BCC-PD

Balanced Cross Correlator Photodetection

MenloSystems

APPLICATIONS

- Timing synchronization of two optical pulse trains at different wavelengths
- Timing synchronization of an ultrafast laser to the output of a stabilized fiber link
- Timing synchronization of an ultrafast laser to an optical master oscillator
- Timing synchronization within a laser amplifier chain or between different setups

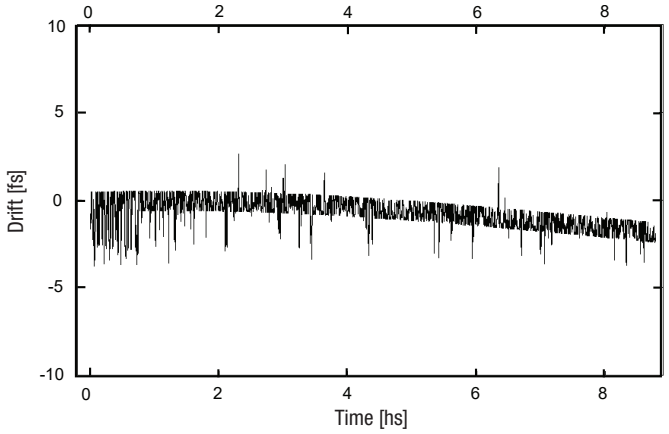
The high resolution optical balanced cross correlator is optimized for detecting the timing error between the reference pulse train and a laser client system with ultra-high sensitivity. The balanced detection makes the system more robust reducing the phase deviation from unintentional amplitude variations (AM-PM conversion). The BCC-PD is required for high level synchronization of femtosecond laser systems to a reference pulse train.

MEASUREMENT DATA

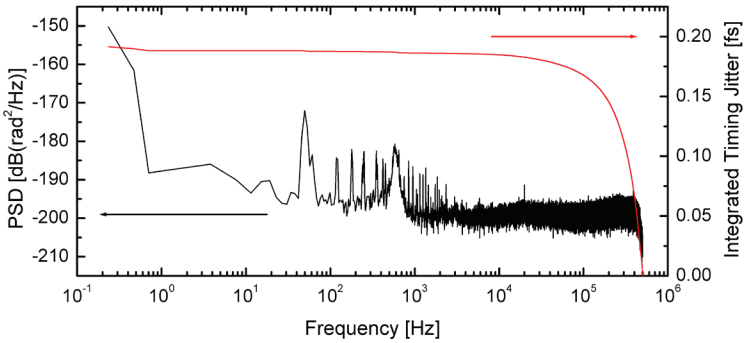
Detection noise floor when seeding the BCC-PD with two identical signals from laser:

1) Long-term stability over 10 hours*:

*with 1m Patch-Cord without temperature stabilization



2) Short-term stability:



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SPECIFICATIONS	BCC-PD 800 nm	BCC-PD 1060 nm	BCC-PD 1560 nm
Optical input 1	1560 nm fiber coupled (SMF28 or PM Panda)	1560 nm fiber coupled (SMF28 or PM Panda)	1560 nm fiber coupled (SMF28 or PM Panda)
Spectral range input 1	1530 – 1590 nm	1530 – 1590 nm	1530 – 1590 nm
Optical input 2	Fiber (PM 850) or free space	Fiber (PM 980XP) or free space	Fiber (SMF28 or PM Panda) or free space
Spectral range input 2	745 – 825 nm	1000 – 1100 nm	1530 – 1590 nm
Max. incident power	100 mW	100 mW	100 mW
Output impedance	50 Ω	50 Ω	50 Ω
Error signal amplitude	1 Vpp	1 Vpp	1 Vpp
Error signal shape	Dispersive S	Dispersive S	Dispersive S
Error signal output connector	SMA	SMA	SMA
Sensitivity @ 100 MHz lasers	>15000 V/rad (50 mW optical input)	>15000 V/rad (50 mW optical input)	>15000 V/rad (50 mW optical input)
Supply voltages	-15 VDC, GND, +15 VDC	-15 VDC, GND, +15 VDC	-15 VDC, GND, +15 VDC
Current consumption	1<1 A @ ±15 V	1<1 A @ ±15 V	1<1 A @ ±15 V
Operating temperature	10 - 40 °C	10 - 40 °C	10 - 40 °C
Device dimensions (stand-alone)	413 mx 178 x 90 mm^3	413 mx 178 x 90 mm^3	413 mx 178 x 90 mm^3

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