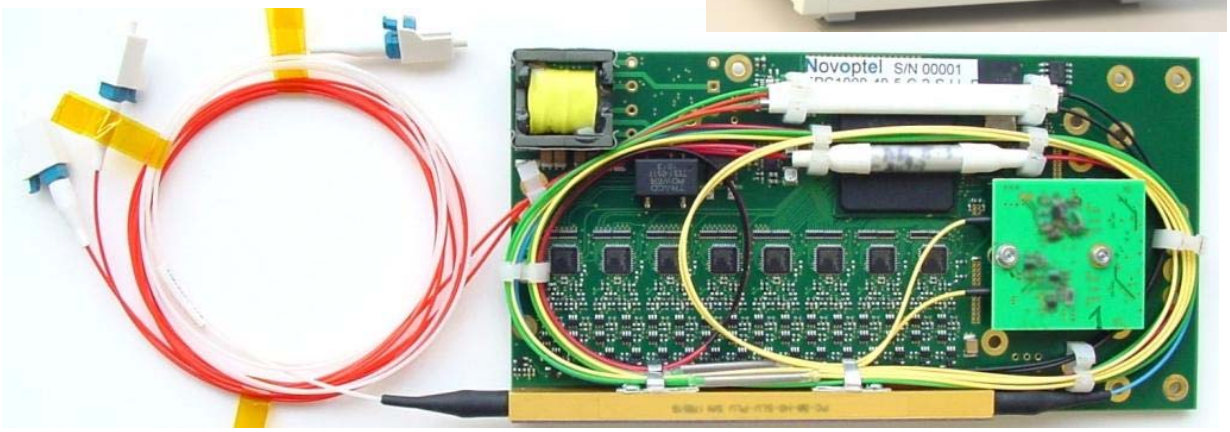
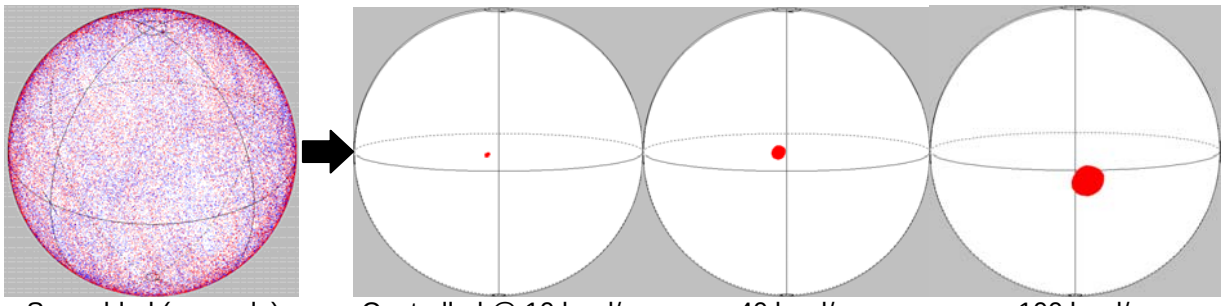
EPC1000 series

Polarization controllers
Polarization demultiplexers

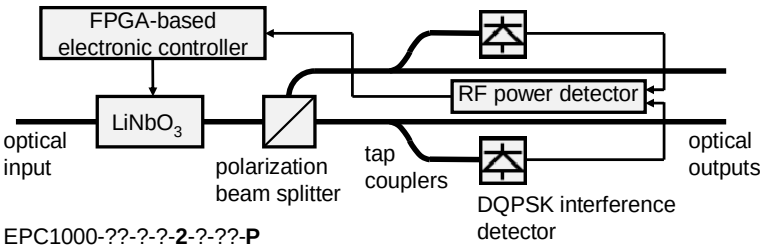


- **Guaranteed endless tracking (control) speed: 40 krad/s** on Poincaré sphere
- Can be made faster: **60 krad/s** are unproblematic. **100 krad/s** available since June 2011.
- To our knowledge, **Novoptel's endless polarization tracking speed is at least 100 times as high as that of competitor products.** If you are aware of something better then please inform us so that we can correct this statement.
- Extremly reliable: More than **100 Gigarad** were tracked in several extended tests.



Scrambled (example) Controlled @ 10 krad/s 40 krad/s 100 krad/s

- Wavelength range: **C band**. Extension to S, extended C, and L band is possible.
- Temperature range: **-10°C to +70°C**; extension is possible.
- Power consumption: About **5 W** from single **+5 V** source. Compatible with the needs of 40 Gb/s, 100 GbE, 2x100 GbE, 4x100 GbE and other transponders. Can be further reduced.
- Interfaces for external controller or computer: **Software commands (SPI)** as well as **digital hardware lines**.
- Functionality: **Channel swapping** (to exchange demultiplexed polarization channels, may for example be activated by a framer/mapper which analyzes polarization channel information), **reset**, **control** (on/off), modification of important parameters (**control gain** and **speed**, **dither amplitude**, **delay time** of supplied error signal)
- **In-field upgradable firmware** and **remote access** possibility for diagnosis and troubleshooting
- **Various configurations** are available, **desktop units**, **plug-in module cards**, **IP cores** and 10 Mrad/s **polarization scramblers** EPS1000. Contact us for data sheet and further information. We are eager to accomodate special needs.



