

# Variable Optical Attenuator

OTN Solutions for Metro, Regional & Long Haul



## Description

VOA(Variable Optical Attenuator) is an online attenuation amount adjustment device. It is applied to the situation where optical power is required strict control in network, usually cooperated with EDFA.

It adopts MEMS technology and could continually and variably attenuate the light intensity in the optical fiber transmission and could help simulate distance or actual attenuation in the fiber optic testing work by inserting a calibrated attenuation into the link.

## Features

- Wide operating wavelength range: 0~15dB
- Ultra wide adjustable range
- Regulation accuracy: 0.1dB
- High multichannel attenuation stability
- Single card supports multi-channel signal attenuation
- Online attenuation adjustment makes business more safe
- Automatically attenuation adjustment makes the network intelligent

## Application

- Work with the EDFAs, together to realize the stable and long-haul transmission

## Product Specifications

|                             |                       |                           |          |
|-----------------------------|-----------------------|---------------------------|----------|
| Operating Wavelength (nm)   | 1290-1330 / 1530-1570 | Attenuation Range(dB)     | 0-15     |
| Self Insertion Loss(dB)     | < 1.5                 | Adjustment Accuracy(dB)   | 0.1      |
| Isolation(dB)               | ≥30                   | Return Loss(dB)           | ≥50      |
| PDL(dB)                     | ≤0.05                 | PMD(dB)                   | ≤0.25    |
| Operating Temperature (° C) | 0 ~ 60                | Storage Temperature (° C) | -45 ~ 75 |
| Consumption(W)              | < 3                   | Connectors                | LC/UPC   |

## Dimensions

4-slot 1U managed chassis, supports up to 4x multiplexer/EDFA/OEO/OLP card with accessories;

- Width: 482.6mm(19")
- Height: 44.50mm(1.75")
- Depth: 300mm(11.81")

VOA plug-in card occupies one slot.



## Ordering Information

| Mux Demux & OADM          |                                    |   |
|---------------------------|------------------------------------|---|
|                           | <a href="#">FMU-D402160M3</a>      | 40 Channels 100GHz C21-C60, with 1310nm and Monitor Port, 3.5dB Typical IL, LC/UPC, Dual Fiber DWDM Mux Demux, 1U Rack Mount #35887                         |
| DWDM MUX DEMUX            | <a href="#">M6200-D2160M</a>       | 40 Channels 100GHz C21-C60 Dual Fiber DWDM Mux and Demux with Monitor Port, Pluggable Module, LC/UPC, Integrated with M6200 Series Managed Chassis #120424  |
|                           | <a href="#">FMU-D162136EM3</a>     | 16 Channels 100GHz C21-C36, with Monitor, Expansion and 1310nm Port, LC/UPC, Dual Fiber DWDM Mux Demux, 1U Rack Mount #72430                                |
|                           | <a href="#">FMU-MD085360EM3</a>    | CWDM/DWDM Hybrid Solution, 8 Channels 100GHz C53-C60, with Monitor, Expansion and 1310nm Port, LC/UPC, Dual Fiber DWDM Mux Demux, FMU Plug-in Module #72433 |
| CWDM MUX DEMUX            | <a href="#">FMU-C182761M</a>       | 18 Channels 1270-1610nm, with Monitor Port, LC/UPC, Dual Fiber CWDM Mux Demux, 1U Rack Mount #33489   |
|                           | <a href="#">FMU-MC084761EM</a>     | 8 Channels 1470-1610nm, with Monitor and Expansion Port, LC/UPC, Dual Fiber, Low Insertion Loss CWDM Mux Demux, FMU Plug-in Module #78163                   |
| LWDM MUX DEMUX            | <a href="#">ABS-L042930A</a>       | 4 Channels 1295.56-1309.14nm, Single Fiber LAN-WDM Mux Demux, Side-A, ABS Pigtailed Module, LC/UPC #97782   |
|                           | <a href="#">ABS-C062737A</a>       | 6 Channels 1271-1371nm, Single Fiber CWDM Mux Demux, Side-A, ABS Pigtailed Module, LC/UPC #97784  |
| OADM                      | <a href="#">DOADM-DF</a>           | Customized Dual Fiber & Single Fiber DWDM OADM #70427   |
|                           | <a href="#">COADM-DF</a>           | Customized Dual Fiber & Single Fiber CWDM OADM #70425   |
| Chassis                   | <a href="#">FMU-1UFMX-N</a>        | FMU 2-Slot 1U 19" Rack Chassis Unloaded, holds up to 2 Units FMU Plug-in Module #30408  |
|                           | <a href="#">FUD-1UFMX-N</a>        | FUD 4-Slot 1U 19" Rack Chassis Unloaded, holds up to 4 Units FUD Plug-in Module #106578   |
| TRANSPONDERS & MUXPONDERS |                                    |   |
| 25G                       | <a href="#">FMT4DL-OEO25GSFP28</a> | 4 Channels 25G WDM Transponder (Converter), 8 SFP28/SFP+ Slots#92056  |
| 10G                       | <a href="#">FMT4DL-OEO10GSFP</a>   | 4 Channels WDM Transponder (Converter), 8 SFP/SFP+ Slots#30515  |
| Chassis                   | <a href="#">FMT04-CH1U</a>         | 1U Managed Chassis Unloaded Platform, Supports up to 4x EDFA/OEO/OLP Card with Accessories #39214   |
|                           | <a href="#">FMT-CH</a>             | Customized 1U/2U/4U Managed Chassis Unloaded, Supports up to 16x Multiplexer/EDFA/OEO/OLP Module with Accessories #70413                                    |

