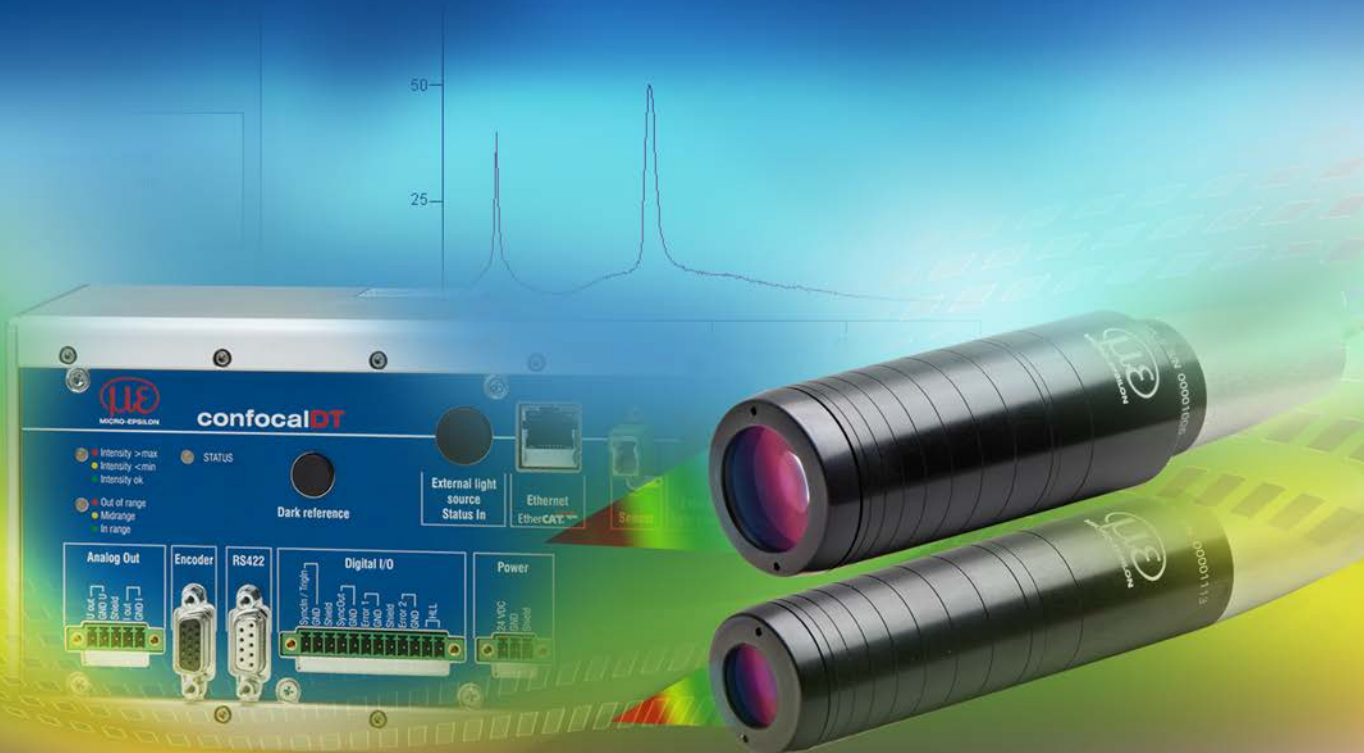




# More Precision

**confocalDT** // Confocal chromatic measurement system





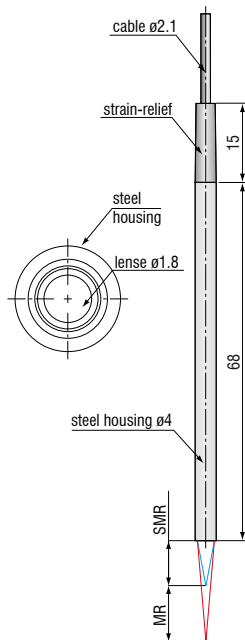
	<b>Miniature sensors <math>\varnothing 4\text{mm}</math> with axial or radial (<math>90^\circ</math>) measuring direction</b>
	<b>Submicrometer resolution</b>
	<b>Displacement and position measurement</b>
	<b>Tiny spot size</b>
	<b>Suited for hazardous areas</b>

The miniaturised series optoNCDT 2402 offers all advantages of the confocal measurement principle, with only 4mm outer diameter. Due to a unique and patented lens design, this compact sensor allows measuring in narrow cavities and bores. Sensors with axial measuring direction and sensors with  $90^\circ$  beam exit are available, which can measure radially in small cavities and bores. For mounting in magnetic environments sensors with titanium housing are available.



Diameter measurement in small bores with IFS2402/90 sensors

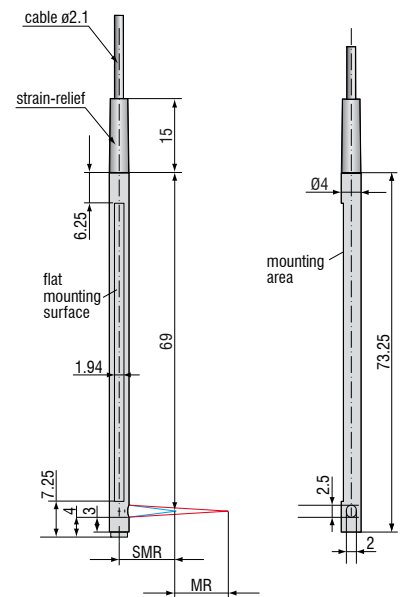
IFS2402-0.4/1.5/4/10



Tolerance  $\pm 0.1\text{mm}$

MR= Measuring Range SMR = Start of Measuring Range Dimensions in mm.

