Test&Measurement

YOKOGAWA

Multi task touch module One OTDR

AQ7280 Series
Optical Time Domain Reflectometer

Bulletin AQ7280-01EN

In 2002, Yokogawa became a leading supplier of optical test and measurement solutions following the acquisition of Ando Electric. Today, with over 35 years of experience in optoelectronic technology and real world lab and field testing, Yokogawa is justifiably qualified to deliver field test equipment solutions with the world renowned quality and exceptional performance expected from an industry pioneer.

Responding to the growing needs for reliable and ease-of-use field test instruments for installation and maintenance of fiber optic networks, Yokogawa AQ7280 Optical Time Domain Reflectometer (OTDR) is designed to empower field technicians to make fast and precise measurements with confidence.

The AQ7280 satisfies a broad range of test and measurement needs in analyzing optical networks from access to core.

The AQ7280 OTDR delivers:

RELIABILITY – Robust design for operating under harsh field conditions. Proven operating system assuring stability, prompt response, and superior protection against software virus attacks.

EASE-OF-USE – Dual operation mode by multi-touch touchscreen and hard-key buttons. Fully automatic measurement and easy-to-read analysis reports through new software applications.

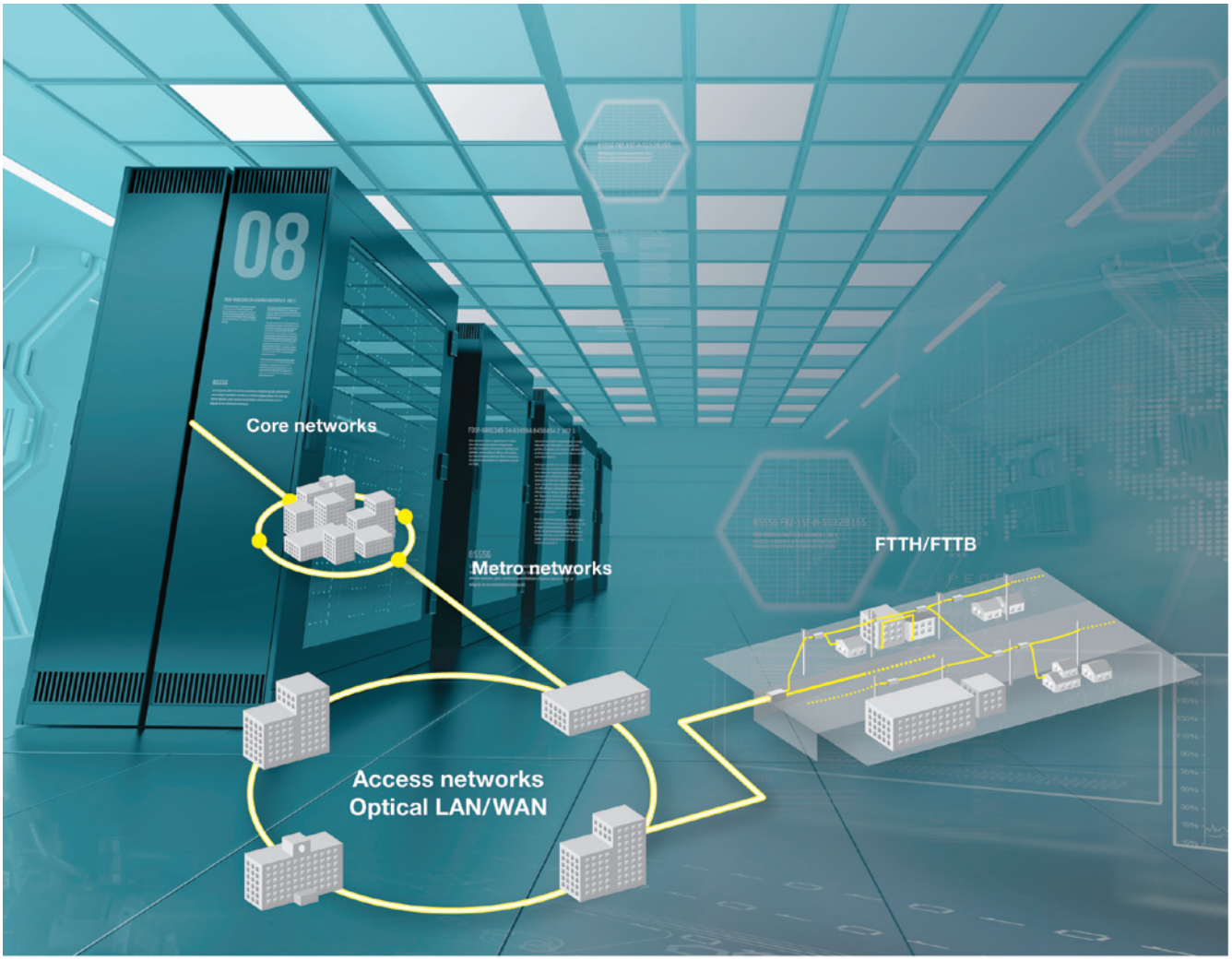
SPEED – Lightning startup time. Multi-tasking operation to enhance productivity. Immediate reporting via wireless connectivity.

