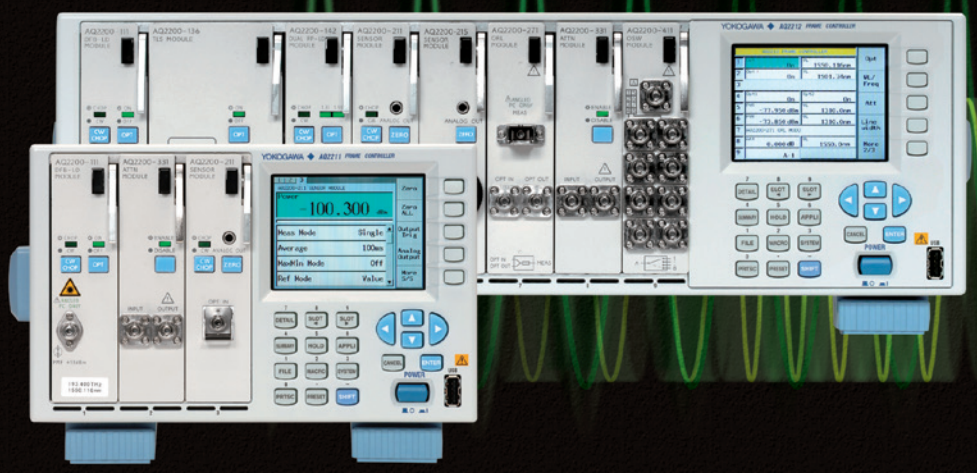
Multi Application Test System

YOKOGAWA

AQ2200 Series

Multi Application Test System



Ideal Measurement Solution for Optical Devices and Optical Transmission Systems

- **A broad lineup of measurement modules**
  Grid tunable laser source, Optical power meter, Optical attenuator, Optical switch, etc.
- **Macro programming Function**
  Convenient solution for automated measurements eliminating need for an external PC controller.
- **Remote interfaces : GP-IB, Ethernet, and USB**
- **Hot-swappable modules**

For more information, go to
tmi.yokogawa.com
Test & Measurement Instruments

Bulletin AQ2200-20EN

Ideal Measurement Solution for Optical Devices and Optical Transmission Systems

The AQ2200 Multi Application Test System is the ideal system for measuring and evaluating a wide range of optical devices and optical transmission systems. A variety of measurement modules are available, including the following: grid tunable laser source, high-speed optical sensors, high-resolution and high-speed variable optical attenuators and optical transceiver interfaces. These modules can be installed in any combination on a single platform, providing an ideal measurement system for a variety of applications.

The AQ2200 Multi Application Test System is available in two different frame controller platforms. Each model has a certain number of slots for housing modules, so you can select the best platform size for your measurement application.

Frame and Module Lineup

Frame Controller

AQ2211 Frame controller (3 slots)
AQ2212 Frame controller (9 slots)

Light Source Module

AQ2200-131 Grid TLS module (C/L band, 1 channel)
AQ2200-132 Grid TLS module (C/L band, 2 channels)

Sensor Module

AQ2200-221 Sensor module (2 channels)
AQ2200-215 Sensor module (high power +30 dBm)

Optical Attenuator Module

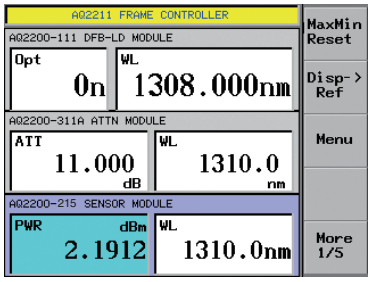
AQ2200-311A ATTN module (standard)
AQ2200-331 ATTN module (built-in monitor power meter)
AQ2200-342 DUAL ATTN module (built-in monitor power meters, 2 channels)

Optical Switch Module

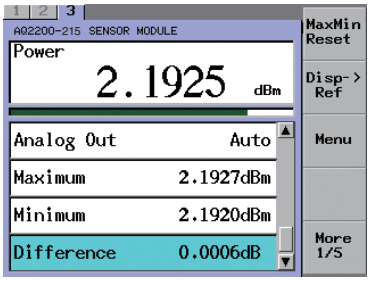
AQ2200-421 OSW module (1×2 or 2×2, 2 channels)
AQ2200-411 OSW module (1×4 or 1×8)
AQ2200-412 OSW module (1×16)

Modules for Optical Transceiver

AQ2200-642 Transceiver interface module
AQ2200-651 SG module



AQ2211 Frame Controller Screen (SUMMARY)



AQ2211 Frame Controller Screen (DETAIL)

Frame controller with convenient functions

◆Hot-swappable

Measurement modules can be inserted or removed without turning off the power. This hot-swapping capability makes it easier to reconfigure your system.

◆USB storage

The USB makes it easy to quickly save and load data. It saves measurement data in CSV and a screen shot in bmp, so that they can easily be imported into almost any PC application.

◆Multi user function

Up to 5 users can access to the same frame controller simultaneously.
This function contributes to cost-saving and space-saving by sharing a frame.

◆Various remote interfaces

The AQ2211 and AQ2212 frame controllers are equipped with not only IEEE488.2 compliant GP-IB but also Ethernet and USB for remote operation.

