o	0.3424 W	0.178 W	0.1423 W
C_o	100 nF	100 nF	31 μF
L_o	1.7 mH	8 mH	0.45 mH

Specific Conditions of Use

- Precautions shall be taken to minimize the risk from electrostatic discharge of non-metallic parts of the enclosure.

Notes:

1. The associated apparatus must be a linear source or FISCO power supply.
2. Sensor 1 may be simple apparatus or intrinsically safe apparatus.
3. **WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD – SEE USER’S MANUAL**

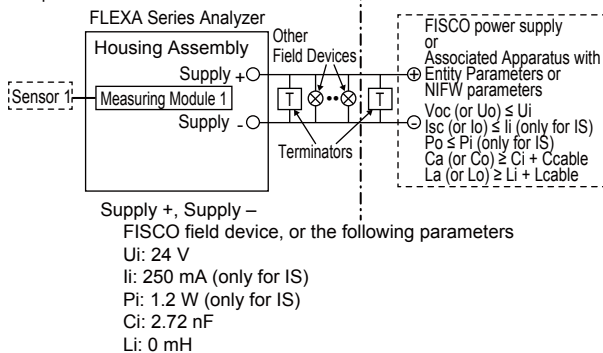
FM

**Control Drawing (FOUNDATION Fieldbus /
PROFIBUS PA type)**

Hazardous (Classified) Location | Unclassified Location

Class I, Division 1, Groups A, B, C, D, or Class I, Zone 0, Group IIC
or
Class I, Division 2, Groups A, B, C, D, or Class I, Zone 2, Group IIC,

Temperature Class: T4



Measuring Module 1

	Type of Measuring Module		
	pH, SC, DO	ISC	SENCOM
U_o	11.76 V	11.76 V	5.36 V
I_o	116.5 mA	60.6 mA	106.16 mA
P_o	0.3424 W	0.178 W	0.1423 W
C_o	100 nF	100 nF	31 μF
L_o	1.7 mH	8 mH	0.45 mH

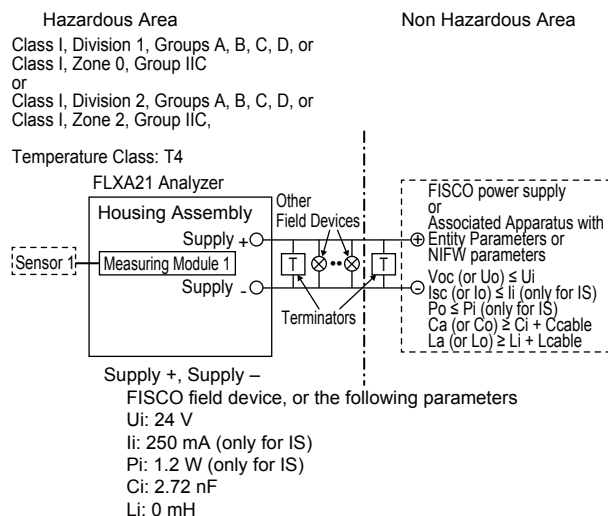
Specific Conditions of Use

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

Notes:

1. No revision to this drawing without prior approval of FM.
2. Installation must be in accordance with the National Electric Code (NFPA70), ANSI/ISA RP12.06.01 and relevant local codes.
3. FISCO installation must be in accordance with ANSI/ISA-60079-25.
4. The associated apparatus must be FM approved.
5. The associated apparatus other than FISCO power supply must be a linear source.
6. Control equipment connected to the associated apparatus must not use or generate more than 250 V a.c. r.m.s or d.c.
7. The control drawing of the associated apparatus must be followed when installing the equipment.
8. For Division 1 / Zone 0 installation, Sensor 1 may be simple apparatus, or intrinsically safe apparatus with the following entity parameters. For Division 2 / Zone 2 installation, it may be equipment suitable for Division 2 / Zone 2, or simple apparatus, or nonincendive field wiring apparatus with the following nonincendive field wiring parameters.
 U_i (or V_{max}) $\geq U_o$
 I_i (or I_{max}) $\geq I_o$
 $P_i \geq P_o$
 $C_i \leq C_o - C_{cable}$
 $L_i \leq L_o - L_{cable}$
9. For Division 2 / Zone 2 installation, general-purpose power supply may be used if a wiring method suitable for Division 2, but other than nonincendive field wiring, is taken.
10. **WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD -WHEN THE EQUIPMENT USED IN HAZARDOUS LOCATIONS, AVOID ANY ACTION WHICH GENERATE ELECTROSTATIC DISCHARGE SUCH AS RUBBING WITH A DRY CLOTH.**
11. **WARNING – SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY AND SUITABILITY FOR DIVISION 2 / ZONE 2.**

CSA Control Drawing (FOUNDATION Fieldbus / PROFIBUS PA Type)



6. WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD
AVERTISSEMENT – DANGER POTENTIEL DE CHARGES ÉLECTROSTATIQUES
7. WARNING – SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY
AVERTISSEMENT – LA SUBSTITUTION DE COMPOSANTS PEUT COMPROMETTRE LA SÉCURITÉ INTRINSÈQUE.
8. WARNING – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR DIVISION 2 / ZONE 2.
AVERTISSEMENT – LA SUBSTITUTION DE COMPOSANTS PEUT RENDRE CE MATÉRIEL INACCEPTABLE POUR LES EMPLACEMENTS DE DIVISION 2/ZONE 2

NEPSI

**Control Drawing (FOUNDATION Fieldbus /
PROFIBUS PA Type)**
(Refer to ATEX and IECEx Control Drawing)

Measuring Module 1

	Type of Measuring Module		
	pH, SC, DO	ISC	SENCOM
U_o	11.76 V	11.76 V	5.36 V
I_o	116.5 mA	60.6 mA	106.16 mA
P_o	0.3424 W	0.178 W	0.1423 W
C_o	100 nF	100 nF	31 μF
L_o	1.7 mH	8 mH	0.45 mH

Specific Conditions of Use

- Precautions shall be taken to minimize the risk from electrostatic discharge of non-metallic parts of the enclosure. When the equipment used in hazardous locations, avoid any action which generate electrostatic discharge such as rubbing with a dry cloth.

Notes:

1. Installation must be in accordance with the Canadian Electric Code, C22.1 and relevant local codes.
2. FISCO installation must be in accordance with CAN/CSA-C22.2 No.60079-25:14.
3. The associated apparatus other than FISCO power supply must be a linear source.
4. For Division 1 / Zone 0 installation, Sensor 1 may be simple apparatus, or intrinsically safe apparatus with the following entity parameters. For Division 2 / Zone 2 installation, it may be equipment suitable for Division 2 / Zone 2, or simple apparatus, or nonincendive field wiring apparatus with the following nonincendive field wiring parameters.

$$U_i \text{ (or } V_{max}) \geq U_o$$

$$I_i \text{ (or } I_{max}) \geq I_o$$

$$P_i \geq P_o$$

$$C_i \leq C_o - C_{cable}$$

$$L_i \leq L_o - L_{cable}$$
5. For Division 2 / Zone 2 installation, general-purpose power supply may be used if a wiring method suitable for Division 2 / Zone 2, but other than nonincendive field wiring, is taken.