35+ years of OTDR expertise

- 1915 **YOKOGAWA** founded
- 1933 **ANDO** founded
- 1981 First OTDR **AQ-1702**

- 2002 Yokogawa acquired ANDO
- 2010 Compact OTDR **AQ1200**

- 2014 Latest OTDR **AQ7280**



Fast, Friendly Functionality... all at your Fingertips!

Multi-tasking

Enhancing productivity

Managed by a highly efficient operating system, multiple functions can work simultaneously.
Now, users can perform OTDR measurements on a particular fiber core while simultaneously checking the power level and connector surface quality on others.

Dual-operation Mode

Touch screen and hard-key buttons

Tap, swipe, pinch or press. Choose between the high resolution 8.4-inch multi-touch capacitive touchscreen or the robust hard-key buttons in any combination desired. OTDR operations have never been easier!

Lightning Startup Time

Under 10 seconds!

Thanks to the latest high speed hardware and a highly efficient operating system, the AQ7280 starts up from completely OFF to measurement ready in seconds. It's always ready when you are!

Smart Mapper

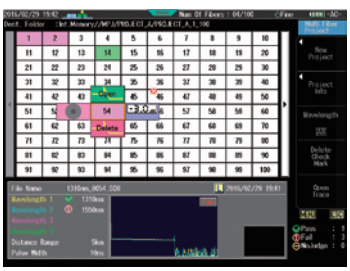
Single button measurement. Comprehensive network characterization. Easy to read report

Measurement acquisitions with multiple pulse widths and smart-algorithm enable users to detect and comprehensively characterize network events by pressing one single button.
Simple, icon-based map view for easy interpretation of network events. Immediate PASS/FAIL judgment based on user-defined thresholds.
Easily toggled trace view for manual supplementary analysis.
(Available when /SMP option is selected.)

Multi-Fiber Measurement

Database view. Organized. Quick preview of network characteristics

OTDR-based application in a database view.
Guiding users in tracking multi fibers measurements in sequence.
OTDR trace, power level and connector surface image of a particular fiber core are organized as one group.
With PASS/FAIL judgment, fiber core performance is easily characterized.



Wireless Connectivity

Remote control. Remote data transfer

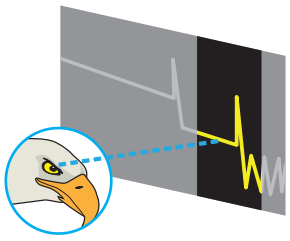
Control the OTDR remotely using Windows™ operating system devices via wireless router connection technology. Transfer measurements results from the OTDR to Windows™ operating system devices via FlashAir™ technology. Send the results/reports by email/file transfer software for immediate reporting. OTDR Data Transporter, a smartphone application for AQ7280, makes the file transfer easier.

AQ7280

Eagle Eye

Hunt down your breakpoint precisely and promptly

Enabling highest possible sampling resolution in a long distance measurement range, distance offset error is reduced.
With a relatively small distance offset error, users are able to pinpoint the actual break location in high distance accuracy.
Faster location identification, faster repair time.



15 Hours Battery Operation

Just keeps on going

Imagine working an entire work shift at your remote work site without worrying about running out of battery power. The AQ7280's powerful Li-Ion battery will last for an amazing 15 hours under the Telcordia standard conditions and 10 hours even with the laser continuously turned on!