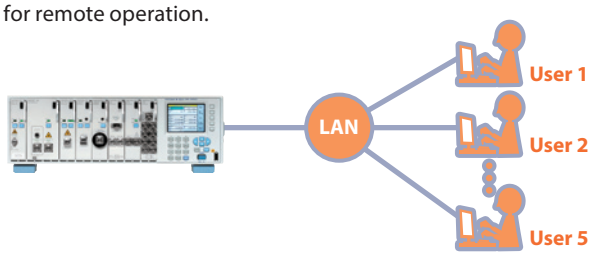


Image of Multi user function

Powerful Features for Automated Testing

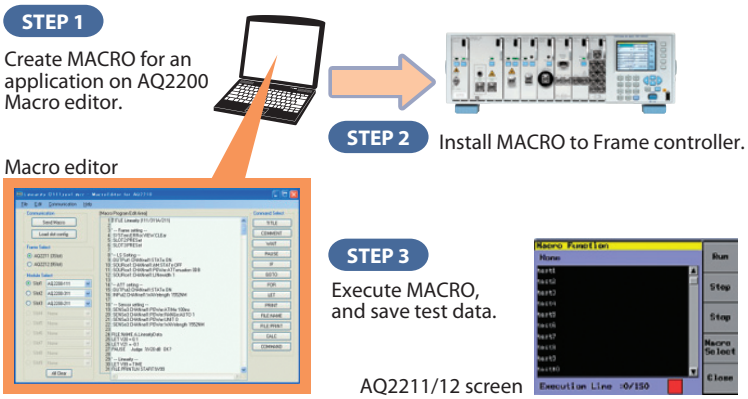
Macro Programming Function

A macro program function makes it easy to build a simple automated measurement system by writing a series of operations in a program, setting measurement conditions, changing test configurations in combination with multiple modules, executing measurements, and saving results.

Step 1: Create a macro program using Macro editor, a PC application software.

Step 2: Install the macro program into Frame controller via GP-IB, Ethernet, or USB.

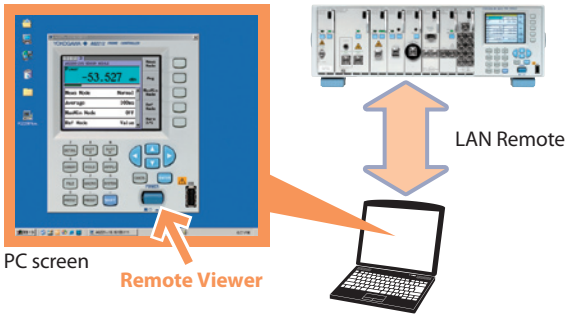
Step 3: Execute the macro program on the frame controller.



*The Macro editor (free software) can be downloaded from our web site.

Remote Viewer Software

The remote viewer software, a free PC application software, enables the AQ2200 Multi-Application Test System to be controlled from your PC via the Ethernet interface. When starting the software and setting up the connection properly, the front panel image of the connected frame controller is displayed on your PC monitor. Using a mouse, you can control the remote frame controller from your PC through operations that are similar to those for the front panel keys of the instrument. It is useful in case that you cannot see or operate the frame directly for the frame being mounted high up in the test stand.

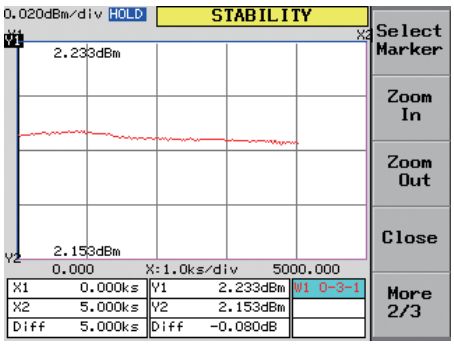


*The remote viewer software (free software) can be downloaded from our web site.

Stability / Logging Function

Stability and logging measure fluctuation in optical power.

- **Stability Measurement**
  By measuring the optical signal over a long period of time, you can check the optical power stability up to 99days.
- **Logging Measurement**
  By measuring an optical signal that fluctuate over very short periods of time, you can check the transient fluctuation or response with min. 100µs intervals.



Graph Display Screen

Module Lineup

Optical Power Meter Improved measurement throughput

High-Power (AQ2200-215)

- High power measurement: +30 dBm
- Power range: -70 to +30 dBm
- Averaging time: 100 µs (minimum sampling intervals)

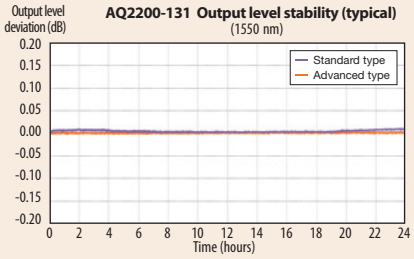
Dual-Channel (AQ2200-221)

- Compact: Two high-performance sensors in a module.
- Power range: -70 to +10 dBm
- Averaging time : 200 µs (minimum sampling intervals)

Light Source

Grid Tunable Laser Source (AQ2200-131/-132)