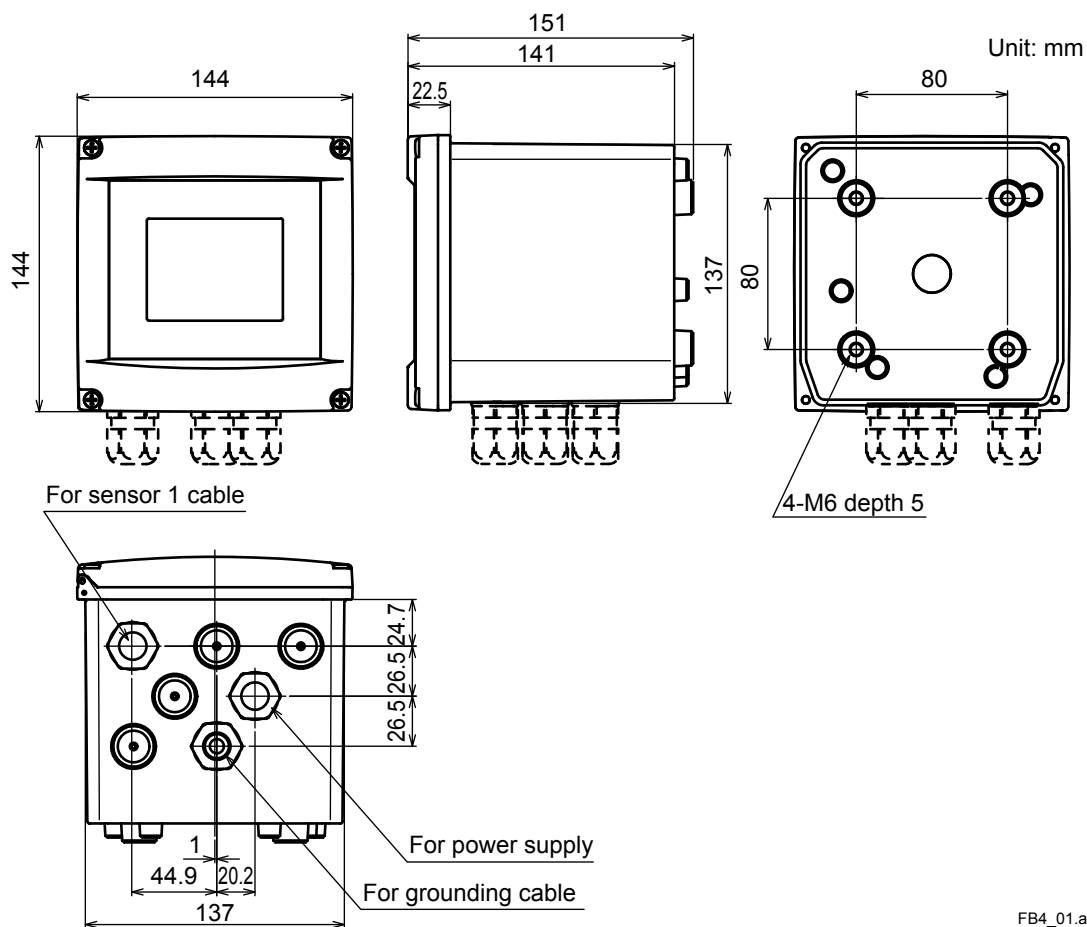
■ Model & Suffix Codes

Model	Suffix code	Option code	Description
FLXA21	.....	.....	2-Wire Analyzer
Power supply	-D	.....	Always -D
Housing	-P	.....	Plastic
Display	-D	.....	Anti-glare LCD
Type	-AA -AB -AD -AG -CB -CD -CH -DD	..... ..... ..... ..... ..... ..... ..... .....	General purpose (Note 7) General purpose for CE, RCM General purpose for CSA General purpose for KC IS for ATEX, IECEx (Note 5) IS for FM, CSA (Note 5) IS for NEPSI (Note 5) NI for FM, CSA (Note 6)
1st input	-P1 -C1 -S1	..... ..... .....	pH/ORP (Note 3) Conductivity (SC) pH/ORP (SENCOM sensor)
2nd input	-NN	.....	Without input
Output (Note 1)	-F	.....	FOUNDATION Fieldbus
—	-N	.....	Always -N
Language set (Note 2)	-LA	.....	English and 11 languages
Country	-N	.....	Global except Japan
—	-NN	.....	Always -NN
Option	Mounting hardware Hood Tag plate Conduit adapter	/UM /U /PM /H6 /H7 /H8 /SCT /CB4 /CD4 /CF4	Universal mounting kit (Note 4) Pipe and wall mounting hardware Panel mounting hardware Hood, stainless steel Hood, stainless steel + urethane coating Hood, stainless steel + epoxy coating Stainless steel tag plate Conduit adapter (G1/2 x 4 pcs) Conduit adapter (1/2NPT x 4 pcs) Conduit adapter (M20 x 1.5 x 4 pcs)

