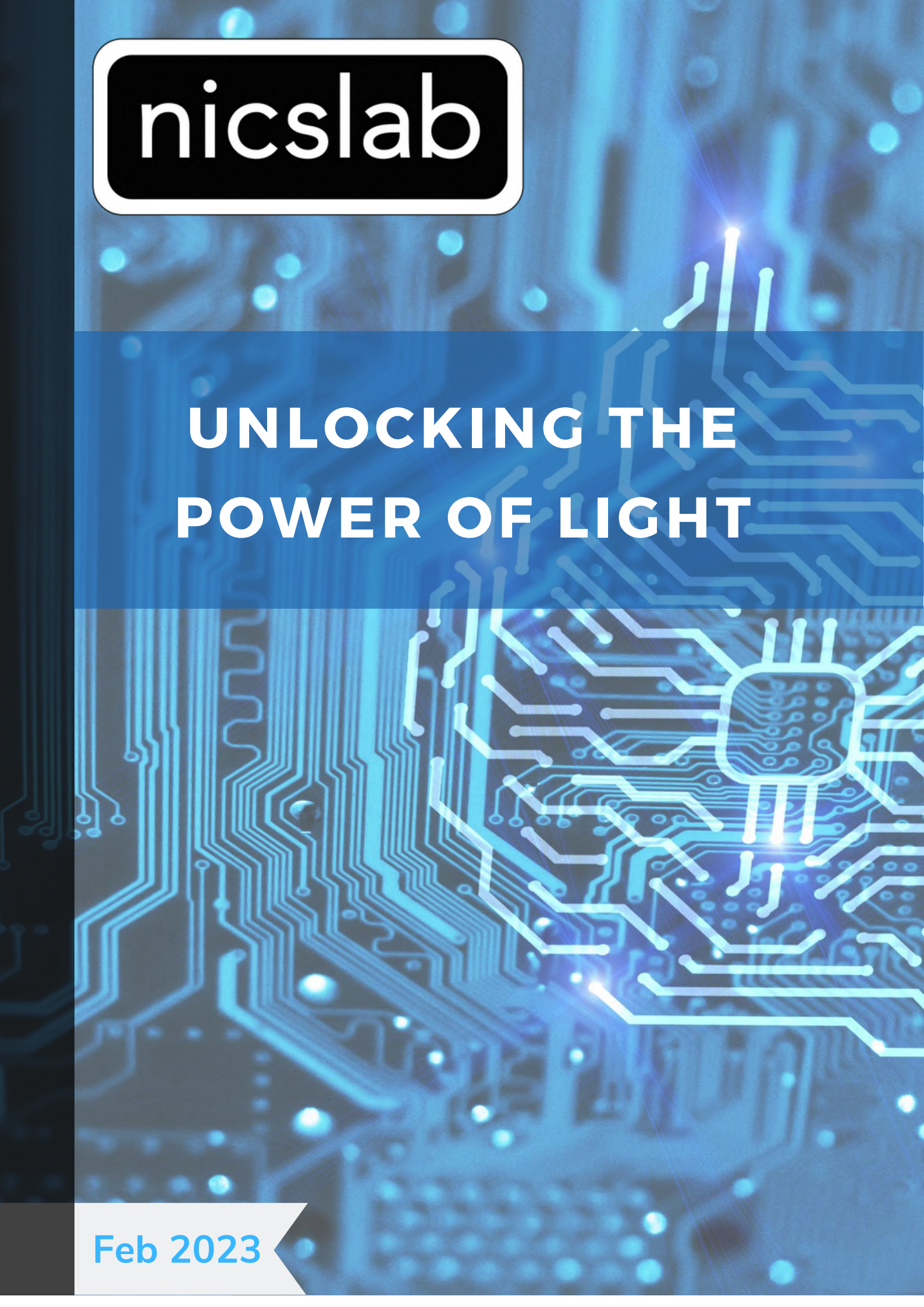

nicslab
UNLOCKING THE
POWER OF LIGHT
Feb 2023

WHY US

Controlling light in a photonic chip is a non-trivial process, requiring precision and smart control.