Modularity

Full range of selections

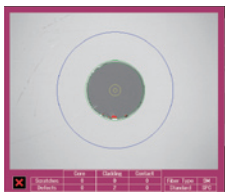
12 OTDR units ranging from single mode to multi mode, from low dynamic range to ultra-high dynamic range, and 2 wavelengths to 4 wavelengths.
Selection of power sensor, light source, visible light source and fiber inspection probe for instrument's customization based on users' needs.

Connector Quality Assurance

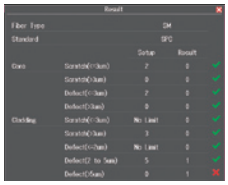
Zoomed in, checked out, all fixed up

Using high-performance Lightel™ fiber inspection probe, fiber connector surface is visualized for inspection of scratches and dirt. Reducing 90% of fiber cable problem.
Fiber Surface Test function* automatically analyzes scratches and dirt and makes PASS/FAIL judgment based on IEC61300-3-35 compatible or arbitrary decision criteria.

*Available when /FST option is selected.



Fiber Surface Test function

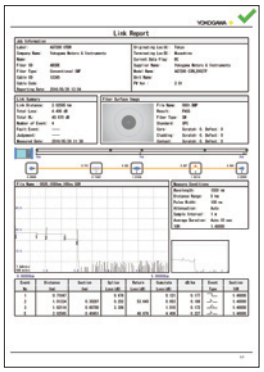


Result screen of Fiber Surface Test

Valuable functions for easily troubleshooting network issues

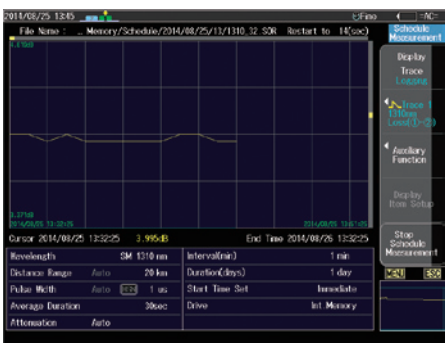
PDF Reporting

Built-in post-processing software for generating OTDR reports in PDF format.
Flexible configuration of report template to meet users' report requirements.
Using AQ7280 Wireless Connectivity, the PDF reports can be transferred through internet for immediate reporting.



Intermittent Connection Monitoring

Under cold weather conditions, fiber network connectivity can be interrupted intermittently due to bending/loose connections events.
Identifying such intermittent interruption requires periodic monitoring and advanced analysis algorithm.
The OTDR Schedule Measurement function is useful to monitor a particular fiber core based on user-defined measurement period and interval.
Measurement results are compared with a reference trace and analyzed for any discrepancies. Based on user-defined loss threshold, discrepancy at a particular distance is identified and the occurrence time is recorded.
(Available when /MNT option is selected.)

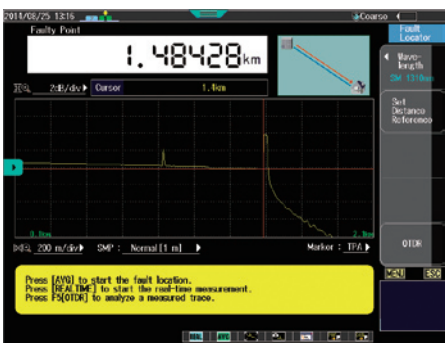


Macro Bending Detector

Thanks to the OTDR advanced analysis function and macro bend characteristic, users can immediately identify and locate macro bend events along fiber network.
Multi-wavelengths traces are acquired on same fiber, compared and analyzed automatically in a single-button operation.
When loss difference of a same location event at different wavelengths is more than user's defined threshold, the macro bend is detected!

Fault Locator

OTDR-based application for simply identifying fiber break location.
Adaptive, smart-algorithm based on selected network architectures, such as point-to-point or PON network topology.
Simple view of distance information for easy interpretation.
Easily toggled trace view for additional detail analysis.