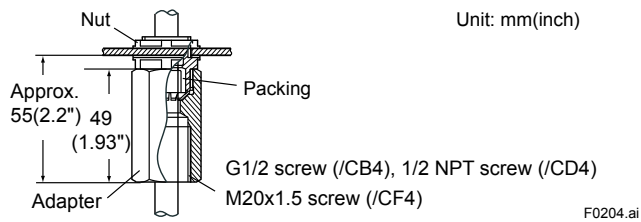
Notes:

- The FLXA21 has another output type of "4-20 mA + HART" (suffix code: -A). Refer to GS 12A01A02-01E.
- 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.
- This input is to be come from an analog pH/ORP sensor.
- The universal mounting kit contains the pipe and wall mounting hardware (/U) and the panel mounting hardware (/PM).
- Type "-CB", "-CD", "-CH" are intrinsic safety (IS).
- Type "-DD" is nonincendive (NI).
- For the type "-AA", the main nameplate is inside of the housing. This suffix code will be terminated.
Therefore, in case of "-AA" please select "-AB", "-AD" or "-AG" for general purpose.

■ Dimensions and Mounting

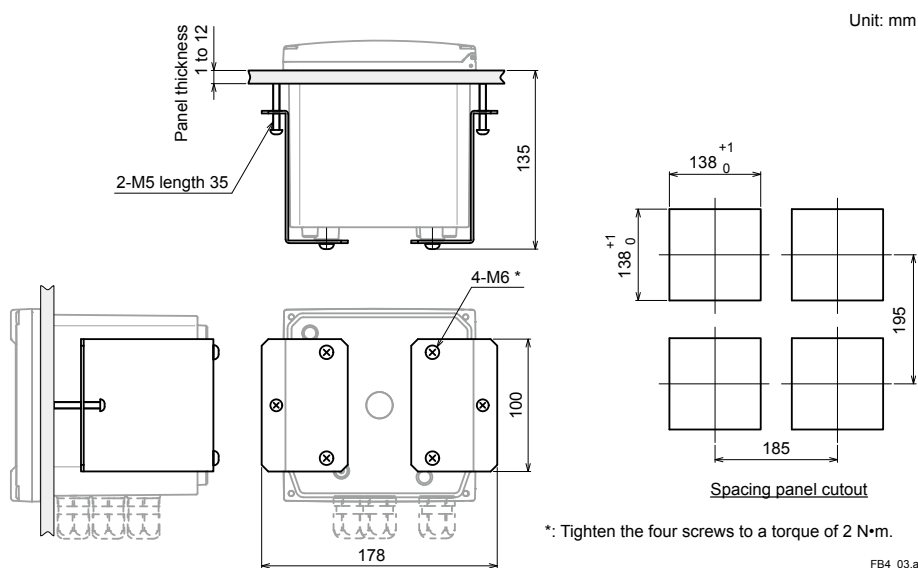


Conduit Adapter (Option code: □/CB4, □/CD4, □/CF4)

