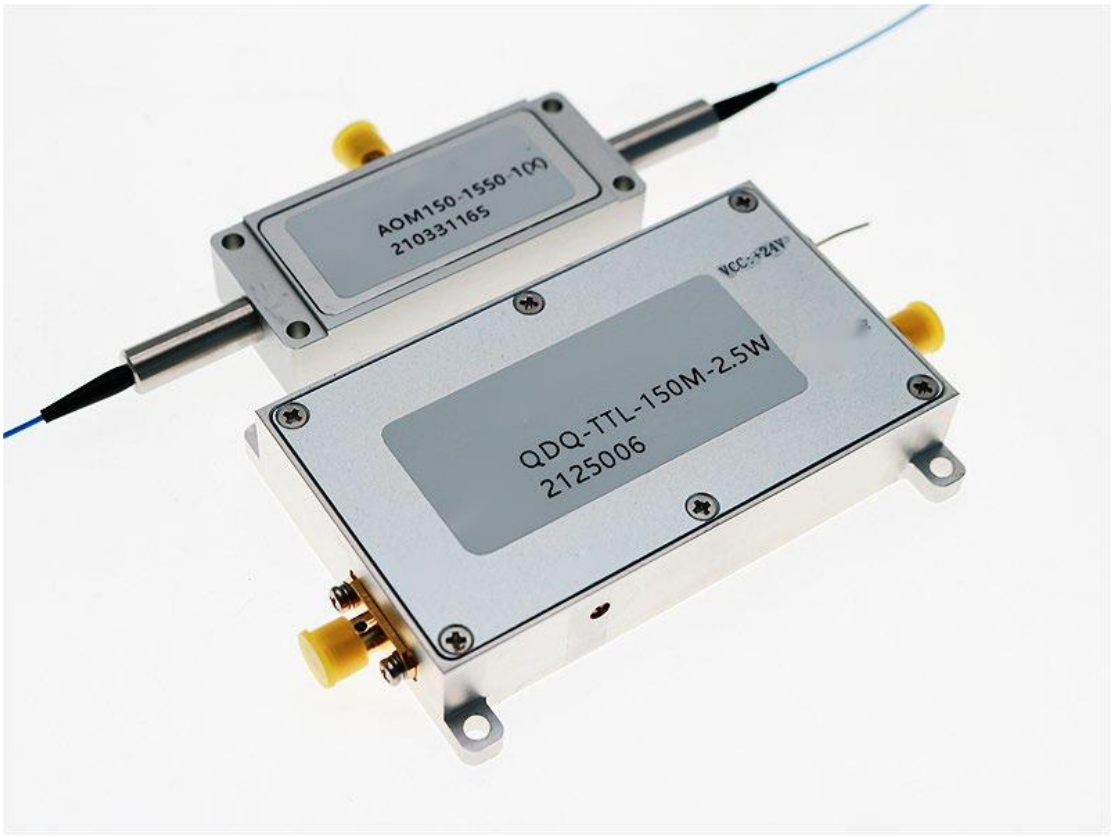
# 1550nm SM Acousto-Optic Modulator 40MHz




## Product Description

The acousto-optic modulators from Idealphotonics, due to their high modulation extinction ratio and high power handling capabilities, are widely used in the field of fiber optic sensing. This product is specially developed to meet the application requirements of fiber optic sensing, featuring small size, low power consumption (<1W), fast rise time (12ns), good modulation pulse shape (minimal overshoot), and good pulse repetition (minimal jitter in the repetition period). Additionally, it can integrate the modulator and driver in a single package, making it convenient for system integration. It can be widely used in various fiber optic sensing systems that require pulse modulation, such as φ-OTDR, BOTDR, OFDR, and more.

