

mm

μm

nm

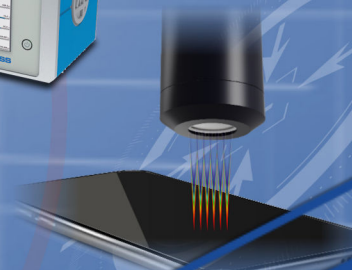
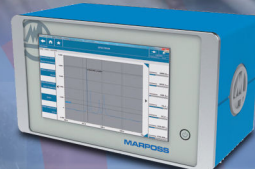


**WILLRICH PRECISION
INSTRUMENT**
THINK MEASUREMENT... THINK WILLRICH

Ph 866-945-5742 email:sales@willrich.com

WILLRICH PRECISION
866-945-5742
info@willrich.com

STIL inventor and manufacturer of Chromatic Confocal Sensors



ContactLess in process control and 3D measurement

for Industry 4.0

Smart Sensing Solutions

Distance & Thickness
measurement

Vision & Inspection

**TRUST
METROLOGY**

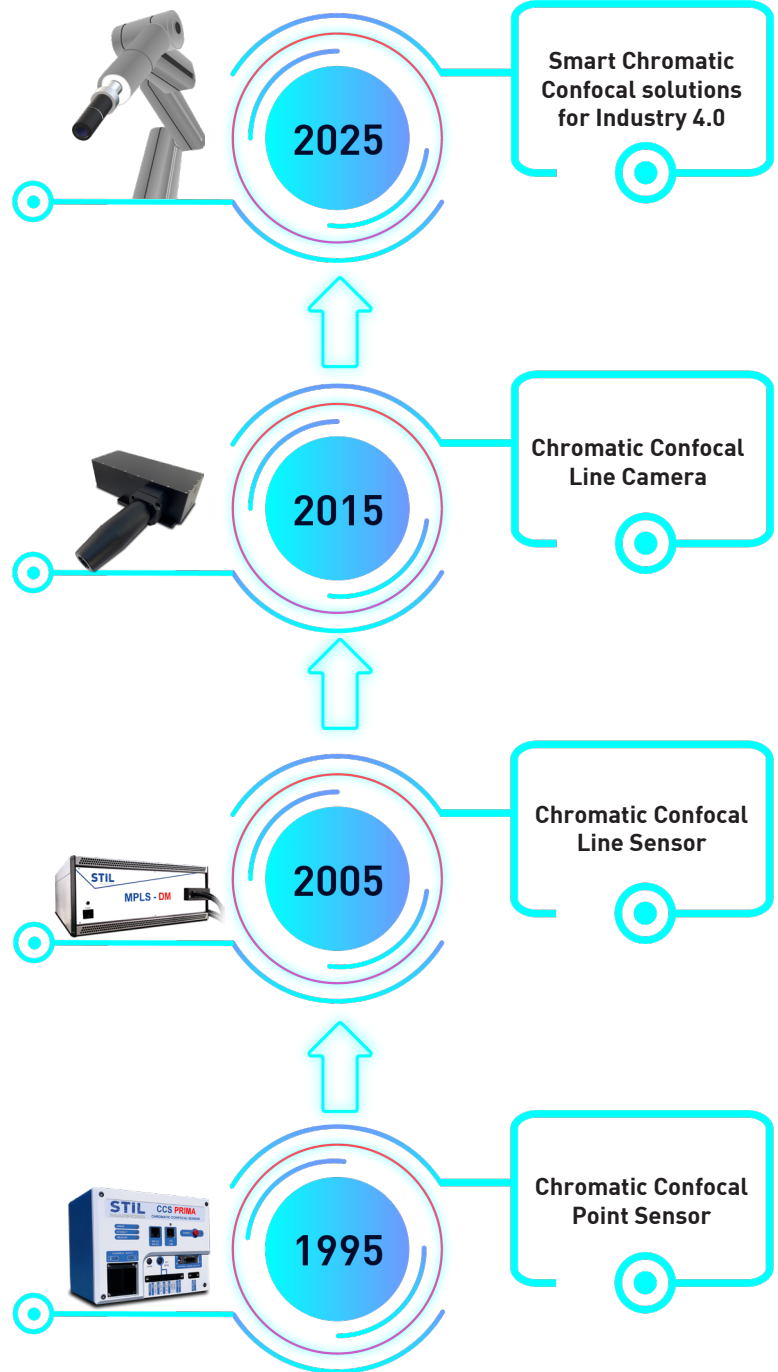


01 MISSION

STIL optical sensors bring better control to industries all around the world.

02 INNOVATION

We constantly re-invent our sensors to bring better performance to our customers through latest technologies and components innovations.



