
User's Manual

AQ7292A, AQ7293A, AQ7294A, AQ7293F, AQ7293H, AQ7294H OTDR Getting Started Guide

Thank you for purchasing the AQ7290 series AQ7292A, AQ7293A, AQ7294A, AQ7293F, AQ7293H, AQ7294H OTDR (Optical Time Domain Reflectometer). This Getting Started Guide focuses on the handling precautions, basic operations, and specifications of this instrument. To ensure correct use, please read this manual thoroughly before operation. Keep this manual in a safe place for quick reference. The following manuals, including this one, are provided as manuals for this instrument. Please read all manuals.

List of manuals

Manual Title	Manual No.	Description
AQ7292A, AQ7293A, AQ7294A, AQ7293F, AQ7293H, AQ7294H OTDR User's Manual	IM AQ7290-01EN	A PDF file of the manual is contained in the internal memory of this instrument. The manual explains all the features and how to use them. For instructions on how to view the manual, see page 18.
AQ7292A, AQ7293A, AQ7294A, AQ7293F, AQ7293H, AQ7294H OTDR Getting Started Guide	IM AQ7290-02EN	This manual. The guide explains the handling precautions and basic operations of this instrument and provides a list of specifications.
AQ7292A, AQ7293A, AQ7294A, AQ7293F, AQ7293H, AQ7294H OTDR Communication Interface User's Manual	IM AQ7290-17EN	A PDF file of the manual is contained in the internal memory of this instrument. The manual explains the communication interface features of this instrument and how to use them. For instructions on how to view the manual, see page 18.
AQ7292A, AQ7293A, AQ7294A, AQ7293F, AQ7293H, AQ7294H OTDR	IM AQ7290-92Z1	A manual for China.
Model 739883 Battery Pack Handling Precautions	IM 739883-01EN	Explains the handling precautions for the battery pack.
739883 Battery Pack	IM 739883-92Z1	A manual for China.
Safety Instruction Manual	IM 00C01C01-01Z1	Safety manual (European languages)

* The "EN" and "Z1" in the manual numbers are the language codes.

Contact information of Yokogawa offices worldwide is provided on the following sheet.

Document No.	Description
PIM 113-01Z2	List of worldwide contacts

Notes

- The contents of this manual are subject to change without prior notice as a result of improvements to the instrument's performance and functionality. Refer to our website to view our latest manuals.
- The figures given in this manual may differ from those that actually appear on your screen.
- Every effort has been made in the preparation of this manual to ensure the accuracy of its contents. However, should you have any questions or find any errors, please contact your nearest YOKOGAWA dealer.
- Copying or reproducing all or any part of the content of this manual without the permission of YOKOGAWA is strictly prohibited.

Trademarks

- Microsoft, Windows, Windows 10, and Windows 11 are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
- Adobe and Acrobat are trademarks of Adobe Systems Incorporated.
- In this manual, the ® and TM symbols do not accompany their respective registered trademark or trademark names.
- Other company and product names are registered trademarks or trademarks of their respective holders.

Updating the firmware

It is recommended to update the firmware to the latest version to improve the features and usability of this instrument. Download the latest firmware from the YOKOGAWA website, or contact your nearest YOKOGAWA dealer for details.

Revisions

April 2025

1st Edition

User Registration

YOKOGAWA provides registered users with useful information and services.
Please allow us to serve you best by completing the user registration form accessible from our website.

<https://tmi.yokogawa.com/support/>



Contact Us

If you want to resolve a technical support issue or need to contact YOKOGAWA, please fill out the inquiry form on our website.

<https://tmi.yokogawa.com/contact/>

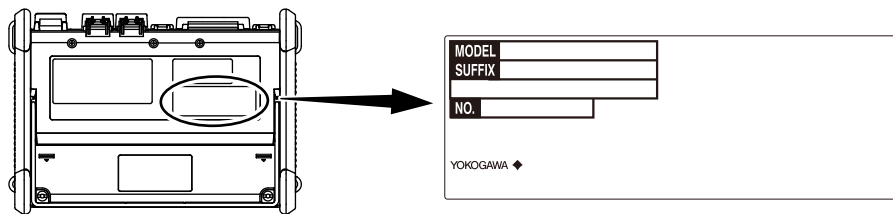


Checking the package contents

After receiving the product and opening the package, check the items described below. If the wrong items have been delivered, if items are missing, or if there is a problem with the appearance of the items, contact your nearest YOKOGAWA dealer.

Check that the product that you have received is the same product that you ordered. For reference, the model name, suffix code, and specifications of the products are listed below.

AQ7292A, AQ7293A, AQ7294A, AQ7293F, AQ7293H, AQ7294H



Model	Suffix ¹	Description
AQ7292A		2 wavelengths 1310 / 1550 nm, DR 39 / 37 dB (typ)
AQ7293A		2 wavelengths 1310 / 1550 nm, DR 43 / 42 dB (typ)
AQ7294A		2 wavelengths 1310 / 1550 nm, DR 47 / 47 dB (typ)
AQ7293F		3 wavelengths 1310 / 1550 , 1650 nm with filter, DR 43 / 42 , 40 dB (typ)
AQ7293H		3 wavelengths 1310 / 1550 / 1625 nm, DR 43 / 42 / 40 dB (typ)
AQ7294H		3 wavelengths 1310 / 1550 / 1625 nm, DR 47 / 47 / 45 dB (typ)
Language	-HE	English (Multi language ²)
	-HC	Chinese/English
	-HM	Chinese
	-HK	Korean/English
	-HR	Russian/English

Model	Suffix ¹	Description
Optical connector	-USC	Universal adapter (SC)
	-UFC	Universal adapter (FC)
	-ASC	Universal adapter (SC Angled-PC) ³
	-NUA	No universal adapter
Options	/SPM	Standard optical power meter
	/HPM	High power optical power meter
	/PC	Power checker ⁴
	/VLS	Visible light source
	/FST	Fiber surface test function
	/MNT	Monitoring function
	/LAN	Ethernet
	/SB	Shoulder belt

1 For products whose suffix code contains "Z," an exclusive manual may be included. Please read it along with the standard manual.

2 For details on multi language, see the options displayed in the language setup menu.

3 The standard optical power meter (/SPM), high-power optical power meter (/HPM) are SC type.
Select SU2005A-SCC when purchasing the universal adapter, an accessory sold separately. (SU2005A-FCC cannot be used.)

4 Not available for port 2 of the AQ7293F.

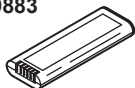
No. (instrument number)

When contacting the dealer from which you purchased the instrument, please tell them the instrument number.

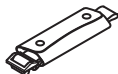
Accessories

The instrument is shipped with the following accessories. Make sure that all accessories are present and undamaged.

Battery pack
(lithium-ion)
739883



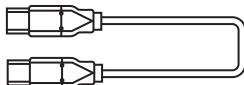
Hand strap
B8070CX



Shoulder strap (/SB)
B8070CY¹

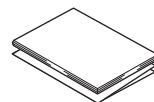


USB Type-C cable
A1681WL (approx. 1 m)



Manuals²

- **IM AQ7290-02EN** (this manual)
- **IM 739883-01EN** (for battery pack)
- **PIM 113-01Z2** (list of worldwide contacts)
- **IM AQ7290-92Z1** (for China)
- **IM 739883-92Z1** (for China)
- **IM 00C01C01-01Z1**



- 1 Included with models that have the /SB option installed.
- 2 IM AQ7290-01EN and IM AQ7290-17EN are contained in a PDF file in this instrument internal memory. A printed manual can also be purchased separately. Contact your nearest YOKOGAWA dealer to purchase a copy.

Optional accessories (sold separately)¹

The following optional accessories are available for purchase separately. For information about ordering accessories, contact your nearest YOKOGAWA dealer.

Name	Model or Component Number	Notes	Manual No.
Soft carrying case	739860	—	—
Battery pack	739883	—	IM 739883-01EN
Shoulder strap	B8070CY	—	—
Additional option license for AQ7290 series	735052-MNT	Monitoring function	IM 735052-01EN
	735052-FST	Fiber surface test function	
LCSC conversion adapter	735483-LSS	—	—
Universal adapter (SC)	SU2005A-SCC	For the OTDR port (SC type)	—
Universal adapter (FC)	SU2005A-FCC	For the OTDR port (FC type) ²	—
Connector adapter (SC)	735480-SCC	For the OPM ports (SC type). For the /SPM or /HPM option.	—
Connector adapter (FC)	735480-FCC	For the OPM ports (LC type). For the /SPM or /HPM option.	—
Ferrule adapter (Ø1.25)	735481-LMC	For the OPM ports. For the /SPM or /HPM option.	—
Ferrule adapter (Ø2.5)	735481-SFC	For the OPM ports. For the /SPM or /HPM option.	—
AQ3550 Optical switch box	AQ3550-112-SA-SCC	1x12, SMF, SC/PC type	IM AQ3550-01EN

Appreciation software(Sold separately)

Name	Model or Component Number	Manual No.
Emulation software	AQ7933	IM AQ7933-01EN

Software for PC. Analysis of trace data function,
report creation wizard function.

- 1 Accessories (sold separately) are not covered by warranty.
- 2 Cannot be used with the instrument whose SUFFIX (suffix code) is -ASC.

Conventions Used in This Guide

Notes

The notes and cautions in this guide are categorized using the following symbols.



