User's Manual

YH8000
HMI Unit

IM 11Y01D10-01EN

YOKOGAWA
Yokogawa Electric Corporation

IM 11Y01D10-01EN
2nd Edition

Introduction

Thank you for purchasing the YH8000 HMI Unit.

Please read the following respective documents before installing and using the YH8000.

The related documents are as follows.

Document type	Title	Document number
General Specifications	TDLS8000 Tunable Diode Laser Spectrometer	GS 11Y01D01-01EN
	TDLS8100 Probe type Tunable Diode Laser Spectrometer	GS 11Y01D02-01EN
	TDLS8200 Probe type Tunable Diode Laser Spectrometer	GS 11Y01D03-01EN
User's Manual	YH8000 HMI Unit	IM 11Y01D10-01EN (This manual)
	TDLS8000 Tunable Diode Laser Spectrometer	IM 11Y01D01-01EN
	TDLS8100 Probe type Tunable Diode Laser Spectrometer	IM 11Y01D02-01EN
	TDLS8200 Probe type Tunable Diode Laser Spectrometer	IM 11Y01D03-01EN

* the "EN" in the document number is the language code.

An exclusive User's Manual might be attached to the products whose suffix codes or option codes contain the code "Z" (made to customers' specifications). Please read it along with this manual.

The TDLS8000 series include the TDLS8000, TDLS8100, and TDLS8200; the TDLS8100 and TDLS8200 are probe types.
The TDLS8200 is available in two laser specification options.

YH8000 settings, and other settings, may vary depending on the analyzer.

Notes on Handling User's Manuals

- Please hand over the user's manuals to your end users so that they can keep the user's manuals on hand for convenient reference.
- Please read the information thoroughly before using the product.
- The purpose of these user's manuals is not to warrant that the product is well suited to any particular purpose but rather to describe the functional details of the product.
- No part of the user's manuals may be transferred or reproduced without prior written consent from YOKOGAWA.
- YOKOGAWA reserves the right to make improvements in the user's manuals and product at any time, without notice or obligation.
- If you have any questions, or you find mistakes or omissions in the user's manuals, please contact our sales representative or your local distributor.

Drawing Conventions

Some drawings may be partially emphasized, simplified, or omitted, for the convenience of description.

Some screen images depicted in the user's manual may have different display positions or character types (e.g., the upper / lower case). Also note that some of the images contained in this user's manual are display examples.

Notes on Hardware

Appearance and Accessories

Check the following when you receive the product:

- Appearance
- Standard accessories

Model and Suffix Codes

The name plate on the product contains the model and suffix codes. Compare them with those in the general specification of "1.3 Model and Codes" to make sure the product is the correct one. If you have any questions, contact our sales representative or your local distributor.

◆ Safety Precautions

■ Safety, Protection, and Modification of the Product

- In order to protect the system controlled by the product and the product itself and ensure safe operation, observe the safety precautions described in this user's manual. We assume no liability for safety if users fail to observe these instructions when operating the product.
- If YH8000 are used in a manner not specified in this user's manual, the protection provided by these instruments may be impaired.
- If any protection or safety circuit is required for the system controlled by the product or for the product itself, prepare it separately.
- Be sure to use the spare parts approved by Yokogawa Electric Corporation (hereafter simply referred to as YOKOGAWA) when replacing parts or consumables.
- Modification of the product is strictly prohibited.
- The following safety symbols are used on the product as well as in this manual.

⚠ WARNING

This symbol indicates that an operator must follow the instructions laid out in this manual in order to avoid the risks, for the human body, of injury, electric shock, or fatalities. The manual describes what special care the operator must take to avoid such risks.

⚠ CAUTION

This symbol indicates that the operator must refer to the instructions in this manual in order to prevent the instrument (hardware) or software from being damaged, or a system failure from occurring.

CAUTION

This symbol gives information essential for understanding the operations and functions.

NOTE

This symbol indicates information that complements the present topic.

This symbol indicates Protective Ground Terminal.

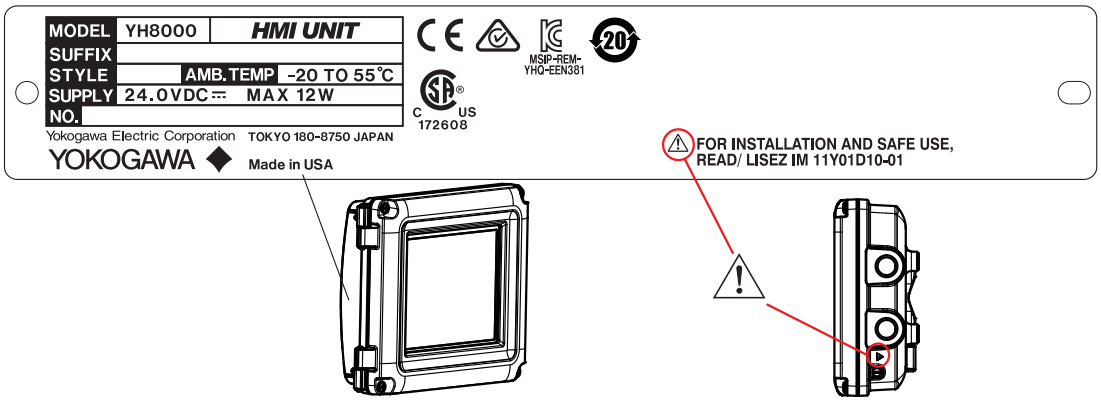
This symbol indicates Function Ground Terminal. Do not use this terminal as the protective ground terminal.

■ Warning and Disclaimer

The product is provided on an "as is" basis. YOKOGAWA shall have neither liability nor responsibility to any person or entity with respect to any direct or indirect loss or damage arising from using the product or any defect of the product that YOKOGAWA can not predict in advance.

About this product

There are safety symbols in the point of the figure to a product.



CAUTION

Be careful not to connect the power supply wires to the incorrect locations or reverse the polarity.

- Don't install "general purpose type" instruments in the hazardous area.
  Select a proper type for installation in hazardous locations.
- The Instrument is packed carefully with shock absorbing materials, nevertheless, the instrument may be damaged or broken if subjected to strong shock, such as if the instrument is dropped. Handle with care.
- Components that can be damaged by static electricity are used in the YH8000 HMI interface unit. Take protective measures against static electricity when performing maintenance and inspection and use conductive packing material for shipping replacement components.
- Do not use an abrasive or organic solvent for cleaning the YH8000 HMI interface unit.
- The YH8000 HMI unit is operated using a touch panel. Pressing the appropriate area of the display screen will expand the screen, and calibration operations and setting changes can be easily performed. Caution is required to avoid mishandling of the unit.
- YH8000 is EN61326-1 Class A products, and it is designed for use in the industrial environment. Please use this instrument in the industrial environment only.

Safety considerations are primary and utmost important when handling the equipment described in this manual. Evaluate potential hazards in all phases of work and take appropriate measures to prevent potential accidents.

CAUTION

Sufficiently understand this user's manual and carry out the work carefully so as not to make a mistake with a wire.

Maintenance by qualified engineer

Work carried out by other than a qualified engineer may cause injury to the worker and/or severe damage to the equipment. Furthermore, if the warnings in this manual are not observed, the worker may be seriously injured and/or the equipment may be severely damaged.

Maintenance of the equipment must be performed by a qualified engineer. Qualified engineer refers to the following:

- Engineer who is familiar with how to safely handle process analyzers (or general automation technology) and has read this manual and understood its content.
- Engineer who has received training on how to start and configure equipment and has read this manual and understood its content.

Safety, EMC, and RoHS conformity standards

Safety conformity standards:

CE EN61010-1
UL UL61010-1
CSA CAN/CSA-C22.2 No.61010-1
GB GB30439 Part 1
Installation Altitude: 2000 m or less
Installation category: I (Anticipated transient overvoltage 330 V)
Pollution degree: 2, Indoor/Outdoor use

EMC conformity standards:

CE EN55011 Class A Group 1
EN61326-1 Class A Table 2 (For use in industrial location)
RCM EN55011 Class A Group 1
KC KN11 Class A Group 1, KN61000-6-2 (Korea Electromagnetic Conformity)

한국 전자파적합성 기준

A급 기기 (업무용 방송통신기자재)
이 기기는 업무용(A급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.

Cable conditions:
- Power cable Use a shielded cable.
- Local HMI connection cable
  Use a separately sold dedicated cable (shield cable).
- Ethernet cable Use an STP cable (shielded) of category 5e or higher.

RoHS conformity standards:

EN IEC 63000:2018*
*: For only YH8000-G1-G2, -S2
Product conformity assessments of YH8000 for the relevant standards are performed in its own right.

Trademark Notices

- TDLS, FieldMate are trademarks of Yokogawa Electric Corporation.
- Ethernet is a registered trademark of XEROX Corporation.
- Modbus are registered trademarks of Schneider Electric SA.
- All other company and product names mentioned in this user's manual are trademarks or registered trademarks of their respective companies.
- We do not use TM or ® mark to indicate those trademarks or registered trademarks in this user's manual.

◆ CE marking products

■ Authorized Representative in EEA

The Authorized Representative for this product in EEA is Yokogawa Europe B.V. (Euroweg 2, 3825 HD Amersfoort, The Netherlands).

■ Identification Tag

This manual and the identification tag attached on a packing box are essential parts of the product. Keep them together in a safe place for future reference.

■ Users

This product is designed to be used by a person with specialized knowledge.

■ How to dispose the batteries

This is an explanation about the new EU Battery Directive. This directive is only valid in the EU.

Batteries are included in this product. Batteries incorporated into this product cannot be removed by yourself. Dispose them together with this product.

When you dispose this product in the EU, contact your local Yokogawa office in the EU.

Do not dispose them as domestic household waste.

Battery type: Manganese dioxide lithium battery.

Notice:

The symbol (see above) means they shall be sorted out and collected as ordained in ANNEX II in DIRECTIVE 2006/66/EC.

■ 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. This product should be disposed in accordance with local and national legislation/regulations.

The WEEE Directive is only valid in the EU.

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YH8000
HMI Unit

IM 11Y01D10-01EN 2nd Edition

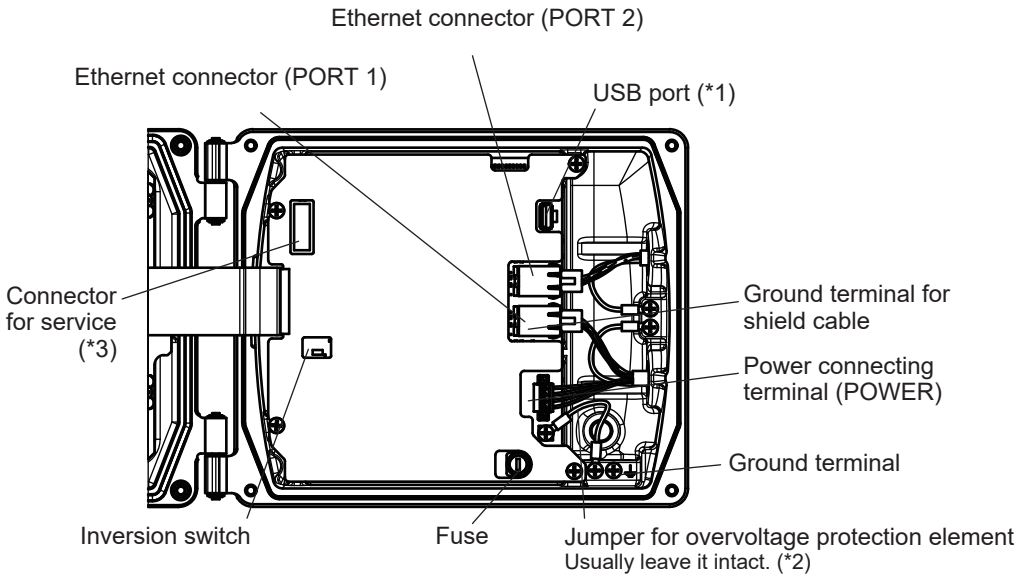
CONTENTS

1. Overview

The YH8000 is an HMI (Human Machine Interface) designed specifically for the TDLS8000 series. The YH8000 features an easy-to-use touchscreen 7.5-inch color LCD which can be used to display maintenance information, display alarm statuses and records, and set all parameters of the TDLS8000 series.

The YH8000 can be installed directly on the TDLS8000 series or installed remotely. An Ethernet connection is used to connect the YH8000 to up to four TDLS8000 series simultaneously via a hub. YH8000 requires a unique IP address.

1.1 Name and Function of Each Part



*1: On the USB port, do not plug anything except USB flash drive. For further information, see “4.8 Access to stored data in Analyzers”.

*2: The YH8000 is equipped with an overvoltage protection element to prevent failure caused by surges and other overvoltages. This element may hinder the correct measurement of insulation resistance of the power line during insulation tests. To disable this element, disconnect the jumper.

*3: Service staff use this connector for maintenance.

1.2 Specifications

Display: Touchscreen 7.5 inch TFT color LCD panel,
Resolution: 640 x 480 (VGA)
Communication: Ethernet; RJ-45 connector
Communication speed; 100 Mbps
Case: Aluminum alloy
Paint color: Mint green (RAL 190 30 15 or equivalent)
Protection degree of enclosure: IP65, Type 4X
Window: Polycarbonate
Weight: Approx. 4 kg
Cable gland for Japan Ex; (/JA1, /JA2) Approx. 320 g/pc
Mounting: Analyzer mount (Mounting kit for TDLS8000 series /M*),
Pipe mount (/P), Wall mount (/W)
*: (Front, left-side, right-side) with tilt function
Cable Entries: 1/2NPT or M20x1.5 mm, two holes
Installation conditions:
Ambient operating temperature; -20 to 55ºC
Storage temperature: -30 to 70ºC
Humidity: 10 to 90%RH at 40ºC (Non-condensing)
Power Supply: 24V DC +/-10%
Power consumption: Max.12 W

Safety, EMC, and RoHS conformity standards:

Safety conformity standards:
CE EN61010-1
UL UL61010-1
CSA CAN/CSA-C22.2 No.61010-1
GB GB30439 Part 1
Installation Altitude: 2000 m or less
Installation category: I (Anticipated transient overvoltage 330 V)
Pollution degree: 2, Indoor/Outdoor use

EMC conformity standards:
CE EN55011 Class A Group 1
EN61326-1 Class A Table 2 (For use in industrial location)
RCM EN55011 Class A Group 1
KC KN11 Class A Group 1, KN61000-6-2 (Korea Electromagnetic Conformity)

RoHS conformity standards: EN IEC 63000:2018*
*: For only YH8000-G1-G2, -S2

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.

Hazardous area classifications

Division 2, Zone2: Nonincendive/Type n

YH8000-D2 (FM Approval for US)
- Division system
  - Type of protection: Nonincendive for Class I, Division 2, Groups A, B, C, D, T5
  - Enclosure rating: Type 4X
  - Applicable standards: FM Class 3600: 2018, FM Class 3611: 2018
    FM Class 3810: 2018, NEMA 250: 2003
- Zone system
  - Type of protection: Class I, Zone 2, AEx nA ic IIC T5 Gc
  - Enclosure rating: IP65
  - Applicable standards: ANSI/UL 60079-0:2019,
    ANSI/UL 60079-11:2013,
    ANSI/UL 60079-15:2013,
    ANSI/UL 121201:2019,
    ANSI/IEC 60529-2004

YH8000-C2 (FM Approval for Canada)
- Type of protection: Ex nA ic IIC T5 Gc
- Enclosure rating: IP65, Type 4X
- Applicable standards: CAN/CSA-C22.2 No.94.2-07 (R2012),
  CAN/CSA-C22.2 No.60079-0:19,
  CAN/CSA-C22.2 No.60079-11:14,
  CAN/CSA-C22.2 No.60079-15:16,
  CAN/CSA-C22.2 No.61010-1-12,
  CAN/CSA-C22.2 No.60529:05 (R2010)

YH8000-S2 (ATEX)
- Type of protection: II 3 G Ex nA ic IIC T5 Gc
- Enclosure rating: IP65 (In accordance with EN 60529)
- Applicable standards: EN IEC 60079-0:2018, EN 60079-11: 2012, EN 60079-15: 2010

YH8000-E2 (IECEx)
- Type of protection: Ex ec ic IIC T5 Gc
- Enclosure rating: IP65 (In accordance with IEC 60529)
- Applicable standards: IEC 60079-0: 2017
  IEC 60079-11: 2011
  IEC 60079-7: 2017

YH8000-J2 (Japan Ex)
- Type of protection: Ex nA ic IIC T5 Gc
- Enclosure rating: IP65 (In accordance with IEC 60529)*1
  *1: IP54 that is minimum requirement of Ex standards is confirmed at the conformance assessment of Japan Ex. YH8000 can be used in the environment required IP65.
- Applicable standards: JNIOSH-TR-46-1:2020
  JNIOSH-TR-46-6:2015
  JNIOSH-TR-46-8:2015

YH8000-K2 (Korea Ex)
- Type of protection: Ex nA ic IIC T5 Gc
- Enclosure rating: IP65 (In accordance with IEC 60529)
- Applicable standards: Notice of Ministry of Labor No. 2021-22
  Harmonized with IEC60079-0: 2017, IEC 60079-11: 2011,
  IEC 60079-15:2010

YH8000-N2 (NEPSI)
- Type of protection: Ex ec ic IIC T5 Gc
- Enclosure rating: IP65 (In accordance with GB/T 4208-2017)
- Applicable standards: GB/T 3836.1-2021
  GB/T 3836.3-2021
  GB/T 3836.4-2021

YH8000-R2 (EAC)
Type of protection: 2Ex nA ic IIC T5 Gc X
Enclosure rating: IP65 (In accordance with GOST 14254)
Applicable standards: GOST 31610.0-2014
GOST 31610.15-2014
GOST 31610.11-2014

YH8000-U2 (INMETRO)
Type of protection: Ex nA ic IIC T5 Gc
Enclosure rating: IP65
Applicable standards: ABNT NBR IEC 60079-0:2020
ABNT NBR IEC 60079-11:2013 Versão Corrigida:2017
ABNT NBR IEC 60079-15:2019

1.3 Model and Codes

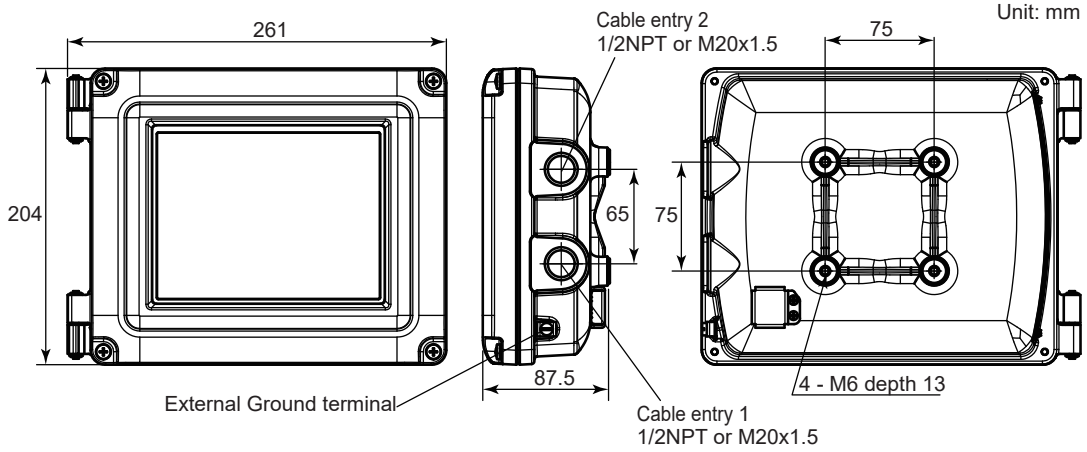
Model	Suffix Code	Option Code	Description
YH8000	.....	.....	HMI Unit
Type	**-G1**	.....	General Purpose, NPT thread for cable entry
	-G2	.....	General Purpose, Metric thread for cable entry
	-GR	.....	EAC General Purpose, Metric thread for cable entry
	-D2	.....	FM (US) Class I Div 2, Zone2, NPT thread for cable entry
	-C2	.....	FM (Canada) Class I Zone2, NPT thread for cable entry
	-S2	.....	ATEX Type of protection “n”, Metric thread for cable entry
	-E2	.....	IECEx Type of protection “n”, Metric thread for cable entry
	-J2	.....	Japan Ex / Zone 2, Metric thread for cable entry (*1)
	-K2	.....	Korea Ex Type of protection “n”, Metric thread for cable entry
	-N2	.....	NEPSI Type of protection “n”, Metric thread for cable entry
	-R2	.....	EAC Type of protection “n”, Metric thread for cable entry
	-U2	.....	INMETRO Type of protection “n”, Metric thread for cable entry
Language	**-E**	.....	English and 9 other languages (*2)
—	**-N**	.....	Always -N
Option		**/M**	Mounting kit for TDLS8000 series (*3)
		/P	Pipe mount
		/W	Wall mount
		/S	Sun Shield
		/C	Local HMI connection cable: 3m
		/SCT	Stainless Steel Tag Plate
		/JA1	Cable gland for Japan Ex (Cable O.D. 8-12mm, G1/2), 1 pc (*1)
		/JA2	Cable gland for Japan Ex (Cable O.D. 8-12mm, G1/2), 2 pc (*1)

*1: For Japan Ex/Zone 2 certified model (YH8000-J2), specified cable glands shall be attached to each cable entry for wiring. Select the Option “/JA1” or “/JA2”.
For detailed information, refer to Japanese General Specifications (GS 11Y01D01-01JA).
The Option “/JA1” and “/JA2” can be used only when Japan Ex/Zone 2 certified model (YH8000-J2) is selected. If “/JA1” or “/JA2” is necessary for other model, please contact Yokogawa.

*2: These languages are message languages on the display.
One analyzer has English and 9 languages.
All languages are as follows; English, German, French, Spanish, Portuguese, Russian, Hungarian, Korean, Chinese and Japanese.

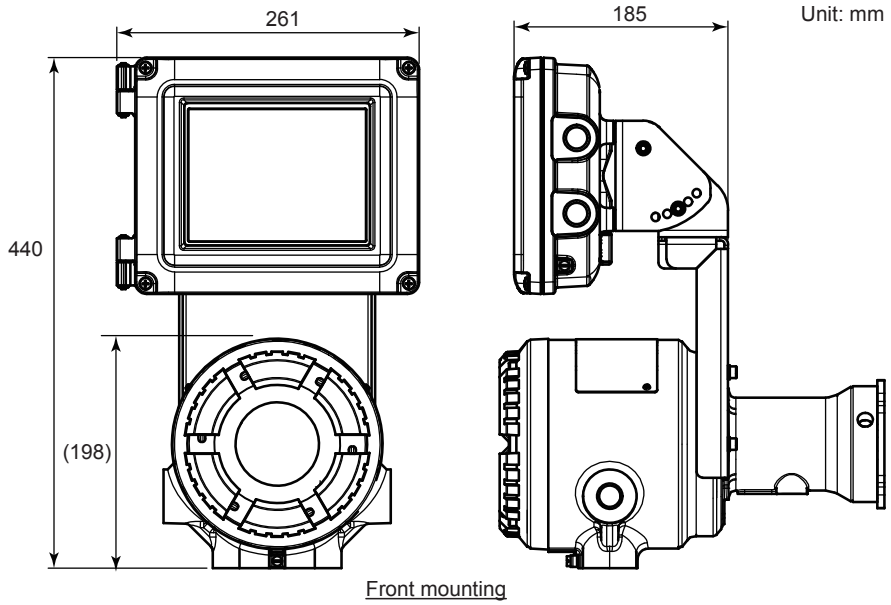
*3: /M cannot be selected with TDLS8000 Type “-D1”, “-C1”, “-S1”, “-E1”, “-K1”, “-J1”, “-N1”, “-Q1”, “-R1”, “-U1”.