03 APPLICATION FIT

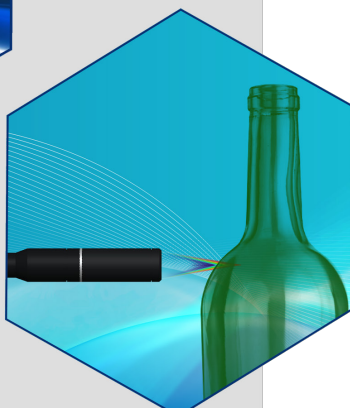
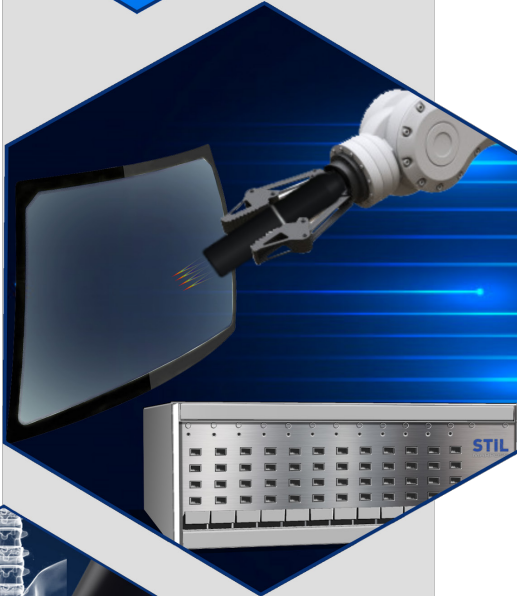
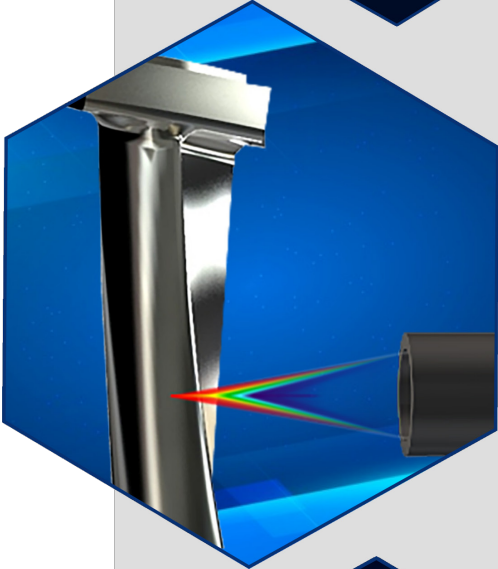
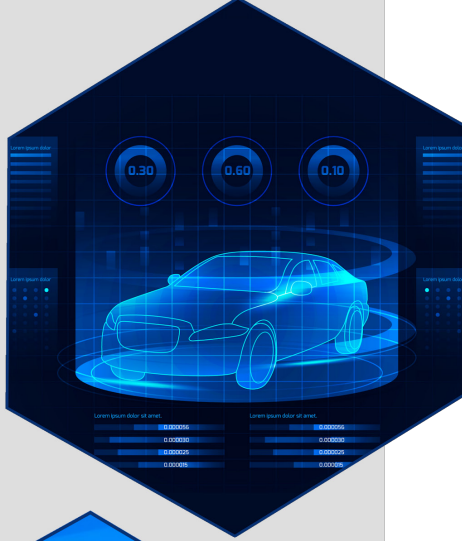
Our product portfolio & ability to best fit any application proves that machines can include control and inspection, while being affordable, sustainable and performing to highest standards.

04 BETTER PRODUCTIVITY

On the industry market, people have high expectations in terms of productivity: they want speed, accuracy, quality and safety while reducing their environmental impact and lowering running costs. This is what STIL brings through its non-contact sensor portfolio.



Summary



ACTIVITY AREA 1

SUMMARY 2

BENEFITS AND ADVANTAGES
TECHNOLOGY 3-4

APPLICATION
DESIGNED FOR 5-6

CHROMAPOINT 7-8

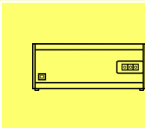
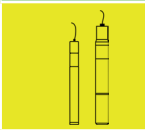
CHROMATIC CONFOCAL POINT
SENSOR HEAD 9-10

CHROMALINE 11-12

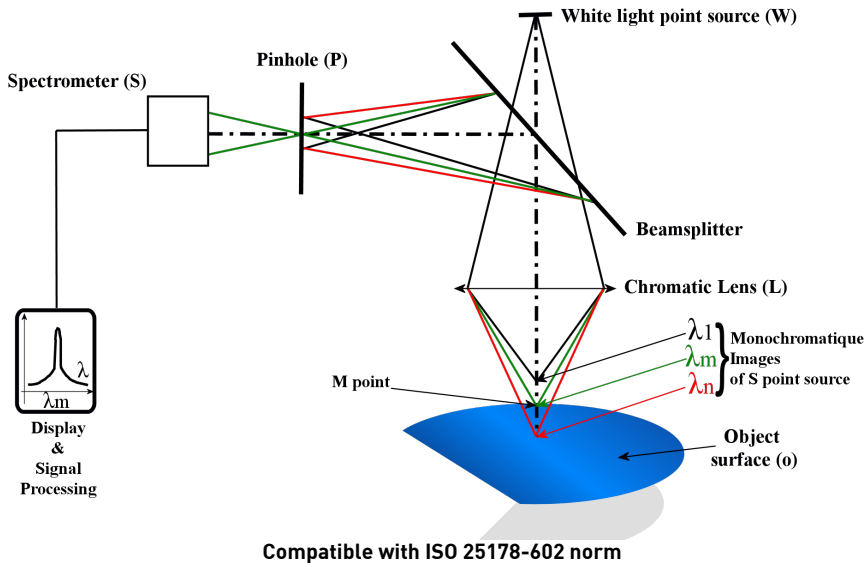
SYSTEMS 13

GLOSSARY 14

CONTACT 15



Chromatic Confocal Principle



Works on Every Material, any reflectivity simultaneously



Coaxial Optical Beam



Easy Industrial Integration / Plug&Play Sensor



High Slope Detection & Measurement

Chromatic Confocal Key Points

CONFOCALITY

Inensitive to ambient light. Confocal setup based on spatial filtering (pinhole).
Exceptional Signal to Noise ratio.

CHROMATISM

Master the axial chromatism & create a chromatically-coded range.
Extended Depth of Field of perfect Focus.

SPECTROMETER

Spectral Analysis of backscattered or reflected signal via an embedded spectrometer.
Fast and accurate solution composed of Passive Components avoiding Opto-Mechanical dynamic Focus.

COAXIALITY

Coaxial optical setup.
No Shadow Effect.



Reliable, accurate and reproducible dimensional measurements with extremely high resolution ;
High speed solution for in-line control ;
Compatible with any kind of material and environment ;
Many other benefits compared to conventional methods, as high slope measurement with High Numerical Aperture [NA] optomechanical passive components.



DISTANCE



THICKNESS



ROUGHNESS

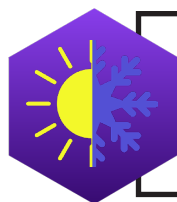


ONLINE INSPECTION



Advantages

For all types of environment



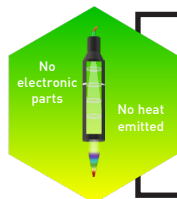
STIL Sensors work within any kind of Environment as Hot & Cold Temperature; Industry and Laboratory independently of Ambient Light.

Easy and Flexible Integration



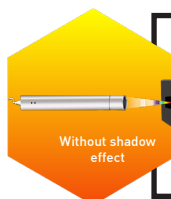
Plug & Play Integration for 3D OEM Machine and Industrial Protocol of Communication.

Passive components



Safe Optical Pens&Probes are composed of Passive Components only. No Heat Emission for Stable Measurement. Light Emission under Max. Permissible Exposure (MPE).