Improper handling or use can lead to injury to the user or damage to the instrument. This symbol appears on the instrument to indicate that the user must refer to the user's manual for special instructions. The same symbol appears in the corresponding place in the user's manual to identify those instructions. In the manual, the symbol is used in conjunction with the word "WARNING" or "CAUTION."

WARNING

Calls attention to actions or conditions that could cause serious or fatal injury to the user, and precautions that can be taken to prevent such occurrences.

CAUTION

Calls attention to actions or conditions that could cause light injury to the user or damage to the instrument or user's data, and precautions that can be taken to prevent such occurrences.

French



Une manipulation ou une utilisation incorrectes risquent de blesser l'utilisateur ou d'endommager l'instrument. Ce symbole apparaît sur l'instrument pour indiquer à l'utilisateur qu'il doit se reporter au manuel de l'utilisateur afin d'y lire les instructions spécifiques correspondantes. Ce même symbole apparaît à la section correspondante du manuel de l'utilisateur pour signaler lesdites instructions. Dans le manuel de l'utilisateur, ce symbole est accompagné des termes AVERTISSEMENT et ATTENTION.

AVERTISSEMENT

Attire l'attention sur des gestes ou des conditions susceptibles de provoquer des blessures graves (voire mortelles), et sur les précautions de sécurité pouvant prévenir de tels accidents.

ATTENTION

Attire l'attention sur des gestes ou des conditions susceptibles de provoquer des blessures légères ou d'endommager l'instrument ou les données de l'utilisateur, et sur les précautions de sécurité susceptibles de prévenir de tels accidents.

Note

Calls attention to information that is important for proper operation of the instrument.

Safety Precautions

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

The general safety precautions described herein must be observed during all phases of operation. If the instrument is used in a manner not specified in this guide, the protection provided by the instrument may be impaired.

This manual is an essential part of the product; keep it in a safe place for future reference. YOKOGAWA assumes no liability for the customer's failure to comply with these requirements.

The following symbols are used on this instrument.



Warning: handle with care. Refer to the user's manual or service manual. This symbol appears on dangerous locations on the instrument which require special instructions for proper handling or use. The same symbol appears in the corresponding place in the manual to identify those instructions.



Hazard, radiation of laser apparatus.



Direct current



Stand-by

French



Avertissement : À manipuler délicatement. Toujours se reporter aux manuels d'utilisation et d'entretien. Ce symbole a été apposé aux endroits dangereux de l'instrument pour lesquels des consignes spéciales d'utilisation ou de manipulation ont été émises. Le même symbole apparaît à l'endroit correspondant du manuel pour identifier les consignes qui s'y rapportent



Danger : Appareil laser à rayonnement.



Courant direct



Veille

Failure to comply with the precautions below could lead to injury or death.

WARNING

Use the instrument only for its intended purpose

This optical measuring instrument is designed to measure the optical characteristics of light sources and evaluate their performance. Do not use this instrument for anything other than as an optical measuring instrument.

Check the physical appearance

Do not use the instrument if there is a problem with its physical appearance.

Battery pack

- Only use the battery pack for this instrument. Do not use this battery pack with other instruments. Only use this instrument to charge the battery pack.
- Use only the supplied USB cable to charge the instrument.
- With the instrument turned off, when the battery pack is charged using the USB-AC adapter that YOKOGAWA recommends, if the battery pack is still charging after 6 hours, stop charging it immediately.
- Do not charge the instrument under direct sunlight (such as on the car dashboard or by a window), inside a vehicle under the blazing sun, near a stove or other heat source, or other hot locations.
- Your clothing may be damaged or you may be injured if you come in contact with the electrolyte in the battery due to fluid leakage or the battery exploding. Because the electrolyte may cause loss of eyesight, if it comes in contact with your eyes, immediately wash the affected area with clean water, and consult a doctor as soon as possible.
- Do not throw the instrument into fire or heat it. Such actions are dangerous as they may cause the battery to explode or the electrolyte to be sprayed about.
- For information on transporting lithium-ion batteries by air, see the requirement for each packing instruction (lithium battery packing instruction) in the latest IATA Dangerous Goods Regulations.
- Follow the additional handling precautions that are included in the battery pack's user's manual.

Laser beam

Do not look directly or indirectly into the laser beam or at a specular reflection of the beam without protective equipment. Do not aim the laser beam at the eye. Doing so may cause blindness or damage to your eyes. Attach the cover to the optical connector when it is not in use. Be sure to turn off this instrument before you clean it.

Connecting optical fiber cables

Use optical fiber cables that are compatible with the universal adapter (the universal adapter is specified with a suffix code).

Apply correct signals to the optical connectors

Do not apply light that is -5 dBm or greater to the optical connector of the OTDR port (PORT1 and PORT2).

Do not apply light that is $+10$ dBm or greater to the OPM (/SPM).

Do not apply light that is $+27$ dBm or greater to the high power OPM (/HPM).

Doing so can damage the instrument.

Type-A USB port

Only use the USB memory devices, fiber inspection probes, and communication dongles recommended by YOKOGAWA. YOKOGAWA provides no guarantee if you use the device that YOKOGAWA do not recommend. This instrument may be powered off without alarm forcibly if you use the device that YOKOGAWA do not recommend.

Do not operate in an explosive atmosphere

Do not use the instruments in the presence of flammable gasses or vapors. Doing so is extremely dangerous.

Do not remove the covers or disassemble or alter the instrument

Only qualified YOKOGAWA personnel may remove the covers and disassemble or alter the instrument.

Installation position

Using a stand in an unstable location is extremely dangerous. If you are installing the instrument using a stand, install in a stable location.

CAUTION

Operating environment limitations

This product is a Class A (for industrial environments) product. Operation of this product in a residential area may cause radio interference in which case the user will be required to correct the interference.

AVERTISSEMENT

Utiliser l'instrument aux seules fins prévues

Cet instrument de mesure optique est prévu pour mesurer les caractéristiques optiques des sources lumineuses et évaluer leur performance. Ne pas utiliser cet instrument à d'autres fins que celles de mesure optique.

Inspecter l'apparence physique

Ne pas utiliser l'instrument si son intégrité physique semble être compromise.

Pack de batteries

- Utilisez uniquement le bloc-batterie pour cet instrument. N'utilisez pas ce bloc-batterie avec d'autres instruments. Utilisez uniquement cet instrument pour charger le bloc-batterie.
- Utilisez uniquement le câble USB fourni pour charger l'instrument.
- Avec l'instrument hors tension, lorsque le pack de batteries est chargé à l'aide de l'adaptateur USB-CA recommandé par YOKOGAWA, si le pack de batteries est encore en charge après 6 heures, arrêter le chargement immédiatement.
- Ne pas charger l'instrument en plein soleil (par exemple sur le tableau de bord de la voiture ou sur le rebord d'une fenêtre), dans un véhicule stationné sous un soleil de plomb, à proximité d'une gazinière ou de toute autre source de chaleur ou dans tout autre endroit chaud.
- Pour plus d'informations sur le transport des batteries lithium-ion par voie aérienne, reportez-vous aux exigences de chaque instruction de conditionnement (instructions de conditionnement des batteries au lithium) dans les dernières réglementations IATA sur les marchandises dangereuses.
- Respecter les consignes de manipulation supplémentaires fournies dans le manuel d'utilisation du pack de batteries.

Faisceau laser

Ne pas fixer directement ou indirectement le faisceau laser, ni la réflexion spéculaire du faisceau en l'absence d'équipement de protection. Ne pas orienter le faisceau laser en direction des yeux. Le faisceau laser peut entraîner la cécité ou causer des lésions oculaires. Recouvrir le connecteur optique à l'aide du cache pendant les périodes de nonutilisation. Mettre cet instrument HORS tension pendant son nettoyage.

Connexion des câbles à fibre optique

Utiliser des connecteurs de câbles à fibre optique conformes à l'adaptateur universel fourni (adaptateur universel indiqué par le suffixe).

Envoyer les signaux corrects aux connecteurs optiques

Ne pas appliquer un signal de -5 dBm ou plus au connecteur optique du port OTDR (PORT1 et PORT2).

Ne pas appliquer de signal de +10 dBm ou plus au OPM (/SPM).

Ne pas appliquer de signal de +27 dBm ou plus au OPM haute puissance (/HPM).

Cela pourrait endommager l'instrument.

Port USB de Type-A

Utilisez uniquement les clés USB, les sondes d'inspection à fibre optique et les dongles de communication recommandés par YOKOGAWA. YOKOGAWA n'offre aucune garantie si vous utilisez un dispositif que YOKOGAWA ne recommande pas. Cet instrument peut être mis hors tension de force sans alarme si vous utilisez un dispositif que YOKOGAWA ne recommande pas.

Ne pas utiliser dans un environnement explosif

Ne pas utiliser l'instrument en présence de gaz ou de vapeurs inflammables. Cela pourrait être extrêmement dangereux.

Ne pas retirer le capot, ni démonter ou modifier l'instrument

Seul le personnel YOKOGAWA qualifié est habilité à retirer le capot et à démonter ou modifier l'instrument. Certains composants à l'intérieur de l'instrument sont à haute tension et par conséquent, représentent un danger.

Position d'installation

Lorsque vous manipulez les pieds ou le support escamotable, soutenez toujours l'instrument fermement. Prendre les précautions suivantes.

ATTENTION

Limitations relatives à l'environnement opérationnel

Ce produit est un produit de classe A (pour environnements industriels). L'utilisation de ce produit dans une zone résidentielle peut entraîner une interférence radio que l'utilisateur sera tenu de rectifier.

