









More Precision

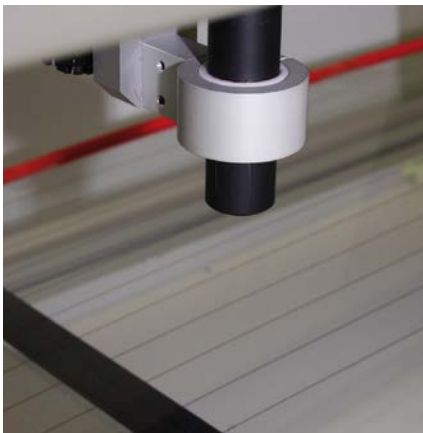
confocalDT // Confocal chromatic measurement system





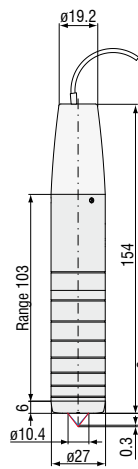
-  **Robust sensors for various applications**
-  **One-sided thickness measurement**
-  **Distance measurement**
-  **Extremely small spot size**
-  **Submicrometer resolution**
-  **Passive design without electronic components**

The confocal sensors of the IFS2405 series are designed for measurement tasks where high accuracy is required. These sensors stand out due to their high sensitivity. The large tilt angle and the relatively large offset distance enable a great variety of applications. As well as distance measurements on reflecting or transparent surfaces, the sensor can also be applied in one-sided thickness measurement of transparent film, plates or layers.

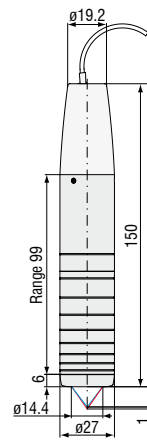


Thickness measurement of rear windows

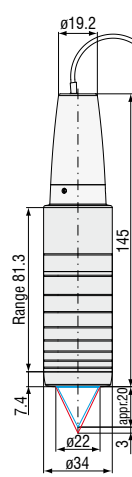
IFS2405-0.3



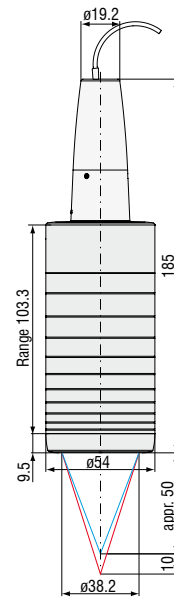
IFS2405-1



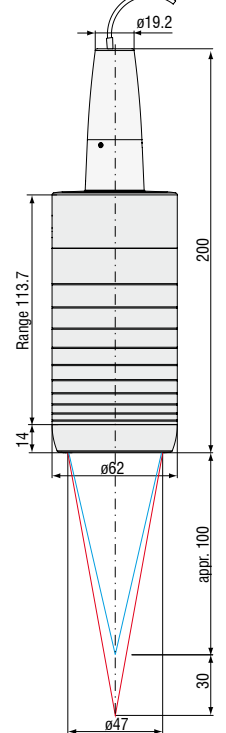
IFS2405-3



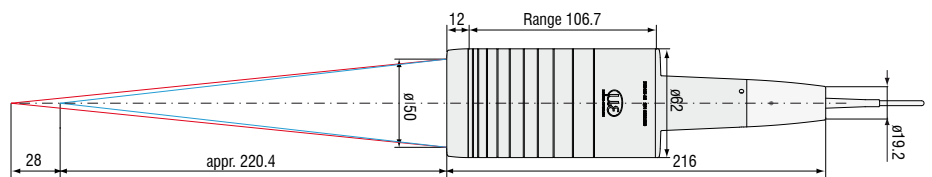
IFS2405-10



IFS2405-30



IFS2405-28



Sensor model	IFS 2405-0,3	IFS 2405-1	IFS 2405-3	IFS 2405-10	IFS 2405-28	IFS 2405-30
Measuring range	0.3mm	1mm	3mm	10mm	28mm	30mm
Start of measuring range approx.	6mm	10mm	20mm	50mm	220mm	100mm
Spot diameter	6 μ m	8 μ m	9 μ m	16 μ m	60 μ m	50 μ m
Linearity (displacement and distance measurement)	0.15 μ m	0.25 μ m	0.75 μ m	2.5 μ m	7 μ m	7.5 μ m
	± 0.05 % FSO	± 0.025 % FSO				
Linearity (thickness measurement)	0.3 μ m	0.5 μ m	1.5 μ m	5 μ m	14 μ m	15 μ m
	± 0.1 % FSO	± 0.05 % FSO				
Resolution ¹⁾	10nm	28nm	36nm	60nm	250nm	180nm
Weight (without cable)	140g	125g	225g	500g	750g	730g
Max. tilt ²⁾	$\pm 34^\circ$	$\pm 30^\circ$	$\pm 24^\circ$	$\pm 17^\circ$	$\pm 5^\circ$	$\pm 9^\circ$
Protection class	IP65, front					
Operating temperature	+5 ... +70 °C					
Storage temperature	-20°C ... +70°C					
Sensor cable (optical fiber)	length: standard 3m; option up to 50m; bending radius: static 30mm; dynamic 40mm					
Shock	15g, 6ms					
Vibration	2g / 10Hz ... 500Hz					

