MICRO-EPSILON

More Precision

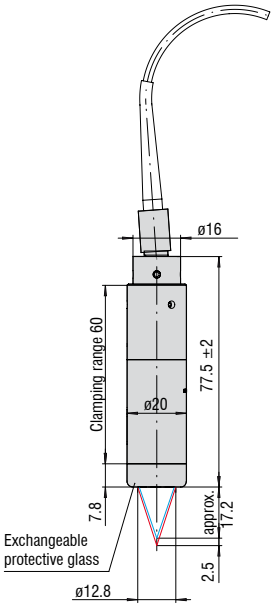
confocalDT // Confocal chromatic measurement system

- Sensors with axial or radial beam path
- One-sided thickness measurement
- Distance measurement
- Extremely small spot size
- Submicrometer resolution
- Optional for vacuum applications

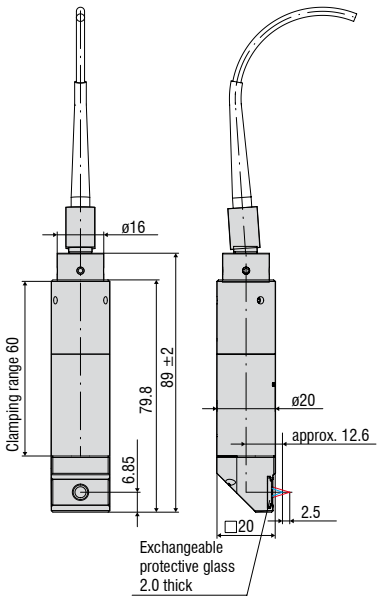
The IFS2406 series stands out due to its compact design and high precision. Due to its axial and radial measuring directions, the confocal sensor is suitable for vacuum applications and is extremely versatile in terms of its use.

As well as distance measurements for reflective and transparent surfaces, the sensor can also be used for one-sided thickness measurement of transparent film, plates or layers.

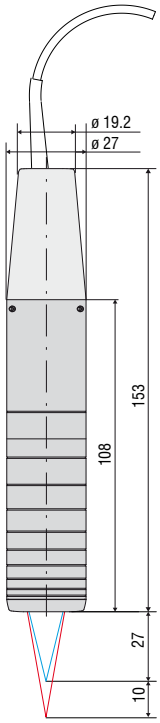
IFS2406-2.5/VAC(001)



IFS2406/90-2.5/VAC(001)



IFS2406-10



Sensor model	IFS 2406-2,5/VAC(001)	IFS 2406/90-2,5/VAC(001)	IFS 2406-10
Measuring range	2.5mm	2.5mm	10mm
Start of measuring range approx.	17.2mm measured from protective glass frame	12.6mm measured from sensor axis	27mm
Spot diameter	10µm	10µm	15µm
Linearity (displacement and distance measurement)	0.75µm	0.75µm	2.5µm
	±0.03% FSO		≤± 0.025 % FSO
Linearity (thickness measurement)	1.5µm	1.5µm	5µm
	±0.06 % FSO		±0.05 % FSO
Resolution [1]	24nm	24nm	60nm
Weight (without cable)	105g	130g	128g
Max. tilt [2]	± 16°	± 16°	± 13.5°
Protection class	IP40, vacuum suitability		IP65
Operating temperature	+5 °C … +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		