OPEN LINE SYSTEM

|                         |                                |  |
|-------------------------|--------------------------------|--|
| Amplifiers              | <a href="#">FMT26PA-EDFA</a>   | 26dB Gain DWDM EDFA Pre-Amplifier, 16dBm Output#36524  |
|                         | <a href="#">FMT20PA-EDFA</a>   | 20dB Gain DWDM EDFA Pre-Amplifier, 13dBm Output#72284  |
|                         | <a href="#">FMT17BA-EDFA</a>   | 17dBm Output DWDM EDFA Booster Amplifier, 17dB Gain #72283   |
|                         | <a href="#">FMT-LA</a>         | In-Line EDFA for DWDM Solution#35924   |
| Dispersion Compensation | <a href="#">FMT40-DCM</a>      | 40KM DCF-based Passive Dispersion Compensation Module#65781  |
|                         | <a href="#">FMT80-DCM</a>      | 80KM DCF-based Passive Dispersion Compensation Module#65779  |
|                         | <a href="#">FS-TDCM</a>        | C-band Tunable Dispersion Compensation Module (TDCM)#72427   |
| Line Protection         | <a href="#">FMT-OLP2</a>       | 1+1 Optical Line Protection Switch (OLP)#66010   |
|                         | <a href="#">FMT-BDOLP</a>      | FMT-BDOLP, Optical Line Protection Switch (OLP)#72700  |
|                         | <a href="#">FMT-BDSplitter</a> | FMT-BDSplitter, Optical Splitter#73324   |
| Red/Blue Filter         | <a href="#">FMT-RB</a>         | 1x2 Single Fiber DWDM Splitter Red/Blue C Band Filter#65981  |
|                         | <a href="#">FMT-OPD</a>        | 4 Channels 1550nm Optical Power Detection OPD (AIU)#78568  |
| Fiber Monitoring        | <a href="#">FMT-OPM</a>        | Optical Performance Monitoring (OPM)#71586   |
|                         | <a href="#">FMT-OSW</a>        | 1x16 Multi-Channel Opto-Mechanical Optical Switches with Adjustable Channels Control#73287                               |
|                         | <a href="#">FMT-OTDR</a>       | Optical Time Domain Reflectometer (OTDR)#73281   |
|                         | <a href="#">FMT-LSU</a>        | LSU Light Source Unit, Pluggable Module for FMT Multi-Service Transport Platform#78469                                   |
| VOA Units               | <a href="#">FS-VOA-C</a>       | Variable Optical Attenuator, 0~15dB, Pluggable Module, LC/UPC#65271  |
|                         | <a href="#">AT-M-LCU</a>       | Fixed Fiber Optic Attenuators #70009   |
| Chassis                 | <a href="#">FMT04-CH1U</a>     | 1U Managed Chassis Unloaded Platform, Supports up to 4x EDFA/OEO/OLP Card with Accessories #39214                        |
|                         | <a href="#">FMT-CH</a>         | Customized 1U/2U/4U Managed Chassis Unloaded, Supports up to 16x Multiplexer/EDFA/OEO/OLP Module with Accessories #70413 |