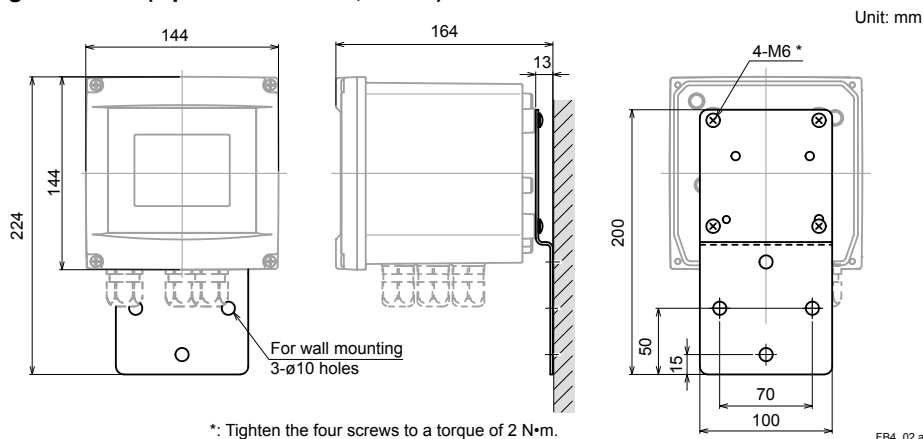


(Note) The universal mounting kit (/UM) contains the pipe and wall mounting hardware (/U) and the panel mounting hardware (/PM).

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

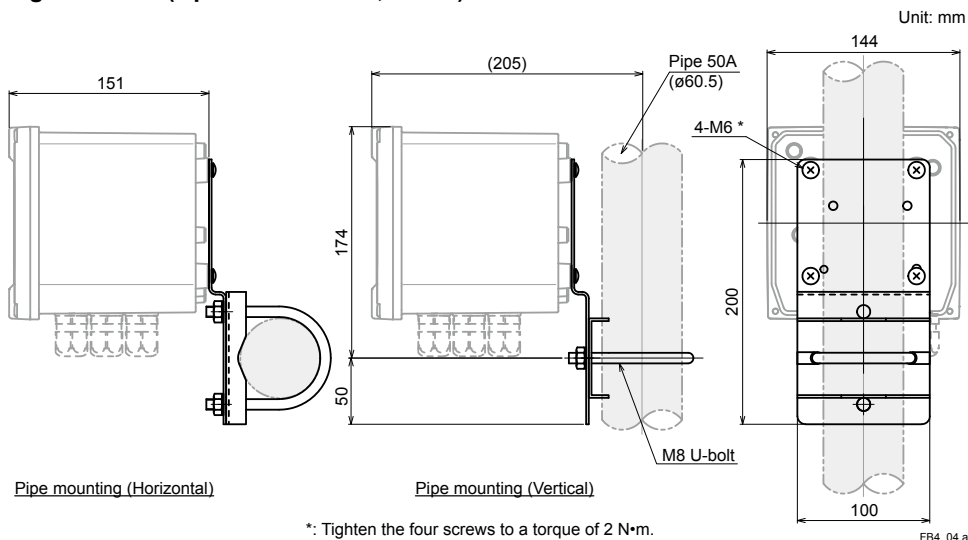


Wall mounting hardware (Option code: □/U, □/UM)