1.4 External Dimensions

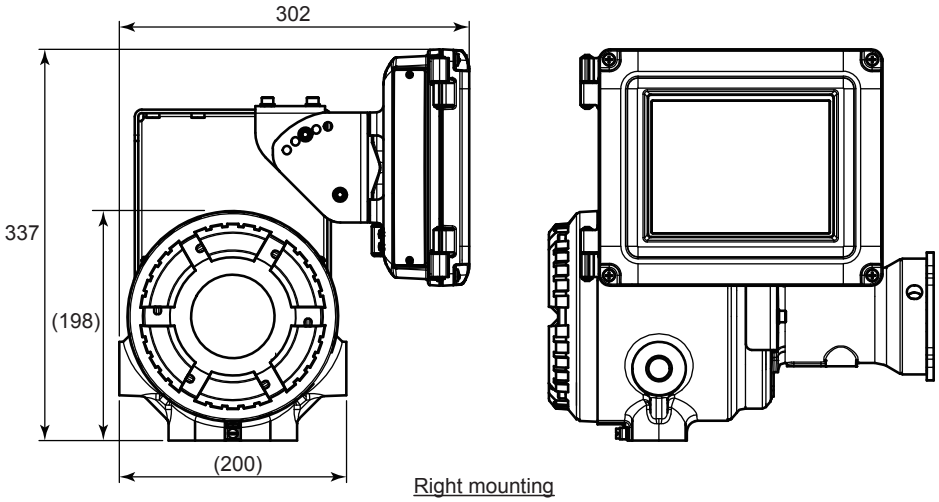


● Mounting kit for TDLS8000 series (Option code: /M)

TDLS8000



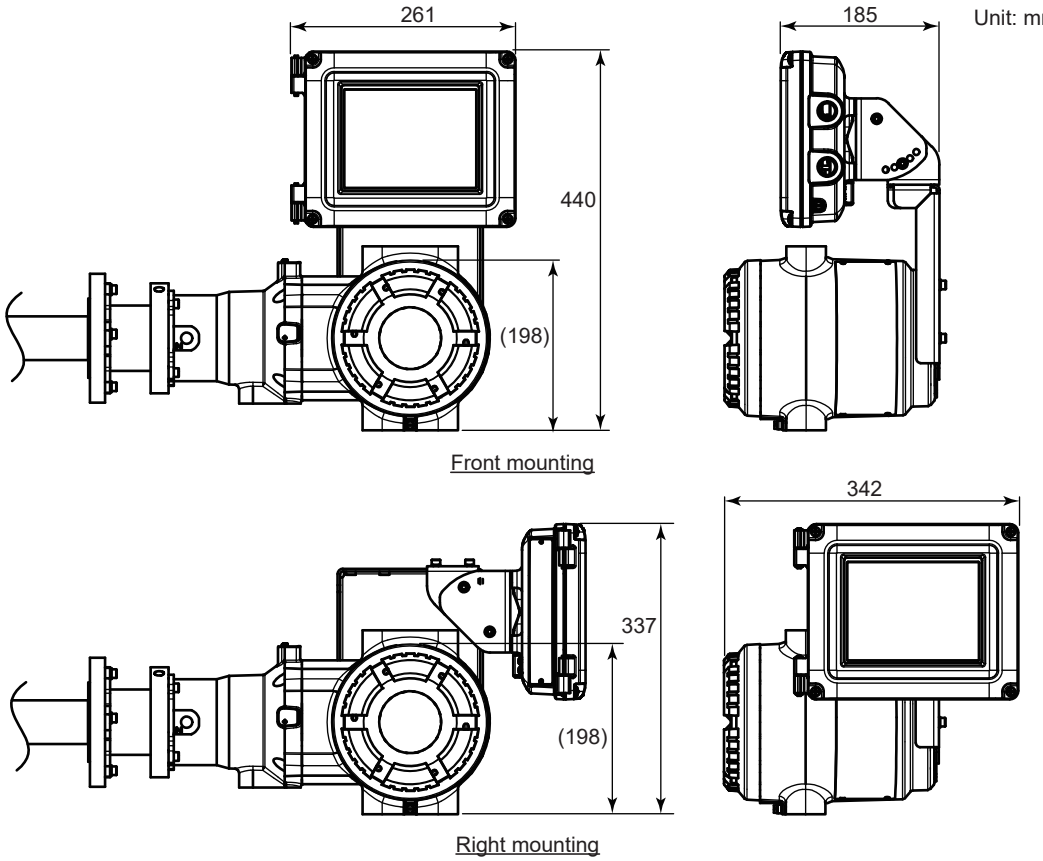
Front mounting



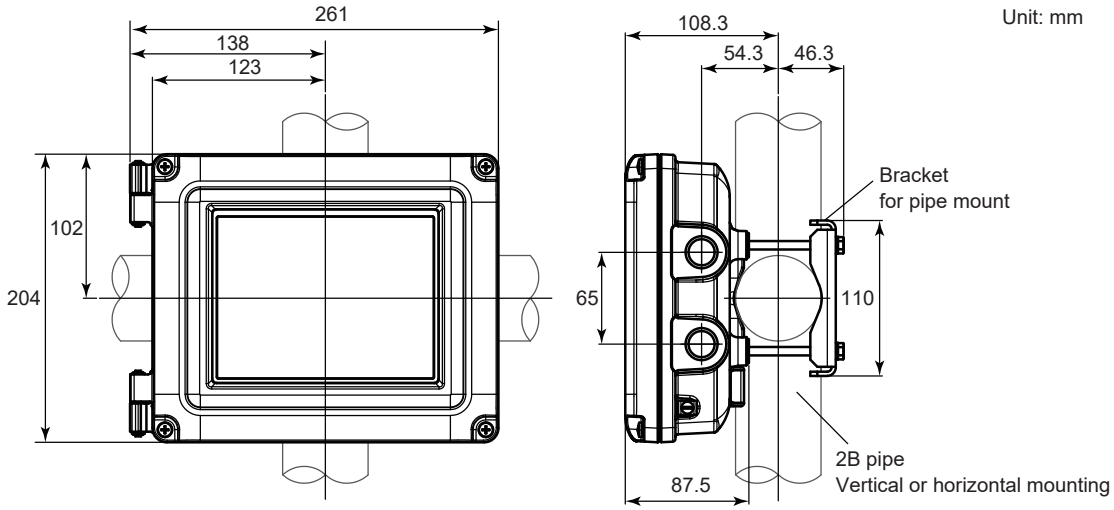
Right mounting

Available for left mounting

TDLS8100/TDLS8200

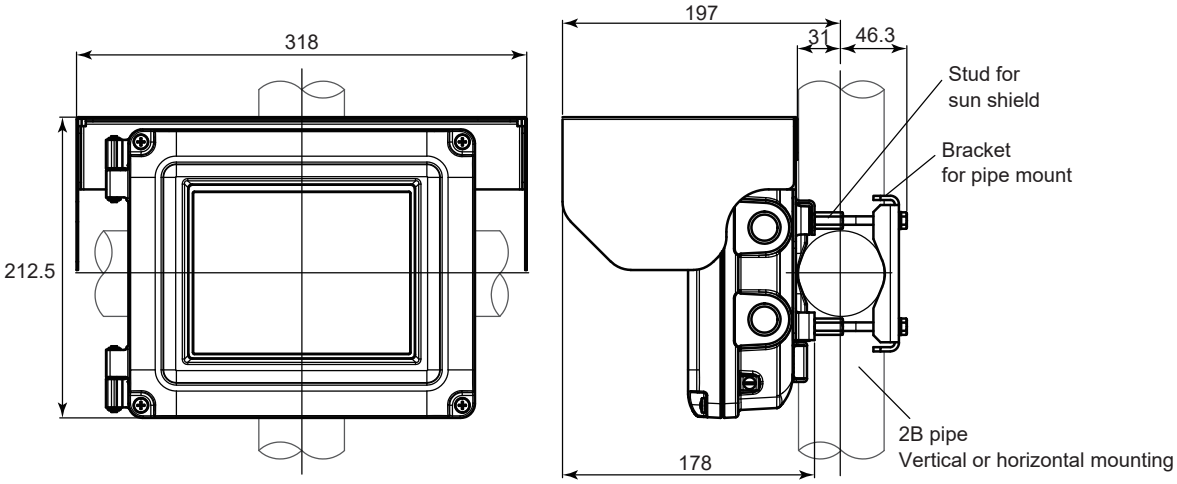


● Pipe mount (Option code: /P)



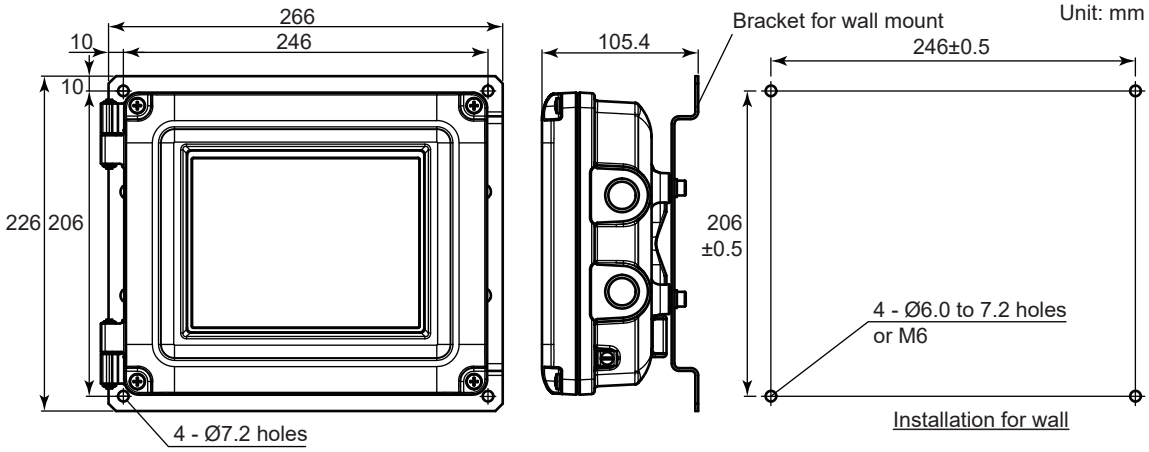
Sun Shield (Option code: /S)

Unit: mm



● Wall mount (Option code: /W)

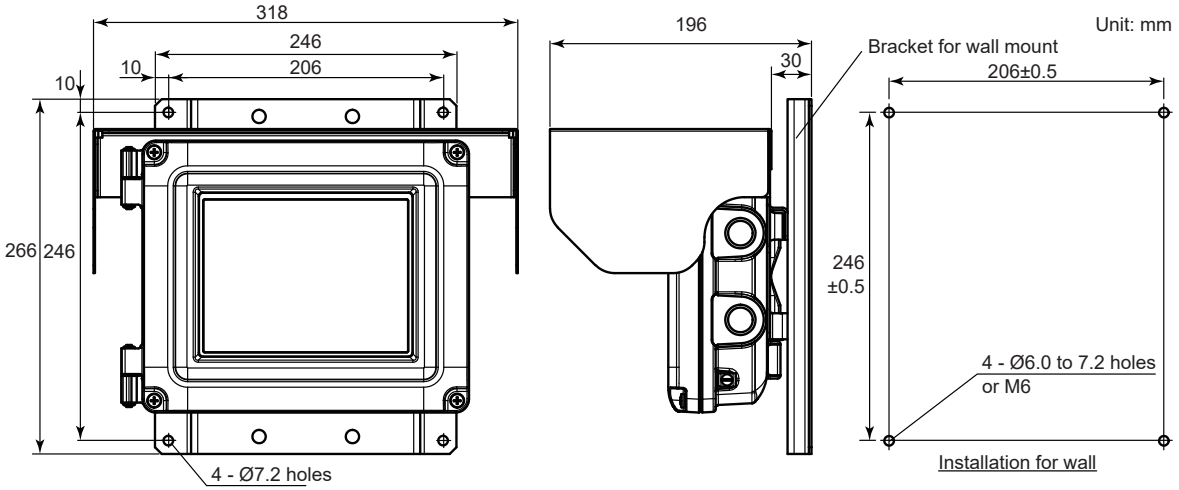
Unit: mm



*: The wall construction for mounting has to be designed for 4 times the weight of the YH8000.
Bracket for wall mount can be placed in lengthwise.

Sun Shield (Option code: /S)

Unit: mm



When the sun shield is mounted, the bracket for wall have to be placed in widthwise.

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2. Installation and Wiring

This chapter describes the installation and wiring of the YH8000 HMI unit.

2.1 Installation

There are two methods of YH8000 HMI unit installation:

Local HMI installation in which the unit is mounted directly on the analyzer (hereinafter referred to as "analyzers") and Remote HMI installation in which the unit is mounted by itself on a wall or the like.

See "1.4 External Dimensions" for details.

CAUTION

During installation, be careful not to drop the product, damage the display, and so on.

In case of TDLS8000 Type “-D1”, “-C1”, “-S1”, “-E1”, "-K1", “-J1”, “-N1”, “-Q1”, “-R1”, “-U1”, Local HMI Installation is not applicable.

Installation location

The YH8000 is designed to work even in harsh environmental conditions, but note the following points in order to use it stably for a long time.

Select an installation location where the ambient temperature and humidity are within the specifications.

Be sure to block direct sunlight such as by attaching a sun shield or installing it in a cubicle.

If the YH8000 it subject to heat radiation such as from plant facilities, take heat insulation measures.

Also, select a location that meets the following conditions.

- Where there is hardly any mechanical vibration or shock
- Where it is not subject to direct sunlight or harsh weather conditions
- Where there is no corrosive atmosphere

2.1.1 Local HMI Installation

The YH8000 can be mounted on the analyzer by using the Mounting kit for TDLS8000 series (option code: /M). The YH8000 can be mounted on the front, right, or left.

If you want the front cover to open in the opposite direction due to the installation location, the YH8000 can be mounted upside down.

The sun shield (option code: /S) for avoiding the effects of direct sunlight can also be mounted.

When attaching the mounting kit to the YH8000, fasten the supplied analyzer bolt and YH8000 bolt with a torque of about 5 to 6 N•m.
The following illustration shows the probe in the horizontal position, but the bracket can also be tilted 90° for vertical insertion.

When attaching the sun shield

First, attach the sun shield (option code: /S) to the bracket.

Place the sun shield over the YH8000, and then fasten accessory bracket 1 in place with the YH8000 bolts. Follow the instructions for fixing the bracket in the front or left/right direction for more information.

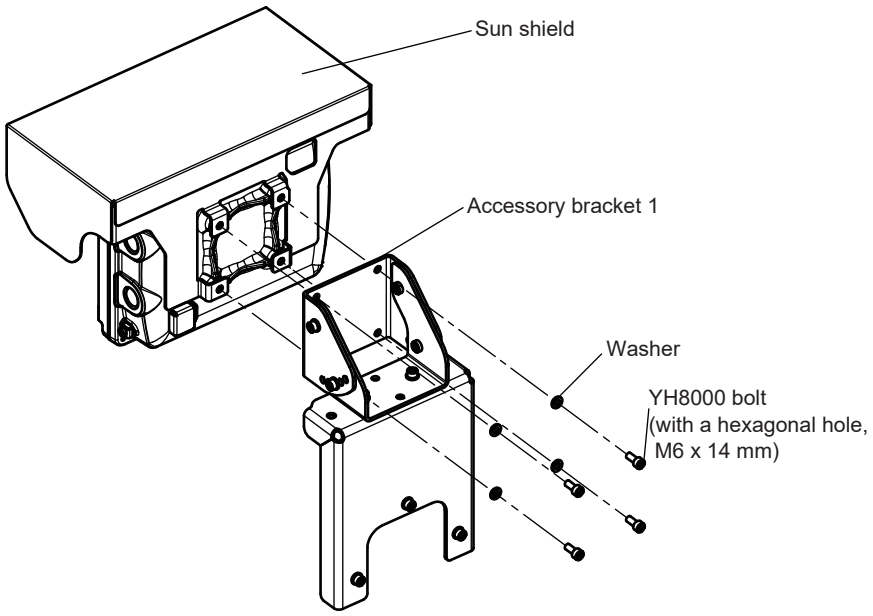


Figure 2.1 Attaching the sun shield (example for front installation)

Procedure for attaching the bracket to the front

(1) Fasten accessory brackets 1 and 2 in place with the YH8000 bolts (M6x14 mm).

You can tilt the YH8000 in the range of -20° to 20° by changing the angle adjustment hole used to fasten accessory bracket 1 in place.

(2) Fasten accessory bracket 1 to the YH8000 with the YH8000 bolts.

(3) Fasten accessory bracket 3 to the analyzer with the analyzer bolts (M6x10 mm).

Note that the length of the analyzer bolts and YH8000 bolts is different.

(4) Fasten accessory bracket 2 to accessory bracket 3 with the YH8000 bolts.

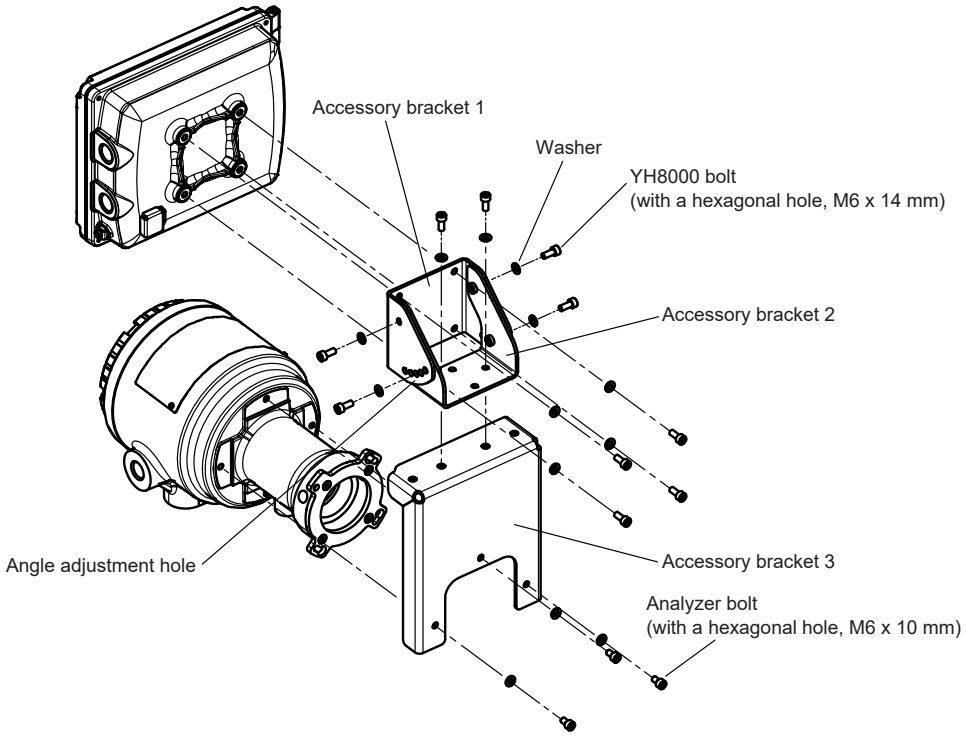


Figure 2.2 Mounting to the front (TDLS8000)

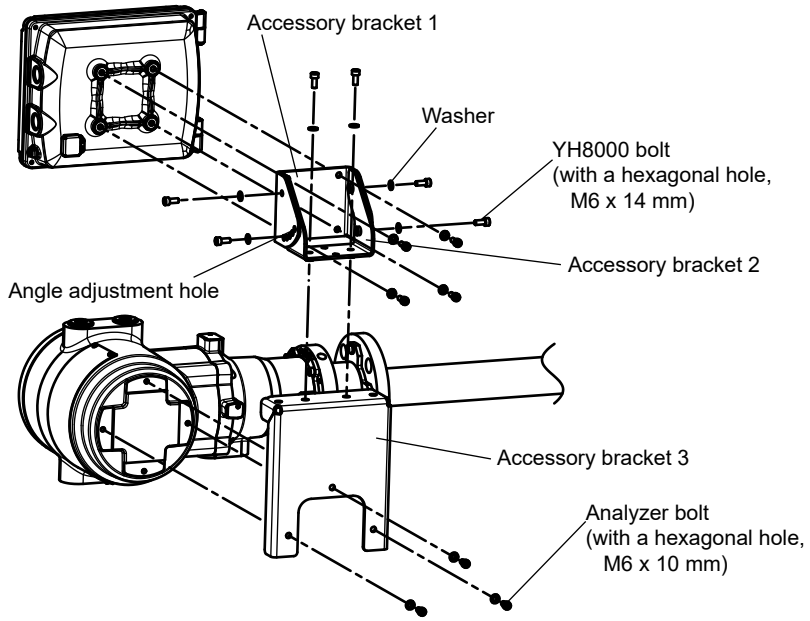


Figure 2.3 Mounting to the front (TDLS8100/TDLS8200)

Procedure for attaching the bracket to the side

(1) Fasten accessory brackets 1 and 2 in place with the YH8000 bolts.

You can tilt the YH8000 in the range of -20° to 20° by changing the angle adjustment hole used to fasten accessory bracket 1 in place.

(2) Fasten accessory bracket 1 to the YH8000 with the YH8000 bolts.

(3) Fasten accessory bracket 3 to the analyzer with the analyzer bolts.

(4) Fasten accessory bracket 2 to accessory bracket 3 with the YH8000 bolts. You can fasten it to the left or the right side.

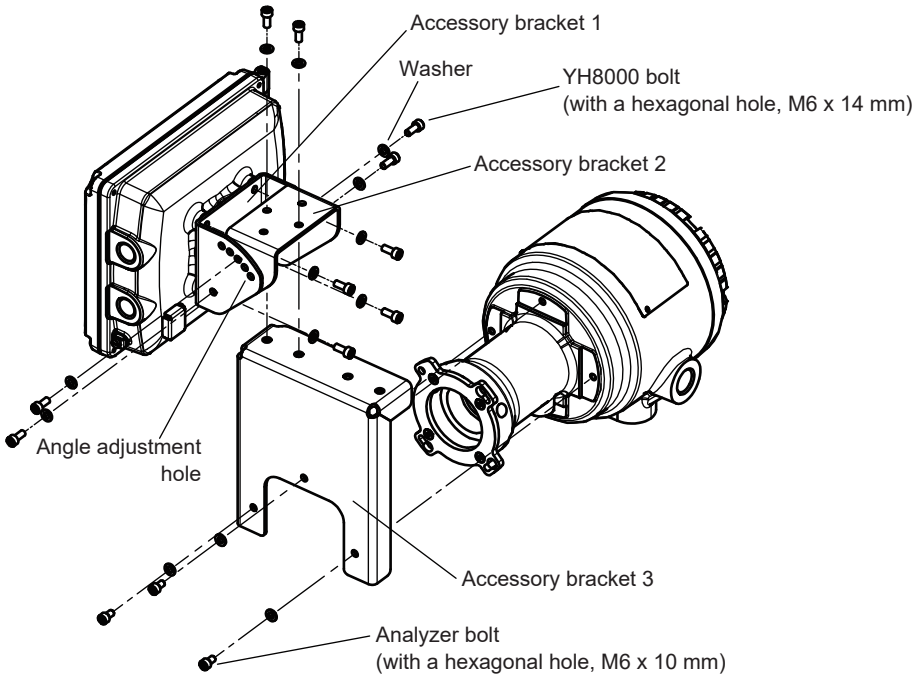


Figure 2.4 Mounting to the right (TDLS8000)

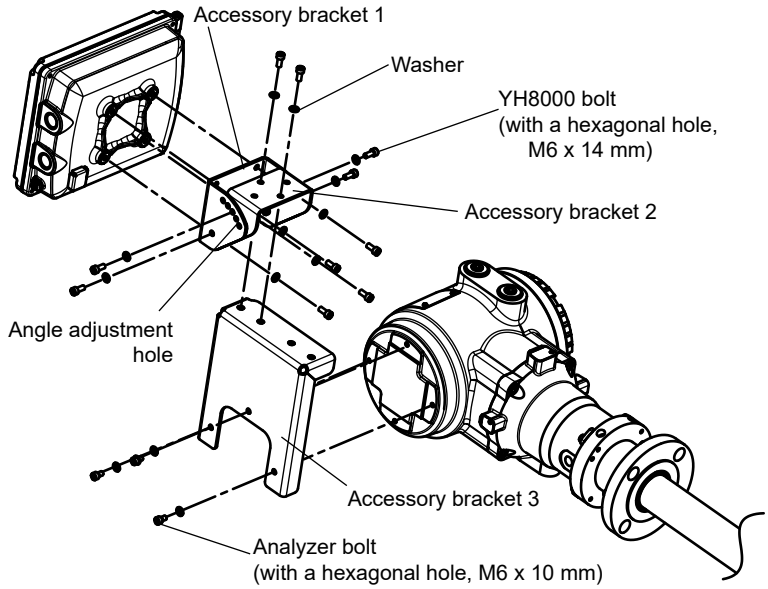


Figure 2.5 Mounting to the right (TDLS8100/TDLS8200)

Inverted YH8000 installation

The YH8000 can be installed upside down with the cable outlet on the left.
When you mount the YH8000 upside down, you can invert the screen using the inversion switch.

This mounting method can be used when mounting the YH8000 on the Mounting kit for TDLS8000 series, a wall, or a pipe. For details on the mounting bracket and the YH8000 tightening torque, see the details of each mounting method.

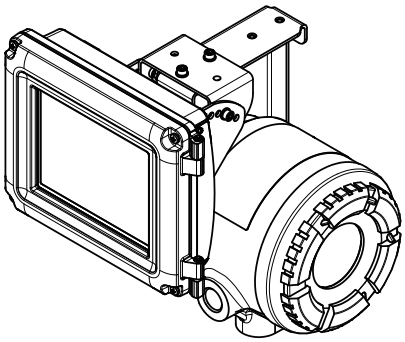


Figure 2.6 Inverted (upside down) mounting (TDLS8000)

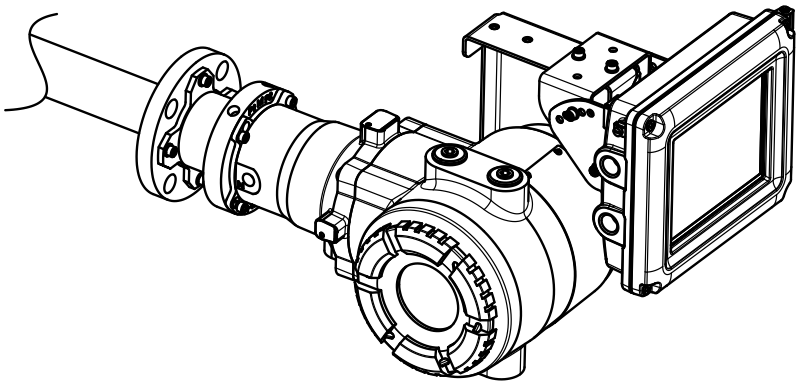


Figure 2.7 Inverted (upside down) mounting (TDLS8100/TDLS8200)

Setting the YH8000 inversion switch

NOTE

Set the inversion switch with the power turned off. Turning it off reflects the setting.

YH8000 can be positioned so that the cables come out on the right side or the left side. By factory default, it is set to "Cables coming out from the right side" (NORM).

The inversion switch allows the screen to be flipped upside down. Set the switch according to how the YH8000 is mounted as shown below.

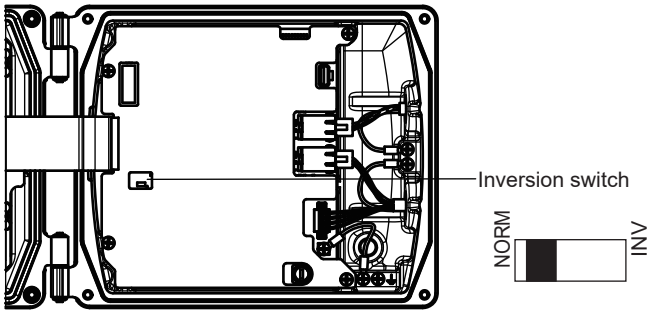


Figure 2.8 location of inversion switch

Table 2.1 Inversion switch

How the YH8000 is mounted	Inversion switch position
Cables coming out from the right side.	NORM
Cables coming out from the left side.	INV

2.1.2 Remote HMI Installation

This section explains how to mount the YH8000 using mounting brackets (pipe mount (option code: /P), wall mount (option code: /W)).

The sun shield (option code: /S) for avoiding the effects of direct sunlight can also be mounted.

Pipe mounting

The YH8000 can be mounted on a 50A (2B) pipe. The YH8000 can be mounted horizontally or vertically. Fasten the YH8000 bolts with a torque of about 5 to 6 N•m.
The pipe mount option includes short bolts that are used when a sun shield is applied and long bolts that are used when a sun shield is not applied.

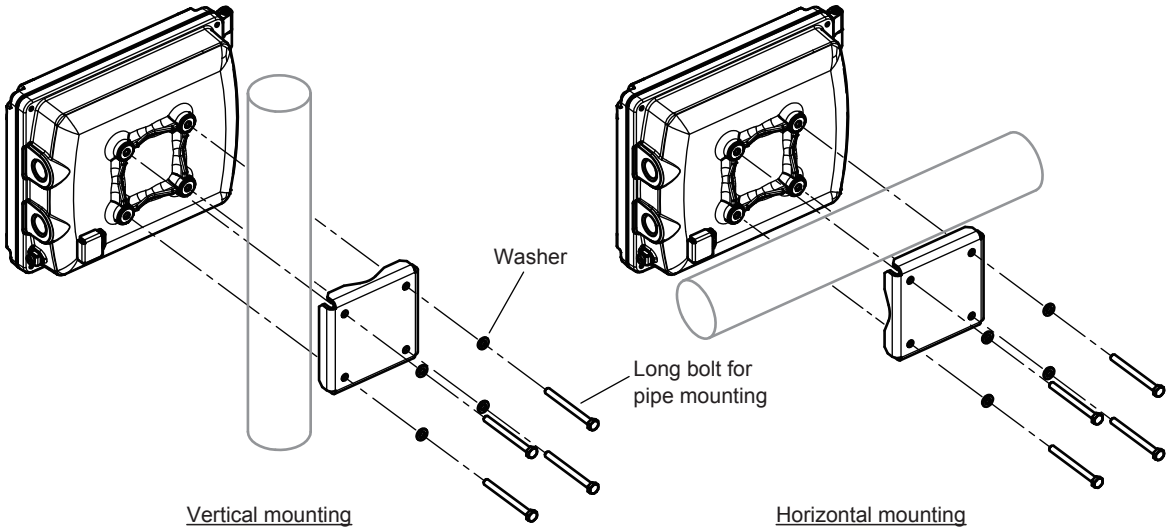


Figure 2.9 Pipe mounting

When attaching a sun shield, use spacers to secure the sun shield and YH8000 before mounting it to the pipe.