Coaxial without shadow effect



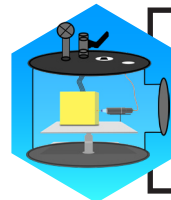
High Slope Angle Measurement until +/-45° on Mirror and +/-88° on Diffusing Surfaces with No Shadow Effect.

Large numerical aperture



High Slope Angle Measurement thanks to High Numerical Aperture and micrometric Spot Size within the Measuring Range (MR).

Compatibility in vacuum chamber



Compatible within Vacuum Chamber; RadioActive Area or Transparent Liquid Immersion - on request.

FAQ

Questions

Answers

What are the Mechanical Constraints ?

Working Distance = Stand Alone = Focal ; Measuring Range = Depth Of Field of Perfect Focus. Other dimensions available on Demand.

What are the Sensor dimensions ?

ENDO Probes with 4 to 8mm diameter ; CLMG with 27mm ; EVEREST 47mm & 82mm ; OP from 15 mm. Other dimensions available on Demand.

What are the maximum Frequency Acquisition ?

10 000 points per second with OPTIMA+ Controller ; 360 000 points per second with MPLS180DM.

Surface Reflectivity : Shiny or Dark ; Transparent or Opaque ?

Parameters Selection as : AutoLed ; Double Frequency.

Roughness Measurement ?

Roughness measurement needs: Large NA & Low Lateral Resolution. Preferred sensors are: CL1MG210/420 ; CL2-MG140; EVEREST K1 ; OP300VM ; ENDO 0.2D8.

How to Measure one or more transparent layer Thickness (MultiLayer) ?

Refer to Min/Max Measurable Thickness Parameter.

How to Measure Opaque Thickness : Roll to Roll ?

Integration of 2 sensors Face to Face.

How to Measure a low or dense feature ?

Refer to the Lateral resolution as CL1MG420 from 0.8µm.

How to Measure Curved and/or Tilted Sample ?

Refer to High Slope Angle on Mirror and/or Mechanical adjustment of the Optical Beam.

How to Measure through a Glass Protection ?

Sensors including Reference Plate or On Request. Interest : Isolated pens. Hard environments in Temperature, Pressure, Vacuum, Radioactive.

3 C (Smartphone, Computer, Tablet ...)

High Slope Measurement
ideal for Curved & Tilted Surface.

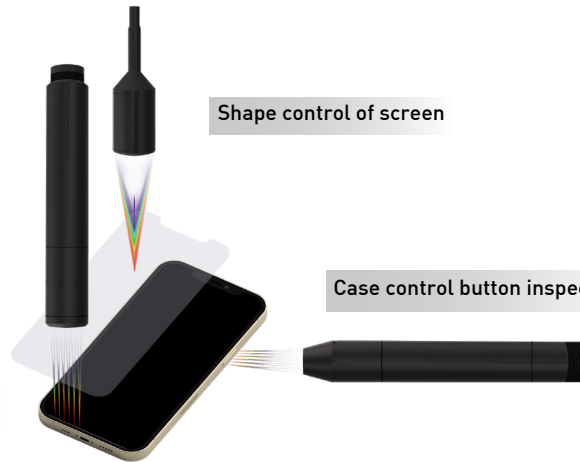
Measurement on any Surface
Reflectivity as Glue/Metal/Glass...

3D Measurement

Shape control of screen

Case control button inspection

Glue Deposit Control & Measurement



WireBonding Inspection with ChromaLine Camera

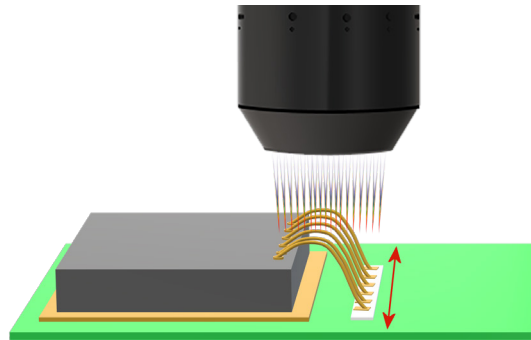
Lateral Resolution from $0.4\mu\text{m} * 0.4\mu\text{m}$

High Slope Angle: +/-45° with NA: 0.75

Wire presence detection

Wire welding detection & measurement

Wire integrity detection



Glass

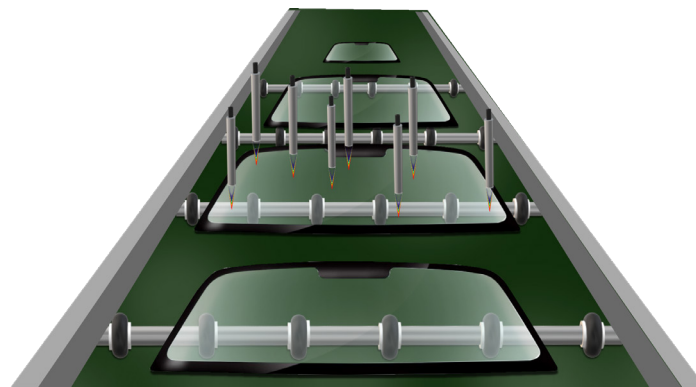
Windshield Control



LightMaster

Long Working Distance and
Extended Depth of Field of
Perfect Focus

Any Sensors adapted for
Industrial & Difficult
Environment



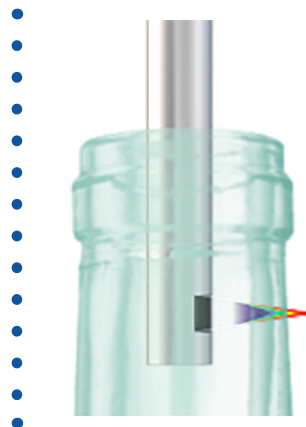
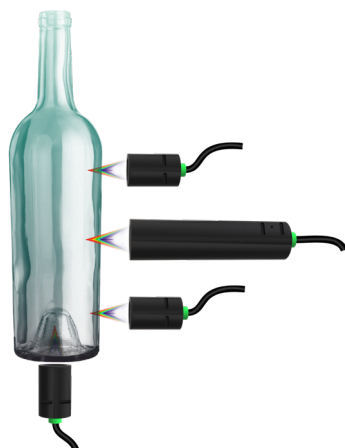
3D shape, contour, HUD multilayer
Thickness Measurement with Light
Master & IRIX

