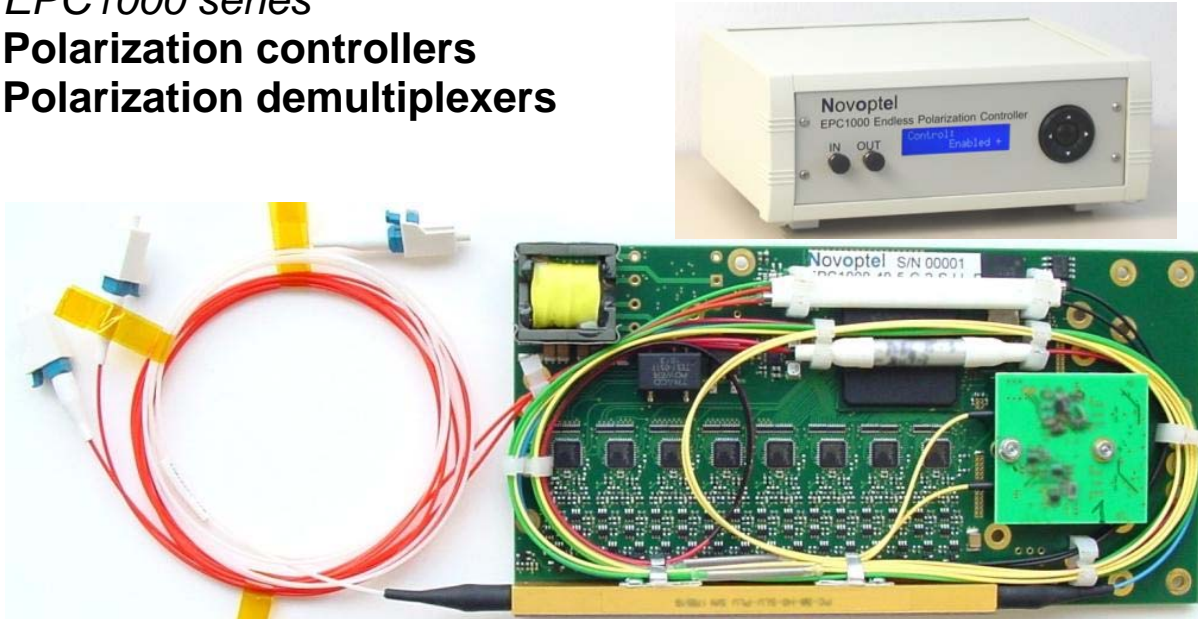
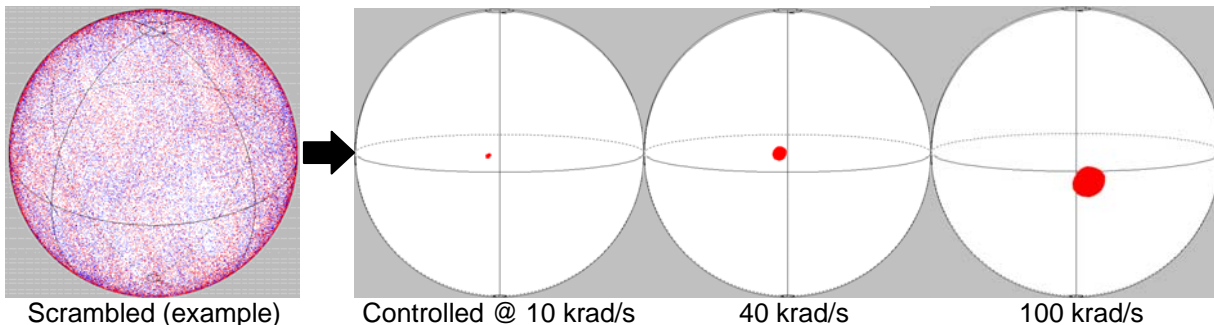


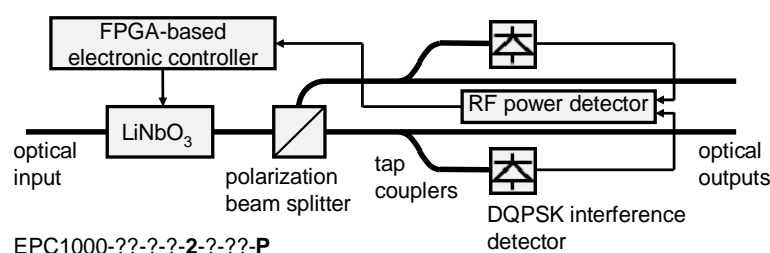
EPC1000 series Polarization controllers Polarization demultiplexers



- **Guaranteed endless tracking (control) speed: 40 krad/s or 60 krad/s** on Poincaré sphere
- Can be made faster: **100 krad/s** available since 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.
- Extremely reliable: More than **350 Gigarad** were tracked in several extended tests.



