

VOA Array Rack System

(net-ready, high precision, 70dB, high speed, SM/MM, broadband)
 (US patent 8,666,218 and other patents pending)

Product Description

The VOA Array Rack System is highly versatile and capable of meeting performance requirements for all application scenarios. The system integrates monitoring power taps to provide high-precision attenuation or output laser power control. Power control is lower in cost than attenuation control. Many types of VOAs can be selected. MEMS VOAs offer low cost and 70dB shut-off. Electro-optical NanoSpeed™ VOAs offer 300ns fast response and a high-speed laser power stabilization function that eliminates fluctuations and surge. Fiber-Fiber™ VOAs offer ultra-broadband covering from 200 to 2500nm with all types of fibers and ultra-low insertion loss.

The system is a modular pluggable design that accommodates any number of channels in a single system with various corresponding rack heights. Each plug-in contains up to 8 channels using compact LC connectors, and a 1U system can be configured to have 24 channels. Only the VOAs on the same plug-in module can be controlled at the same time. There is a short time delay to control VOAs on other modules. The same system can further integrate other modules, such as switches, power monitors, and dispersion compensators.... The standard control interface is ethernet, other control methods may be available per request. A standard Web-based GUI is included.



Performance Specifications

VOAS	Min	Typical	Max	Unit
Operation Wavelength	300		2500	nm
Insertion Loss		0.3	0.5 ^[1]	dB
		1	1.5 ^[2]	dB
Polarization Dependent Loss		0.15	0.5	dB
Wavelength Dependence Loss		0.1	0.2	dB
Attenuation Range	35	60	78 ^[3]	dB
Attenuation Setting Repeatability			0.05	dB
Extinction Ratio (PM version only)	18	23	25	dB
Polarization Mode Dispersion (SM version only)		0.01	0.05	ps
Return Loss	45			dB
Response Time			100	ms
Optical Power handling (CW)		0.3	1 ^[4]	W
Operating Temperature	-20		75	°C
Storage Temperature	-40		85	°C
Electrical Power Input	100		230	VAC
Communication Interface (Ethernet)	SNMP	Telnet		

Notes:

- [1] Use Ultra-broad band Precision MEMS VOA with built-in position sensor. The loss is without the connectors. Each connector adds 0.1 to 0.3dB (<https://agiltron.com/product/high-precision-optical-variable-attenuator/>)
- [2] Conventional MEMS VOAs with tap monitor. It has a limited wavelength range due to coatings. The loss is without the connectors. Each connector adds 0.1 to 0.3dB depending on mating condition.
- [3] 60dB and 78dB uses special MEMS VOAs and Precision MEMS VOAs
- [4] 1W single mode and 3W multimode are only available with Precision MEMS VOAs

(<https://agiltron.com/product/high-precision-optical-variable-attenuator/>)

Features

- Very Low Loss
- Highly Repeatable
- Latching
- High Resolution
- Large Attenuation

