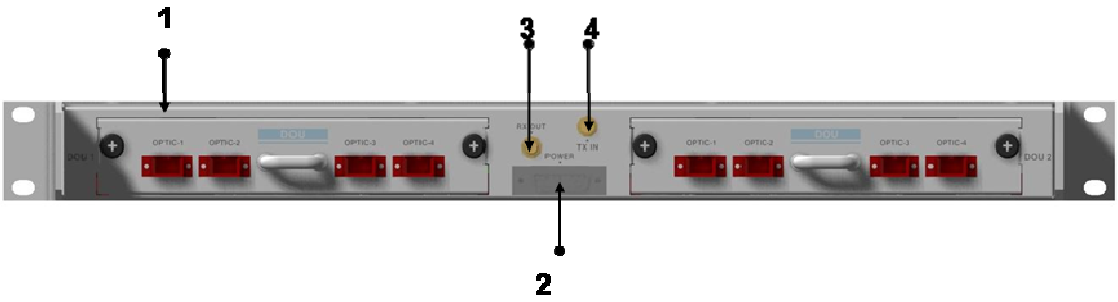


Figure 4.14 – ODU Rear panel Outer Look

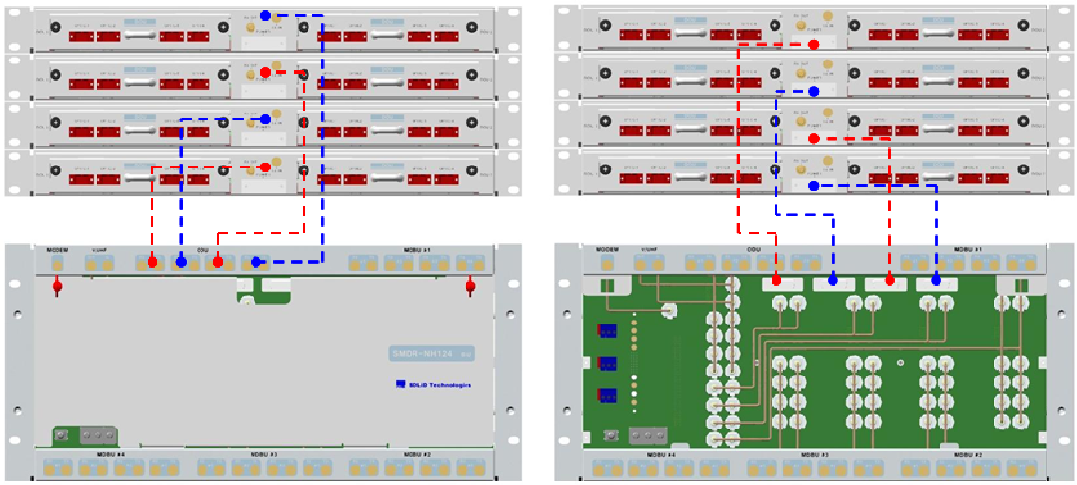
Item	Description
1. Optic Port	SC/APC optical connector terminal; use one optical cable per ROU.
2. DC I/O Port	Terminal to deliver power and state values
3. RX RF Port	RX RF signal interface terminal
4. TX RF Port	TX RF signal interface terminal

4.2.6 Interface with BIU

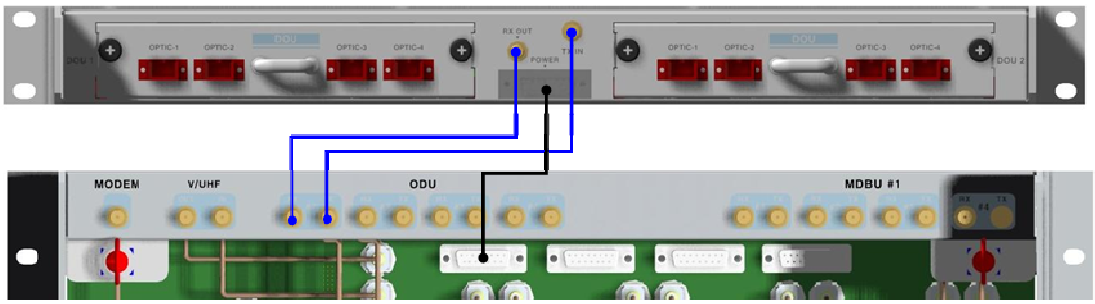
Figure 4.15 – Interface between BIU and ODU

On the top of BIU, up to four ODUs can be stacked.

In this case, it is recommended to stack the units at least 1U of an interval between BIU, for heat from BIU may climb up to ODU, which may cause flame.



