

# colorPol<sup>®</sup> 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**



## High Transmittance colorPol<sup>®</sup> HT polarizers

colorPol<sup>®</sup> 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 mm<sup>2</sup> and 15 x 15 mm<sup>2</sup> are available. Any other individual shapes or dimensions are available upon request.

colorPol <sup>®</sup> type	Wavelength range [nm]	Transmittance [%]	Insertion loss [dB]	Contrast ratio $k_1:k_2$ <sup>1)</sup>	Thickness [ $\mu$ m]	Maximum dimension [mm x mm]
IR 1310 BC4 HT	1 280 - 1 500	> 88	< 0.555	> 10 000:1	200 $\pm$ 50 270 $\pm$ 50 500 <sup>+20/-80</sup>	$\leq$ 100 x 50 $\leq$ 100 x 60 $\leq$ 100 x 27
IR 1310 BC4 HT C1310 (AR coated)	1 280 - 1 500	> 96	< 0.177	> 10 000:1	200 $\pm$ 50 270 $\pm$ 50 500 <sup>+20/-80</sup>	$\leq$ 100 x 50 $\leq$ 100 x 60 $\leq$ 100 x 27
IR 1490 BC4 HT	1 450 - 1 530	> 88	< 0.555	> 10 000:1	200 $\pm$ 50 270 $\pm$ 50 500 <sup>+20/-80</sup>	$\leq$ 100 x 50 $\leq$ 100 x 60 $\leq$ 100 x 27
IR 1490 BC4 HT C1490 (AR coated)	1 450 - 1 530	> 96	< 0.177	> 10 000:1	200 $\pm$ 50 270 $\pm$ 50 500 <sup>+20/-80</sup>	$\leq$ 100 x 50 $\leq$ 100 x 60 $\leq$ 100 x 27
IR 1550 BC4 HT	1 480 - 1 650	> 88	< 0.555	> 10 000:1	200 $\pm$ 50 270 $\pm$ 50 500 <sup>+20/-80</sup>	$\leq$ 100 x 50 $\leq$ 100 x 60 $\leq$ 100 x 27
IR 1550 BC4 HT C1550 (AR coated)	1 480 - 1 650	> 96	< 0.177	> 10 000:1	200 $\pm$ 50 270 $\pm$ 50 500 <sup>+20/-80</sup>	$\leq$ 100 x 50 $\leq$ 100 x 60 $\leq$ 100 x 27

<sup>1)</sup> Contrast ratio is defined to be  $k_1/k_2$ , where  $k_1$  is the transmittance of a polarized beam passing the filter and  $k_2$  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<sup>®</sup> technology

colorPol<sup>®</sup> 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<sup>®</sup> polarizers are absorptive types.

They feature high contrast ratio and a high transmittance.

colorPol<sup>®</sup> 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<sup>®</sup> 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.

colorPol® type	Wavelength range [nm]	Transmittance [%]	Insertion loss [dB]	Contrast ratio $k_1:k_2$ <sup>1)</sup>	Thickness [μm]	Maximum dimension [mm x mm]
IR 1310N BC4 T2 HT CS1310 (single side AR coated)	1 280 - 1 340	> 92	< 0.362	> 10 000 : 1	200 ± 50	≤ 100 x 50
IR 1310N BC4 T2 HT C1310 (AR coated)	1 280 - 1 340	> 96	< 0.177	> 10 000 : 1	200 ± 50	≤ 100 x 50
IR 1490N BC4 T2 HT CS1490 (single side AR coated)	1 460 - 1 520	> 92	< 0.362	> 10 000 : 1	200 ± 50	≤ 100 x 50
IR 1490N BC4 T2 HT C1490 (AR coated)	1 460 - 1 520	> 96	< 0.177	> 10 000 : 1	200 ± 50	≤ 100 x 50
IR 1550N BC4 T2 HT CS1550 (single side AR coated)	1 520 - 1 580	> 92	< 0.362	> 10 000 : 1	200 ± 50	≤ 100 x 50
IR 1550N BC4 T2 HT C1550 (AR coated)	1 520 - 1 580	> 96	< 0.177	> 10 000 : 1	200 ± 50	≤ 100 x 50

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

## Technical specifications of colorPol® polarizers

**Refractive index @ 633 nm:**  $1.52 \pm 0.005$

**Polarization axis accuracy:**  $< 0.5^\circ$

**Acceptance angle:**  $\pm 20^\circ$

**Clear aperture:** 90 %

**Expansion coefficient:**  $8.1 \pm 0.3 \times 10^{-6} \text{ K}^{-1}$   
(0 - 100 °C)

**Coefficient of elasticity:**  $70 \pm 5 \text{ kN/mm}^2$

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

## **CODIXX AG**

Steinfeldstraße 3  
39179 Barleben  
Germany

Phone: +49 (0)39203 963 0  
eMail: [colorPol@codixx.de](mailto:colorPol@codixx.de)  
Web: [www.codixx.de](http://www.codixx.de)

## **colorPol<sup>®</sup> 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](http://www.elliotscientific.com)  
eMail : [sales@elliotscientific.com](mailto: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](http://www.laser-components.com)  
eMail: [info@laser-components.com](mailto:info@laser-components.com)

### **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](http://www.l2k.kr)  
eMail: [sales@l2k.kr](mailto:sales@l2k.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/](http://www.lasercomponents.com/fr/)  
eMail : [info@lasercomponents.fr](mailto: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](http://www.foctek.net)  
eMail: [sales@foctek.com](mailto:sales@foctek.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](http://www.lmscorp.kr)  
eMail: [sales@lmscorp.kr](mailto:sales@lmscorp.kr)

### **Netherlands, Belgium, Luxembourg**

TLS - Te Lintelo Systems B.V.

Mercurion 28 A  
6903 PZ Zevenaar  
Netherlands

Phone: +31 316 340804  
Website: [www.tlsbv.nl](http://www.tlsbv.nl)  
eMail : [contact@tlsbv.nl](mailto:contact@tlsbv.nl)

### **China**

Titan Electro-Optics Co.,Ltd CHINA

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](http://www.teo.com.cn)  
eMail: [sales@teo.com.cn](mailto:sales@teo.com.cn)

### **Singapore, Malaysia**

AceXon Technologies Pte Ltd.

#20-83 WCEGA Tower  
21 Bukit Batok Crescent  
Singapore 658065

Phone: +65 6565 7300  
Website: [www.acexon.com](http://www.acexon.com)  
eMail: [sales@acexon.com](mailto:sales@acexon.com)

### **Israel**

ROSH Electroptics Ltd.

Entrance B, Floor 1, Office 97  
20 Giborei Israel St.  
Netanya 42378  
Israel  
P.O. Box 2667

Phone: +972 (0) 9862 7401  
Website: [www.roshelop.co.il](http://www.roshelop.co.il)  
eMail: [info@roshelop.co.il](mailto:info@roshelop.co.il)

### **Japan**

Fujitok Corporation

1-9-16 Kami-Jujo, Kita-Ku  
114-0034 Tokyo  
Japan

Phone: +81 (0) 33909 1791  
Website: [www.fujitok.co.jp](http://www.fujitok.co.jp)  
eMail: [opt@fujitok.co.jp](mailto:opt@fujitok.co.jp)