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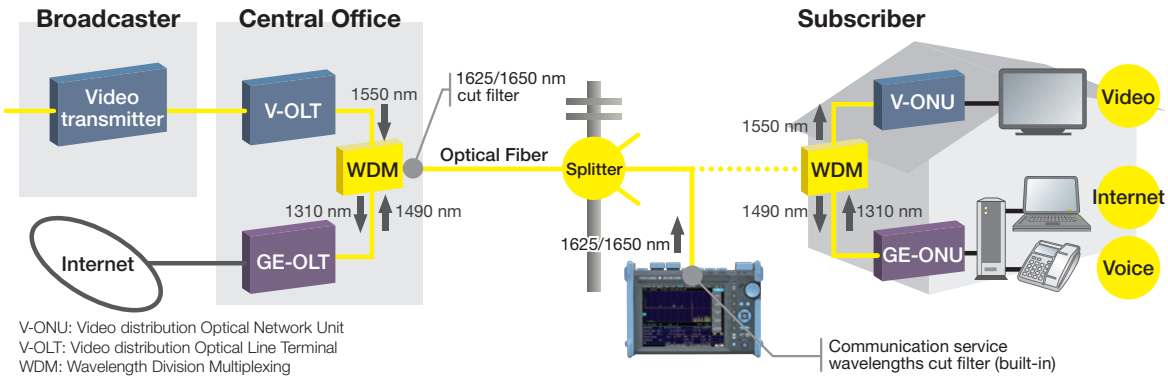
PON Optimized

Excellent hardware performance and advanced analysis algorithm, enables the AQ7280* to accurately characterize Passive Optical Network (PON) through high-port-count splitters (up to 1 × 128).
PON mode assists beginner/expert users in simply configuring OTDR measurement settings based on PON topology information for optimal results. Short event dead zone and high sampling resolution enable users to detect near-end location of connectors that are as close as 0.5 meters (<20 inches).
With the built-in optical cut filter and dedicated measurement port, the AQ7283F module is capable to measure live PON for maintenance purpose.

*Available in selected AQ7280 modules.



V-ONU: Video distribution Optical Network Unit
V-OLT: Video distribution Optical Line Terminal
WDM: Wavelength Division Multiplexing

Multi-language Support

Wide selection of display languages to assist users in operating the AQ7280 in their native language.
Available languages including but not limited to Chinese, Czech, Dutch, English, Finnish, French, German, Italian, Norwegian, Polish, Portuguese, Spanish, Swedish, and Turkish.

Invaluable options supporting installation and maintenance works

Optical Power Meter & Checker

OPM dB/dBm/mW

OPC dB/dBm/mW

Measures and displays optical power of a light source as an absolute/relative value for testing transmitter/network performance. Measurement results can be saved for reference purpose.
Invaluable test instrument during installation and maintenance.
Calibrated and selectable wavelength setting. Single-mode and Multi-mode measurement ready. Continuous wave and modulated wave detection capability.
Two selections of optical power sensor are available, which are optical power meter and optical power checker*, different on the specs and functions.

*Available in selected OTDR units as an option.

Optical Light Source*

LS

Outputs a stable, continuous wave of light for measuring end-to-end attenuation accurately when paired with Optical Power Sensor. Modulated light function at 270 Hz/1 kHz/2 kHz is also available for fiber identification or continuity check purpose on a live fiber network.

*Available in selected OTDR units as an option.