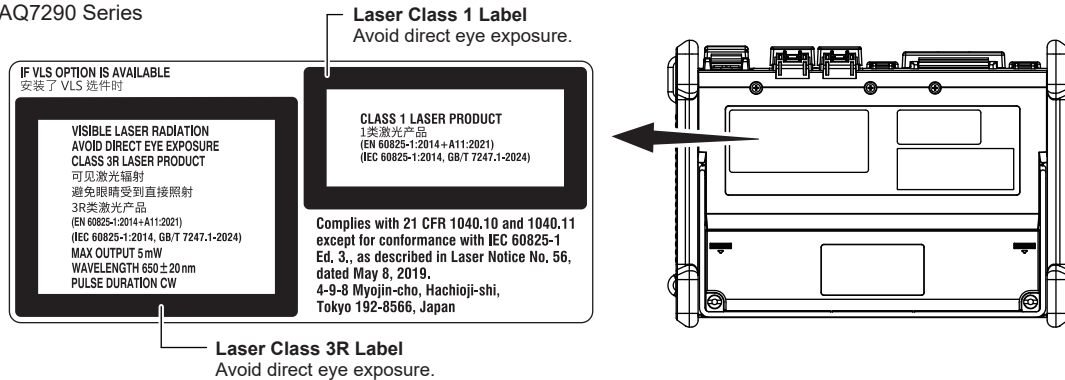
Safety precautions for laser products

This instrument uses a laser light source. This instrument is a Class 1 and Class 3R laser product as defined by IEC 60825-1:2014 Safety of Laser Products—Part1: Equipment Classification and Requirements. In addition, this instrument complies with 21 CFR 1040.10 and 1040.11 except for conformance with IEC 60825-1 Ed.3., as described in Laser Notice No. 56, dated May 8, 2019.

Laser classes differ depending on the standard number and the year of the standard.

Take safety measures according to the laser class corresponding to standard number and year of the country or region that the instrument will be used in.

AQ7290 Series



AQ7290 Series

Model	Class	Center Wavelength	Maximum Output Power ²	Mode Field Diameter	Beam Divergence
AQ7292A	1 ¹	1310 nm/1550 nm	CW: 50 mW, PULSE: 200 mW, PULSE width: 20 μs, Duty: ≤ 3.0%	9 μm	11.5°
AQ7293A	1 ¹	1310 nm/1550 nm	CW: 50 mW, PULSE: 200 mW, PULSE width: 20 μs, Duty: ≤ 3.0%	9 μm	11.5°
AQ7294A	1 ¹	1310 nm/1550 nm	CW: 140 mW, PULSE: 500 mW, PULSE width: 20 μs, Duty: ≤ 3.0%	9 μm	11.5°
AQ7293F	1 ¹	1310 nm/1550 nm, 1625 nm	CW: 50 mW, PULSE: 200 mW, PULSE width: 20 μs, Duty: ≤ 3.0%	9 μm	11.5°
AQ7293H	1 ¹	1310 nm/1550 nm/ 1625 nm	CW: 50 mW, PULSE: 200 mW, PULSE width: 20 μs, Duty: ≤ 3.0%	9 μm	11.5°
AQ7294H	1 ¹	1310 nm/1550 nm/ 1625 nm	CW: 140 mW, PULSE: 500 mW, PULSE width: 20 μs, Duty: ≤ 3.0%	9 μm	11.5°

1 EN 60825-1:2014+A11:2021, IEC 60825-1:2014, GB/T 7247.1-2024

2 Under single fault conditions.

Visible light source

Options	Class	Center Wavelength	Maximum Output Power ²	Mode Field Diameter	Beam Divergence
/VLS	3R ¹	650 nm	CW: 5 mW	9 μm	11.5°

1 EN 60825-1:2014+A11:2021, IEC 60825-1:2014, GB/T 7247.1-2024

2 Under single fault conditions.

Regulations and Sales in Various Countries and Regions

Waste electrical and electronic equipment (WEEE)



(EU WEEE Directive valid only in the EEA* and UK WEEE Regulation in the UK)

This product complies with the WEEE marking requirement. This marking indicates that you must not discard this electrical/electronic product in domestic household waste. When disposing of products in the EEA or UK, contact your local Yokogawa office in the EEA or UK respectively.

* EEA: European Economic Area

Batteries and waste batteries



(EU Battery Directive/Regulation valid only in the EEA and UK Battery Regulation in the UK)

Batteries are included in this product. This marking indicates they shall be sorted out and collected as ordained in the EU battery directive/Regulation and UK battery Regulation.

Battery type:

1. Lithium battery

When you need to replace batteries, contact your local Yokogawa office in the EEA or UK respectively.

2. Lithium-ion battery pack (739883)

When you dispose battery pack, do not disassemble it.

When you remove battery pack from this product and dispose it, discard it in accordance with domestic law concerning disposal. Take a right action on waste batteries, because the collection system in the EU on waste batteries are regulated.

For instructions on how to remove the battery pack, see pages 25 to 28 in this manual.

Recycle mark



Li-ion

Do not dispose together with normal garbage. To protect the environment, please dispose according to the recycling ordinances in your area.

Authorized representative in the EEA

Yokogawa Europe B.V. is the authorized representative of Yokogawa Test & Measurement Corporation for this product in the EEA. To contact Yokogawa Europe B.V., see the separate list of worldwide contacts, PIM 113-01Z2.

Compliance with the Radio Waves Act (Republic of Korea)

This product complies with the Radio Waves Act (Republic of Korea).

- 1) Trade Name: Yokogawa Test & Measurement Corporation
- 2) Model & Model Name: See the table below.
- 3) Date of Manufacture: Listed on the instrument
- 4) Manufacturer: Yokogawa Test & Measurement Corporation
- 5) Country of origin: Indonesia

Model	Model Name	Registration Website URL
AQ7292A, AQ7293A, AQ7294A, AQ7293F, AQ7293H, AQ7294H	OTDR	http://www.rra.go.kr/selform/IMY-EEN540-1

Disposal

When disposing of YOKOGAWA products, follow the laws and ordinances of the country or region where the products will be disposed of.

How to view the user's manual

The following PDF file is stored in the USERS_MANUAL folder in this instrument's internal memory.

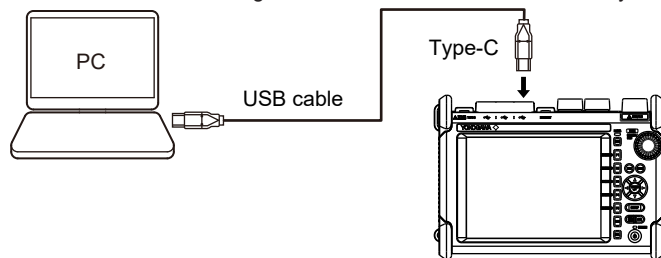
File Name	Manual Title	Manual No.
Features & Operation Manual_*.pdf	AQ7292A, AQ7293A, AQ7294A, AQ7293F, AQ7293H, AQ7294H OTDR User's Manual	IM AQ7290-01EN
Communication Interface_*.pdf	AQ7292A, AQ7293A, AQ7294A, AQ7293F, AQ7293H, AQ7294H OTDR Communication Interface User's Manual	IM AQ7290-17EN

Asterisk indicates the revision number.

To view the PDF data, you need Adobe Acrobat Reader or a software application that can open PDF data.

Follow the procedure below to open the PDF file.

1. Turn on the instrument.
2. Connect the type-C USB port near the center on the top panel of the instrument to the type-C USB port of the PC with the supplied USB cable. For a description of the top panel, see "Names and Functions of Parts" If the instrument is connected to the PC for the first time as a mass storage device, a USB driver is automatically installed in the PC.



AQ7290 Series

The ends of the USB cable supplied with the product are both Type-C. If the USB port on your PC is of a different type, prepare your own USB cable.

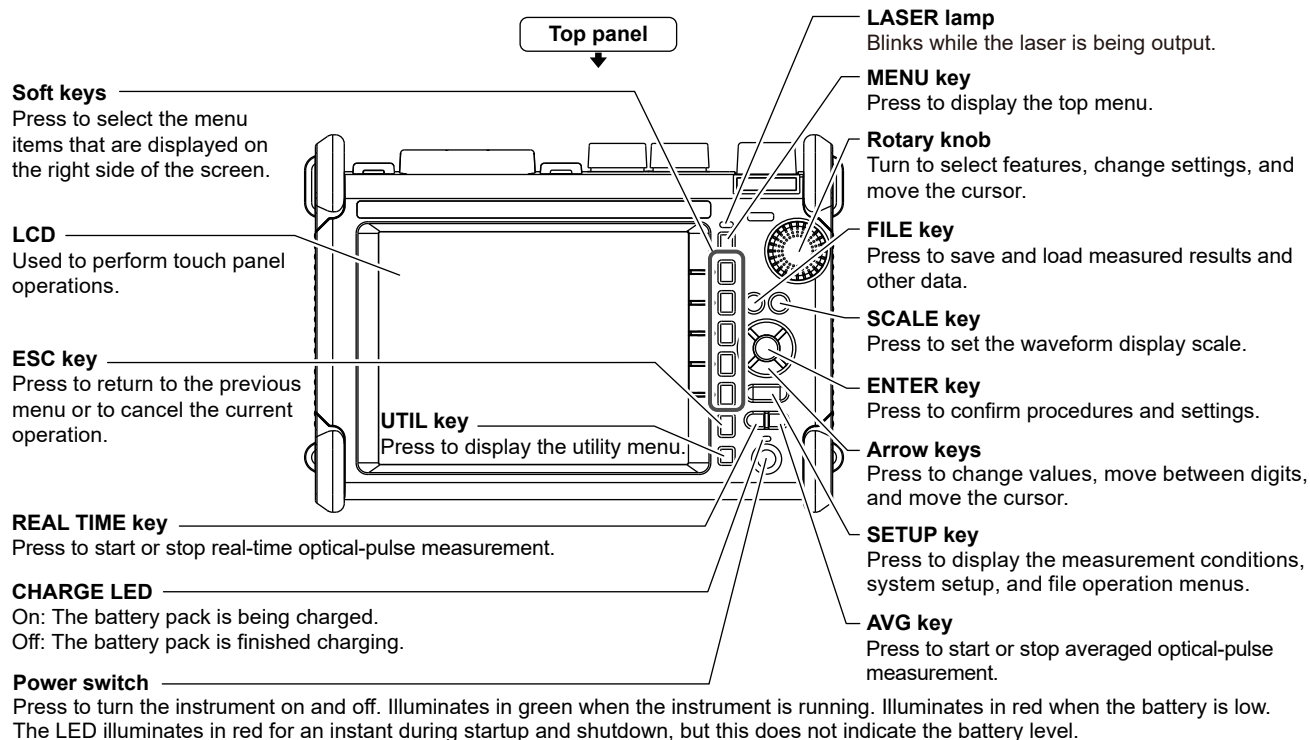
3. On your PC, start Explorer or other browser. The folders in the instrument's internal memory will be displayed.
4. Open the /USER/DATA/USERS_MANUAL folder. The following PDF file will be displayed.
5. Open the PDF file. The user's manual appears on the computer screen.