Thickness control

Inner diameter

Long Working Distance and
Extended Depth of Field of
Perfect Focus

Any Sensors adapted for
Industrial & Difficult
Environment



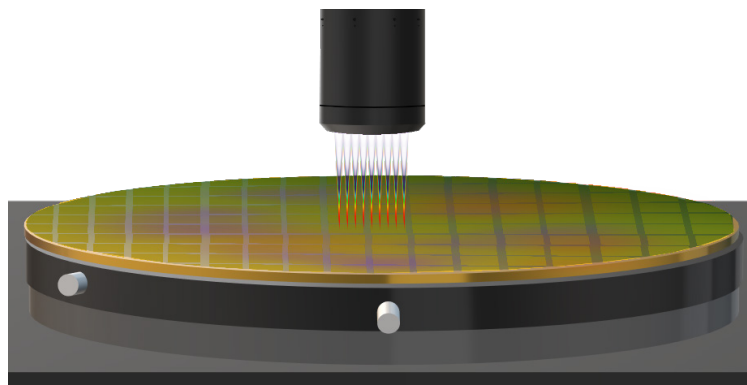
Endoscopic Optical Head
from 4mm Diameter

Accuracy in Micrometric
Scale

Semiconductor

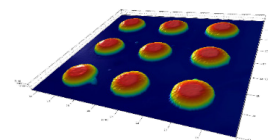
Warpage / Flatness Measuremet on Wafer with Chromapoint or Chromaline sensors

Lateral Resolution <math>< 1\mu\text{m}</math>
High Slope Angle : $\pm 45^\circ</math>
with NA :0.75.$



Up to 360 000 Measured points/second
Sub-micrometric resolution.

Bumps measurement
CLMG / EVEREST sensors.



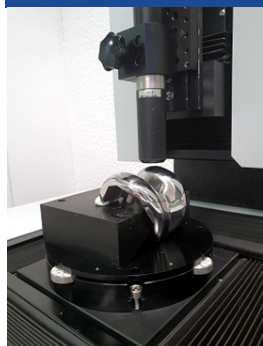
Others

MEDICAL

Knee Prothesis

Roughness Measurement
compatible with ISO Norm
25178-602

Sensors work on any Surface
Reflectivity

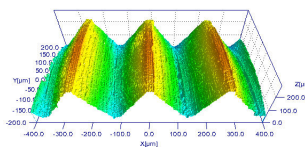
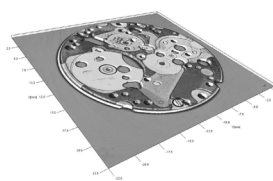


MECHANICS

Watch

Sensors dedicated to In-Process
Measurement

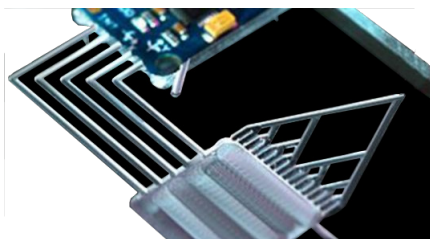
High Slope Measurement
until $\pm 88^\circ</math> on diffusing surface$



Microfluidics

SubMicrometric Resolution
Measurement through a
Transparent Layer as Plastic
or Glass

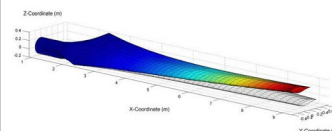
Up to 360 000 points measured
per second



Turbine Blade

Sensors work on any Surface
Reflectivity

High Slope Angle at $\pm 45^\circ</math>; until
 $\pm 88^\circ</math> on diffusing surface$$

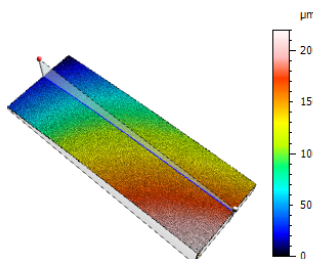


BATTERY

Face to Face Thickness Measurement

2 sensors face to face with 2 Mono-
channel or 1 DuoChannel Controllers

Fork Mecanical Piece available for
Colinear Integration



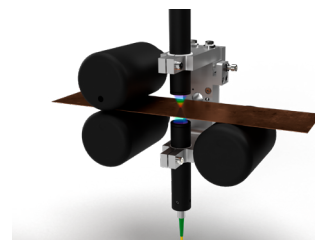
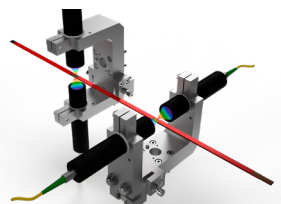
Non-contact measurement, and integral design 3D profile scanning, and
multifunction data processing

Applicable to the accurate measurement of various materials; Simple use
and convenient assembling & disassembling; High scanning speed and high
positioning accuracy

Repeated accuracy $\pm 0.5\text{--}\pm 1\mu\text{m}</math>; High stability and strong anti-interference$

FILM THICKNESS

In-line quality measurement and control for thickness monitoring



- Non-contact technology, for measurement of soft and non-transparent materials
- Capability to measure, for thickness of layers starting from 5 $\mu\text{m}</math>.$
- Wide measuring range for real in-line applications
- High sensitivity and accuracy
- Possibility to supply measuring snap or complete gauging equipment.
- Available statistic elaboration and data transfer with MARPOSS
- Quick-SPC software option

Controller



ZENITH

OEM Design & Compatibility

PRIMA / OPTIMA+

Universal & High Speed

LIGHTMASTER

MultiChannel until 48 modular Optical Heads

IRIX

Screen on Front Face & MultiLayer Thickness Measurement

Sensor Head



Miniature



Universal & Modular



High Slope Angle



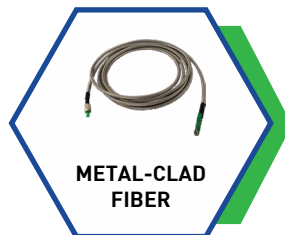
Long Working Distance

Optical Fiber



STANDARD FIBER

Standard Fiber. Plastic protection. External Diameter 2.8mm. Minimum bending radius in : Static Mode - 25mm. Dynamic Mode - 40mm.



METAL-CLAD FIBER

Metal Clad Cable. Metal protection for difficult environments. External Diameter 5-6.2 mm. Minimum bending radius in : Static Mode - 40mm. Dynamic Mode - 40mm.



