
User's Manual

AQ3550 OPTICAL SWITCH BOX

Thank you for purchasing the AQ3550 OPTICAL SWITCH BOX. This operation guide focuses on the handling precautions, connection procedures, and specifications of the AQ3550. For correct operation, please read this manual thoroughly before use. 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 the AQ3550.

List of Manuals

Manual Title	Manual No.	Description
AQ3550 OPTICAL SWITCH BOX User's Manual	IM AQ3550-01EN	This manual.
AQ3550 OPTICAL SWITCH BOX User's Manual	IM AQ3550-92Z1	Document for China.
Safety Instruction Manual	IM 00C01C01-01Z1	Safety manual (European languages).

* The "-EN" in the manual number is the language code.

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.

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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/>

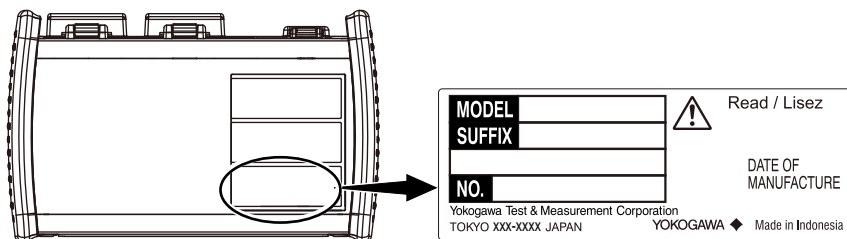


Checking the Package Contents

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.

AQ3550

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.



Model	Suffix Code	Description
AQ3550		OPTICAL SWITCH BOX
Port configuration	-112	Port configuration: 1 × 12
Optical fiber	-SA	Optical fiber: SMF
Optical connector	-SCC	Optical connector: SC/PC

No. (Instrument number)

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

Standard Accessories

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

Name	Model or Part No.	Quantity	Specifications and Notes
User's manual	IM AQ3550-01EN	1	This manual. This user's manual explains the handling precautions, specifications, and connection procedures of the AQ3550.
	IM AQ3550-92Z1	1	Document for China.
	IM 00C01C01-01Z1	1	Safety manual (European languages).
Inquiries	PIM113-01Z2	1	List of worldwide contacts

Optional Accessories

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

Name	Model or Part No.	Specifications and Notes
USB cable	A1752WL	USB cable (Type A to Type C)

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 cause damage to the instrument or user's data, and precautions that can be taken to prevent such occurrences.

Note

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

References



This mark signifies a reference to the user's manual.

French

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.

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 part of the product and contains important information. Store this manual in a safe place close to the instrument so that you can refer to it immediately. 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.



Direct current

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



Courant direct

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.

Type C USB port

Use only the supplied USB cable.

Do not connect other than the instrument (OTDR) that is provided by YOKOGAWA.

Do Not Operate in an Explosive Atmosphere

Do not use this instrument 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.

Remove Connections When Carrying or Moving the Instrument

When carrying or moving the instrument, remove all cords.

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.

Port USB de Type C

Utiliser uniquement le câble USB fourni.

Ne raccordez rien d'autre que l'instrument (OTDR) fourni par YOKOGAWA.

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.

Retirer les connexions lors du transport ou de déplacer l'instrument

Pour transporter ou de déplacer l'instrument, supprimer tous les enregistrements (y compris le cordon d'alimentation) et les câbles.

ATTENTION

Limitations relatives à l'environnement opérationnel

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

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

Authorized Representative in the EEA

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

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Names and Functions of Parts

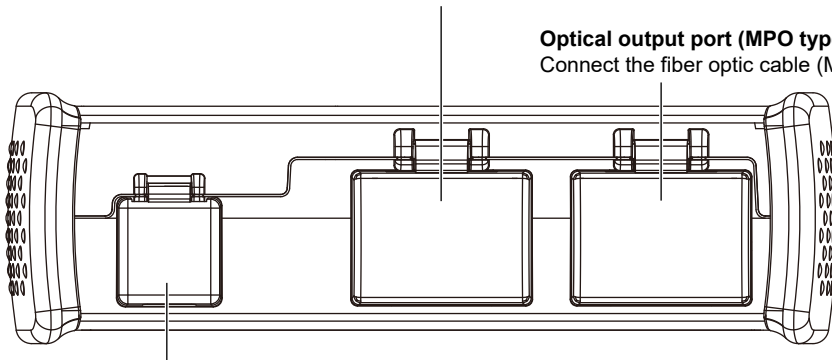
Top Panel

Optical input port (SC type)

Connect to the optical output port on the measuring instrument side used in combination with this device.

Optical output port (MPO type)

Connect the fiber optic cable (MPO) of the test light.



Type C USB port

Connect to the USB port on the measuring instrument side used in combination with this device.

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 7 and 8.

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.

Handle the USB Cable Properly

Do not place objects on top of the 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.

