



Multi task touch module One OTDR

AQ7280 Series
Optical Time Domain Reflectometer

Precision Making

Bulletin AQ7280-01EN

In 2002, Yokogawa Test&Measurement became a leading supplier of optical test and measurement solutions following the acquisition of Ando Electric.

An industry pioneer with over 40 years of experience in optoelectronic technology and real world lab and field testing, Yokogawa delivers field test equipment solutions with world renowned quality and exceptional performance.

Designed in response to the growing need for reliable and easy-to-use field test instruments for installation and maintenance of fiber optic networks, the Yokogawa Test&Measurement AQ7280 Optical Time Domain Reflectometer (OTDR) empowers field technicians to confidently make fast and precise measurements.

The AQ7280 OTDR satisfies a broad range of test and measurement needs in research, manufacturing and optical network analysis, from access to core and delivers:

RELIABILITY – The AQ7280's robust design allows for operation in harsh field conditions and its proven operating system assures stability, prompt response, and superior protection against software virus attacks.

EASE-OF-USE – This instrument boasts dual-operation modes through a multi-touch touchscreen and hard-key buttons and enables fully-automatic measurements and easy-to-read analytic reports through new software applications.

SPEED – With lightning-fast startup and immediate reporting via wireless connectivity, this OTDR's multi-tasking operation enhances productivity.



Modular OTDR

The AQ7280 OTDR offers first-class performance thanks to updated functions, a large capacity battery, and a large user-friendly screen. Additional benefits that ensure measurement quality and improve work efficiency include:

Full range of selections

- Up to 14 OTDR units to choose from
- Customizable with five optional modules
- 84 potential combinations^{*1}

Proven reliability

- High SNR mode ensures high trace quality.
- Maximum 15 hours battery operation

Quick and easy to use

- 8.4-inch high luminance color LCD
- Smartphone-like usability

Operability

- Multi-fiber measurement up to 2000 fibers
- Auto-execute multiple measurements and analyses with Smart Mapper

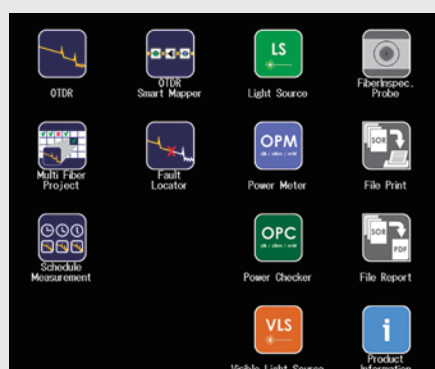
Much more than an OTDR

- A variety of optional features for multi-tasking
- Application software that facilitates analysis

^{*1} This includes combinations with the cover bracket instead of OPM (Optical Power Meter)/VLS (Visible Light Source) modules.

Touch panel application menu

The 8.4-inch touchscreen enables intuitive operation. Select the desired function by simply tapping the icon on the main menu.



Function icons on the main menu

No special tools needed

The hardware for the OTDR units, option modules, and battery cover can be removed and put back using common work tools, even coins, to allow for quick and easy replacements and tweaks even when in the field.



Installation screws can be easily turned with readily-available tools, even coins



Optical Time Domain Reflectometer AQ7280 Series

For information on products and firmware updates, please visit:

<https://tmi.yokogawa.com/p/aq7280>



Yokogawa
Test&Measurement
Over four decades
of OTDR expertise



Full range of selections

The AQ7280 OTDR series is a modular OTDR with an extensive lineup of 14 detachable units and five OPM/VLS modules.

The AQ7280 works for customers with a wide variety of applications including structured cable testing, cable manufacturing, and network installation and maintenance from core network to FTTH.



YOKOGAWA OTDR model map

For fiber optic installation

| Cable type | Target network | | Test application | | | | | | |
|---------------------------------|----------------|-------|------------------|---|---------------------------------------|---|---------------------------------------|---|------------------------------|
| | Area*1 | | PON | Installation (measurement of new and dark lines) | | Installation/Maintenance (measurement of new and live lines) | | | |
| | | | | Model | Wavelength (nm) Dynamic range (dB) | Model | Wavelength (nm) Dynamic range (dB) | | |
| Single-mode optical fiber cable | Access | 38 dB | 1×32 | AQ7282 | A | 1310 1550 38 36 | | | |
| | | | | | G | 1310 1550 1490 38 36 36 | | | |
| | Access/Metro | 42 dB | 1×64 | AQ7283 | A | 1310 1550 42 40 | AQ7283 | E | 1310 1550 1625 42 40 40*2 |
| | | | | | H | 1310 1550 1625 42 40 39 | | F | 1310 1550 1650 42 40 40*2 |
| | | | | | K | 1310 1550 1625 1490 42 40 40 38 | | | |
| | Metro/Core | 46 dB | — | AQ7284 | A | 1310 1550 46 45 | | | |
| H | | | | | 1310 1550 1625 46 45 44 | | | | |
| Core | 50 dB | — | AQ7285 | A | 1310 1550 50 50 | | | | |
| Multi-mode optical fiber cable | LAN | | — | AQ7282 | M | 850 1300 25 27 | | | |

For optical fiber research and manufacturing

| Cable type | Target application | Model | Wavelength (nm) | |
|---------------------------------|------------------------|--------|--------------------|------------------------------------|
| | | | Dynamic range (dB) | |
| Single-mode optical fiber cable | Research/Manufacturing | AQ7286 | A | 1310 1550 42 40 |
| | | | H | 1310 1550 1625 42 40 39 |
| | | | J | 1310 1550 1625 1383 42 40 39 39 |

*1 The dB value is the maximum dynamic range of OTDRs for each target area

*2 A built-in cut filter to isolate from communication wavelengths included

AQ7282A, AQ7283A, AQ7284A, AQ7285A

Two-wavelength module with 1310/1550 nm wavelengths that are most used in fiber optic installation

The AQ7282A is ideal for measurement of less than 70 km networks, while the AQ7283A is the best choice for networks longer than 70 km with splitters. The AQ7284A and AQ7285A are high dynamic range models designed for measurement of networks longer than 100 km.

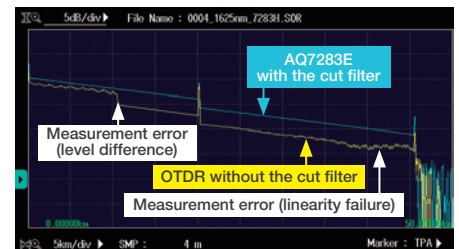


Trace examples with pulse width of 1 μs

AQ7283E, AQ7283F

Maintenance model for live communications lines

These OTDRs have a port for a maintenance wavelengths of 1625 nm or 1650 nm, which does not affect communication wavelengths, and a built-in cut filter to prevent interference with live communications traffic wavelengths. The AQ7283E guarantees wavelength accuracy of 1625 nm \pm 10 nm to enable maintenance of 10GE-PON, and the AQ7283F guarantees a maximum output power of +15 dBm or less and allows maintenance measurements on paths where output power is limited.

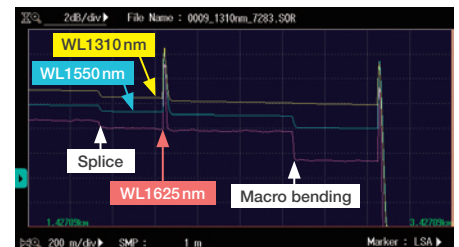


Trace examples of live communications lines

AQ7283H, AQ7284H, AQ7282G, AQ7283K

A port three wavelength / A port four wavelength models

These OTDRs measure at more than three wavelengths without switching optical connector. The AQ7283H and AQ7284H detect macro-bending where the loss is larger at longer wavelengths and are useful for testing CWDM transmission paths using a wavelength of 1260-1625 nm. The AQ7282G and AQ7283K are suitable for installation checks of FTTH networks that requires measurements at 1490 nm.



Trace examples with macro bending

AQ7282M

For multi-mode fibers

The AQ7282M is useful for short-distance measurements where many multi-mode fibers exist, such as structured cabling in factories and data center networks. As the optional stabilized light source has a guaranteed stability of \pm 0.15 dB at both 850 nm and 1300 nm wavelengths, it can be combined with the power meter module to measure optical loss.