ARMORED FIBER

Armored Fiber. High resistance to tension and pressure. External Diameter 3 mm. Minimum bending radius in : Static Mode - 30mm. Dynamic Mode - 60mm.

Calibration

One Calibration Report is delivered per optical pen

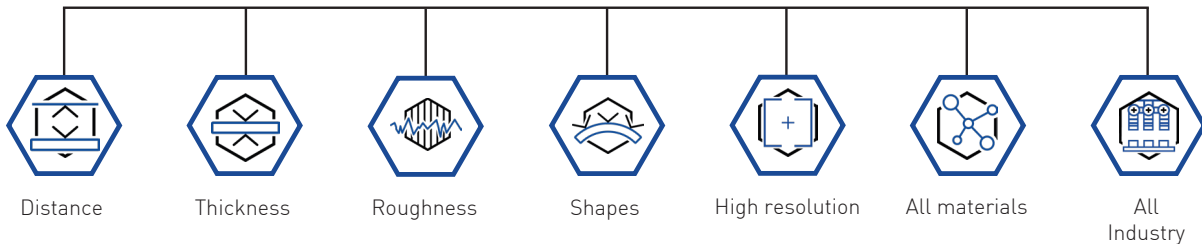


*Calibration Benches are certificated by COFRAC (<https://www.cofrac.fr/en/>) so traceable to International Standards

Specifications

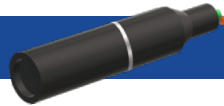


UNIVERSAL MODEL
ULTRA FAST
DISPLAY SCREEN & MULTYPEAK
SINGLE CHANNEL
OR
MODULAR MULTI-CHANNEL



PRODUCT	CCS ZENITH	CCS PRIMA/OPTIMA+	LIGHTMASTER	IRIX
Order Code	Coming soon	O8ST10M1001	O8ST08M0001	830K100050
Technology	Chromatic Confocal	Chromatic Confocal	Chromatic Confocal	Chromatic Confocal
Source	White LED	White LED	White LED	White LED
Number of Channel	1	1 or 2 (multiplexed) / 1	Up to 48	1 or 2
Acquisition Frequency	Up to 2 kHz	Up to 2 KHz / 10 KHz	Up to 750 Hz	Up to 2 KHz
Calibration Table Memory	Up to 20	Up to 20	Up to 20	Up to 32
Distance Measurement	First/Second/Third/Fourth/Last/Strongest peak	First/Highest peak	First/Highest peak	First/Second/Third/Fourth/Fifth/Sixth Peak
Thickness Measurement	2 Peaks	2 Peaks	2 Peaks among 5	up to 6 Peaks
Advanced Features	SetExposureTime/Encoder Trigger/ Master&Slave mode...	AutoLed/AutoDark/Double-Frequency/HoldLastValue...	Exposure time /Encoder trigger...	Coming soon
Digital Output	Ethernet (GigE) and RS422	RS232, RS422 and USB	Ethernet (GigE)	USB / Ethernet / RS422
Synchronization	1 TTL input and 1 TTL output	1 TTL input and 1 TTL output	1 TTL input and 1 TTL output	1 TTL Input/1 TTL Output
Other Input/Output	Encoder input (up to 5)	2 Analog Output/Encoder Input (up to 3)	Encoder input (1)	2 Analog Outputs/ 3 Encoder Inputs
Fiber Connexion	E2000/APC	E2000/APC	E2000/APC	FC/APC
Temperature In Use	5°C to 50°C	5°C to 50°C	5°C - 50°C	Coming soon
Storage Temperature	-20°C to -70°C	-30°C to -70°C	-30°C -70°C	Coming soon
Relative Humidity	5% - 80% HR without condensation	5% - 80% HR without condensation	5% - 80% HR without condensation	Coming soon
Protection Type	IP40	IP20	IP20	IP40
Compliance	EN 61326-1	EN 61326-1	EN 61010-1; EN 61326-1	Coming soon
Power Supply	24 Vdc	24 Vdc	100 - 240 Vac	24 Vdc
Maximum/Usual Consumption	25 W /10 W	25 W / 8 W - 9 W	120 W / 70 W	20 W
Dimensions (L x H x D) mm	169 x 110 x 88	162 x 138.1 x 111.5	502 x 184 x 449	132 x 155 x 236
Weight	1 kg	1.2 kg	10 to 14 kg	3.2 kg

CL-MG



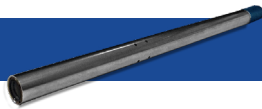
UNIVERSAL & MODULAR

Product	unit	CL1-MG420	CL1-MG210	CL2-MG140	CL3-MG70	CL4-MG35	CL5-MG35	CL6-MG20
Order code		O3PS0114201	O3PS0112101	O3PS0121401	O3PS0137001	O3PS0143501	O3PS0153501	O3PS0162001
Measuring Range	mm	0.15	0.15	0.4	1.4*	4	12	24
Working Distance	mm	3.3	3.3	10.8	12.2	16.5	26.6	20
Numerical Aperture		0.71	0.71	0.46	0.41	0.32	0.2	0.12
Max. Slope Angle	°	± 42	± 42	± 28	± 25	± 21	± 14	± 8.5
Axial		Standard						
90° Folded Model		Option						
Max. Linearity Error**	µm	± 0.025	± 0.025	± 0.05	± 0.13	± 0.3	± 0.75	± 1.2
Static Noise**	nm	6	7	20	60	110	370	800
Axial Resolution **	µm	0.036	0.042	0.1	0.36	0.66	2.22	4.8
Lateral Resolution	µm	0.8	1.1	1.8	4.5	4.6	11	18
Spot Size	µm	0.83	2.7	4	11.9	12.3	24.3	43
Photometric Efficiency		0.7	3.3	7.9	57	25	33	43
Min. Measurable Thickness	µm	5	7.5	14	40	110	350	725
Length	mm	270	243.8	208.9	176.1	145.4	145.4	155.6
Diameter	mm	27	27	27	27	27	27	27
Weight	g	310	268	190	214	155	175	180