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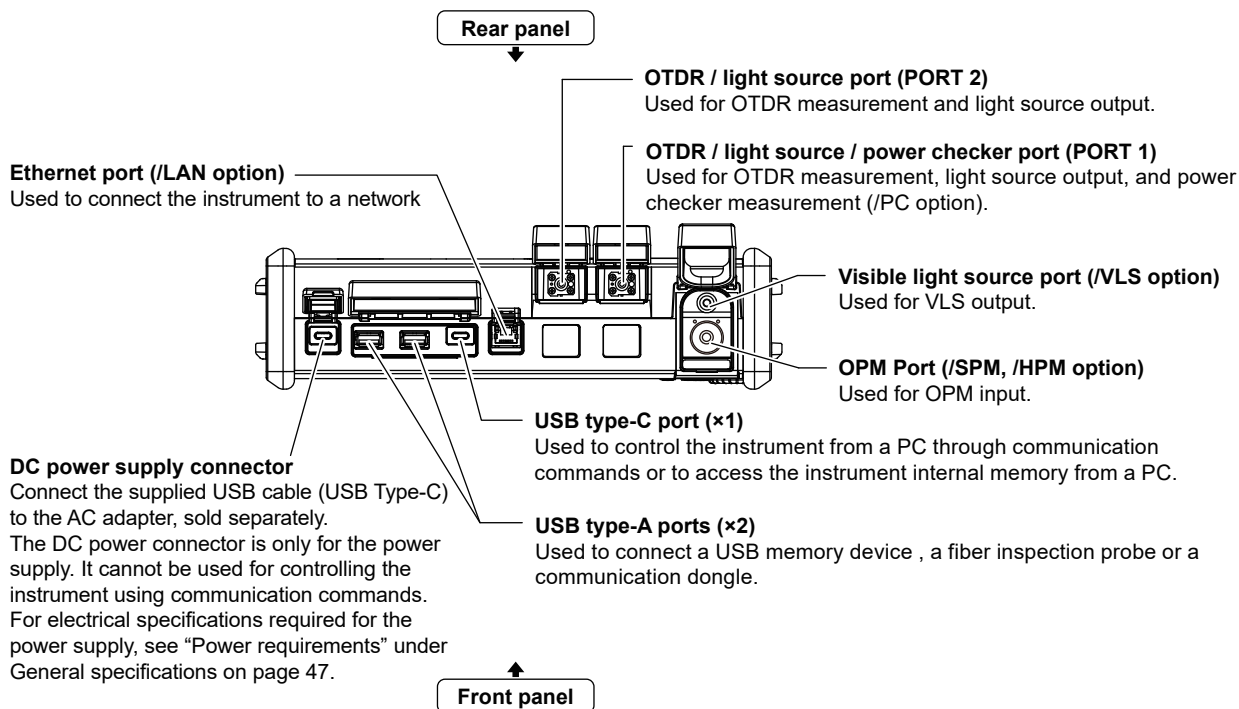
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Names and Functions of Parts

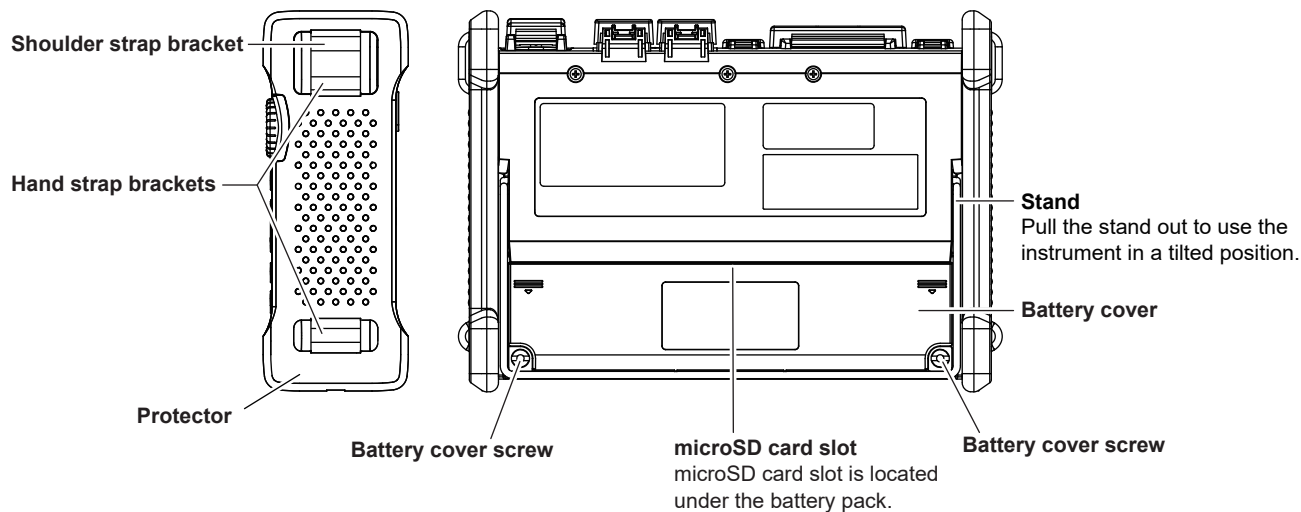
Front Panel



Top Panel



Rear and Side Panels



Making Preparations for Measurements

Operating Precautions

Safety Precautions

If you are using this instrument for the first time, make sure to thoroughly read “Safety Precautions,” on pages 8 to 15.

Do not remove the case

Do not remove the case from the instrument. Doing so is extremely dangerous. For internal inspection and adjustment, contact your nearest YOKOGAWA dealer.

Unplug if abnormal behavior occurs

If you notice smoke or unusual odors coming from the instrument, immediately turn off the power, unplug the USB-AC adapter, and contact your nearest YOKOGAWA dealer.

Handle the USB-AC adapter and USB cable properly

Do not place objects on top of the USB-AC adapter or USB cable, and keep them away from heat sources.

General Handling Precautions

Do not place objects on top of the instrument

Never place objects such as other instruments or objects that contain water on top of the instrument. Doing so may damage the instrument.

Do not subject the inputs and outputs to mechanical shock

If the I/O connectors or adapters are subjected to mechanical shock, they may be damaged. The instrument may not perform measurements correctly due to damage or deformation that is not visible to the naked eye.

Do not scratch the LCD

Because the LCD can be easily scratched, do not allow any sharp objects near it. Also, do not apply vibration or shock to it. Furthermore, do not apply strong shock to the LCD or place objects on top of it.

During extended periods of non-use

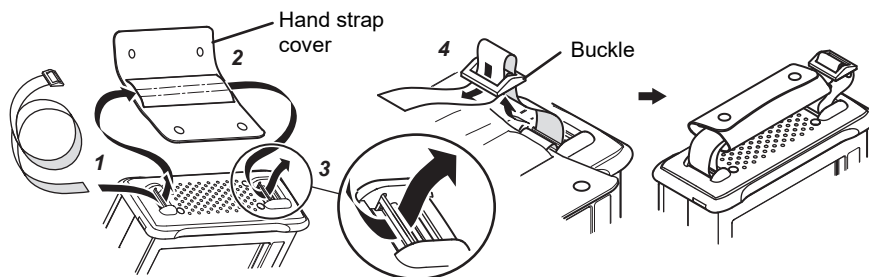
Unplug the USB-AC adapter from the outlet. Remove the battery pack from the instrument.

When carrying the instrument

First, remove all cables including the USB cable and optical fiber cable. When carrying the instrument, grasp the protector or the attached strap firmly.

