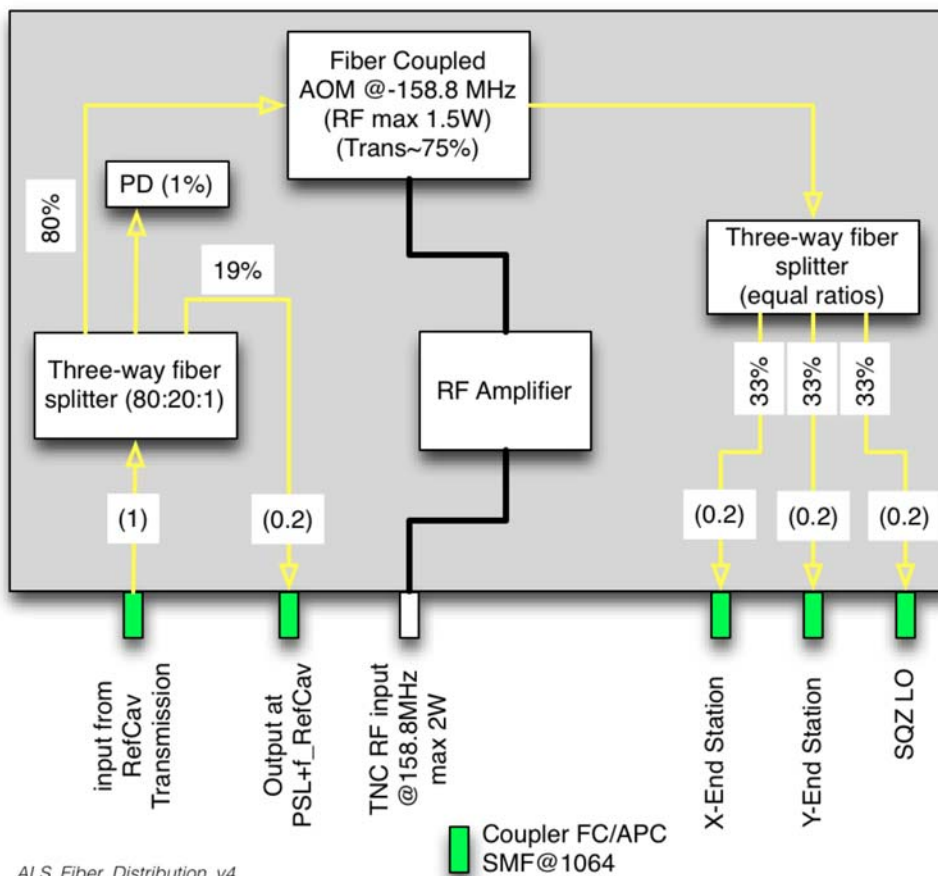


# ALS Fiber Distribution and Frequency Shifter

## Description

The ALS fiber distribution chassis splits the light picked after the PSL reference cavity into four outputs. The first output is a sample of the input beam, the other three outputs are frequency down shifted by 158.8 MHz. Each output carries about 20% of the input power. The chassis also monitors the light power injected into the fiber and the power on the PSL after the reference cavity but before it is launched into the fiber. The light is frequency shifted by a fiber-coupled AOM that is driven by a RF power amplifier at 158.8 MHz. The RF power level after the amplifier is also monitored through the slow controls system.

## Block Diagram



## Specifications

### Light

Fiber Input:

- FC/APC, rear
- 5 mW, nominal
- Wavelength 1064 nm, nominal

Fiber Output 1 (input sample):

- FC/APC, rear
- 20% of input power, nominal

Fiber Output 2 to 4 (frequency shifted):

- 158.8 MHz downshifted
- 3x FC/APC, rear
- 20% of input power, nominal

Power Monitors:

- External photodiode, light available at launch point
- Internal photodiode, sampling the input light

## Electrical

RF Input:

- 158.8 MHz nominal
- 10 dBm, nominal
- N-female, front

Photodiode Input:

- Interfaces a photodiode directly (cathode grounded)  
For example: Thorlabs SM05PD2A
- TNC, front

Photodiode Monitor Outputs:

- 0-10V, single-ended
- 2x BNC, front

Transimpedance:

- 1 k $\Omega$ , 10 k $\Omega$  or 100k $\Omega$ , selectable
- >1 kHz bandwidth

Slow controls:

- Power ok signal
- RF power monitor after power amplifier
- 2x Photodiode monitors
- 25-pin D-sub, female, rear

Physical:

- 19" rack mount
- 2U

Power:

- $\pm 16.5\text{V}$  and  $\pm 24\text{V}$