More Precision.

confocalDT 2410 // Next-generation confocal sensor system
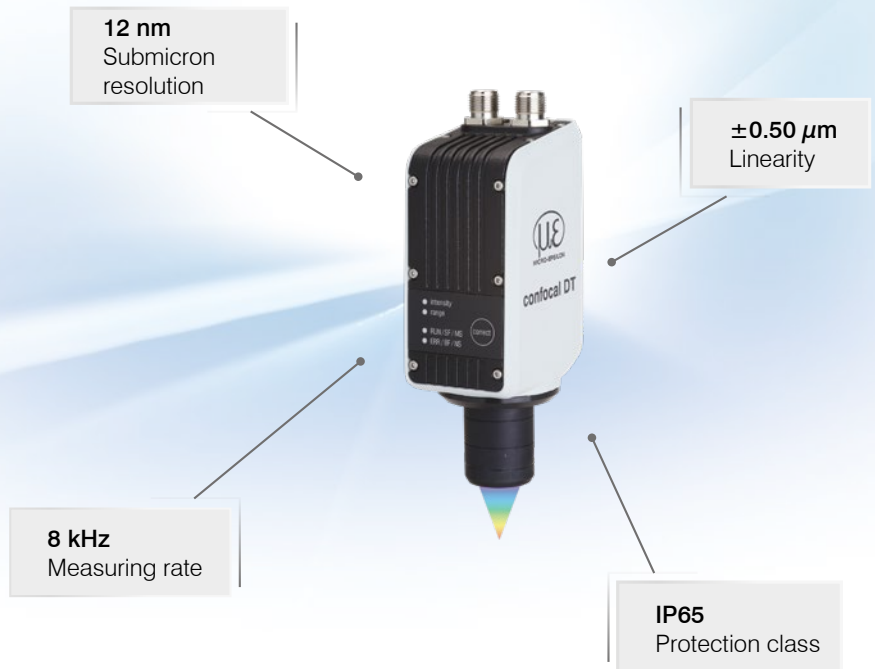
Confocal chromatic sensor system with integrated controller
confocalDT 2410

- **All-in-One:** sensor and controller in one compact housing (IP65)
- Excellent price/performance ratio
- Easy integration, no optical fiber required
- Direct PLC connection due to Industrial Ethernet
- Micron-precise measurement of distance and thickness

EtherCAT
Integrated fieldbus for direct connection to PLC

12 nm Submicron resolution

±0.50 µm Linearity

8 kHz Measuring rate

IP65 Protection class

All-in-One: compact confocal sensor with optimal price/performance ratio

The confocalDT IFD2410 is an innovative confocal sensor with integrated controller. The space-saving IP65-housing enables fast integration into plant equipment and machines as no optical fiber is required. This makes the IFD2410 ideally suited to high precision distance and thickness measurements in industrial series applications. The active exposure regulation of the CCD line enables fast and accurate compensation of varying surfaces even in dynamic measurement processes up to 8 kHz. Based on its excellent price/performance ratio, the confocalDT IFD2410 sets a new benchmark in precise confocal measurement technology.

## Intelligent technology meets high performance and user-friendliness

In Ethernet mode, the confocalDT IFD2410 can be set via the intuitive web interface. Industrial Ethernet ensures that the settings are automatically applied to the PLC environment. This eliminates time-consuming setting efforts in the programming environment.

Fast, precise and compact

Its high performance and compact housing make this sensor ideally suitable for series applications in production lines and machines. These include inline inspection and coordinate measuring machines, inline thickness monitoring of flat glass and container glass as well as testing electronic components.
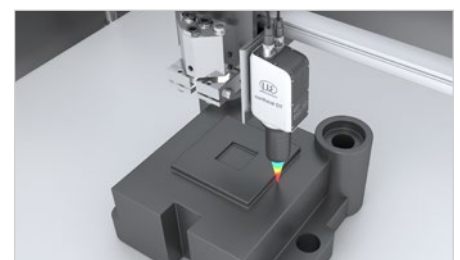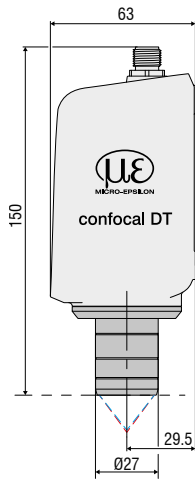
Simple parameter set up via integrated web interface
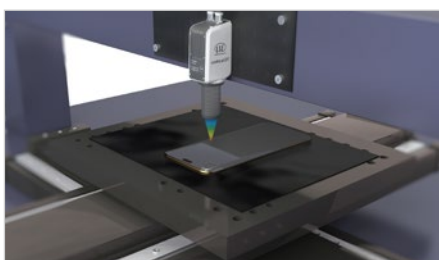
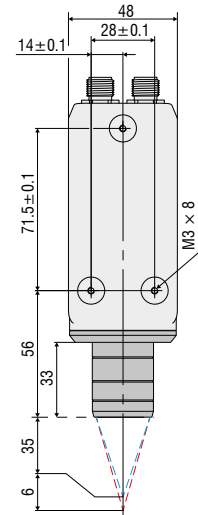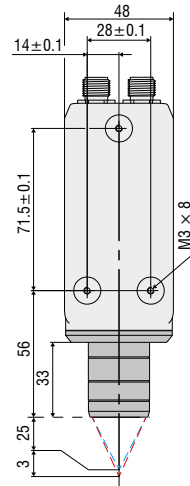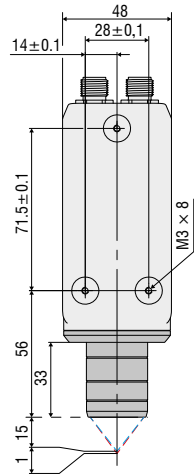Measurement of smartphones in coordinate measuring machines
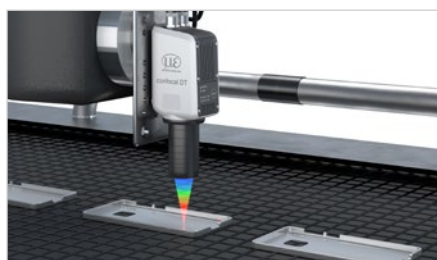
Inline measurement of smartphone housings