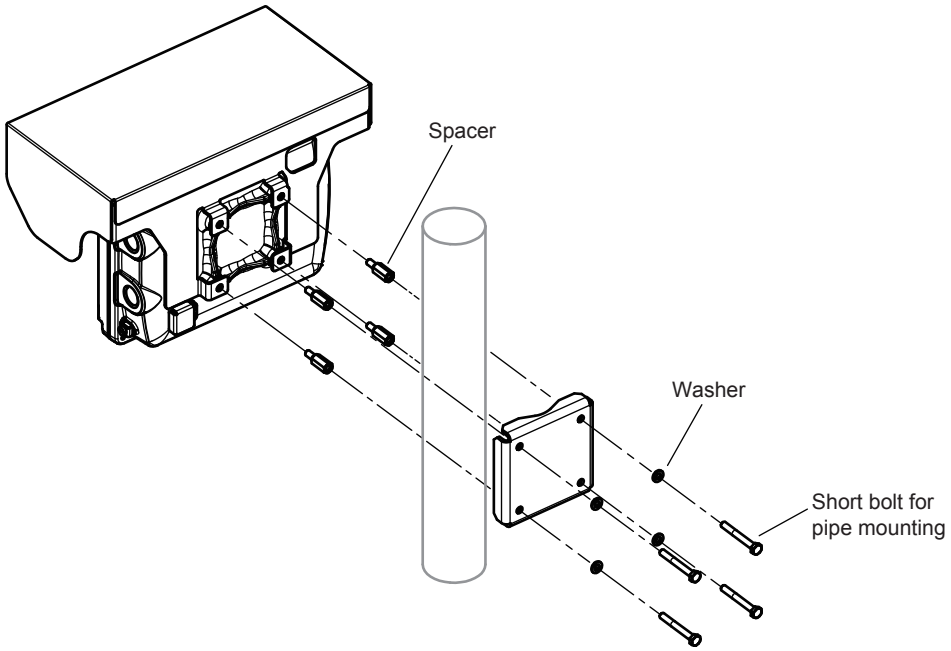


Figure 2.10 Pipe mounting when a sun shield is used (vertical mounting example)

Wall mounting

For the wall mount dimensions, see "1.4External Dimensions".

Fasten the wall mount bracket to the YH8000 with a tightening torque of about 5 to 6 N•m.

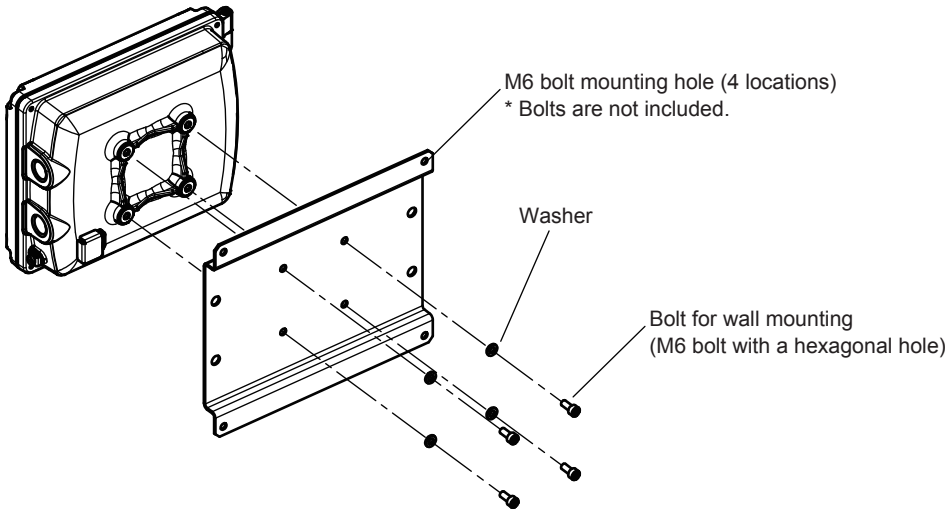


Figure 2.11 Wall mounting

When attaching a sun shield, turn the wall mount bracket so that the longer side is vertical.

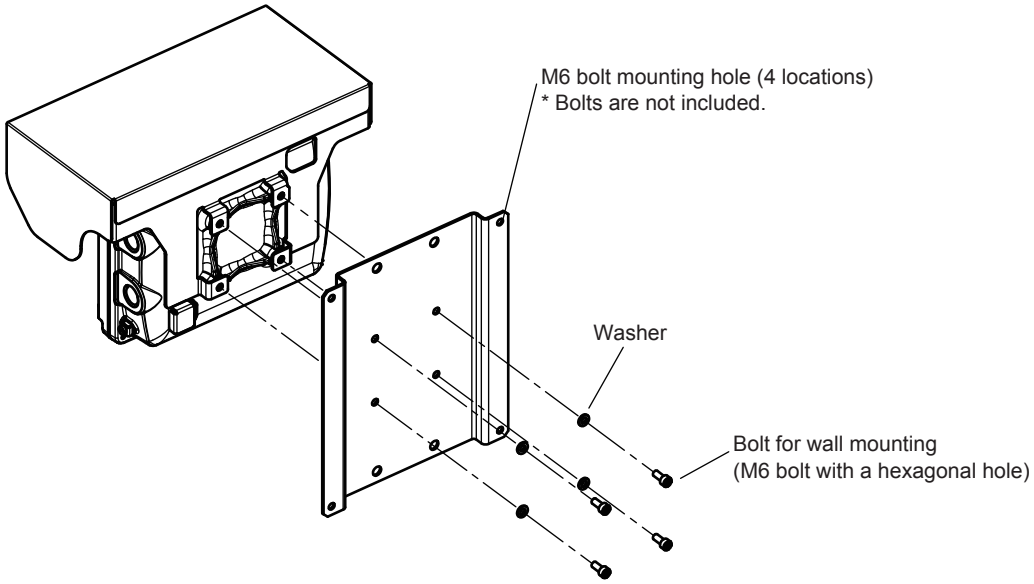


Figure 2.12 Wall mounting when a sun shield is used

2.2 Wiring

Wiring should be conducted after the YH8000 is installed.
There are two wiring methods with and without the local HMI connection cable: 3 m (option code: /C).
Hereafter, "dedicated cable wiring" is referred to when the local HMI connection cable: 3 m (option code: /C) is used, and "customer wiring" when it is not used.
Also, the explanation is based on the case where the cable is set to be routed from the right side in the factory default settings. When routing from the left side, set the inversion switch after wiring (see page 2-5 of “n Inverted YH8000 installation”).

CAUTION

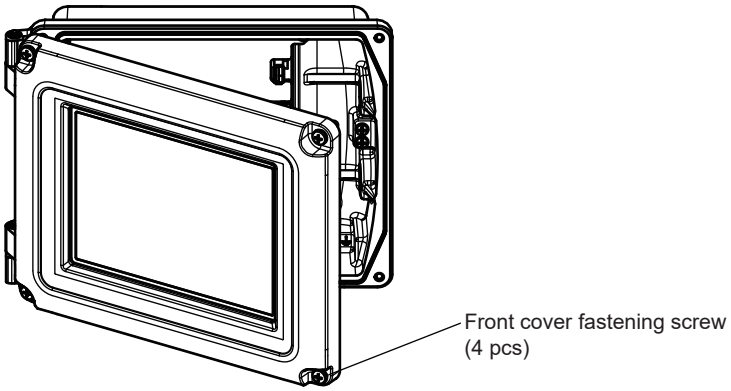
Never turn on the power to the YH8000 or the devices connected to the YH8000 until all wiring is complete.

● Opening the YH8000 front cover

CAUTION

When opening or closing the front cover, be careful not to get your fingers or other body parts from being caught between the front cover and the case.

Open the front cover according to the following procedure.



How to open the front cover

(1) Loosen the M5 screws in the four corners holding the front cover. The screws are designed not to come off the front cover.

(2) Open the front cover outward to the left.

CAUTION

When opening the front cover, check that the screws are lifted completely off the screw holes, and open the cover slowly. This is to prevent damaging the threaded parts of the housing.

If the threaded parts are damaged and the screws cannot be tightened securely, waterproof capability will be lost.

How to close the front cover

(1) Close the front cover. Be careful not to get your fingers or other body parts caught in the hinge area and between the front cover and the case.

(2) Align the front cover to the screw holes of the case, and fasten the screws evenly. Do not tighten any screw all the way. When the gasket load starts to be applied to the four corner screws, tighten the screws evenly about one turn. Use a tightening torque of 1.8 to 2.0 N•m.

Cable entries

Attach conduits or cable glands with the appropriate thread size to the YH8000 cable entries.

Symbols are inscribed near the cable entries for identifying the thread specifications.

For ANSI 1/2NPT: A

For ISO M20x1.5: M

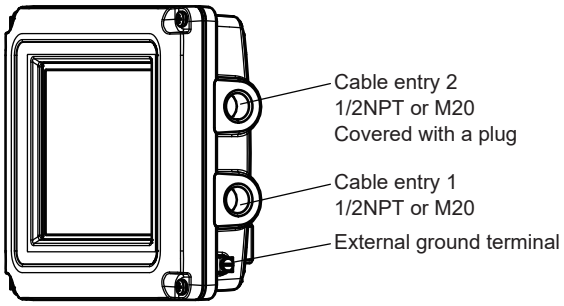


Figure 2.13 Cable entry and terminal (external)

The YH8000 has two cable entries.

Cable entry 1 Use for dedicated cable wiring. For customer wiring, this is the cable entry for the power supply.

Cable entry 2 A plug with a hexagonal hole covers this entry. Remove the plug when wiring. Use to pass Ethernet cables for customer wiring.
Dedicated cable wiring is used for Modbus communication.

Wiring

CAUTION

Be careful not to connect the power supply wires to the incorrect locations or reverse the polarity.
Incorrectly connecting the power supply (POWER) can cause a malfunction.

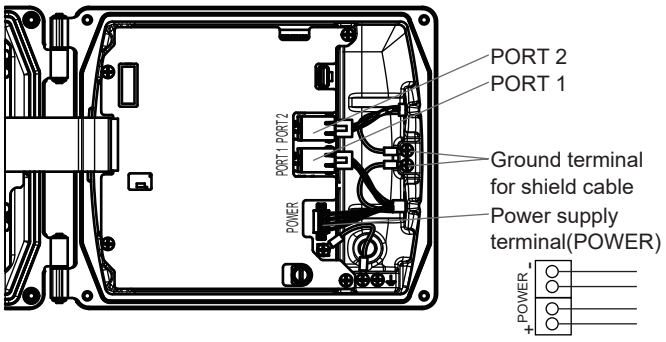


Figure 2.14 YH8000 terminals

Terminal name	Function
POWER+	YH8000 power supply input. 24 V DC±10%
POWER-	Power is supplied from the analyzer for dedicated cable wiring.
PORT1	Communication with analyzer when using dedicated cable wiring
PORT2	For customer wiring, Ethernet communication with analyzer Modbus communication for dedicated cable wiring

For the cables you need to use, see "Types of Wiring and Cabling".

Table 2.2 Types of Wiring and Cabling

	Cable type	PORT (cable entry)	Nominal cross sectional area, conditions	Withstand voltage, flame resistance
Dedicated cable wiring	Local HMI connection cable (power, Ethernet cable)	PORT1 (Cable entry 1)	Dedicated cable: 3 m (option code: /C) Shield: M4 screw crimp-on terminal	500 V or more FT-4
Customer wiring	Power	POWER, Ground terminal for shield cable (Cable entry 1)	AWG24 or smaller 2-core or 3-core (when using functional grounding terminals inside the equipment) Shield: M4 screw crimp-on terminal	500 V or more VW-1 or more
	Ethernet cable	PORT 2, Ground terminal for shield cable (Cable entry 2)	CAT.5e AWG24 4 pairs 100 m max. Shield: M4 screw crimp-on terminal	VW-1 or more
Wiring for both of the above	Functional grounding	External ground terminal	AWG16 or larger M5 screw crimp-on terminal	—

Use cables with outer diameters that match the conduits or cable glands that you are using.

2.2.1 Dedicated Cable Wiring

This wiring method uses a local HMI connection cable (additional code: /C).
Cable length is 3 m. It is intended for use in analyzer-local HMI installations, but can also be wired for remote HMI installations.

The dedicated cable requires processing before connection. Refer to "Appendix 1 How to Process Local HMI Connection Cable" for the processing method.

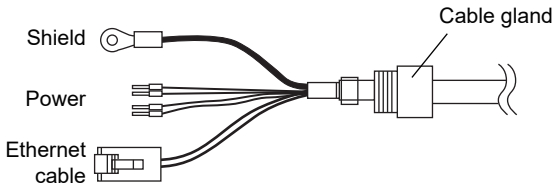


Figure 2.15 Dedicated cable

● How to wire the dedicated cable

(1) Pass the dedicated cable through the Cable entry 1 on the YH8000.

(2) Connect the power cable to the power supply terminals with correct polarity (+ and -).
Connect two cables to the + terminal and two cables to the - terminal.
The tightening torque for the power supply terminals is 0.22 to 0.25 N•m.

(3) Insert the RJ45 connector into PORT1 until it clicks into place.

(4) Connect the shield cable of the dedicated cable to the ground terminal for the shield cable.

(5) Connect a functional grounding cable conforming to Table 2.2 to the external grounding terminal.

For wiring on the analyzer side, please read the user's manual for the analyzer.

2.2.2 Customer Wiring

Although the YH8000 is intended to be installed away from the analyzer, you can also provide your own cable for local HMI installation with the analyzer without using the dedicated cable.
The YH8000 can also be connected to up to four analyzers simultaneously via an Ethernet hub.

Prepare the power supply and Ethernet cables for the YH8000 before wiring.
See Table 2.2 for cables used.

■ Power Cable

Use 2- or 3-core shield cable for power supply wiring.
Use a 3-core cable as the power cable when connecting the functional grounding inside the device. Power can also be supplied from the analyzer.

The YH8000 does not have a power switch. We recommend that a switch be provided on the power line to disconnect the YH8000 from the main power supply. Also, the switch should be marked as a power disconnect device for the YH8000 and an ON/OFF indication is recommended.

Ethernet Cable

Remove the hexagon socket plug at the cable entry 2 and pass the Ethernet cable through it.
When preparing the Ethernet cable, refer to "● Processing method for Ethernet cables" below.

NOTE

- Before crimping the Ethernet connector, pass the cable through cable gland. After crimping the Ethernet connector, the connector cannot be passed through the cable glands.
- Be careful of the cable gland orientation. The end with the screw section of the cable gland is the connector end.

Use an eight-core CAT 5e shield cable for the Ethernet cable.

Use a braided wire type shield. If the shield is a metallic foil type, the shield may not be properly grounded.

Use a cable with straight wiring.

Use a cable gland with a cable diameter specification that matches the outer diameter of the Ethernet cable.

● Processing method for Ethernet cables

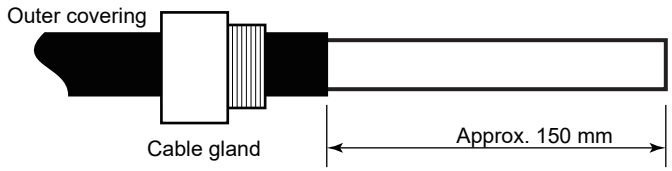
• Required parts and tools

RJ45 modular plug, RJ45 modular plug crimp tool,
LAN cable tester,
Wire cutter, Wire stripper,
Round crimp-on terminal (for shield cables)*1, Crimp tool for round crimp-on terminals,
Heat shrink tube*2, Heating gun (For processing heat-shrinkable tubing shrinkage)

*1: For M4 screws. Use the appropriate crimp terminal for your Ethernet cable.
Example of a crimped terminal: for M4 screws, nominal cross-sectional area of the wire; 2 mm2.
FV2-4 by J.S.T. Mfg. Co.,Ltd. or 170782-1 by TE Connectivity, or equivalent
*2: Used for coating the shield portion of Ethernet cables.
Use the appropriate heat-shrinkable tubing according to the Ethernet cable used.
Example of heat-shrinkable tubing: Inner diameter: 4 mm, length: approx. 140 mm for shield cables
For cable outer sheath inner diameter: 10 mm, Length: approx. 30 mm

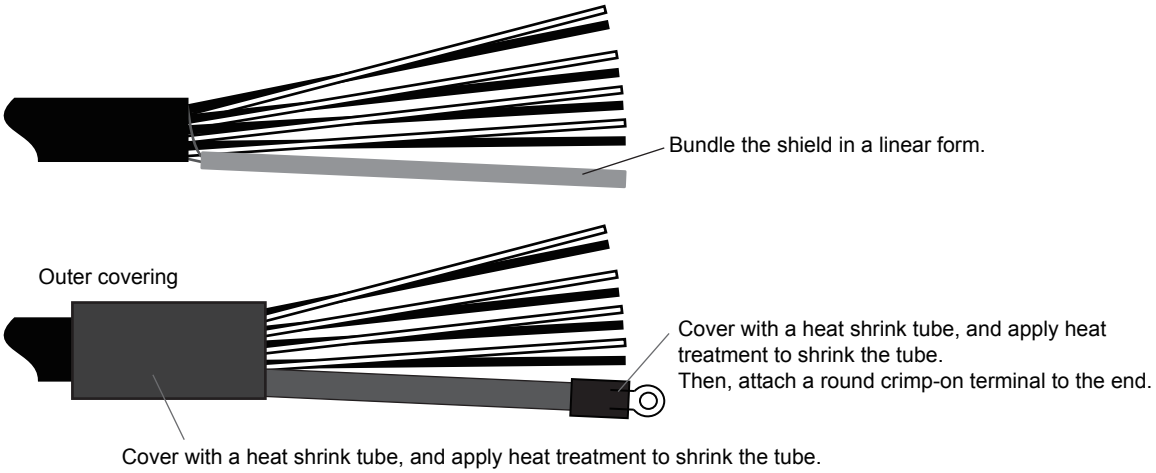
(1) Pass the Ethernet cable through the cable gland.

(2) Remove about 150 mm of covering from the shield Ethernet cable.
Be careful not to cut off the shield.



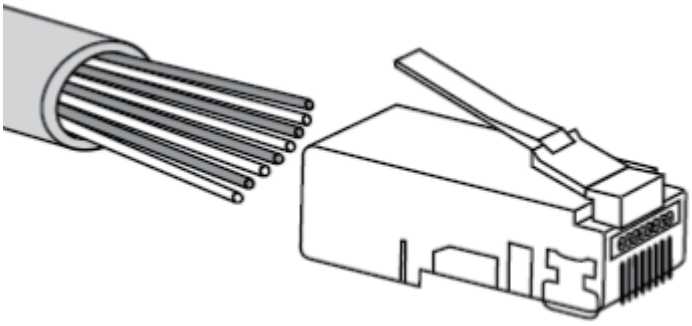
(3) Bundle the shield in a linear form, cover it with a heat shrink tube, and apply heat treatment to shrink the tube.
Then, attach a round crimp-on terminal to the end of the shield.

Cover with a heat shrink tube the section of the cable where the covering was removed, and apply heat treatment to shrink the tube.



(4) Crimp an RJ45 modular plug onto the end of the Ethernet cable.

Pin No.	Wire color
1	White-orange
2	Orange
3	White-green
4	Blue
5	White-blue
6	Green
7	White-brown
8	Brown



Insert the wires in the correct arrangement into the RJ45 modular plug, check that the wires are firmly inserted, and then crimp the plug with a RJ45 modular plug crimp tool.

Finally, check that the plug has been crimped on properly by testing the connection with a LAN cable tester.

Connecting an Ethernet Cable

(1) Pass the power supply wires through the cable entry 1 on YH8000.

(2) Connect the cable to the power supply terminal with the correct polarity. Connect two wires to + terminal, and two wires to - terminal. Use a tightening torque of 0.22 to 0.25 N•m for the power supply terminal.

(3) Insert the RJ45 connector of the Ethernet cable routed through the cable entry 2 into PORT2 until it clicks into place.

(4) Connect the shield cable of each cable to the ground terminal for the shield cable

(5) Connect a functional grounding cable conforming to Table 2.2 to the external grounding terminal of the YH8000.

For wiring to the analyzer, read the user's manual for the analyzer.

3. Connection

This section describes how to connect the YH8000 HMI unit to the TDLS8000 series (hereafter referred to as analyzers) and provides a basic description of the related screens. For a detailed explanation of the YH8000, see “4. Operation”.

3.1 Initialization and Connection Procedure

If you are connecting the analyzers and YH8000 in a one-to-one configuration, the factory default settings can be used. The settings need to be changed when you are connecting the analyzers to an existing LAN network or multiple analyzers.

The initial IP address settings are shown in Table 3.1.

Table 3.1 Factory default IP address settings

Model	IP address	Subnet mask	Default gateway
TDLS8000 series	192.168.1.10	253.253.253.0	192.168.1.254
YH8000	192.168.1.100	253.253.253.0	192.168.1.254

To change the IP address of the analyzers and subnet mask from the YH8000, follow the procedure below.

(1) Connect the YH8000 using the factory default IP settings.

(2) Change the IP address of the analyzers and subnet mask. (“3.2 Setting the IP Address”)

(3) To change the IP address of multiple analyzers, connect to the analyzers one at a time and change the IP address/subnet mask respectively.

(4) If necessary, change the YH8000 IP address/subnet mask. (“3.2 Setting the IP Address”)

(5) Change the YH8000 destination IP address. (“3.3 Connecting to the TDLS8000 series”)

The procedure from turning on the YH8000 to connecting it in step (1) above is provided below. The procedure assumes that the analyzers has the factory default IP address settings. To connect to a analyzers whose IP address has been changed or to connect to multiple analyzers, see “3.3 Connecting to the TDLS8000 series”.

(1) Complete the wiring of the analyzers and YH8000 according to the instructions on “2.2 Wiring”.

(2) Turn on the analyzers and YH8000.

=> The opening screen (a) is displayed for about 10 seconds.

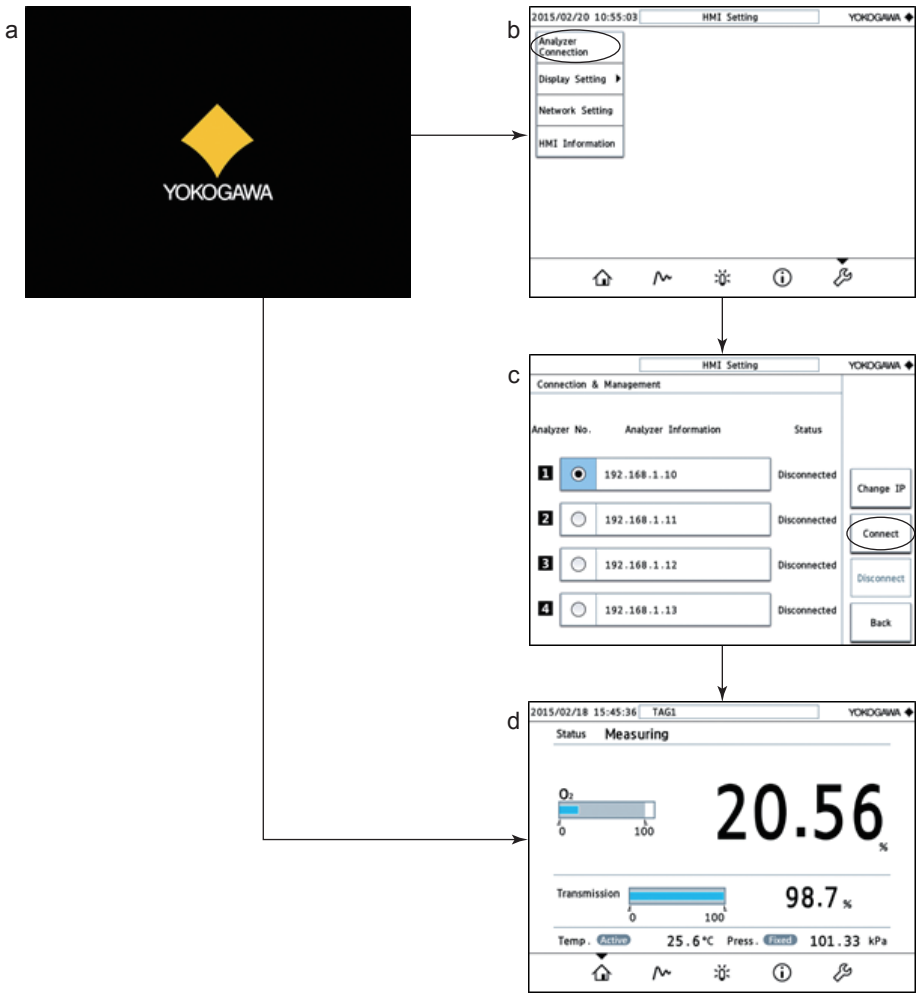
=> If they do not connect automatically, the YH8000 configuration screen (b) will appear. => Step (3)

=> If they connect automatically, the home screen (d) will appear.

(3) Tap Analyzer Connection to switch to the analyzers selection screen (c). => Step (4)

(4) Tap Connect to start a connection.

=> If a connection is established, the home screen (d) will appear.



3.2 Setting the IP Address

- **Setting the IP address of the analyzers**

  Configuration menu path:

  “  >>Select analyzer>>Configuration>>System>>Communication>>TCP/IP”

NOTE

When you change the analyzer’s IP address, the analyzer automatically restarts with the new IP address. The connection to the YH8000 will be disconnected. Follow the procedure below to reconnect.

The procedure for changing the analyzer’s IP address and reconnecting is as follows. If you change the analyzer’s subnet mask, you will also need to change the YH8000 subnet mask as described in “Setting the YH8000 IP address” on the next section before reconnecting.

(1) Tap in the lower right of the screen.

The tag names (or the serial numbers if not assigned) of the connected analyzers appear. Select the analyzers that you want to change the IP address of.

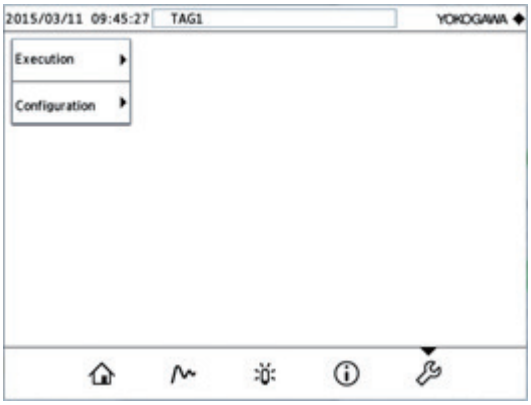
In the example in the figure, the tag name is “TAG1.” Tag names are not assigned to analyzers with factory default settings, so serial numbers are displayed instead.

After selecting, tap OK. A password input screen will appear.