As seen in the figure below, connect the coaxial cable for TX and another coaxial cable for RX with corresponding ports at the rear of BIU. For power supply and communication, connect 15Pin D-Sub Connector cable with a corresponding port.



4.3 OEU (Optic Expansion Unit)

OEU is mainly used to remotely deliver signals for Campus clusters. At the upper part, this unit combines with ODU and receives TX optical signals to convert them into RF signals. Then, it regenerates the signals to secure S/N feature and converts them into optical signals. The signals are sent to ROU through optical cables. When it receives RX optical signals from ROU, the unit converts them into RF signals to regenerate the signals and then converts them into optical signals to send them to ODU.

In OEU, one shelf can be equipped with up to two DOUs. The DOU is the same as the module used for ODU. Up to two OEUs can be connected with ODU.

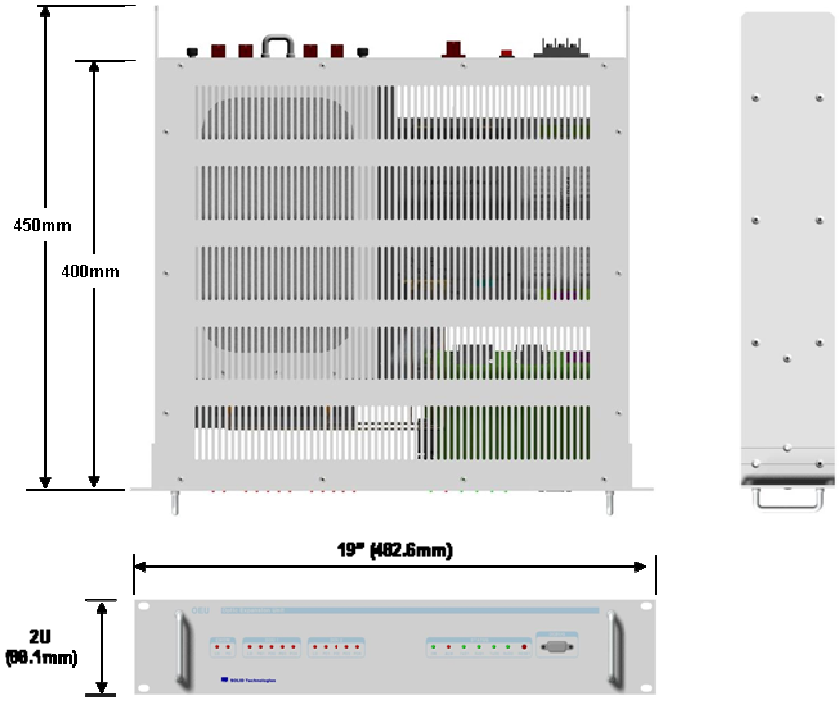
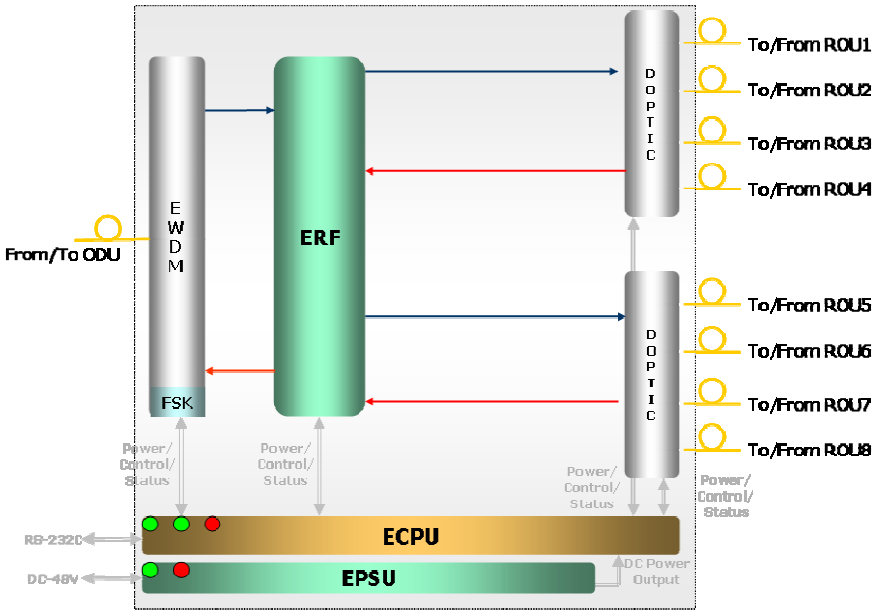


