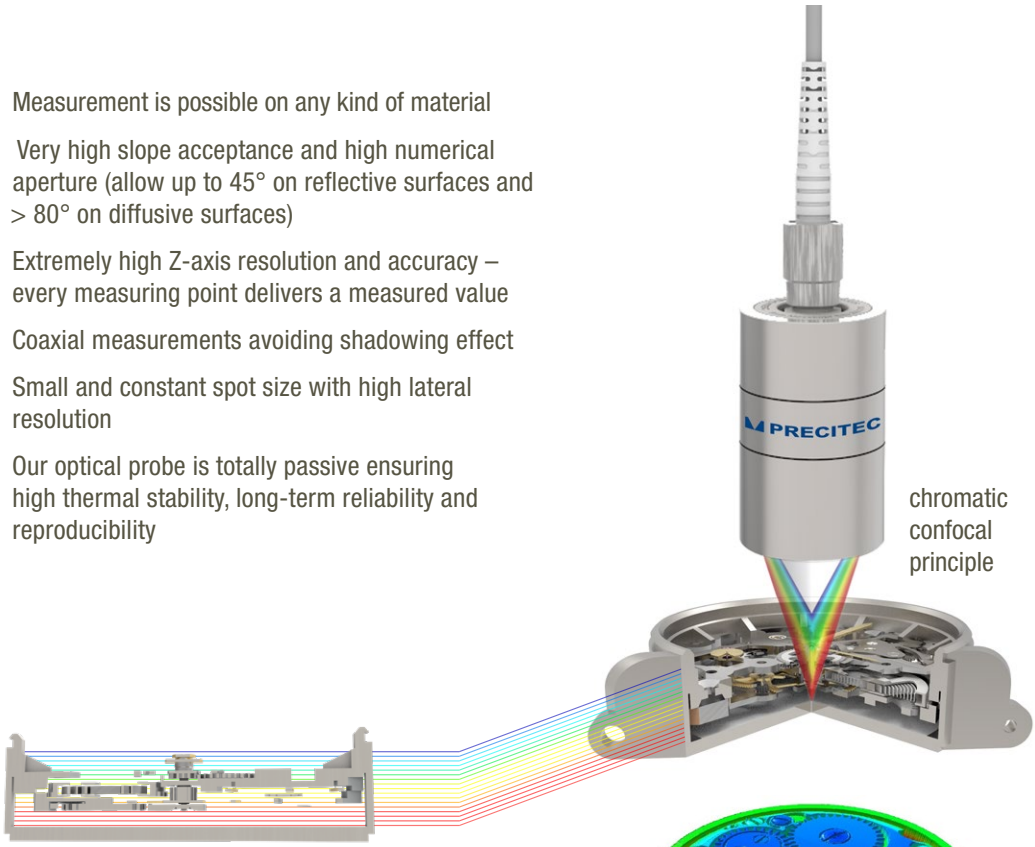
OVERVIEW CHROMATIC CONFOCAL POINT SENSORS

DISTANCE

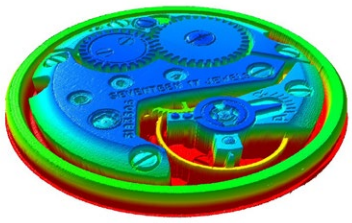
THICKNESS

TOPOGRAPHY

- Measurement is possible on any kind of material
- Very high slope acceptance and high numerical aperture (allow up to 45° on reflective surfaces and > 80° on diffusive surfaces)
- Extremely high Z-axis resolution and accuracy – every measuring point delivers a measured value
- Coaxial measurements avoiding shadowing effect
- Small and constant spot size with high lateral resolution
- Our optical probe is totally passive ensuring high thermal stability, long-term reliability and reproducibility



chromatic confocal principle



topography of a watch

MULTI-FUNCTIONAL CHROMATIC CONFOCAL SENSORS

Our chromatic confocal sensors use high performance optical lenses to focus white light at different distances along the optical axis, and not on a single point. All visible wavelengths are in focus. These multi-functional optical sensors open up a new dimension in measuring technology:

Whatever your needs are in high-precision chromatic confocal sensor technology, we can meet them through our broad product portfolio of line and point sensors, multi-point sensors, and as an OEM sensor supplier. If you have any specialized requirements, we will gladly work with you to develop a customized solution.