- Frequency (Wavelength) range: C/L-band
- 1 and 2 channel modules
- Grid spacing: Standard type: min. 50 GHz (0.4 nm)
  Advanced type: min. 25 GHz (0.2 nm) and manual (0.1 GHz)
- Dither function (Advanced type only)



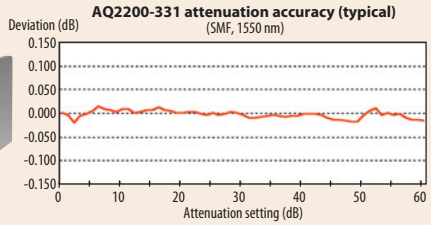
Optical Attenuator Providing low insertion loss and fast control

Standard type (AQ2200-311A)

- Low insertion loss: 1.0 dB (typ.)
- Wide attenuation range:
  0 to 60 dB (in steps of 0.001 dB)
- Wide wavelength range:
  1200 to 1700 nm
- Monitor output (optional)
- Low polarization dependence loss:
  0.1 dBp-p or less

ATTN w/ Built-in Monitor Power Meter (AQ2200-331)

- Attenuation accuracy: within ±0.1 dB
- The output monitor function allows for directly setting the optical power
- SMF (10/125 µm) or MMF (50/125 µm or 62.5/125 µm)
- Bulte-in optical shutter: 90 dB or more



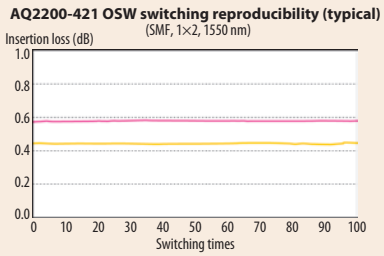
Dual Optical Attenuator (AQ2200-342)

- Wavelength range: 1260 to 1640 nm
- Attenuation range: 0 to 40 dB
- Fast attenuation control: 100 ms
- Built-in optical shutter: 70 dB or more
- Built-in monitor power meter

Optical Switch Superior switching reproducibility

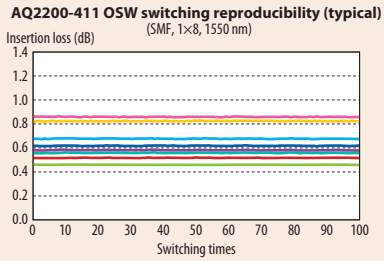
1×2, 2×2 Dual Optical Switch (AQ2200-421)

- Compact: Two optical switches in a one-slot size module
- SMF (10/125 µm) or MMF (50/125 µm or 62.5/125 µm)
- Low insertion loss: 1.0 dB (typ.)
- Switching reproducibility: ±0.01 dB



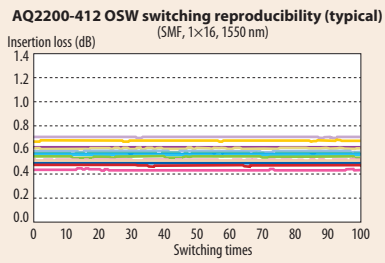
1×4, 1×8 Optical Switch (AQ2200-411)

- SMF (10/125 µm) or MMF (50/125 µm or 62.5/125 µm)
- Switching reproducibility: ±0.01dB
- Low insertion loss: 1.0 dB (typ.)



1×16 Optical Switch (AQ2200-412)

- SMF (10/125 µm) or MMF (50/125 µm)
- Switching reproducibility: ±0.01dB
- Low insertion loss: 1.0 dB (typ.)



Optical Transceiver Test Simplifying 10G transceiver test environment

Transceiver I/F module (AQ2200-642)

- Compatible with XFP, SFP+, XENPAK, etc.
- Power supply and current monitor
- I^2C/MDIO interfaces
- Control signal transmission
- Status signal monitor
- Resistance value monitor

SG module (AQ2200-651)

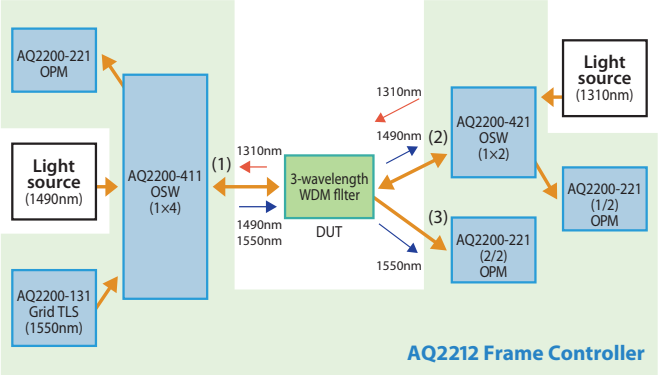
- RF output : 5 channels
- Clock output : 620.0 to 720.0 MHz
  155.0 to 180.0 MHz
- 10 MHz reference input and output

Measurement Applications

3-wavelength Optical Filter Measurement System for GE-PON

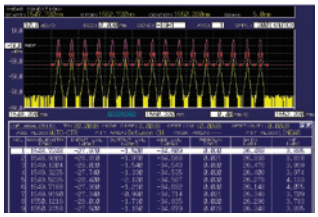
A 3-wavelength optical filter for GE-PON splits 1490 nm and 1550 nm optical signals, and pass a 1310 nm optical signal in the return direction.
This measurement system measures the insertion losses of wavelengths passing between ports and the isolation of wavelengths blocked.