We create a platform to drive the light inside Photonic Integrated Circuit (PIC).

GETTING STARTED

We have built a complete scalable source measurement system experience. Whether you're sourcing devices, measuring parameters, automating experiments or analyzing data, you will find better control, flexible output range, with high scalability.

There are two ranges of product: XPOW and XDAC which each has 8, 40, and 120 channels. Every box of channels can be daisy chained for modularity tested up to 1000 channels.

This table below is for general guidance for selecting product according to your specifications and needs.

Specifications	XPOW	XDAC		
		MUB	U	DIFF
Processor	8-bit AVR RISC-based microcontroller	Quad Core Cortex 64-bit ARM v8		
Voltage & Current Resolution	16-bit	16-bit	16-bit	16-bit
Output	Unipolar	Bipolar	Unipolar	Differential
Output Range	0 - 36 Volt, 0 - 300 mA	±18 Volt, ±500 mA	0 - 36 Volt, 0 - 300 mA	±18 Volt, ±500 mA
Intuitive GUI	Yes	Yes	Yes	Yes
SCPI command support (Python, C#, Matlab, and LabVIEW)	Yes	Yes	Yes	Yes
Sharing Ground	Yes	Yes	Yes	No
Premium Range	0 - 5 Volt, 0 - 10 Volt, 0 - 20 Volt, 0 - 200 mA, 0 - 100 mA, 0 - 50 mA	±2.5 Volt, ±5 Volt, ±10 Volt	0 - 5 Volt, 0 - 10 Volt, 0 - 20 Volt, 0 - 200 mA, 0 - 100 mA, 0 - 50 mA	±2.5 Volt, ±5 Volt, ±10 Volt
Port	USB	Ethernet		

DIMENSION

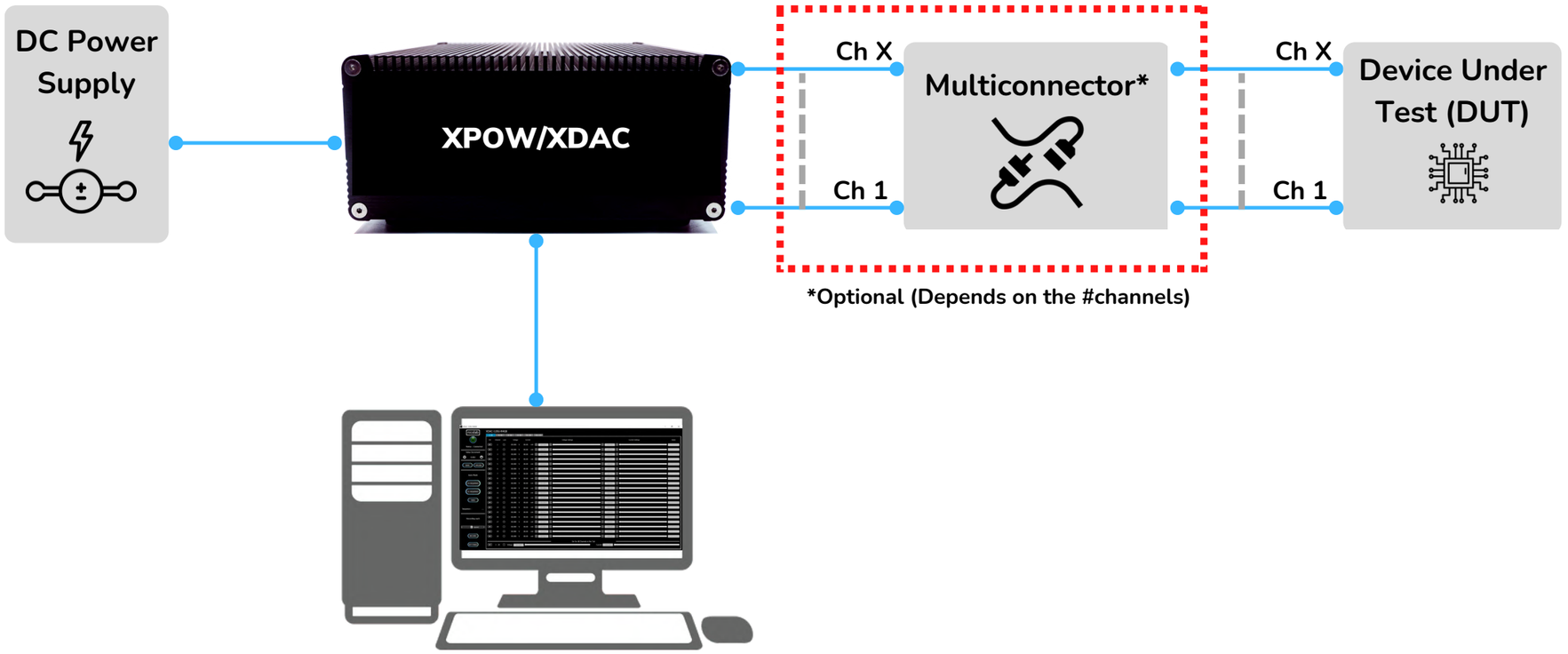
	XPOW			XDAC-MUB			XDAC- U			XDAC-DIFF
Number of Channels	8	40	120	8	40	120	8	40	120	40
W (mm)	106	232	232	106	232	232	106	232	232	232
L (mm)	164+37.68 (Front Board)	333	450	164+37.68 (Front Board)	333	450	186.99+35 (Front Board)	333	450	450
H (mm)	61.6	102	102	61.1	102	102	91	102	102	102