IFS2402/90-1.5/4/10



Sensor model (miniature)	IFS2402-0,4	IFS2402-1,5	IFS2402/90-1,5	IFS2402-4	IFS2402/90-4	IFS2402-10	IFS2402/90-10
Measuring range	400µm	1.5mm	1.5mm	3.5mm	2.5mm	6.5mm	6.5mm
Start of measuring range	approx. 1.5mm	0.9mm	2.5mm <sup>1)</sup>	1.9mm	2.5mm <sup>1)</sup>	2.5mm	3.5mm <sup>1)</sup>
Spot diameter	10µm	20µm	20µm	20µm	20µm	100µm	100µm
Linearity	~0.3µm	1.2µm	1.2µm	~3µm	2µm	13µm	13µm
	≤ ±0.08 % FSO				≤ ±0.2 % FSO		
Resolution <sup>2)</sup>	16nm	60nm	60nm	0.1µm	0.1µm	0.25µm	0.25µm
Weight	15g						
Max. tilt (direct reflexion)	±8°	±5°	±5°	±3°	±3°	±1.5°	±1.5°
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						

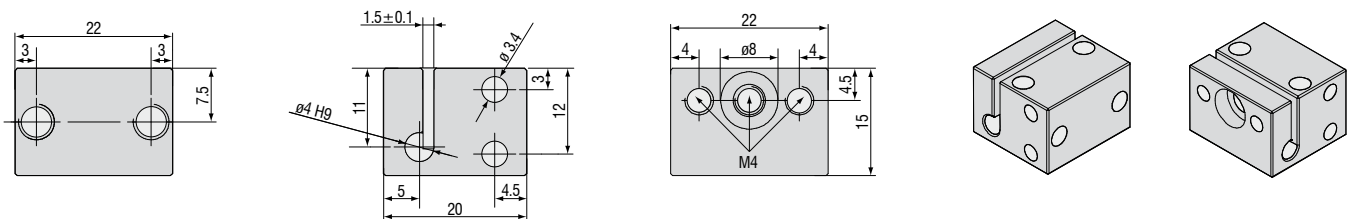
FSO = Full Scale Output

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

<sup>1)</sup> Distance from sensor axis

<sup>2)</sup> Averaging factor 512

#### Accessories: mounting adapter MA2402 for sensors 2402



## 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

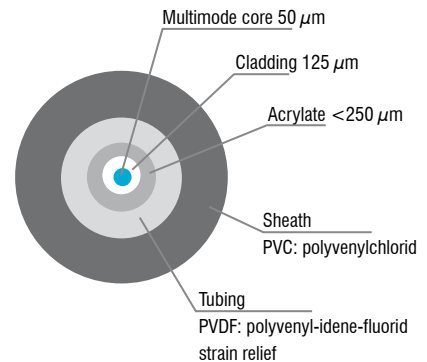
### Accessories

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

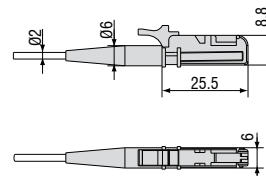
### Fibre optic

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



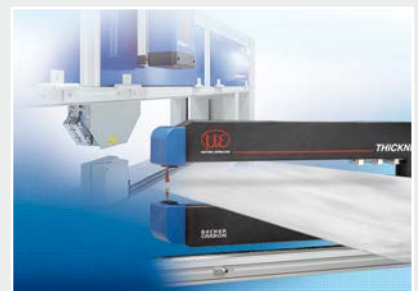
2D/3D profile sensors (laser scanner)



Optical micrometers, fibre optic sensors and fibre optics



Colour recognition sensors, LED analyzers and colour online spectrometer



Measurement and inspection systems

**SCIENCE  
GATE**  
Your Automation Partner



### SCIGATE AUTOMATION (S) PTE LTD

No. 1 Bukit Batok Street 22 #01-01 Singapore 659592

Tel: (65) 6561 0488

Fax: (65) 6562 0588

Email: sales@scigate.com.sg

Web: www.scigate.com.sg

Business Hours: Monday - Friday 8.30am - 6.15pm



MICRO-EPSILON Headquarters  
Koenigbacher Str. 15 · 94496 Ortenburg / Germany  
Tel. +49 (0) 8542 / 168-0 · Fax +49 (0) 8542 / 168-90  
info@micro-epsilon.com · [www.micro-epsilon.com](http://www.micro-epsilon.com)

MICRO-EPSILON UK Ltd.  
No.1 Shorelines Building · Shore Road · Birkenhead · CH41 1AU  
Phone +44 (0) 151 355 6070 · Fax +44 (0) 151 355 6075  
info@micro-epsilon.co.uk · [www.micro-epsilon.co.uk](http://www.micro-epsilon.co.uk)