FSO = full scale output

All data at constant ambient temperature (25 \pm 2°C) against optical flat; specifications can change when measuring different materials.

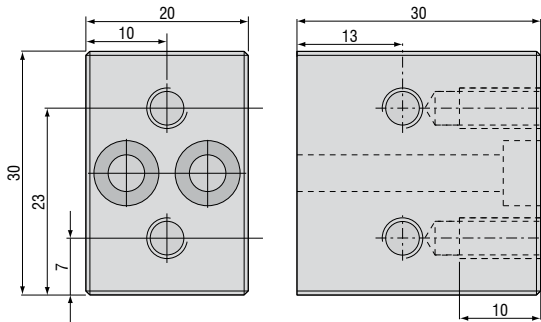
¹⁾ Average from 512 values at 1kHz, near to the midrange

²⁾ Maximum sensor tilt angle that produces a usable signal, near to the midrange

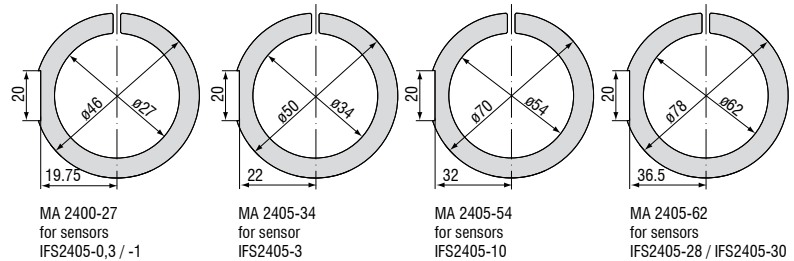
Accessories: mounting adapter

MA2400 for sensors 2405 (consisting of a mounting block and a mounting ring)

mounting block



mounting ring



System design

The confocalDT 247x system consists of:

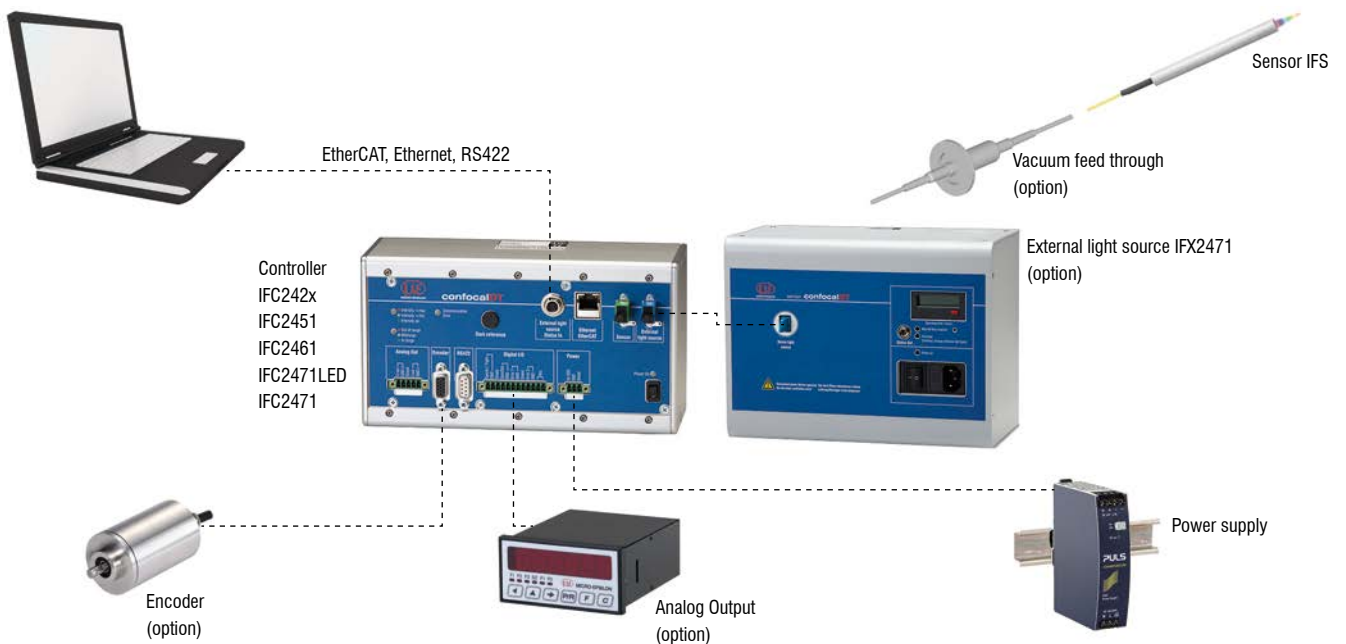
- Sensor IFS240x
- Controller IFC242x

The confocalDT 2451 / 2461 / 2471 HS system consists of:

- Sensor IFS240x
- Controller IFC2451 / IFC2461 / IFC2471LED

The confocalDT 2471 system consists of:

- Sensor IFS240x
- Controller IFC2471 (for external light source)
- Xenon light source IFX2471



Customer-specific modifications

On occasions, application requirements exceed the performance limits of standard sensors and controllers. To facilitate such special tasks it is possible to customize the sensor design and to adjust the controller accordingly. Common requests for modifications include changes in design, mounting options, customized cable lengths and modified measuring ranges.

Possible modifications

- Sensors with connector
- 90° cable outlet
- Vacuum suitability, no outgassing, also UHV
- Reduced sensor length
- Customer-specific mounting options
- Extended sensor lance
- Optical filter for ambient light compensation
- Housing material



Accessories

Software

IFD24n1-Tool Free demo software tool included

Light source accessories

IFX2471/Xe/75 External Xenon light source for IFC2471 controller (70 kHz)
 IFX2471/Xe/75 Lamp module for IFX2471
 IFL2451/LE Lamp module for IFC2451
 IFL2451/LED(003) Lamp module for IFC2451(003) with cooling element
 CL2471-1/Xe Light source cable, 1m

Accessories IFS2406

C2401-X (01) Optical fiber $\varnothing 26\mu\text{m}$ (3m, 10m)

Accessories IFS2405

C2401-X Optical fiber (3m, 10m, customer-specific length up to 50m)
 C2401/PT-X Protection tube for mechanical stress
 (3m, 10m, customer-specific length up to 50m)
 C2401-3(10) Sensor cable for drag chain use, 3m
 C2401-5(10) Sensor cable for drag chain use, 5m

Accessories IFS2402/2403

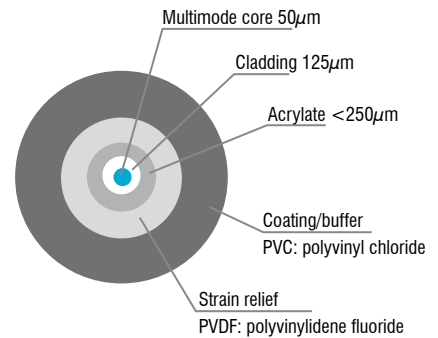
CE2402-X Sensor cable extension (3/10/13/30/50m)
 CE2402-X/PT Sensor with protection tube (for mechanical stress)
 (3m/10m, customer-specific length up to 50m)
 C2402/Vac/KF16 Vacuum feed through for optical fiber, 1 channel
 C2405/Vac/6/CF63 Vacuum feed through for optical fiber, 6 channels
 C2405/Vac/9/CF63 Vacuum feed through for optical fiber, 9 channels

Other accessories

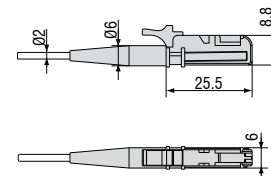
SC2471-3/USB/IND Connector cable IFC2451/61/71, 3m
 SC2471-3/IF2008 Connector cable IFC2451/61/71-IF2008, 3m
 SC2471-3/CSP Connector cable IFC2451/61/71-CSP2008, 3m
 SC2471-10/IF2008 Connector cable IFC2451/61/71-IF2008, 10m
 SC2471-10/CSP Connector cable IFC2451/61/71-CSP2008, 10m
 SC2471-10/USB/IND Connector cable IFC2451/61/71, 10m
 SC2471-20/USB/IND Connector cable IFC2451/61/71, 20m
 PS2020 Power supply 24V / 2.5A
 EC2471-3/OE Encoder cable, 3m

Optical fiber

Temperature range : -50°C to 90°C
 Bending radius: 30/40mm



E2000/APC standard connector



High performance sensors made by Micro-Epsilon



Sensors and systems for displacement and position



Sensors and measurement devices for non-contact temperature measurement



2D/3D profile sensors (laser scanner)



Optical micrometers, fiber optic sensors and fiber optics



Color recognition sensors, LED analyzers and color inline spectrometer



Measurement and inspection systems