SET-UP DIAGRAM

The XPOW/XDAC needs to be connected with DC power supply then you can plug into the Device Under Test (DUT) or multiconnector first. The voltage/current can be controlled through Graphical User Interface (GUI) or SCPI command via USB/Ethernet port.

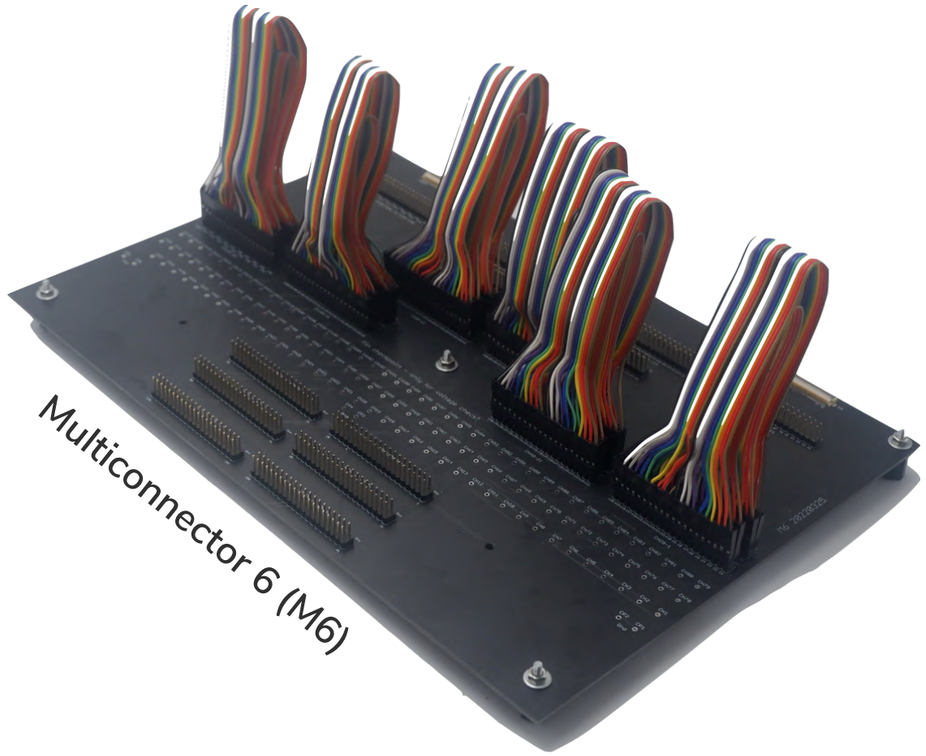
DC input maximum voltage depends on the type of XPOW/XDAC, for Differential (DIFF) the maximum is ±12 V. The rest are maximum 36 V.
DC input maximum current for all types are between 2.5 - 5 A. Please check your DC power supply maximum current.
You can directly connect the XPOW/XDAC with your Device Under Test (DUT) with its terminal block (8 channels) or you can use our Multiconnector (40, 120 channels) for easier setup.

