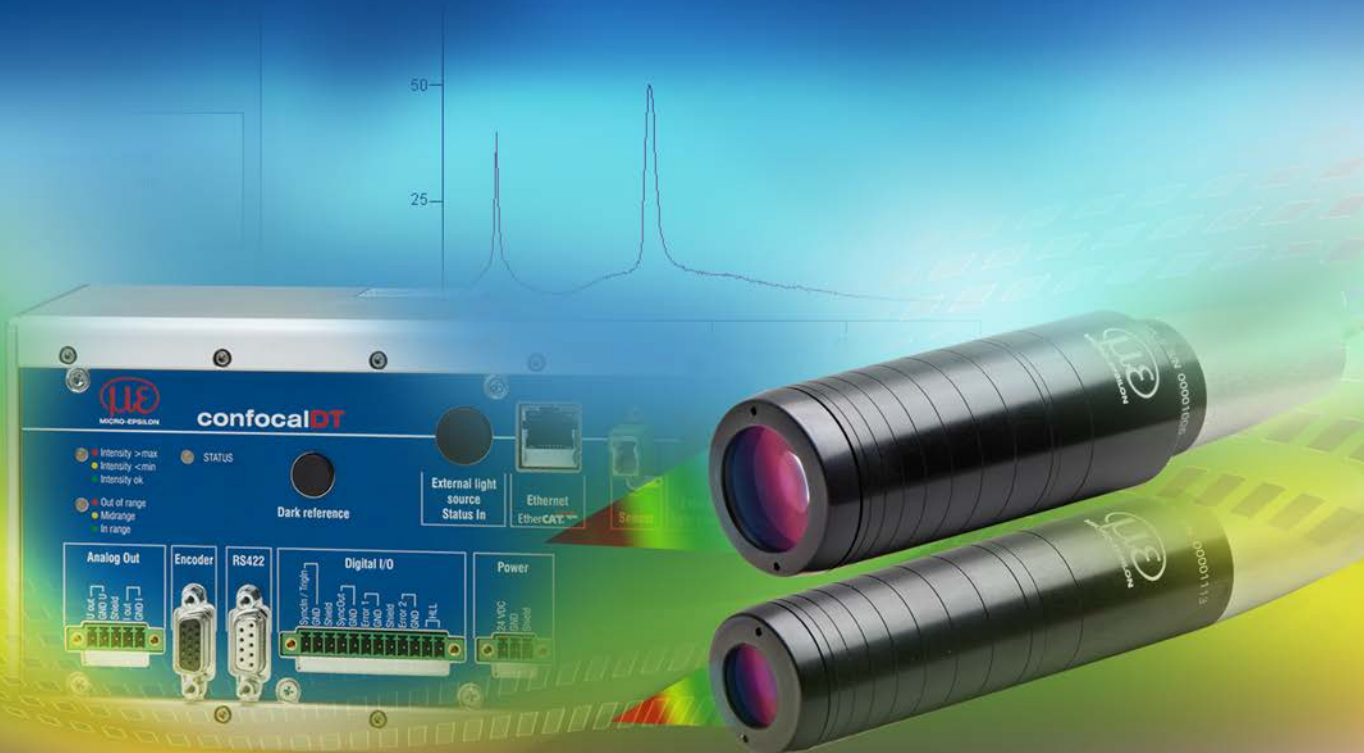




More Precision

confocalDT // Confocal chromatic measurement system

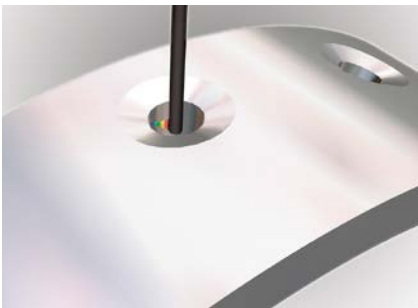




| | |
|--|---|
| | Hybrid sensors $\varnothing 8\text{mm}$ with axial or radial (90°) measuring direction |
| | Submicrometer resolution |
| | One-sided thickness measurement of transparent material |
| | Displacement and position measurement |
| | Tiny spot size |
| | Suited for hazardous areas |

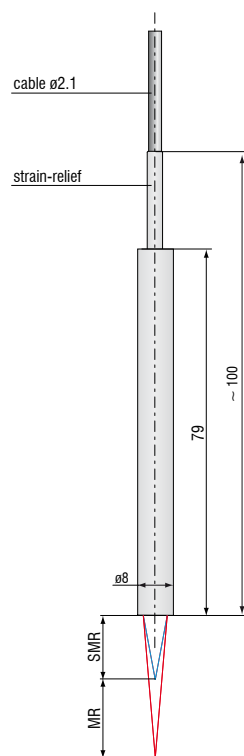
The combination of a gradient index lens (GRIN lens) with a relay lens represents a favorable compromise between the IFS2401 standard sensors and the IFS2402 miniature sensors. The sensors of the IFS2403 series with an external diameter of 8mm can still be used for precise measurement in relatively tight installation situations. Due to the larger numerical aperture in comparison with the IFS2402, significantly larger offset and steeper tilt angles can be realized than for the miniature sensors.

Sensors with axial measuring direction and sensors with 90° beam exit are available, which can measure radially in small cavities and bores.