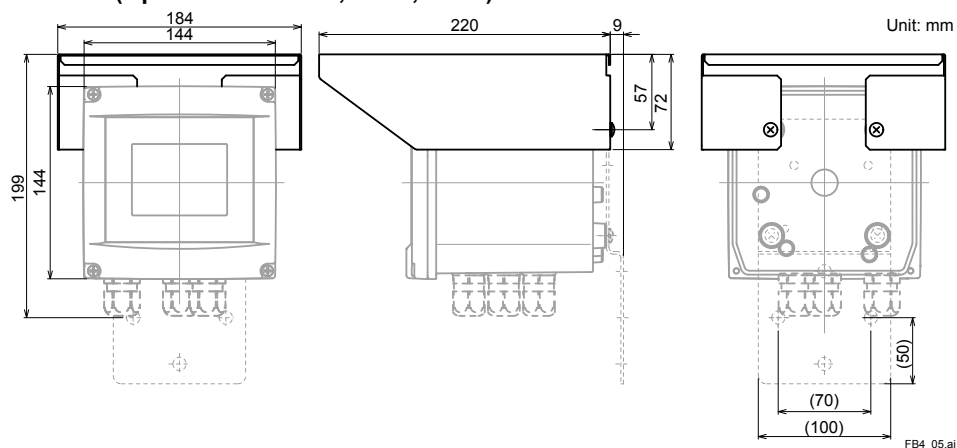


Note: The wall on which the analyzer is mounted should be strong enough to bear the weight of more than 8 kg.

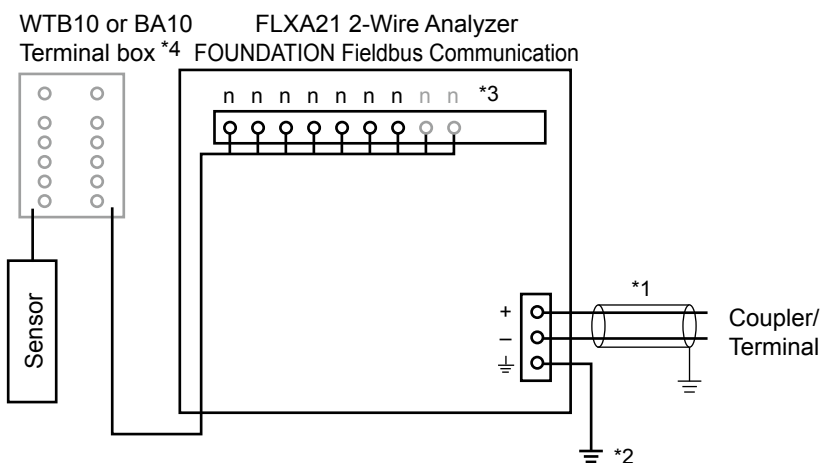
Pipe mounting hardware (Option code: □/U, □/UM)



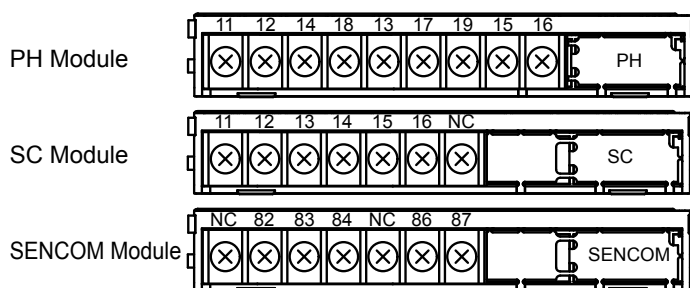
Stainless steel hood (Option code: □/H6, □/H7, □/H8)



■ Wiring Diagrams



- *1: Use a 2-wire shielded cable with an outside diameter of 6 to 12 mm.
- *2: Connect the analyzer to gland. (Class D ground: 100 ohm or less)
Connect the grounding cable to the \perp terminal of the power module inside.
Use a cable with an outside diameter of 3.4 to 7 mm for the grounding line of the plastic housing.
The minimum cross sectional area of the protective grounding cable should be 0.75 mm².
- *3: Terminal numbers for each sensor module are shown below.
- *4: 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.



■ Inquiry Specifications Sheet for FLXA21 2-Wire Analyzer (FOUNDATION Fieldbus Communication)

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) pH/ORP (digital sensor, FU20F)
 2nd Input; Without

4.1 pH/ORP (analog sensor)

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

4.2 Conductivity

(1) Measuring range; _____
 (2) 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)
 (3) 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
 (4) Electrode cable length; SC4AJ 3m, 5m, 10m, 20m
 SC8SG 5.5m, 10m, 20m
 SC210G 3m, 5m, 10m, 15m, 20m
 (5) Others;

4.3 pH/ORP (digital sensor, FU20F)

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