Displacement and distance measurement in 3D printing

Dimensions in mm, not to scale.

Model	IFD2410-1	IFD2410-3	IFD2410-6
Measuring range — Distance	1.0 mm	3.0 mm	6.0 mm
Measuring range — Min. thickness	0.05 mm	0.15 mm	0.3 mm
Start of measuring range — approx.	approx. 15 mm	approx. 25 mm	approx. 35 mm
Resolution — static [1]	< 12 nm	< 36 nm	< 80 nm
Resolution — dynamic [2]	< 50 nm	< 125 nm	< 250 nm
Measuring rate	continuously adjustable from 100 Hz to 8 kHz		
Linearity [3] — Displacement and distance	< ±0.5 μm	< ±1.5 μm	< ±3.0 μm
Linearity [3] — Thickness	< ±1.0 μm	< ±3.0 μm	< ±6.0 μm
Light source	internal white LED		
Permissible ambient light	30,000 lx		
Light spot diameter [4]	12 μm	18 μm	24 μm
Measuring angle [5]	±25°	±20°	±10°
Numerical aperture (NA)	0.45	0.35	0.18
Target material	Glass, reflecting or diffuse surfaces		
Supply voltage	24 VDC ±10 %		
Power consumption	approx. 4 W (24 V)		
Signal input	2x encoders (A+, A-, B+, B-, index) 2x HTL/TTL multifunction inputs: trigger in, slave in, zero setting, mastering, teach; 1x RS422 synchronization input: trigger in, sync in, master/slave, master/slave alternating		
Digital interface	EtherCAT / RS422		
Analog output	4 … 20 mA / 0 … 5 V / 0 ... 10 V (16 bit D/A converter)		
Switching output	Error1-Out, Error2-Out		
Digital output	sync out		
Connector	12-pin. M12 plug for supply, encoder, Ethernet and sync 17-pin M12 plug for I/O analog and encoder optional extension to 3 m / 6 m / 9 m / 15 m (see accessories for suitable connection cables)		
Mounting	radial clamping, threaded hole, mounting adapter (see accessories)		
Temperature range — Storage	-20 … +70 °C		
Temperature range — Operation	+5 … +50 °C		
Shock (DIN EN 60068-2-27)	15 g / 6 ms in XY axis, 1000 shocks each		
Vibration (DIN EN 60068-2-6)	2 g / 20 … 500 Hz in XY axis, 10 cycles each		
Protection class (DIN EN 60529)	IP65 (front)		
Material	Aluminum housing, passive cooling		
Weight	approx. 490 g	approx. 490 g	approx. 490 g
Control and indicator elements	Correct button: interfaces selection, two adjustable functions and reset to factory settings after 10 s; 4x color LEDs for Intensity, Range, RUN and ERR		

