CHRomatic Sensors

SENSOR	CHRocodile 2 S CHRocodile 2 SE	CHRocodile 2 HS	CHRocodile E	CHRocodile S CHRocodile SE	CHRocodile M4	CHRocodile LR
application	distance, thickness					
measurements / second	32 - 20000 (2 S) 32 - 66000 (2 SE)	32 - 4000	32 - 4000	32 - 2000 (S) 32 - 4000 (SE)	32 - 4000	32 - 4000
interferometric measuring range [1]	3 µm - 180 µm	3 µm - 180 µm	2 µm - 250 µm	3 µm - 180 µm	2 µm - 250 µm (HR); not implemented (HS)	16 µm - 2000 µm
chromatic measuring range	depends on optical probe					
linearity error [2]	< 3.3 x 10^{-4} x upper measuring range limit					
resolution	3 x 10^{-6} x upper measuring range limit; higher resolution upon request					
reproducibility	9 x 10^{-5} x upper measuring range limit	12 x 10^{-5} x upper measuring range limit	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)	10^{-4} x upper measuring range limit
number of measuring channels	1	1	1	1	1 to 4	1
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	5	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	–	–	●	–	●	–
LED	●	●	–	●	○	–
SLD	–	–	–	–	–	●
Xenon plasma light source	○	–	–	–	–	–
optical fiber [3] 2 m - 40 m	multi mode fiber					single mode fiber
fiber connection	E 2000					
operating temperature	+5°C up to +50°C					
dimension						
width	220 mm	220 mm	260 mm	200 mm	19"	260 mm
height	110 mm	110 mm	115 mm	100 mm	3 RU	115 mm
depth	125 mm	125 mm	310 mm	93 mm	306 mm	310 mm
weight	2 kg	2 kg	5 kg	1.1 kg	10 kg	5 kg
supply voltage	16 - 30 V DC (with separate power supply 90 - 264 V AC)	16 - 30 V DC (with separate power supply 90 - 264 V AC)	85 - 264 V AC 47 - 63 Hz	15 - 30 V DC (with separate power supply 90 - 264 V AC)	85 - 264 V AC 47 - 63 Hz	85 - 264 V AC 47 - 63 Hz
rated power	20 W	20 W	140 W	10 W	135 W (+ 5 W per added channel)	15 W
note	high speed measurements, automatic light control; CHRocodile 2 SE: external coupler	measurements on low reflective surfaces	LED version has automatic light control	outstanding price/performance ratio, automatic light control	modular multi channel system, different combinable module types	confocal measurements with highest lateral resolution; automatic light control
order number	5007530 (2 S) 5007531 (2 SE)	5009253	5000287	5001783 (S) 5005134 (SE)	5002559 (Modul High Resolution (HR)) 5002520 (Modul High Sensitivity (HS))	5001207

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The proven CHRocodile sensors now welcome the next generation of measuring instruments. CHRocodile 2 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 2 IT DW 250 | 500 | 1000 | HDW 250 | HDW 500	CHRocodile IT 18 - 3000	CHRocodile DW	CHRocodile IT TW | IT DTW		CHRocodile K	CHRocodile IT 150 - 15000	CHRocodile IT 500 | 1000 | 500 RW | 1000 RW	CHRcodile MI5
application	thickness, distance	thickness, distance	thickness, distance	thickness, distance	thickness		thickness, distance	thickness, distance	thickness, distance	thickness, distance
measurements / second	32 - 70000	CHRocodile 2 IT DW: 32 - 70000 CHRocodile 2 IT HDW: 32 - 4000	32 - 4000							
interferometric measuring range [1]	2 IT 500: 38 µm - 4300 µm; 2 IT 1000: 66 µm - 7500 µm; 2 IT 500 RW: 44 µm - 4900 µm; 2 IT 1000 RW: 57 µm - 6400 µm	2 IT DW 250: 15 µm - 1800 µm; 2 IT DW 500: 29 µm - 3100 µm; 2 IT DW 1000: 66 µm - 7500 µm; 2 IT HDW 250: 15 µm - 1800 µm; 2 IT HDW 500: 29 µm - 3100 µm	18 µm - 3000 µm	15 µm - 2000 µm	4 µm - 300 µm	4 µm - 200 µm	15 µm - 500 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
linearity error [2]	< 3.3 x 10^{-4} x upper measuring range limit						< 6.6 x 10^{-4} x upper measuring range limit	< 3.3 x 10^{-4} x upper measuring range limit		
resolution	3 x 10^{-6} x upper measuring range limit; higher resolution upon request									
reproducibility	10^{-4} x upper measuring range limit						2 x 10^{-4} x upper measuring range limit	10^{-4} x upper measuring range limit		
number of measuring channels	1	1	1	1	1		1	1	1	1 to 5
synchronization with external devices										per channel
trigger input	1	1	1	1	1	1	1	1	1	1
synchronizing output	1	1	1	1	1	1	1	1	1	1
encoder inputs	5	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	–	–	–	–	●	2	–	–	–	–
SLD	●	●	●	●	–	–	●	●	●	●
optical fiber [3] 2 m - 40 m	single mode fiber				multi mode fiber		single mode fiber			
fiber connection	E 2000									
operating temperature	+5°C up to +50°C									
dimension										
width	220 mm	220 mm	260 mm	260 mm	260 mm	235 mm	260 mm	260 mm	260 mm	19"
height	110 mm	110 mm	115 mm	115 mm	115 mm	100 mm	115 mm	115 mm	115 mm	3 RU
depth	125 mm	125 mm	310 mm	310 mm	310 mm	235 mm	310 mm	310 mm	310 mm	306 mm
weight	2 kg	2 kg	5 kg	5 kg	5 kg	3.6 kg	5 kg	5 kg	5 kg	13 kg
supply voltage	16 - 30 V DC (with separate power supply 90 - 264 V AC)	16 - 30 V DC (with separate power supply 90 - 264 V AC)	85 -264 V AC / 47 - 63 Hz			24 V DC	85 -264 V AC / 47 - 63 Hz			
rated power	20 W	20 W	15 W	15 W	140 W	150 W	15 W	15 W	15 W	16 W (+ 8 W per added channel)
note	high speed measurements, automatic light control	optimized for thickness measurements on highly doped wafers, visually opaque and transparent plastics, measurement from one side, 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	continuous operation during lamp change	optimized for thickness measurement of plastic products, 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
order number	5007391 (2 IT 500) 5007546 (2 IT 1000) 5007389 (2 IT 500 RW) 5007547 (2 IT 1000 RW)	5007388 (2 IT DW 250) 5009792 (2 IT DW 500) 5010253 (2 IT DW 1000) 5009667 (2 IT HDW 250) 5009793 (2 IT HDW 500)	5005107	5005153	5005051	5008484	5007379	5005162	5001286 (IT 500) 5001289 (IT 1000) 5005054 (IT 500 RW) 5005053 (IT 1000 RW)	depends on module

CHRocodile

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 by information in this product information. APR 2018

[1] Optical length | [2] Perpendicular measurement on mirror at 20° C | [3] Metal cover up to 15 m also available

● available | ○ optional | – not available