- Wavelength range: **C band**, optionally **extended to L band** and S band.
- 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), digital hardware lines.**
- Functionality: **Channel swapping** (to exchange demultiplexed polarization channels, may for example be activated by a framer/mapper), **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, desktop units (with USB and GUI), plug-in module cards, IP cores.**
- Options: User-supplied error signal, **arbitrary and endlessly variable output polarization**, ...
- **EPX1000 = cost-saving desktop unit with combined functionalities of EPC1000 and 10 Mrad/s polarization scrambler EPS1000**
- Contact us for data sheet and further information. We are eager to accomodate special needs.

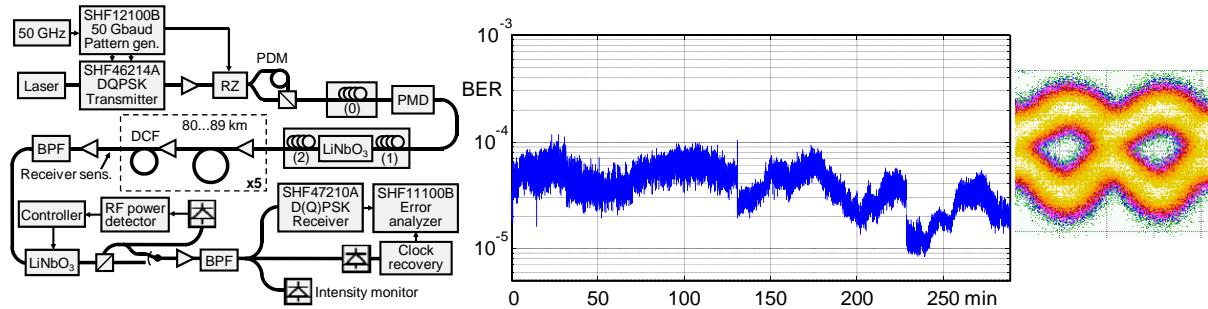


Configuration example:

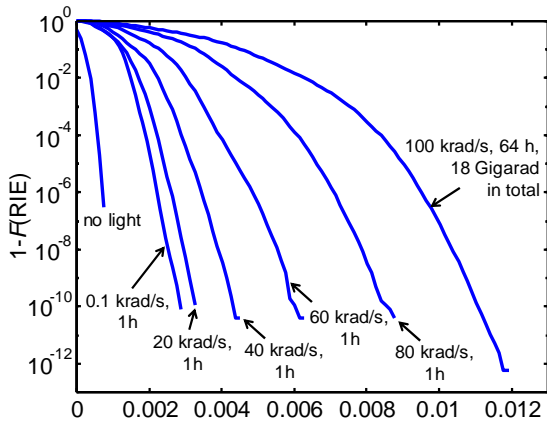
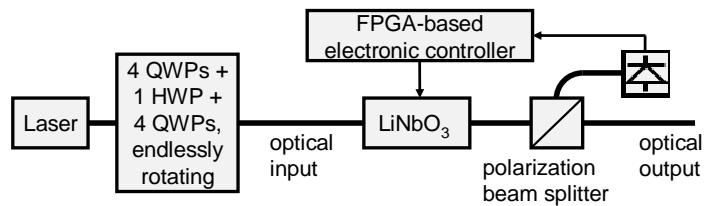
EPC1000 with interference detection for **demultiplexing of polarization-multiplexed DQPSK or QAM signals**. Everything is mounted on controller card (see large picture above).

Results obtained with Novoptel EPC1000

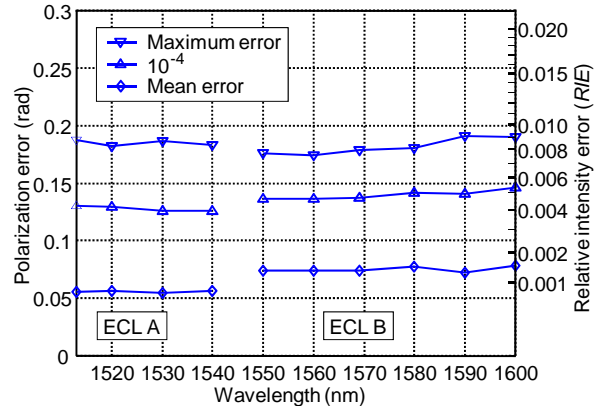
World's highest data rate in polarization-agile realtime transmission with 4 bit/symbol: 200 Gb/s, 430 km polarization-multiplexed DQPSK transmission with 40 krad/s polarization tracking speed (IEEE PTL 22(2010)9, pp. 613-615)



World's fastest endless optical polarization control: 100 krad/s on Poincaré sphere tracked over 64 h (B. Koch et al, Electronics Letters, Vol. 47, No. 14, 2011, pp. 813-814)



Complementary distribution function $1-F(RIE)$ of relative intensity error (RIE) for 1 hour at 0.1, 20, 40, 60, 80 krad/s, and for 64 hours at 100 krad/s scrambling speed (18 Gigarad in total). 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 **novel optics** and **electronics** for **telecommunication**. 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 reliability, 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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