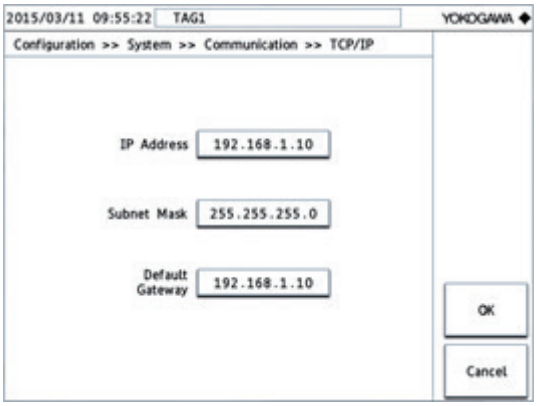
(2) Enter the password and tap Enter. A configuration screen will appear. The factory default password is “1234.”

From the menu, select Configuration>>System>>Communication>>TCP/IP. A warning appears, explaining that the instrument will restart if the IP address is changed.*1
Tap OK.

*1: The analyzer will restart after changing IP settings”

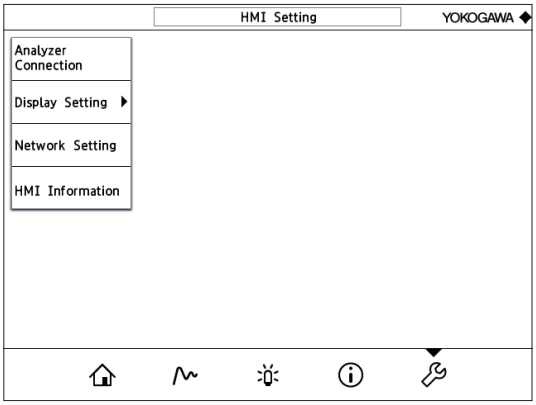


(3) Select each item and change the value. The items that you change will show an asterisk in the upper left. Tapping OK will display a confirmation screen for restarting. Tap OK again.

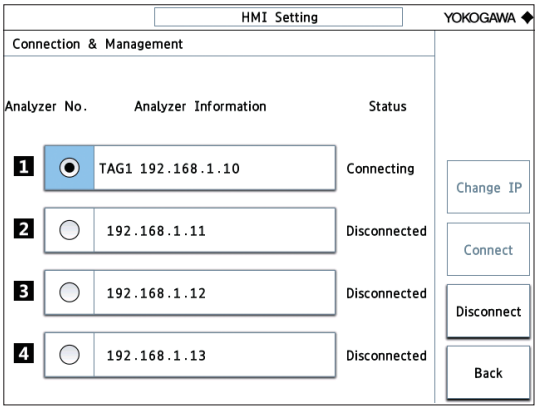


(4) A disconnection error screen will appear. Tap OK.

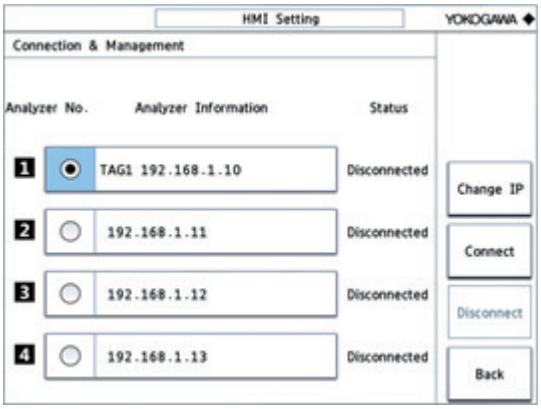
(5) The YH8000 (HMI) configuration screen will appear. Tap Analyzer Connection.



(6) The analyzers selection screen will appear. Tap Disconnect.



(7) The Change IP button becomes available. Tap Change IP, and enter the new destination IP address.



(8) Tap Connect to connect to the analyzers.

NOTE

For the TDLS8000, the IP address can also be changed via HART communication.

Configuration menu path:

“Detailed setup>>System>>Communication>>TCP/IP>>Set IP settings”

- **Setting the YH8000 IP address**

  Configuration menu path: “>>HMI>>Network Setting”

NOTE

When you change the YH8000 IP address, the YH8000 automatically restarts with the new IP address, disconnecting the current connection with the analyzers.

3.3 Connecting to the TDLS8000 series

This section explains the analyzers selection screen on the YH8000. From the YH8000 screen, you can connect in the following ways.

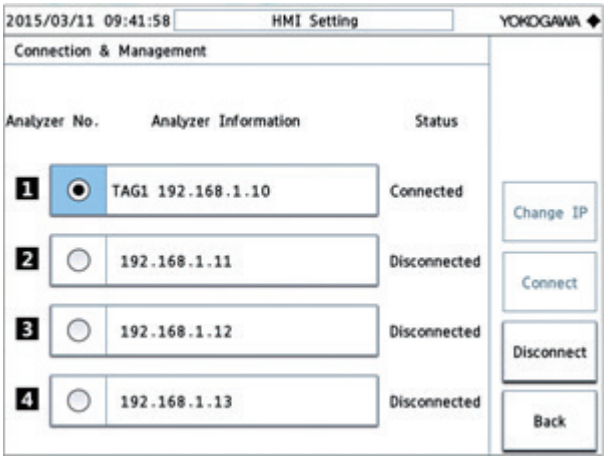
- Connect to a analyzers with any IP address
- Connect up to four analyzers from a single YH8000
- Connect to a analyzers with an unknown IP address in the same network by searching

The YH8000 assigns an analyzer number from 1 to 4 to each connected analyzers. In the case of a one-to-one connection, analyzer number 1 is used. On the analyzers selection screen, you can assign analyzers to analyzer numbers by specifying the IP address.

Path to the analyzers selection screen “>>HMI>>Analyzer Connection”

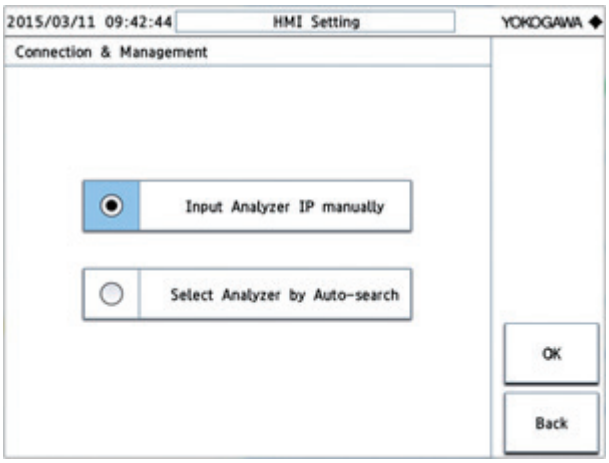
The procedure to add a connection destination is shown below.

(1) Open the analyzers selection screen (the figure below), and select the analyzer number that you want to set under the Analyzer No. column.



(2) Tap Change IP to open the IP address configuration screen (the figure below).

If the selected analyzer number is already connected (Status is Connected), tap Disconnect to enable the Change IP button.



(3) Specify the analyzers IP address using either method below.

- Input Analyzer IP manually

  Manually enter the IP address of the analyzers you want to connect to.
- Select Analyzer by Auto-search

  Select from the analyzers IP addresses automatically found. Up to 32 analyzers in the same subnet can be detected. Detection may not be possible depending on the network configuration or condition.

Select either option, tap OK, and specify the IP address you want to connect to.

(4) Tap Connect to connect to the analyzers.

Description of the analyzers selection screen

Analyzer No. column

Shows analyzer numbers 1 to 4. You can select a number and assign an IP address to connect to the corresponding analyzers.

NOTE

If there is only a single analyzer that the YH8000 will connect to, connect it to analyzer number 1. When it is connected to an analyzer number other than 1, you will need to reset the display items when displaying the trend waveform.

Analyzer Information column

Shows the analyzers IP addresses and tag names. For analyzers that have not been connected before, tag names do not appear. If a analyzers is connected but a tag name is not assigned, its serial number will be displayed.

Status column

Shows the analyzers connection status.

Connected

Connecting

Disconnected

Change IP button

Switches to the IP address configuration screen. This button is not available if the analyzers is connected.

Connect button

Starts a connection with the analyzers. This button is available when the analyzers is disconnected.

Disconnect button

Disconnects from the analyzers that is connected or is in the process of establishing a connection.

NOTE

Once a connection is established between the YH8000 and analyzers, the connection information is saved. Therefore, the next time the power is turned on or after restarting, the connection will be established automatically.

NOTE

Up to two YH8000s can connect to a single analyzer.

3.4 Handling Connection Failures

If a connection to the analyzers fails, check the following items.

(1) Check that the Ethernet cable is connected properly.

- Check that LED5 on the analyzers circuit board is lit or blinking.

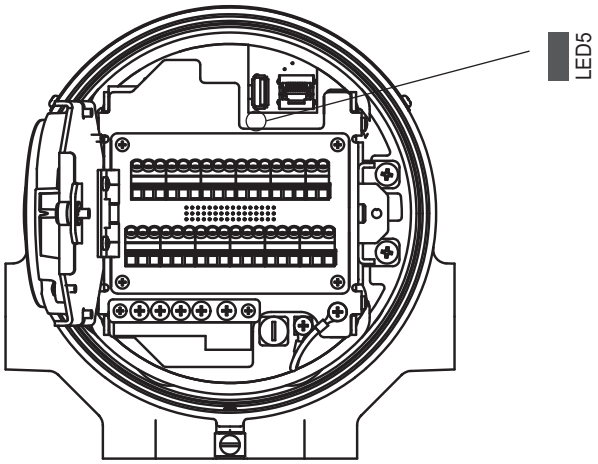


Figure 3.1 Front view inside the SCU of TDLS8000

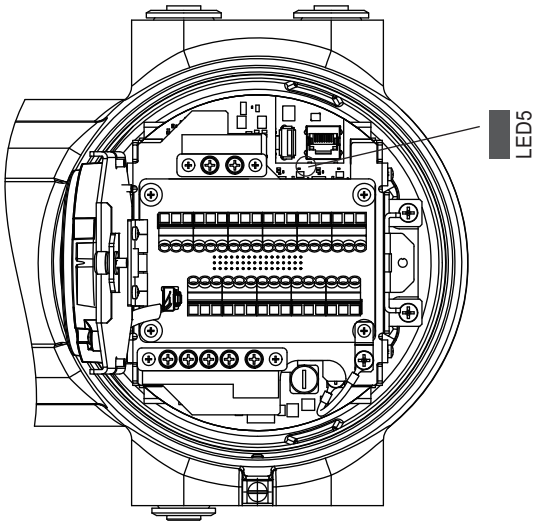


Figure 3.2 Front view of analyzer part (TDLS8100, TDLS8200)

- Check that the green LED of the YH8000 Ethernet port is lit or blinking.

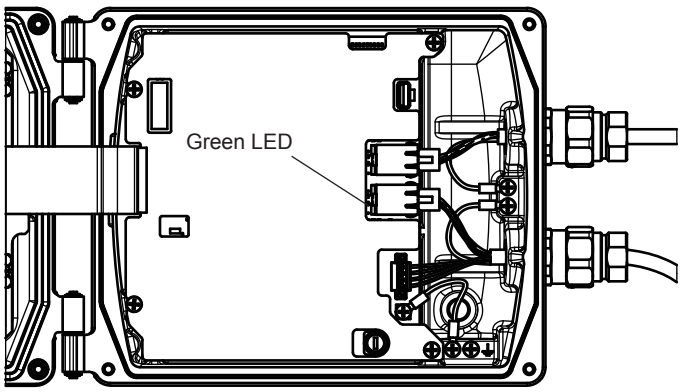


Figure 3.3 Top view of the inside of YH8000

(2) Check that the IP addresses are set properly.

- Check that unique IP addresses are assigned to each YH8000 and analyzers.

  => You can view the analyzers IP addresses on the analyzers display. For details, see the user's manual for the analyzer.

- Check that the subnet addresses and subnet masks are set properly.
- If the instruments are connected via a router or the like, check that it is configured properly with your network administrator.

3.5 Basic Screen Configuration

This section provides an overview of the home screen that appears when a connection is established with a analyzers and the buttons. For a detailed explanation, see “4.1 Home Screen”

The screen shown in Figure 3.4 or Figure 3.5 appears when a single analyzers is connected to the YH8000. This screen is called the home screen.

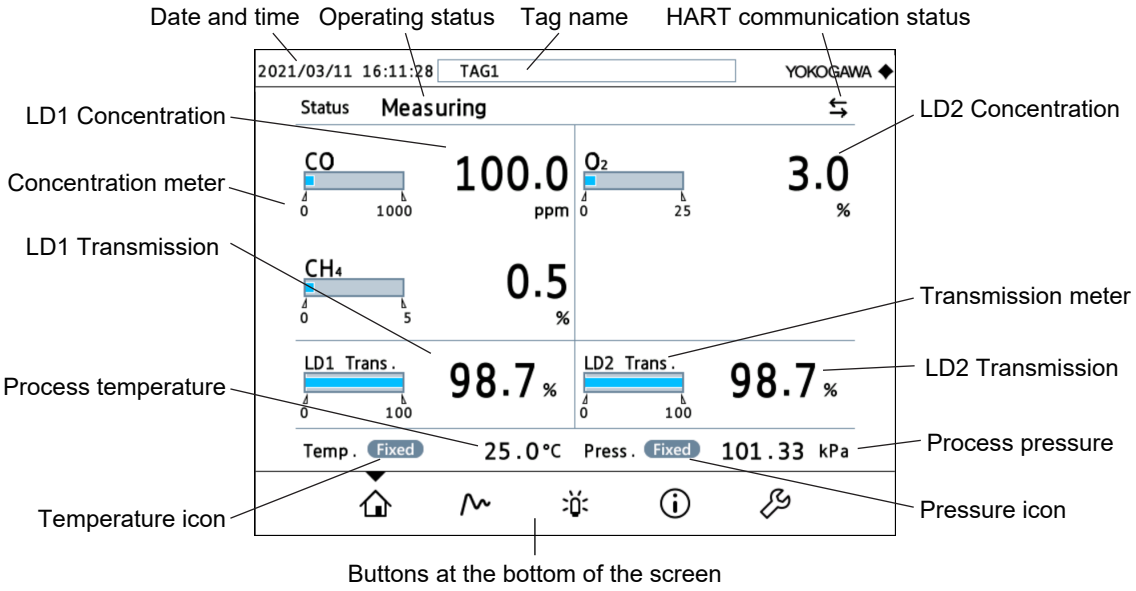


Figure 3.4 Home screen (2 laser specification)

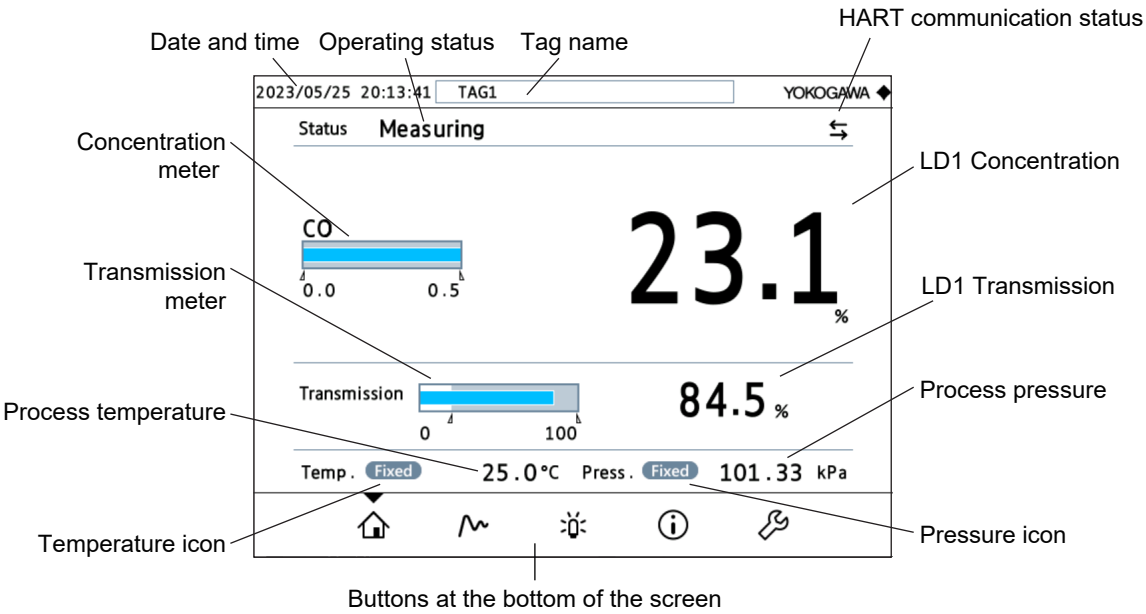


Figure 3.5 Home screen (1 laser specification)

When two or more analyzers are connected to the YH8000, tabs for switching between the home screens of each analyzers appears on the right. The tab numbers represent analyzer numbers. Selecting a tab shows the information of the analyzers corresponding to the tab number. Further, the ▪▪ tab shows the information of all connected analyzers. This screen is called the overall screen.

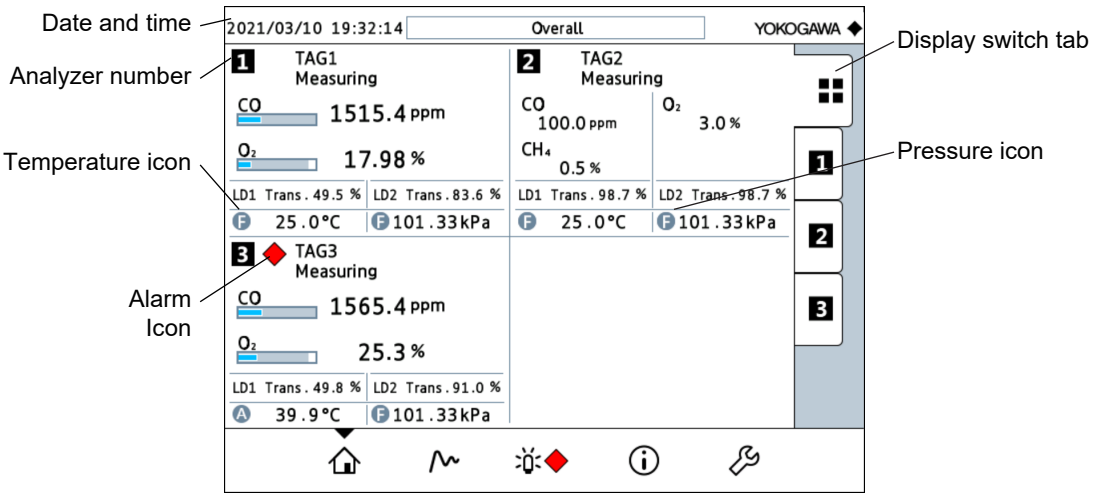


Figure 3.6 Overall screen

Functions of the buttons at the bottom of the screen

These buttons are used to show other screens.

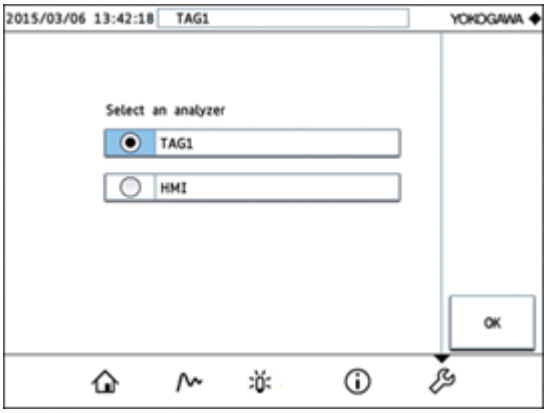
Button	Button name	Description
	Home button	Displays the home screen.
	Trend display button	Displays the trend screen. You can view the measurement trends of multiple analyzers on the same screen.
	Alarm information button	Displays the analyzers alarm screen.
	Configuration display button	Displays the current analyzers settings. The button can also be used to display I/O values, alarm history, and so on.
	Configuration button	Executes analyzers configuration, calibration, and the like. It can also be used to change the YH8000 connection destination, IP settings, and so on.

How to open the analyzers configuration screen

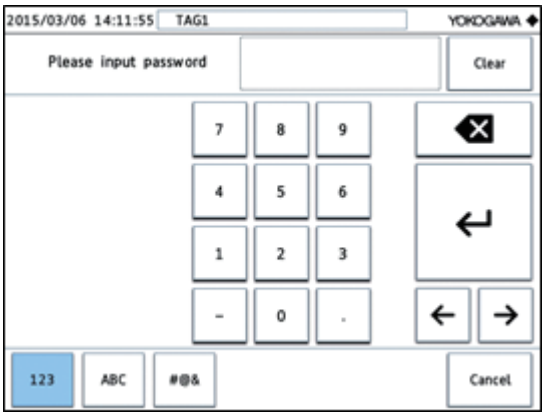
This section describes how to open the analyzer configuration screen.
For details, see “4.5 Configuration Screen”.

(1) Tap to show a screen for selecting the analyzers you want to configure. Analyzer’s tag names (serial numbers if tag names are not assigned) are displayed.

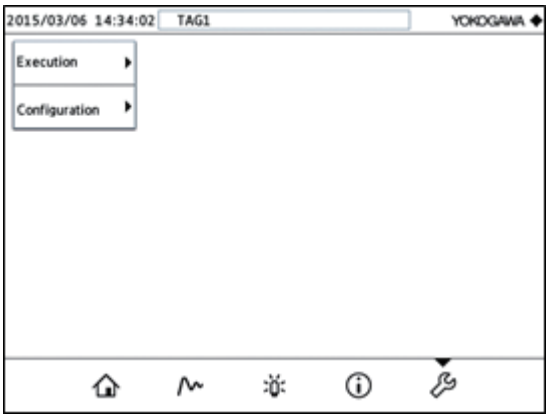
Select the target analyzer, and tap OK.



(2) A user password input screen will appear. The factory default password is “1234.”



(3) When password authentication is successful, a configuration screen will appear.



NOTE

If you just want to view the settings, you can tap ⓘ to display the information screen. You don’t need to enter a password to display this screen.

4. Operation

This chapter explains how to use the YH8000.

CAUTION

To prevent damaging the touch panel, do not use pointed objects (e.g., ballpoint pen, pencil), objects with narrow tips, hard objects, and the like when you use the touch panel.

Also, to prevent erroneous operation, touch the center of controls.

Avoid applying strong load on the screen to prevent damage or malfunction.

4.1 Home Screen

The home screen shown in Figure 4.1 or Figure 4.2 is the YH8000 main screen. Tapping ⌂ at the bottom of the screen shows the home screen.

If no analyzer is connected to the YH8000, switching to the home screen is not possible.

If multiple analyzers are connected, you can select to show the overall display. For details on the overall display, see “4.6.1 Overall Display”.

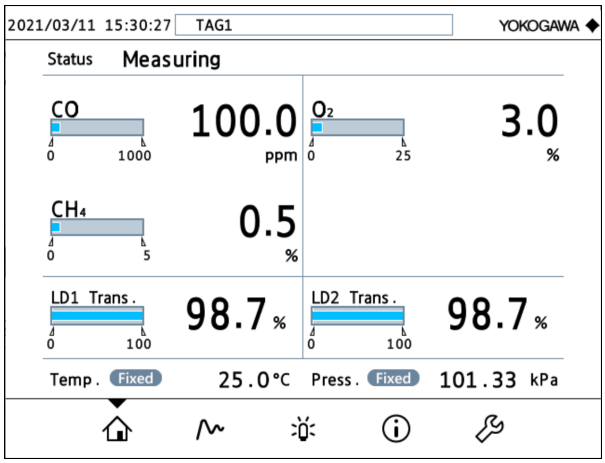


Figure 4.1 Home screen (when a single analyzer is connected)

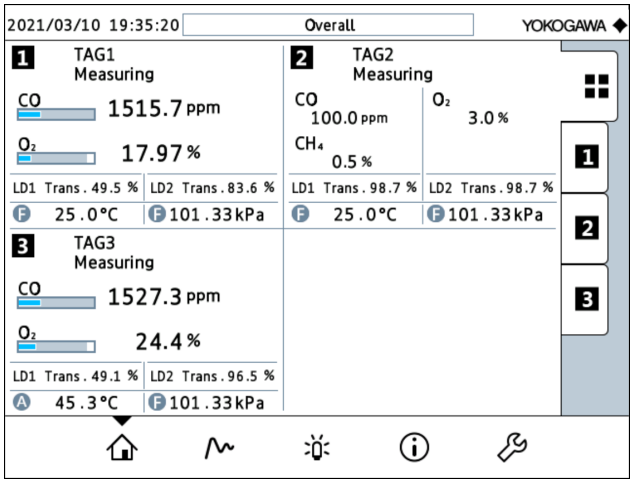


Figure 4.2 Home screen (overall display when three analyzers are connected)

4.1.1 Home Screen Display Items

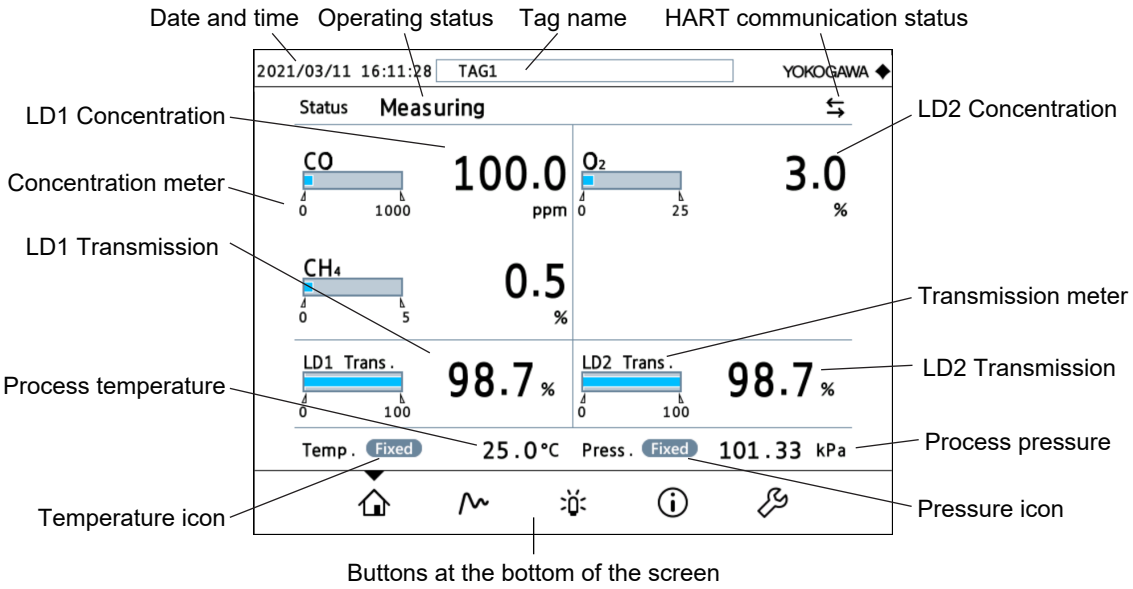


Figure 4.3 Home screen display items (2 laser specification)

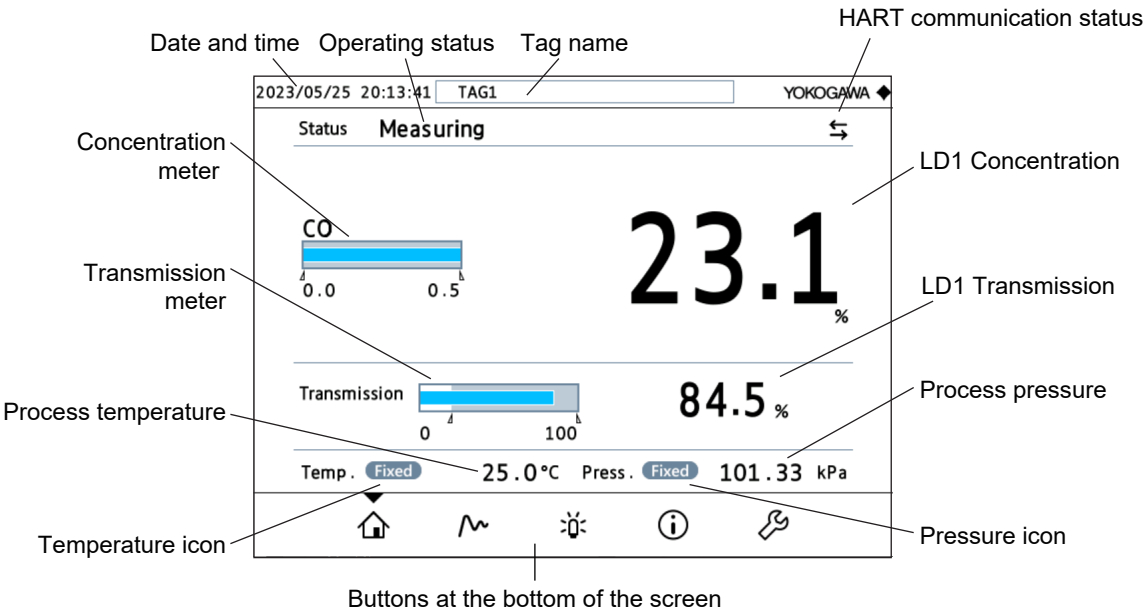


Figure 4.4 Home screen display items (1 laser specification)

Date and time

Shows the date and time set on the analyzers.