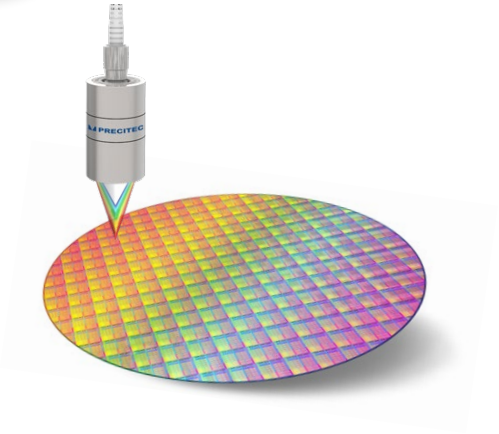
CONTROLLER	CHRocodile 2 S [1] CHRocodile 2 SE [1]
measured value	distance, thickness
measuring rate	up to 66,000 Hz
number of measuring channels	1
synchronization with external devices	trigger input, synchronizing output, 5 enc
interface	RS-422 Ethernet 2 x analog (-10 V up to +10 V, 16 Bit) LVDT
transfer rate	RS-422 (9600 - 921600 Baud), Ethernet
light source	LED Xenon plasma light source, optional
operating temperature	+5°C up to +50°C
dimension (width x height x depth)	220 mm x 110 mm x 127 mm
weight	2 kg
supply voltage	16 - 30 V DC (with separate power supply
rated power	20 W
note	high speed measurements, automatic light control measurements available for interferometric mode CHRocodile 2 SE: external coupler
item number	5007530 (2 S) 5007531 (2 SE)

[1] Controllers can switch between interferometric and chromatic confocal mode

OPTICAL PROBES								
measured value	distance and thickness							
measuring range	100 µm	300 µm	350 µm	400 µm	600 µm	1 mm	1.2 mm	1.2 mm
working distance [2]	1.4 mm	4.5 mm	8.4 mm	15 mm	6.5 mm	19 mm	9.3 mm	3 mm
thickness measuring range [3]	up to 150 µm	up to 450 µm	up to 525 µm	up to 600 µm	up to 900 µm	up to 1.5 mm	up to 1.8 mm	up to 1.8 mm
axial resolution	2 nm	3 nm	3 nm	3 nm	3 nm	4 nm	4 nm	4 nm
linearity	30 nm	100 nm	116 nm	132 nm	198 nm	330 nm	400 nm	400 nm
lateral resolution	1.8 µm	2.5 µm	2.5 µm	2 µm	2 µm	1.8 µm	5 µm	7.5 µm
numerical aperture	0.7	0.5	0.33	0.7	0.5	0.7	0.5	0.24
measurement angle to surface 90° [4]	±45°	±30°	±20°	±45°	±30°	±45°	± 30°	±14°
dimensions (without fiber connector)	l = 66 mm d = 8 mm	l = 111 mm d = 15 mm	l = 106 mm d = 15 mm	l = 149 mm d = 50 mm	l = 125 mm d = 19 mm	l = 164 mm d = 55 mm	l = 49 mm d = 19 mm	l = 59 mm d = 8 mm
weight	36 g	38 g	36 g	1250 g	71 g	1118 g	58 g	10 g
item number	5002430	5002227	5002378	5002589	5002183	5002130	5008281	5010270
note	high numerical aperture	angled available also vakuum and UHV		high numerical aperture	angled available	high numerical aperture, protec-tion glsss	angled	angled, small diameter

[2] bottom of optical probe to middle of measuring range | [3] refractive index n = 1.5 | [4] decreasing accuracy for large incident angles

CHRocodile 2 S HS [1]	CHRocodile 2 DPS
up to 4,000 Hz	up to 10,000 Hz / per channel
1	2
oder inputs	
RS-422 Ethernet 2 x analog (-10 V up to +10 V, 16 Bit) LVDT	RS-422 Ethernet 2 x analog (-10 V up to +10 V, 16 Bit)
(100 Mbit)	
LED	LED
220 mm x 110 mm x 127 mm	220 mm x 110 mm x 127 mm
2 kg	2 kg
90 - 264 V AC)	
20 W	20 W
measurements on low reflective surfaces	replaces two individual controllers
5009253	5010534



Our chromatic sensor consist of a controller and an optical probe connected via an optical fiber.

