**colorPol® High Transmittance polarizers**

The polarizer family made for Optical Communication

Made in Germany

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**Applications**

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

CODIXX
**High Transmittance colorPol® HT polarizers**

colorPol® HT polarizers offer low insertion loss for the spectral range of 1,200 - 1,700 nm. Thicknesses of 0.2 mm, 0.25 mm and 0.5 mm with square sizes of 11 x 11 mm² and 15 x 15 mm² are available. Any other individual shapes or dimensions are available upon request.

<table>
<thead>
<tr>
<th>colorPol® type</th>
<th>Wavelength range [nm]</th>
<th>Transmittance [%]</th>
<th>Insertion loss [dB]</th>
<th>Contrast ratio k₁/k₂</th>
<th>Thickness [µm]</th>
<th>Maximum dimension [mm x mm]</th>
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<tbody>
<tr>
<td>IR 1310 BC4 HT</td>
<td>1,280 - 1,500</td>
<td>&gt; 88</td>
<td>&lt; 0.555</td>
<td>&gt; 10,000:1</td>
<td>200 ± 50</td>
<td>≤ 100 x 50</td>
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<td></td>
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<tr>
<td>IR 1310 BC4 HT C1310</td>
<td>1,280 - 1,500</td>
<td>&gt; 96</td>
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<td>IR 1490 BC4 HT</td>
<td>1,450 - 1,530</td>
<td>&gt; 88</td>
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<td>IR 1490 BC4 HT C1490</td>
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<td>&lt; 0.177</td>
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<td>IR 1550 BC4 HT</td>
<td>1,480 - 1,650</td>
<td>&gt; 88</td>
<td>&lt; 0.555</td>
<td>&gt; 10,000:1</td>
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<td>IR 1550 BC4 HT C1550</td>
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<td>&gt; 96</td>
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¹ Contrast ratio is defined to be k₁/k₂, where k₁ is the transmittance of a polarized beam passing the filter and k₂ is the transmittance of a polarized beam blocked by the filter.

Contrast ratios >100,000:1, other thicknesses, shapes or dimensions available on special request. Reflection losses can be minimized by anti-reflection-coatings.

**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**

- Dichroic glass polarizers
- Thin like foil polarizers
- Can be processed like glass and silicon wafers
- Resistant to UV radiation and most chemicals
- Large acceptance angle
- Operating temperatures range up to +400 °C
Narrowband colorPol® N polarizers

colorPol® N are optimized for the wavelength ranges used often in telecommunication applications 1310 nm, 1490 nm and 1550 nm ± 30 nm and the economic choice.

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<tr>
<td>IR 1310N BC4 T2 HT CS1310 (single side AR coated)</td>
<td>1 280 - 1 340</td>
<td>&gt; 92</td>
<td>&lt; 0.362</td>
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<td>1 460 - 1 520</td>
<td>&gt; 92</td>
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Technical specifications of colorPol® polarizers

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

**Polarization axis accuracy:** < 0.5 °

**Acceptance angle:** ± 20 °

**Clear aperture:** 90 %

**Expansion coefficient:** $8.1 ± 0.3 \times 10^{-6} \text{ K}^{-1}$

(0 - 100 °C)

**Coefficient of elasticity:** 70 ± 5 kN/mm²

**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/cm² at 60 h irradiation without any degradation

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

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

CODIXX AG
Steinfeldstraße 3
39179 Barleben
Germany
Phone: +49 (0)39203 963 0
eMail: colorPol@codixx.de
Web: www.codixx.de

colorPol® distributors worldwide

United Kingdom and Ireland
Elliot Scientific Ltd.
3 Allied Business Centre Coldharbour Lane
Harpenden, Hertfordshire AL5 4UT
United Kingdom
Phone: +44 (0) 1582 766300
Website: www.elliotscientific.com
eMail: sales@elliotscientific.com

USA and Canada
Laser Components USA, Inc.
116 South River Road, Building C
Bedford, NH 03110
USA
Phone: +1 (603) 821 7040
Website: www.laser-components.com
eMail: info@laser-components.com

South Korea
LMS Co., Ltd.
RM#1923, Kumkang Pentrium IT Tower 282,
Hagui-ro Dongang-gu, Anyang-si, Gyeonggi-do,
430-810 South Korea
Phone: +82 31 420 8866
Website: www.lmscorp.kr
eMail: sales@lmscorp.kr

France
Laser Components S.A.S.
45 Bis Route des Gardes
92190 Meudon
France
Phone: +33 1 3959 5225
Website: www.lasercomponents.com/fr/
eMail: info@lasercomponents.fr

China
FOCtek Photonics Inc.
No. 8, the 7th Road
Phase II of Minhou Tieling Industrial District
Fuzhou, Fujian 350100
P.R. China
Phone: +86 591 8376 7816
Website: www.foctek.net
eMail: sales@foctek.com

Singapore, Malaysia
AceXon Technologies Pte Ltd.
#20-83 WCEGA Tower
21 Bukit Batok Crescent
Singapore 658065
Phone: +65 6565 7300
Website: www.acexon.com
eMail: sales@acexon.com

Netherlands, Belgium, Luxembourg
TLS - Te Lintelo Systems B.V.
Mercurion 28 A
6903 PZ Zevenaar
Netherlands
Phone: +31 316 340804
Website: www.tlsbv.nl
eMail: contact@tlsbv.nl

China
Titan Electro-Optics Co., Ltd
Room 1701-1706, North Wing
The Gate Tower B
No.19, Zhongguancun Avenue Haidian District
Beijing, 100080
P.R. China
Phone: +86 (0) 10 6263 4840
Website: www.teo.com.cn
eMail: sales@teo.com.cn

Italy
Crisel Instruments
Via Mattia Battistini, 177
00167 Roma
Italy
Phone: +39 06 35 40 29 33
Website: www.crisel-instruments.it
eMail: info@crisel-instruments.it

South Korea
L2K Co., Ltd.
#530-ho, 187, Techno2-ro Yuseong-gu
Daejeon 34025
South Korea
Phone: +82 42 934 7744
Website: www.l2k.kr
eMail: sales@l2k.kr

All other countries and regions
CODIXX AG
Steinfeldstraße 3
39179 Barleben
Germany
Phone: +49 (0) 39203 9630
Website: www.codixx.de
eMail: colorPol@codixx.de

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