Tag

Shows the analyzers tag name.

If the overall display is shown, “Overall” is displayed.

Operating status

Shows the analyzers operating status.

Display	Meaning
Measuring	Measuring (normal operation)
Warm-up	Warming up
Maintenance	Maintenance in progress
Zero Calibration	Zero calibration in progress
Span Calibration	Span calibration in progress
Offline Validation	Offline validation in progress
Online Validation	Online validation in progress
Blow Back	During Blow Back

HART communication in progress

An icon appears when a HART command is received.

Concentration

Shows the concentration.

If any of the following alarms are occurring, "***" is displayed because the concentration cannot be calculated.

- **TDLS8000, TDLS8100**

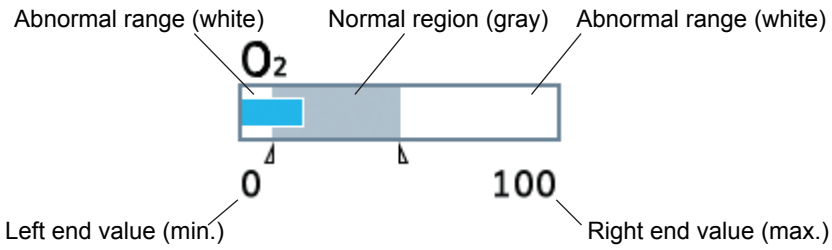
Alarm number	Alarm name
49	Detector Signal High
50	Peak Center Out of Range
52	Absorption too High
53	Transmission Lost
56	Outlier Rejection Limit

- **TDLS8200**

Alarm number	Alarm name
41	L1 Detector Signal High
42	L2 Detector Signal High
47	L1 Peak Center Out of Range
48	L2 Peak center Out of Range
49	L1 Transmission Lost
50	L2 Transmission Lost

Concentration meter

Shows the concentration with a meter.



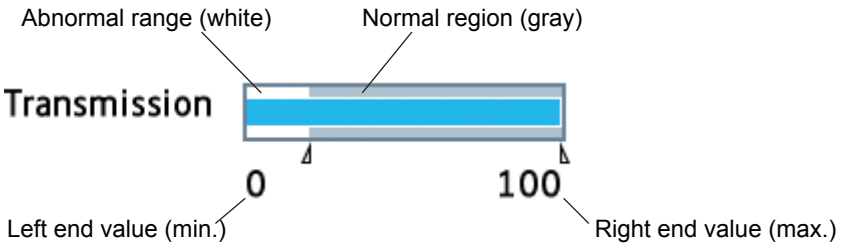
The white area indicates outside the concentration high/low limit alarm range. For details on the outside of the concentration high/low, see "4.1.4 Alarm Indicator".
For details on how to set the meter display range, see "4.1.3 Setting the Meter Range".

Transmission

Shows the laser beam transmission.

Transmission meter

Shows the transmission with a meter.



The white area indicates outside the transmission low limit alarm range. For the transmission low limit alarm, see “4.1.4 Alarm Indicator”.
The display range is fixed to 0 to 100% and cannot be changed.

Process temperature and process pressure

Shows the process temperature and process pressure.

Temperature icon and pressure icon

Shows the process temperature and process pressure input modes.

Fixed: Fixed value

Active: Non-fixed value

Buttons at the bottom of the screen

Selects different screens.

Button	Button name	Description
	Home button	Displays the home screen.
	Trend display button	Displays the trend screen. You can view the measurement trends of multiple analyzers on the same screen.
	Alarm information button	Displays the analyzer alarm screen.
	Configuration display button	Displays the current analyzer settings. The button can also be used to display I/O values, alarm history, and so on.
	Configuration button	Executes analyzer’s configuration, calibration, and the like. It can also be used to change the YH8000 connection destination, IP settings, and so on.

4.1.2 Selecting the Style

There are two home screen display styles: Bar meter and Arc meter. Select the style of your liking. The factory default setting is Bar meter.

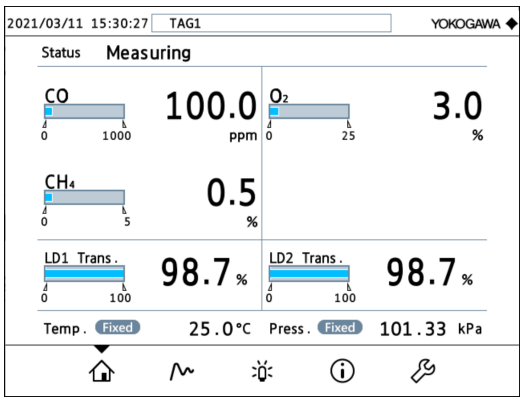
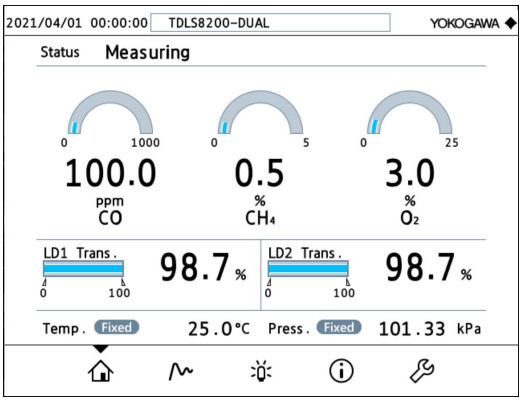


Figure 4.5 Bar meter style



Arc meter style

Configuration menu path:

"  >>HMI>>Display Setting>>Home Style"

4.1.3 Setting the Meter Range

You can set the concentration meter display range. The available range and default values are shown in the following table.

	Lower limit	Upper limit	Default value
Left end value (min.)	0% 0ppm	Right end value	0% 0ppm
Right end value (max.)	Left end value	100% 1000000ppm	100% 10000ppm

Configuration menu path:

"  >>HMI>>Display Setting>>Meter Range"

NOTE

Changing the meter display range will not change the analog output range of the analyzers.

4.1.4 Alarm Indicator

If an alarm is occurring on the analyzer, an icon is displayed to the left of the tag name at the top of the screen and to the right of at the bottom of the screen. Also, the area related to the alarm is enclosed in a frame.

These alarm indicators remain blinking until you check the information on the alarm screen. The indicators also start blinking when a new alarm occurs. If the alarm ceases, the alarm icons disappear.

There are two types of alarm icons: a red icon indicating a fault (occurs when the various types of diagnostic information being monitored by the self-diagnostics function are clearly abnormal and correct concentration calculation is not possible) and a yellow icon indicating a warning (occurs when the various types of diagnostic information being monitored by the self-diagnostics function are outside the normal range).

Alarm icon types

Icon	Color	Meaning
	Red	Fault
	Yellow	Warning

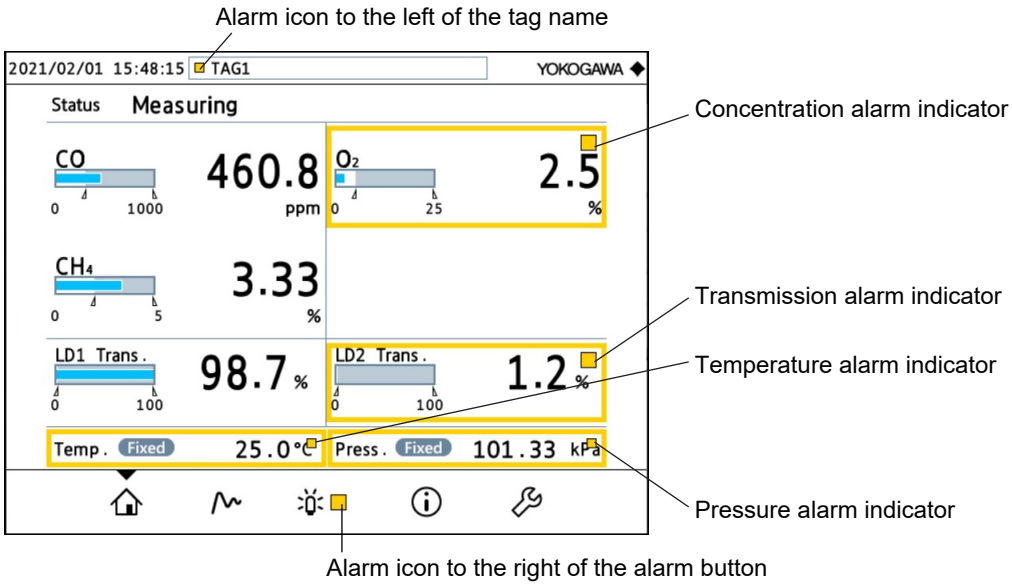


Figure 4.6 Alarm Indicator

Alarm icon to the left of the tag name

Indicates that an alarm is occurring on the applicable analyzer.

Alarm icon to the right of the alarm button

Indicates that an alarm is occurring on the connected analyzer.

Concentration alarm indicator

Indicates that one of the following alarms has occurred.

- **TDLS8000, TDLS8100**

Alarm number	Alarm name
6	Concentration Gas1 Low
7	Concentration Gas1 High
8	Concentration Gas2 Low
9	Concentration Gas2 High

- **TDLS8200**

Alarm number	Alarm name
7	Concentration Gas1 Low
8	Concentration Gas1 High
9	Concentration Gas2 Low
10	Concentration Gas2 High
11	Concentration Gas3 Low
12	Concentration Gas3 High

Transmission alarm indicator (TDLS8000, TDLS8100)

Indicates that one of the following alarms has occurred.

Alarm number	Alarm name
1	Transmission Low
53	Transmission Lost

L1, L2 Transmission alarm indicator (TDLS8200)

Indicates that one of the following alarms has occurred.

Alarm number	Alarm name
1	L1 Transmission Low
49	L1 Transmission Lost
2	L2 Transmission Low
50	L2 Transmission Low

Temperature alarm indicator

Indicates that one of the following alarms has occurred.

- **TDLS8000, TDLS8100**

Alarm number	Alarm name
4	Process Temperature Low
5	Process Temperature High

- **TDLS8200**

Alarm number	Alarm name
5	Process Temperature Low
6	Process Temperature High

Pressure alarm indicator

Indicates that one of the following alarms has occurred.

- **TDLS8000, TDLS8100**

Alarm number	Alarm name
2	Process Pressure Low
3	Process Pressure High

- **TDLS8200**

Alarm number	Alarm name
3	Process Pressure Low
4	Process Pressure High

4.2 Trend Screen

Tapping  at the bottom of the screen shows the trend screen. The trend screen displays the trend waveforms of four items. The items that can be displayed include concentration, transmission, process temperature, and process pressure.

If there is no connected analyzers, switching to the trend screen is not possible.

4.2.1 Trend Screen Display Items

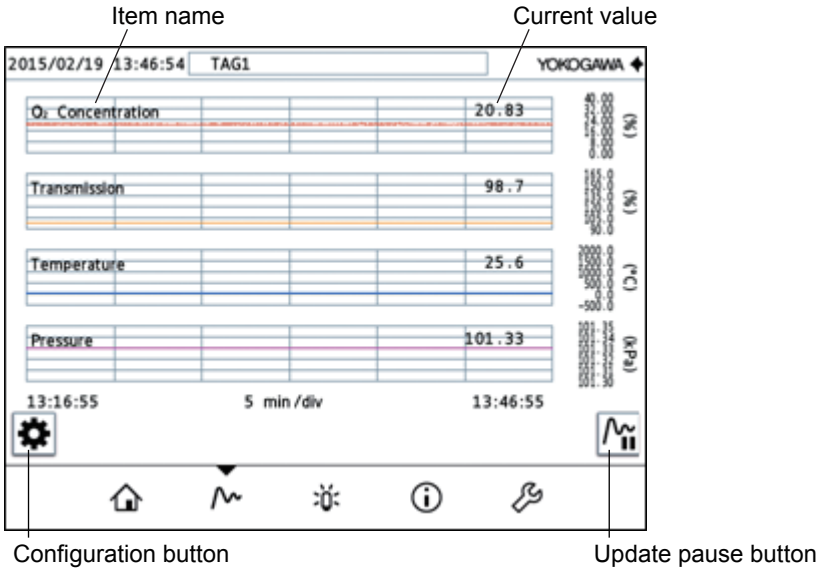


Figure 4.7 Trend Screen

Item name

Shows the item of the displayed trend waveform.

If multiple analyzers are connected, analyzer numbers are added in front of item names as shown below.

Current value

Shows the current value of the displayed item.

Configuration button

Tapping at the bottom of the screen shows the trend configuration screen.

Update pause button

Tapping pauses the updating of the trend waveforms. Tapping it again resumes the updating.

Being updated <==> Paused

4.2.2 Selecting the Items to Display

Press on the trend screen to display the trend configuration screen.

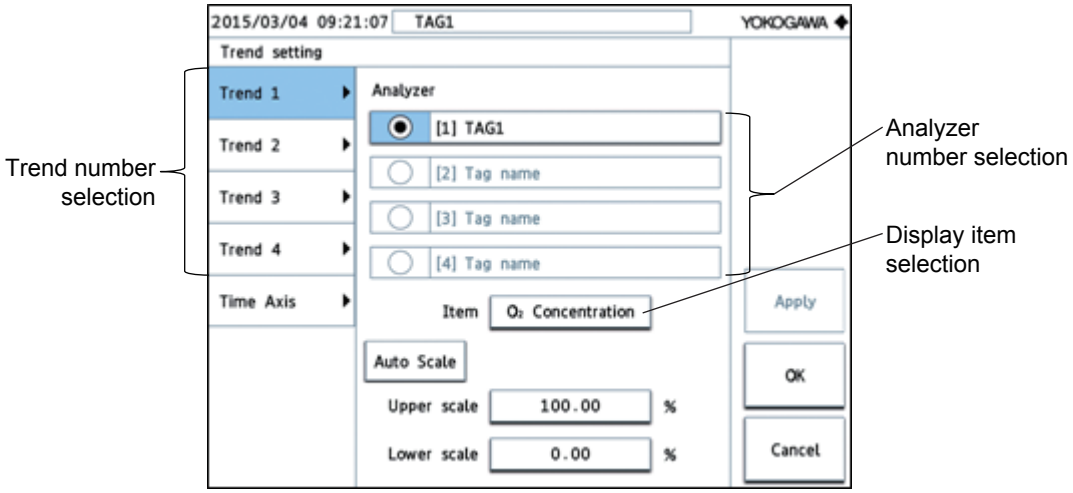


Figure 4.8 Trend configuration screen

(1) Select the trend number you want to change.

(2) Select a analyzer number. (When multiple analyzers are connected)

(3) Select the display item.

You can select from the following display items for the trend waveforms.

Trend display items (TDLS8000, TDLS8100)

Available option	Description
Gas1 Concentration	Component 1 gas concentration
Gas1 STDEV	Standard deviation of component 1 gas concentration
Gas2 Concentration	Component 2 gas concentration (selectable only for two-gas measurement)
Gas2 STDEV	Standard deviation of component 2 gas concentration (selectable only for two-gas measurement)
Transmission	Transmission
Temperature	Process temperature
Pressure	Process pressure
None	Nothing

Trend display items (TDLS8200)

Available option	Description
Gas1 Concentration	Component 1 gas concentration
Gas1 STDEV	Standard deviation of component 1 gas concentration
Gas2 Concentration	Component 2 gas concentration (selectable only for two-gas measurement by LD1)
Gas2 STDEV	Standard deviation of component 2 gas concentration (selectable only for two-gas measurement by LD1)
Gas3 Concentration	Component 3 gas concentration
Gas3 STDEV	Standard deviation of component 3 gas concentration
LD1 Transmission	LD1 Transmission
LD2 Transmission	LD2 Transmission
Process temperature	Process temperature
Pressure	Process pressure
None	Nothing

The factory default settings are shown in the following table.

Factory default display items

Trend number	Description
Trend 1	Gas1 Concentration
Trend 2	Transmission (TDLS8000, TDLS8100), LD1 Transmission (TDLS8200)
Trend 3	Process Temperature
Trend 4	Pressure

4.2.3 Setting the Displayed Time

Press ⚙ on the trend screen to display the trend configuration screen.

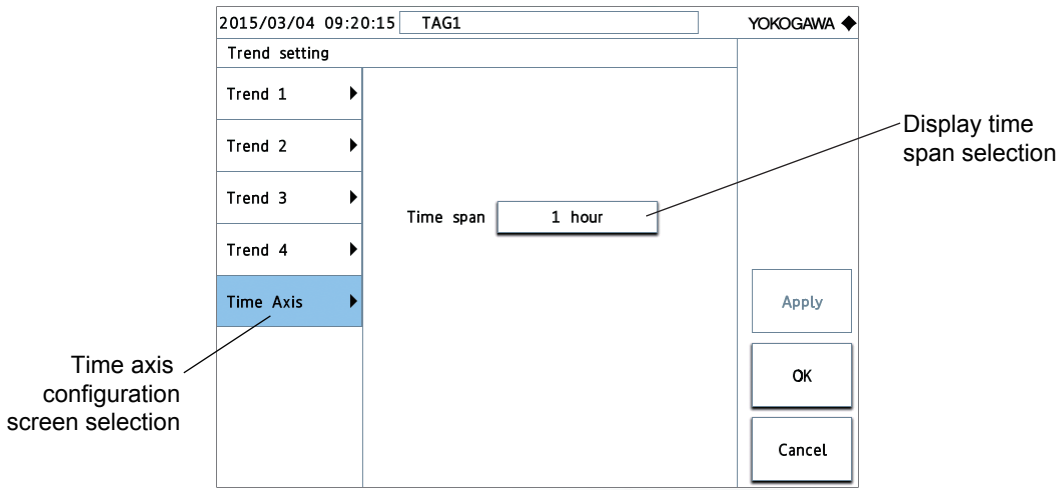


Figure 4.9 Trend time axis configuration screen

(1) Switch to the time axis configuration screen.

(2) Set the display time span.

You can select the display time span of the trend graph from the available options in the following table.

Trend display items

Available option	Description
1 min	1 minute
3 min	3 minutes
5 min	5 minutes
10 min	10 minutes
30 min	30 minutes
1 hour	1 hour
3 hour	3 hours
6 hour	6 hours
12 hour	12 hours

The factory default setting is 30 min.

4.2.4 Setting the Vertical Scale

Press ⚙ on the trend screen to display the trend configuration screen.

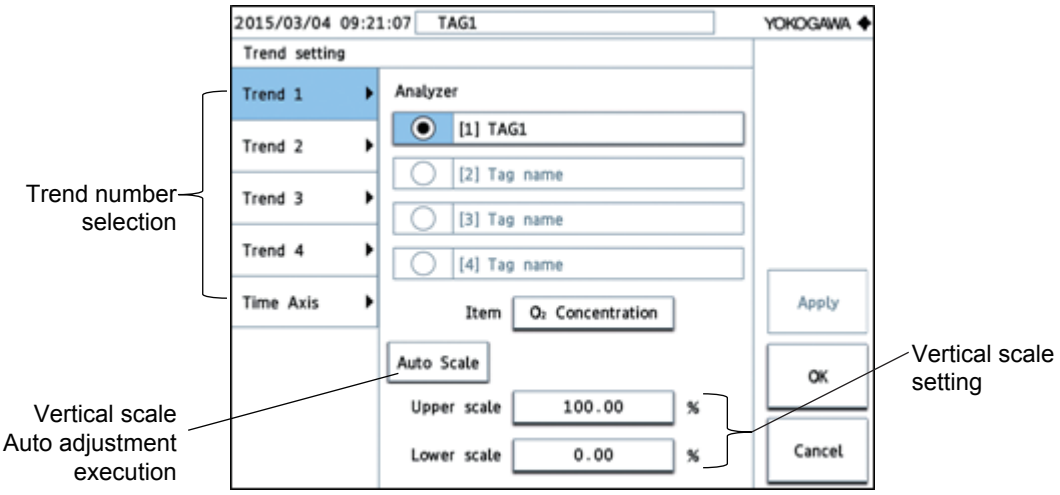


Figure 4.10 Trend configuration screen

(1) Select the trend number you want to change.

(2) Tapping Auto Scale automatically sets the most suitable value for that instant.

(3) To specify the scale manually, set the upper scale and lower scale.

4.3 Alarm Screen

Tapping at the bottom of the screen shows the alarm screen. The alarm screen displays a list of alarms that are currently occurring. For the meanings of alarms and correct actions, see the user's manuals of the analyzers.

NOTE

When multiple analyzers are connected to the YH8000, tapping displays a analyzers selection screen first. Selecting the target analyzers and touching OK will display the alarm screen of the selected analyzers.

For details, see "4.6.2 Analyzer Selection Screen"

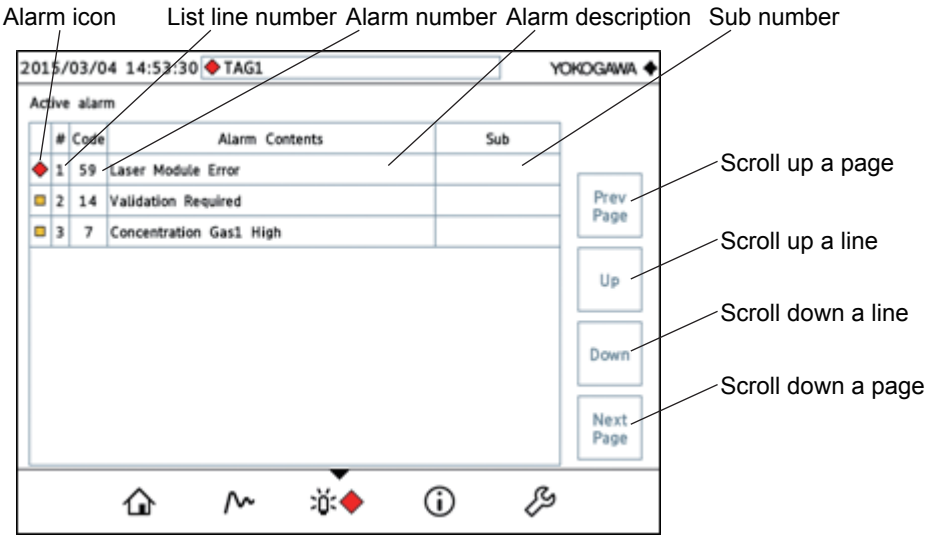


Figure 4.11 Alarm Screen

NOTE

The sub number is a number that indicates the details of the alarm. It is a number that Yokogawa service representatives use for troubleshooting.

4.4 Information Screen

You can view various types of analyzers information on the information screen.

Tapping ⓘ at the bottom of the screen shows the information screen.

NOTE

When multiple analyzers are connected to the YH8000, tapping ⓘ displays a analyzers selection screen first. Selecting the target analyzers and touching OK will display the information screen of the selected analyzers.

For details, see “4.6.2 Analyzer Selection Screen”

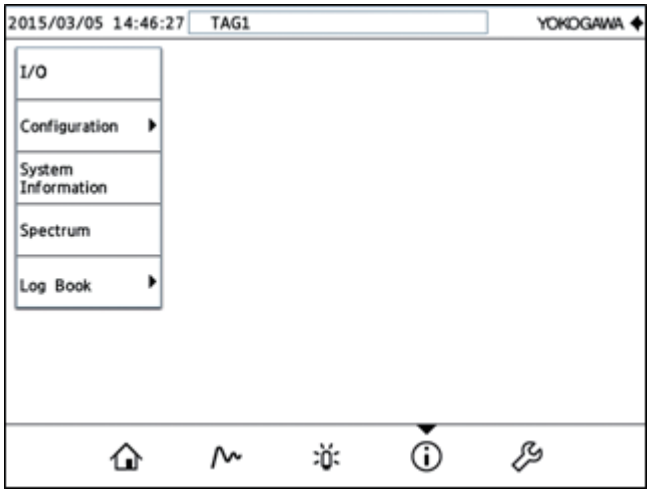


Figure 4.12 Information Screen

4.4.1 I/O List Screen

The I/O list screen displays the status of analog I/O, digital I/O, valve control power output, and analyzers internal temperatures.

Tapping the I/O button on the ⓘ information screen displays the I/O list screen.

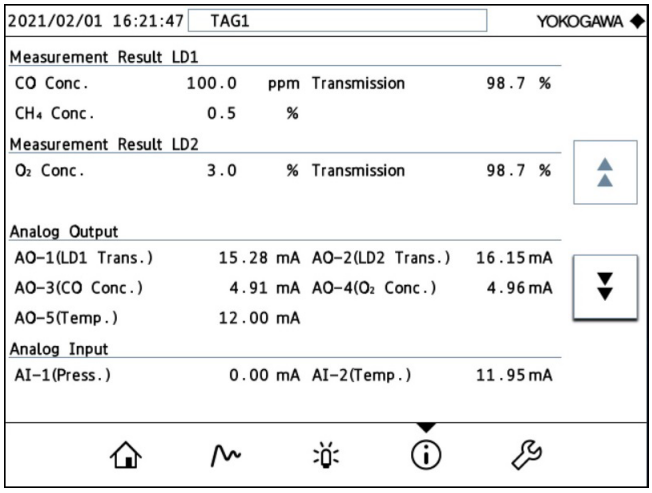


Figure 4.13 I/O list

4.4.2 Configuration View Screen

On the configuration view screen, you can view the analyzers settings. Tapping the Configuration button on the ⓘ information screen displays the following menu. For details on the menu tree, see Configuration in “Appendix 2 YH8000 Menu Tree”.

