POSITIONING TOOLS AND MODULES

peo PHOTONICS

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Partner On-Trak

On-Trak Photonics is a U.S.-based leader in precision alignment and optical measurement technologies, specializing in Position Sensing Detector (PSD) systems for the photonics industry. Their solutions are designed for real-time, high-resolution position feedback across a wide range of optical and laser-based applications.

Product offering

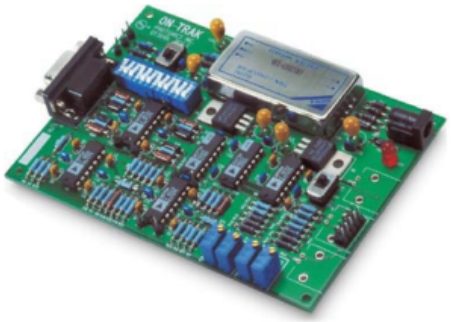
OT-301DL – Position Sensing Amplifier For Duolateral PSDs

OT-301SL – Position Sensing Amplifier For Single Axis PSD

OT-302D Display Module – On-Trak

OT-301 Position Sensing Amplifier – On-Trak

OT-301DL – Position Sensing Amplifier For Duolateral PSDs



OT-301DL General Description

The OT-301DL printed circuit board amplifier is designed for direct integration into OEM instrumentation. Optimized for duolateral Position Sensing Detectors (PSDs) with selectable bias voltages and three gain ranges, the OT-301DL's circuit elements add, subtract and divide detector signals with exceptional accuracy.

Precision op amps and precision resistor networks provide the final ratio. The analog dividers provide the utmost in linearity over a very wide signal range.

The final stages provide +10% reading adjustment of the X and Y outputs and serve as a high-performance output buffer for driving long cables. The sum signal equals the total detector signal and is proportional to the incident beam power.

Features

- X, Y Analog Position Output Voltage
- Sum Output
- Wide Dynamic Range — Three Decades 103V/A, 104V/A, 105V/A
- DC to 15kHz
- Calibration Adjust X, Y
- Zero Offset Adjust X, Y
- Automatic Detector Bias
- Position Independent of Beam Intensity

The OT-301DL includes a DC-DC converter that can be removed and replaced with an external power source for reducing cost in high-volume OEM applications.

Beam position is calculated from the ratio of signals generated by the PSD's two cathode connections (designated X1 and X2) and two anode connections (Y1 and Y2). Four transimpedance amplifiers on the OT-301DL accurately measure all cathode and anode signal currents.

OT-301SL – Position Sensing Amplifier For Single Axis PSD

OT-301SL General Description

The OT-301SL printed circuit board amplifier is designed for direct integration into OEM instrumentation. Optimized for single-axis Position Sensing Detectors (PSDs) with selectable bias voltages and three gain ranges, the OT-301SL's circuit elements add, subtract and divide signals with exceptional accuracy.

Precision op amps and resistor networks perform addition and subtraction operations; optimized analog dividers provide the final ratio. The analogue divider ensures the utmost in linearity over a very wide signal range.

Features

- Analog Position Output Voltage
- Sum Output
- Wide Dynamic Range – Three Decades 103V/A, 104V/A, 105V/A
- DC to 15kHz
- Calibration Adjust
- Zero Offset Adjust
- Automatic Detector Bias
- Position Independent of Beam Intensity

The final stages provide ±10% reading adjustment of the position output and serve as a high performance output buffer for driving long cables. The sum signal equals the total detector signal and is proportional to the incident beam power.

The OT-301SL includes a DC-DC converter that can be removed and replaced with an external power source for reducing cost in high-volume OEM applications.

Beam position is calculated from the ratios of signals generated by the PSD's two anode connections (designated Y1 and Y2). Dual transimpedance amplifiers on the OT-301SL accurately measure the PSD's anode signal currents. The exact relationship between PSD signal and beam position is as follows: the total detector signal and is proportional to the incident beam power.

OT-302D Display Module – On-Trak

The OT-302D Display Module brings a new level of ease and sophistication to display and analysis of position sensing data collected from the OT-301 Position Sensing Amplifier. Utilize the module in three ways: as a standalone readout system, in tandem with Beamtrak data processing software (included), or with user-programmable routines via RS-232 communication.

OT-302D Display Module features

- LCD Display of Absolute Position
- LCD Backlight
- X, Y Position and Sum Display
- metric (mm) or English (in)
- RS-232 interface
- push button zero offset
- computer controlled or stand alone
- front panel push button control
- high resolution 0.1 micron (0.0001″)
- display update control 0.1 to 25.5 second update speed
- calibration features for all size detectors
- fast/slow averaging

OT-301 Position Sensing Amplifier – On-Trak

The OT-301 Position Sensing Amplifier is the easiest, most precise way to process the current output from any position sensing detector (PSD) on the market.

Plug-And-Play… Out Of The Box

Truly plug-and-play, the OT-301 eliminates the hassle of having to design and build a custom amplification solution. Simply plug in the detector, switch on the power, and you're ready to go. The benefit is greater convenience, efficiency and productivity… plus 100% compatibility with your future position sensing needs. The OT-301 pays for itself in no time.

Any Application… Any Detector

From laser beam alignment, to beam centering, to mirror stabilization, the OT-301 is ideal for one- and two-dimensional absolute optical positioning or precision centering and nulling requirements. Read the X-Y position output and SUM output from duolateral, tetralateral, single axis, quadrant and bi-cell PSDs.

Four transimpedance Amplifiers

Four transimpedance amplifier channels and precision signal processing electronics deliver the performance necessary for close-tolerance angle, surface uniformity, flatness, parallelism and straightness measurement.

X, Y Analog Output That's Directly Proportional To Beam Position

The photocurrent generated from the position sensing detector is processed by the four-channel amplifier system using a position sensing algorithm. The result is X and Y analog outputs that are directly proportional to beam position-independent of changes in beam intensity.

Six Gain Settings: 0.1 µA to 1.5 mA

Six gain settings accommodate input current ranges from 0.1 µA to 1.5 mA with a frequency response to 15 kHz. A convenient ZERO adjust enables you to electronically move the zero to a relative position on the PSD. A CAL adjust allows calibration to absolute position.

Features

- X, Y analog position output voltages

- sum output
- wide dynamic range: 0.1 µA to 1.5 mA
- DC to 15kHz
- compatible with all position sensing detectors
- zero offset/nulling
- calibration adjust
- automatic detector bias
- position independent of beam intensity