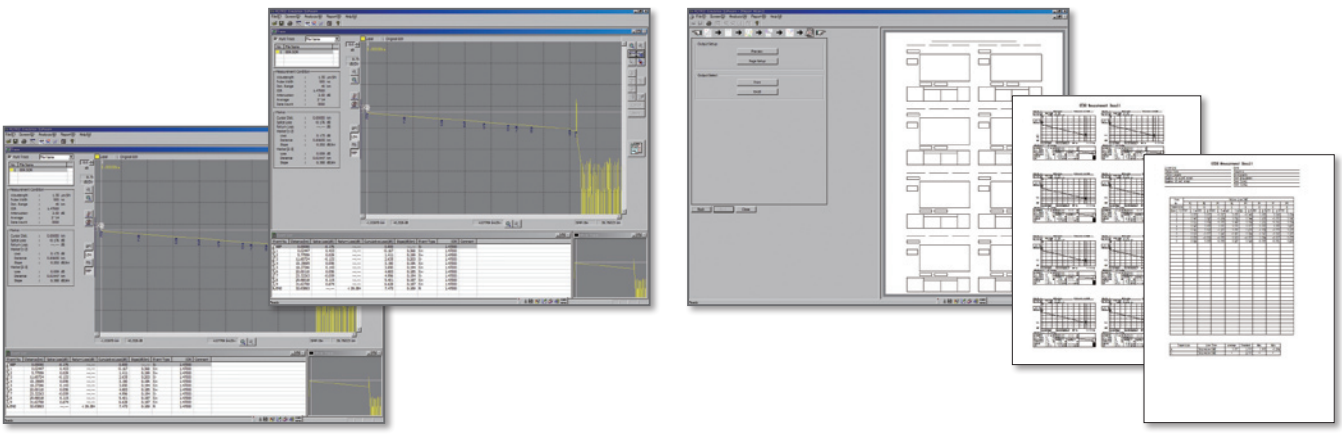
Visible Light Source

VLS

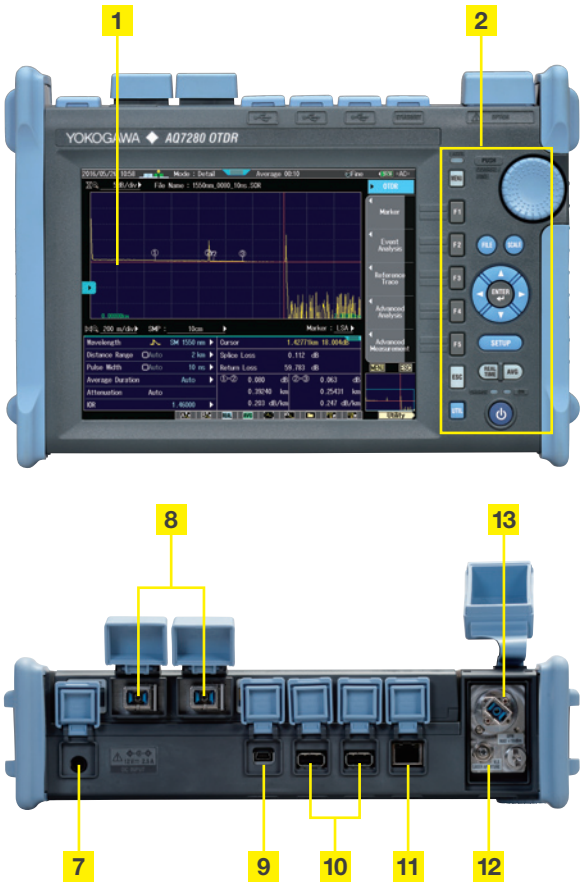
Visible, continuous/modulated red light laser. Invaluable test instrument for checking continuity of patchcords, launch fibers, or short fiber trunks. Breaks and bendings in fiber can be identified visually as the visible light exits the fiber on such fault events.

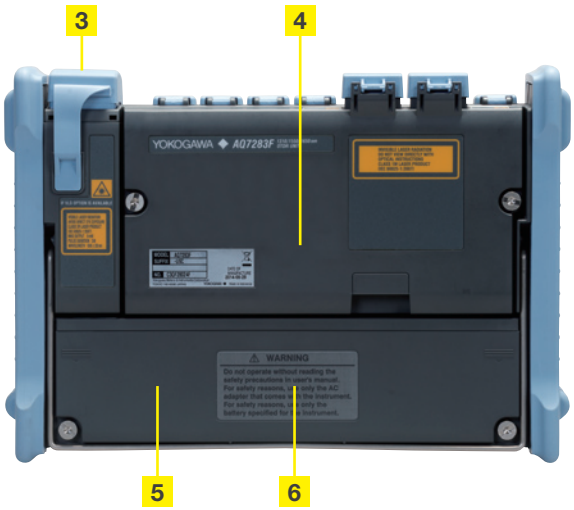
AQ7932 Emulation Software

Powerful post-processing software. Analyzing/editing trace data on a PC. The Report Creation Wizard function provides a step-by-step guidance for users in generating comprehensive reports in a printable format and Excel format.



Design and Selection Guide





1 Multi-touch touchscreen
2 Hard-key buttons
3 OPM, VLS module
4 OTDR unit
5 Battery (inside)
6 SD card slot (inside)
7 DC power input
8 OTDR, OLS port
9 USB 2.0 mini port
10 USB 2.0 port
11 Ethernet port
12 VLS port
13 OPM port

NOTE: Certain functions and ports may be optional. Please refer to the specifications section for details.