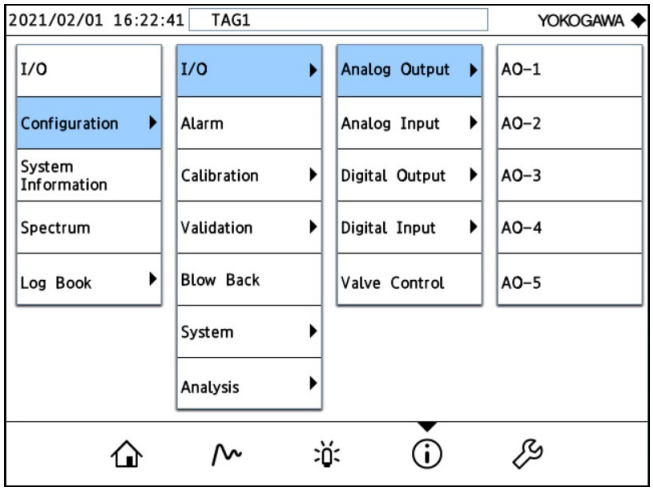


Figure 4.14 Configuration View Screen

NOTE

You cannot change the settings on the configuration view screen. To change them, see “4.5 Configuration Screen”

4.4.3 System Information Screen

The system information screen displays the analyzers’ tag name, serial number, IP address, MAC address, HART device ID, software version, and analysis period and the laser module’s serial number. Tapping the System Information button on the ⓘ information screen displays the system information screen.

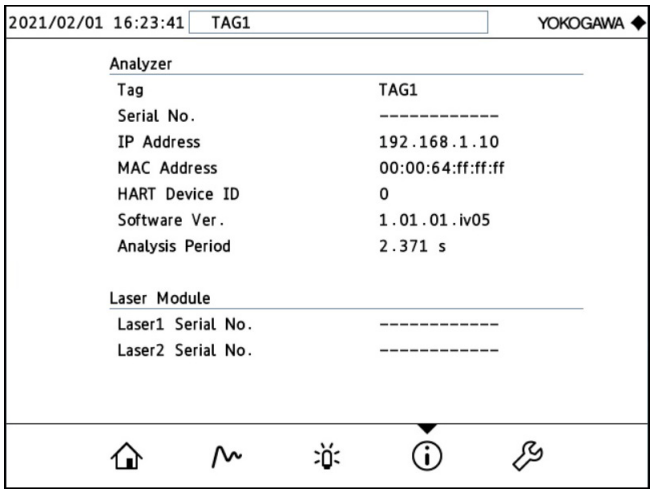


Figure 4.15 System Information Screen

4.4.4 Spectrum Screen

The spectrum screen displays the spectrum being measured. Tapping the Spectrum button on the ⓘ information screen displays the spectrum screen.

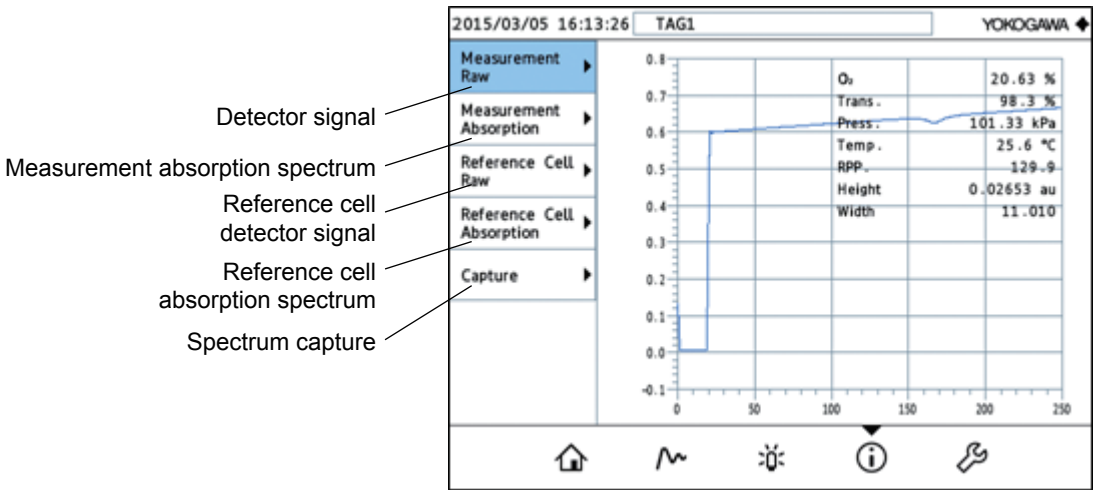


Figure 4.16 Spectrum Screen (2 laser specification)

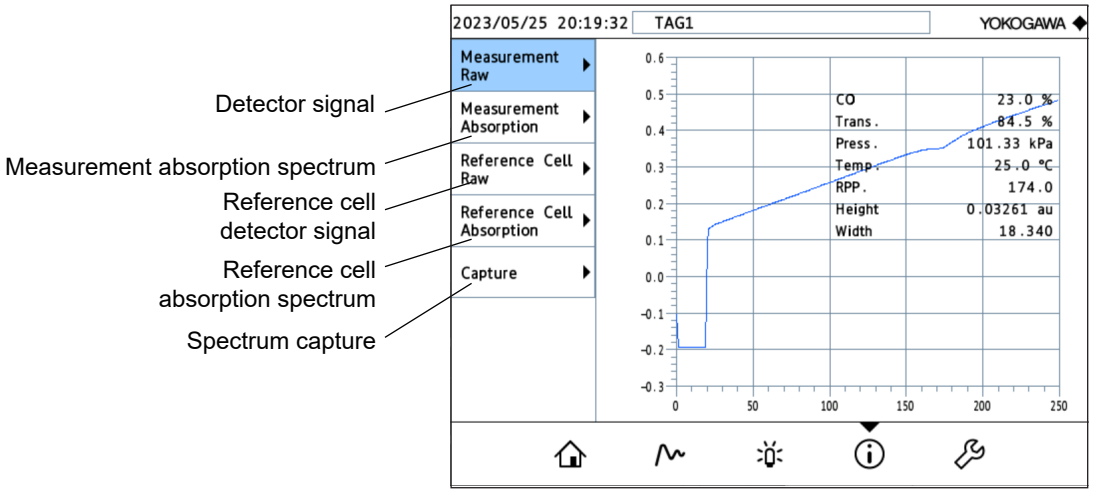


Figure 4.17 Spectrum Screen (1 laser specification)

Detector signal

Shows the detector signal on the measured gas side.

Measurement absorption spectrum

Shows the absorption spectrum of the measured gas.

Reference cell detector signal

Shows the detector signal of the reference cell. This can be shown only on a analyzers with a valid reference cell.

Reference cell absorption spectrum

Shows the absorption spectrum of the reference cell. This can be shown only on a analyzers with a valid reference cell.

Spectrum capture

Records spectrum waveform data to the analyzers internal storage. Do not use this under normal circumstances. Use it only if you receive a request from your Yokogawa service representative.

NOTE

The spectrum screen is used by Yokogawa service representatives for troubleshooting purposes. You may be asked to check this screen depending on the situation. In such a case, please operate the screen according to their instructions.

4.4.5 Alarm History Screen

The alarm history screen can be used to check alarms and messages that occurred in the past.

Tapping Log Book on the ⓘ information screen and then Alarm History displays the alarm history screen.

The maximum number of history events that you can view on the YH8000 is 99. For details on the alarms or the messages, see the user's manuals of the analyzers.

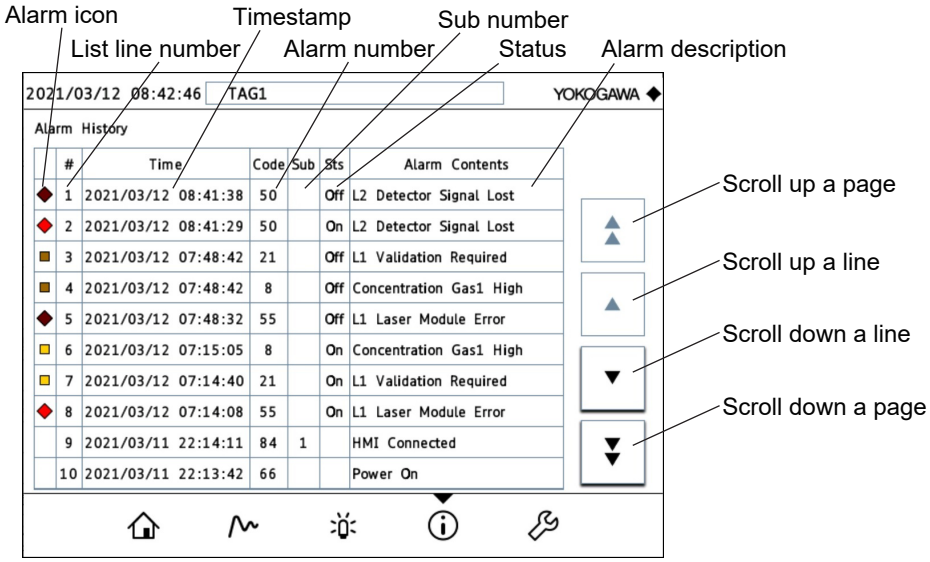


Figure 4.18 Alarm History Screen

Alarm icon

Nothing is displayed for messages. While the alarm is active, the icon appears bright. When the alarm is cleared, the icon changes to a dark indication.

Status

"On" is displayed when the alarm is active, and "Off" when it is cleared.

4.4.6 Cal/Val History Screen

The Cal/Val history screen can be used to view the results of calibrations and validations that have been executed in the past. Tapping Log Book on the ⓘ information screen and then Cal/Val History displays the Cal/Val history screen.

The maximum number of history events that you can view on the YH8000 is 99.

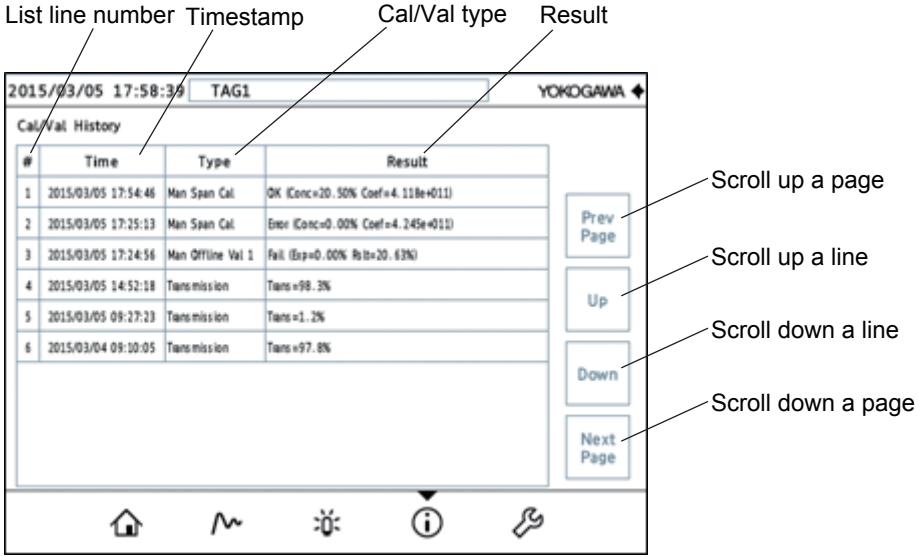


Figure 4.19 Cal/Val History Screen

The result column displays the following information depending on the Cal/Val type.

Information displayed in Cal/Val history (TDLS8000, TDLS8100)

Cal/Val type	Result	
Man Zero Cal Auto Zero Cal	Successful: OK Unsuccessful: Error	(Max Absorption=<maximum absorption>)
Man Span Cal Auto Span Cal	Successful: OK Unsuccessful: Error	(Conc=<calibration gas concentration>Coef=<calibration coefficient after calibration>)
Man Offline Val Auto Offline Val Man Online Val Auto Online Val	Pass Fail	(Exp=<expected concentration>Rslt=<actual concentration>)
Transmission	Trans=<transmission after calibration>	
Zero Cal Restored	Restored to factory default settings: By Factory data Restored to previous settings: By Previous data	
Span Cal Restored	Restored to factory default settings: By Factory data Restored to previous settings: By Previous data	

Information displayed in Cal/Val history (TDLS8200)

Cal/Val type	Result	
Man Zero Cal	Successful: OK Unsuccessful: Error	(Max Absorption=<maximum absorption>)
Man Span Cal	Successful: OK Unsuccessful: Error	(Conc=<calibration gas concentration>Coef=<calibration coefficient after calibration>)
Man Offline Val Man Online Val Auto Online Val	Pass Fail	(Exp=<expected concentration>Rslt=<actual concentration>)
LD1 Transmission	LD1 Trans=<LD1 transmission after calibration>	
LD2 Transmission	LD2 Trans=<LD1 transmission after calibration>	
Zero Cal Restored	Restored to factory default settings: By Factory data Restored to previous settings: By Previous data	
Span Cal Restored	Restored to factory default settings: By Factory data Restored to previous settings: By Previous data	
Man Blow Back Auto Blow Back	Executing : OK	

4.5 Configuration Screen

The configuration screen is used to configure the analyzers and YH8000.

Tapping at the bottom of the screen shows the setup target selection screen.

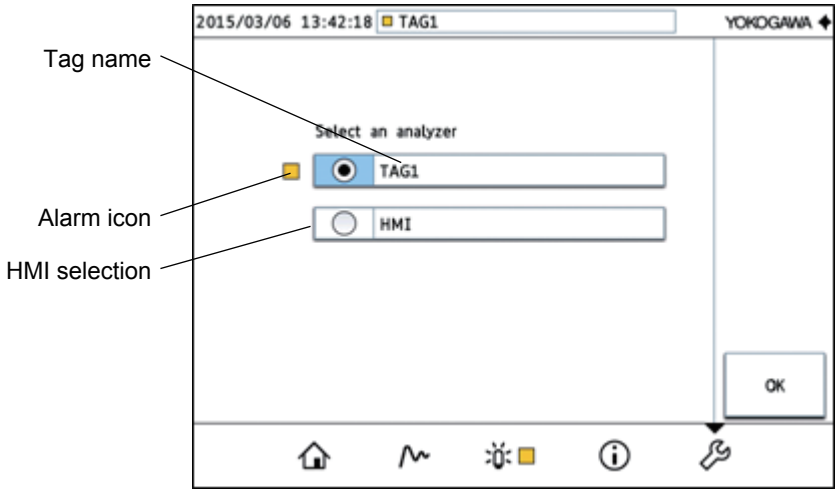


Figure 4.20 Setup target selection screen (when a single analyzers is connected)

Tag name

Shows the tag names assigned to each analyzers. Serial numbers are displayed if tag names are not assigned.

Alarm icon

If an alarm is occurring on the analyzers, an alarm icon is displayed. If both a warning and a fault are occurring, the fault icon is displayed.

HMI selection

To switch to the YH8000 configuration screen, select the HMI option.

4.5.1 Analyzers Configuration Screen

After selecting a analyzers on the setup target selection screen, tap OK. A password input screen will appear.

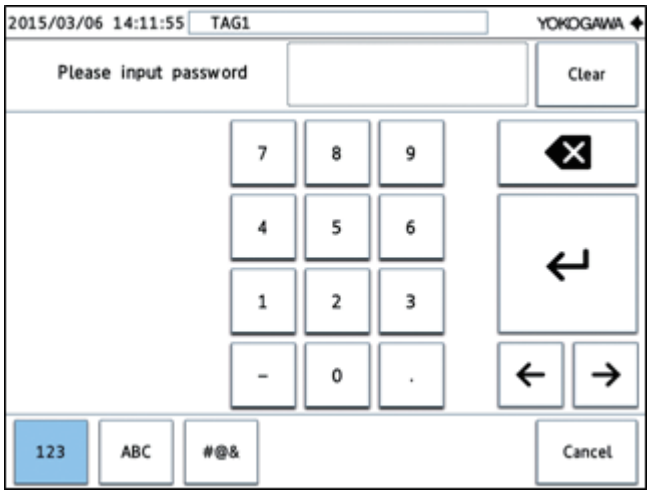


Figure 4.21 Password input screen

Enter the password on the password input screen, and tap ↵ to display the analyzers configuration screen.

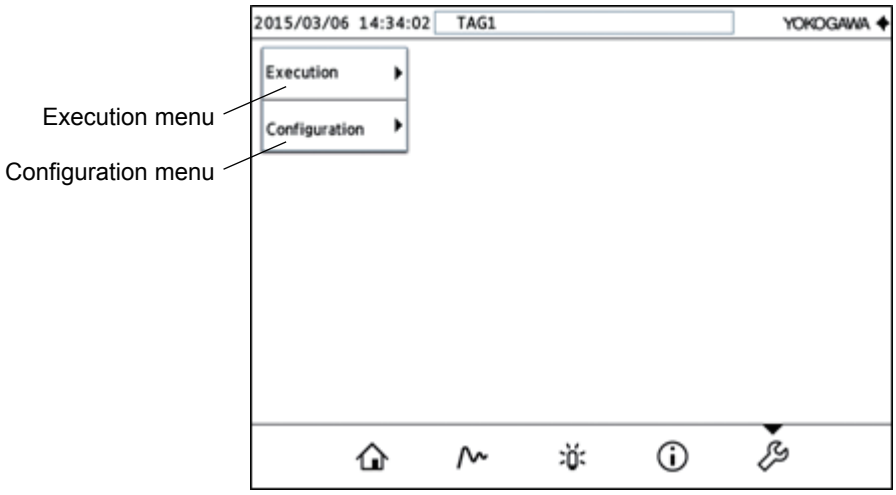


Figure 4.22 analyzers configuration screen

Execution menu

The execution operation screens for calibration, validation, loop check, and the like are under this menu.

Configuration menu

Various settings are under this menu.

The analyzers configuration screen is arranged in a menu tree structure.

- For the menu structure, see “Appendix 2 YH8000 Menu Tree”
- For details on various settings, calibration and validation, Loop Check (Simulation output), see the user’s manual of the analyzers.

NOTE

Analyzer status

When you switch to the analyzer configuration screen, the analyzer status is set to “in maintenance.” While in maintenance, the analyzer cannot be configured from other YH8000s or HART. Tap any of the buttons at the bottom of the screen to exit from the analyzer configuration screen. When you exit from the configuration screen, “in maintenance” is cleared. “In maintenance” is also cleared when the connection to the analyzer is disconnected.

NOTE

Password

The factory default password for switching to the TDLS8000 configuration screen is “1234”. You can change the password on the following configuration screen.

“  >>[Analyzer]>>Configuration>>System>>Password”

For the password, you can set a character string consisting of one to eight characters of your choice.

Keep the password in a safe place.

NOTE

If you forget the password

If you forget the password, contact your nearest Yokogawa representative.

For TDLS8000, when the HART configuration tool is available, you can restore the password to the factory default by initializing the user information. However, there are some other settings other than passwords that will be initialized. For details, see the user’s manual of TDLS8000.

4.5.2 YH8000 Configuration Screen

After selecting an HMI on the setup target selection screen, tap OK to display a YH8000 configuration screen. If there is no connected analyzer, only the YH8000 configuration screen will be displayed.

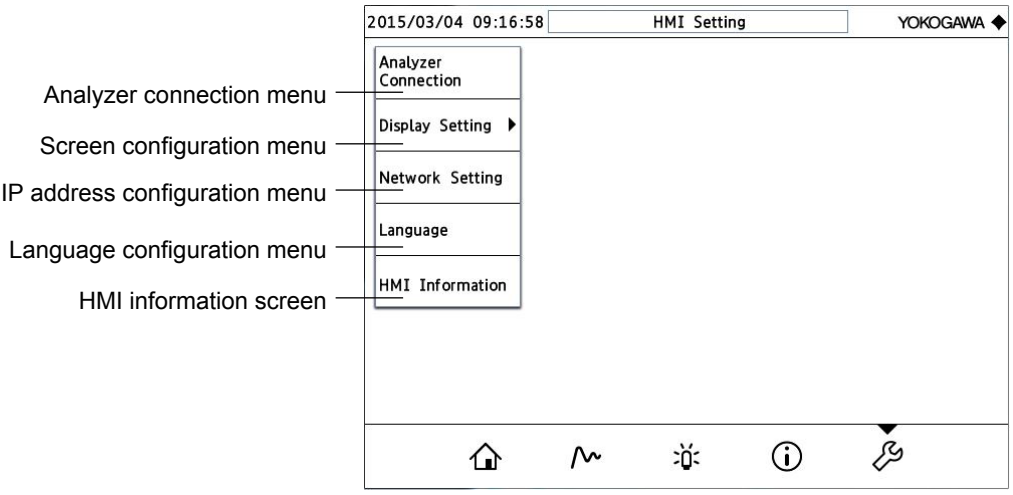


Figure 4.23 YH8000 (HMI) configuration screen

Analyzer connection menu

Switches to the TDLS8000 selection screen. For details, see “3.3 Connecting to the TDLS8000 series”.

Screen configuration menu

Switches to the configuration screen for setting the home screen display style, meter range, and backlight. For the display styles, see “”. For the meter range, see “4.1.3 Setting the Meter Range”, see “4.5.3 Setting the YH8000 Backlight”.

IP address configuration menu

Switches to the YH8000 IP address configuration screen. For details, see “3.2 Setting the IP Address”.

Language configuration menu

Shows the language displayed on the YH8000.

HMI information screen

Shows the YH8000 IP address, MAC address, and software version.

4.5.3 Setting the YH8000 Backlight

This section explains how to set the brightness of the YH8000 backlight and the auto-off function.

Configuration menu path:

“ >>HMI>>Display Setting>>Backlight”

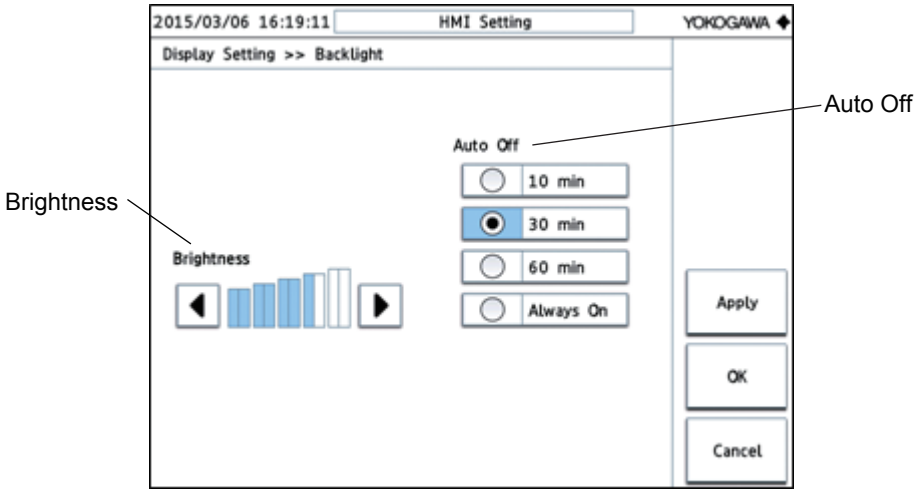


Figure 4.24 YH8000 backlight configuration screen

Brightness

You can set the backlight brightness using 11 levels. By factory default, the brightness is set to the highest level.

Auto Off

The backlight automatically turns off after a certain time of no YH8000 touch panel activity. You can set the auto-off time to any of the options in the following table.

Backlight auto-off time

Available option	Description
10 min	Turns off after 10 minutes of no activity
30 min	Turns off after 30 minutes of no activity
60 min	Turns off after 60 minutes of no activity
Always On	Disables the auto-off function (always on)

4.6 When Multiple Analyzers be Connected

When multiple analyzers are connected to the YH8000, a portion of the display and operation is different. This section explains the difference.

4.6.1 Overall Display

When multiple analyzers are connected, the information of all the analyzers can be collectively displayed on the home screen. This is called the *overall display*.

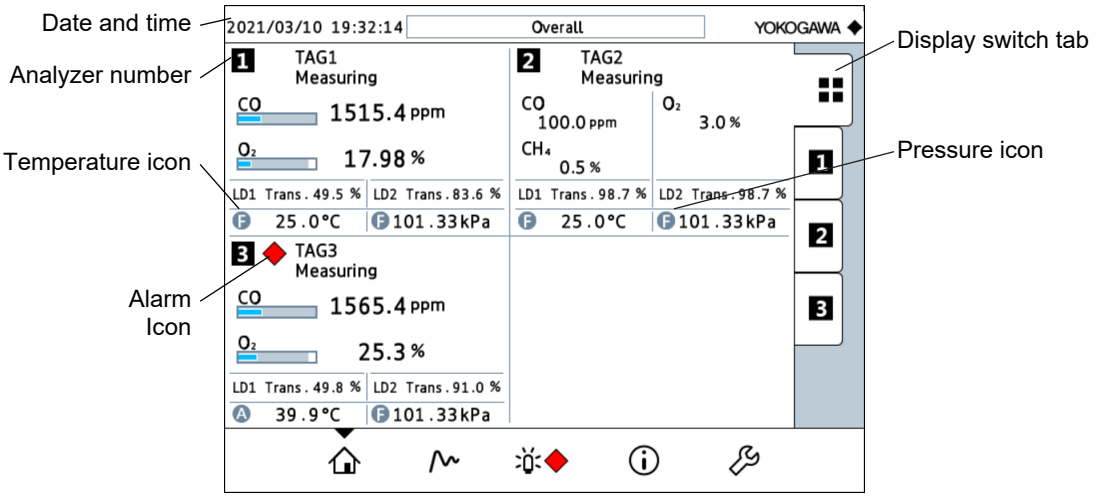


Figure 4.25 Overall display (when three analyzers are connected)

Date and time

On the overall display, the time of the analyzers with the smallest analyzer number is shown.

Analyzer number

Shows analyzer numbers 1 to 4.

Analyzer numbers are assigned using the YH8000 analyzer connection settings. For details, see “3. Connection”

Alarm icon

If an alarm is occurring on the analyzers, an alarm icon is displayed. If both a warning and a fault are occurring, the fault icon is displayed.

Display switch tab

Selects the analyzers to be displayed. Selecting shows the overall display.

Temperature icon and pressure icon

Shows the process temperature and process pressure mode settings.

F: Fixed value

A: Non-fixed value

4.6.2 Analyzer Selection Screen

When multiple analyzers are connected, a analyzers selection screen appears when switching to the alarm screen or information screen. Selecting the target analyzers and touching OK will display the alarm screen or information screen of the selected analyzers.