[Measurement items]
- Insertion loss: (1) to (2) 1490 nm, (1) to (3) 1550 nm, (2) to (1) 1310 nm
- Isolation: (1) to (2) 1550 nm, (1) to (3) 1490 nm, (2) to (3) 1310 nm

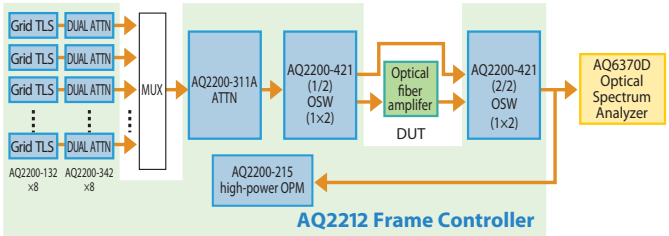


Optical Fiber Amplifier Measurement System

An optical fiber amplifier is an indispensable device for WDM transmission systems. This measurement system characterizes gains and noise figures (NF) of the fiber amplifier by measuring input light to an optical fiber amplifier, which was multiplexed using multiple light sources, as well as amplified output light with an optical spectrum analyzer. A high-power sensor allows for measuring total output power.

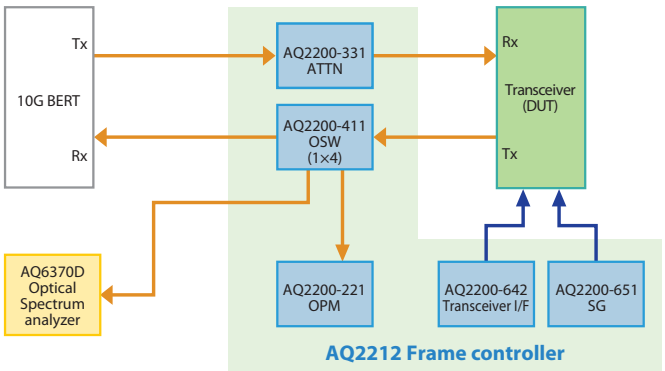

AQ6370D Measurement Screen

[Measurement items]
- Gain, NF, and total output power



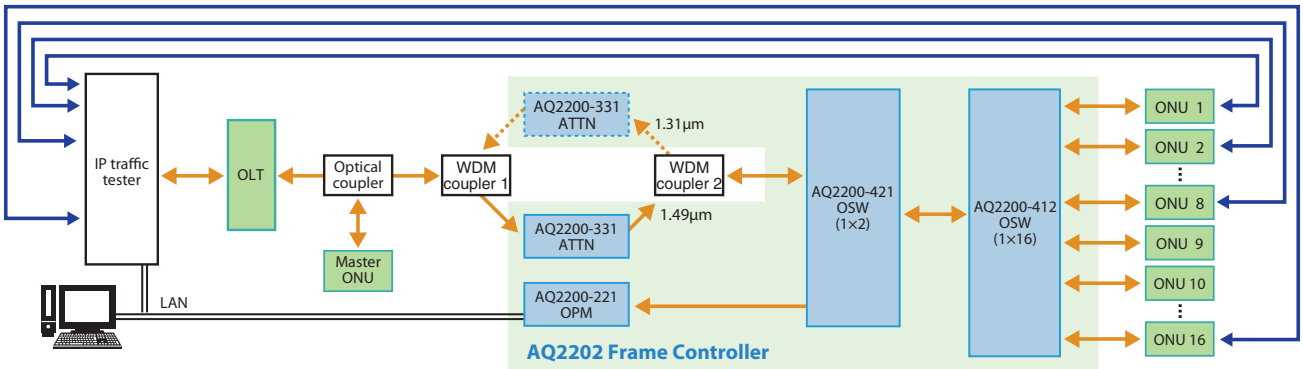
Transceiver Measurement System

The 10Gbit/s optical transceiver modules such as XFP or SFP+ are frequently used in transmission systems and Ethernet systems.
The measuring system for such modules requires many instruments including power supplies, multi-meters and the signal generators to control optical transceiver modules.
The AQ2200 Multi Application Test System allows for building a space saving test system with a variety of plug-in modules.



GE-PON Test System

To evaluate GE-PON systems used for FTTH networks, optical characteristics and IP traffic tests are performed. Since a GE-PON consists of OLTs and multiple ONUs, efficient measurement of multiple ports is required. Utilizing the multiple port AQ2200-4xx optical switch makes it possible to build an efficient automated measurement system by distributing the signal in a custom test network. Since the AQ2200-331 Optical Attenuator is equipped with a monitor power meter, the ONU optical receiving level can be adjusted without changing the fiber connection.