Figure 4.16 – OEU Outer Look

4.3.1 Specifications of OEU

Item	Spec.	Remark
Size	482.6(19") x 88.1(2U) x 450	mm
Weight	9.3 Kg	Full Load
Power consumption	48 W	

4.3.2 Block Diagram of OEU



4.3.3 OEU parts

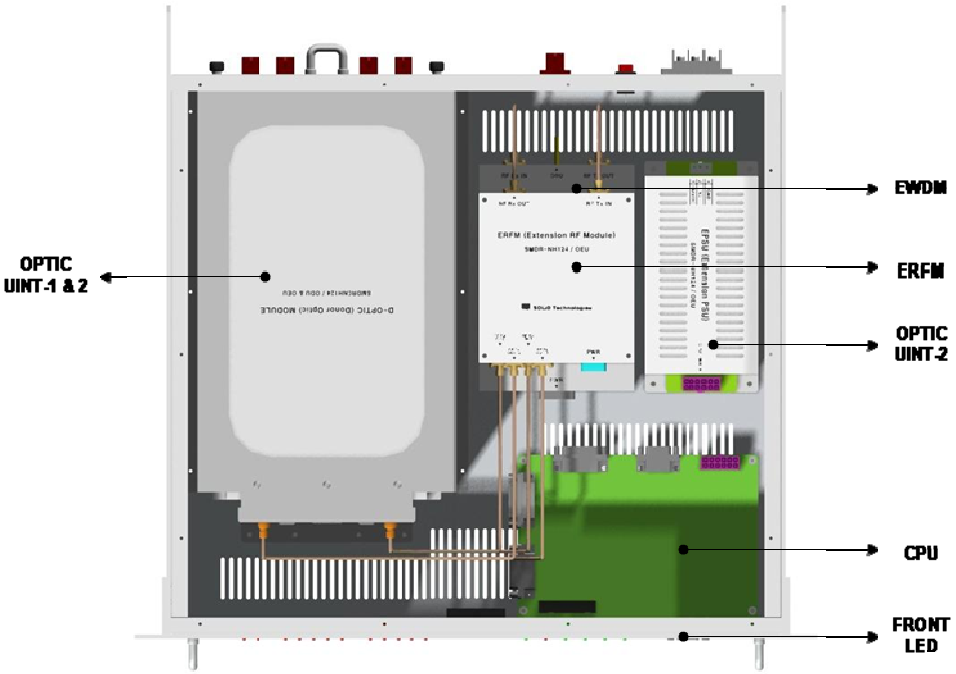


Figure 4.17 – OEU Inner Look

No.	Unit	Description	Remark
1	DOU	**Donor Optic Unit** Convert TX RF signals into optical signals; Convert RX optical signals into RF signals; Provide up to four optical ports per DOU	Max 2ea
2	EWDM	**Expansion Wavelength Division Multiplexer** Convert TX optical signals into RF signals; Convert RX RF signals into optical signals; Compensate for optical cable loss with ODU	
3	ECPU	**Expansion Central Processor Unit** Control and monitoring system status Control and monitoring with RS232 Relay state values of ROU to BIU	
4	EPSU	**Expansion Power Supply Unit** Input power: DC -48V, Output power: 9V, 6V	

5	ERFM	**Expansion Radio Frequency Module** Regenerate TX signals and transmit FSK modem signals; Regenerate RX signals and receive FSK modem signals	
6	Shelf	19” rack, 2U	

4.3.4 Function by unit

1) **Donor Optic Unit (DOU)**

DOU is the same as the module used for ODU.

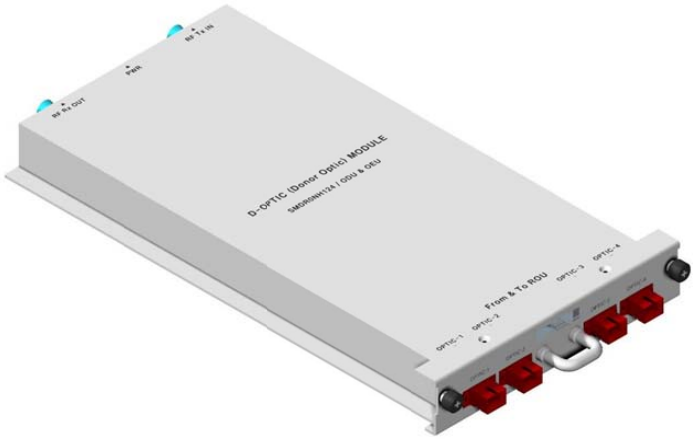


Figure 4.18 – MDBU Outer Look

2) Expansion Wavelength Division Multiplexer(EWDM)

EWDM module makes optical-electronic conversion of TX signals and makes electronic-optical conversion of RX signals. With an FSK modem in it, this multiplexer communicates with BIU. It also has ATT for optical compensation to compensate for optical cable loss between ODUs. Furthermore, it has internal WDM, and so, it needs only one optical cable to work with ROU.