AQ7286A, AQ7286H, AQ7286J

For optical fiber research and manufacturing

These models guarantee a center wavelength of \pm 15 nm at all wavelengths, which meets the stringent light source requirements for optical fiber and cable manufacturing. Optionally, a center wavelength of \pm 10 nm (compliant with IEC 60793-1-40) can be specified. In addition, this model guarantees measurement accuracy and reproducibility for research and manufacturing applications and enables stable inspection measurements.

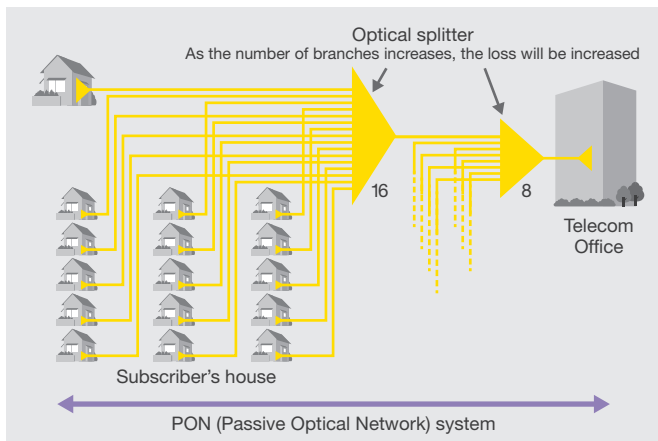


Proven reliability

PON optimized

Quickly, easily, and correctly measure networks with large losses, such as Passive Optical Network (PON) systems. In PON mode, simply choose the configuration of the route to be measured on the screen, and the OTDR automatically determines the suitable measurement conditions to set the optimal values. Combined with the high SNR (HSN) mode, the AQ7280 OTDR series ensures high trace quality, even immediately after a large loss caused by an optical splitter.

Example of measuring PON with two splitters from the subscriber's house



↓ Set the route to be measured in PON mode



↓ Measured in high SNR (HSN) mode



Example of measuring 128-port splitter with high SNR (HSN) mode

Hardware performance suitable for field use

Minimum sampling resolution
2 cm

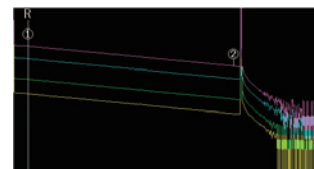
Battery operating time
15 hours
compliant with Telcordia
GR-196-CORE Issue2 2010

Battery operating temperature range
-10 to 50°C

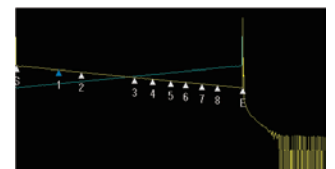
Advanced trace analysis

The OTDR main unit enables advanced analysis of measurement data

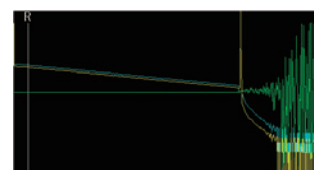
| Type | Evaluation target |
|-----------------------------|--|
| Multi-trace analysis | Multi-fiber cables |
| 2-way trace analysis | Connection points with different loss values measured from both directions |
| Differential trace analysis | Aged deterioration of fibers |
| Section analysis | Total return loss of a certain section |



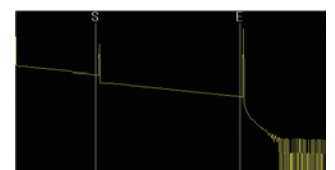
Multi-trace analysis



2-way trace analysis



Differential trace analysis



Section analysis

Quick and easy to use

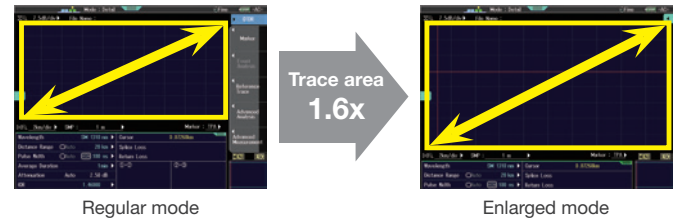
8.4-inch high luminance color LCD

A large bright display shows trace details clearly even in outdoor sunlight. Engineers can easily check the screen when standing and the OTDR is on the floor for station measurement.



Trace display area expansion

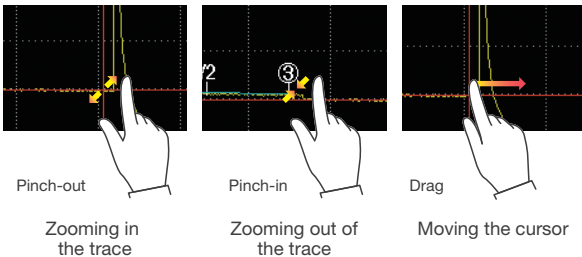
The trace display area can be enlarged for viewing the trace in greater detail by sliding the on-screen menu or setting display. This feature makes the most of the 8.4-inch screen.



Multi-touch capacitive touchscreen

The intuitive multi-touch setup enables operations like pinch zooms and drag, similar to a smartphone or tablet.

*The touchscreen feature can be disabled for users who prefer the hardware key operations



Handy window and shortcut icons

Switching to a different measurement condition while viewing the trace is available. Shortcut icons for popular functions like placement of markers and storage of data remain on the screen so that they can be executed directly without moving to a new menu.

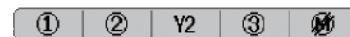


Multi-language support

The AQ7280 OTDR series offers users multiple display languages including but not limited to: Chinese, Czech, Dutch, English, Finnish, French, German, Italian, Norwegian, Polish, Portuguese, Spanish, Swedish, and Turkish.



Shortcut icons (Initiation of measurement, file saving, etc.)



Icons for setting OTDR markers

Operability

Multi-fiber Measurement



A project file is created that defines the test conditions of each fiber, with the measured data managed in a fiber number table. From here, the fiber is selected to perform tests, and once these are completed, the fiber number color changes to help prevent omission and confusion.

Measuring each fiber of 180 optical fibers in an optical termination box

OTDR measurements, loss measurements and fiber surface inspection are repeated numerous times to test all the fibers.

OTDR measurement data per wavelength (SOR files)

Loss measurement data per wavelength (CSV file)

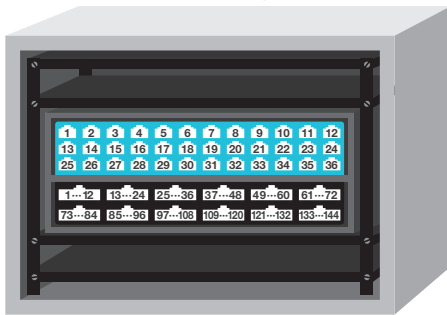
-3.87 dB

-2.41 dB

-2.63 dB

-2.63 dB

Fiber surface image (JPG/BMP file)



Create a project file

| | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |
| 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 |
| 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 |
| 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 |
| 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 |

File Name: 1550nm_0048_SOR | 2022/07/04 21:36

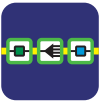
Wavelength 1: 1550nm

Distance Range: [] | Pulse Width: []

Pass: 40 | Fail: []

Create a table having the same configuration as an optical termination box (up to 2000 fibers)
Save the data with the same number as the fiber number

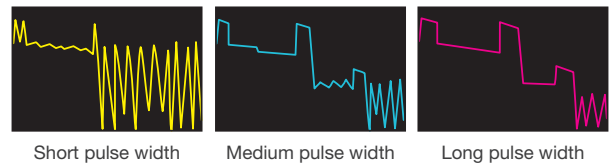
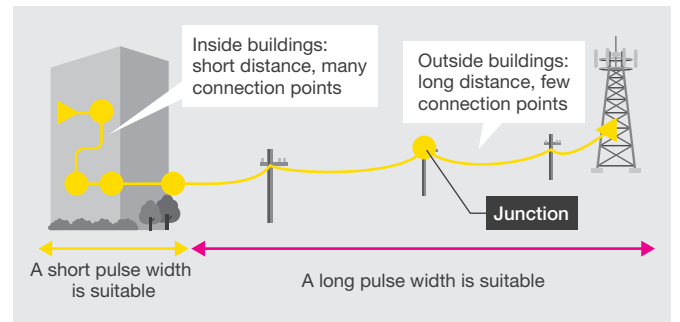
Smart Mapper



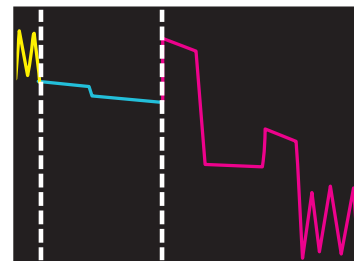
With Smart Mapper, users can press a single button and execute measurements, detect network events, and perform PASS/FAIL judgments. It includes a simple icon-based map view for easy interpretation of location and types of events, so even beginners can understand complex network configurations. PASS/FAIL judgments for each event are performed automatically based on thresholds specified in advance.