Product Specifications

Frame Controller (AQ2211/2212)

Items		Specifications	
Product name		A2211	AQ2212
Number of slots		3	9
Display		Color LCD, 320 × 240 dot	
Remote interface	GPIB	IEEE-488 compatible, protocol: IEEE-488.2 compatible	
	Ethernet	IEEE802.3 compatible, connector: RJ-45 × 1, transmission method: Ethernet (100BASE-TX), protocol: TCP/IP	
	USB	USB Rev1.1 compatible, connector: USB type B × 1, protocol: USB-TMC	
External storage interface		USB (USB Rev2.0 compatible, connector: USB type A × 1, applicable device: USB mass storage class flash memory)	
Interlock connector		BNC connector	
Functions	Preset applications	Stability, Logging, Swept, Optical return loss (ORL)	
	Control functions	Macro programming, Multi-user, Remote viewer support	
Operation environment	Ambient temperature	5 to 40°C	
	Ambient humidity	20 to 80% RH (no condensation)	
Storage environment	Ambient temperature	−20 to 60°C	
	Ambient humidity	20 to 80% RH (no condensation)	
Power requirement		100 to 240 Vac, 50/60 Hz	
Power Consumption (including modules)		170 VA	580 VA
Dimension (excluding protrusions)		Approx. 212 (W) × 132.5 (H) × 400 (D) mm	Approx. 425 (W) × 132.5 (H) × 500 (D) mm
Mass		Approx. 6 kg	Approx. 11 kg
Recommended calibration period		1 year (include modules)	

Grid TLS Module (AQ2200-131 / -132)

Items	Product Specs			
Product name	AQ2200-131, AQ2200-132			
Number of channel	AQ2200-131: 1, AQ2200-132: 2			
Device type	Standard type		Advanced type	
Frequency band	C-Band	L-Band	C-Band	L-Band
Frequency (Wavelength) range	196.10 to 191.70 THz (1528.77 to 1563.86 nm)	190.90 to 186.50 THz (1570.42 to 1607.47 nm)	196.25 to 191.50 THz (1527.60 to 1565.50 nm)	190.95 to 186.35 THz (1570.01 to 1608.76 nm)
Grid spacing	100 GHz, 50 GHz		100 GHz, 50 GHz, 25 GHz and Manual (min. 0.1 GHz)	
Frequency (Wavelength) setting resolution	—		0.1 GHz (0.8 pm@1550 nm)	0.1 GHz (0.8 pm@1590 nm)
Frequency (Wavelength) fine turning range	—		±6 GHz (typ.) (±48 pm@1550 nm)	±6 GHz (typ.) (±51 pm@1590 nm)
Absolute frequency (Wavelength) accuracy	±2.5 GHz (±20 pm@1550 nm)	±2.5 GHz (±21 pm@1590 nm)	±2.5 GHz (±20 pm@1550 nm)	±2.5 GHz (±21 pm@1590 nm)
Frequency (Wavelength) stability (@24 hours, ±0.5°C)	±0.3 GHz (typ.) (±2.4 pm@1550nm)	±0.3 GHz (typ.) (±2.5 pm@1590 nm)	±0.3 GHz (typ.) (±2.4 pm@1550 nm)	±0.3 GHz (typ.) (±2.5 pm@1590 nm)
Frequency (Wavelength) tuning time	30 sec. or less			
Optical output level	+12 dBm or more	+9 dBm or more	+12.5 dBm or more	
Output level stability	±0.03 dB (typ.) (@24h, ±0.5°C)			
Attenuation range	4 dB (resolution: 0.1 dB (typ.))		6 dB (resolution: 0.01 dB (typ.))	
Spectral linewidth	3 MHz (typ.)		100 kHz (typ.)	
SMSR	45 dB (typ.)			
RIN	−135 dB/Hz (typ.)	−130 dB/Hz (typ.)	−145 dB/Hz (typ.)	
Applicable optical fiber	PANDA PMF (Slow axis, in line with connector key)			
Optical connector	Select any of FC/PC or FC/Angled PC			
Dither function	—		Available	
Laser safety standard class	Class 1M (IEC 60825-1: 2007)			

● Laser Safety Information

This laser light source is classified into "IEC60825-1: 2007; Class 1M".
This specification complies with "21CFR 1040.10" except for deviation points arising from strict observation of "Laser Notice No. 50" issued on June 24, 2007.

Laser class 1M label

Using an optical instrument, such as a loupe, magnifying glass, or microscope, when observing the laser beam from a distance of less than 100 mm may cause eye injury.

Sensor Module (AQ2200-215/-221)

Items	Product Specs	
Product name	AQ2200-215	AQ2200-221
Number of channels	1	2
Detector type	InGaAs	InGaAs ϕ3 mm
Wavelength range	970 to 1660 nm	800 to 1700 nm
Power range (CW light)	−70 to +30 dBm	−70 to +10 dBm
Applicable fiber type	≦62.5/125 µm (GI), NA≦0.275	
Uncertainty Under reference conditions	±3%	
Total uncertainty	±5.0% ±2.0 nW	±5.0% ±50 pW
Polarization dependence	0.03 dBp-p (typ.)	0.02 dBp-p (typ.)
Linearity	±0.05 dB ±2.0 nW	±0.02 dB ±50 pW
Noise level	2.0 nW or less	50 pW or less
Averaging time (min.)	100 µs	200 µs
Optical connector	AQ9335C (*) connector adapter	