Applications

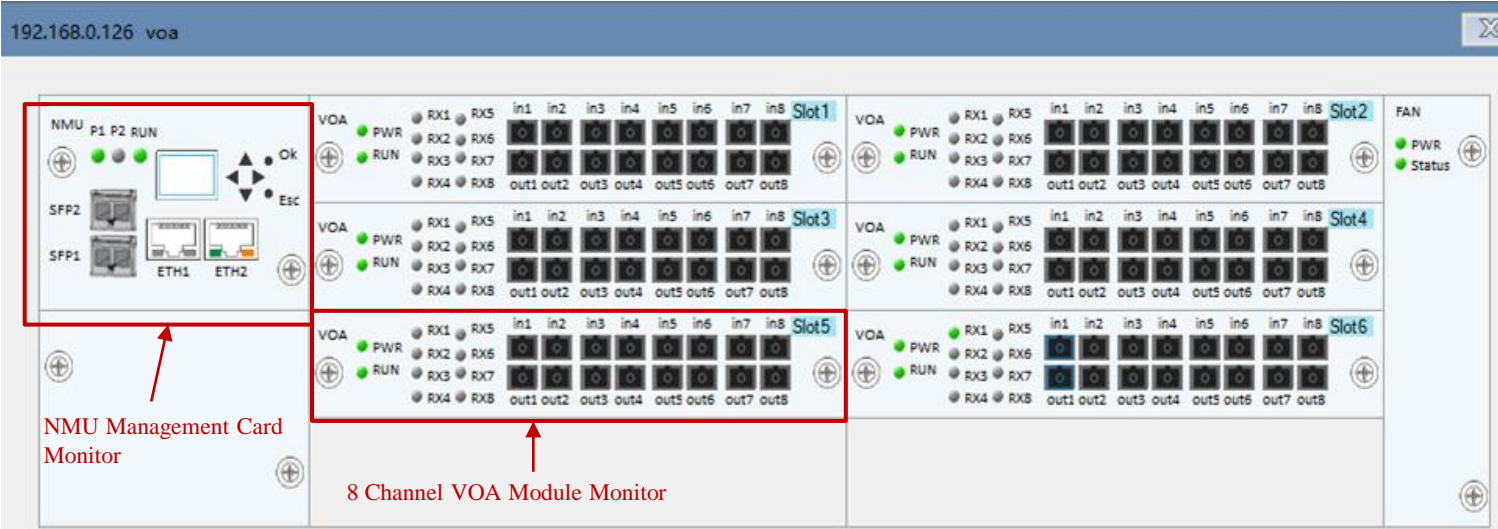
- Power Control
- Power Regulation
- Channel Balance
- Instrumentation



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GUI Software

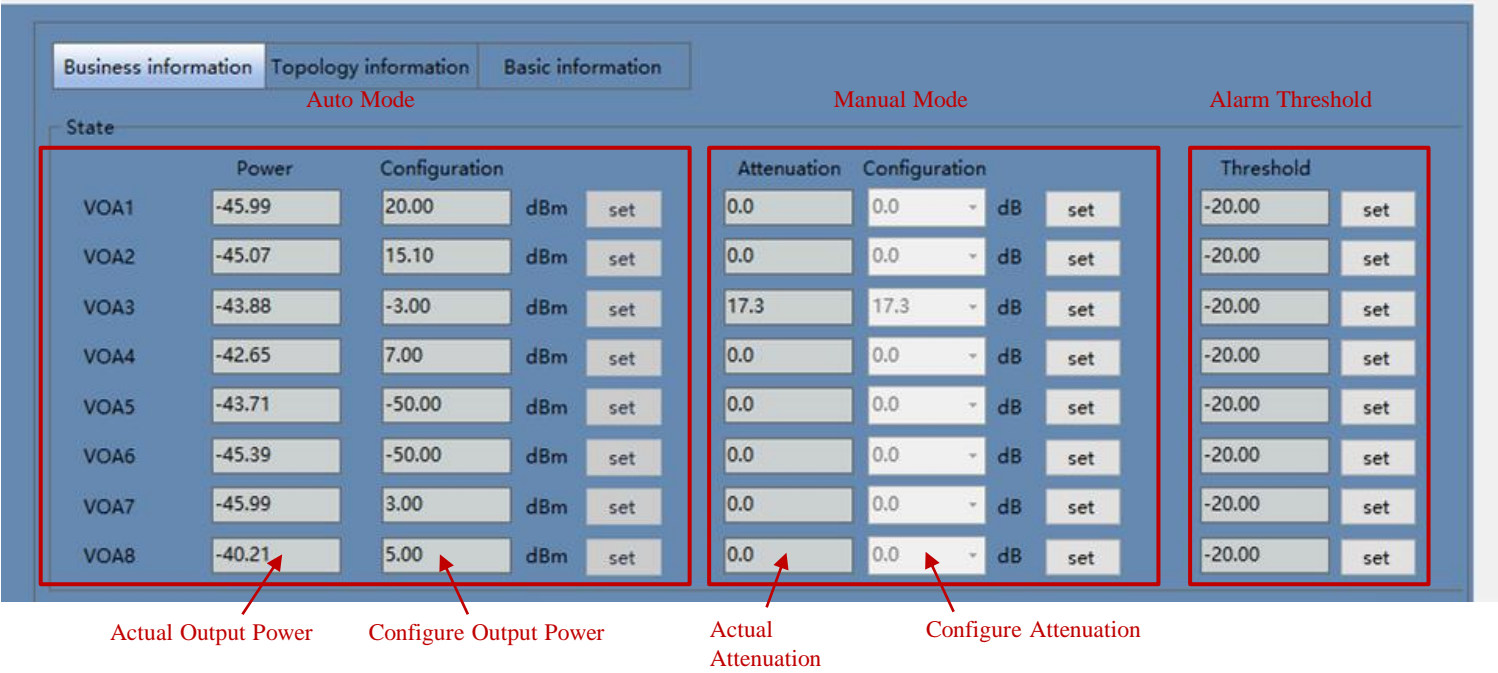
- The system contains tap monitor on each channel output providing attenuation and power control function.