## Part Number

AOM40-1550-1-SA

## Product features

Small size 、 Low power consumption (<500mW) 、 Fast rise time (12ns) 、

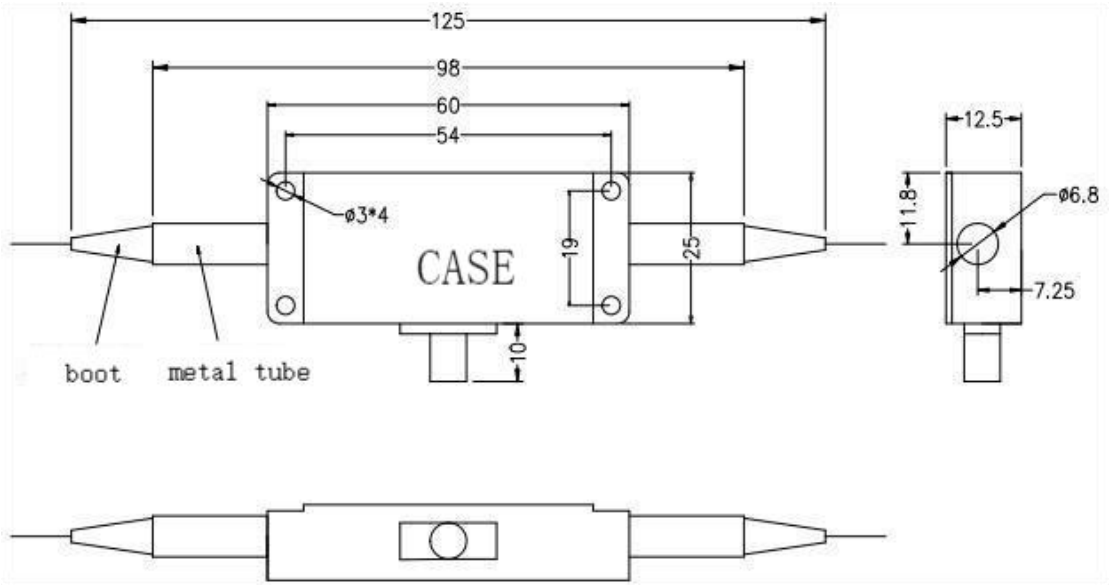
Good modulation pulse shape (small overshoot) 、 Good pulse repeatability (small jitter in repetition period)

## Application area

Fiber optic sensing 、 LiDAR 、 BOTDA

## Parameters

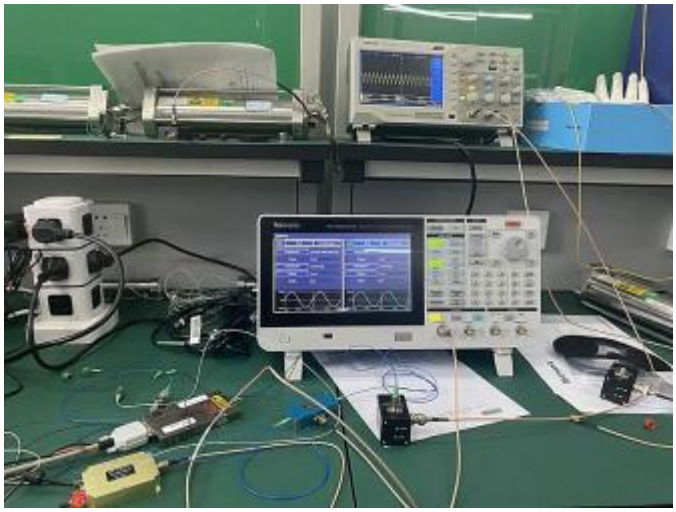
**Dimensional Drawing**




| Parameter | Unit | Min | Max | Typical | Remarks |
|---|---|---|---|---|---|
| Material | | | | TeO2 | |
| Wavelength | nm | 1520 | 1580 | 1550 | |
| Average Optical Power (CW) | W | | | 0.5 | |
| Ultrasonic Wave Speed | m/s | | | 4200 | |
| Insertion Loss | dB | | | 2.5 | |
| Polarization Extinction Ratio | dB | 18 | 23 | 20 | |