Attaching the Strap

Attaching the Hand Strap

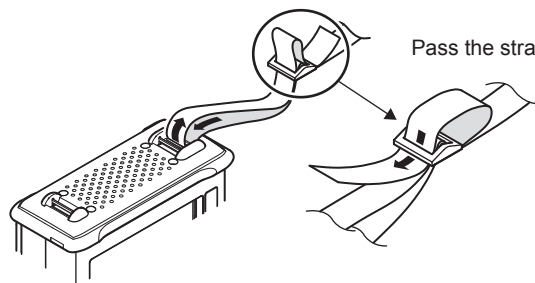


1. Pass the hand strap through the loop on the lower-left side of the instrument.
2. Pass the hand strap through the loop on the upper-left side of the instrument.
3. Pass the hand strap through the loop on the upper-left side of the instrument.
4. Pass the strap through the buckle, and use the buttons to close the hand strap cover.

Attaching the Shoulder Strap

Attach the shoulder strap to the shoulder strap brackets on the left and right sides of the instrument.

As shown in the figure, securely attach the shoulder strap by passing the strap through the top strap bracket on each side of the instrument and then pass it through the buckle.



Pass the strap through the buckle again so that it does not come loose.

Loading and Removing the Battery Pack



WARNING

- Do not connect or disconnect the battery pack while electricity is being supplied by the AC adapter.
- To prevent problems before they occur, periodically inspect the battery pack exterior to confirm that there is no damage such as cracks or deformations and to confirm that there is no fluid leakage.
- Only use 739883 battery pack. Do not use this battery pack with other instruments.
- Use the instrument to charge the battery pack. Maintain the correct environmental conditions when the battery pack is being charged. Failure to do so can cause fluid leakage, heating, smoke, explosions, or fire.
You need a separately sold AC adapter to charge the battery pack.
- Follow the handling precautions that are included in the battery pack's user's manual.
- The battery pack is made of lithium-ion cells. When transporting the instrument, remove the battery pack.
- For information on transporting lithium-ion batteries by air, see the requirement for each packing instruction (lithium battery packing instruction) in the latest IATA Dangerous Goods Regulations.

French



AVERTISSEMENT

- Ne pas installer, ni déposer le pack de batteries lorsque l'électricité est alimentée par l'adaptateur c.a.
- À titre préventif, inspecter régulièrement le boîtier extérieur du pack de batteries afin de détecter tout signe d'endommagement, comme l'apparition de fissures ou de déformations, et vérifier qu'il n'y a aucune fuite.
- Utiliser exclusivement le pack de batteries 739883. Ne pas utiliser ce pack de batteries avec d'autres instruments.
- Recharger le pack de batteries à l'aide de cet instrument. Respecter les consignes environnementales prescrites pour la recharge du pack de batteries, afin d'éviter les risques de fuite, de surchauffe, de fumée, d'explosion ou d'incendie.
L'adaptateur c.a. nécessaire pour recharger le pack de batteries est vendu séparément.
- Respecter les consignes de manipulation indiquées dans le manuel d'utilisation du pack de batteries.
- Le pack de batteries est composé de cellules au lithium-ion. Avant de transporter cet instrument, déposer le pack de batteries.
- Pour plus d'informations sur le transport des batteries lithium-ion par voie aérienne, reportez-vous aux exigences de chaque instruction de conditionnement (instructions de conditionnement des batteries au lithium) dans les dernières réglementations IATA sur les marchandises dangereuses.



CAUTION

The battery pack weights approximately 500 g. Be careful not to drop it on your feet or hands.

French



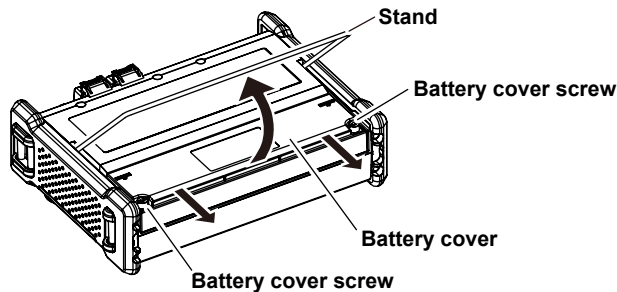
ATTENTION

Le pack de batteries pèse environ 500 g. Éviter de le laisser tomber sur les doigts ou les orteils.

Removing the battery cover of the instrument

On a soft, flat surface, place the instrument with the rear panel facing up.

1. Pull out the stand.
2. Loosen the battery cover screws with a coin or a flat-bladed screwdriver until the screw head moves up and down.
3. Slide the battery cover in the direction of the arrow, and remove it.

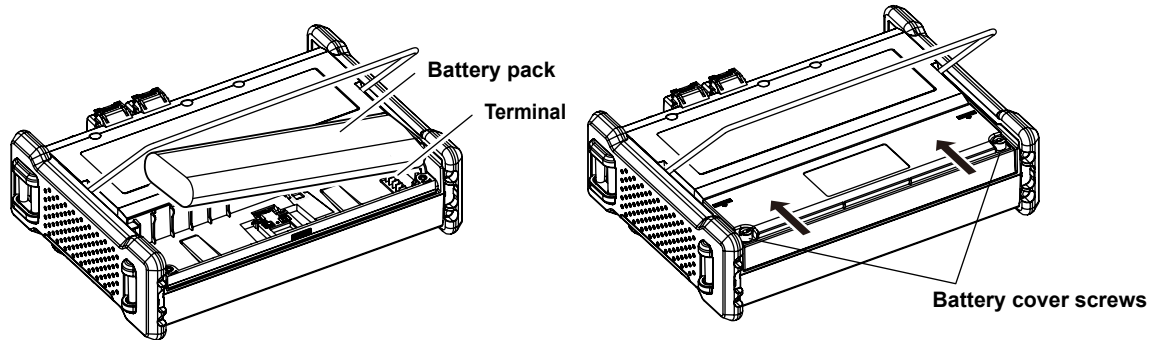


Loading the battery pack

1. Align the battery pack terminal with the instrument terminal, and place the battery pack in the holder. Gently push the battery pack so that the terminals become securely connected.
2. Place the battery cover slightly off the default position as shown in the figure.
3. Slide the battery cover in the direction of the arrow.
4. Check that the battery cover is not loose, and then fasten the attachment screws with a coin or a flat-bladed screwdriver. The proper tightening torque is about 0.6 N·m.

Note

Pressing the battery pack's TEST button turns on the indicator that shows the battery level; Illumination of the indicator does not mean a malfunction. The indicator will turn off after a while.



Removing the battery pack

1. In the same manner as when loading the battery pack, remove the battery cover.
2. With your fingers, lift the side that does not have the battery terminal.
3. Hold the battery pack securely, and lift it up.

Connecting the USB-AC Adapter and Charging the Battery Pack



WARNING

- Use the USB-AC adapter after confirming that the rated supply voltage matches the voltage of the power supply.
- Only use the USB-AC adapter that YOKOGAWA recommends.
- Use only the supplied USB cable.
- Do not connect or disconnect the AC adapter while the instrument is on.
- If you are using the instrument for a long time with the AC adapter connected, remove the battery pack from the instrument.

French

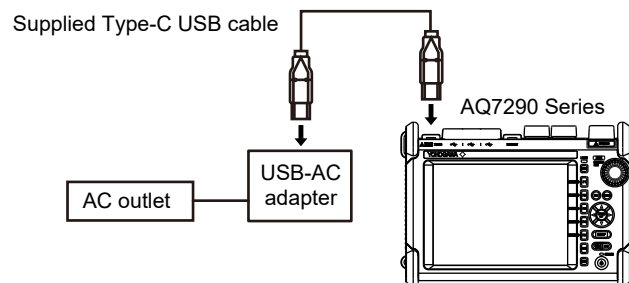


AVERTISSEMENT

- Utiliser l'adaptateur USB-CA après confirmation que la tension d'alimentation nominal correspond à la tension d'alimentation.
- Utiliser l'adaptateur USB-CA recommandé par YOKOGAWA.
- Utiliser uniquement le câble USB fourni.
- Ne pas brancher, ni débrancher l'adaptateur c.a. pendant que cet instrument est sous tension.
- Si cet instrument est utilisé de manière prolongée avec l'adaptateur c.a., retirer le pack de batteries de cet instrument.

Making Preparations for Measurements

1. Connect one end of the supplied USB cable to the DC power supply connector of the instrument.
2. Connect the other end of the cable to the type-C USB port of the USB-AC adapter.
3. Connect the USB-AC adapter's power plug to an outlet. The instrument's CHARGE indicator turns on red.

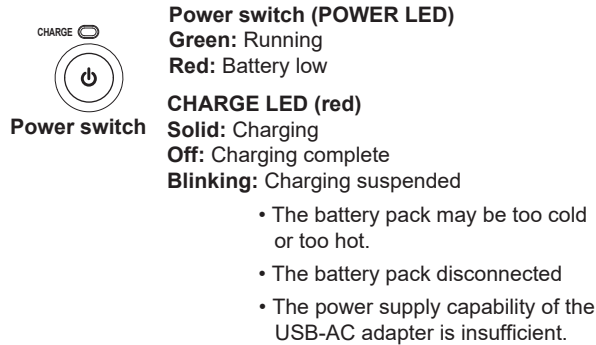


Note

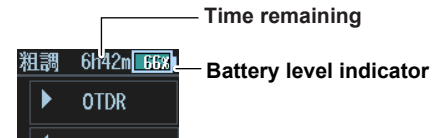
- If the instrument's connector cover comes off, bend the cover axle and reattach it.
- For details on the USB-AC adapter, contact your nearest YOKOGAWA dealer.
- The DC power connector is only for the power supply. It cannot be used for controlling the instrument using communication commands.
- The battery cannot be charged by connecting to a PC (YOKOGAWA provides no guarantee). Be sure to connect the USB-AC adapter to charge the battery.
- The power icon will blink when using a USB-AC adapter not recommended by YOKOGAWA that has insufficient power supply capability. Change to the USB-AC adapter recommended by YOKOGAWA.