ATTN Module (AQ2200-311A/331)

Items	Product Specs			
Product name	AQ2200-311A		AQ2200-331	
Wavelength range	1200 to 1700 nm	800 to 1370 nm	1200 to 1700 nm	800 to 1370 nm
Insertion loss	1.0 dB (typ.) 1.6 dB or less		1.9 dB (typ.) 2.3 dB or less	
Maximum attenuation	60 dB	45 dB	60 dB	45 dB
Attenuation accuracy	±0.1 dB or less			
Repeatability	±0.01 dB or less			
Output monitor accuracy	—		±5% or less	
Optical return loss (when selecting PC connector)	45 dB or more	20 dB or more	45 dB or more	20 dB or more
Polarization dependence	0.08 dBp-p or less	—	0.1 dBp-p or less	—
Maximum input power	+23 dBm	—	+23 dBm	—
Shutter isolation	90 dB or more			
Applicable optical fiber	SMF (ITU-T G.652)	MMF (GI 50/125) (ITU-T G651.1) MMF (GI 62.5/125) (IEC 60793-2)	SMF (ITU-T G.652)	MMF (GI 50/125) (ITU-T G651.1) MMF (GI 62.5/125) (IEC 60793-2)
Optical connector	Select any of FC/PC or SC/PC			
Monitor port option				
Monitor port output	−13 dB (typ.)			
Insertion loss	2.3 dB or less			
Polarization dependence	0.1 dBp-p or less	—		

*For details, please refer to the Data sheet (AQ2200-21EN Data sheet).

DUAL ATTN Module(AQ2200-342)

Items	Product Specs
Number of channels	2
Wavelength range	1260 to 1640 nm
Insertion loss	1.8 dB (typ.)
Maximum attenuation	40 dB
Power setting range	−50 to +20 dBm
Setting resolution	0.01 dB
Attenuation accuracy	±0.15 dB (typ.) (attenuation 0 to 10 dB), ±0.20 dB (typ.) (attenuation 10 to 20 dB), ±0.45 dB (typ.) (attenuation 20 to 40 dB)
Repeatability	±0.10 dB (typ.) (attenuation 0 to 20 dB), ±0.15 dB (typ.) (attenuation 20 to 40 dB)
Output monitor accuracy	±5 %
Optical return loss	40 dB or more
Polarization dependence	0.3 dBp-p (attenuation 0 to 10 dB), 0.4 dBp-p (attenuation 10 to 20 dB), 0.6 dB (typ.) (attenuation 20 to 40 dB)
Maximum input power	+23 dBm
Shutter isolation	70 dB or more
Settling time	100 ms (typ.)
Applicable optical fiber	SMF (ITU-T G.652)
Optical connector	Select any of FC/PC or FC/Angled PC

OSW Module (AQ2200-411/-412/-421)

Items	Product Specs							
Product name	AQ2200-411				AQ2200-412		AQ2200-421			
Port configuration	1 × 4	1 × 8	1 × 4	1 × 8	1 × 16		1 × 2	2 × 2	1 × 2	2 × 2
Number of switch	1		1		1		2		2	
Wavelength	1310 nm/1550 nm		850 nm/1310 nm		1310 nm/1550 nm	850 nm/1310 nm	1310 nm/1550 nm		850 nm/1310 nm	
Insertion loss	1 dB (typ.) 1.4 dB or less									
Repeatability	±0.01 dB or less									
Crosstalk	−60 dB or less		−50 dB or less		−60 dB or less	−50 dB or less	−50 dB or less			
Optical return loss	45 dB or more		20 dB or more		45 dB or more	20 dB or more	45 dB or more		20 dB or more	
Polarization dependence	0.08 dBp-p or less		—		0.08 dBp-p or less	—	0.08 dBp-p or less		—	
Applicable optical fiber [*1]	SMF (ITU-T G.652)		MMF (GI 50/125) (ITU-T G651.1) MMF (GI 62.5/125) (IEC 60793-2)		SMF (ITU-T G.652)	MMF (GI 50/125) (ITU-T G651.1)	SMF (ITU-T G.652)		MMF (GI 50/125) (ITU-T G651.1) MMF (GI 62.5/125) (IEC 60793-2)	
Optical connector	Select any of FC/PC or SC/PC									

[*1] Other fiber types not listed are available on request (i.e. GI50).

Transceiver I/F Module (AQ2200-642)

● Monitoring Specifications

Items		Rating		Measurement Range			Accuracy
		Upper	Lower	Upper	Lower	Reso-lution	
Power supply voltage monitor	PS1	+7.5 V	−0.5 V	+6 V	+2 V	1 mV	±(0.2% of reading + 1 mV)
	PS2	+7.5 V	−0.5 V	+4 V	+2 V		
	PS3	+7.5 V	−0.5 V	+2.5 V	+0.5 V		
	PS4	−7.5 V	+0.5 V	−2 V	−6 V		
	PS5	+7.5 V	−0.5 V	+6 V	+2 V		
Power supply current monitor	PS1	—	—	1.8 A	0 A	1 mA	±(1% of reading + 2 mA)
	PS2			3 A	0 A		
	PS3			1.8 A	0 A		
	PS4			3 A	0 A		
	PS5			2 A	0 A		
Status signal monitor	AIN1 to AIN6	+7.5 V	−0.5 V	+6 V	+0 V	0.01 V	±(1% of reading + 20 mV)
Resistance value monitor	R1	—	—	10000 Ω	0 Ω	1 Ω	±(0.5% of reading +2 Ω)
Power consumption monitor	PSPOWER	—	—	28 W	0 W	0.1 W	See the values for the voltage and current monitors.