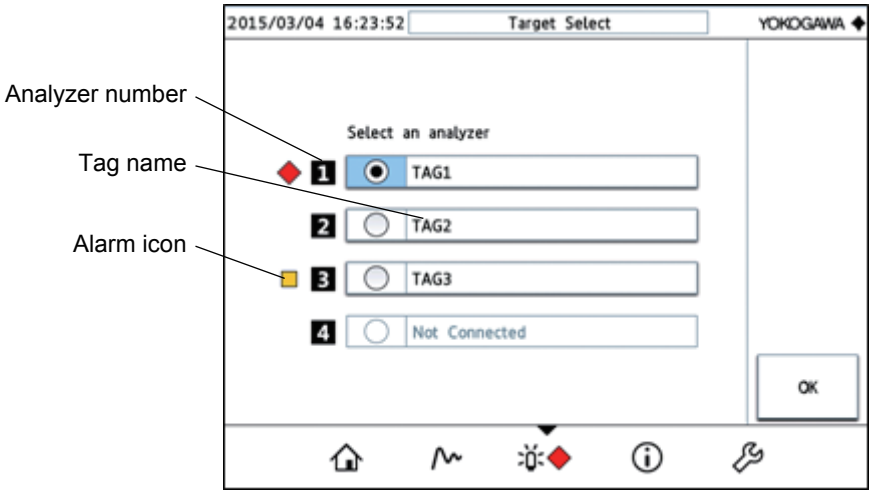


Figure 4.26 Analyzer selection screen (when three analyzers are connected)

Analyzer number

Shows analyzer numbers 1 to 4.

Tag name

Shows the tag names assigned to each analyzers. Serial numbers are displayed if tag names are not assigned.

Alarm icon

If an alarm is occurring on the analyzers, an alarm icon is displayed. If both a warning and a fault are occurring, the fault icon is displayed.

When multiple analyzers are connected, the connected analyzers are shown on the setup target selection screen when switching to the configuration screen. Selecting the target analyzers and touching OK will display the password input screen of the selected analyzers.

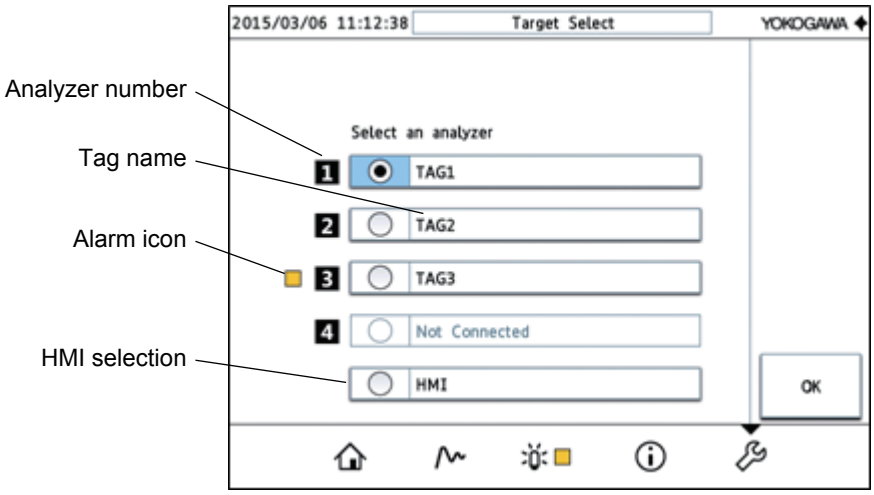


Figure 4.27 Setup target selection screen (when three analyzers are connected)

Analyzer number

Shows analyzer numbers 1 to 4.

Tag name

Shows the tag names assigned to each analyzers. Serial numbers are displayed if tag names are not assigned.

Alarm icon

If an alarm is occurring on the analyzers, an alarm icon is displayed. If both a warning and a fault are occurring, the fault icon is displayed.

HMI selection

To switch to the YH8000 configuration screen, select the HMI option.

4.6.3 Setting the Date and Time on the Analyzers

If multiple analyzers are connected, the following function can be used when setting the analyzers clocks.

- Change all analyzer

  You can collectively set the clocks on all connected analyzers.

- Time synchronization

  You can synchronize the clocks of other connected analyzers with the clock of the analyzers that you are currently configuring.

Configuration menu path:

"  >>[Analyzer]>>Configuration>>System>>Date&Time>>Operation"

NOTE

The collective setting of the clocks and synchronization of the clocks do not completely synchronize the TDLS8000 clocks. Even when these functions are used, the clocks may be off by a few seconds. The clocks may drift even further as time passes.

4.7 Software Version

The table below shows the valid combination between each version of software of YH8000 and TDLS800 series. Check the validity of the combination and prepare appropriate version of software when you did not purchase YH8000 and analyzers both together at a time.

<table>
<tr><td colspan="2" rowspan="2"></td><td colspan="6">YH8000</td></tr>
<tr><td>1.01.xx</td><td>1.02.xx</td><td>2.01.xx</td><td>2.02.xx</td><td>3.01.xx</td><td>3.02.xx or later</td></tr>
<tr><td rowspan="3">TDLS8000</td><td>1.01.xx</td><td>Valid with the previous alarm specifications.</td><td colspan="5">Some alarms are not displayed correctly.</td></tr>
<tr><td>1.02.xx</td><td>Some alarms are not displayed correctly.</td><td colspan="5">Valid</td></tr>
<tr><td>2.01.xx or later</td><td colspan="2">Not valid</td><td colspan="4">Valid</td></tr>
<tr><td>TDLS8100</td><td>2.01.xx or later</td><td colspan="2">Not valid</td><td colspan="4">Valid</td></tr>
<tr><td rowspan="2">TDLS8200</td><td>1.01.xx</td><td colspan="3">Not valid</td><td colspan="3">Valid</td></tr>
<tr><td>1.02.xx or later</td><td colspan="3">Not valid</td><td>Some settings are not available.</td><td>Valid</td></tr>
</table>

If the software version of the analyzer and the YH8000 are different, update the old version to the new version.
For details on software updating, contact your nearest Yokogawa representative.

4.8 Access to stored data in Analyzers

Plugging a USB flash drive into USB port on YH8000 enables downloading data stored in analyzers memory.

The following files listed in the next table can be confirmed as in plain text or spreadsheet by converting file format to CSV file format or ".csv."

Folder name	File name	description
DATA	YYMMDD.rst	Concentration, Transmission, Process temperature, Pressure, temperature inside the equipment, Trend data of AII, AI2, AO1, AO2, AO3*, AO4*, AO5*.
	YYMMDD.spc	Automatically saved spectrum data
	YYMMDD.spr	Automatically saved spectrum data of reference cell automatically stored
CAPTURE	xxxxxxx.spc	Manually saved spectrum data
	xxxxxxx.spr	Manually saved spectrum data of reference cell,
LOG	current.alm	Alarm history
	backup.alm	Alarm history (back up)
	current.cal	history of calibration/validation
	backup.cal	history of calibration/validation (back up)
	current.spc	Spectrum data at validation
	backup.spc	Spectrum data at validation (back up)

*: Only available for TDLS8200.

For file converter software, download the files from the following website. (member login required)

https://partner.yokogawa.com/global/an/

How to download data

1: Plug an empty USB flash drive* into USB port on YH8000 or analyzers.

2: Plugging a flash drive into USB port on analyzers starts downloading files automatically. Plugging a flash drive into USB port on YH8000 starts downloading by following the instruction on the panel.

3: After “Download complete” is displayed on analyzers’ panel, remove the USB flash drive. Remove the flash drive from YH8000 by following the direction displayed on the panel.

*: Use a USB flash drive with the capacity of 1 GB or greater. Note that all USB flash drives are not guaranteed to be compatible.

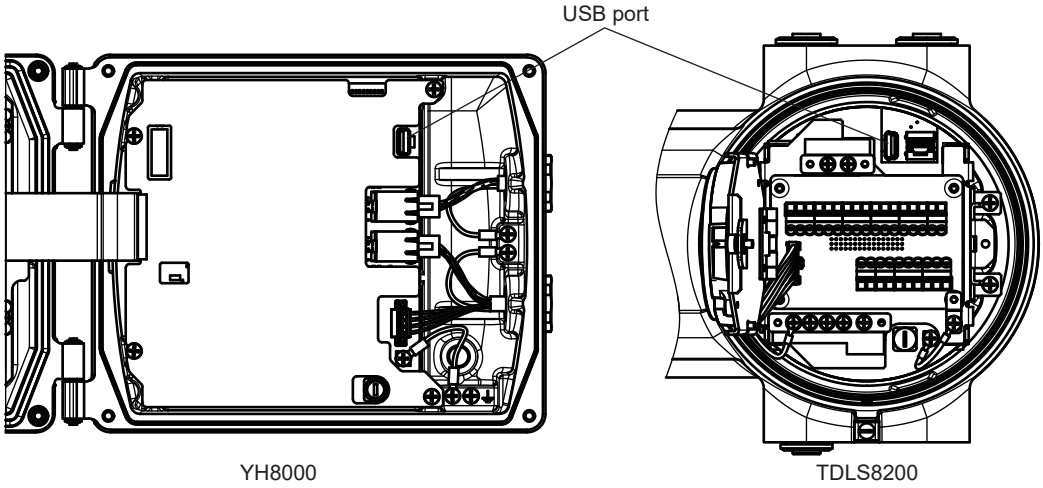


Figure 4.28 USB port (with TDLS8200)

4.9 Fuse Replacement

(1) To safely replace the fuse, shut off the external circuit breaker to stop the power supply to the analyzer.

(2) Remove the fuse from the fuse holder. Using a flat-blade screwdriver that matches the holder cap, turn the cap 90 degrees counterclockwise.

Then you will be able to remove the fuse with the cap.

(3) Check that the rating of the new fuse is 2.5A. Place it in the fuse cap, and insert the cap in the holder. Using a flat-blade screwdriver, turn the cap 90 degrees clockwise while pressing down.

(4) If the new fuse blows immediately, there may be a problem with the circuitry. Contact your Yokogawa representative.

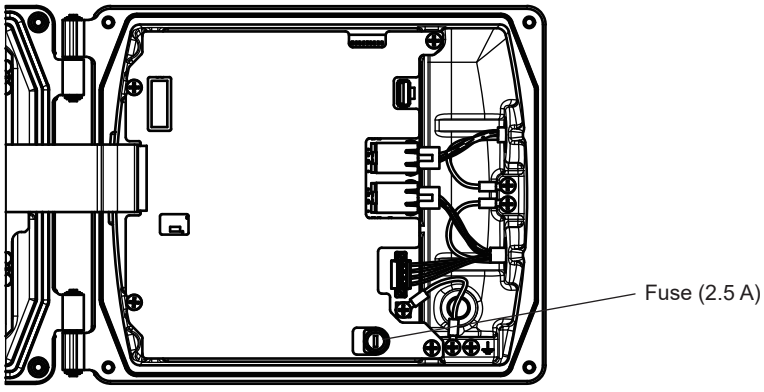


Figure 4.29 Fuse replacement

Appendix 1 How to Process Local HMI Connection Cable

When connecting a YH8000 HMI unit to the Sensor Control Unit (SCU) of the TDLS8000 or the analyzer part of the TDLS8100/TDLS8200 as a local HMI, use the YH8000 optional dedicated cable (option code: /C) for the connection cable.

This section explains how to terminate the Local HMI connection cable (dedicated cable).

NOTE

To maintain the product performance and functionality, be sure to use the optional dedicated cable.

Required tools

- Wire cutter
- Pliers

Pretreatment

Before terminating the special cable, pass the cable through cable glands (for 1/2NPT or M20). Apply the cable glands from the unterminated end of the special cable.

After crimping the communication connector (RJ45 modular plug), the cable cannot be passed through the cable glands.

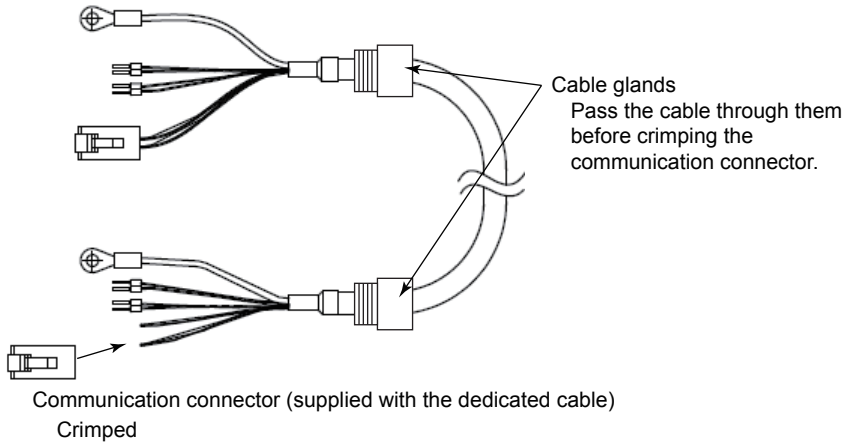


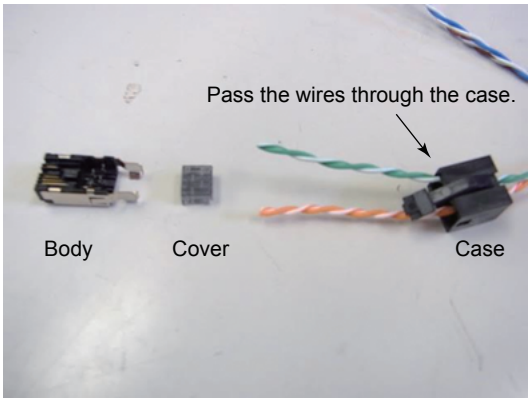
Figure 1Local HMI connection cable

Note the orientation of the cable gland. The threaded side of the cable gland is the connector side.

Attaching the communication connector

Crimp a communication connector (RJ45 modular plug) to one end of the dedicated cable (the end without the communication connector). Use the communication connector supplied with the dedicated cable.

(1) Pass the wires (two pairs: orange-white/orange, green-white/green) through the communication connector case.

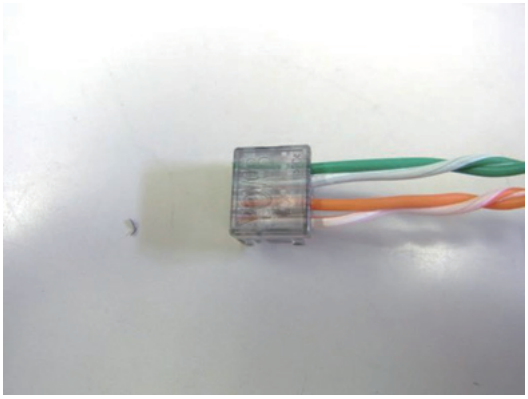


Passing the wires through the communication connector case

(2) Insert the wires (two pairs: orange-white/orange, green-white/green) into the communication connector case. Separate the ends of the twisted-pairs with a nipper or similar tool, and insert each wire in the connector case according to Table 1.

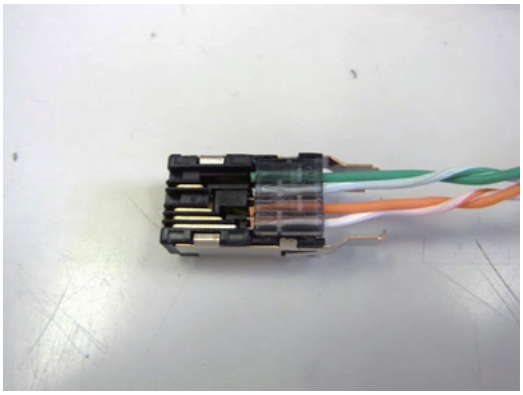
Table 1 Where to insert the wires

Cover marking	Wire color
B	Green
W	White-green stripe
O	Orange
Y	White-orange stripe



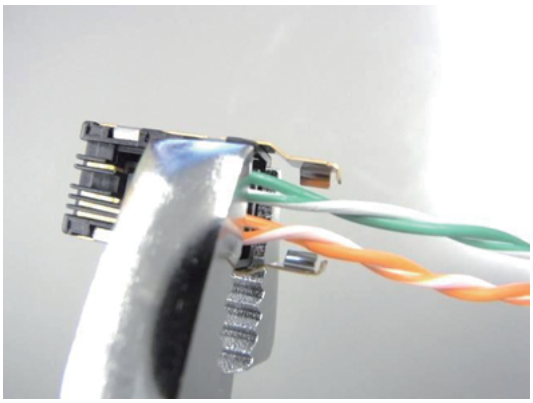
Inserting the cable wires into the connector cover

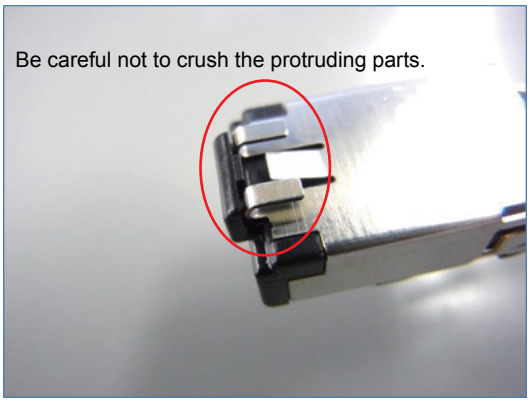
(3) Insert the cover with the wires into the connector body until you hear it click.



(4) Crimp the cover to the connector body using a pair of pliers or a similar tool.

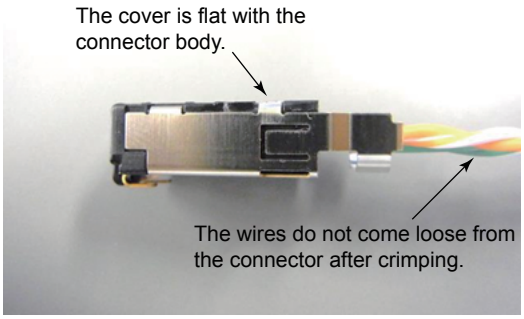
Be sure not to crush the protruding parts of the connector.





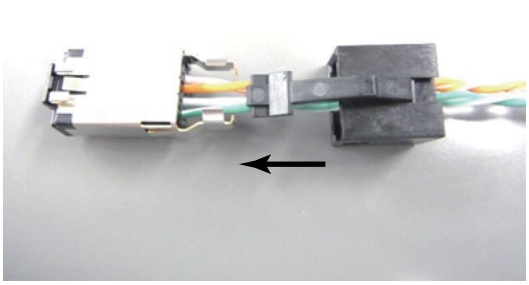
Crimping the cover to the connector body

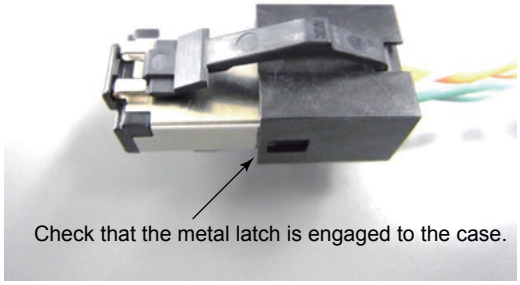
(5) After the cover has been crimped completely into the connector body, view the connector from the side. Check that the cover is flat and that wires do not come loose from the connector.



Checking the crimping

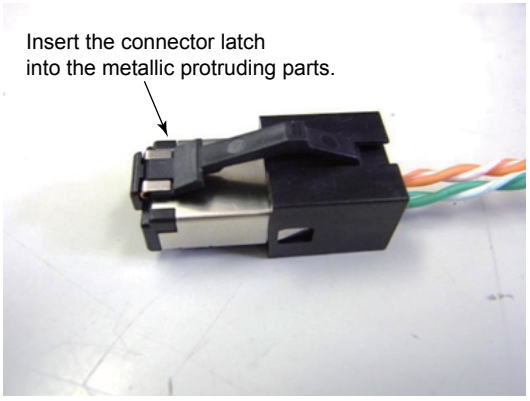
(6) Place the case over the connector body. Check that the metallic latch on the side of the connector engages.





Placing the case over the connector body

(7) Insert the connector latch into the metal protruding parts of the connector body. Make sure the metallic protruding parts at the end of the connector is not crushed.



This completes the communication connector attachment procedure.
Processing of the local HMI connection cable (dedicated cable) is complete.

Appendix 2 YH8000 Menu Tree

This section provides the tree structure of the setup and execution menus of the YH8000 HMI unit.

(1)TDLS8000 series Tunable Diode Laser Spectrometer operation panel

The TDLS8000 series setup and execution menu tree are shown below.

=> Select analyzer => Input password =>

● TDLS8000, TDLS8100

The menu shown here is for the TDLS8000 or TDLS8100 with two-gas measurement specifications; some items may not be displayed if the TDLS8000 or TDLS8100 has a single-gas measurement specification.

1st	2nd	3rd	4th	Tab	Item
Execution	Calibration	Manual	Zero Calibration		Zero Calibration
			Span Calibration		Span Calibration
		Semi-Auto	Zero Calibration		Zero Calibration
			Span Calibration		Span Calibration
			Zero + Span Calibration		Zero + Span Calibration
		Restore	Zero Calibration		Restore Zero Calibration data
			Span Calibration	Gas1	Restore Span Calibration data (Gas1)
				Gas2	Restore Span Calibration data (Gas2)
		Clear Calibration Alarm			Clear Calibration Alarm
	Validation	Manual	Offline Validation 1		Offline Validation 1
			Offline Validation 2		Offline Validation 2
			Online Validation 1		Online Validation 1
			Online Validation 2		Online Validation 2
		Semi-Auto	Offline Validation 1		Offline Validation 1
			Offline Validation 2		Offline Validation 2
			Offline Validation 1+2		Offline Validation 1+2
			Online Validation 1		Online Validation 1
			Online Validation 2		Online Validation 2
		Clear Validation Alarm			Clear Validation Alarm
	Transmission Adjustment				Transmission Adjustment
	Loop Check			Analog Output	AO-1 Loop check mode
					AO-1 Check output
					AO-2 Loop check mode
					AO-2 Check output
				Digital Output	DO Loop check mode
					DO Check output
					Fault Loop check mode
					Fault Check output
				Valve	SV-1 Loop check mode
					SV-1 Check output
					SV-2 Loop check mode
					SV-2 Check output
				Auto Release	Auto release time
	System	Clear Latched Alarms			Clear Latched Alarms

1st	2nd	3rd	4th	Tab	Item
Configuration	I/O	Analog Output	AO-1	Output	Item
					4 mA
					20 mA
				Hold mode	Warning
					Delay
					Fault
					Delay
					Cal/Val
					Maintenance
					Warm-up
				Calibration	Execute AO-1 Calibration
			AO-2	Output	Item
					4 mA
					20 mA
				Hold mode	Warning
					Delay
					Fault
					Delay
					Cal/Val
					Maintenance
					Warm-up
				Calibration	Execute AO-2 Calibration
		Analog Input	AI-1 (Pressure)	Scaling	4mA value
					20mA value
				Calibration	Execute A1-1 Calibration
			AI-2 (Temperature)	Scaling	4mA value
					20mA value
				Calibration	Execute A1-2 Calibration
		Digital Output	DO-1 (DO)		Output item
					Output delay
			DO-2 (Fault)		Output delay
		Digital Input	DI-1		Mode
					Filter time
			DI-2		Mode
					Filter time
		Valve Control			Valve Usage
					Current
					Stream 1 Switch to
					Stream 1 Duration
					Stream 2 Switch to
					Stream 2 Duration
					Stream 3 Switch to
					Stream 3 Duration
					Initial
	Alarm				Transmission Low
					Process Pressure Low
					Process Pressure High
					Process Temperature Low
					Process Temperature High
					Concentration Gas1 Low
					Concentration Gas1 High
					Concentration Gas2 Low
					Concentration Gas2 High
	Calibration	Zero Calibration		Valve	Calibration gas Purge time
					Process gas Purge time
					Auto Valve for Manual Cal.
				Auto Time	Time Initiate
					Initial time
					Cycle(day)
					Cycle(hour)

1st	2nd	3rd	4th	Tab	Item
(Configuration)	(Calibration)	Span Calibration		Parameters	Gas type
					Concentration
					Pressure
					Fixed value
					Temperature
					Fixed value
					OPL
					Fixed value
				Valve	Calibration gas Purge time
					Process gas Purge time
					Auto Valve for Manual Cal.
				Auto Time	Time Initiate
					Initial time
					Cycle(day)
					Cycle(hour)
		Zero + Span Calibration		Auto Time	Time Initiate
					Initial time
					Cycle(day)
					Cycle(hour)
	Validation	Offline Validation 1		Parameters	Gas type
					Concentration
					Pressure
					Fixed value
					Temperature
					Fixed value
					OPL
					Fixed value
				Valve	Validation gas Purge time
					Process gas Purge time
					Auto Valve for Manual Val.
				Auto Time	Time Initiate
					Initial time
					Cycle(day)
					Cycle(hour)
		Offline Validation 2		Parameters	Gas type
					Concentration
					Pressure
					Fixed value
					Temperature
					Fixed value
					OPL
					Fixed value
				Valve	Validation gas Purge time
					Process gas Purge time
					Auto Valve for Manual Val.
				Auto Time	Time Initiate
					Initial time
					Cycle(day)
					Cycle(hour)
		Offline Validation 1+2		Auto Time	Time Initiate
					Initial time
					Cycle(day)
					Cycle(hour)
		Online Validation 1		Parameters	Gas type
					Concentration
					Pressure
					Temperature
					Offset Value
					Fixed Value
					OPL
				Valve	Validation gas Purge time
					Normal gas Purge time
					Auto Valve for Manual Val.
				Auto Time	Time Initiate
					Initial time
					Cycle(day)
					Cycle(hour)
				Reading mode	Mode
					Output Factor

1st	2nd	3rd	4th	Tab	Item
(Configuration)	(Validation)	Online Validation 2		Parameters	Gas type
					Concentration
					Pressure
					Temperature
					Offset Value
					Fixed Value
					OPL
				Valve	Validation gas Purge time
					Normal gas Purge time
					Auto Valve for Manual Val.
				Auto Time	Time Initiate
					Initial time
					Cycle(day)
					Cycle(hour)
				Reading mode	Mode
					Output Factor
	System	Tag			Tag
		Date & Time			Current Password
					New Password
					Confirm New Password
		Password			Operation
					Date
					Time
		Local Display		SCU	Spectrum
					Brightness
					Contrast
				LU	Brightness
		Communication	TCP/IP		IP Address
					Subnet Mask
					Default Gateway
			HART		HART Address
					Loop Current Mode
		Configuration Initialization			Setting data
					Calibration data for AO and AI
					Zero/Span Calibration data
					Tag, Network setting, Password
		Safety Mode			Safety Mode
	Analysis	Process Parameters		Path Length	Path Length
				Pressure	Mode
					Active Type
					Fixed Mode Value
					Backup Mode
					Backup Set Value
				Temperature	Mode
					Active Type
					Fixed Mode Value
					Backup Mode
					Backup Set Value
					Offset value
		Non-Process Parameter		Path Length	Path Length
				Pressure	Pressure
				Temperature	Mode
					Fixed Value
					Ambient Coefficient
				Concentration	Gas1
					Gas2
		Units			Path Length
					Pressure
					Temperature
		Average			Average number
					Average time
		Zero Offset			Zero offset for Gas1
					Zero offset for Gas2

TDLS8200

The menu shown here is for the TDLS8200 with 3-gas measurement specifications; some items may not be displayed for the TDLS8200 with 2-gas measurement specifications.

