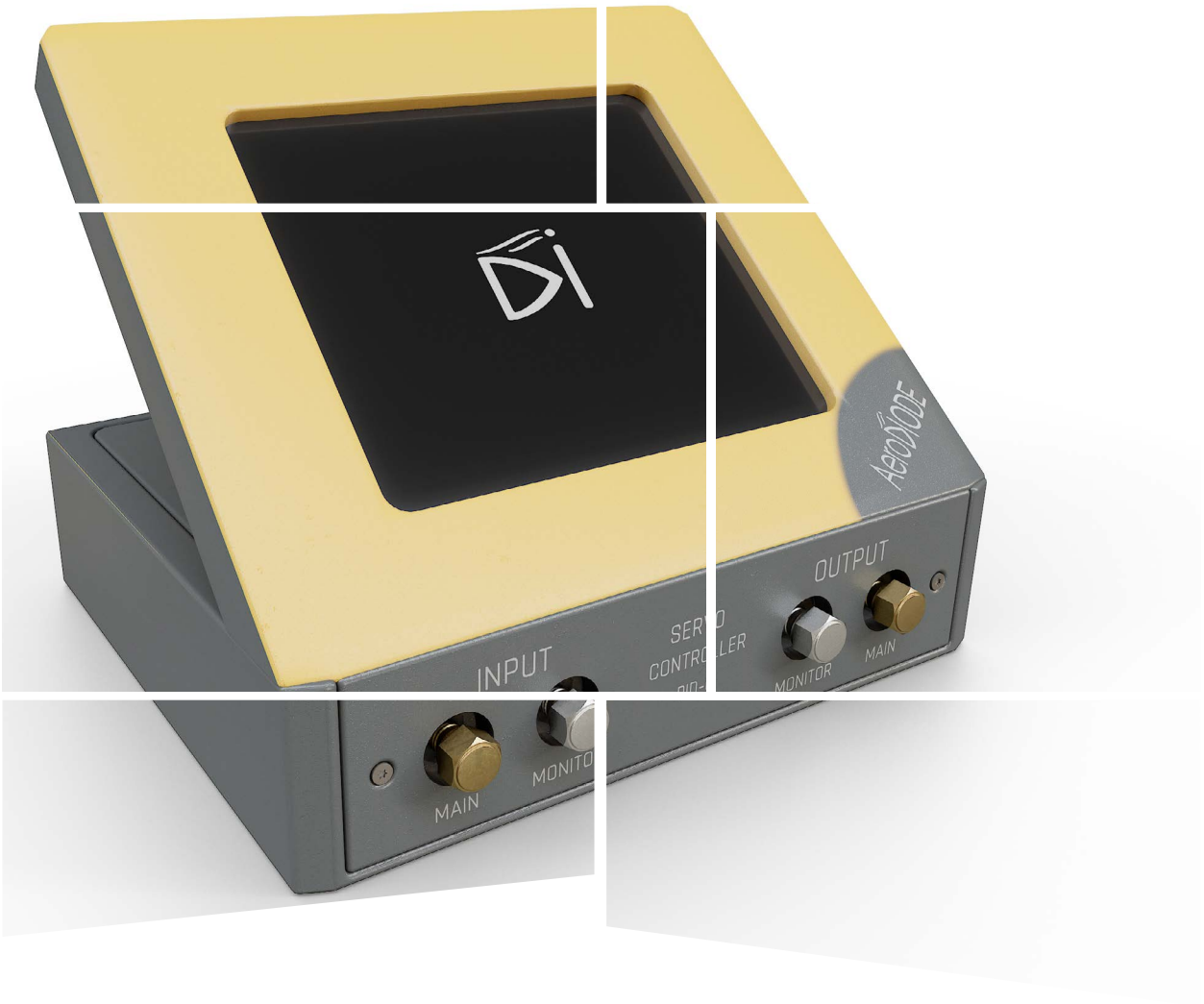
PID-C

High-bandwidth PID controller



AeroDIODE

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PID-C

High-bandwidth PID Controller

AeroDIODE PID-C is a high speed PID controller that produces a control signal that dynamically minimize the difference between a given system signal and its desired setpoint. It is an ideal tool for applications requiring a high bandwidth PID correction such as laser locking or laser linewidth narrowing.

PID-C is an ultra-low noise easy-to-use standalone turnkey solution for high speed PID control. It is possible to monitor the input and output voltage signals with two addition SMA connectors.

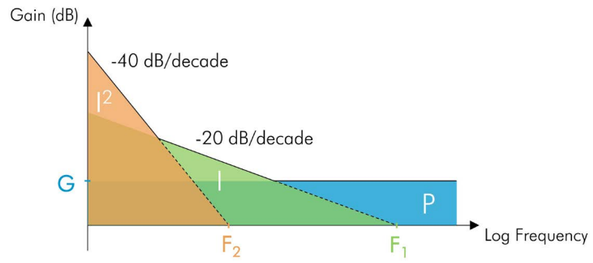
PID-C has been designed to offer the lowest voltage noise over a wide PID control bandwidth. It provides proportional, simple integrator and double integrator functions in an easy-to-use touchscreen controlled (computer free) setup. It includes two additional SMA outputs to monitor the input and output signals and quickly understand your system.

