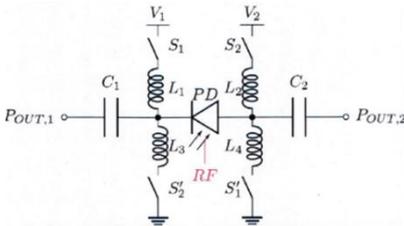


Electrooptical mixer

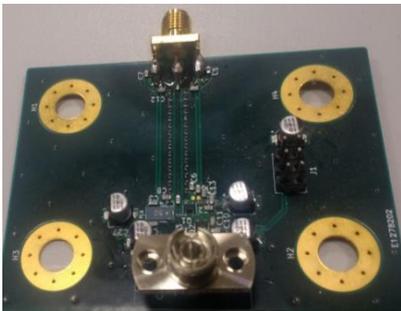
Improved data transmission through glass fibers

Invention

Across long distances, data is usually transmitted optically: with fiber optic cables. Such cables are also used to distribute the local oscillator (LO) signal in the radar range. To send data or a radar signal wirelessly, the optical signal must be converted to an electrical signal. A transimpedance amplifier (TIA) is used for this, and an electrical mixer is used for any manipulation. What is special about the circuit concept from Paderborn University (see the figure to the left) is that it directly combines optoelectronic conversion with the mixer, reducing complexity and power consumption. The elimination of the TIA, and especially the improved phase noise properties, are decisive advantages for applications in telecommunication and long-range radar. Clever wiring of switches allows the circuitry to operate during mixer operations or be completely deactivated.



Electrooptical mixer circuit diagram with electrical output signal



Prototype

that demonstrate feasibility in principle have been produced. We offer interested companies the opportunity of licensing and further development of this technology in collaboration with the inventors from Paderborn University.

An invention of Paderborn University.

Commercial Opportunities

This new circuit architecture has been optimized for use in communication technology and the telecommunication infrastructure. The advantages are lower power consumption and circuit complexity and mixer switchability with very low phase noise.

Current Status

A patent application has been submitted to the German Patent and Trade Mark Office. Initial laboratory samples

Competitive Advantages

- Low phase noise
- Low power consumption
- Switchable mixer
- Low circuit complexity
- Smaller chip surface

Technology Readiness Level

1 2 3 4 5 6 7 8 9

Experimental proof of concept

Industries

- Electronics
- Communication technology

Ref. No.

6295

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