When Carrying the Instrument

Remove the power cord and connecting cables. When carrying the instrument, grasp the protector or the attached strap firmly.

Connecting the USB Cable



WARNING

- Only use the optional accessory USB cable.
- Only connect to a YOKOGAWA product (OTDR).

French



AVERTISSEMENT

- N'utilisez que le câble USB en option.
- Raccordez uniquement à un produit YOKOGAWA (OTDR).

Connecting Optical Fiber Cables



WARNING

When the measuring instrument used in combination with this instrument is emitting laser light, this instrument emits light from the optical input and optical output ports. Do not disconnect the connected optical fiber cables. Visual impairment may occur if the light enters the eye.



CAUTION

- Insert the optical fiber cable connector slowly and straight into the optical port. If you shake the connector to the left and right or force it into the port, the optical connector may be damaged. Some optical connectors on the market do not meet the specifications. Use optical connectors that are approved or used by national or local telecom carriers and providers in your area.
- 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.

French



AVERTISSEMENT

Lorsque l'instrument de mesure utilisé conjointement avec cet instrument émet de la lumière laser, cet instrument émet de la lumière provenant des ports d'entrée optique et de sortie optique. Ne pas débrancher les câbles de fibre optique connectés. Des lésions oculaires peuvent être causées si le faisceau lumineux pénètre l'oeil.



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. Certains connecteurs optiques sur le marché ne répondent pas aux spécifications. Utiliser des connecteurs optiques homologués ou utilisés par les entreprises et les fournisseurs de services de télécommunications de votre région.
- Nettoyez l'extrémité du connecteur du câble à fibre optique avant de le connecter à l'instrument. Si de la poussière adhère à la face d'extrémité du connecteur, cela peut endommager le port optique de l'instrument. Si cela se produit, l'instrument ne sera pas en mesure d'effectuer des mesures correctes.

Maintenance

Recommended Replacement Parts

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 representative.

Consumables

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

Part Name	Service Life	Notes
USB port	1500 times	Replacement at our factory
Ferrule	1 year	Replacement at our factory
Connector adapter	1 year	Replacement at our factory

* The recommended replacement period varies greatly depending on the operating environment and frequency of use. The values in the above table are guidelines.

Disposing of the Instrument

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

Specifications

Optical specification (OSW)

Item	Specification
Model	AQ3550
Port Configuration	1 × 12
Number of switches	1
Wavelength	1260 nm to 1650 nm
Insertion Loss	2 dB typ. (2.5 dB max.)
Repeatability	$\leq \pm 0.02^1$
Return Loss	$\geq 40^{1, 2, 3}$
Optical Fiber	SM (ITU-T G.652, G.654, G.657)
Optical Connector	Input: SC, Output: MPO
Durability	10million Cycles

All specifications have a constant temperature and a warm up time of 5 minutes. If there is no notification on the connector, the definition includes the connector.

All specifications are valid at $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$, unless otherwise specified.

1 Wavelength: $1310\text{ nm} \pm 15\text{ nm}$, $1550\text{ nm} \pm 15\text{ nm}$

2 Uses our standard master fiber. (for SMF)

3 Use the same as the UPC connector

4 Only ITU T G.652 is guaranteed.

Specifications

General Specifications

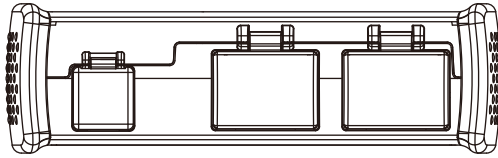
Item		Specification
Remote Interface	USB port	Power Supply/Remote
Dimensions Weight	Dimensions	Approx. 185 mm (W) × 116 mm (H) × 56 mm (D), excluding protrusions
	Weight	Approx. 380 g
Environmental compartment of installation		Class B1
Installation position		Hand, place a horizontal position, place a vertical position
Operating environment	Ambient temperature	-5 to 50°C
	Humidity	≤ 90%RH (no condensation)
	Altitude	4000 m or less
	Indoor use	Indoor use
Storage environment	Ambient temperature	-20 to 60°C
	Humidity	≤ 90%RH (no condensation)
Power requirements	Rated supply voltage	DC 5 V ± 5%, 0.5 A max
Warm-up time		5 minutes or more
Pollution degree		POLLUTION degree 2 ¹
Emissions		Compliant standards EN61326-1 class A, group 1 Korea Electromagnetic Conformity Standard (한국 전자파적합성기준) EN61000-3-2 EN61000-3-3 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. Cable conditions USB ports Use shielded cables. Use a cables that are length of less than 3m.
Immunity		Compliant standards EN61326-1 Table 2 (for industrial locations) Cable conditions Same as the emission cable conditions.
Environmental Standards ²		EU RoHS Directive compliant

Specifications

- 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 For conformity to environmental regulations and/or standards other than EU, contact your nearest YOKOGAWA office (PIM113-01Z2).

Specifications

External Dimensions



Unit : mm
(approx. inch)

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