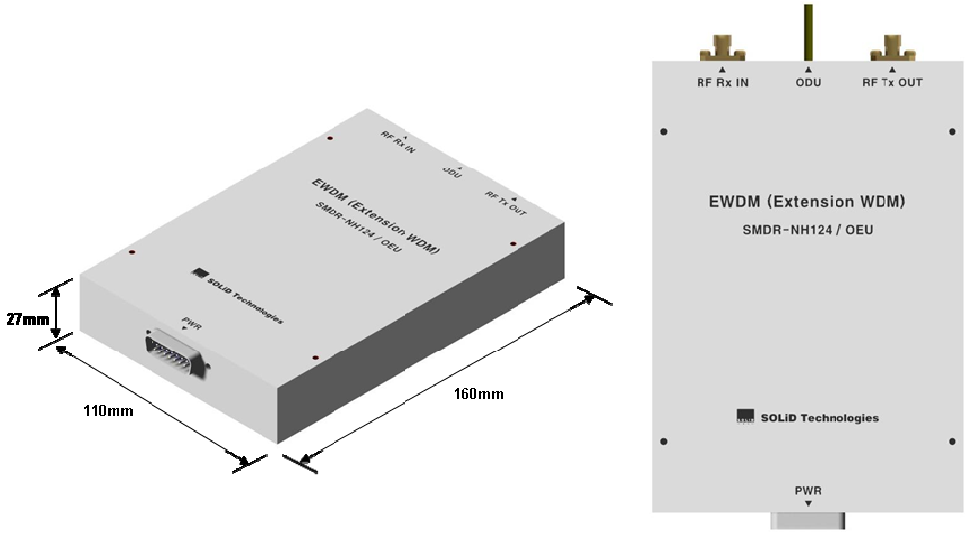


Figure 4.19 – EWDM Outer Look

3) Expansion Central Processor Unit(ECPU)

ECPU can inquire and control state of modules to be installed into OEU. This unit communicates with upper BIU while communicating with lower ROU. It also acts as communication bridge between BIU and ROU.

In addition, the unit has RS-232C port for serial communication, which enables inquiry and control of devices thorugh PC. At the front panel, communication LED indicator indicates communication state with upper BIU and lower ROU. It also has ALM LED indicator to show if a device gets faulty.

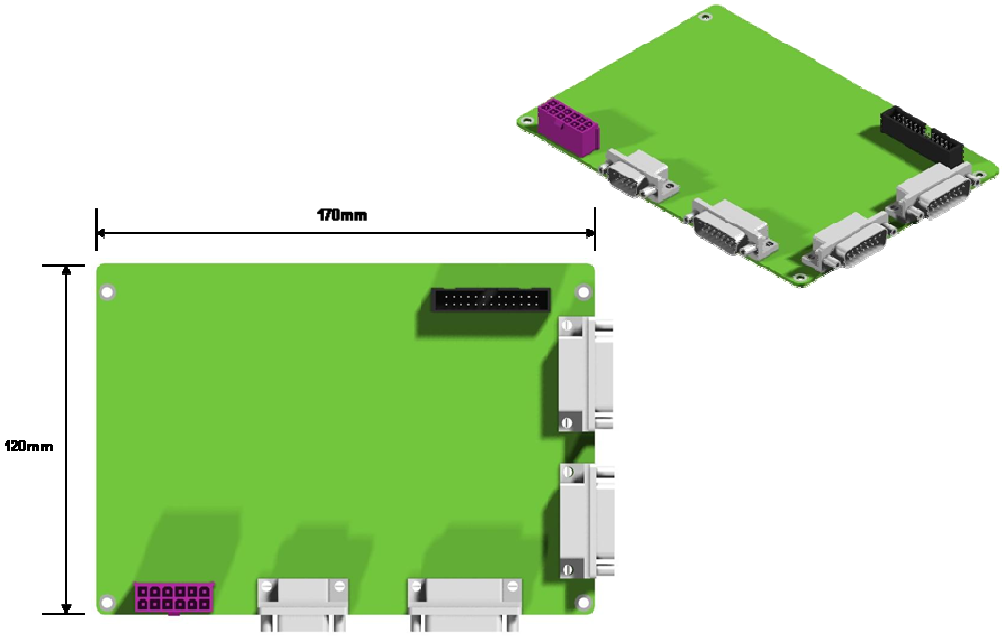


Figure 4.20 – ECPU Outer Look

4) Expansion Radio Frequency Module(ERFM)

ERFM reconstructs Signal to Noise degraded by optical modules. With an internal FSK modem, this module communicates with ROU.