| | | | | | |
|---|---|---|---|---|---|
| Extinction Ratio | dB | 50 | 55 | 50 | |
| Return Loss | dB | 40 | | | |
| Rise Time | ns | | | 60 | |
| Frequency | MHz | | | 40 | |
| Frequency Shift | MHz | | | +/-40 | Optional |
| Frequency Stability | | | | 0.1% | |
| RF Power | W | | 3 | 2.5 | |
| Voltage Standing Wave Ratio | | | | 1.2:1 | |
| Input Impedance | Ω | | | 50 | |
| Device Connector | | | | SMA | |
| Fiber Type | | | | SMF28e | |
| Fiber Length | m | | | 1.2 | |
| Fiber Connector | | | | FC/APC | |
| Operating Temperature | ℃ | | | -20~60 | |
| Storage Temperature | ℃ | | | -30~70 | |

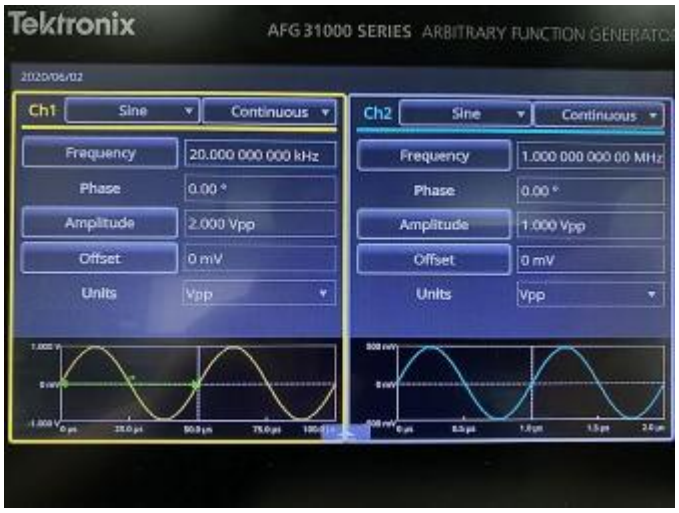
**Test Diagram**



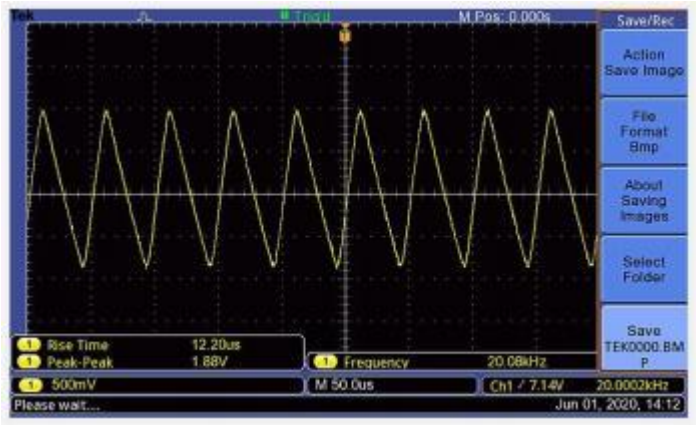
RIO's narrow linewidth lasers, 1550nm PM acousto-optic modulators, and EOT 2.5G optoelectronic instruments