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NMU Management Card Monitor

8 Channel VOA Module Monitor



Business information | Topology information | Basic information

Auto Mode | Manual Mode | Alarm Threshold

State	Power	Configuration	Attenuation	Configuration	Threshold
VOA1	-45.99	20.00 dBm set	0.0	0.0 - dB set	-20.00 set
VOA2	-45.07	15.10 dBm set	0.0	0.0 - dB set	-20.00 set
VOA3	-43.88	-3.00 dBm set	17.3	17.3 - dB set	-20.00 set
VOA4	-42.65	7.00 dBm set	0.0	0.0 - dB set	-20.00 set
VOA5	-43.71	-50.00 dBm set	0.0	0.0 - dB set	-20.00 set
VOA6	-45.39	-50.00 dBm set	0.0	0.0 - dB set	-20.00 set
VOA7	-45.99	3.00 dBm set	0.0	0.0 - dB set	-20.00 set
VOA8	-40.21	5.00 dBm set	0.0	0.0 - dB set	-20.00 set

Actual Output Power | Configure Output Power | Actual Attenuation | Configure Attenuation

We provide a command list for customers to write their control code, such as Python

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Mechanical Footprint Dimensions (Unit:mm)

19" rack. The unit will select the minimum height to accommodate the channel count and connector type

*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

Ordering Information

- The system includes a rack-mount box of from 1U up to 6U with multiple plug-in modules
- Pluggable module order information below, each module accommodate up to 8 channels with LC connectors

Prefix	Channel	Speed	Configuration*	Test Wavelength	Fiber type*	Attenuation **	Connector
VOAS-	8 = A8 16 = 16 24 = 24 32 = 32 ... 96 = 96	MEMS10ms = 1 NS 100ns = 2	Transparent VOA = 1 Opaque VOA = 2 Transparent Power = 4 Opaque Power = 5 Broadband / transparent VOA = 3 Broadband / transparent Power = 6	1260-1620 = C 488 = 4 532 = 5 630 = 6 780 = 7 850 = 8 980 = 9 1060 = 1 1310 = 3 1550 = A 2000 = 2 Special = 0	Pick from the below table	35dB = 1 60 dB = 2 65 dB = 3 70 dB = 4	FC/PC = 2 FC/APC = 3 SC/PC = 4 SC/APC = 5 ST/PC = 6 LC = 7 Duplex LC = 8 MTP = 9 Special = 0

*Transparent/Opaque means without apply control signal, VOA uses two tap for each channel, Power uses one output tap. Broadband is direct fiber coupling without coating max attenuation level depends on the fiber type.

NOTE:

“transparent” means no attenuation without applying a controlling voltage, the “opaque” means the highest attenuation without applying a controlling voltage.