All data at constant ambient temperature (24 ± 2 °C)
[1] Average from 512 values at 1 kHz, in the mid of the measuring range onto optical flat
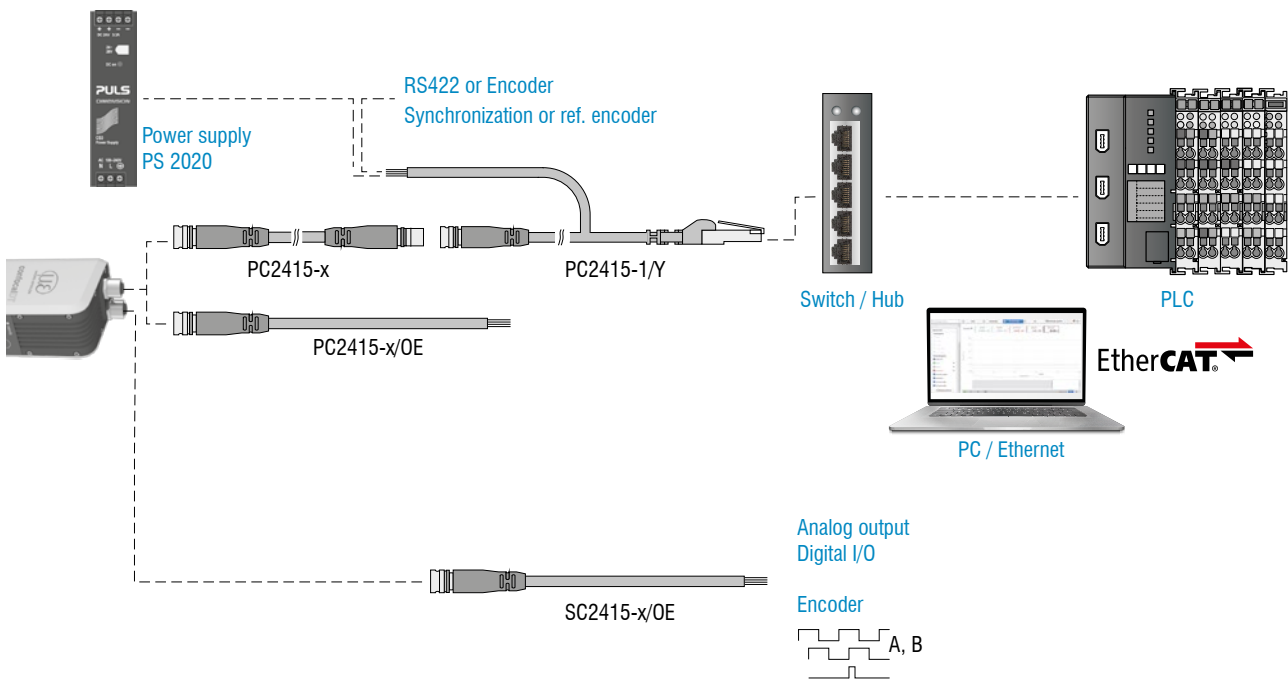[2] RMS noise relates to mid of measuring range (1 kHz)
[3] Maximum deviation from reference system over the entire measuring range, measured on front surface of ND filter
[4] In the mid of the measuring range
[5] Maximum sensor tilt angle that produces a usable signal on polished glass (n = 1.5) in the mid of the measuring range. The accuracy decreases when approaching the limit values.

Cable concepts for every application

The connection options are diverse and can be adapted to your plant or machine concept.

Power supply
PS 2020

RS422 or Encoder
Synchronization or ref. encoder

PC2415-x

PC2415-1/Y

Switch / Hub

PLC

PC2415-x/OE

PC / Ethernet

EtherCAT.

Analog output
Digital I/O

Encoder

A, B

SC2415-x/OE

PC2415-x / PC2415-x/OE		
Minimum bending radius (mm)	static	R55
	dynamic	R55
	drag chain	R88
Length		3 m / 6 m / 9 m / 15 m

PC2415-1/Y		
Minimum bending radius (mm)	static	R55
	dynamic	R55
Length		1 m

SC2415-x/OE		
Minimum bending radius (mm)	static	R35
	dynamic	R70
	drag chain	R83
Length		3 m / 6 m / 9 m / 15 m

Accessories: Sensor mounting adapter

MA2400 for IFD2410 sensors (consisting of mounting block and mounting ring)

Mounting block

20
10
30
13
30
23
7

Mounting ring

20
ø46
ø27
19.75

MA 2400-27
for sensors
IFD2410
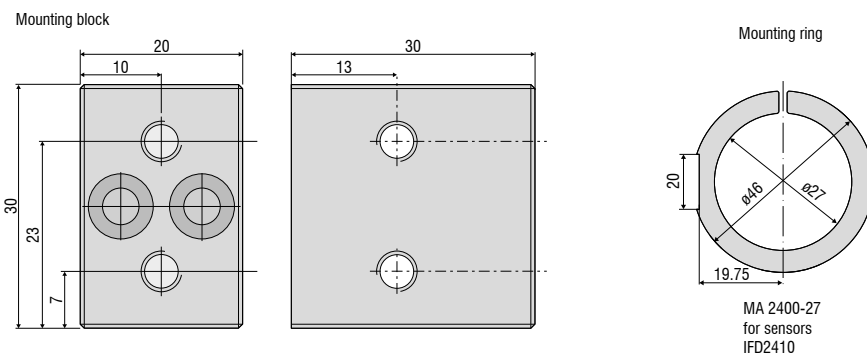
Dimensions in mm, not to scale

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