PICOSCALE Interferometer Controller

The **PICO**SCALE Interferometer is a powerful system for contact-free displacement measurements. The **PICO**SCALE Interferometer Controller contains a laser source and all necessary electronics to evaluate optical signals. These signals are generated in the sensor heads which are connected to the Controller via optical fibers. A beam splitter divides the laser beam into a reference and a measurement beam which are reflected off a reference mirror (typically inside the sensor head) and a target, respectively. Thanks to the Michelson principle, only very few consideration have to be made with respect to target reflectivity. Powerful firmware modules, convenient software and versatile accessories allow to easily integrate the **PICO**SCALE Interferometer Controller into new or already existing measurement setups. In the following table please find a summary of features and specifications of the system.

Property	Value
Number of channels	3
Resolution	1 pm
Accuracy	10^{-6}
Absolute position estimation	<1 %
Minimum working distance (*)	0 mm
Maximum working distance (*)	1000 mm
Maximum target velocity	1 m/s
Data rate	up to 10 MHz
Targets	reflective surfaces, mirrors, retro-reflectors (*)
Target reflectivity	4 % – 100 %
Measurement conditions (*)	ambient, vacuum, ultra-high vacuum, cryogenics, hard radiation
Environmental compensation	possible with Environmental Module
Measurement laser	1550 nm, laser class 1
Pilot laser	650 nm, laser class 1
Interfaces	USB, Ethernet Serial data, AQuadB
GPIO interface	9 x Digital in-/output 5 x Analog output 3 x Analog input
Firmware modules	Advanced Trigger Calculation System Signal Generator Counter Clock Generator
Software	Graphical user interface *PICOSCALE Control* C and LabVIEW® drivers Software API and DLLs
Controller chassis	33 x 27 x 7.3 cm^3, weight 3.5 kg (table-top version) 48.2 x 31 x 4.5 cm^3, weight 3.8 kg (rack version)
Electrical power consumption	25 W
Order Code	PS-CTRL-V1.4-TAB (table-top version) PS-CTRL-V1.4-RACK (rack version)

(*) depending on sensor head

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