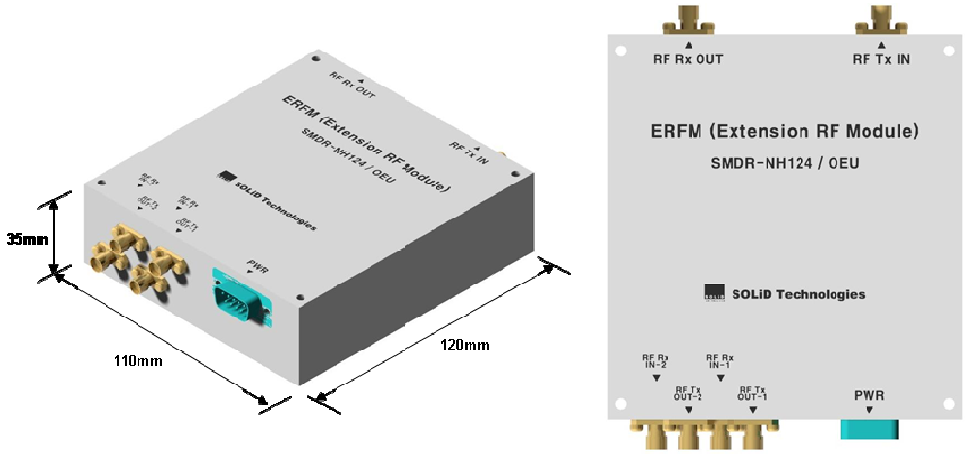


Figure 4.21 – ERFM Outer Look

5) Expansion Power Supply Unit(EPSU)

As DC/DC Converter, EPSU receives -48V of input and provides +9V and +6V of DC power required for OEU.

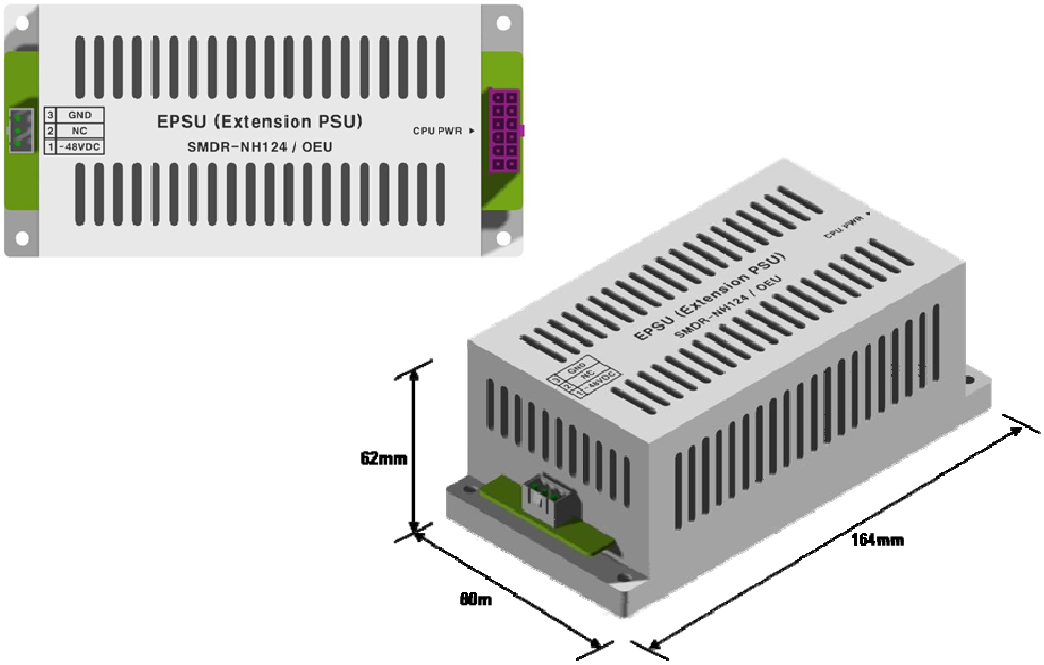


Figure 4.22 – ERFM Outer Look