1st	2nd	3rd	4th	Tab	Item
Execution	Calibration	Manual	Zero Calibration		Zero Calibration
			Span Calibration		Span Calibration
		Restore	Zero Calibration	LD1	Restore Zero Calibration data (LD1)
				LD2 (*1)	Restore Zero Calibration data (LD2)
			Span Calibration	Gas1	Restore Span Calibration data (Gas1)
				Gas2	Restore Span Calibration data (Gas2)
				Gas3	Restore Span Calibration data (Gas3)
		Clear Calibration Alarm			Clear Calibration Alarm
	Validation	Manual	Offline Validation 1		Offline Validation 1
			Offline Validation 2		Offline Validation 2
			Online Validation 1		Online Validation 1
			Online Validation 2		Online Validation 2
		Semi auto	Online Validation 1		Online Validation 1
			Online Validation 2		Online Validation 2
		Clear Validation Alarm			Clear Validation Alarm
	Blow Back				Blow Back
	Transmission Adjustment			LD1	Transmission Adjustment (LD1)
				LD2 (*1)	Transmission Adjustment (LD2)
	Loop Check			Analog Output	AO-1 Loop check mode
					AO-1 Check output
					AO-2 Loop check mode
					AO-2 Check output
					AO-3 Loop check mode
					AO-3 Check output
					AO-4 Loop check mode
					AO-4 Check output
					AO-5 Loop check mode
					AO-5 Check output
				Digital Output	DO Loop check mode
					DO Check output
					Fault Loop check mode
					Fault Check output
				Valve	SV-1 Loop check mode
					SV-1 Check output
					SV-2 Loop check mode
					SV-2 Check output
				Auto Release	Auto release time
	System	Piezoelectric sensor diagnosis			Piezoelectric sensor diagnosis

1st	2nd	3rd	4th	Tab	Item
Configuration	I/O	Analog Output	AO-1	Output	Item
					4 mA
					20 mA
				Hold mode	Warning
					Delay
					Fault
					Delay
					Cal/Val/Blow Back
					Maintenance
					Warm-up
				Calibration	Execute AO-1 Calibration
			AO-2	Output	Item
					4 mA
					20 mA
				Hold mode	Warning
					Delay
					Fault
					Delay
					Cal/Val/Blow Back
					Maintenance
					Warm-up
				Calibration	Execute AO-2 Calibration
			AO-3	Output	Item
					4 mA
					20 mA
				Hold mode	Warning
					Delay
					Fault
					Delay
					Cal/Val/Blow Back
					Maintenance
					Warm-up
				Calibration	Execute AO-3 Calibration
			AO-4	Output	Item
					4 mA
					20 mA
				Hold mode	Warning
					Delay
					Fault
					Delay
					Cal/Val/Blow Back
					Maintenance
					Warm-up
				Calibration	Execute AO-4 Calibration
			AO-5	Output	Item
					4 mA
					20 mA
				Hold mode	Warning
					Delay
					Fault
					Delay
					Cal/Val/Blow Back
					Maintenance
					Warm-up
				Calibration	Execute AO-5 Calibration
		Analog Input	AI-1 (Pressure)	Scaling	4mA value
					20mA value
				Calibration	Execute A1-1 Calibration
			AI-2 (Temperature)	Scaling	4mA value
					20mA value
				Calibration	Execute A1-2 Calibration
		Digital Output	DO-1 (DO)		Output item
					Output delay
			DO-2 (Fault)		Output delay
		Digital Input	DI-1		Mode
					Filter time
			DI-2		Mode
					Filter time
		Valve Control			Valve Usage

1st	2nd	3rd	4th	Tab	Item
(Configuration)	Alarm				L1 Transmission Low
					L2 Transmission Low
					Process Pressure Low
					Process Pressure High
	Alarm				Process Temperature Low
					Process Temperature High
					Concentration Gas1 Low
					Concentration Gas1 High
					Concentration Gas2 Low
					Concentration Gas2 High
					Concentration Gas3 Low
					Concentration Gas3 High
	Calibration	Zero Calibration (*1)		Target ID	LD1
					LD2
					Both
		Span Calibration		Parameters	Gas type
					Concentration
					Pressure
					Fixed value
					Temperature
					Fixed value
					OPL
					Fixed value
	Validation	Offline Validation 1		Parameters	Gas type
					Concentration
					Pressure
					Fixed value
					Temperature
					Fixed value
					OPL
					Fixed value
		Offline Validation 2		Parameters	Gas type
					Concentration
					Pressure
					Fixed value
					Temperature
					Fixed value
					OPL
					Fixed value
		Online Validation 1		Parameters	Gas type
					Concentration
					Pressure
					Temperature
					Offset Value
					Fixed Value
					OPL
				Valve	Validation gas Purge time
					Normal gas Purge time
					Auto Valve for Manual Val.
				Auto Time	Time Initiate
					Initial time
					Cycle(day)
					Cycle(hour)
				Reading mode	Mode
					Output Factor
		Online Validation 2		Parameters	Gas type
					Concentration
					Pressure
					Temperature
					Offset Value
					Fixed Value
					OPL
				Valve	Validation gas Purge time
					Normal gas Purge time
					Auto Valve for Manual Val.
				Auto Time	Time Initiate
					Initial time
					Cycle(day)
					Cycle(hour)
				Reading mode	Mode
					Output Factor

1st	2nd	3rd	4th	Tab	Item
(Configuration)	Blow Back			Valve	Blow Back time
					Hold time
				Auto time	Time Initiate
					Initial time
					Cycle(day)
					Cycle(hour)
					Cycle (minute)
	System	Tag			Tag
		Date & Time			Operation
					Date
					Time
		Password			Current Password
					New Password
					Confirm New Password
		Local Display		SCU	Spectrum
					Brightness
					Contrast
		Communication	TCP/IP		IP Address
					Subnet Mask
					Default Gateway
			HART		HART Address
					Loop Current Mode
					SV
					TV
					QV
		Configuration Initialization			Setting data
					Calibration data for AO and AI
					Zero/Span Calibration data
					Tag, Network setting, Password
		Safety Mode			Safety Mode
	Analysis	Process Parameters		Path Length	Path Length
				Pressure	Mode
					Active Type
					Fixed Mode Value
					Backup Mode
					Backup Set Value
				Temperature	Mode
					Active Type
					Fixed Mode Value
					Backup Mode
					Backup Set Value
					Offset value
		Non-Process Parameter		Path Length	Path Length
				Pressure	Pressure
				Temperature	Mode
					Fixed Value
					Ambient Coefficient
				Concentration	Gas1
					Gas2
					Gas3
		Units			Path Length
					Pressure
					Temperature
		Average		LD1	Average number (LD1)
					Average time (LD1)
				LD2(*1)	Average number (LD2)
					Average time (LD2)
		Zero Offset			Zero offset for Gas1
					Zero offset for Gas2
					Zero offset for Gas3

*1: When the 1 laser specification is selected, the setting items are not displayed.

(2)YH8000 HMI unit operation panel

The YH8000 HMI unit setup and execution menu tree is shown below.

 => HMI =>

● TDLS8000, TDLS8100

1st	2nd	3rd	4th	Tab	Item
Analyzer Connection					Change IP
					Input Analyzer IP manually
					Select Analyzer by Auto-search
					Connect
					Disconnect
Display Setting	Home Style				Meter Type
	Meter range			Analyzer 1	Gas1 Min
					Gas1 Max
					Gas2 Min
					Gas2 Max
				Analyzer 2	Gas1 Min
					Gas1 Max
					Gas2 Min
					Gas2 Max
				Analyzer 3	Gas1 Min
					Gas1 Max
					Gas2 Min
					Gas2 Max
				Analyzer 4	Gas1 Min
					Gas1 Max
					Gas2 Min
					Gas2 Max
	Backlight				Brightness
					Auto Off
Network Setting					IP Address
					Subnet Mask
					Default Gateway
Language					Language
HMI Information					IP Address
					MAC address
					Software ver.

TDLS8200

1st	2nd	3rd	4th	Tab	Item
Analyzer Connection					Change IP
					Input Analyzer IP manually
					Select Analyzer by Auto-search
					Connect
					Disconnect
Display Setting	Home Style				Meter Type
	Meter range			Analyzer 1	Gas1 Min
					Gas1 Max
					Gas2 Min
					Gas2 Max
					Gas3 Min
					Gas3 Max
				Analyzer 2	Gas1 Min
					Gas1 Max
					Gas2 Min
					Gas2 Max
					Gas3 Min
					Gas3 Max
				Analyzer 3	Gas1 Min
					Gas1 Max
					Gas2 Min
					Gas2 Max
					Gas3 Min
					Gas3 Max
				Analyzer 4	Gas1 Min
					Gas1 Max
					Gas2 Min
					Gas2 Max
					Gas3 Min
					Gas3 Max
	Backlight				Brightness
					Auto Off
Network Setting					IP Address
					Subnet Mask
					Default Gateway
Language					Language
HMI Information					IP Address
					MAC address
					Software ver.

Appendix 3 Explosion Protected Type Instrument

In this chapter, further requirements and differences for explosion proof type instrument are described. For explosion protected type, the description in this chapter is prior to other description in this User's Manual.

Refer to Japanese User's manual for YH8000-J2.

Refer to Korean User's manual for YH8000-K2.

Refer to Russian User's manual for YH8000-R2.

Refer to Portuguese User's manual for YH8000-U2.

Refer to Chinese User's manual for YH8000-N2.

CAUTION

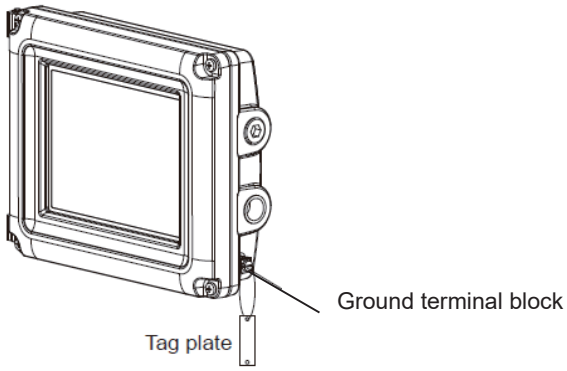
YH8000 has been tested and certified as being explosion proof. Please note that severe restrictions apply to these instruments' construction, installation, external wiring, maintenance, and repair. A failure to abide by these restrictions could make the instrument a hazard to operate.

WARNING

A modification of the equipment would no longer comply with the construction described in the certificate documentation.

WARNING

Tag plates, which are an option for the YH8000, should be secured with metal wire to an unpainted metal part, such as an external ground terminal, to prevent static electricity buildup.



Tag plate

YH8000-D2 (FM Approval for US)

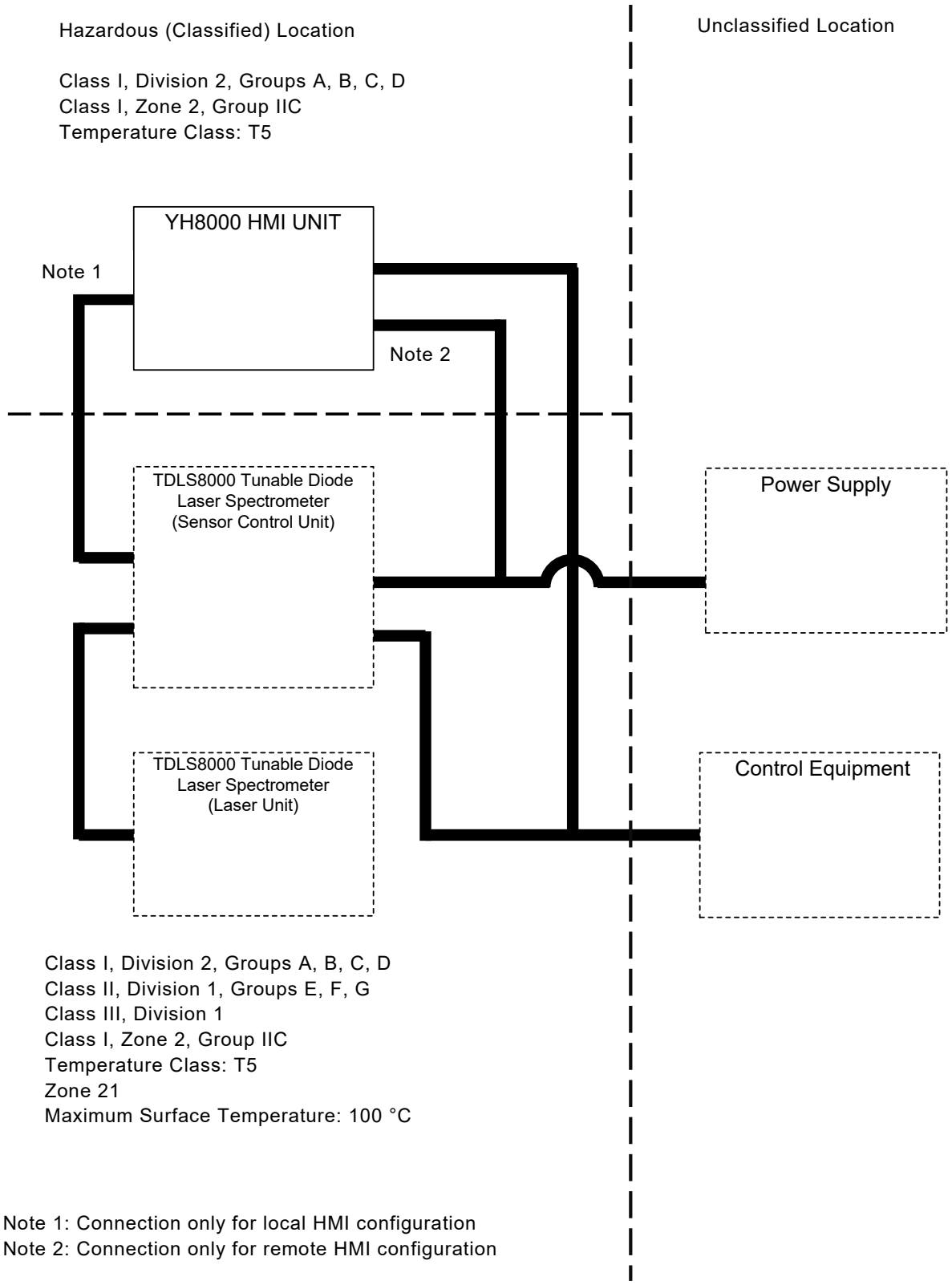
Yokogawa Electric Corporation		Model		YH8000			
Title	Instructions (US)						
No.	NFM030-A71	Page	1	Revision	2	Date	2020-11-20

Item	Descriptions
Applicable standards	FM 3600:2018 FM 3611:2018 FM 3810:2018 NEMA 250:2003 ANSI/UL 60079-0 Ed. 7 (2019) ANSI/UL 60079-11 Ed. 6 (2013) ANSI/UL 60079-15 Ed. 4 (2013) ANSI/UL 121201 Ed. 9 (2019) ANSI/UL 61010-1 Ed. 3 (2012) ANSI/IEC 60529:2004
Specific Ex marking	Nonincendive for Class I; Division 2; Groups A, B, C, D; T5 Class I, Zone 2, AEx nA ic IIC T5 Gc
Ambient temperature	−20 °C ≤ Ta ≤ +55 °C
Enclosure	Type 4X, IP65
Pollution degree	2
Power supply	24 V DC ± 10 %
Power consumption	≤ 12 W
Signals	[Ethernet] Connector: RJ-45 connector Communication Speed: 100 Mbps

Yokogawa Electric Corporation		Model		YH8000	
Title	Instructions (US)				
No.	NFM030-A71	Page	2	Revision	2

Item	Descriptions
Specific conditions of use	Precautions shall be taken to minimize the risk from electrostatic discharge of painted parts and non-metallic parts of the enclosure.
Installation and erection	Installation must be in accordance with the National Electrical Code (NFPA 70) and relevant local codes.
	Cable entry devices suitable for the thread form and the size of the cable entries must be used, according to the following marking on the equipment. Marking: A — Screw size: ANSI 1/2 NPT Marking: M — Screw size: M20 (ISO)
	Screws of the field wiring terminals must be tightened with the specified torque value: 0.22 to 0.25 Nm.
	Field wiring for ethernet communication must be in accordance with IEEE 802.3 so as to avoid overvoltage of > 119 V.
	Tag plate which is provided as an option of YH8000 shall be hung by a wire and the wire shall be tightly bound to earth terminal block of the enclosure of YH8000, not to insulate electrically and to avoid electrostatic charging.
Use and setting-up (operation)	WARNING
	DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE MAY BE PRESENT
	POTENTIAL ELECTROSTATIC CHARGING HAZARD
	Electrostatic charge may cause an explosion hazard. Avoid any actions that cause the generation of electrostatic charge, such as rubbing with a dry cloth on coating face of product.
	Take care not to generate mechanical sparking when access to the instrument and peripheral devices in hazardous locations.
Maintenance and repair	WARNING
	When opening the cover, the enclosure should be dry and clean to prevent from ingress water or dust.
	A modification of the equipment would no longer comply with the construction described in the certificate documentation.
	Only personnel authorized by Yokogawa Electric Corporation can repair the equipment
	SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR DIVISION 2

Yokogawa Electric Corporation		Model		YH8000	
Title	Instructions (US)				
No.	NFM030-A71	Page	3	Revision	2



Note 1: Connection only for local HMI configuration
Note 2: Connection only for remote HMI configuration

YH8000-C2 (FM Approval for Canada)

Yokogawa Electric Corporation		Model		YH8000			
Title	Instructions (Canada)						
No.	NFM030-A72	Page	1	Revision	2	Date	2020-11-20

Item	Descriptions
Applicable standards	CAN/CSA-C22.2 No. 94.2-07 C22.2 No. 60079-0:19 CAN/CSA-C22.2 No. 60079-11:14 CAN/CSA-C22.2 No. 60079-15:16 CAN/CSA-C22.2 No. 61010-1-12 CAN/CSA-C22.2 No. 60529:05
Certificate number	FM21CA0035X
Specific Ex marking	Ex nA ic IIC T5 Gc
Ambient temperature	−20 °C ≤ Ta ≤ +55 °C
Enclosure	TYPE 4X, IP65
Pollution degree	2
Power supply	24 V DC ± 10 %
Power consumption	≤ 12 W
Signals	[Ethernet] Connector: RJ-45 connector Communication Speed: 100 Mbps

Yokogawa Electric Corporation		Model		YH8000	
Title	Instructions (Canada)				
No.	NFM030-A72	Page	2	Revision	2

Item	Descriptions
Specific conditions of use	Precautions shall be taken to minimize the risk from electrostatic discharge of painted parts and non-metallic parts of the enclosure.
Installation and erection	The installation must be in accordance with Canadian Electrical Code Part I (C22.1) and relevant local codes.
	Cable entry devices suitable for the thread form and the size of the cable entries must be used, according to the following marking on the equipment. Marking: A — Screw size: ANSI 1/2 NPT Marking: M — Screw size: M20 (ISO)
	Screws of the field wiring terminals must be tightened with the specified torque value: 0.22 to 0.25 Nm.
	Field wiring for ethernet communication must be in accordance with IEEE 802.3 so as to avoid overvoltage of > 119 V.
	Tag plate which is provided as an option of YH8000 shall be hung by a wire and the wire shall be tightly bound to earth terminal block of the enclosure of YH8000, not to insulate electrically and to avoid electrostatic charging.
Use and setting-up (operation)	WARNING
	DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE MAY BE PRESENT
	POTENTIAL ELECTROSTATIC CHARGING HAZARD
	Electrostatic charge may cause an explosion hazard. Avoid any actions that cause the generation of electrostatic charge, such as rubbing with a dry cloth on coating face of product.
	Take care not to generate mechanical sparking when access to the instrument and peripheral devices in hazardous locations.
Maintenance and repair	WARNING
	When opening the cover, the enclosure should be dry and clean to prevent from ingress water or dust.
	A modification of the equipment would no longer comply with the construction described in the certificate documentation.
	Only personnel authorized by Yokogawa Electric Corporation can repair the equipment

YH8000-S2 (ATEX Declaration)

(1) Technical Data

- Applicable standards

  EN IEC 60079-0:2018

  EN 60079-11: 2012

  EN 60079-15: 2010

- Ratings

  Ⓔx II 3 G Ex nA ic IIC T5 Gc

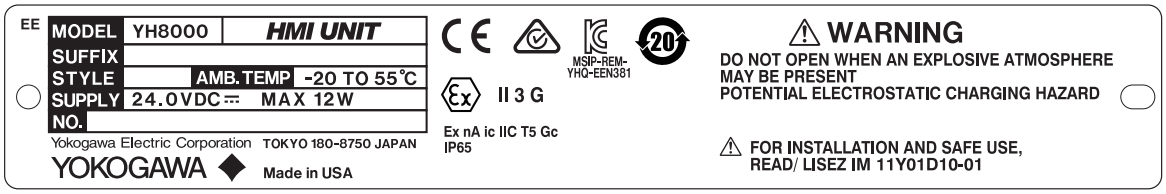
- Enclosure

  IP65 (In accordance with EN 60529)

- Specific condition of use

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

(2) Name Plate



(3) Installation

- Refer to chapter 2 for other than that described below.
- The installation must be in accordance with EN 60079-14 and relevant local codes.
- Screws of the field wiring terminals must be tightened with the specified torque value: 0.22 to 0.25 N•m.
- Field wiring for ethernet communication must be in accordance with IEEE 802.3 so as to avoid overvoltage of > 119 V.

WARNING

- DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE MAY BE PRESENT
- POTENTIAL ELECTROSTATIC CHARGING HAZARD
- FOR INSTALLATION AND SAFE USE, READ IM11Y01D01-01 OR IM11Y01D02-01

(4) Operation

- Refer to chapter 2 for other than that described below.

WARNING

- Electrostatic charge may cause an explosion hazard. Avoid any actions that cause the generation of electrostatic charge, such as rubbing with a dry cloth on coating face of product.
- Take care not to generate mechanical sparking when access to the instrument and peripheral devices in hazardous locations.

(5) Maintenance and Repair

Only personnel authorized by Yokogawa Electric Corporation can repair the equipment.

When opening the cover, the enclosure should be dry and clean to prevent from ingress water or dust.

YH8000-E2 (IECEx Certification)

(1) Technical Data

- Applicable standards

  IEC 60079-0: 2017

  IEC 60079-11: 2011

  IEC 60079-7: 2017
- Certificate No.

  IECEx FMG 15.0016X
- Ratings

  Ex ec ic IIC T5 Gc
- Enclosure

  IP65 (In accordance with IEC 60529)
- Specific condition of use

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

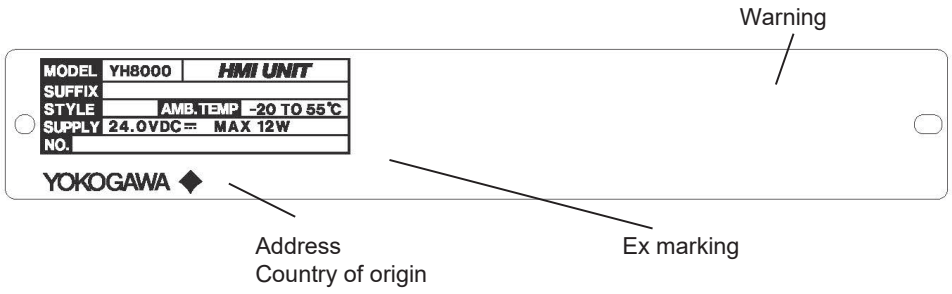
  The equipment shall only be used in an area of not more than pollution degree 2, as defined in IEC 60664-1.

(2) Name Plate

MODEL:	Specified model code
SUFFIX:	Specified suffix code
STYLE:	Specified style code
AMB.TEMP:	Specified ambient temperature range
SUPPLY:	Specified supply voltage and wattage
NO.:	Serial number
Ex marking:	Ex ec ic IIC T5 Gc IP65 No. IECEx FMG 15.0016X

Warning: DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE MAY BE PRESENT.
POTENTIAL ELECTROSTATIC CHARGING HAZARD.
FOR INSTALLATION AND SAFE USE, READ IM mmmm

Note: “mmmm” means document number of user’s manual.



(3) Installation

- Refer to chapter 2 for other than that described below.
- The installation must be in accordance with IEC 60079-14 and relevant local codes.
- Screws of the field wiring terminals must be tightened with the specified torque value: 0.22 to 0.25 N•m.
- Field wiring for ethernet communication must be in accordance with IEEE 802.3 so as to avoid overvoltage of > 119 V.

WARNING

- DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE MAY BE PRESENT
- POTENTIAL ELECTROSTATIC CHARGING HAZARD
- FOR INSTALLATION AND SAFE USE, READ IM11Y01D01-01 OR IM11Y01D02-01

(4) Operation

- Refer to chapter 2 for other than that described below.

WARNING

- Electrostatic charge may cause an explosion hazard. Avoid any actions that cause the generation of electrostatic charge, such as rubbing with a dry cloth on coating face of product.
- Take care not to generate mechanical sparking when access to the instrument and peripheral devices in hazardous locations.

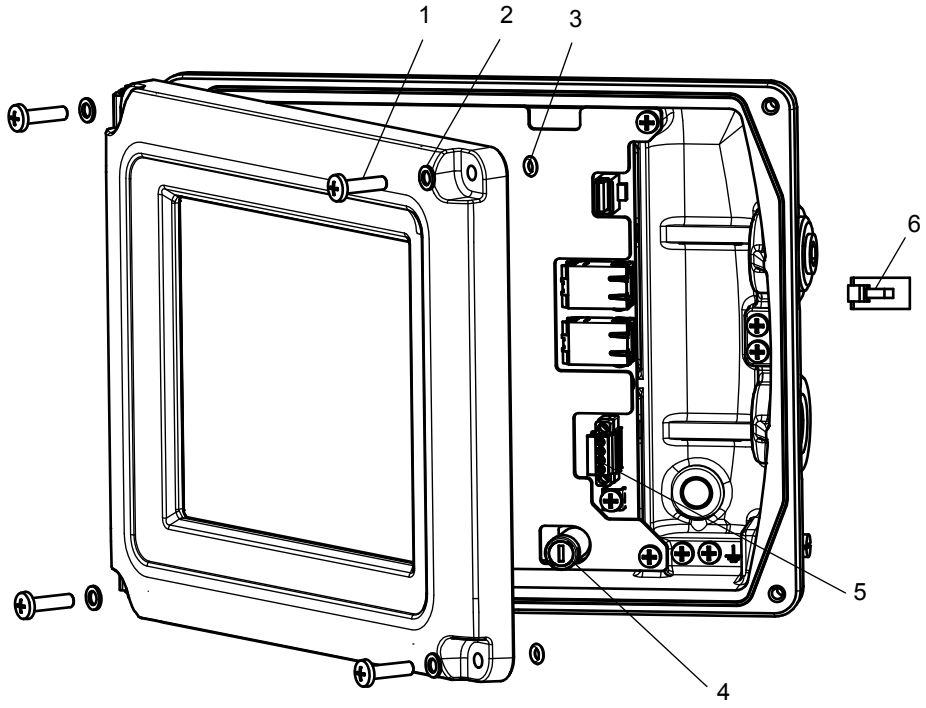
(5) Maintenance and Repair

Only personnel authorized by Yokogawa Electric Corporation can repair the equipment.

When opening the cover, the enclosure should be dry and clean to prevent from ingress water or dust.

Customer Maintenance Parts List

YH8000
HMI Interface Unit for TDLS8000



Item	Part No.	Qty	Description
1	K9774CR	4	Screw
2	Y9500WU	4	Washer
3	Y9102XA	4	O-ring for screw
4	A1633EF	1	Fuse
5	A3433JQ	1	Power connector
6	A1633JZ	1	RJ45 connector

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