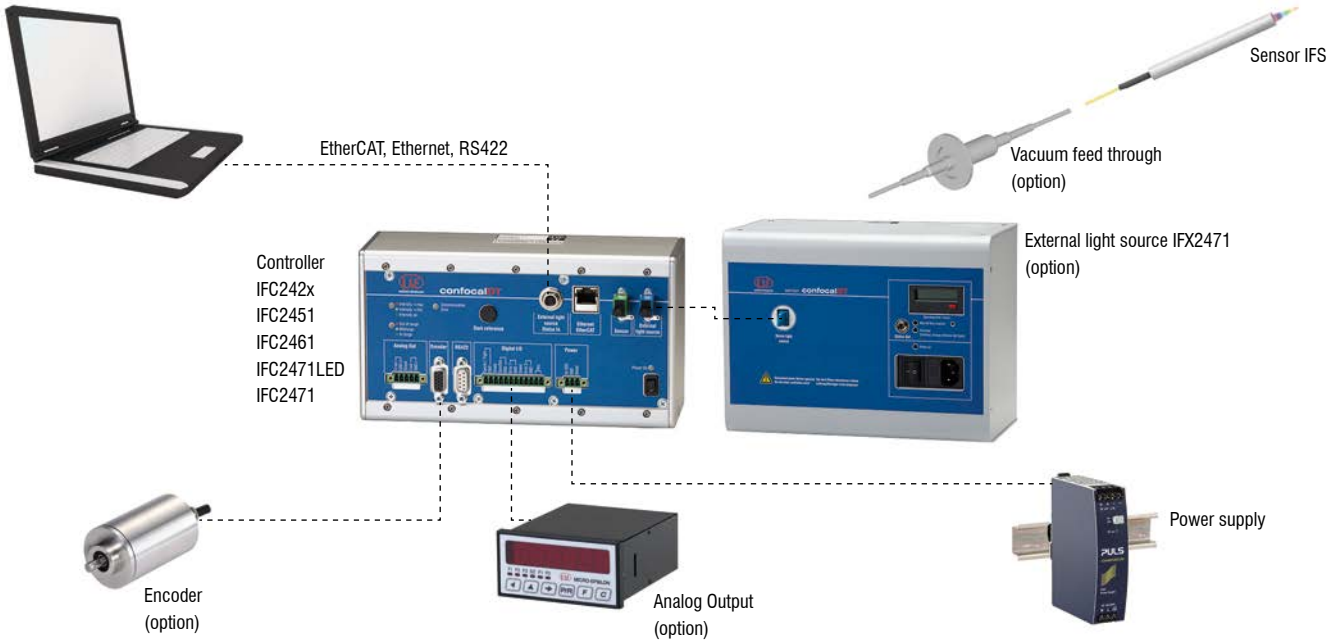
FSO = full scale output
All data at constant ambient temperature (25±2°C) against optical flat; specifications can change when measuring different materials.
[1] Average from 512 values at 1kHz, near to the midrange
[2] Maximum sensor tilt angle that produces a usable signal, near to the midrange

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 ø26µm (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

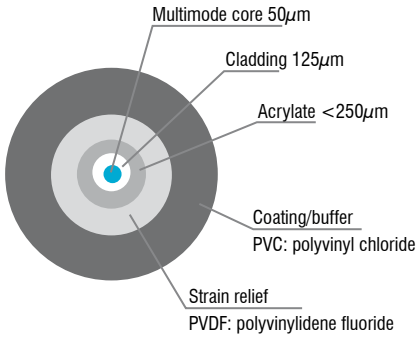
CE2402-X	Sensor cable extension (3/10/13/30/50m)
CE2402-X/PT	Sensor with protection tube (for mechanical stress) (3m/10m, customer-specific length up to 50m)
C2402/Vac/KF16	Vacuum feed through for optical fiber, 1 channel
C2405/Vac/6/CF63	Vacuum feed through for optical fiber, 6 channels
C2405/Vac/9/CF63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

Other accessories

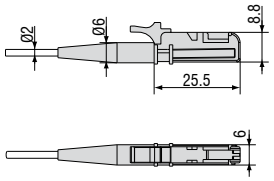
SC2471-3/USB/IND	Connector cable IFC2451/61/71, 3m
SC2471-3/IF2008	Connector cable IFC2451/61/71-IF2008, 3m
SC2471-3/CSP	Connector cable IFC2451/61/71-CSP2008, 3m
SC2471-10/IF2008	Connector cable IFC2451/61/71-IF2008, 10m
SC2471-10/CSP	Connector cable IFC2451/61/71-CSP2008, 10m
SC2471-10/USB/IND	Connector 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

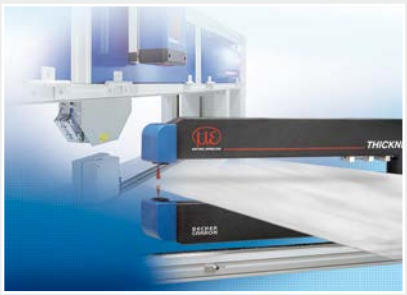
Sensors and systems for displacement and position

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

Modifications reserved / Y9761149-M061107GKE

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