Key features

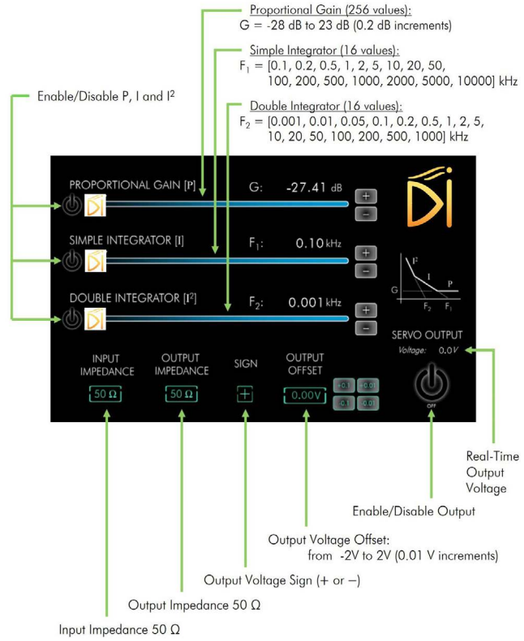
- High control bandwidth >30 MHz
- Immediate start
- 3 PID functions : proportional, simple Integrator, and double Integrator
- Adjustable output offset
- 2 additional SMA outputs to monitor both the input and output signals
- 256 proportional gain, 16 simple integrator and 16 double integrator setting levels
- Short loop delay
- Ultra low voltage noise density
- Ideal Bode diagram reaching >200 dB gain

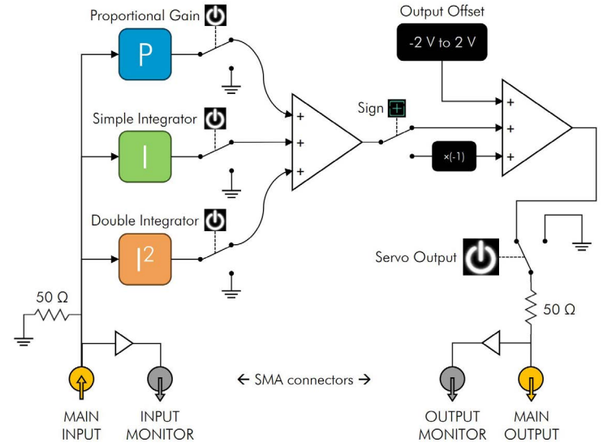
The product has an easy-to-use touch screen with immediate overview of all parameters.

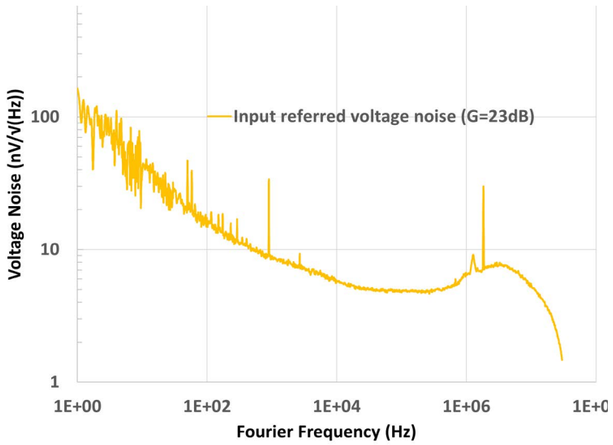
Rear view of the product. The small form factor takes a surface as small as 155*150 mm² on a test bench or an optical table.



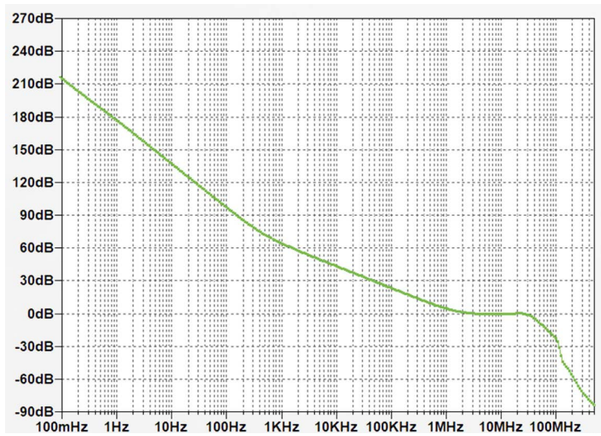
The Bode diagram principle above shows the 3 PID parameters that are adjustable with the touchscreen : «G», «F1» and «F2».







Input noise deduced from output noise (Gain=23dB) reaching less than 5nV/√Hz in the 10kHz- 1MHz Fourrier Frequency range



Example of a typical Bode diagram of the module. The Gain reaches >200 dB and the bandwidth is exceptionally high up to 30 MHz.

Technical specifications

Model	PID-C	Notes :
Input	±5V - 50Ω	SMA connector
Output	±4.5V - 50Ω	SMA connector
Control Bandwidth	> 30 MHz	
Output offset	Yes ; ±2V	
Monintoring	2	Input and output signals ; SMA/SMA
Proportional Gain	-28 dB to 23dB	0.2dB increment
Simple integrator	0.1kHz to 10MHz	16 values
Double integrator	1Hz to 1MHz	16 values
Open loop gain	>200 dB	
Loop delay	24 ns	Typical (measured value)
Input voltage noise density	< 5 nV/√Hz	10kHz-1MHz (typ. measured value)
Operating temperature	+10 +40 °C	
Power supply	Yes - 9V/36W	110V/220V compatible
Dimensions	155*150*112 mm^3	Pure aluminum case
Weight	1.5 kg	

PID-C has been created by researchers for researchers who want to focus on their work without wasting time with overly sophisticated instruments : the use is immediate and the performances exceptional.

contact.aerodiode@aerodiode.com
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