OTDR unit	Number of wavelength	Dynamic range (dB)								Test application			Fiber network				
		SM 1310 (nm)	SM 1383 (nm)	SM 1490 (nm)	SM 1550 (nm)	SM 1625 (nm)	SM 1650 (nm)	MM 850 (nm)	MM 1300 (nm)	Installation	Maintenance		Core	Metro	Access	PON	MM fiber
											Dark	Live					
AQ7282A	2	38			36					●	●				●	●	
AQ7283A	2	42			40					●	●			●	●	●	
AQ7284A	2	46			45					●	●		●	●	●		
AQ7285A	2	50			50					●	●		●	●	●		
AQ7283E	3	42			40	40*1				●	●	●		●	●	●	
AQ7283F	3	42			40		40*1			●	●	●		●	●	●	
AQ7283H	3	42			40	39				●	●	○*2		●	●	●	
AQ7284H	3	46			45	44				●	●	○*2	●	●	●		
AQ7282G	3	38		36	36					●	●				●	●	
AQ7283K	4	42		38	40	40				●	●	○*2		●	●	●	
AQ7283J	4	42	39		40	40				●	●	○*2		●	●	●	
AQ7282M	2							25	27	●	●						●

*1 Port2, Built-in filter
*2 Using an external filter

Specifications

AQ7280

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) × 1)*2, Ethernet (10/100BASE-T, Option) × 1, SD card slot × 1
Remote control		USB TYPE B (mini), Ethernet (TCP/IP)
Data storage	Storage	Internal storage: ≥1000 waveforms, External storage: USB memory, SD card
	File format	Write: SOR, CSV, SET, BMP, JPG, CFG, PDF, Read: SOR, SET
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	km, mile, kf
	Measurement	Distance, Loss, Return loss, and Return loss between two arbitrary points
	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, 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, and fiber inspection probe. USB TYPE B (mini) is for remote control and internal storage access with a PC.

OTDR units

Items	Specifications					
Model	AQ7282A	AQ7283A	AQ7284A	AQ7285A	AQ7283E	AQ7283F
Wavelength (nm)	1310 ±25/1550 ±25				1310 ±25/1550 ±25, 1625 ±10	1310 ±25/1550 ±25, 1650 ±5*6 ±10*7
Number of optical port	1				2 (Port 2: 1625 nm with filter)	2 (Port 2: 1650 nm with filter)
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*3 (m)	0.6			0.5	0.6	
Attenuation dead zone*4 (m)	3.5/4				3.5/4, 4	
Dynamic range*5 (dB)	38/36	42/40	46/45	50/50	42/40, 40	
Optical connector	Universal Adapter SC, FC, LC, and SC Angled-PC					
Laser class	Class 1M or Class 1		Class 1M or Class 1 (1550 nm), Class 3R (1310 nm)		Class 1M or Class 1	
Maximum optical pulse output power	—					≤+15 dBm (1650 nm)

Items	Specifications					
Model	AQ7283H	AQ7284H	AQ7282G	AQ7283K	AQ7283J	AQ7282M
Wavelength (nm)	1310 ±25/1550 ±25/1625 ±25		1310 ±25/1490 ±15/ 1550 ±25	1310 ±25/1490 ±25/ 1550 ±25/1625 ±25	1310 ±25/1383 ±2/ 1550 ±25/1625 ±25	850 ±30/1300 ±30
Number of optical port	1					
Applicable fiber	SM (ITU-T G.652)					GI50, GI62.5
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*9, 5000*9
Event dead zone*3 (m)	0.6					0.6*10
Attenuation dead zone*4 (m)	3.5/4/4		3.5/4/4	3.5/4/4/4		4/5*10
Dynamic range*5 (dB)	42/40/39	46/45/44	38/36/36	42/38/40/40	42/39/40/40	25/27*11
Optical connector	Universal Adapter SC, FC, LC, and SC Angled-PC					Universal Adapter SC, FC, LC
Laser class	Class 1M or Class 1	Class 1M or Class 1 (1550/1625 nm), Class 3R (1310 nm)	Class 1M or Class 1	Class 1M or Class 1 (1490/1550/1625 nm), Class 3R (1310 nm)	Class 1M or Class 1 (1383/1550/1625 nm), Class 3R (1310 nm)	Class 1M or Class 1 (1300 nm), Class 3R (850 nm)
Maximum optical pulse output power	—					

