










# More Precision

**confocalDT** // Confocal chromatic measuring system



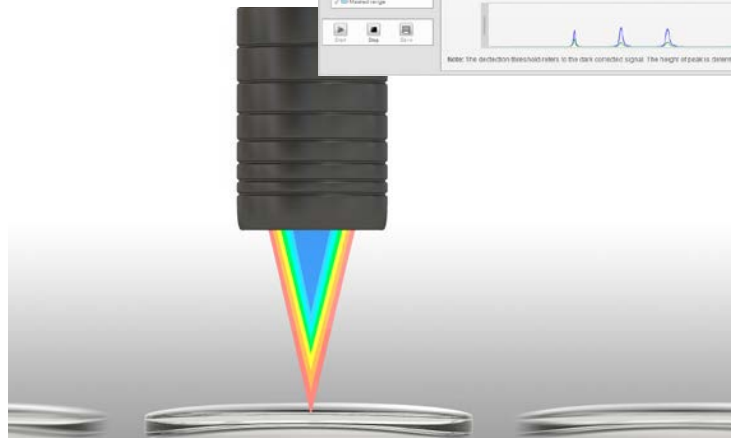
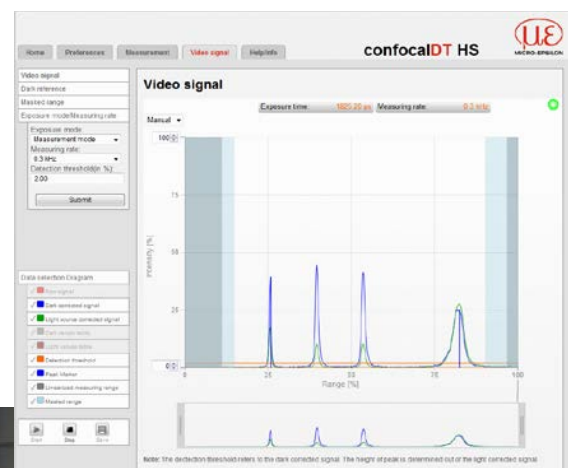



-  **70kHz**  
Fastest controller worldwide:  
Measuring rate up to 70kHz
-  **INTERFACE**  
Interfaces: Ethernet / EtherCAT /  
RS422 / Analog
-  **Fast surface compensation**
-  **Configuration via web interface**
-  **Submicrometer resolution**
-  **Multi-layer thickness measurement**
-  **Robust design with passive cooling**

The confocalDT 2471 HS controllers are used for fast distance and thickness measurements of highly reflecting and specular surfaces. The controllers are equipped with enhanced optical components enabling measuring rates up to 70kHz on reflecting surfaces without having to use an external light source. The confocalDT HS controllers are considered one of the fastest confocal measuring systems in the world. The active exposure regulation feature for the CCD line enables accurate, fast surface compensation on changing surfaces during dynamic measurement processes.

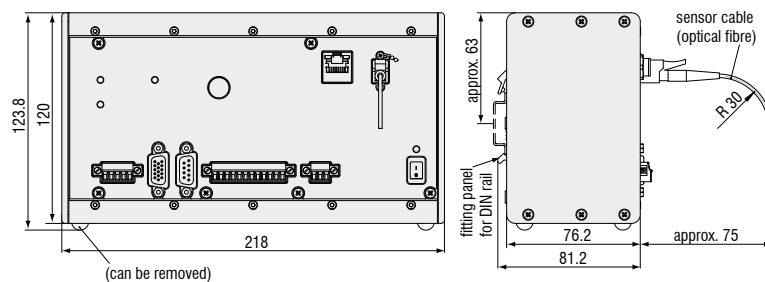
The controller can be operated with any IFS sensor and is available as a standard version for distance measurements or as a multi-peak version for thickness measurements.

Due to a user-friendly web interface, the entire configuration process of controller and sensors is carried out without using any additional software. Data output is via Ethernet, EtherCAT, RS422 or analog output.



Controller		IFC2471LED	IFC2471MP LED
Multi peak measurement		2 peaks	up to 6 peaks
Light source		internal white LED	
Measuring rate		continuously adjustable from 100 Hz to 70 kHz	
Resolution	Ethernet/EtherCAT	1 nm	
	RS422	16 bit	
	analog	16 bit (teachable)	
Storage		up to 20 calibration tables for different sensors per channel, menu selection	
Controller inputs/outputs		Sync-In/Trig-In, Sync-Out Error1-Out, Error2-Out encoder (3x A, B, Index) EtherCAT/Ethernet RS422 analog: current, voltage (16 bit D/A converter)	
EtherCAT			
Operating elements, controller display		On/Off switch; button for dark alignment (as well as for reset to factory setting after 10 sec) 4x LED for intensity, range, status, supply voltage	
Supply voltage, power consumption		24 VDC $\pm$ 15 %, approx. 10 W	
Material		aluminum case for DIN rail mounting	
Protection class		IP40	
Temperature range	Operation	+5 ... +50 °C	
	Storage	-20 ... +70 °C	
Permissible ambient light		30,000 lx	
Shock		15 g, 6 ms	
Vibration		2 g / 10 Hz ... 500 Hz	
Connection	Cable (optical fiber)	2 ... 50 m	
	Connector	E2000	
	EtherCAT, Ethernet	CAT5E; cable length < 100 m	
Max. cable lengths (all cables are shielded)	Supply, RS422, Sync./error	< 30 m	
	analog	< 30 m	
	Encoder	< 3 m	

