# HIGH VISION

## EDFA COMBINER 32 x 20 dBm

## PON+CATV WDM EDFA

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**Device Application Notes:**

1. Due to the large output laser power of the device, not in the visible range, the human eye can not identify the source of glare. To prevent burns eyes, when check LCD menu, do not put your eyes to the light output !

2. The dust cover fan with filter films, please clean the dust every six months to ensure that the equipment has a good ventilation !

# 1. Overview

## 1.1 overview

FWAP-1550H-32XN Series PON+CATV WDM EDFA Combiner, High power Erbium Doped Fiber Amplifier, it is the core equipment of three of one net in optical transmitter system, input 32ports PON+1port CATV and output 32 ports combined 1550/1490/1310nm. The combined optical output power: 27~40dBm. plug-in dual power supply, achieved the function of OLT and CATV 1550nm optical single combined and amplify, having high cost performance value.(Erbium Doped Fiber Amplifier) is a representative one in the optical amplifier. As the EDFA's wavelength is 1550nm, it is in line with the low-loss band of fiber and its technology has been relatively mature, so widely used. Erbium-doped fiber is the core components of the EDFA, it makes quartz optical fiber as matrix material, and incorporate a certain proportion of rare earth element erbium ions (Er3 +) in the core of a fiber. When certain amount of pump light is injected into the erbium-doped fiber, Er3 + have been excited from the low-energy level to the high energy level, due to Er3 + has a very short lifespan on the high energy level, and soon transit to a higher level by the form of a non-radiative, and form the population inversion distribution between this energy level and low-energy-level. Because the energy between these two energy levels is exactly equal to the photon energy of 1550nm, stimulated emission of 1550nm light can only occur, we can only enlarge 1550nm optical signal.

FWAP-1550H-32XN Series PON+CATV WDM EDFA Combiner，adopt 980nm or 1480nm high linearity, optical isolation, the DFB, thermoelectric cooling DFB laser produced by JDSU, Fujitsu, Nortel, Lucent, Fitel and other world-renowned semiconductor companies as the pumping source. In the interior of the machine is equipped with the light power export stable circuit and laser thermoelectric cooling device Temperature stability control circuit to ensure optimal machine performance and long-life laser stability. The microprocessor software monitor the lasers' working state, the Digital Panel (VFD) displays the operating parameters. Once the laser operating parameters deviate from the permissible range set by the software, micro-processing will automatically turn off laser power, red light goes on to warn, digital panel prompts cause of troubles., a detailed report of the device parameters please read "instructions."

## 1.2 Features

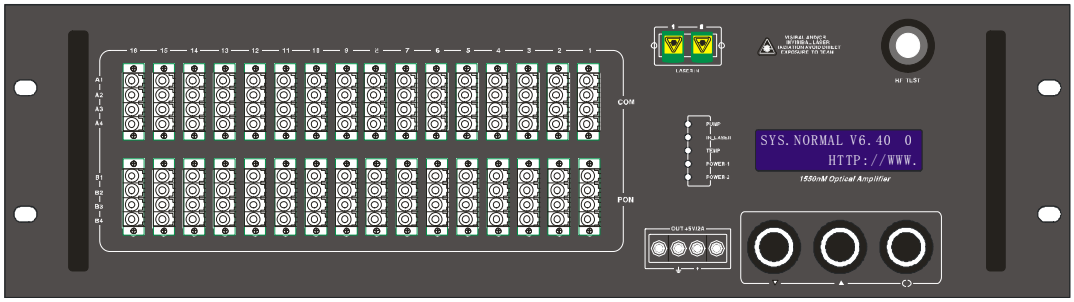
1.2.1) High quality: adopt multimode large power pump laser, power is optimized reasonably by software, and can most unlimited reduce NF of EDFA, it is comparable with EDFA. The feature can make system achieve excellent CNR.
1.2.2) Reliability: The 19 "1U standard rack, built-in high-performance plug-in dual power supply, it can work at 85 ∽ 265Vac City Network Voltage, As well as an optional DC48V power supply (reservations required); chassis cooling can be automatic control by temperature.
1.2.3) Intuition: The pump laser is the most expensive machine components, machine equipped with microprocessor monitors the working state of the laser, the panel LCD window displays the operating parameters.
1.2.4) Network type: Select All-piece status monitoring transponder guarantees to meet the

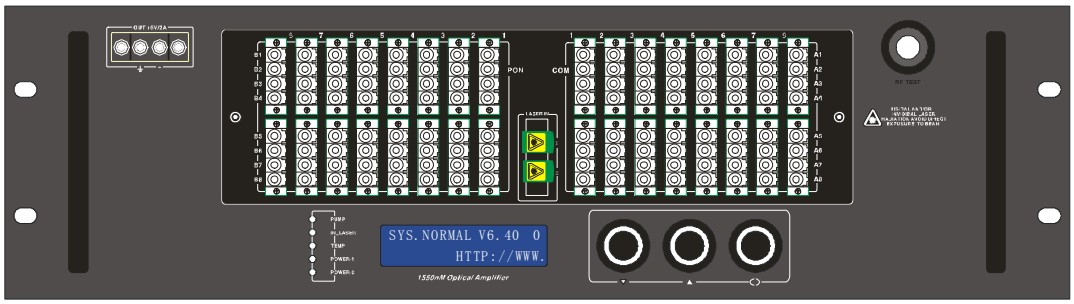
national standard and be compatible with the SCTE HMS standard, it enables network management to monitor capabilities.