*SMP option of the OTDR main frame is required

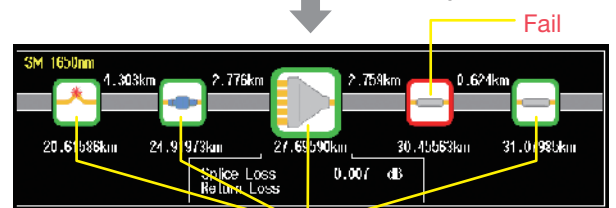
Measuring a network from the station to antenna



Takes certain parts of the measured traces, links trace together



Event analysis



Pass

Schedule Measurement (Monitoring function)



OTDR measurements are automatically performed based on user-defined intervals to detect network connection interruptions caused by intermittent events. The dB value of a fixed point and the loss over a specific section are displayed in the logging view to check changes over time. Saved trace data and logging graph data can be analyzed later.

*MNT option of the OTDR main frame is required



Example of logging the loss value between markers ① and ②

PDF Report



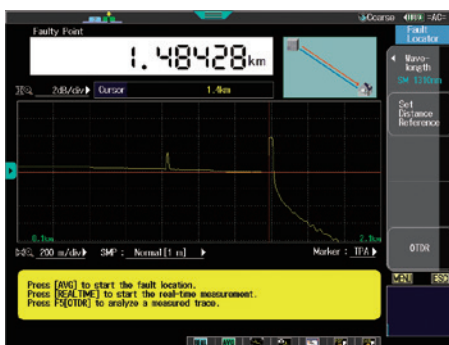
Built-in post-processing software generates OTDR reports in PDF format with flexible report template configurations. The report format is set and can be checked during layout preview and multiple reports can be created collectively.



Preview screen for creating report layout

Fault Locator

Easily and quickly identify fiber break locations with automatic break detection in optical fiber cables under test, based on selected network architectures, then display break distances. For additional analysis, switch to the OTDR mode with a single button press.



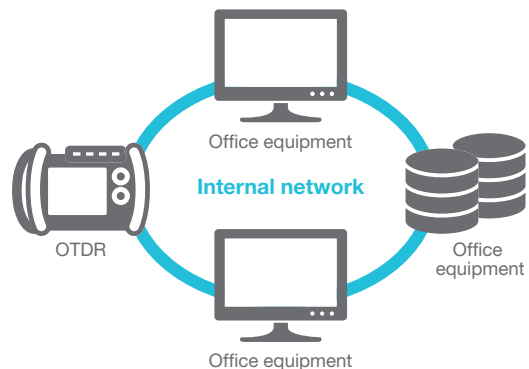
Example of detecting a breaking point 1.48 km away

File transfer and remote control

The AQ7280 OTDR series enables easy file transfer and remote control^{*1} via USB cable or wired LAN^{*2}. Engineers can add an OTDR to their company's local network and regularly check the status of an OTDR performing continuous measurement from a distance. If engineers are in an environment that allows external connection to the company's internal network, they can check the OTDR status regardless of their location.

*1 With a web browser, the AQ7933, or remote command.

*2 /LAN option of the OTDR main frame is required.



Much more than an OTDR

Available for both single tasks or multi-tasks, measurement functions that are required for optical fiber installation, replacement, and maintenance can be installed on the AQ7280 OTDR series of instruments, along with application software to support analysis.

Stabilized Light Source (OTDR unit option)



The light source feature via the OTDR port modulates and outputs light at OTDR wavelength and is used for measuring optical loss in combination with an OPM module or as a light source for optical fiber identification.

*/SLS option is required

Visible Light Source (VLS module)



Using a visible and continuous/modulated red light laser is an invaluable test option that checks the continuity of patch cords, launch fibers, and short fiber trunks. Breaks and bends in the fiber can easily be identified through visual inspection, as the visible light exits the fiber at the fault events. And since this feature uses a separate port from OTDR/OPM, another fiber is searchable while the OTDR/OPM is in use, which improves work efficiency. A flashing light emission is also available.

*Available on AQ4780, AQ2780V, or AQ2781V

Power Checker (OTDR unit option)



Power Checker is an optical power meter integrated via the OTDR port and is used to check optical power before making an OTDR measurement. As it uses the same port as the OTDR, there is no need to switch ports.

*/PC option is required

Only port 1 supports this feature, however AQ7282M, AQ7286A, AQ7286H, and AQ7286J are not supported

Optical Power Meter (OPM module)



A modular optical power meter that attaches to the main frame, the OPM module supports a wide range of applications such as wavelength setting in 1 nm increments, modulation signal measurement, and multi-fiber measurement. It is usable with the stabilized light source (OTDR unit) for loss measurement and can also measure video services such as CATV and long distance transmission lines where an optical amplifier is used to boost the optical signal power.

*Available on AQ2780, AQ2781, AQ2780V, or AQ2781V

Fiber inspection probe



Fiber surface image display (standard feature)

Scratches and dirt on a fiber connector's surface can cause communication network failures, optical fiber deterioration, and can significantly affect OTDR measurement results. A video fiber inspection probe* enables visualization of a fiber connector's surface for inspection of defects.

For information on recommended products, please visit:
<https://tmi.yokogawa.com/cp/0005/>



Fiber surface test function (option)

This feature automatically analyzes scratches and dirt on the fiber's surface and makes a PASS/FAIL judgment based on either IEC 61300-3-35-compatible criteria or other decision criteria dictated by the user. The surface image and judgment results are savable and available as PDF reports.

*/FST option and a recommended optical fiber inspection probe are required

*This feature is not available for multi-tasking

| | Core | Cladding | Contact | Fiber Type | SM |
|-----------|------|----------|---------|------------|-----|
| Scratches | 0 | 0 | 0 | Standard | SPC |
| Defects | 0 | 2 | 0 | | |

Multi-tasking

Functions other than OTDR can be used at the same time by activating them from the OTDR measurement screen. This unique multi-tasking feature reduces measurement idle time during and revolutionizes the test process by enabling simultaneous parallel testing instead of serial testing. Stabilized light source, visible light source, power checker, optical power meter, fiber surface image display, and optical switch box are available for multi-tasking.

For example, you can ...

- Check one fiber while measuring another fiber with OTDR function
- Optical power meter → Optical power measurement
- Visible light source → Pair identification
- Optical fiber probe → Fiber surface inspection

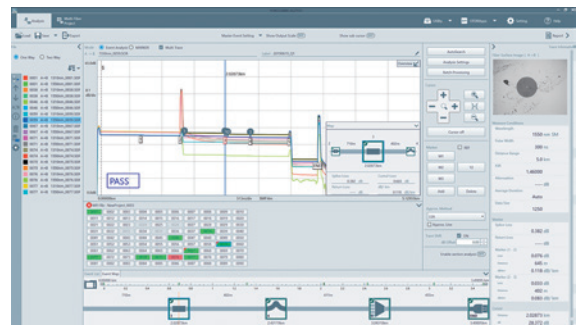
*The OTDR, the stabilized light source and power checker functions cannot be used simultaneously. Fiber surface image display and optical switch box functions cannot be used simultaneously.