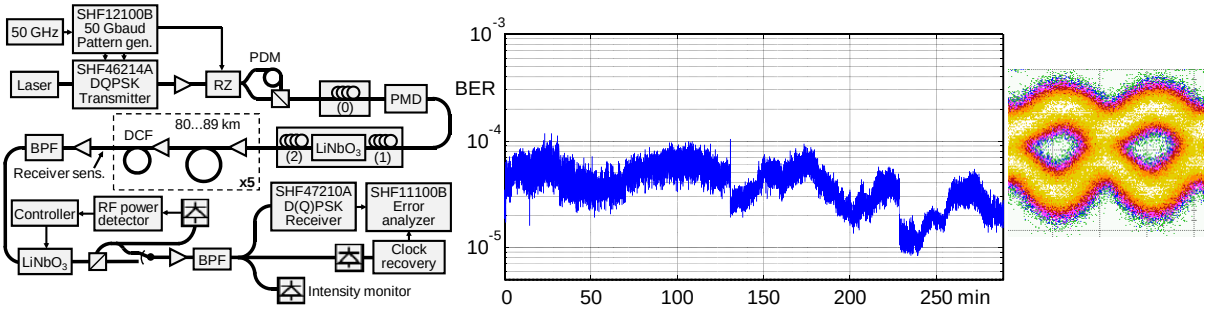
EPC1000-??-?-?-**2**-?-??-**P**

Configuration example:

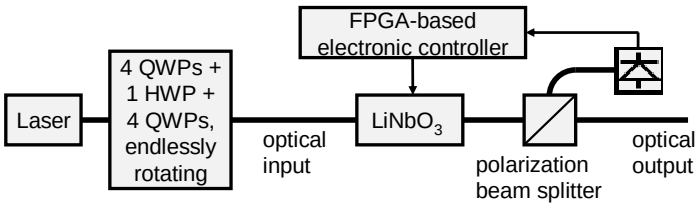
EPC1000 with interference detection for **demultiplexing of polarization-multiplexed DQPSK signals**. Everything is mounted on controller card (see picture above).

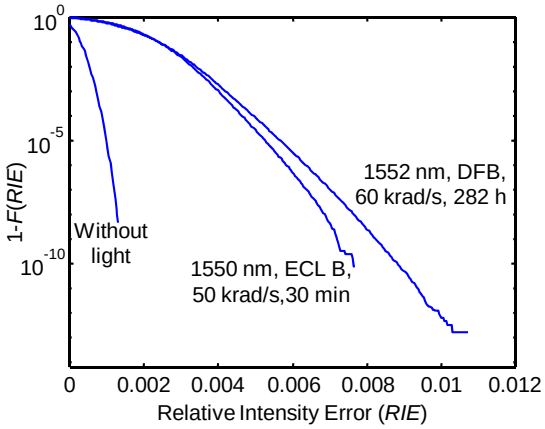
Results obtained with Novoptel EPC1000

World's highest data rate in polarization-agile realtime transmission with 4 bit/symbol: 200 Gb/s, 430 km polarization-multiplexed DQPSK transmission with 40 krad/s polarization tracking speed (IEEE PTL 22(2010)9, pp. 613-615)

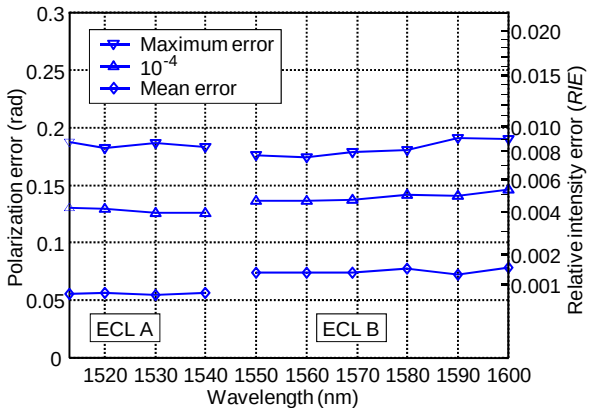


World's fastest endless optical polarization control: 60 krad/s tracked over 47.8 Gigarad on Poincaré sphere (IEEE PTL 22(2010)9, pp. 613-615)





Complementary distribution function 1–*F*(*RIE*) of relative intensity error (*RIE*) for 30 minutes at 50 krad/s and 282 hours at 60 krad/s scrambling speed. The zero point (*RIE* = 0) is determined without light.



Relative intensity error (*RIE*) and polarization errors which are surpassed only with the given probability, as a function of wavelength for 30-minute measurements at 50 krad/s scrambling speed.

About Novoptel GmbH (www.novoptel.com)

Novoptel GmbH in Paderborn, Germany, was incorporated by Prof. Dr.-Ing. Reinhold Noé and Dipl.-Ing. Benjamin Koch in 2010 as a spin-off of the University of Paderborn, with the aim of developing and delivering **nov**el **opt**ics and **el**ectronics for **tel**ecommunication. Leveraging 2+ decades of pioneer experience in optical polarization control as well as knowledge about the needs of the telecom industry, the two founders and the team have brought this technology to an unprecedented maturity and have developed standalone units, modules and intellectual property cores for ultrafast optical endless polarization control. All these have the same technical basis and control a $LiNbO_3$ integrated electrooptic polarization transformer.

- Novoptel has developed products, manufactures and ships them, counts on growth from own resources and will not promise anything it can not hold.
- We have preferred to step onto the marketplace only after the technical challenges and problems were solved. This has taken years; it is even correct to say 20+ years. But we believe that it is verifiable technical performance, proven reliabilty, and experience, combined with a competitive cost structure, which will succeed, not claims, publicity or headcount.
- Enthusiastic customer feedback shows that we are on the right track. Yet we are always willing to learn.

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