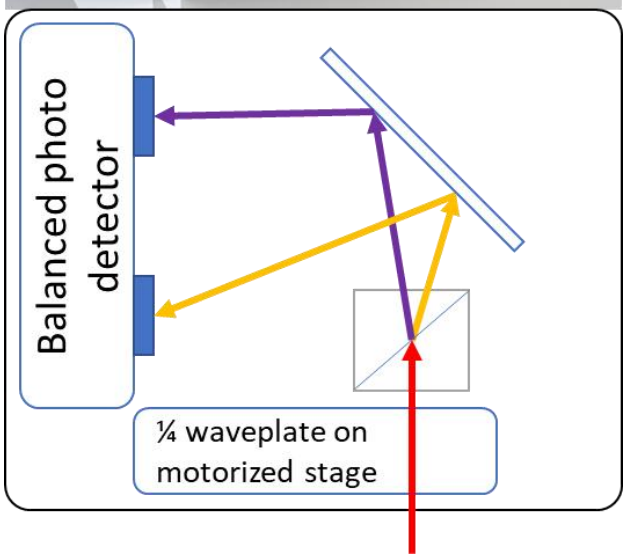
Auto Balanced Polarization measurement module

TTT-ABPD Series

Introduction

The ***Auto Balanced Polarization Measurement Module*** is a disruptive development for polarization related optical characterizations. Distinguished from the products in the market, the module is optimized for ultrashort pulse lasers (below 1 ps). Two models are available for laser with repetition rate 0.1 kHz – 5 KHz, and 200 kHz – 200 MHz, respectively. As shown in the image at the right side, the system consists of one balanced photodetector, one adjustable mirror, one Wollaston prism and one ¼ waveplate on a motorized rotation stage.

It is worth noting that when measuring short pulse laser beam, the detector is saturated frequently, even with significantly low optical power input. Furthermore, the detection system is extremely sensitive to the angle of the ¼ waveplate. In another word, the measurable window is very small and unstable, representing a narrow linear response range of the detectors. TuoTuo Technology is proud to announce that those problems are addressed by the ***TTT-ABPD series***. The user will experience the precise signal acquisition with high stability and ease of operation.



The system can be applied for wide range of applications:

- Magneto-optical Kerr measurement
- THz spectroscopies, and
- Other testing which monitoring the change of the optical polarization

four piezoelectric motors will work in designed logic to recover the beam position and direction. The whole process will take tens of seconds to milliseconds depending on the level of misalignment and target accuracy.

The module with manual rotation mount for the waveplate is available upon requests, which reduces the costs. Achromatic waveplate is chosen for the phase retardation as the ultra-short pulse laser beams are broadband in spectrum. The TTT-ABPD series are also suitable for integrating into wide range of systems. Comprehensive LabView (NI) program are provided for monitoring and operation. Feel free to contact us for more details.

Application notes: The module is functioning with CW lasers, and the signal to noise performance is premium, however the advantages over the market product may not significant when handling CW pulses.

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Recommended combinations

TTT-BPD Series are the balanced photodetector without optics and automation function.

TTT strongly recommends the auto alignment system (***TTT-AAL Series***) for regenerative amplifier system.

For optical measurement, we recommend ***TTT-AFG series*** preamplifier/photodetector is recommended for weak signal pre-amplification.

Specifications (TTT-ABPD)

Operation wavelength	**340 to 1100 nm**
Maximum beam diameter	5 mm
Electrical bandwidth	-1k Version: 20 kHz (optimized for 0.1 kHz-5 kHz laser) -200k Version: 400 kHz (optimized for 200 kHz – 200 MHz laser)
Electrical port	SMA (Port A, Port B, Port A-B)
Conversion Gain (A-B)	500 kV/A
Waveplate	Achromatic waveplate (user specify the wavelength)
Motion control accuracy	0.03 degree
Motion Control Connector	Micro USB
Power in	Hirose 4 pin, 12±1 VDC 1A
System Configuration	1 achromatic waveplate, 1 motorized rotation stage, 1 balanced photodetector, 1 Wollaston prism
System Dimensions[1]	74 mm × 105 mm × 110 mm

Notes:
[1]The dimensions exclude the electrical connectors.