In order to select the appropriate platform according to your needs, our team of engineers can assist you.



MULTICONNECTOR

Multiconnector (M1, M2, M3, M4, M5, M6) enables your XPOW/XDAC to connect with Device Under Test (DUT) through various kinds of connector. Multiconnector is optional and can be purchased separately.



Multiconnector 6 (M6)

M1

- 40 Channels
- 2xFFC (20, 24, 50 pin)
- 16xSMA
- 2x40 pin 2.54 mm

M3

- 40 Channels
- 2x40 banana 4 mm
- 2x40 pin 2.54 mm

M4

- 40 Channels
- 2xFFC (24 pin, 50 pin, D-Sub 25)
- 2x40 pin 2.54 mm

M2

- 120 Channels
- 3xFFC 50 pin
- 6x40 pin 2.54 mm

M5

- 120 Channels
- 10xD-Sub 25
- 6x40 pin 2.54 mm

M6

- 120 Channels
- 3xFFC 50 pin
- 6x40 pin 2.54 mm

GUI

Our multichannel source measurement system can be controlled directly with GUI or SCPI commands.

The GUI is already included in the product package with essential Basic features. Additional advance features is enabled in Premium features.

We also provide a set of commands and codes template (Premium features) via Python, Matlab and LabView.

Basic Features

- Slider
- Voltage Reading
- Current Reading
- Enable SCPI Command

Premium Features

- Basic
- Notes
- Lock
- Save & Load
- Settings (Voltage & Current Limit, Voltage Range, Reading Speed)
- Record
- Sequence
- Programming Template
- Range Span Configuration

CUSTOM-BUILT

We design a multichannel source measuring system specifically to meet your needs. The custom, including the size, connectors, and channel number. Here are some examples of previous custom products:

Custom Type: XPOW-8AX-CCvCV-U-SLIM

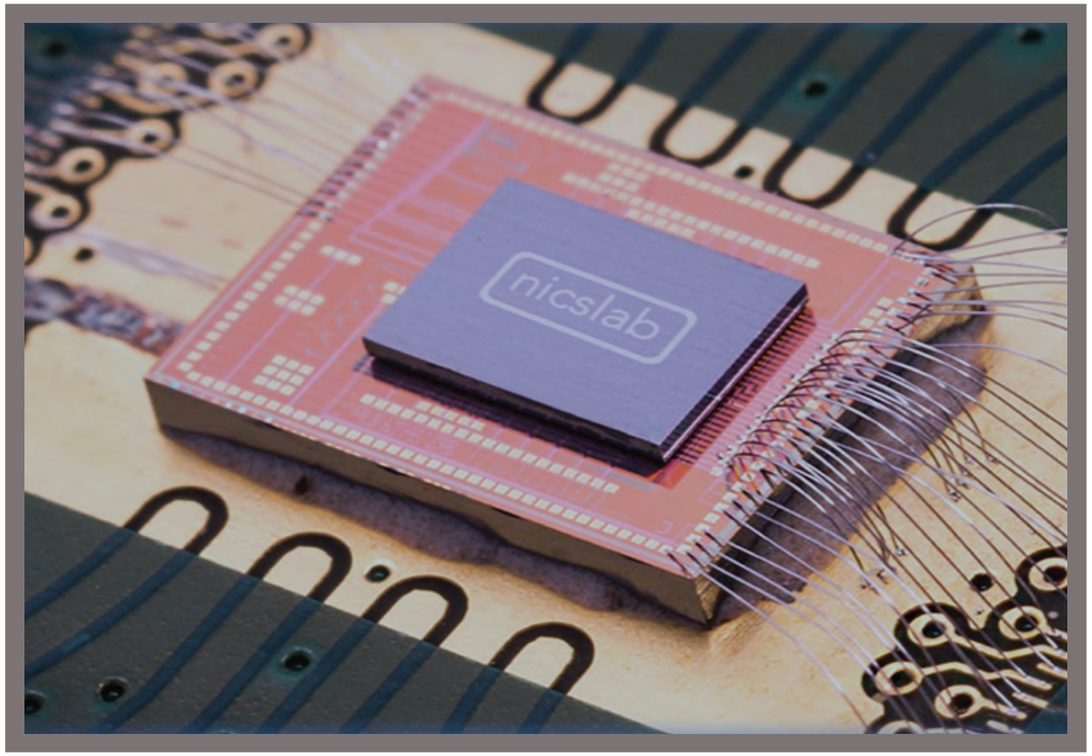
Even smaller and lighter than standard XPOW. The specifications of this item are the same as those of its standard equivalent.

Custom Type: XDAC-80MUB-R4G8

Smaller than XDAC-120MUB but larger than XDAC-40MUB. This item is unique because it was created especially to meet specific requirements.

OEM/ODM SOLUTION

We provide chip-scale and OEM/ODM technologies that will enable applications in quantum photonics, phase array microwave photonics, AI, transceivers, programmable photonics, and LIDAR.



Applications:

- Quantum computer based photonic
- Phase array microwave photonic
- AI photonic
- Photonic transceiver
- Photonic switch
- Field programmable photonic arrays
- LIDAR

CONTROL & MEASURE

- Modulators
- Photonic Chip
- Lasers
- Photodiodes

REVIEWS

Trusted by technology leaders in 15+ countries.

Instrumentation

AI & Quantum

Telecommunication & Data Center

> **The device is nice and working well. It was easy to program it with Python using my custom code.**

Hitesh Rahangdale, Postdoc,
Hebrew University of Jerusalem

> **I use a 3-channel XPOW as bias controller for an IQ optical modulator and it works wonderfully. Because XPOW is so compact, I can package it in the same box as my modulator. The software user interface is simple yet so good and intuitive. These features are critical for me in the device prototyping project I have with a few defense contractors in the US. I ended up purchasing a couple of XPOW units and shipping them to these contractors together with the prototype. It is definitely a powerful solution for the control of optical modulators.**

Dr. David Marpaung,
Professor at University of Twente

PUBLICATIONS

C. A. A. Franken et *al.* | UNIVERSITY OF TWENTE
"Hybrid-integrated diode laser in the visible spectral range"
doi: 10.1364/OL.433636

Shihan Hong et *al.* | ZHEJIANG UNIVERSITY
"Ultralow-loss compact silicon photonic waveguide spirals and delay lines"
doi: 10.1364/PRJ.437726

Nemanja Jovanovic et *al.* | CALTECH / JPL NASA
"An all-photonic, dynamic device for flattening the spectrum of a laser frequency comb for precise calibration of radial velocity measurements"
doi: 10.1117/12.2630301

Nemanja Jovanovic et *al.* | CALTECH / JPL NASA
"Flattening laser frequency comb spectra with a high dynamic range, broadband spectral shaper on-a-chip"
doi: 10.1364/OE.470143

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