Charging the battery pack

- When the battery is low, a warning message will appear.
- When the battery is low, use the USB-AC adapter to connect the instrument to an electrical outlet, and charge the battery pack. The battery level is indicated at the top of the screen with an estimated battery charge level (%) and time remaining. Use the battery level as a rough guideline.



Power supply status display



- Charging takes about 6 hours with the power turned off. If the instrument is charged with the power turned on, it may take longer than 15 hours, but charging will be suspended after about 15 hours by the protection circuit. If battery charging does not complete within 6 hours with the power turned off, stop immediately. The battery in the instrument may be malfunctioning. Contact your nearest YOKOGAWA dealer.
- Power supply icon
 Power supply icon blinks if the USB-AC adapter has insufficient power supply ability. In this case, the battery pack may not be fully charged because the battery level is reduced. Further use may cause the battery to run out completely.

Note

Over discharge and long periods of storage

- If you do not use the instrument for an extended period of time with the battery pack connected to it, the battery pack may become over discharged. This shortens the service life of the battery pack. To avoid over discharging, if you will not use the instrument for one week or longer, charge the battery pack, remove it from the instrument, and store the battery pack away from direct sunlight in a location that has an ambient temperature of 10°C to 30°C.
 - When you store the battery pack for six months or longer, to replace the power that has been lost through self discharge, recharge the battery using the instrument once every six months.
 - Avoid storing the battery pack for an extended period of time when it is fully charged (after it has just been charged) or when it has no power left (when the instrument will not turn on). Storing the battery pack under these conditions will degrade its performance and reduce its longevity. It is better to store the battery pack when it is 40% to 50% charged. This is equivalent to the state the battery is in after you turn off the instrument and charge an empty battery for an hour at room temperature.
 - Use the instrument to charge the battery pack prior to its first use or if it has not been used for an extended period of time.
-

Inserting and Removing an microSD Card

WARNING

Do not insert or remove a microSD card with the instrument turned on.

French

AVERTISSEMENT

N'insérez pas et ne retirez pas une carte microSD lorsque l'instrument est sous tension.

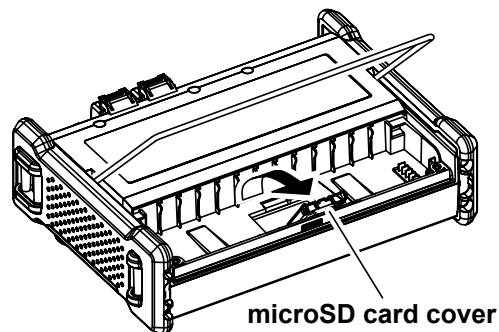
1. The microSD card slot is located under the battery pack. Follow the procedure in “Loading and Removing the Battery Pack” to remove the battery pack.
2. Pull up the microSD card cover.

Inserting a microSD Card

3. Insert a microSD card in the correct orientation as shown in the illustration next to the microSD card cover.
Push the microSD card until you hear a click.
4. Place the microSD card cover back on until you hear a click.
5. Follow the procedure in “Loading and Removing the Battery Pack” to load the battery pack.

Removing the microSD Card

3. Gently push the inserted microSD card further into the slot. The latch will disengage, and the microSD card will pop out. Remove the microSD card.
4. Place the microSD card cover back on until you hear a click.
5. Follow the procedure in “Loading and Removing the Battery Pack” to load the battery pack.



Connecting Optical Fiber Cables



WARNING

- When the instrument generates light, light is emitted from the light source ports. Do not disconnect the connected optical fiber cables. Visual impairment may occur if the light enters the eye.
- Close the covers of any light source ports that do not have optical fiber cables connected to them. On models with two or more light source ports, visual impairment may occur if light that is mistakenly emitted from the wrong port enters the eye.



CAUTION

- Insert the optical fiber cable connectors slowly and straight into the optical ports. If you shake the connector to the left and right or force it into the port, the optical connector or optical port may be damaged.
- If you use optical connectors that do not meet the specifications, the instrument optical ports may be damaged. Use optical connectors that are approved or used by national or local telecom carriers and providers in your area.
- Use optical fiber cable connectors that conform to the included universal adapter and connector adapter (the universal adapter specified by the suffix code).

Using SC angled physical contact connectors (suffix code -ASC)

- The SC angled physical contact connector's ferrule tip is angle-polished. Use optical fiber cables whose connectors are of the same type. Using a different type of connector may damage the connector end face.
- Only use SC-type (SU2005A-SCC) universal adapters on -ASC OTDR ports. Otherwise, the instrument optical ports or the optical fiber cable connectors may be damaged.

French

**AVERTISSEMENT**

- Lorsque cet instrument génère de la lumière, la lumière est émise à travers les ports de source lumineuse. Ne pas débrancher les câbles de fibre optique connectés. Des lésions oculaires peuvent être causées si le faisceau lumineux pénètre l'oeil.
- Couvrir les caches des ports de source lumineuse libres. Sur les modèles dotés de deux ports de source lumineuse ou plus, protéger les yeux contre l'émission accidentelle de lumière depuis le mauvais port.

**ATTENTION**

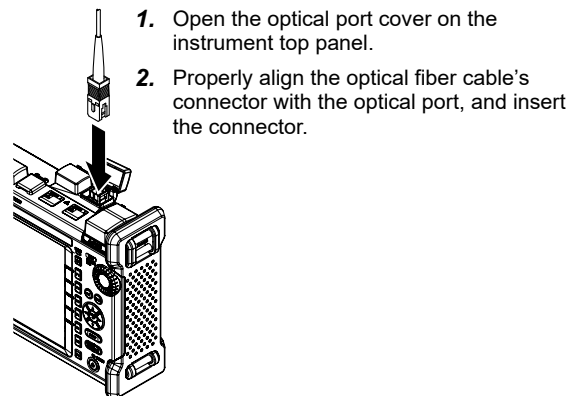
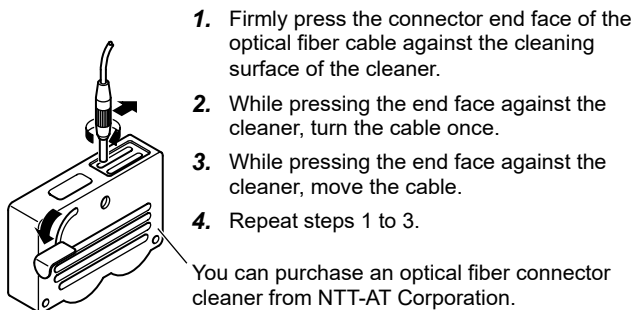
- Insérer les connecteurs de câbles à fibre optique délicatement et sans les incliner dans les ports optiques. Éviter de faire pression sur le connecteur ou de forcer pour l'insérer dans le port, car cela pourrait endommager le connecteur optique ou le port optique.
- Toujours utiliser des connecteurs optiques conformes aux spécifications, à défaut de quoi les ports optiques de cet instrument pourraient être endommagés. Utiliser des connecteurs optiques homologués ou utilisés par les entreprises et les fournisseurs de services de télécommunications de votre région.
- Utiliser des connecteurs de câbles à fibre optique conformes à l'adaptateur universel et l'adaptateur de connecteur fournis (adaptateur universel indiqué par le suffixe).

Utilisation de connecteurs de contact physique incliné SC (suffixe - ASC de l'unité OTDR)

- L'embout à ferrule du connecteur de contact physique incliné SC est poli. Utiliser des câbles à fibre optique dont les connecteurs sont de même type. L'utilisation d'un autre type de connecteur peut endommager l'extrémité du connecteur.
- Utiliser exclusivement des adaptateurs universels de type SC (SU2005A-SCC) sur les ports ASC OTDR, pour éviter d'endommager les ports optiques ou les connecteurs à fibre optique de cet instrument.

Making Preparations for Measurements

Clean the connector end face of the optical fiber cable before connecting it to the instrument. If dust is adhered to the connector end face, it may damage the instrument's optical port. If this happens, the instrument will not be able to make correct measurements.



Note

- The optical port that you have to connect to varies depending on how you intend to use the instrument. Confirm which port light will be transmitted from before you connect the optical fiber cable.
- On the AQ7293F, light with a 1650 nm wavelength is transmitted from optical port 2.

Turning the power on

Hold down the power switch on the instrument's front panel for at least 2 seconds. When the instrument starts normally, the power switch (POWER LED) lights, and the start screen appears.

If power is being supplied from the AC adapter and the battery pack is not connected, the CHARGE LED blinks.

When the power-on operation does not finish normally

Turn off the power switch, and check the following items.

- Is the USB-AC adapter connected correctly? See page 29.
- Is the battery pack loaded correctly? See page 25.
- Are you holding down the power switch for at least 2 seconds?

If the instrument still does not work properly after checking these items, contact your nearest YOKOGAWA dealer for repairs.

Warm up

To enable more accurate measurements, allow the instrument to warm up for at least 5 minutes after it is turned on.

Power-off and sleep state

When the instrument is running normally with the power switch turned on, you can temporarily turn the power off to a sleep state.

The operation varies depending on how long you hold down the power switch.

- Turning the power off

If you hold down the power switch for 1 second or longer, a shutdown message appears on the screen, the power is turned off completely, and the power switch (POWER LED) turns off.

