White Light Sensors

SENSOR	CHRocodile 2 S CHRocodile 2 SE	CHRocodile E	CHRocodile S CHRocodile SE	CHRocodile M4	CHRocodile M10	CHRocodile XL, X, DX, H
application	distance, thickness					
measurements / second	32 - 20000 (2 S) 32 - 66000 (2 SE)	32 - 4000	32 - 2000 (S) 32 - 4000 (SE)	32 - 4000	15000 / number of active channels	100 - 14000 [1]
interferometric measuring range [2]	3 µm - 180 µm	2 µm - 250 µm	3 µm - 180 µm	2 µm - 250 µm (HR) not implemented (HS)	not implemented	not implemented
chromatic measuring range	depends on optical probe					
pitch error [3]	< 10^{-3}					
linearity error [3]	< 3.3 x 10^{-4} x upper measuring range limit					
resolution	10^{-7} x upper measuring range limit / IEEE 754 single precision floating point	10^{-7} x upper measuring range limit				
reproducibility	9 x 10^{-5} x upper measuring range limit			9 x 10^{-5} x upper measuring range limit (HR); 12 x 10^{-5} x upper measuring range limit (HS)	9 x 10^{-5} x upper measuring range limit	
number of measuring channels	1	1	1	1 to 4	1 to 10	1 (CHRocodile X, XL, H); 2 (CHRocodile DX)
synchronization with external devices				per channel		
trigger input	1	1	1	1	1	1
synchronizing output	1	1	1	1	1	1
encoder inputs	5	3	3	3	3 (optional 5)	3 (optional 5)
interface						
USB	–	●	●	●	–	–
RS-232	–	●	●	●	–	–
RS-422	●	○	●	●	–	–
2 x analog (-10 V up to +10 V, 16 Bit)	●	–	–	–	–	–
2 x analog (0 V up to 10 V, 16 Bit)	–	●	●	●	–	●
LVDT	●	○	○	○	–	–
Ethernet	●	–	–	–	●	●
transfer rate						
RS-232 (9600 - 921600 Baud)	–	●	●	●	–	–
RS-422 (9600 - 921600 Baud)	●	○	●	●	–	–
USB: virtual comport (921600 Baud)	–	●	●	●	–	–
Ethernet (100 Mbit)	●	–	–	–	●	●
light source						
Halogen lamp	–	●	–	●	●	CHRocodile H
LED	●	–	●	–	–	CHRocodile DX
Xenon short arc lamp	–	–	–	–	–	CHRocodile X
Xenon plasma light source	○	–	–	–	–	CHRocodile XL
optical fiber [4] 2 m - 40 m	multi mode fiber					
fiber connector	E 2000					
operating temperature	+5°C up to +50°C					
dimension						CHRocodile X, XL, H:
width	220 mm	260 mm	200 mm	19"	360 mm	360 mm
height	110 mm	115 mm	100 mm	3 RU	160 mm	160 mm
depth	125 mm	310 mm	93 mm	306 mm	400 mm	400 mm DX: 19" x 2 RU x 360 mm
weight	2 kg	5 kg	1.1 kg	10 kg	11 kg	11 kg (X, H); 8 kg (DX); 13 kg (XL)
supply voltage	16 - 30 V DC (with separate power supply 90 - 264 V AC)	85 - 264 V AC 47 - 63 Hz	16 - 30 V DC (with separate power supply 90 - 264 V AC)	85 - 264 V AC 47 - 63 Hz	90 - 264 V AC 47 - 63 Hz	100 - 240 V AC 47 - 63 Hz
rated power	20 W	140 W	10 W	135 W (+ 5 W per added channel)	150 W	110 W (XL); 120 W (X); 150 W (H); 55 W (DX)
note	high speed measurements, automatic light control; CHRocodile 2 SE: external coupler	LED version has automatic light control	outstanding price/performance ratio, automatic light control	modular multi channel system, different combinable module types	multi channel sensor	fast measurements available on dark surfaces
order number	5007530 (S) 5007531 (SE)	5000287	5001783 (S) 5005134 (SE)	5002559 (Modul High Resolution (HR)) 5002520 (Modul High Sensitivity (HS))	5001635	5005024 (X); 5005135 (XL); 5005138 (DX); 5005052 (H)

OPTICAL SENSORS

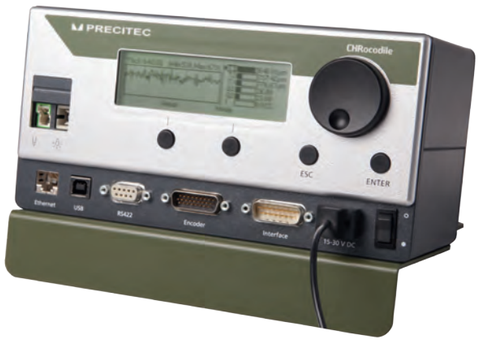
THICKNESS

DISTANCE

TOPOGRAPHY

PRECITEC THE SMART WAY TO MEASURE

Infrared Sensors



OPTICAL SENSORS

- Efficient
- Versatile
- User-friendly

The proven CHRocodile sensors now welcome the next generation of measuring instruments. CHRocodile² offers an unrivaled measurement rate of up to 70,000 readings per second.