* 1.3mm on a CCS-Optima+

** With CCS electronics (PRIMA & OPTIMA+)

ENDO



MINIATURE

Product		ENDO 0.2/D8	ENDO 0.3/D6	ENDO 0.3/D6 R	ENDO 1.2/D6	ENDO 1.5/D6-R	ENDO 1/D4-R	ENDO 10/D8-L	ENDO 10/D8-LT
Order Code		O3PS0382002	O3PS0361001	O3PS0362001	O3PS0361002	O3PS0362501	O3PS0341002	O3PS0383001	O3PS0384001
Measuring Range	mm	0.22	0.3	0.3	1.2	1.5	1	10	10
Working Distance	mm	4.8	1.3	0.9	2.3	0.9	1	9	9
Numerical Aperture		0.39	0.42	0.3	0.22	0.19	0.16	0.1	0.1
Max. Sample Slope	°	± 21.5	± 21	± 15	± 13	± 10	± 7.5	± 4.5	± 4
Axial or Radial Model		Axial	Axial	Radial	Axial	Radial	Radial	Axial	Axial
Max. Linearity Error**	µm	± 0.050	± 0.05	± 0.08	± 0.2	± 0.2	± 0.2	± 1	± 1.1
Static Noise**	nm	25	25	40	160	160	100	900	600
Axial Resolution**	µm	0.15	0.15	0.24	0.96	0.96	0.6	5.4	3.6
Lateral Resolution	µm	2.5	3.8	2.5	7.5	10	6.5	17.5	9
Spot Size	µm	4.6	6.4	5	15	19.5	13.2	35	18
Photometric Efficiency		17	19	4	46	27	10	28	6
Min. Measurable Thickness	µm	25	20	50	140	200	300	900	450
Length	mm	102	70	87.3	75.2	87.3	64	141	141
Diameter	mm	8	6	6	6	6	4	8	8
Weight	g	20	12	13	10	13	3.5	26	26

** With CCS electronics (PRIMA & OPTIMA+)

OP



LONG WORKING DISTANCE

Product		OP300VM	OP300-VM-90	OP 1 000	OP 6 000	OP 8 000	OP 10 000	OP 10 000-90	OP 12 000	OP 30 000
Order Code		03PS 1400001	03PS 1400002	03PS 1400003	03PS 1400004	03PS 1400005	03PS1 400006	03PS 1400007	03PS 1400010	03PS 1400008
Measuring Range	mm	0.22	0.22	1	6	8	10	10	12	30
Working Distance	mm	5	4.4	23.9	28	39	66.9	66.9	46	220
Numerical Aperture		0.5	0.5	0.45	0.39	0.295	0.2	0.2	0.25	0.095
Max. Slope Angle	°	±25	±25	± 24	± 22	± 16	± 11	± 11	± 14	± 5
Axial or Folded Model		Axial	Radial	Axial	Axial	Axial	Axial	90° folded	Axial	Axial
Max. Linearity Error**	µm	±0.07	±0.07	± 0.2	± 0.5	± 0.6	± 0.8	± 0.8	± 0.6	± 2.5
Static Noise**	nm	25	25	50	200	350	600	600	380	2000
Axial Resolution**	µm	0.15	0.15	0.3	1.2	2.1	3.6	3.6	2.28	12
Lateral Resolution	µm	3.2	3.2	2.2	6.25	16.5	25	25	14	48
Spot Size	µm	6.4	6.4	4.4	12.5	33	50	50	32.5	96
Photometric Efficiency		34	19	10	43	133	138	138	100	75
Min. Measurable Thickness	µm	25	25	25	200	300	425	425	550	2000
Length	mm	127	128	254.1	205.5	139	189	152	58.3	168
Diameter	mm	15	15	50	60	40	50	50	36	59
Weight	g	27	39	753	760	365	525	674	125	405

** With CCS electronics (PRIMA & OPTIMA+)

EVEREST / NCTP



LARGE SLOPE ANGLE

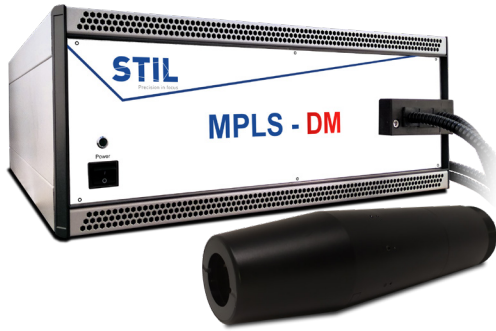
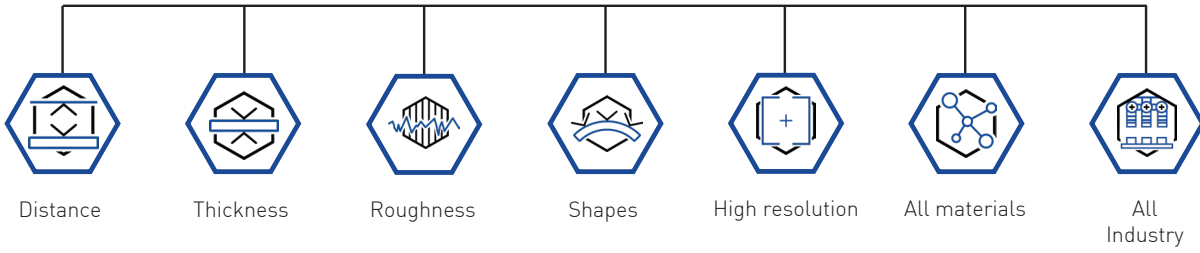
Product		Everest K1	Everest K2	Everest K6	NCTP
Order Code		03PS0470001	03PS0472001	03PS0461001	03PS140009
Measuring Range	mm	1	2	6	20
Working Distance	mm	18.5	19.2	13.7	54.5
Numerical Aperture		0.7	0.67	0.55	0.35/0.17
Max. Slope Angle	°	± 44	± 42	± 32	± 18/9
Axial or Folded Model		Axial	Axial	Axial	Axial
Max. Linearity Error**	µm	± 0.075	± 0.15	± 0.35	± 2
Static Noise**	nm	37	75	200	1000
Axial Resolution**	µm	0.222	0.45	1.2	6
Lateral Resolution	µm	2.5	3.8	5.2	15
Spot Size (diameter)	µm	5	7	10.4	30
Photometric Efficiency		29	51	26	73
Min. Measurable Thickness	µm	50	100	150	500
Length	mm	260.5	243.4	136.3	210
Diameter	mm	82	82	47	80/35
Weight	g	1400	1250	320	1025

** With CCS electronics (PRIMA & OPTIMA+)

MPLS-DM

LINE SENSOR

CONFOCAL CHROMATIC LINE SENSOR 180 CONFOCAL MEASURING POINTS IN 1 LINE



Any material

Metal (polished or rough), Glass, Ceramics, Plastics, carbone, silicon ...