- Sleep state

If you hold down the power switch for less than 1 second and release it, the screen turns off, and the instrument enters the sleep state. In this case, the power switch (POWER LED) remains on. To release the sleep state, hold down the power switch. In the sleep state, the instrument consumes the minimum amount of power. In the sleep state, the setup screen that you were using, the character input screen, or the like is retained. When you turn on the power switch again, the original screen is restored. If the sleep state continues for 2 hours, the power is turned off automatically.

Maintenance and Inspection

Replacing the Optical Adapter



WARNING

When replacing the optical adapter, turn off the instrument to prevent the light from accidentally being emitted from the light source port. Replacing the optical adapter with the instrument turned on may cause the emitted light to accidentally enter the eye. This can cause eye damage or vision impairment.

French

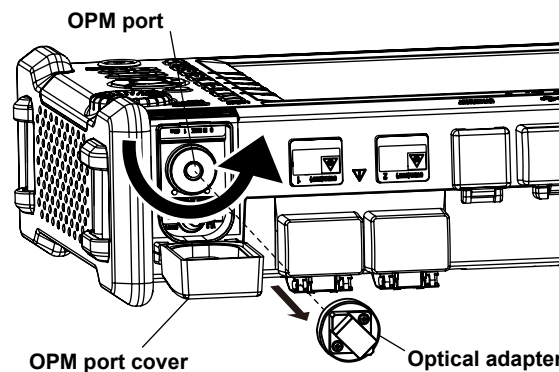
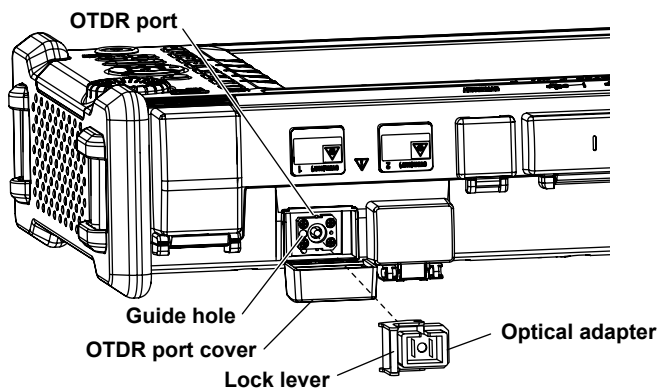


AVERTISSEMENT

Lors du nettoyage de l'émetteur de lumière, mettre l'instrument hors tension pour empêcher l'émission accidentelle de lumière provenant du port de la source lumineuse. Le nettoyage de l'émetteur de lumière avec l'instrument sous tension peut permettre à la lumière émise de pénétrer accidentellement dans les yeux. Ceci peut provoquer des lésions oculaires ou une déficience visuelle.

Removal

1. Check that the instrument is turned off.
2. Open the OTDR ports or the OPM port (option) cover.
3. For an OTDR port, unlock the optical adapter. For an OPM port (option), turn the knob to the left to loosen.
4. Pull out the optical adapter.



Installation

1. Check that the instrument is turned off.
2. Open the OTDR ports or the OPM port (option) cover.
3. Insert the optical adapter straight so that the guide protrusion part engages the guide hole of the OTDR ports or the OPM port (option).
4. For an OTDR port, lock the optical adapter. For an OPM port (option), turn the knob to the right to tighten.

Recommended Part Replacement

The following parts are wearable. It is recommended to replace them after the time period indicated below. For replacement of parts, please contact your nearest Yokogawa dealer.

Parts with limited service life

Part Name	Service Life	Notes
Battery pack (Lithium-ion battery)	Number of charges/discharges approx. 300 times	The actual service life varies depending on the operating environment.

Consumables

We recommend that you replace the following parts at the intervals listed below.

Part Name	Recommended Replacement Interval*	Notes
Backup battery (lithium battery)	5 years	Send to factory to replace.
LCD	Approx. 50000 hours	Send to factory to replace.
Measurement connector ferrule	One year	Send to factory to replace.
Universal and connector adapters	One year	Purchase and replace.
USB connector	1500 times	Send to factory to replace.

* The recommended replacement interval can vary greatly depending on the operating environment and the frequency of use.
The above intervals are estimates.

Specifications

Optical Specifications

Optical pulse measurement (OTDR)

Item	Specifications					
Model	AQ7292A	AQ7293A	AQ7294A	AQ7293F	AQ7293H	AQ7294H
Wavelength (nm)	1310 ± 25 / 1550 ± 25	1310 ± 25 / 1550 ± 25	1310 ± 25 / 1550 ± 25	1310 ± 25 / 1550 ± 25 , 1650 ± 5 ⁶	1310 ± 25 / 1550 ± 25 / 1625 ± 25	1310 ± 25 / 1550 ± 25 / 1625 ± 25
Wavelength (nm) ¹	1310 ± 20 / 1550 ± 20	1310 ± 20 / 1550 ± 20	1310 ± 20 / 1550 ± 20	1310 ± 20 / 1550 ± 20 , 1650 ± 5 ⁶	1310 ± 20 / 1550 ± 20 / 1625 ± 20	1310 ± 20 / 1550 ± 20 / 1625 ± 20
Number of optical port	1	1	1	2 ⁷	1	1
Event dead zone ² (m)	0.7/0.7	0.6/0.6	0.6/0.6	0.6/0.6,0.6	0.6/0.6/0.6	0.6/0.6/0.6
Event dead zone ^{1,2} (m)	0.6/0.6	0.5/0.5	0.5/0.5	0.5/0.5,0.5	0.5/0.5/0.5	0.5/0.5/0.5
Attenuation dead zone ^{1,3} (m)	3.5/4	2.5/3.5	2.5/3.5	2.5/3.5,3.5	2.5/3.5/3.5	2.5/3.5/3.5
PON dead zone ^{1,4} (m)	35/45	30/40	30/40,40	30/40/40	30/40/40	30/40/40
Dynamic range ^{1,5} (dB)	39/37	43/42	47/47	43/42,40	43/42/40	47/47/45
Dynamic range ⁵ (dB)	37/35	41/40	45/45	41/40,38	41/40/38	45/45/43
Maximum optical pulse output power (dBm)	---	---	---	+15 dBm or less (1650 nm)	---	---
Laser class	Class 1 ⁸	Class 1 ⁸	Class 1 ⁸	Class 1 ⁸	Class 1 ⁸	Class 1 ⁸

Specifications

Optical pulse measurement (common to OTDR models)

Item	Specifications
Compliant fiber	SM (ITU-T G.652)
Distance range (km)	0.1 to 512
Pulse width (ns)	3 to 20000
Sampling resolution (cm)	Min. 2
Number of sampling points	Max. 256000
Distance measurement accuracy (m)	$\pm (0.75 \text{ m} + \text{measurement distance} \times 2 \times 10^{-5} + \text{sampling resolution})$
Loss measurement accuracy ⁹ (dB/dB)	± 0.03
Return loss measurement accuracy (dB)	± 2

Note: All the specifications are valid at 23°C $\pm$ 2°C and after a warming up for 30 minutes or more, unless otherwise stated.

1 Typical.

2 Pulse width: 3 ns, Return loss: ≥ 55 dB, IOR: 1.5, at 1.5 dB below the unsaturated peak level

3 Pulse width: 10 ns, Return loss: ≥ 55 dB, IOR: 1.5, at a point where the backscatter level is within ± 0.5 dB of the normal level

4 Pulse width: 100 ns (AQ7292A), 50ns (non-AQ7292A). For non-reflective fiber with a loss of 13 dB

5 Pulse width: 20000 ns, Measurement time: 3 minutes, SNR = 1, Decrease by 0.5 dB with an angled-PC connector

6 At 20 dB below the spectral peak of pulsed optical output.

7 Port 2: 1650 nm with filter.

8 EN 60825-1: 2014+A11: 2021, IEC 60825-1: 2014, GB/T 7247.1-2024

9 ± 0.05 dB for a loss of 1 dB or less.

Stabilized light source

Item	Specifications					
Model	AQ7292A	AQ7293A	AQ7294A	AQ7293F	AQ7293H	AQ7294H
Wavelength (nm)	1310 ± 25 / 1550 ± 25	1310 ± 25 / 1550 ± 25	1310 ± 25 / 1550 ± 25	1310 ± 25 / 1550 ± 25 , 1650 ± 5 ¹	1310 ± 25 / 1550 ± 25 / 1625 ± 25	1310 ± 25 / 1550 ± 25 / 1625 ± 25
Optical output power	-3 dBm ± 1 dB	-3 dBm ± 1 dB	-3 dBm ± 1 dB	-3 dBm ± 1 dB	-3 dBm ± 1 dB	-3 dBm ± 1 dB
Output power stability ² (m)	± 0.05/ ± 0.05	± 0.05/ ± 0.05	± 0.05/ ± 0.05	± 0.05/ ± 0.05, ± 0.15	± 0.05/ ± 0.05/ ± 0.15	± 0.05/ ± 0.05/ ± 0.15
Modulation mode	CW, 270 Hz, 1 kHz, 2 kHz	CW, 270 Hz, 1 kHz, 2 kHz	CW, 270 Hz, 1 kHz, 2 kHz	CW, 270 Hz, 1 kHz, 2 kHz	CW, 270 Hz, 1 kHz, 2 kHz	CW, 270 Hz, 1 kHz, 2 kHz
Optical output port	Common with OTDR ports	Common with OTDR ports	Common with OTDR ports	Common with OTDR ports	Common with OTDR ports	Common with OTDR ports
Laser class	Same as the OTDR	Same as the OTDR	Same as the OTDR	Same as the OTDR	Same as the OTDR	Same as the OTDR

Note: All the specifications are valid at 23°C ± 2°C and after a warming up for 30 minutes or more, unless otherwise stated.

