

## colorPol® High Transmittance polarizers

the polarizer family made for Optical Communication

Made in Germany



### Applications

- Wavelength selective switches
- Optical instrumentation
- Optical isolators
- Polarization analyzer
- Polarization controller
- Various fibre optic devices
- Laboratory equipment
- Optical communication engineering
- Lyot-filter

**CODIXX**

## colorPol® HT polarizers

### colorPol® HT polarizers

colorPol® HT polarizers offer low insertion loss.  
They are available for the spectral range of 1,200 - 1,700 nm.

| colorPol® type                      | Wavelength-range [nm] | Transmittance [%]               | Insertion loss [dB]                    | Contrast   | dB   |
|-------------------------------------|-----------------------|---------------------------------|--|------------|------|
| IR 1310 BC4 HT                      | 1,280 - 1,500         | > 88 - 90                       | < 0.555 - 0.458                        | > 10,000:1 | > 40 |
| IR 1310 BC4 HT C1310<br>(AR coated) | 1,280 - 1,500         | > 96 - 98<br>> 97 at 1,310 nm   | < 0.177 - 0.08<br>< 0.132 at 1,310 nm  | > 10,000:1 | > 40 |
| IR 1490 BC4 HT                      | 1,450 - 1,530         | > 89                            | < 0.506                                | > 10,000:1 | > 40 |
| IR 1490 BC4 HT C1490<br>(AR coated) | 1,450 - 1,530         | > 97.5                          | < 0.11                                 | > 10,000:1 | > 40 |
| IR 1550 BC4 HT                      | 1,480 - 1,650         | > 89 - 91                       | < 0.506 - 0.410                        | > 10,000:1 | > 40 |
| IR 1550 BC4 HT C1550                | 1,480 - 1,650         | > 97 - 98.5<br>> 98 at 1,550 nm | < 0.132 - 0.066<br>< 0.088 at 1,550 nm | > 10,000:1 | > 40 |

colorPol® HT polarizers are available in thicknesses of 0.2 mm, 0.25 mm and 0.5 mm with square sizes of 11 x 11 mm<sup>2</sup> and 15 x 15 mm<sup>2</sup>. Any other individual shapes or dimensions are available upon request. Contrast ratios of 100,000:1 (> 50 dB) can be provided. Reflection losses can be minimized by antireflection coating.

colorPol® polarizers follow completely the international RoHS, REACH and PFOS regulations.

**Refractive index @ 633 nm:** 1.52 ± 0.005

**Polarization axis accuracy:** < 0.5 °

**Acceptance angle:** ± 20 °

**Clear aperture:** 90 %

**Expansion coefficient:** 8.1 ± 0.3 x 10<sup>-6</sup> K<sup>-1</sup>  
(0 - 100 °C)

**Coefficient of elasticity:** 70 ± 5 kN/mm<sup>2</sup>

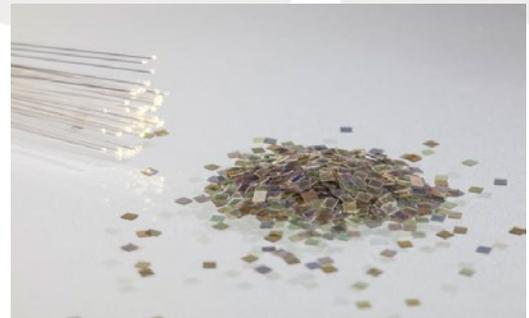
**Operating temperature:** -50 °C to +400 °C

**Thermal cycle:** -40 °C to +80 °C, 200 cycles (DIN EN 60068-2-14 method Na)

**Humid storage:** 85 °C, 85 % rel. humidity, 1,000 h according to Telcordia GR-1221-CORE

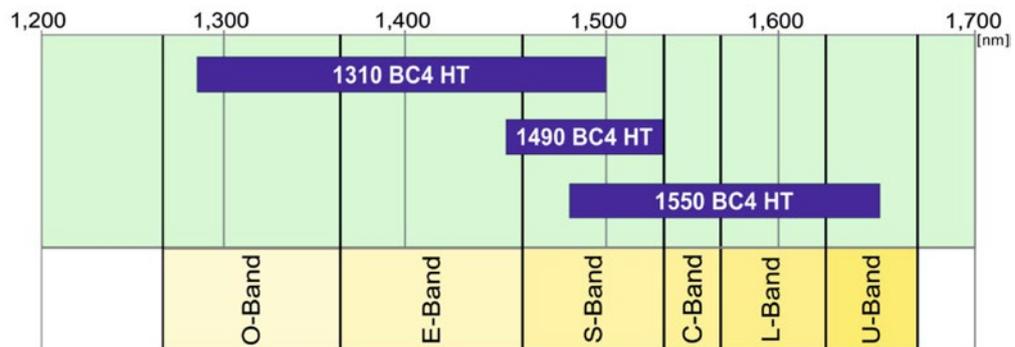
**UV-stability:** 20 mW/cm<sup>2</sup> at 60 h irradiation without any degradation

**Chemical resistance:** colorPol® polarizers are insensitive to most organic and cleaning solvents, acids and bases and distilled water.



## colorPol® HT polarizers

## colorPol® polarizers - high performance



## low insertion loss - maximum durability

## colorPol® technology

colorPol® polarizers are made solely from soda-lime glass. The technology is used to create uniformly oriented prolate silver nanoparticles near the surface of glass. Due to the prolated silver nanoparticles, non-polarized light becomes linearly polarized passing the so treated glass. The absorption is selective in reference to the wavelength. Beside the standard products, the flexible technology allows the production of customized polarizers with individual spectral characteristics, colorPol® polarizers are absorptive types. They feature high contrast ratio and a high transmittance. colorPol® polarizers are available for the UV wavelength range (340 - 415 nm), for the VIS, NIR and MIR range (450 - 5,000 nm)

## Important features of colorPol® polarizers

- Thin like foil polarizers
- Handling like glass and silicon wafers
- Resistant to UV radiation and most chemicals
- Wide acceptance angle for incident radiation
- Operating temperature range up to +400°C

## Patterned colorPol® polarizers

Based on the unique colorPol® technology, CODIXX is the world's first producer of patterned polarizers. colorPol® S polarizers have arbitrary shaped areas with different directions of polarization. Additionally, the areas can have different spectral characteristics.



## colorPol® Xtrafine

High performance polarizer with a thickness of 25 µm and available for the spectral range of 1,260 – 1,680 nm.

| colorPol® type | Wavelength range [nm] | Transmittance [%] | Contrast ratio $k_1:k_2^{-1}$ | Thickness [µm] | Maximum dimension [mm <sup>2</sup> ] |
|----------------|-----------------------|-------------------|-------------------------------|----------------|--------------------------------------|
| Xtrafine       | 1,260 - 1,530         | > 88              | > 1,000:1                     | 25 ± 10        | on request                           |
| Xtrafine       | 1,450 - 1,680         | > 89              | > 1,000:1                     | 25 ± 10        | on request                           |

<sup>1)</sup> The contrast ratio is defined to be  $k_1/k_2$ , where  $k_1$  is the transmittance beam passing the filter and  $k_2$  is the transmittance of a polarized beam blocked by the filter.