2 mm	2 mm	3 mm	5 mm	6 mm	8 mm	10 mm	12 mm	25 mm	38.5 mm
61 mm	14 mm	23 mm	30 mm	53 mm	36 mm	70 mm	54 mm	77 mm	101 mm
up to 3 mm	up to 3 mm	up to 4.5 mm	up to 7.5 mm	up to 9 mm	up to 12 mm	up to 15 mm	up to 18 mm	up to 38 mm	up to 58 mm
6 nm	6 nm	8 nm	12 nm	14 nm	18 nm	22 nm	26 nm	52 nm	79 nm
660 nm	660 nm	990 nm	1.7 µm	2 µm	2.6 µm	3.3 µm	4 µm	8.3 µm	12.7 µm
6 µm	6 µm	6 µm	12.5 µm	7 µm	15 µm	12 µm	15 µm	12.5 µm	17 µm
0.26	0.5	0.5	0.26	0.5	0.26	0.33	0.26	0.26	0.22
±15°	±30°	±30°	±15°	±30°	±15°	±20°	±15°	±15°	±12°
l = 109 mm d = 45 mm	l = 70 mm d = 33 mm	l = 106 mm d = 49 mm	l = 46 mm d = 24 mm	l = 190 mm d = 40/79 mm	l = 45 mm d = 25 mm	l = 146 mm d = 65 mm	l = 61 mm d = 36 mm	l = 243 mm d = 76 mm	l = 242 mm d = 76 mm
315 g	220 g	501 g	96 g	1110 g	97 g	721 g	281 g	1637 g	1737 g
5002399	5005126	5001678	5009198	5009001	5002327	5001688	5002508	5002206	5009498
angled available also vacuum and UHV; large working distance	angled available also vacuum extra bright	extra bright, available vacuum and UHV	extra compact, large working distance	large working distance	extra compact	extra bright	extra compact	extra bright	wide thickness measuring range

CONTROLLER	CHRocodile 2 LR [1]
measured value	distance, thickness
measuring rate	up to 66,000 Hz
number of measuring channels	1
synchronization with external devices	trigger input, synchronizing output, 5 encoder inputs
interface	Ethernet, RS-422, 2 x analog (-10 V up to +10 V, 16 Bit), LVDT
transfer rate	RS-422 (9600 - 921600 Baud), Ethernet (100 Mbit)
light source	SLD
operating temperature	+5°C up to +50°C
dimension (width x height x depth)	220 mm x 110 mm x 127 mm
weight	2 kg
supply voltage	16 - 30 V DC (with separate power supply 90 - 264 V AC)
rated power	20 W
item number	5007393
note	confocal measurements with highest lateral resolution, automatic light control

OPTICAL PROBE	CHRocodile 2 LR
measured value	distance, thickness
measuring range	100 µm
working distance [2]	6.5 mm
thickness measuring range [3]	up to 150 µm
axial resolution	3 nm
linearity	30 nm
lateral resolution	0.7 µm
numerical aperture	0.66
measurement angle to surface [4]	±40°
dimensions (without fiber connector)	l = 158 mm d = 30 mm
weight	323 g
item number	5005770
note	small spot size, extra bright, high numerical aperture

[1] Controllers can switch between interferometric and chromatic confocal mode I [2] bottom of optical probe to middle of measuring range [3] refractive index n = 1.5 I [4] ecreasing accuracy for large incident angles

The given data was generated for a typical application and may be different given other circumstances. Furthermore misprints, changes and/or innovations may lead to differences in the listed measurements, technical data and features. Therefore all information is non-binding and technical data, measurements as well as features are not guaranteed.

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