AQ7933 Emulation software

The AQ7933 emulation software displays and analyzes trace data measured on an OTDR and creates and outputs analysis reports via PC. Users can upload up to 1000 traces and the SOR software function sets events or markers on all loaded traces collectively.

*The AQ7933 can be downloaded from the YMI website. We offer a trial version of the software, in which all the functions are available for free for a trial period.



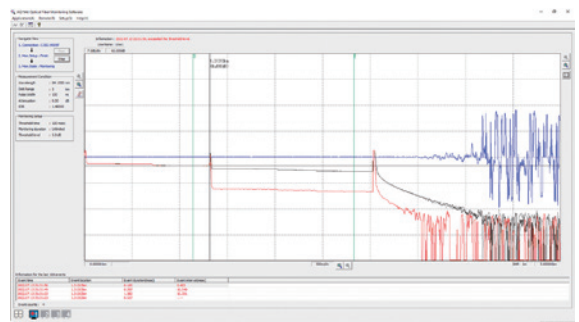
For information on products, please visit:
https://tmi.yokogawa.com/p/p_aq7933/



AQ7940 Optical fiber monitoring software

The AQ7940 optical fiber monitoring software enables monitoring and detection of momentary interruptions on optical fiber networks. It detects interruptions of 200 ms or longer and automatically saves trace data before and after the detection. This PC application software allows users to search for the location of an interruption, something that previously was tedious and difficult to do.

*Use USB or Ethernet to connect a PC and the AQ7280. To use Ethernet, /LAN option of the OTDR main frame is required

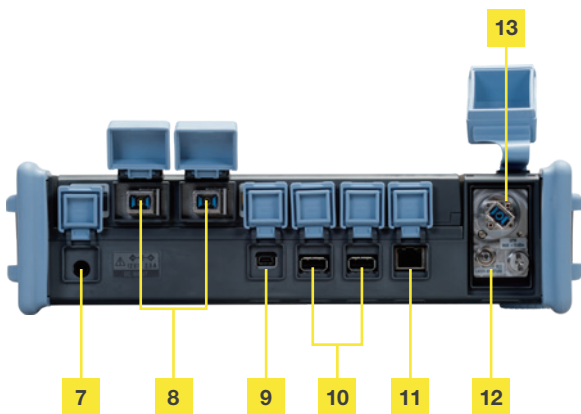
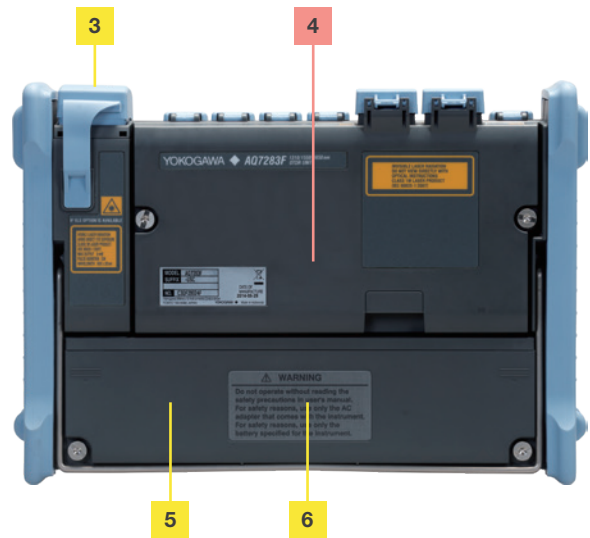
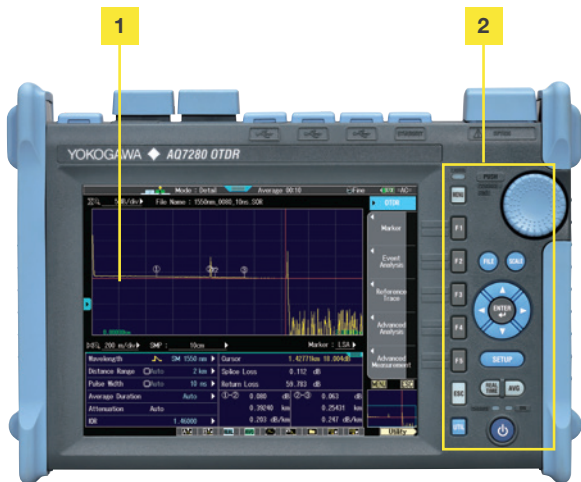


AQ3550 Optical Switch Box

The AQ3550 12-ch optical switch box for SMF works in conjunction with an OTDR. Control and power supply are performed from the OTDR main frame, while the optical switch box enables continuous measurement of all or a selection of the 12 channels. It is useful when measuring multiple fibers, such as optical fiber tape, under the same conditions.

*AQ3550 is not available with AQ7282M

Design



- 1** Multi-touch LCD touchscreen
- 2** Hard-key buttons
- 3** OPM/VLS module
- 5** Battery Pack (inside)
- 6** SD card slot (inside)
- 7** DC power input
- 8** OTDR/stabilized light source*/power checker* port
- 9** USB Type-B port (Mini-B)
- 10** USB Type-A ports

- 11** Ethernet port*
- 12** VLS port (VLS module)*
- 13** OPM port (OPM module)*
- 4** OTDR unit
(AQ7282A, AQ7283A, AQ7284A, AQ7285A, AQ7283E, AQ7283F, AQ7282G, AQ7283H, AQ7284H, AQ7283K, AQ7282M)
- 14** OTDR unit with an air cooling fan
(AQ7286A, AQ7286H, AQ7286J)

*Option

Specifications

Note. All specifications are valid at 23°C±2°C, unless otherwise specified.

AQ7280 OTDR Mainframe

| Items | Specifications |
|----------------------|---|
| Display ¹ | 8.4-inch color TFT LCD (Resolution: 800 × 600, Multi-touch capacitive touchscreen) |
| Electrical interface | Unit interface × 1, Module interface × 1, USB 2.0 × 3 [Type-A × 2, Type-B (Mini-B) × 1] ² , Ethernet (10/100BASE-T, Option) × 1, SD card slot × 1 |
| Remote control | USB Type-B (Mini-B), Ethernet (TCP/IP) |
| Data storage | Storage Internal storage: ≥1000 waveforms, External storage: USB memory, SD memory card |
| | File format Write: SOR, CSV, SET, BMP, JPG, CFG, PDF, SMP Read: SOR, SET, SMP |
| Dimensions | Approx. 287 mm (W) × 210 mm (H) × 80 mm (D) (excluding projections) |
| Weight | Approx. 2.2 kg (including internal battery and protectors, excluding OTDR unit and options) |
| OTDR functions | Minimum readout resolution Horizontal axis: 1 cm, Vertical axis: 0.001 dB |
| | Group refractive index 1.30000 to 1.79999 (in 0.00001 steps) |
| | Distance unit m, km, mile, kf |
| | Measurement Distance, Loss, Return loss, Section Return loss, dB/km |
| | Analysis Multi Trace Analysis, Two-Way Trace Analysis, Difference Trace Analysis, Section Analysis, Macro Bending Analysis |
| | Other functions Multi Fiber Project, Fault Locator, Work Completion Notice, File Report, Auto Event Search, Pass/Fail Judgment, Fiber Surface Test (Option), Schedule Measurement (Option), Smart Mapper (Option) |

¹ 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.

² USB Type-A is for external memory, external printer, fiber inspection probe and optical switch box. USB Type-B (Mini-B) is for remote control and internal storage access with a PC.