WDM TRANSCEIVERS

|           |                                  |   |
|-----------|----------------------------------|---|
|           | <a href="#">DWDM-SFP25G-10</a>   | 25G DWDM SFP28 100GHz 1563.86nm 10km DOM LC SMF Optical Transceiver Module #87000                                       |
| 25G SFP28 | <a href="#">CWDM-SFP25G-40S</a>  | 25G 1270nm CWDM SFP28 40km DOM LC SMF Optical Transceiver Module #100112  |
|           | <a href="#">CWDM-SFP25G-10SP</a> | 25G 1270nm CWDM SFP28 10km DOM LC SMF Optical Transceiver Module #76003   |
|           | <a href="#">LWDM-SFP25G-40</a>   | 25G LWDM SFP28 1286.66nm 40km DOM LC SMF Optical Transceiver Module #93786  |
| 16G/8G FC | <a href="#">DWDM-SFP16G-40</a>   | Customized 16G DWDM SFP+ C20-C61 100GHz 40km DDM LC SMF Transceiver Module#73084  |
|           | <a href="#">DWDM-SFP16GH-40</a>  | Customized 16G DWDM SFP+ 50GHz 40km DDM LC SMF Transceiver Module #73085  |
|           | <a href="#">CWDM-SFP16G-40</a>   | Customized 16G Fiber Channel CWDM SFP+ 1470-1610nm 40km DDM LC SMF Transceiver Module #80765                            |
| 10G SFP+  | <a href="#">DWDM-SFP10G-80</a>   | 10G DWDM SFP+ 1559.79nm 80km DOM LC SMF Transceiver Module, Commercial Temperature#31237, Industrial Temperature#113562 |
|           | <a href="#">DWDM-SFP10G-40</a>   | 10G DWDM SFP+ 1560.61nm 40km DOM LC SMF Transceiver Module, Commercial Temperature#38731, Industrial Temperature#113511 |
|           | <a href="#">DWDM-SFP10G-C</a>    | 10G DWDM C-band Tunable SFP+ 50GHz 80km DOM LC SMF Transceiver Module #69267  |
|           | <a href="#">CWDM-SFP10G-80L</a>  | 10G CWDM SFP+ 1470nm 80km DOM LC SMF Transceiver Module #19367  |
| 1G SFP    | <a href="#">CWDM-SFP10G-40S</a>  | 10G CWDM SFP+ 1270nm 40km DOM LC SMF Transceiver Module, Commercial Temperature#22168, Industrial Temperature#112392    |
|           | <a href="#">DWDM-SFP1G-EZX</a>   | 1000BASE-DWDM SFP 100GHz 1563.86nm 100km DOM LC SMF Transceiver Module #54150   |
|           | <a href="#">DWDM-SFP1G-ZX</a>    | 1000BASE-DWDM SFP 1563.86nm 80km DOM LC SMF Transceiver Module #47697   |
|           | <a href="#">CWDM-SFP1G-EZX</a>   | 1000BASE-CWDM SFP 1270nm 120km DOM LC SMF Transceiver Module #102776  |
|           | <a href="#">CWDM-SFP1G-ZX</a>    | 1000BASE-CWDM SFP 1270nm 80km DOM LC SMF Transceiver Module #33234  |



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