

# D2-250 Heterodyne Module

Model No. D2-250

Document Revision: 1

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Please read [Limited Warranty](#) and [General Warnings and Cautions](#) prior to operating the D2-250.

## Description

The D2-250 heterodyne module is designed to provide a fiber-coupled heterodyne optical beat note formed by picking-off a small proportion of light from each of two laser beams. Light is coupled into a multi-mode fiber. A second output port can be used to align the overlap the two picked-off beams. The light entering the module should be linearly polarized in either vertical or horizontal direction for best results.

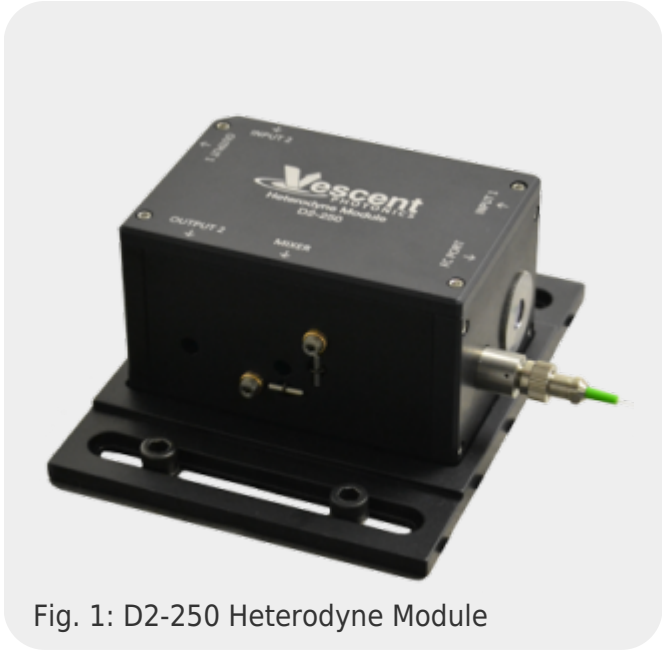


Fig. 1: D2-250 Heterodyne Module

## Purchase Includes

- D2-250 Heterodyne Module

## Absolute Maximum Ratings

Note: All modules designed to be operated in laboratory environment

| Parameter                 | Rating          |
|---------------------------|-----------------|
| Environmental Temperature | >15°C and <30°C |
| Environmental Humidity    | <60%            |
| Environmental Dew Points  | <15°C           |

## Specifications

|   | Value                              | Units                  |
|---|------------------------------------|------------------------|
| In-coupling                             | Free-space                         | %                      |
| Wavelength Range                        | 700 - 1,000                        | nm                     |
| Input Power Range                       | 0.1 - 200                          | mW                     |
| Pick-off Percentage                     | 1 - 98                             | %                      |
| Transmission                            | up to 98                           | %                      |
| Input Polarization                      | Linear                             | Horizontal or Vertical |
| Minimum Power in Beat Note              | >50 $\mu$ W, optimally 200 $\mu$ W | for use with D2-160    |
| Maximum Power at Detector <sup>1)</sup> | <1                                 | mW                     |
| Fiber Connector                         | FC                                 |                        |
| Compatible Fiber Type                   | MM, PM                             |                        |

## Components

The D2-250 Heterodyne Module utilizes the same three pickoff-cube architecture as the D2-150. With this revision, each input beam passes through a rotatable zero-order half-waveplate prior to a polarizing beam splitter, enabling the user to adjust the amount of power from each source beam diverted to the optically mixed outputs. A 50:50 non-polarizing beam splitter overlaps the pickoff light into a fiber coupler. Each cube rests on a 2-axis kinematic mount adjustable from the module exterior, enabling horizontal and vertical beam pointing adjustment.

## Alignment Procedure

Coming Soon! Enter Alignment Procedure Here



Fig. ##: D2-250 Heterodyne Module

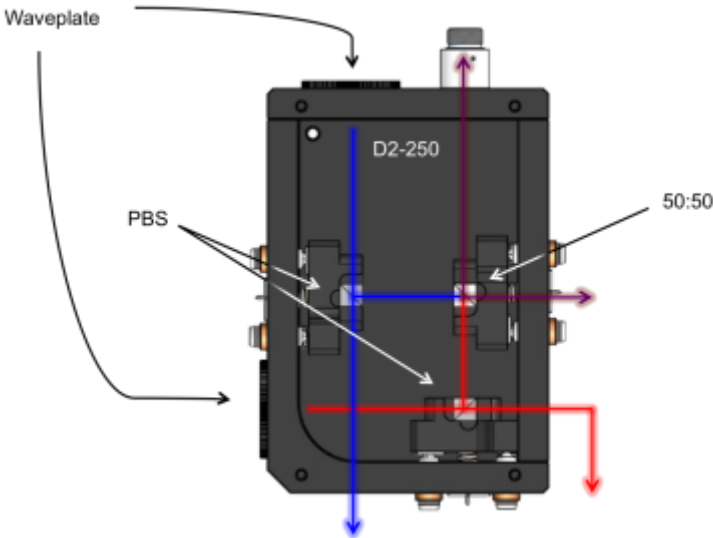


Fig. 3: D2-250 Key Components

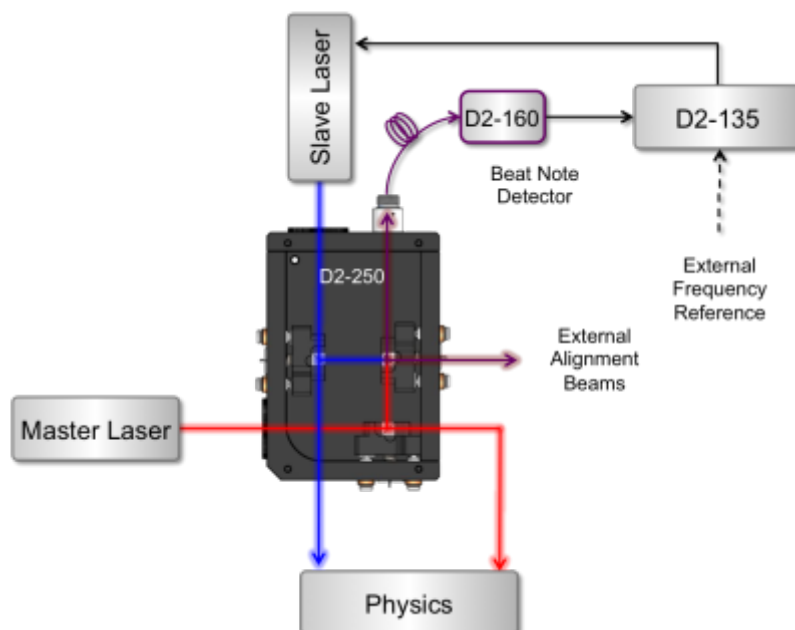


Fig. 2: D2-250 in phase lock system

<sup>1)</sup>  
In the optical beat note. Since the beat note is delivered through a multi-mode fiber for ease of alignment, the power at the detector is not necessarily the same as the power in the beat note. Damage may occur to the optical element if  $>1$  mW of overall optical power is delivered to the detector.

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