General specifications

| Items | Specifications |
|--------------------------|---|
| Environmental conditions | Operating temperature -10 to 50°C (0 to 40°C when AC adapter is being used. 0 to 35°C when the battery is being charged) |
| | Storage temperature -20 to 60°C |
| | Humidity 0 to 90% RH (20 to 90% with 739874 AC adapter, non-condensing) |
| | Altitude 4000 m |
| Power requirements | 100 to 240 VAC, 50/60 Hz (AC adapter) |
| Battery | Type Lithium-ion |
| | Operating time ³ 15 hours (Telcordia GR-196-CORE Issue2 2010), 10 hours ⁴ (Continuous measurement) |
| | Recharge time ³ 6 hours |
| EMC ⁵ | Emission EN 61326-1 Class A, EN 55011 Class A Group1 |
| | Immunity EN 61326-1 Table2 |
| Safety ⁶ | EN 61010-1 |
| | Laser EN 60825-1:2014 Class 1 ⁸ IEC 60825-1:2007, GB 7247.1-2012 Class 1M ⁹ IEC 60825-1:2007, GB 7247.1-2012 Class 3R ^{6,10} EN 60825-1:2014, IEC 60825-1:2007, GB 7247.1-2012 Class 3R ^{7,11} FDA 21CFR1040.10 ¹² |

³ Typical ⁴ Power save mode, without an option module ⁵ AQ7280 OTDR mainframe together with an OTDR unit and an OPM/VLS module.

⁶ 1310 nm of AQ7284A, AQ7285A, AQ7284H, AQ7283K and AQ7286J OTDR units ⁷ 850 nm of AQ7282M OTDR unit and the Visible Light Sources

⁸ Class 1

⁹ Class 1M

CLASS 1 LASER PRODUCT
(EN 60825-1:2014)

INVISIBLE LASER RADIATION 不可见激光辐射
DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS 勿通过光学仪器直接观看光束
CLASS 1M LASER PRODUCT 1M类激光产品
(IEC 60825-1:2007, GB 7247.1-2012)

¹⁰ Class 3R

INVISIBLE LASER RADIATION 不可见激光辐射
AVOID DIRECT EYE EXPOSURE 避免眼睛受到直接照射
CLASS 3R LASER PRODUCT 3R类激光产品
(IEC 60825-1:2007, GB 7247.1-2012)
MAX OUTPUT 500mW WAVELENGTH 1310±25nm PULSE DURATION ≤20μs

¹¹ Class 3R

INVISIBLE LASER RADIATION 不可见激光辐射
AVOID DIRECT EYE EXPOSURE 避免眼睛受到直接照射
CLASS 3R LASER PRODUCT 3R类激光产品
(EN 60825-1:2014) (IEC 60825-1:2007, GB 7247.1-2012)
MAX OUTPUT 400mW WAVELENGTH 850±30nm PULSE DURATION ≤1μs

¹² 21CFR1040.10

VISIBLE LASER RADIATION 可见激光辐射
AVOID DIRECT EYE EXPOSURE 避免眼睛受到直接照射
CLASS 3R LASER PRODUCT 3R类激光产品
(EN 60825-1:2014)
(IEC 60825-1:2007, GB 7247.1-2012)
MAX OUTPUT 5mW WAVELENGTH 650±20nm PULSE DURATION CW

Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No.50, dated June 24, 2007
4-9-8 Myojin-cho, Hachioji-shi, Tokyo 192-8566, Japan

OTDR units

Note. All specifications are valid at 23°C±2°C, unless otherwise specified.

| Items | | Specifications | | | | | | | | | |
|---|--|---|---------|---|---------|---------------------------------------|---|---------------------------------|--|-----------------------------|--|
| Model | | AQ7282A | AQ7283A | AQ7284A | AQ7285A | AQ7283E | AQ7283F | AQ7282G | AQ7283H | AQ7284H | |
| Wavelength (nm) | | 1310±25/1550±25 | | | | 1310±25/ 1550±25, 1625±10 | 1310±25/ 1550±25, 1650±5 ^{*19} ±10 ^{*20} | 1310±25/ 1490±15/ 1550±25 | 1310±25/ 1550±25 | 1310±25/1550±25/ 1625±25 | |
| Optional wavelength (nm) (/10 N) | | — | — | — | — | — | — | — | — | — | |
| Number of optical port | | 1 | | | | 2 (Port 2: 1625 nm with filter) | 2 (Port 2: 1650 nm with filter) | 1 | | | |
| Applicable fiber | | SM (ITU-T G.652) | | | | | | | | | |
| Distance range (km) | | 0.2, 0.5, 1, 2, 5, 10, 20, 30, 50, 100, 200, 300, 400, 512 | | | | | | | | | |
| Pulse width (ns) | | 3, 10, 20, 30, 50, 100, 200, 300, 500, 1000, 2000, 5000, 10000, 20000 | | | | | | | | | |
| Event dead zone ^{*13} (m) | | 0.6 | | | 0.5 | 0.6 | | | | | |
| Attenuation dead zone ^{*14} (m) | | 3.5/4 | | | | 3.5/4, 4 | | 3.5/4/4 | | | |
| 20 µs Dynamic range ^{*15} (dB) | | 38/36 | 42/40 | 46/45 | 50/50 | 42/40, 40 | | 38/36/36 | 42/40/39 | 46/45/44 | |
| 1 µs Dynamic range ^{*16} (dB) | | — | | | | | | | | | |
| Loss measurement accuracy (dB/dB) ^{*17} | | ±0.03 | | | | | | | | | |
| Loss measurement repeatability (dB) ^{*18} | | — | — | — | — | — | — | — | — | — | |
| Attenuation coefficient accuracy (dB/km) ^{*18} | | — | — | — | — | — | — | — | — | — | |
| Attenuation coefficient repeatability (dB) ^{*18} | | — | — | — | — | — | — | — | — | — | |
| Optical connector | | Universal Adapter SC, FC, LC, and SC Angled-PC | | | | | | | | | |
| Laser class | | 1M ^{*30} or 1 ^{*31} | | 1M ^{*30} or 1 ^{*31} (1550 nm), 3R ^{*30} or 1 ^{*31} (1310 nm) | | 1M ^{*30} or 1 ^{*31} | | | 1M ^{*30} or 1 ^{*31} (1550/1625 nm), 3R ^{*30} or 1 ^{*31} (1310 nm) | | |
| Maximum optical pulse output power | | — | | | | | ≤+15 dBm (1650 nm) | | — | | |
| Power Checker (Integrated optical power meter) (IPC) | Wavelength setting | 1310/1490/1550/1625/1650 nm | | | | | | | | | |
| | Power range ^{*24} | -50 to -5 dBm | | | | | | | | | |
| | Measurement accuracy ^{*25} | ±0.5 dB | | | | | | | | | |
| | Optical input port | OTDR port | | | | OTDR port ^{*27} | | OTDR port | | | |
| Stabilized Light Source (SLS) | Wavelength (nm) | 1310±25/1550±25 | | | | 1310±25/ 1550±25, 1625±10 | 1310±25/ 1550±25, 1650±5 ^{*28} ±10 ^{*29} | 1310±25/ 1490±15/ 1550±25 | 1310±25/1550±25/ 1625±25 | | |
| | Optical output power | -3 dBm ±1 dB | | | | | | | | | |
| | Output power stability ^{*26} (dB) | ±0.05/±0.05 | | | | ±0.05/±0.05, ±0.15 | | ±0.05/ ±0.15/ ±0.05 | | ±0.05/±0.05/±0.15 | |
| | Modulation mode | CW, 270 Hz, 1 kHz, 2 kHz | | | | | | | | | |
| | Optical output port | OTDR port | | | | | | | | | |
| | Laser class | 1M ^{*30} or 1 ^{*31} | | | | | | | | | |