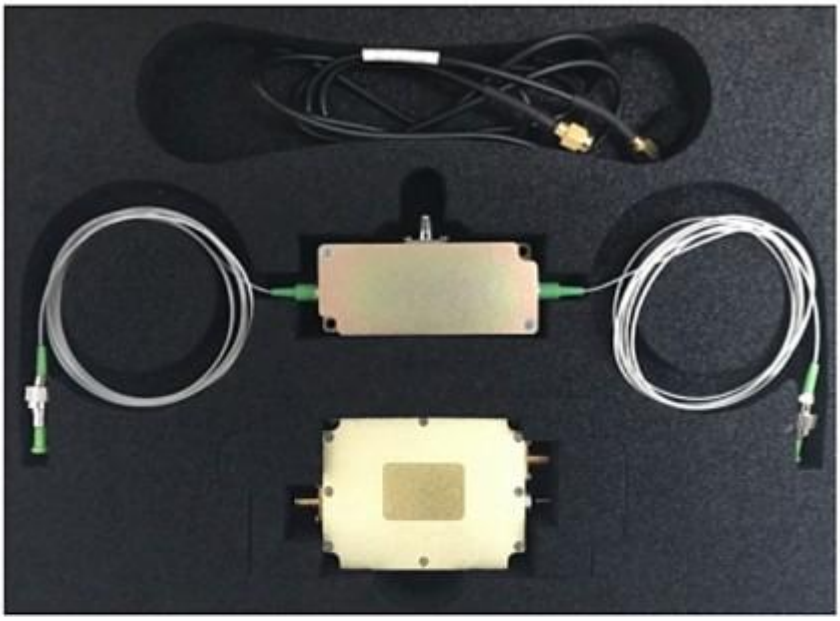
**Modulation curve**

The modulation signal applied to the AOM from the signal generator:



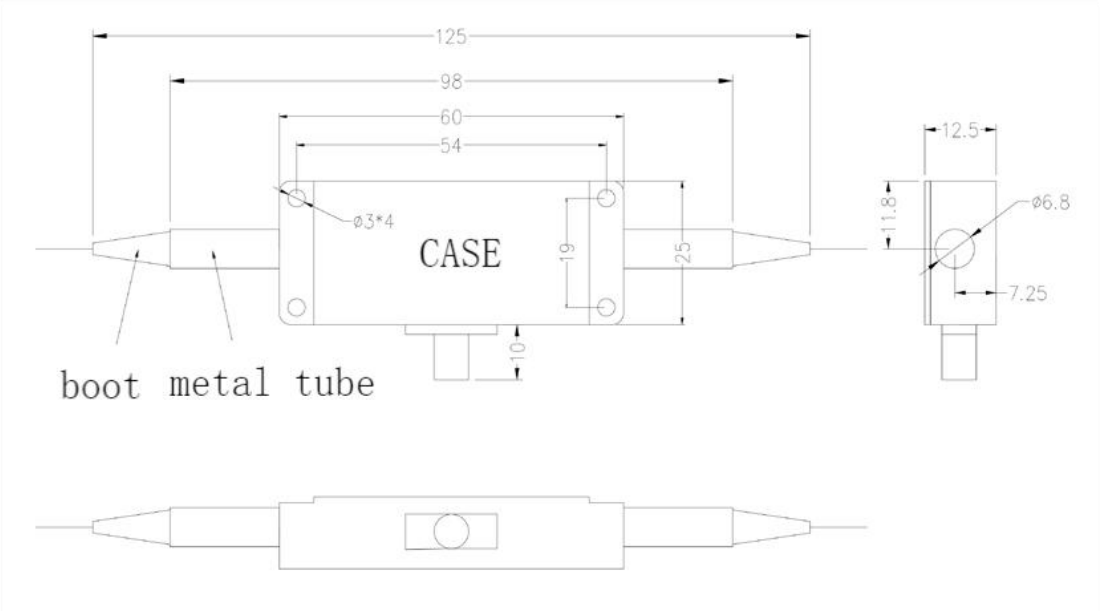

The oscilloscope displays the voltage signal output from the detector:






.1 µs 20.0mV
.1 µs 1.00 V
300 sweeps: average low high sigma
delay(2) -2.39 ns -2.98 -1.98 0.18
rise(2) 10.32 ns 9.53 11.13 0.27
fall(2) 9.74 ns 9.05 10.60 0.29
width(2) 100.92 ns 100.49 101.38 0.16
pkpk(2) 77.1mV 73.7 81.2 1.9
AUTO

**A: AOM Dimensions**




**B: Driver Dimensions**