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)
Loss measurement accuracy*8	±0.03 dB/dB
Return loss measurement accuracy	±2 dB
Dimensions	Approx. 211 mm (W) × 110 mm (H) × 32 mm (D) (excluding projections)
Weight	Approx. 420 g

*3 Pulse width: 3 ns, Return loss: ≥55 dB, Group refractive index: 1.5, at 1.5 dB below the unsaturated peak level, Typical
*4 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
*5 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.
*6 At 20 dB below the spectral peak of pulsed optical output, at 23℃, after warm-up of 30 minutes
*7 At 60 dB below the spectral peak of pulsed optical output, at 23℃, after warm-up of 30 minutes
*8 For a loss 1 dB or less, the accuracy is ±0.05 dB.
*9 1300 nm only
*10 Return loss condition changes to ≥40 dB.
*11 Pulse width: 500 ns (850 nm)/1000 ns (1300 nm), Measurement time: 3 minutes, SNR=1, GI50, Typical

Optional functions for OTDR units

Items		Specifications						
Model		AQ7282A	AQ7283A	AQ7284A	AQ7285A	AQ7283E	AQ7283F	AQ7283H
Power Checker (/PC)	Wavelength setting	1310/1490/1550/1625/1650 nm						
	Power range*12	–50 to –5 dBm						
	Measurement accuracy*13	±0.5 dB						
	Optical input port	OTDR port				OTDR port*15		OTDR port
Stabilized Light Source (/SLS)	Wavelength (nm)	1310 ±25/1550 ±25				1310 ±25/1550 ±25, 1625 ±10	1310 ±25/1550 ±25, 1650 ±5 *16 ±10 *17	1310 ±25/1550 ±25/ 1625 ±25
	Optical output power	–3 dBm ±1 dB						
	Output power stability*14 (dB)	±0.05				±0.05/±0.05, ±0.15		±0.05/±0.05/±0.15
	Modulation mode	CW, 270 Hz, 1 kHz, 2 kHz						
	Optical output port	OTDR port						
	Laser class	Class 1M or Class 1						

Items		Specifications				
Model		AQ7284H	AQ7282G	AQ7283K	AQ7283J	AQ7282M
Power Checker (/PC)	Wavelength setting	1310/1490/1550/1625/1650 nm				—
	Power range*12	–50 to –5 dBm				—
	Measurement accuracy*13	±0.5 dB				—
	Optical input port	OTDR port				—
Stabilized Light Source (/SLS)	Wavelength (nm)	1310 ±25/1550 ±25/ 1625 ±25	1310 ±25/1490 ±15/ 1550 ±25	1310 ±25/1490 ±25/ 1550 ±25/1625 ±25	1310 ±25/—/ 1550 ±25/1625 ±25	850 ±30/1300 ±30
	Optical output power	–3 dBm ±1 dB				≥–20 dBm
	Output power stability*14 (dB)	±0.05/±0.05/±0.15	±0.05/±0.15/±0.05	±0.05/±0.15/±0.05/±0.15	±0.05/—/±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				
	Laser class	Class 1M or Class 1				Class 3R/Class 1M or Class 1

Power Checker (/PC) is not available for AQ7282M, and Stabilized Light Source (/SLS) is not available for the wavelength 1383 nm of AQ7283J.
*12 CW, Safe maximum input power: 0 dBm (1 mW)
*13 CW, 1310 nm, –10 dBm, SM (ITU-T G.652)
*14 Constant temperature, 5 minutes after warm-up of 5 minutes
*15 Not applicable to Port2
*16 At 20 dB below the spectral peak of pulsed optical output, at 23°C, after warm-up of 30 minutes
*17 At 60 dB below the spectral peak of pulsed optical output, at 23°C, after warm-up of 30 minutes

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: 1270 to 1610 nm (20 nm steps)				—
	Power range	CW	+10 to –70 dBm	+27 to –50 dBm*18	+10 to –70 dBm	+27 to –50 dBm*18	—
		CHOP	+7 to –70 dBm	+24 to –50 dBm*18	+7 to –70 dBm	+24 to –50 dBm*18	—
	Noise level*19		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 µm)				—
	Uncertainty*20		±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 sec., Number of data: 10 to 1000 data				—
	Optical connector		Universal Adapter: SC, FC, Ferrule Adapter: ϕ1.25				—
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		—		Class 3R		
Dimensions			Approx. 47 mm (W) × 87 mm (H) × 29 mm (D) (excluding projections)				
Weight			Approx. 140 g				