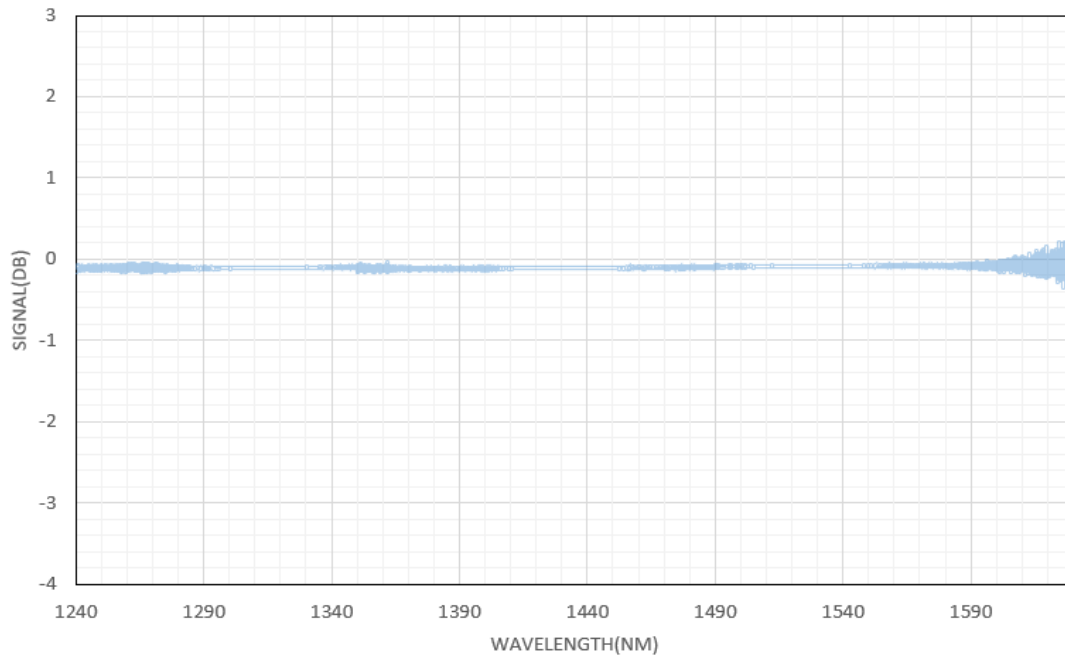
Fiber Type Selection Table:

01	SMF-28	34	PM1550	67	OM1 (MMF 62.5/125µm)
02	SMF-28e	35	PM1950	68	OM2 (MMF 50/125µm)
03	Corning XB	36	PM1310	69	OM3 (MMF 50/125µm)
04	SM450	37	PM400	70	OM4 (MMF 50/125µm)
05	SM1950	38	PM480	71	GIF50 (GIF 50/125µm)
06	SM600	39	PM630	72	GIF625 (GIF 62.5/125µm)
07	Hi780	40	PM850	73	105/125um
08	SM800	41	PM980	74	FG105LCA
09	Hi980	42		75	FG50LGA
10	Hi1060	43		76	
11	Draka BBE	44		77	
12		45		78	

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Typical Insertion Loss vs Wavelength (1240-1630nm)

1x2 MEMS Switch



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Operation Manual

1. Connect a control signal to the SMA connector on the PCB.
2. Attach the accompanied power supply (typically a wall-pluggable unit).
3. The device should then function properly.

Note: Do not alter device factory settings.

Questions and Answers

Q: If the device were to fail, would the switch continue to pass the fiber light through the switch as configured before failure? When power is restored, does the IN/OUT configuration before failure remain in place?

A: This depends, if one mirror fails, it only affects the light go through that mirror. Yes, when power back up it will go to the previous points

Q: When power is restored, does the IN/OUT configuration before failure remain in place?

A: Yes, when power back up it will go to the previous flightpath

Q: If power to the device were shutoff, would the device continue to pass the fiber light as configured before failure?

A: This function is call latching. We uniquely offer MEMS latching switch but cost more.

Q: With the Ethernet Control Option, does the switch support SNMPv3

A: Yes. This internet standard protocol allows user to write their own control code

Q: With the Ethernet Control Option, what type of encryption does the SNMPv3 use?

A: MD5/DES

Q: With the Ethernet Control Option, could this device be controlled by multiple users at different locations and all users will also see the configuration updates?

A: Yes

Q: With the Ethernet Control Option, could this switch be controlled by multiple users at different locations and all users will also see the configuration updates?

A: Yes

Q: With the Ethernet Control Option, does the user need to install any software on their computer other than a web browser?

A: No