*13 Pulse width: 3 ns, Return loss: ≥55 dB, Group refractive index: 1.5, at 1.5 dB below the unsaturated peak level, Typical
 *14 Pulse width: 10 ns, Return loss: ≥55 dB, Group refractive index: 1.5, at a point where the backscatter level is within ±0.5 dB of the normal level, Typical
 *15 Pulse width: 20000 ns, Measurement time: 3 minutes, SNR=1, Typical, Decrease by 0.5 dB with an angled-PC connector, Decrease by 0.5 dB with /SLS option for AQ7284A, AQ7285A and AQ7284H.
 *16 Pulse width: 1000 ns, Measurement time: 1 minute, high SNR (HSN) mode, SNR=1, Typical, Decrease by 0.5 dB with an angled-PC connector
 *17 For a loss 1 dB or less, the accuracy is ±0.05 dB
 *18 Pulse width: 100 ns, Measurement time: 30 seconds, Distance range: 10 km, Sampling resolution: 1 m, Section distance: 3.2 km, 1 dB down from upper clip level, 13 dB up from SNR = 1, not applicable to 1383 nm, Stability: 2 sigma (repeatability only)
 *19 At 20 dB below the spectral peak of pulsed optical output, at 23°C, after

warm-up of 30 minutes
 *20 At 60 dB below the spectral peak of pulsed optical output, at 23°C, after warm-up of 30 minutes
 *21 1300 nm only
 *22 Return loss condition changes to ≥40 dB.
 *23 Pulse width: 500 ns (850 nm)/1000 ns (1300 nm), Measurement time: 3 minutes, SNR=1, GI (50/125), Typical
 *24 CW, Safe maximum input power: 0 dBm (1 mW)
 *25 CW, 1310 nm, -10 dBm, SM (ITU-T G.652)
 *26 Constant temperature, 5 minutes after warm-up of 5 minutes
 *27 Not applicable to port 2
 *28 At 20 dB below the spectral peak of pulsed optical output, at 23°C, after warm-up of 30 minutes
 *29 At 60 dB below the spectral peak of pulsed optical output, at 23°C, after warm-up of 30 minutes
 *30 IEC 60825-1: 2007, GB 7247.1-2012
 *31 EN 60825-1: 2014
 *32 EN 60825-1: 2014, IEC 60825-1: 2007, GB 7247.1-2012

| Items | | Specifications | | | | |
|--|---|--|--|---------------------------------|--|--|
| Model | | AQ7283K | AQ7286A | AQ7286H | AQ7286J | AQ7282M |
| Wavelength (nm) | | 1310±25/1490±25/ 1550±25/1625±25 | 1310±15/ 1550±15 | 1310±15/ 1550±15/ 1625±15 | 1310±15/1383±2/ 1550±15/1625±15 | 850±30/1300±30 |
| Optional wavelength (nm) (/10 N) | | — | 1310±10/ 1550±10 | 1310±10/ 1550±10/ 1625±10 | 1310±10/1383±2/ 1550±10/1625±10 | — |
| Number of optical port | | 1 | | | | |
| Applicable fiber | | SM (ITU-T G.652) | SM (ITU-T G.652, ITU-T G.654, ITU-T G.657) | | | GI (50/125), GI (62.5/125) |
| Distance range (km) | | 0.2, 0.5, 1, 2, 5, 10, 20, 30, 50, 100, 200, 300, 400, 512 | | | | 0.2, 0.5, 1, 2, 5, 10, 20, 30, 50, 100 |
| Pulse width (ns) | | 3, 10, 20, 30, 50, 100, 200, 300, 500, 1000, 2000, 5000, 10000, 20000 | | | | 3, 10, 20, 30, 50, 100, 200, 300, 500, 1000, 2000 ²¹ , 5000 ²¹ |
| Event dead zone ¹³ (m) | | 0.6 | | | | 0.6 ²² |
| Attenuation dead zone ¹⁴ (m) | | 3.5/4/4/4 | 3.5/4 | 3.5/4/4 | 3.5/4/4/4 | 4/5 ²² |
| 20 µs Dynamic range ¹⁵ (dB) | | 42/38/40/40 | 42/40 | 42/40/39 | 42/39/40/39 | 25/27 ²³ |
| 1 µs Dynamic range ¹⁶ (dB) | | — | 28/27 | 28/27/27 | 30/25/28/28 | — |
| Loss measurement accuracy (dB/dB) ¹⁷ | | ±0.03 | ±0.025 ¹⁸ | | | ±0.03 |
| Loss measurement repeatability (dB) ¹⁸ | | — | ±0.015 | | | — |
| Attenuation coefficient accuracy (dB/km) ¹⁸ | | — | ±0.01 | | | — |
| Attenuation coefficient repeatability (dB) ¹⁸ | | — | ±0.005 | | | — |
| Optical connector | | Universal Adapter SC, FC, LC, and SC Angled-PC | | | | Universal Adapter SC, FC, LC |
| Laser class | | 1M ³⁰ or 1 ³¹ (1490/1550/1625 nm), 3R ³⁰ or 1 ³¹ (1310 nm) | 1M ³⁰ or 1 ³¹ | | 1M ³⁰ or 1 ³¹ (1383/1550/1625 nm), 3R ³⁰ or 1 ³¹ (1310 nm) | 1M ³⁰ or 1 ³¹ (1300 nm), 3R ³² (850 nm) |
| Maximum optical pulse output power | | — | | | | |
| Power Checker (Integrated optical power meter) (PC) | Wavelength setting | 1310/1490/1550/1625/1650 nm | — | — | — | — |
| | Power range ²⁴ | −50 to −5 dBm | — | — | — | — |
| | Measurement accuracy ²⁵ | ±0.5 dB | — | — | — | — |
| | Optical input port | OTDR port | — | — | — | — |
| Stabilized Light Source (SLS) | Wavelength (nm) | 1310±25/1490±25/ 1550±25/1625±25 | — | — | — | 850±30/1300±30 |
| | Optical output power | −3 dBm ±1 dB | — | — | — | ≥−20 dBm |
| | Output power stability ²⁶ (dB) | ±0.05/±0.15/±0.05/ ±0.15 | — | — | — | ±0.15/±0.15 |
| | Modulation mode | CW, 270 Hz, 1 kHz, 2 kHz | — | — | — | CW, 270 Hz |
| | Optical output port | OTDR port | — | — | — | OTDR port |
| | Laser class | 1M ³⁰ or 1 ³¹ | — | — | — | 1M ³⁰ or 1 ³¹ |

Power Checker: Not applicable to AQ7286A, AQ7286H, AQ7286J, AQ7282M and the port 2 of AQ7283E and AQ7283F. Stabilized Light Source: Not applicable to AQ7286A, AQ7286H and AQ7286J.

For all OTDR units

| Items | Specifications |
|----------------------------------|--|
| Sampling resolution | Min. 2 cm |
| Number of sampling points | Max. 256000 |
| Distance measurement accuracy | ±(0.75 m + measurement distance × 2 × 10 ^{−5} + sampling resolution) |
| Return loss measurement accuracy | ±2 dB |
| Dimensions | Approx. 211 mm (W) × 110 mm (H) × 32 mm (D) (excluding projections) |
| Weight | Approx. 420 g (excluding AQ7286A, AQ7286H and AQ7286J), Approx. 460 g (AQ7286A, AQ7286H and AQ7286J) |

OPM/VLS modules

| Items | | Specifications | | | | | |
|----------------------------|---|---|-----------------------|-------------------------------|------------------------------|-------------------------------|---|
| Model | | AQ2780 OPM | AQ2781 High Power OPM | AQ2780V OPM & VLS | AQ2781V High Power OPM & VLS | AQ4780 VLS | |
| Optical Power Meter (OPM) | Wavelength setting | Simple mode: 850/1300/1310/1490/1550/1625/1650 nm, Detail mode: 800 to 1700 nm (1 nm steps), CWDM mode ^{*33} : 1270 to 1610 nm (20 nm steps) | | | | — | |
| | Power range | CW | +10 to -70 dBm | +27 to -50 dBm ^{*34} | +10 to -70 dBm | +27 to -50 dBm ^{*34} | — |
| | | CHOP | +7 to -70 dBm | +24 to -50 dBm ^{*34} | +7 to -70 dBm | +24 to -50 dBm ^{*34} | — |
| | Noise level ^{*35} | 0.5 nW (-63 dBm) | 50 nW (-43 dBm) | 0.5 nW (-63 dBm) | 50 nW (-43 dBm) | — | |
| | Applicable fiber | SM (ITU-T G.652), GI (50/125) | | | | — | |
| | Uncertainty ^{*36} | ±5% | | | | — | |
| | Readout resolution | 0.01 dB | | | | — | |
| | Level unit | Absolute: dBm, mW, μW, nW, Relative: dB | | | | — | |
| | Modulation mode | CW, 270 Hz, 1 kHz, 2 kHz | | | | — | |
| | Averaging | 1, 10, 50, 100 times | | | | — | |
| | Data save | 100 data per file (up to 1000 files) | | | | — | |
| | Data logging | Logging intervals: 0.5, 1, 2, 5, 10 s., Number of data: 10 to 36000 data | | | | — | |
| Optical connector | Universal Adapter: SC, FC, Ferrule Adapter: 1.25 dia, 2.5 dia. | | | | — | | |
| Visible Light Source (VLS) | Wavelength | — | | | 650 ±20 nm | — | |
| | Optical output power | — | | | ≥-3 dBm (Peak) | — | |
| | Modulation mode | — | | | CW, CHOP (Approx. 2 Hz) | — | |
| | Optical connector | — | | | 2.5 mm ferrule type | — | |
| | Laser class | — | | | 3R | — | |
| Dimensions | Approx. 47 mm (W) × 87 mm (H) × 29 mm (D) (excluding projections) | | | | | | |
| Weight | Approx. 140 g | | | | | | |