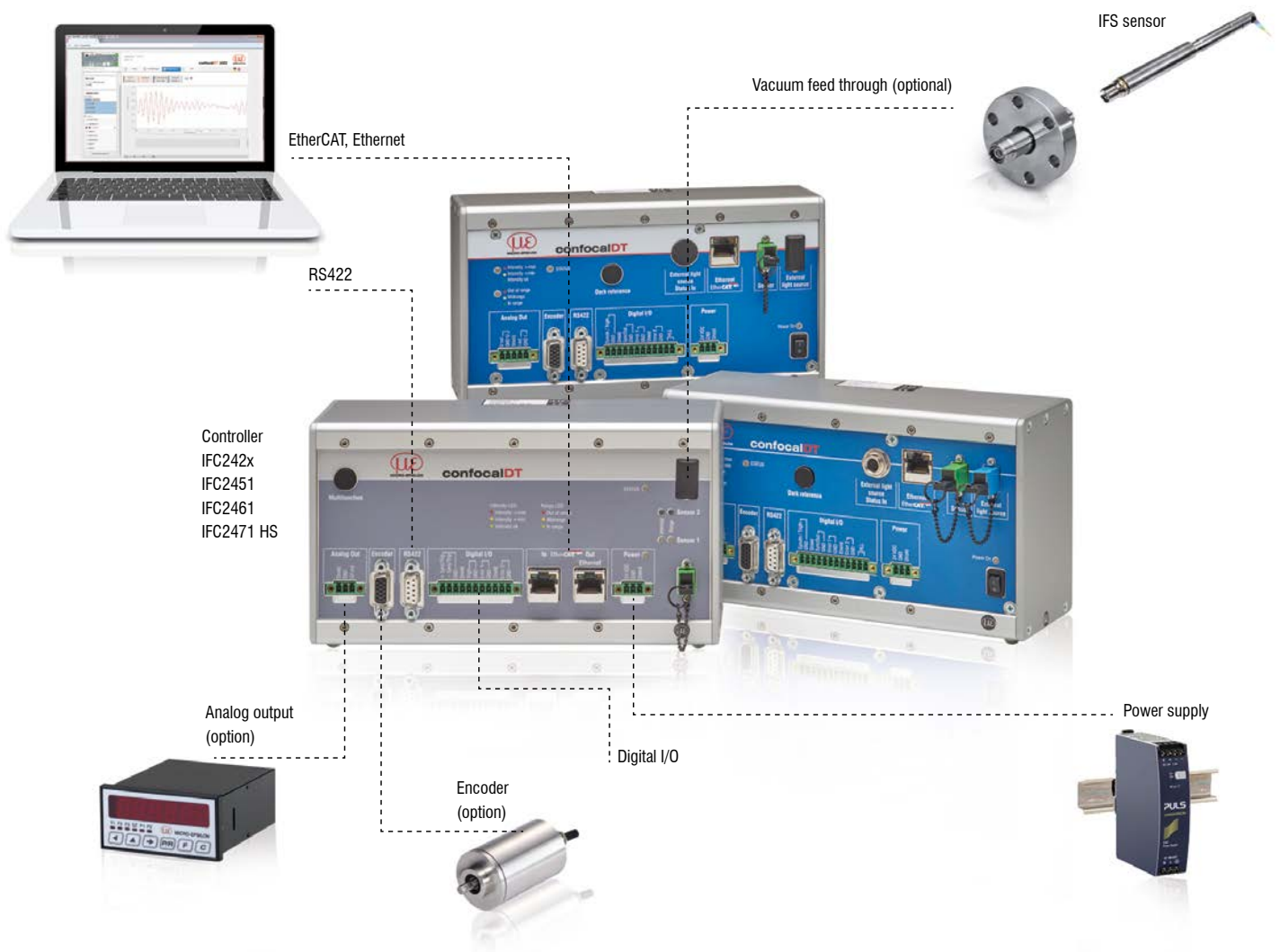
Controller IFC2471 LED



## System design

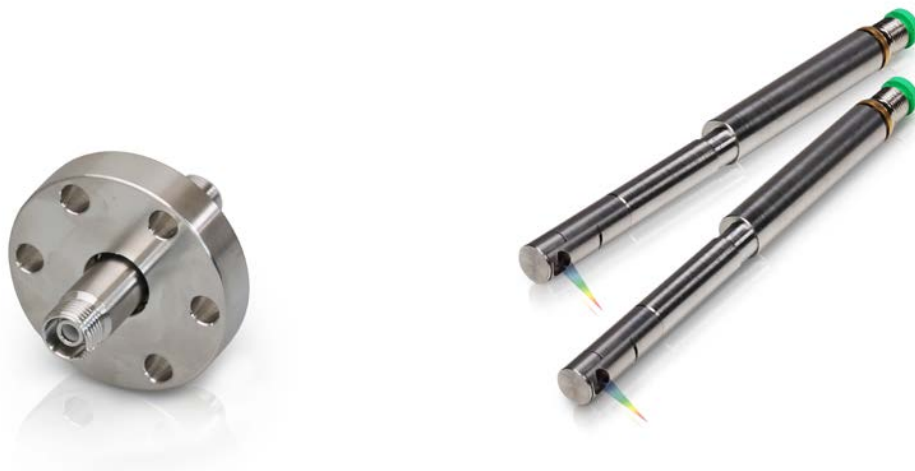
The confocalDT system consists of:

- Sensor IFS240x
- Controller IFC24xx
- Fiber-optic cable



### Customer-specific modifications

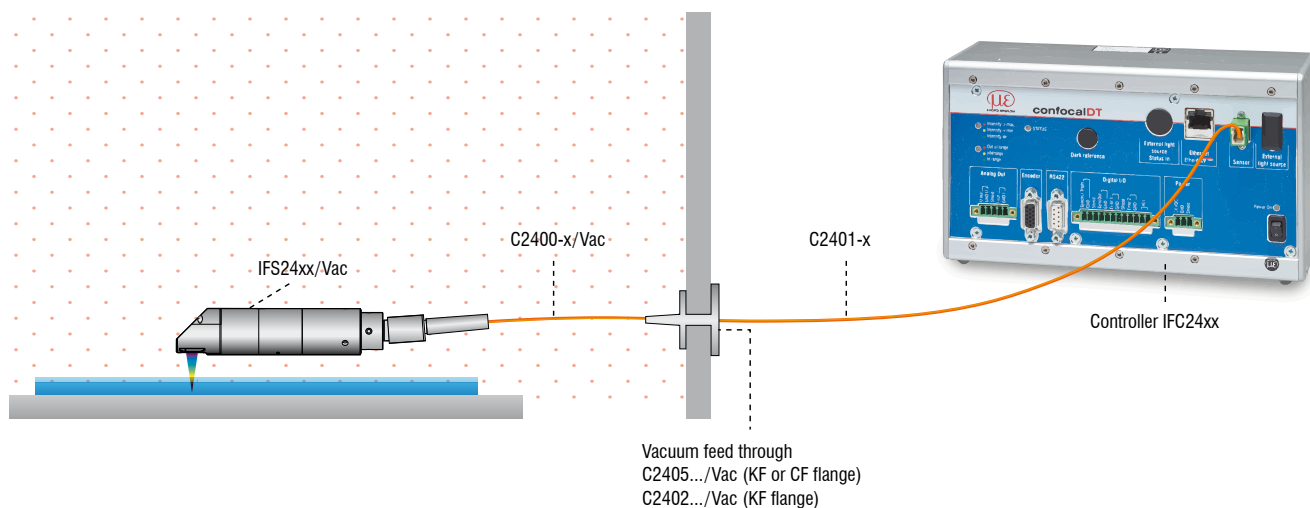
Application examples are often found where the standard versions of the sensors and the controller are performing at their limits. To facilitate such special tasks it is possible to customize the sensor