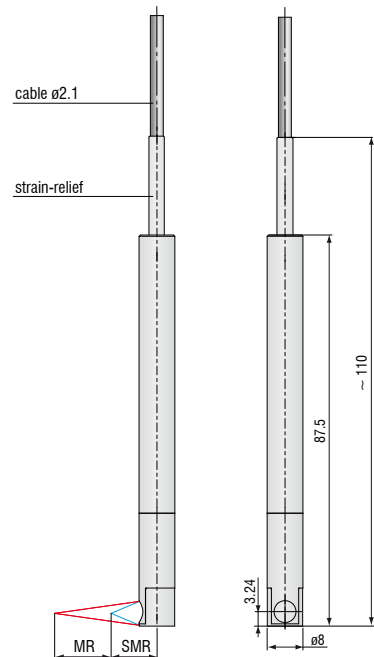


Measurement in bores with IFS2403/90 sensors

IFS2403-0.4/1.5/4/10



IFS2403/90-1.5/4/10



Tolerance $\pm 0.1\text{ mm}$
 MR = Measuring Range SMR = Start of Measuring Range Dimensions in mm.

| Sensor model (GRIN lens with relay optics) | IFS 2403-0.4 | IFS 2403-1.5 | IFS 2403/90-1.5 | IFS 2403-4 | IFS 2403/90-4 | IFS 2403-10 | IFS 2403/90-10 |
|--|--|--------------|---------------------|------------|--------------------|--------------|---------------------|
| Measuring range | 400µm | 1.5mm | 1.5mm | 4mm | 4mm | 10mm | 10mm |
| Start of measuring range | appr. 2.5mm | 8.0mm | 4.9mm ¹⁾ | 14.7mm | 12mm ¹⁾ | 11mm | 8.6mm ¹⁾ |
| Spot diameter | 9µm | 15µm | 15µm | 28µm | 28µm | 56µm | 56µm |
| Linearity (displacement measurement) | 0.3µm | 1.2µm | 1.2µm | 3µm | 3µm | 20µm | 20µm |
| | ≤ ±0.08 % FSO | | | | | ≤ ±0.2 % FSO | |
| Linearity (thickness measurement) | 0.6µm | 2.4µm | 2.4µm | 6µm | 6µm | 40µm | 40µm |
| | ≤ ±0.16 % FSO | | | | | ≤ ±0.4 % FSO | |
| Resolution ²⁾ | 16nm | 60nm | 60nm | 0.2µm | 0.1µm | 0.25µm | 0.25µm |
| Weight | 25g | | | | | | |
| Max. tilt (direct reflexion) | ±13° | ±16° | ±16° | ±6° | ±6° | ±6° | ±6° |
| Protection class | IP 40 | | | | | | |
| Operation temperature | +5 ... +70 °C | | | | | | |
| Storage temperature | -30 ... +70°C | | | | | | |
| Sensor cable (fibre optic cable) | length: integral cable 2m; option up to 50m; bending radius: static 30mm; dynamic 40mm | | | | | | |
| Shock | 15g, 6ms | | | | | | |
| Vibration | 2g / 10Hz ... 500Hz | | | | | | |

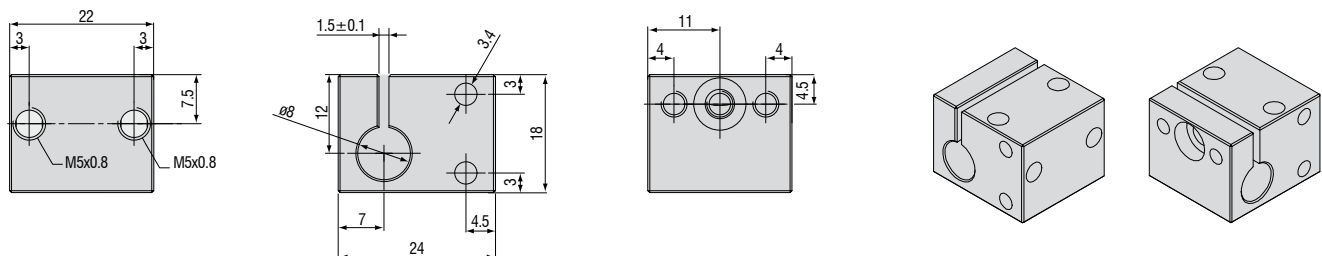
FSO = Full Scale Output

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

¹⁾ Distance from sensor axis

²⁾ Averaging factor 512

Accessories: mounting adapter MA2403 for sensors 2403



Accessories

Software

IFD24n1-Tool Free demo software tool included in delivery

Accessories light source

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

Accessories IFS2405

C2401-X Fibre optical cable (3m, 10m, customer specific length up to 50m)
 C2401/PT-X Armored cable (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 Extension for fibre optical cable (3/10/13/30/50m)
 CE2402-X/PT Sensor with armored cable
 (3/10m, customer specific length up to 50m)
 C2402/Vac/KF16 Vacuum feedthrough, 1 channel
 C2405/Vac/6/CF63 Vacuum feedthrough, 6 channel
 C2405/Vac/9/CF63 Vacuum feedthrough, 9 channel

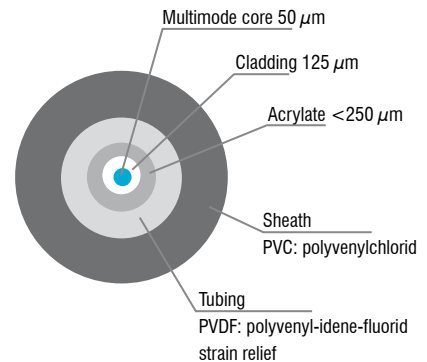
Accessories

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 24 V / 2,5 A
 EC2471-3/OE Encoder cable, 3 m

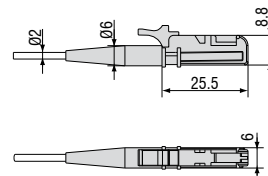
Fibre optic

Temperature range : -50°C - 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, fibre optic sensors and fibre optics



Colour recognition sensors, LED analyzers and colour online spectrometer



Measurement and inspection systems



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