*33 Not compatible with wavelength separation and simultaneous measurement

*34 1300 to 1600 nm

*35 1310 nm

*36 Input power: 100 μW (-10 dBm), CW, 1310 ±20 nm, Spectral width: ≤10 nm, SM (ITU-T G.652), FC/PC, Wavelength setting: Measured wavelength ±0.5 nm, excluding a secular change of equipment (add 1% one year after calibration)

Accessories for AQ7280 OTDR mainframe



Soft Carrying Case 739860



Battery Pack 739883



Shoulder Belt B8070CY



Optical Switch Box AQ3550

Accessories for OTDR units

Universal Adapter



SU2005A-SCC

SU2005A-FCC

SU2005A-LCC

Accessories for OPM modules

Universal Adapter



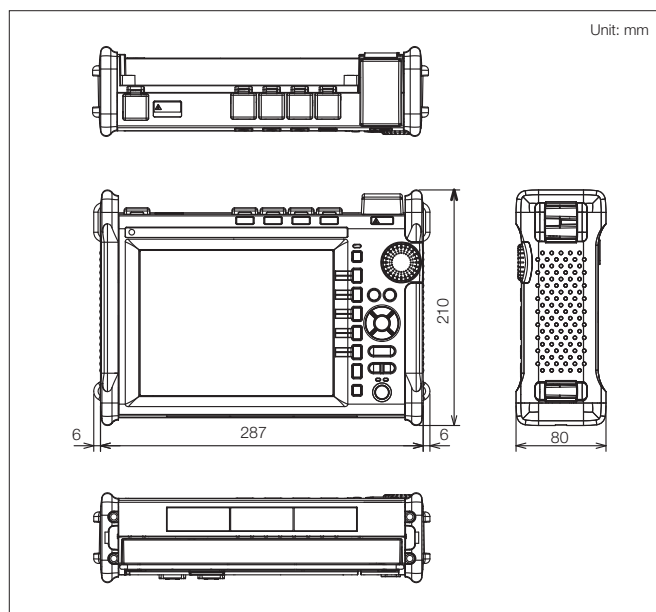
735480-SCC

735480-FCC

735481-LMC
(1.25 dia.)

735481-SFC
(2.5 dia.)

Dimensions



Ordering information

Minimum configuration

Sold separately

Not sold separately (Cannot be added after shipping)

AQ7280 series

| Items | Models | Suffix codes | Descriptions | Selection types |
|-----------------|---------|--------------|--|-----------------|
| OTDR Mainframe | AQ7280 | -□□ | OTDR Mainframe [Select one language: HJ, HE, HM, HC, HK, HR] | Required |
| | | /LAN | Ethernet | Optional |
| | | /MNT | Monitoring function | Optional |
| | | /SMP | Smart Mapper function | |
| | | /FST | Fiber Surface Test function | |
| | | /SB | Shoulder Belt | |
| AC Adapter | 739874 | -□ | AC Adapter [Select one power cord type] | Required |
| OTDR Unit | AQ728□□ | — | OTDR Unit [Select one model] | Required |
| | | -□□□ | [Select one connector type: USC, UFC, ULC, ASC, NUA] | |
| | | /PC | Power Checker (Integrated optical power meter) | Optional |
| | | /SLS | Stabilized Light Source | Optional |
| | | /10N | 10 nm Wavelength Tolerance | Optional |
| OPM/VLS modules | AQ278□□ | — | OPM (Optical Power Meter) [Select one model] | Optional |
| | | -□□□ | [Select one connector: SCC, FCC, LMC (1.25 mm dia.), SFC (2.5 mm dia.)] (Models with "V" include the VLS function.) | Optional |
| | AQ4780 | — | VLS (Visible Light Source) (Fixed connector with 2.5 mm dia.) | Optional |

Note. The OTDR mainframe, OTDR units, AC adapter, and OPM/VLS modules can be additionally purchased separately.

Accessories (Sold separately)

| Items | Models | Suffix codes | Descriptions |
|---|---------|--------------|---|
| Application software | AQ7933 | -□□□ | Emulation Software (Multi-language) [Select one medium: SP01 (download), SC01 (CD)] |
| | 735071 | -HE | AQ7940 Optical Fiber Monitoring Software (Language: English/Japanese) |
| Additional option license | 735050 | -□□□ | Additional option license [Select one option code: MNT, SMP, FST] |
| Optical connector adapter (for OTDR) | SU2005A | -□□□ | Universal Adapter [Select one connector type: SCC, FCC, LCC] (When OTDR connector is ASC, select SCC. The ASC is not compatible with FCC and LCC.) |
| Optical connector adapter (for OPM) | 735480 | -□□□ | Universal Adapter [Select one connector type: SCC, FCC] |
| | 735481 | -□□□ | Universal Adapter [Select one connector type: LMC (1.25 mm dia.), SFC (2.5 mm dia.)] |
| Carrying case | 739860 | — | Soft Carrying Case |
| Battery | 739883 | — | Battery pack (spare) |
| Belt | B8070CY | — | Shoulder Belt |
| Optical switch | AQ3550 | -112-SA-SCC | AQ3550 Optical Switch Box |

AQ7280 order example

1) Requested items

| | |
|---------------------|--|
| Purpose | Installation work of a long-distance network |
| Required wavelength | 1310 nm, 1550 nm |
| Required connector | FC |
| Required functions | Stabilized Light Source, Power Checker, LAN, Monitoring function |

↓ The three items order is required

| | |
|----------------|--------------------|
| OTDR mainframe | AQ7280-□□/MNT/LAN |
| AC adapter | 739874-□ |
| OTDR unit | AQ7285A-UFC/PC/SLS |

2) Requested items

| | |
|---------------------|--|
| Purpose | Installation and maintenance swork of a middle-distance |
| Required wavelength | 1310 nm, 1550 nm, 1650 nm |
| Required connector | SC, FC |
| Required functions | Stabilized Light Source, LAN, Optical Power Meter, Visible Light Source, Shoulder Belt |

↓ The six items seven pieces order is required

| | | |
|----------------------|------------------|---------------------------------|
| OTDR mainframe | AQ7280-□□/LAN/SB | |
| AC adapter | 739874-□ | |
| OTDR unit | AQ7283F-USC/SLS | |
| OPM/VLS module | AQ2780V-SCC | |
| Additional connector | For OTDR unit | SU2005A-FCC (2 pieces required) |
| | For OPM module | 735480-FCC |

3) Requested items

| | |
|---------------------|---|
| Purpose | Installation work of CWDM network with multiple fibers |
| Required wavelength | 1310 nm, 1550 nm, 1625 nm |
| Required connector | SC Angled-PC |
| Required functions | Stabilized Light Source, Optical Power Meter, Fiber Surface Test function, Smart Mapper, Optical Switch Box |

↓ The five items order is required

| | |
|--------------------|-------------------|
| OTDR mainframe | AQ7280-□□/FST/SMP |
| AC adapter | 739874-□ |
| OTDR unit | AQ7283H-ASC/SLS |
| OPM module | AQ2780-SCC |
| Optical switch box | AQ3550-112-SA-SCC |

* Please prepare the recommended optical fiber inspection probe.