*18 1300 to 1600 nm
*19 1310 nm
*20 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)

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 be charged)
	Storage temperature	–20 to 60°C
	Humidity	0 to 90% RH (20 to 90% with 739871 AC adapter, non-condensing)
	Altitude	4000 m
Power requirements		100 to 240VAC, 50/60Hz (AC adapter)
Battery	Type	Lithium-ion
	Operating time*21	15 hours (Telcordia GR-196-CORE Issue2 2010), 10 hours*22 (Continuous measurement)
	Recharge time*21	6 hours
EMC*23	Emission	EN 61326-1 Class A, EN 55011 Class A Group1
	Immunity	EN 61326-1 Table2
Safety*23		EN 61010-1
	Laser	EN60825-1: 2014 Class 1*25, IEC60825-1: 2007, GB7247.1-2012 Class 1M*26/EN602825-1: 2014, IEC60825-1: 2007, GB7247.1-2012 Class 3R*24,*27, FDA 21CFR1040.10*28
Environmental regulation standard*23		EN50581

*21 Typical
*22 Power save mode, without an option module
*23 AQ7280 OTDR mainframe together with an OTDR unit and an OPM&VLS module.
*24 1310 nm of AQ7284A, AQ7285A, AQ7284H and AQ7283K OTDR units, 850 nm of AQ7282M OTDR unit, and the visible light sources
*25 CLASS 1
*26 CLASS 1M
*27 CLASS 3R
*28 21CFR1040.10

Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No.50, dated June 24, 2007
2-9-32 Nakacho, Musashino-shi, Tokyo 180-8750, Japan

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

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	/FST	Fiber Surface Test function
	/MNT	Monitoring function
	/SMP	Smart Mapper 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 42/40, 40 dB*4
AQ7283F		3WL 1310/1550,1650 nm 42/40, 40 dB*4
AQ7283H		3WL 1310/1550/1625 nm 42/40/39 dB
AQ7284H		3WL 1310/1550/1625 nm 46/45/44 dB
AQ7282G		3WL 1310/1490/1550 nm 38/36/36 dB
AQ7283K		4WL 1310/1490/1550/1625 nm 42/38/40/40 dB
AQ7283J		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
	/SLS	Stabilized Light Source*3

*1 Not applicable to AQ7282M
*2 Not applicable to the Port2 of AQ7283E and AQ7283F
*3 Not applicable to the wavelength 1383 nm of AQ7283J.
*4 The port for 1650 nm or 1625 nm is equipped with a built-in filter.

3-Year Warranty

NOTICE

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

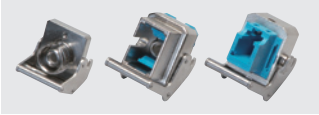
OPM/VLS modules

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 (φ1.25)

Models	Suffix codes	Descriptions
AQ4780		VLS Module

Accessories (Sold separately)

Names	Models	Descriptions
Soft Carring Case	739860	
Battery Pack	739883	
Universal Adapter (SC)	SU2005A-SCC	for OTDR unit
Universal Adapter (FC)	SU2005A-FCC	for OTDR unit
Universal Adapter (LC)	SU2005A-LCC	for OTDR unit
Universal Adapter (SC)	735480-SCC	for OPM module
Universal Adapter (FC)	735480-FCC	for OPM module
Ferrule Adapter (φ1.25)	735481-LMC	for OPM module
Ferrule Adapter (φ2.5)	735481-SFC	for OPM module
Shoulder Belt	B8070CY	



SU2005A-FCC, SU2005A-SCC, SU2005A-LCC

735480-FCC, 735480-SCC, 735481-LMC

Application software

Models	Suffix codes	Descriptions
735070		AQ7932 Emulation Software (Ver. 5.01 or later)
	-EN	English
	-JA	Japanese
	-CH	Chinese
	-KO	Korean
735071		AQ7940 Optical Fiber Monitoring Software (Ver. 5.01 or later)
	-HE	English/Japanese
735050		Additional option license for AQ7280
	-FST	Fiber Surface Test function
	-MNT	Monitoring function
	-SMP	Smart Mapper function

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.

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.

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