● Power Supply Specifications

Name	Voltage Range	Current Limit Range
PS1	+4.750 to +5.250 V	0.10 to 1.80 A
PS2	+3.135 to +3.465 V	0.10 to 3.00 A
PS3	+0.800 to +1.890 V	0.10 to 1.80 A
PS4	−5.460 to −4.940 V	0.10 to 3.00 A
PS5	5.0 or 3.3 V	0.10 to 1.00 A (when 5.0 V is selected) 0.10 to 2.00 A (when 3.3 V is selected)

SG Module (AQ2200-651)

Items			Product Specs
RF OUT (CH1-CH5)	Frequency range		620.0 to 720.0 MHz (when the rate is 1/1) 155.0 to 180.0 MHz (when the rate is 1/4)
	Frequency resolution		1 Hz
	Frequency accuracy		±2.0 ppm (when using the internal oscillator) Depends on the signal received by 10 MHz REF IN (when using an external reference signal)
	Output	Amplitude	0.8 Vp-p ±0.2 Vp-p, 1.3 Vp-p ±0.2 Vp-p
		Waveform	Rectangular
		Duty	50% ±10%
		Terminator condition	50 Ω AC-coupling
	Connector		SMA, female
10 MHz REF IN	Input	Frequency range	10 MHz ±2.0 ppm
		Amplitude	0.3 Vp-p to 1.2 Vp-p
		Duty	50% ±10%
		Absolute max. rating	1.5 Vp-p
		Terminator condition	50 Ω AC-coupling
	Connector		SMA, female
10 MHz REF OUT	Output	Frequency range	10 MHz ±2.0 ppm (when using the internal oscillator) Depends on the signal received by 10 MHz REF IN (when using an external reference signal)
		Amplitude	0.8 Vp-p ±0.2 Vp-p
		Terminator condition	50 Ω AC-coupling
	Connector		SMA, female

*For details, please refer to the Data sheet (AQ2200-21EN Data sheet).

Ordering Information

AQ2211 Frame Controller

Model	Suffix	Specifications
735101	—	
	-D	UL / CSA standard
	-F	VDE standard
	-R	AS standard
	-Q	BS standard
	-H	GB standard

AQ2212 Frame Controller

Model	Suffix	Specifications
735102	—	
	-D	UL / CSA standard
	-F	VDE standard
	-R	AS standard
	-Q	BS standard
	-H	GB standard

AQ2200-131 Grid TLS Module

Model	Suffix	Specifications
AQ2200131		
	-C	C-band
	-L	L-band
	-T2	Advanced type
	-T4	Standard type
	-PA	Optical fiber: PMF
	-FCC	Optical connector: FC/PC
	-FCA	Optical connector: FC/Angled PC

AQ2200-132 Grid TLS Module

Model	Suffix	Specifications
AQ2200132		
	-CC	Ch1: C-band, Ch2: C-band
	-LL	Ch1: L-band, Ch2: L-band
	-CL	Ch1: C-band, Ch2: L-band
	-T2	Advanced type
	-T4	Standard type
	-PA	Optical fiber: PMF
	-FCC	Optical connector: FC/PC
	-FCA	Optical connector: FC/Angled PC

AQ2200-215 Sensor Module

Model	Suffix	Specifications
735125	—	
	-NON	Without optical connector adapter
	-FCC	AQ9335C (FC) connector adapter (with a light shielding cap)
	-SCC	AQ9335C (SC) connector adapter (with a light shielding cap)
	-LCC	AQ9335C (LC) connector adapter (with a dust protection cap)
	-MUC	AQ9335C (MU) connector adapter (with a dust protection cap)

AQ2200-221 Sensor Module

Model	Suffix	Specifications
735122	—	
	-NON	Without optical connector adapter
	-FCC	AQ9335C (FC) connector adapter (with a light shielding cap)
	-SCC	AQ9335C (SC) connector adapter (with a light shielding cap)
	-LCC	AQ9335C (LC) connector adapter (with a dust protection cap)
	-MUC	AQ9335C (MU) connector adapter (with a dust protection cap)

AQ2200-311A ATTN Module

Model	Suffix	Specifications
735131	—	
	-SA	Optical fiber: SMF
	-G5	Optical fiber: MMF (GI 50/125)
	-G6	Optical fiber: MMF (GI 62.5/125)
	-FCC	Optical connector: FC / PC
	-SCC	Optical connector: SC / PC
	/MON	Monitor port