With their high dynamic range, all CHRocodile sensors are optimized for performance and precision in production and laboratory settings.

Operating with both the chromatic confocal and interferometric principles, in the visible and infrared spectral range, they have been tried and tested throughout numerous industries. CHRocodile sensors are currently implemented for various types of quality control in measuring systems and inspection machines worldwide.

SENSOR	CHRocodile 2 IT 500 | 1000 | 500 RW | 1000 RW	CHRocodile IT 18 - 3000	CHRocodile DW	CHRocodile IT TW	CHRocodile IT 150 - 15000	IT 500 | 1000 | 500 RW | 1000 RW	CHRcodile MI5	CHRocodile LR
application	thickness, distance	thickness, distance	thickness, distance	thickness	thickness, distance	thickness, distance	thickness, distance	thickness, distance
measurements / second	32 - 70000	32 - 4000						
interferometric measuring range [2]	2 IT 500: 37 µm - 4700 µm; 2 IT 1000: 64 µm - 8200 µm; 2 IT 500 RW: 45 µm - 5600 µm; 2 IT 1000 RW: 57 µm - 7300 µm	18 µm - 3000 µm	15 µm - 2000 µm	4 µm - 300 µm	150 µm - 15000 µm	IT 500: 37 µm - 4700 µm; IT 1000: 64 µm - 8200 µm; IT 500 RW: 45 µm - 5600 µm; IT 1000 RW: 57 µm - 7300 µm	depends on module	16 µm - 2000 µm
chromatic measuring range	–	–	–	–	–	–	–	depends on optical probe
pitch error [3]	< 10^{-3}							
linearity error [3]	< 3.3 x 10^{-4} x upper measuring range limit							
resolution	10^{-7} x upper measuring range limit / IEEE 754 single precision floating point	10^{-7} x upper measuring range limit						
reproducibility	10^{-4} x upper measuring range limit							
number of measuring channels	1	1	1	1	1	1	1 to 5	1
synchronization with external devices							per channel	
trigger input	1	1	1	1	1	1	1	1
synchronizing output	1	1	1	1	1	1	1	1
encoder inputs	5	3	3	3	3	3	3	3
interface								
USB	–	●	●	●	●	●	●	●
RS-232	–	●	●	●	●	●	●	●
RS-422	●	○	○	○	○	○	●	○
2 x analog (-10 V up to +10 V, 16 Bit)	●	–	–	–	–	–	–	–
2 x analog (0 V up to 10 V, 16 Bit)	–	●	●	●	●	●	●	●
LVDT	●	○	○	○	○	○	○	○
Ethernet	●	–	–	–	–	–	–	–
transfer rate								
RS-232 (9600 - 921600 Baud)	–	●	●	●	●	●	●	●
RS-422 (9600 - 921600 Baud)	●	○	○	○	○	○	●	○
USB: virtual comport (921600 Baud)	–	●	●	●	●	●	●	●
Ethernet (100 Mbit)	●	–	–	–	–	–	–	–
light source								
Halogen lamp	–	–	–	●	–	–	–	–
SLD	●	●	●	–	●	●	●	●
optical fiber [4] 2 m - 40 m	single mode fiber			multi mode fiber	single mode fiber			
fiber connector	E 2000							
operating temperature	+5°C up to +50°C							
dimension								
width	220 mm	260 mm	260 mm	260 mm	260 mm	260 mm	19"	260 mm
height	110 mm	115 mm	115 mm	115 mm	115 mm	115 mm	3 RU	115 mm
depth	125 mm	310 mm	310 mm	310 mm	310 mm	310 mm	306 mm	310 mm
weight	2 kg	5 kg	5 kg	5 kg	5 kg	5 kg	13 kg	5 kg
supply voltage	16 - 30 V DC (with separate power supply 90 - 264 V AC)	85 -264 V AC / 47 - 63 Hz						
rated power	20 W	15 W	15 W	140 W	15 W	15 W	16 W (+ 8 W per added channel)	15 W
note	high speed measurements, automatic light control	wide measuring range, automatic light control	optimized for thickness measurements on highly doped wafers, automatic light control	optimized for thickness measurements on thin wafers, automatic light control	wide measuring range, automatic light control	special sensor for rough wafer (IT RW), automatic light control	modular multi channel system, available in different measuring ranges, special version for rough wafers, automatic light control	for confocal measurements with highest lateral resolution, automatic light control
order number	5007391 (2 IT 500) 5007546 (2 IT 1000) 5007389 (2 IT 500 RW) 5007547 (2 IT 1000 RW)	5005107	5005153	5005051	5005162	5001286 (IT 500) 5001289 (IT 1000) 5005054 (IT 500 RW) 5005053 (IT 1000 RW)	depends on module	5001207

[1] available for dark surfaces | [2] optical length | [3] measuring accuracy = linearity error + (pitch error x measuring value) | [4] metal cover up to 15 m also available
● available | ○ optional | – not available