Co-axiality

No shadowing effect.

Accuracy & Resolution

Sub micrometric accuracy. Nanometric resolution in Z.

Passive [Cool, explosive environment]

Heat & Electrical sources deported outside the measuring area.

Steep slopes

Up to 45° on mirror.

Speed

180x faster than point sensors.

Controller	MPLS-DM
Technology	Chromatic Confocal
Source	White LED
Number of Points	180
Measuring Frequency	200 Hz - 2000 Hz (up to 6000 Hz decreasing MR)
Distance Measurement	Highest/First/Second/Third/Fourth/ Last Peak
Thickness Measurement	2 of 5 peaks
Digital Output	GigaEthernet
Synchronization	Trigger in&out
Other Input/Output	Encoder Input (1)
Fiber Bundle Length	5 m
Temperature In Use	5°C - 50°C
Storage Temperature	-30°C - 70°C
Relative Humidity	5% - 80% HR without condensation
Protection Type	IP20
Compliance	EN 61010-1; EN 61326-1
Power Supply	100-240 Vac
Maximum/Usual Consumption	120 W/70 W
Dimensions (mm)	448,9 x 184 x 497
Weight	14,5 kg

Product		MPLS-DM NANOVIEW	MPLS-DM WIREVIEW	MPLS-DM MICROVIEW	MPLS-DM DEEVIEW mk2	MPLS-DM SUPERVIEW
Order Code		OPSTM702001	OPSTM710001	OPSTM706001	OPSTM707001	OPSTM711001
Line Length	mm	1.34	1.51	1.8	4.2	12.85
Measuring Range 2 kHz	mm	0.1	0.9	0.5	2.6	2
Working Distance	mm	7.5	7.8	10.1	19.5	11.3
Numerical Aperture		0.75	0.75	0.5	0.37	0.33
Max. Sample Slope	°	± 40	± 46	± 30	± 20	± 17
Pitch (dist. between 2 points)	µm	7.5	8.5	10.1	23.5	71.8
Max. Linearity Error	µm	± 0.05	± 0.1	± 0.08	± 0.12	± 0.12
Satic Noise	nm	25	150	100	300	300
Axial Resolution	µm	0.15	0.9	0.6	1.8	1.8
Spot Size	µm	2.9	3.2	3.8	8.8	27.2
Homogeneity	nm	30	200	125	400	400
Min. Measurable Thickness	µm	18	110	50	250	300
Length	mm	434.4	480.7	425.6	428.3	397.8
Diameter	mm	50	70	50	60	60
Weight	g	1600	2200	1600	2800	2550
Measuring Range 4 kHz	mm	0.045*	0.45*	0.235*	1.15*	0.9*
Measuring Range 6 kHz	mm	0.025*	0.24*	0.12*	0.65*	0.5*

* Preliminary value

MC2

LINE CAMERA

AOI CHROMATIC CONFOCAL LINE INSPECTION SYSTEM : Automatic Optical Inspection



Dimension



High resolution



All materials



All Industry



4K Confocal Chromatic line camera

Large Depth of Focus

Millimeters DOF instead of 10th of μm for microscopes.
Less/no focussing required.
Focus on glass & mirror becomes possible.

Large fields

1 to 12 mm large x infinitely long.

Resolution (X-Y)

Pixel size on sample $\geq 0,43 \mu\text{m}$.

Speed

Up to 199.5 klines per second+

Any material

Metal (polished or rough), Glass, Ceramics, Plastics ...

Controller	MC2	
Technology	Chromatic Confocal	
Source	White LED in external box	
Fiber bundle length	5 m	
Temperature in use	0°C - 65°C	
Storage temperature	-30°C - 70°C	
Relative humidity	5% - 80% HR without condensation	
Protection type	IP 20 (ChromaLight) IP50 (Body)	
Line Detector	Camera	SW-4000M-PMCL
	Number of pixels	4096
	Number of used pixels	≈ 3100
	Pixel size	7,5 μm
	Line rate	Up to 199,5 kHz
	Control and data	Camera Link (x2)
Chromalight (LED source)	Power supply	5-24 Vdc
	Power dissipation	5 W
	Power Supply	100-240 Vac
	Maximum/Usual Consumption	100 W/60 W
	Dimensions (mm)	235,5 x 184,2 x 255,5
	Weight	4 kg

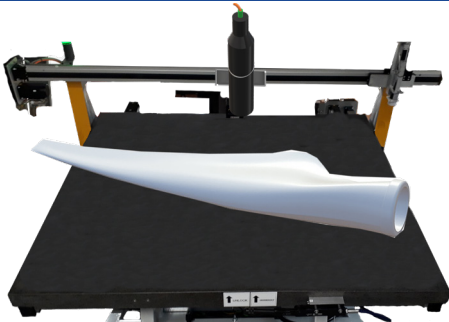
Product		MC2 NANOVIEW	MC2 WIREVIEW	MC2 MICROVIEW	MC2 DEEPVIEW mk2	MC2 SUPERVIEW
Order Code		OPSTM702001	OPSTM708001	OPSTM704001	OPSTM706001	OPSTM709001
Line Length	mm	1.34	1.51	1.8	4.2	12.85
Depth of Field	mm	0.1	0.9	0.5	2.6	2.0
Working Distance	mm	7.5	7.8	10.1	19.5	11.3
Magnification		17.3	15.6	12.9	5.6	1.8
Numerical Aperture		0.75	0.75	0.5	0.37	0.33
Max. Sample Slope	°	± 40	± 46	± 30	± 20	± 17
Pixel Size on the Sample	μm	0.43	0.49	0.58	1.35	4.1
Lenght	mm	421.6	468	412.8	408.5	378
Diameter	mm	50	70	50	60	60
Weight	g	5200	5800	5200	5850	5600

Maestro 3D



- 100% In-Process Automatic Quality Control
- Flexible System with High Speed up to 12m/second
- 3D Shape/Contour by up to 6 axis
- HUD Multipoint Thickness Measurement on Windshield in 4 seconds