Product Code

Please contact us for the availability if your needs are beyond the listed terms

TTT	-ABPD	-XX	-XX
↓	↓	↓	↓
A product of TuoTuo Technology	**Auto Balanced photodetection**	**Bandwidth:** **-1k** **-400k**	**Operation wavelength** **-400** **-800** **-1000**

Caution!

- Precision instruments, handle with extra caution.
- Usage and storage out of controlled environment leads to lower performance.
- Dissemble the module with lead to the warranty void immediately.

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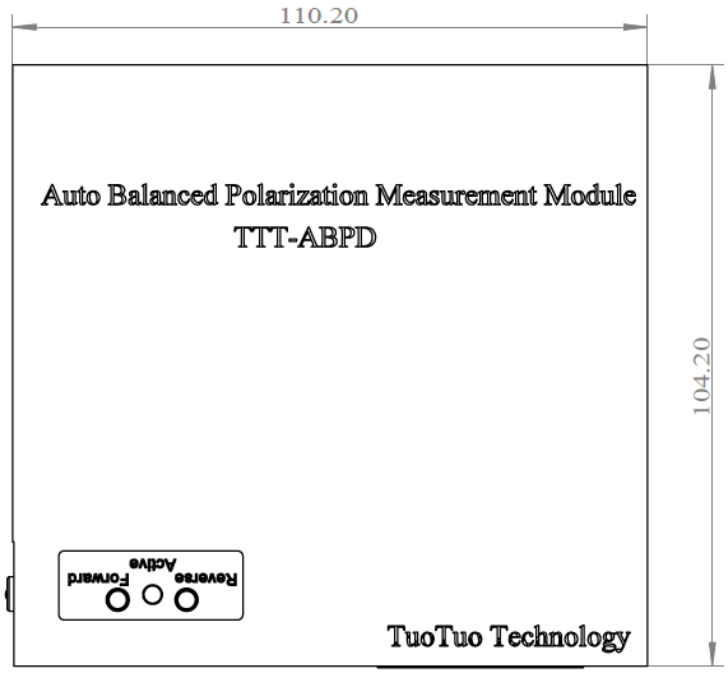
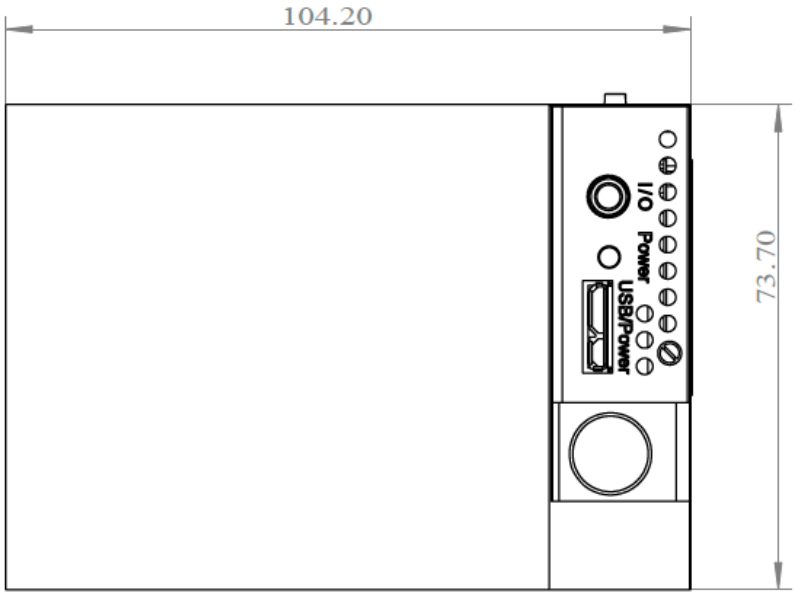
3D drawing of the modules details

Top view



Left view



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