AQ2200-331 ATTN Module

Model	Suffix	Specifications
735133	—	
	-SA	Optical fiber: SMF
	-G5	Optical fiber: MMF (GI 50/125)
	-G6	Optical fiber: MMF (GI 62.5/125)
	-FCC	Optical connector: FC / PC
	-SCC	Optical connector: SC / PC

AQ2200-342 DUAL ATTN Module

Model	Suffix	Specifications
AQ2200342		
	-SA	Optical fiber: SMF
	-FCC	Optical connector: FC/PC
	-FCA	Optical connector: FC/Angled PC

AQ2200-411 OSW Module

Model	Suffix	Specifications
735141	—	
	-04	Port confi guration: 1 × 4
	-08	Port confi guration: 1 × 8
	-SA	Optical fiber: SMF
	-G5	Optical fiber: MMF (GI 50/125)
	-G6	Optical fiber: MMF (GI 62.5/125)
	-FCC	Optical connector: FC / PC
	-SCC	Optical connector: SC / PC

AQ2200-412 OSW Module

Model	Suffix	Specifications
735143	—	
	-16	Port confi guration: 1 × 16
	-SA	Optical fiber: SMF
	-G5	Optical fiber: MMF (GI 50/125)
	-FCC	Optical connector: FC / PC
	-SCC	Optical connector: SC / PC

AQ2200-421 OSW Module

Model	Suffix	Specifications
735142	—	
	-21	Port confi guration: Dual 1 × 2
	-22	Port confi guration: Dual 2 × 2
	-SA	Optical fiber: SMF
	-G5	Optical fiber: MMF (GI 50/125)
	-G6	Optical fiber: MMF (GI 62.5/125)
	-FCC	Optical connector: FC / PC
	-SCC	Optical connector: SC / PC

AQ2200-642 Transceiver I/F Module

Model	Suffix	Specifications
735162	—	

AQ2200-651 SG Module

Model	Suffix	Specifications
735163	—	

Accessories

Product Name	Model	Specifications
AQ2200-901 blank panel	810518926	1 slot size
Rackmount kit for AQ2211	735182-03	For AQ2211 left-side mounting
Rackmount kit for AQ2212	735182-09	For AQ2212 mounting
AQ9335C (FC) connector adapter	810518909-FCC	FC connector for AQ2200-215 / -221
AQ9335C (SC) connector adapter	810518910-SCC	SC connector for AQ2200-215 / -221
AQ9335C (LC) connector adapter	M3407JD	LC connector for AQ2200-215 / -221 with a dust protection cap
AQ9335C (MU) connector adapter	M3407JE	MU connector for AQ2200-215 / -221 with a dust protection cap
Light shielding cap (FC)	810518912-FCC	Light shielding cap for FC connector
Light shielding cap (SC)	810518913-SCC	Light shielding cap for SC connector
Dust protection cap (LC)	M3407HD	Dust protection cap for LC connector
Dust protection cap (MU)	M3407HE	Dust protection cap for MU connector

Ethernet is a registered trademark of Xerox Corporation. All other company names and product names mentioned herein are registered trademarks or trademarks of their respective holders.

Caution

When you export this product out of Japan, permission from the Japanese government may be required in accordance with the regulations of the foreign exchange and foreign trade laws.
The information contained herein is subject to change without prior notice in order to improve performance and quality.

YOKOGAWA

YMI-KS-HMI-SE01

YOKOGAWA METERS & INSTRUMENTS CORPORATION
Global Sales Dept. /Phone: +81-422-52-6237 Facsimile: +81-422-52-6462
E-mail: tm@cs.jp.yokogawa.com

Subject to Change without notice.
Copyright © 2007, Yokogawa Electric Corporation
Copyright © 2012, Yokogawa Meters & Instruments Corporation
[Ed: 04/b]
Printed in Japan, 504(KP)

YOKOGAWA CORPORATION OF AMERICA Phone: +1-770-253-7000 Facsimile: +1-770-254-0928
YOKOGAWA EUROPE B.V. Phone: +31-88-4641000 Facsimile: +31-88-4641111
YOKOGAWA SHANGHAI TRADING CO., LTD. Phone: +86-21-6239-6363 Facsimile: +86-21-6880-4987
YOKOGAWA ELECTRIC KOREA CO., LTD. Phone: +82-2-2628-3810 Facsimile: +82-2-2628-3899
YOKOGAWA ENGINEERING ASIA PTE. LTD. Phone: +65-6241-9933 Facsimile: +65-6241-2606
YOKOGAWA INDIA LTD. Phone: +91-80-4158-6000 Facsimile: +91-80-2852-8656
YOKOGAWA ELECTRIC CIS LTD. Phone: +7-495-737-7868 Facsimile: +7-495-737-7869
YOKOGAWA AMERICA DO SUL LTDA. Phone: +55-11-5681-2400 Facsimile: +55-11-5681-4434
YOKOGAWA AUSTRALIA PTY. LTD. Phone: +61-2-8870-1100 Facsimile: +61-2-8870-1111
YOKOGAWA MIDDLE EAST & AFRICA B.S.C(c) Phone: +973-17-358100 Facsimile: +973-17-336100

http://tmi.yokogawa.com/