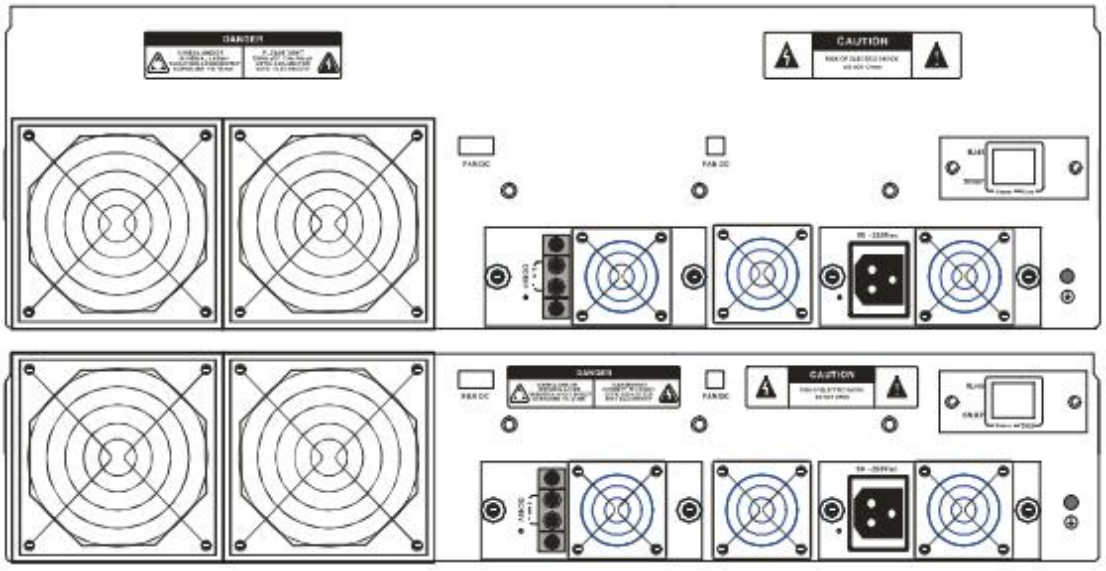
1.2.5）Integrated WDM, more concise in using of GPON/EPON.

## 2. product structure diagram

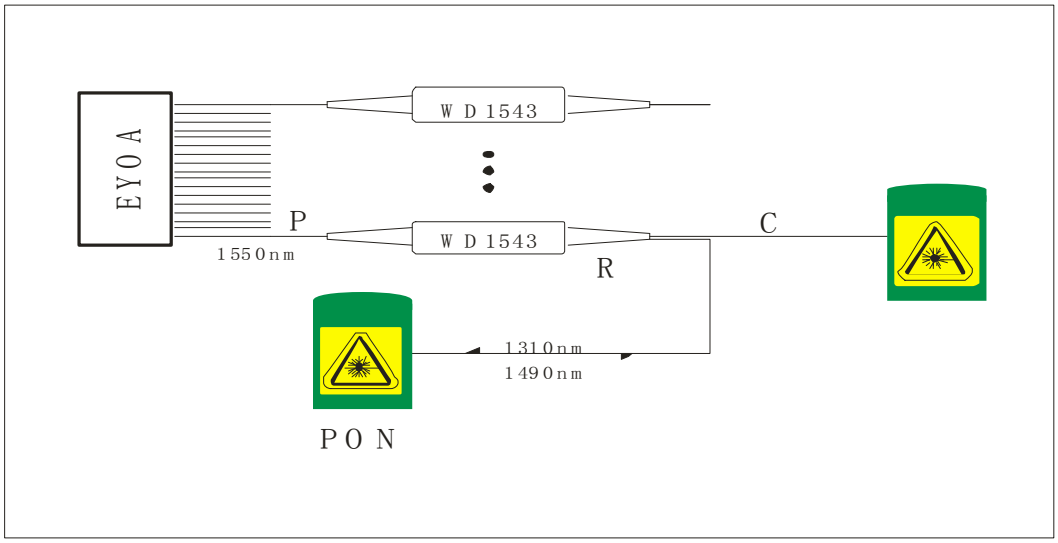
### 2.1 CATV EDFA front panel, back panel diagram



## 2.2 schematic diagram(PON+CATV EDFA)




## 3. Modules main technical indexes

| Model / Item | FWAP-1550H-32XN Series |
|---|---|
| Operating wavelength (nm) | 1540~1565 |
| Input optical power(dBm) | -10~+10 |
| Nominal input optical power (dBm) | +3 |
| Noise figure (dB) (+3 dBm,@1550nm) | 5.0~6.0 |
| Gain flatness(dB) | ＜±0.3 |
| Stability of output optical power (dB) | ＜±0.5 |
| Polarization sensitivity (dB) | ＜0.2 |
| Polarization modal dispersion (ps) | ＜0.5 |
| Optical connector(IN) | SC/APC |
| Optical connector(OUT) | SC/APC;SC/UPC |
| Pump work quantity (N) | 1∽5 |
| Saturated output power (dBm) | Max total output power: 27~40 |
| Power supplies (Vac) | 115~265(draw-out plug) |

| | |
|---|---|
| Power supplies (Vdc) | 48(draw-out plug)—optional |
| Operating temperature (℃) | 0~50 |
| Size (mm) | 2U (88 ×482.6×387) |
| WDM-PON with optical path | 32 ports |
| PON port operating wavelength (nm) | 1310/1490 |
| PON port insertion loss (dB) | ＜1 |
| 1550 port insertion loss (dB) | ＜0.5 |

## 4. Production show