Portico 3D



- Cartesian Robot for High Resolution : +/-0.05 mm
- 3 to 5 axes
- 3D Shape and/or MultiPoint Thickness Measurement
- +/-0.05 mm Repeatability
- Available on Every Type of Surface Reflectivity

Mime 3D

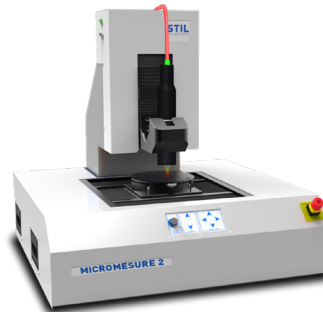
3D Measurement System dedicated to Roughness, 3D MicroTopography, Waviness

3 High Resolution Motorized Axes (X ;Y ;Z) : +/- 0.001 mm³

Large choice of Dimensions : 100 x 100 mm² ; 200 x 200 mm² ; 300 x 300 mm²...

Available with every STIL Sensors & Inspection System

3D Processing Software Package for ChromaPoint & ChromaLine Sensors



Product	MIME-3M3R-115
Order Code	O3PS0700001
Travel X-Y	100 mm
Travel Z	50 mm
Encoder	Yes
Position Accuracy	1 µm / 100 mm
Position Resolution	0.1 µm
Dimension (LxDxH) (mm)	640 x 612 x 606
Weight (kg)	120

Interferometry



Sub-Micrometric Axial Resolution

Thin Coating & Air Gap Measurement: less than 1 micron

Product	OPILB-LWD-RP-MG140*	OPILB-LWD-D MG140*	OPILB-LWD-T MG35*	OPILB*	29T5016090
Measuring Mode	Distance	Distance	Thickness	Thickness	Thickness
Measuring Range	µm 135	135	90 (n=1.5)	90 (n=1.5)	→100 (n=1.5)
Depth of Field	µm 135	135	200	1200	800
Working Distance	µm 9.7	4.6	9	42	2.7
Numerical Aperture	mm 0.3	0.3	0.3	0.09	0.15
Max. Sample Slope	° 17	17	17	5.4	8.3
Spot Size	µm 5.7	5.7	22.9	32	30
Min. Measurable Thickness	µm -	-	0.4	0.4	-

* With STIL-DUO electronics

APPLICATIONS

STIL Application Team is available to analyze your request scientifically and technically in order to solve your requirements and advise you on the most convenient technical solution.

TEAM

STIL Team is located in Aix-en-Provence, France as R&D Design ; Manufacturing & Production ; Administration ; Sales & Support.

SUPPORT

Please contact support@stil-sensors.com for any question regarding STIL materials, indicating the Reference and Serial Number of the material. The Support Service is open to answer by distance and/or by sending back the material to STIL plant.

La FRENCH FAB



La FRENCH TECH



Specification

Explanation

Axial Resolution	The Axial Resolution is defined as the peak to peak value of noise level, measured on a static sample. Measurement is performed at optimal settings on a sample located at the center of the measuring range. Assuming a statistical gaussian distribution, the axial resolution corresponds to the value of the static noise multiplied by a factor 6.
Depth of Field	The Depth of Field is the distance between the first and the last visible wavelength focused along the optical axis which are used to create the image
Full Range	The Full Range is the maximum measuring range that is possible to consider, without regarding the performances.
Homogeneity	Homogeneity is the variation (RMS) of values measured by the 180 channels of a MPLS-DM sensor on a perfectly aligned plane. This feature is measured immediately after factory calibration and with optimal conditions & settings.
Lateral Resolution	Lateral Resolution is the 10%-90% transition distance observed when measuring an abrupt photometric change. The values are measured at the center of the measuring range. Theoretically, the lateral resolution is defined as half the spot diameter.
Line Length	Length of the measurement line of a Chromaline sensor or of the inspection line of a Chromaline Camera
Magnification	Optical magnification is the ratio between the apparent size of an object in the depth of field of the sensor and its true size.
Max. Linearity Error	The Maximum Linearity Error is the max absolute error observed in the entire measuring range when comparing the distance measured by the sensor with sample position determined by a 1-nm accurate encoder. This parameter is measured with optimal settings immediately after calibration and is specified on the calibration certificate which is delivered with each sensor.
Max. Sample Slope	The maximum sample slope value is the maximum angle of measurement when focusing on specular surfaces (mirror-like). For scattering surfaces, the maximal slope angle is higher; however the intensity of the collected signal decreases with increasing slope angle for all types of samples.
Measuring Range	The measuring range is the distance between the first measurable point and the last one in the Depth of field. It depends on the controller model and on the calibration. The numerical values in the specification table are nominal values. In certain cases, it is possible to calibrate on a larger range with reduced performances (for details contact your vendor).
Min. Measurable Thickness	The minimal measurable thickness is the thinnest thickness which can be measured using the sensor. These are typical values considering a layer of glass, i.e. considering a refractive index $n=1.51$.
Numerical Aperture	The Numerical Aperture (NA) is a parameter of the range of angles over which the optical head can accept or emit light. The NA has no unit, no dimension.
Photometric Efficiency	The photometric efficiency is the amount of energy collected by different optical pens when measuring the same sample, in relative units. The numerical values in this table are typical. They are given as a guide for selecting the optical head.
Pitch (dist. between 2 points)	The pitch of a line sensor is the distance between the center of 2 consecutive points along the line.
Pixel Size on the Sample	Pixel size on the sample is determined from the pixel size on the camera and the magnification of the optical head.
Protective Window	The protective window is a glass plate that can be either located inside the optical pen, or fixed in the working distance. It protects the optical pen and can be easily replaced in case of damages
Spot Size	Theoretical diameter of the light spot, computed for the focalized wavelength at the middle of the measuring range.
Static Noise	The Static Noise is defined as the RMS noise level measured on a static sample. Measurement is performed at optimal settings on a sample located at the center of the measuring range. This parameter is measured immediately after calibration and is specified on the calibration certificate which is delivered with each sensor. This is possible to improve it using a data averaging.
Working Distance	The working distance is the distance between the optical pen and the beginning of the measuring range. The numerical values in the specification tables are nominal values. The working distance depends on the calibration, the real value can differ by a few percent from the nominal value.

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