- 1 At 20 dB below the spectral peak of pulsed optical output.
- 2 Constant temperature, for 5 minutes after 5 minutes warm up.

Power checker (/PC option)

Item	Specifications
Wavelength setting (nm)	1310/1490/1550/1625/1650
Power range ¹ (dBm)	-50 to -5
Measurement accuracy ² (dB)	±0.5
Optical input port ³	OTDR port (PORT1)

- 1 CW, maximum input power: 0 dBm (1 mW)
- 2 CW, Wavelength: 1310 nm, input power: -10 dBm, SM (ITU-T G.652)
- 3 Not applicable to Port 2

Specifications

Optical power meter (/SPM, /HPM Option)

Item	Specifications	
	Standard optical power meter (/SPM option)	High power optical power meter (/HPM option)
Wavelength setting	Simple mode: 850/1300/1310/1490/1550/1625/1650 nm, Detail mode: 800 to 1700 nm (1 nm steps), CWDM mode ² : 1270 to 1610 nm (20 nm steps)	
Power range (CW) (dBm)	+10 to -70	+27 to -50 ³
Power range (CHOP) (dBm)	+7 to -70	+24 to -50 ³
Noise level (nW)	0.5 (-63 dBm, 1310 nm)	50 (-43 dBm, 1310 nm)
Uncertainty at reference conditions ¹ (%)	≤ ± 5	
Compliant fiber	SM (ITU-T G.652), GI (50/125μm)	
Readout resolution (dB)	0.01	
Level unit	Absolute: dBm, mW, μW, nW, Relative: dB	
Modulation mode	CW, 270 Hz, 1 kHz, 2 kHz	
Averaging times	1, 10, 50, 100	
Data save	100 data per file (up to 1000 files)	
Data logging	Logging intervals: 0.5, 1, 2, 5, 10 s, number of data points: 10 to 36000	
Optical connector	SC, FC, 2.5 mm diameter ferrule, 1.25 mm diameter ferrule	

1 CW, 1310 ±2 nm , spectral width: 10 nm or less, input power: 100 μW (-10 dBm), SM (ITU-T G.652), FC/PC connector, wavelength setting: measured wavelength ±0.5 nm, excluding a secular change of equipment (add 1% a year after calibration)

2 Not compatible with wavelength separation and simultaneous measurement

3 1300 to 1600 nm

Visible Light Source (/VLS option)

Item	Specifications
Output power (dBm)	-3 dBm or more (Peak)
Wavelength (nm)	650 ± 20
Modulation mode	CW / CHOP (2 Hz)
Optical connector	2.5 mm ferrule type
Laser safety standards	Class 3R ¹

The ambient temperature is 23°C ± 2°C unless otherwise stated.

1 EN 60825-1: 2014+A11: 2021, IEC 60825-1: 2014, GB/T 7247.1-2024

Functional Specifications

Item		Specifications
OTDR Measurement mode		Realtime / Average
Result display		TRACE, MAP, EVENTS LIST (toggle display)
Reading resolution		Horizontal axis: 1 cm (Min.), Vertical axis: 0.001 dB (Min.)
Group refractive index		1.30000 to 1.79999 (in 0.00001 steps)
Distance unit		m, km, (others)
Backscatter Level		Selectable range Pw = 1 us, 1 ns
Memory function		6000 waveform max. Internal expansion: storage (1 GB), external: microSD, USB storage
File format		LOAD: SOR, SOZ, SET, SMP SAVE: SOR, SOZ, SET, SMP, BMP, JPG, CSV, PEPOR (PDF)
Real-time waveform updating		Max. 5 Hz
Measurement functions		Distance, loss, return loss, and return loss between two arbitrary points, dB/km
Analysis functions		Multi trace analysis, 2-way trace, displays the differential trace, Auto Events search, Macro bending
Auxiliary functions of Measurement		Multi Fiber Project, Work Completion Notice, Remote control, File report, Event auto detection, Event pass/fail judgement, Web server, Auto loss test, Plug check, Live light alarm, Optical switch box control, Smart Mapper, Fiber end face, judgement (/FST option), schedule measurement (/MMT option)
Auxiliary functions of Analysis		Marker, editing events
Display	Display	8.4 inch color TFT LCD VGA* (resolution: 800×600)
	LED	POWER (power supply ON/OFF display), CHARGE (charging status), LASER (light emission status)
Input part	Input key	Direction keys (up, down, left, right, ENTER), measurement keys (REALTIME, AVG), dedicated keys (MENU, FUNCTION, SETUP, ESC, UTIL, FILE, SCALE), rotary knob (with push), power supply key
	Touchscreen	Capacitive touchscreen

Specifications

Item		Specifications
External Interface	USB port	Type-A: Host USB2.0 (USB memory) ×2
		Type-C: DC Power Supply ×1, Storage/Remote ×1
	LAN (/LAN option)	Ethernet I/F (1000BASE-T)
	microSD slot	1 (Support SDXC)
Function		Battery check function, auto power off function, suspend function

* The LCD may contain some pixels that are always on or off (0.002% or fewer of all displayed pixels including RGB), but this is not indicative of a general malfunction.

General Specifications

Item		Specifications
Operating environment	Ambient temperature	−10 °C to 50 °C, (When using AC adapter : 0 to 40 °C), (10 °C to 35 °C during battery charge)
	Ambient humidity	0 to 95 %RH (no condensation), (When using AC adapter : 5 to 95 %RH)
	Altitude	4000 m or less
	Indoor use	Indoor use
Storage environment	Ambient temperature	−20 °C to 60 °C
	Ambient humidity	0 to 95 %RH (no condensation)
Power supply	Rated supply voltage	USB Power Delivery Revision 2.0 or more, ≥45 W Type-C (for power supply), 15 VDC ± 5%, 3 A max.
Battery	Type	Lithium-ion, DC 11.1 V, 7.47 Ah
	Operation time	15 hours or more (Telcordia GR-196-CORE Issue 2, 2010)
	Charge time	6 hours (typical)
Warm-up time		At least 5 minutes
Pollution Degree ¹		POLLUTION degree 2
Recommended calibration period		1 year
Installation position		Hand-held, horizontal, slanted
External dimensions		Approx. 287 mm (W) × 210 mm (H) × 80 mm (D), excluding protrusions
Weight		Approx. 2.6 kg, including the battery pack and protector (options excluded)
Safety standards		Compliant standards: EN 61010-1, EN 60825-1: 2014+A11: 2021 (laser safety), IEC 60825-1: 2014 (laser safety), FDA 21 CFR 1040.10 (laser safety), GB/T 7247.1-2024 (laser safety), Overvoltage Category II
EMC ²	Emissions	Compliant standards: EN 61326-1 Class A Group 1 ³ EMC standards of Australia and New Zealand EN 61326-1 Class A Group 1 Korea Electromagnetic Conformity Standard (한국 전자파적합성기준) This is a Class A product. Operation of this product in a residential area may cause electromagnetic interference in which case the user will be required to correct the interference.
	Immunity	Compliant standard: EN 61326-1 Table2 (for use in industrial locations)
Environmental Standards ⁴		EU RoHS Directive compliant

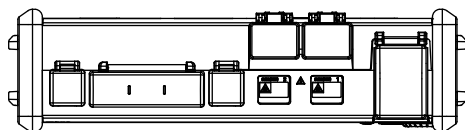
Specifications

If you obtained this manual separately from the product, the specifications in this manual may differ from those of the product.

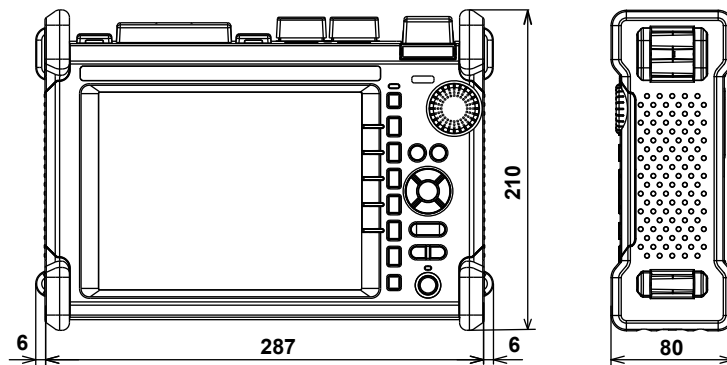
- 1 Pollution Degree applies to the degree of adhesion of a solid, liquid, or gas that deteriorates withstand voltage or surface resistivity. Pollution Degree 1 applies to sealed space (with no pollution or only dry non-conductive pollution). Pollution Degree 2 applies to normal indoor atmospheres (with only non-conductive pollution).
- 2 Use a USB cable with a length of less than 3 m. Use an Ethernet cable (CAT7 STP cable or better) less than 30 m long.
- 3 Group 1: Equipment that does not intentionally generate or use radio-frequency (RF) energy.
- 4 For conformity to environmental regulations and/or standards other than EU, contact your nearest YOKOGAWA office (PIM113-01Z2).

External Dimensions

AQ7290 series



Unit: mm



If not specified, the tolerance is $\pm 3\%$. However, in cases of less than 10 mm, the tolerance is ± 0.3 mm.