PLUG AND PLAY PIC CHARACTERIZATION WITH PICONNECT

![Fraunhofer HHI logo]

AT A GLANCE

Plug and play PIC characterization setup with Ethernet controlled multisource board and temperature controlled PIC assembly

Features

- 8 current sources, voltage read out enabled
- 8 voltage sources, current read out enabled
- 4 laser drivers for setting constant laser output power (MLD203P1)
- 1 temperature controller (MTD415T)
- complete PIC Assembly
- GUI and API available

Applications

- controlling PICs for LiDAR, artificial neural networks, signal processing and more
- enabling fast prototype development
- replacing expensive lab equipment
- overcoming manual electrical probing
- standardizing measurements

Technical Backround

Fraunhofer HHI has developed a new PIC measurement setup (PIConnect) with integrated laser drivers, current and voltage sources. The system enables parallel operation of the building blocks and thus convenient evaluation of PICs. Communication to a PC is enabled via Ethernet. For embedding PIConnect into an existing measurement setup, predefined python written functions can be used. This API allows setting and getting the measurement parameters.

Specifications and pinout of the PIConnect Mainboard

Controller/ Source	Amount	Pin	Specifications	Resolution	Monitoring
TEC controller	1	extra	5-45°C, ±1.5 A		
NTC thermistor		1-2	10 kΩ thermistor supported	0.01 K	Temperature
Current sources	8	3-18	Max. 200 mA @ max. 5 V	50 µA, 1.2 mV	Voltage
Voltage sources	8	19-34	-10…+10 V @ max. ±20 mA	5 mV, 10 µA	Current
Laser controller	4	35-50	Controllable optical power @ max. 200 mA & max. 3 V	50 µA	Laser current
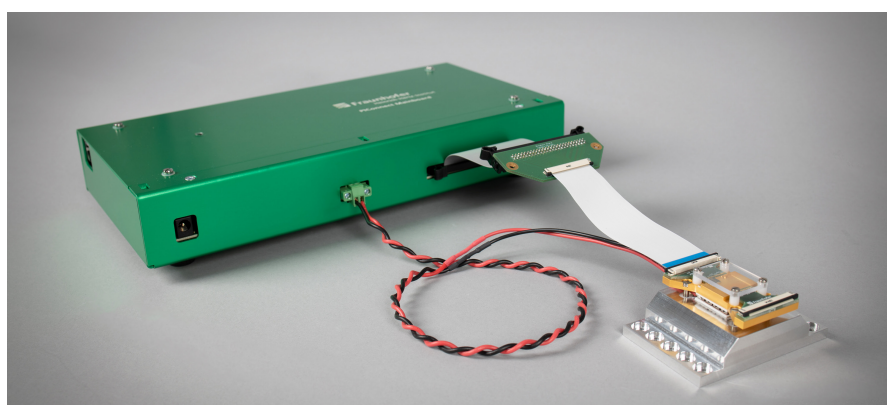
PIConnect comprising of Mainboard and PIC Assembly for plug and play PIC characterization.
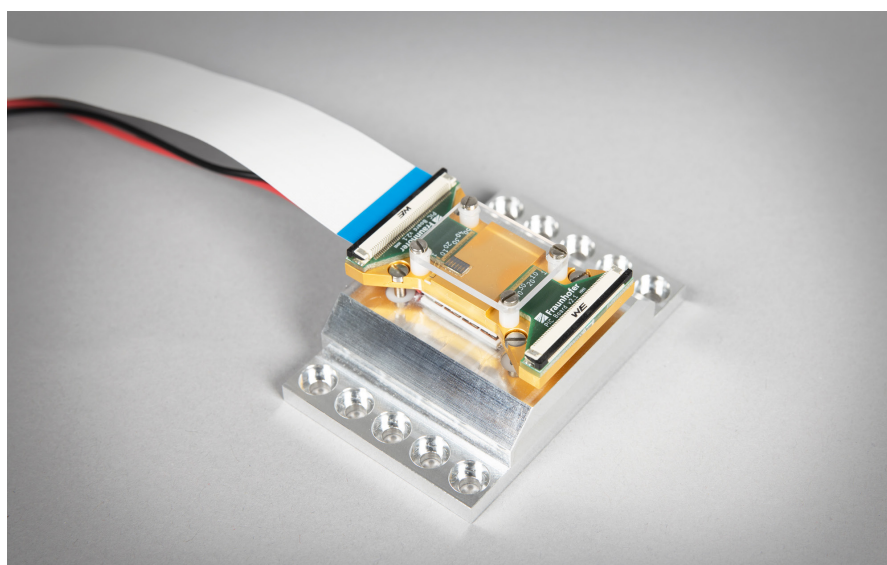
Photograph of the temperature controlled PIC Assembly carrying the wire-bonded PIC.

M. Sc. Axel Schönau
Photonic Components

Phone +49 30 31002-494
axel.schönau@hhi.fraunhofer.de

Fraunhofer Heinrich Hertz Institute
Einsteinufer 37, 10587 Berlin
Germany

www.hhi.fraunhofer.de/pc