Models and suffix codes

OTDR Mainframe

| Models | Suffix codes | Descriptions |
|----------|--------------|-----------------------------|
| AQ7280 | | AQ7280 OTDR Mainframe |
| Language | -HJ | Japanese/English |
| | -HE | English (Multi-language) |
| | -HM | Chinese |
| | -HC | Chinese/English |
| | -HK | Korean/English |
| | -HR | Russian/English |
| Options | /MNT | Monitoring function |
| | /SMP | Smart Mapper function |
| | /FST | Fiber Surface Test function |
| | /LAN | Ethernet |
| | /SB | Shoulder Belt |

Standard accessories: Battery pack, hand belt, user's manual (CD-ROM), operation guide

AC adapter (Not included in AQ7280. Please order separately.)

| Models | Suffix codes | Descriptions |
|------------|--------------|--------------------------------|
| 739874 | | AC Adapter ^{*1} |
| Power cord | -D | UL/CSA standard, 125 V |
| | -F | VDE standard, 250 V |
| | -H | Chinese standard, 250 V |
| | -N | Brazilian standard, 250 V |
| | -P | Korean standard, 250 V |
| | -Q | BS/Singaporean standard, 250 V |
| | -R | Australian standard, 250 V |
| | -T | Taiwanese standard, 125 V |
| | -A | Argentine standard, 250 V |

*1 For outside the countries that require CE marking.

OTDR units

| Models | Suffix codes | Descriptions |
|-------------------|--------------|--|
| AQ7282A | 2WL | 1310/1550 nm 38/36 dB |
| AQ7283A | 2WL | 1310/1550 nm 42/40 dB |
| AQ7284A | 2WL | 1310/1550 nm 46/45 dB |
| AQ7285A | 2WL | 1310/1550 nm 50/50 dB |
| AQ7283E | 3WL | 1310/1550, 1625 nm with filter 42/40, 40 dB |
| AQ7283F | 3WL | 1310/1550, 1650 nm with filter 42/40, 40 dB |
| AQ7282G | 3WL | 1310/1490/1550 nm 38/36/36 dB |
| AQ7283H | 3WL | 1310/1550/1625 nm 42/40/39 dB |
| AQ7284H | 3WL | 1310/1550/1625 nm 46/45/44 dB |
| AQ7283K | 4WL | 1310/1490/1550/1625 nm 42/38/40/40 dB |
| AQ7286A | 2WL | 1310/1550 nm 42/40 dB |
| AQ7286H | 3WL | 1310/1550/1625 nm 42/40/39 dB |
| AQ7286J | 4WL | 1310/1383/1550/1625 nm 42/39/40/40 dB |
| AQ7282M | 2WL | 850/1300 nm (MM) 25/27 dB |
| Optical connector | -USC | Universal Adapter (SC) |
| | -UFC | Universal Adapter (FC) |
| | -ULC | Universal Adapter (LC) |
| | -ASC | Universal Adapter (SC Angled-PC) ^{*1} |
| | -NUA | No universal adapter |
| Options | /PC | Power Checker ^{*1 *2 *3} |
| | /SLN | Stabilized Light Source ^{*3} |
| | /10N | 10 nm Wavelength Tolerance ^{*4} |

*1 Not applicable to AQ7282M

*2 Not applicable to the port 2 of AQ7283E and AQ7283F

*3 Not applicable to AQ7286A, AQ7286H and AQ7286J

*4 Applicable to AQ7286A, AQ7286H and AQ7286J only



Minimum configuration: The OTDR mainframe + OTDR units + AC adapter + OPM/VLS modules (option)
 This is a Class A instrument based on Emission standards EN61326-1 and EN55011, and is designed for an industrial environment.
 Operation of this equipment in a residential area may cause radio interference, in which case users will be responsible for any interference which they cause.



YOKOGAWA TEST & MEASUREMENT CORPORATION

Global Sales Dept. /E-mail: tm@cs.jp.yokogawa.com

YOKOGAWA CORPORATION OF AMERICA
 YOKOGAWA EUROPE B.V.
 YOKOGAWA TEST & MEASUREMENT (SHANGHAI) CO., LTD.
 YOKOGAWA ELECTRIC KOREA CO., LTD.
 YOKOGAWA ENGINEERING ASIA PTE. LTD.
 YOKOGAWA INDIA LTD.
 YOKOGAWA ELECTRIC CIS LTD.
 YOKOGAWA AMERICA DO SUL LTDA.
 YOKOGAWA MIDDLE EAST & AFRICA B.S.C(c)

<https://tmi.yokogawa.com/us/>
<https://tmi.yokogawa.com/eu/>
<https://tmi.yokogawa.com/cn/>
<https://tmi.yokogawa.com/kr/>
<https://tmi.yokogawa.com/sg/>
<https://tmi.yokogawa.com/in/>
<https://tmi.yokogawa.com/ru/>
<https://tmi.yokogawa.com/br/>
<https://tmi.yokogawa.com/bh/>

OPM/VLS modules

| Models | Suffix codes | Descriptions |
|-------------------|--------------|-----------------------------|
| AQ2780 | | OPM Module |
| AQ2781 | | High Power OPM Module |
| AQ2780V | | OPM & VLS Module |
| AQ2781V | | High Power OPM & VLS Module |
| Optical connector | -SCC | Universal Adapter (SC) |
| | -FCC | Universal Adapter (FC) |
| | -LMC | Ferrule Adapter (1.25 dia.) |

| Models | Suffix codes | Descriptions |
|--------|--------------|--------------|
| AQ4780 | | VLS Module |

Accessories (Sold separately)

| Models | Names | Descriptions |
|-------------------|--------------------------------|---------------------------------------|
| SU2005A-SCC | Universal Adapter (SC) | for OTDR unit (Shared by -USC & -ASC) |
| SU2005A-FCC | Universal Adapter (FC) | for OTDR unit |
| SU2005A-LCC | Universal Adapter (LC) | for OTDR unit |
| 735480-SCC | Universal Adapter (SC) | for OPM module |
| 735480-FCC | Universal Adapter (FC) | for OPM module |
| 735481-LMC | Ferrule Adapter (1.25 dia.) | for OPM module |
| 735481-SFC | Ferrule Adapter (2.5 dia.) | for OPM module |
| 739860 | Soft Carrying Case | |
| 739883 | Battery Pack | |
| B8070CY | Shoulder Belt | |
| AQ3550-112-SA-SCC | AQ3550 Optical Switch Box (SC) | for SM ^{*5} |

*All universal adapters of OPM module are Angled-PC compatible.

*5 AQ3550 is not available with AQ7282M

Additional option license

| Models | Suffix codes | Descriptions |
|--------|--------------|--------------------------------------|
| 735050 | | Additional option license for AQ7280 |
| | -MNT | Monitoring function |
| | -SMP | Smart Mapper function |
| | -FST | Fiber Surface Test function |

Application software

| Models | Suffix codes | Descriptions |
|--------|--------------|--|
| AQ7933 | | AQ7933 Emulation Software |
| | -SP01 | Download version (1-license) |
| | -SC01 | Package version (1-license with CD) |
| 735071 | | AQ7940 Optical Fiber Monitoring Software |
| | -HE | English/Japanese |

Notice

- Before operating the product, read the user's manual thoroughly for proper and safe operation.
- Any company names and product names mentioned in this document are trade names, trademarks or registered trademarks of their respective companies.
- "Typical" or "Typ." in this document means "Typical value", which is for reference, not guaranteed specification.
- Three-year warranty is for the OTDR mainframe, OTDR units, and OPM/VLS modules.

■ Microsoft, MS, and Windows are registered trademarks or trademarks of Microsoft Corporation in the US and other countries.
 Other company names and product names appearing in this document are the registered trademarks of their respective companies.

Yokogawa's Approach to Preserving the Global Environment

- Yokogawa's electrical products are developed and produced in facilities that have received ISO14001 approval.
- In order to protect the global environment, Yokogawa's electrical products are designed in accordance with Yokogawa's Environmentally Friendly Product Design Guidelines and Product Design Assessment Criteria.

NOTICE

- Before operating the product, read the user's manual thoroughly for proper and safe operation.

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

YMI-N-MI-M-E03

The contents are as of August 2022. Subject to change without notice.
 Copyright © 2014, Yokogawa Test & Measurement Corporation
 [Ed: 09/b] Printed in Japan, 208(KP)