design and to adjust the controller accordingly. Common requests for modifications include changes in design, mounting options, customized cable lengths and modified measuring ranges.



### Possible modifications

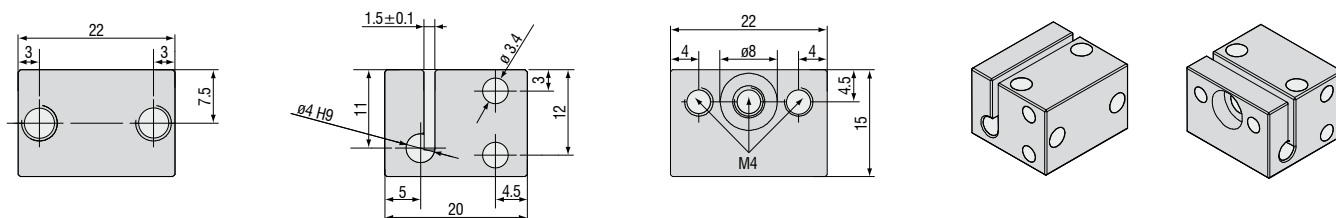
- Sensors with connector
- Cable length
- Vacuum suitability until UHV
- Specific lengths
- Customer-specific mounting options
- Optical filter for ambient light compensation
- Housing material
- Measuring range / offset distance

### Vacuum setup

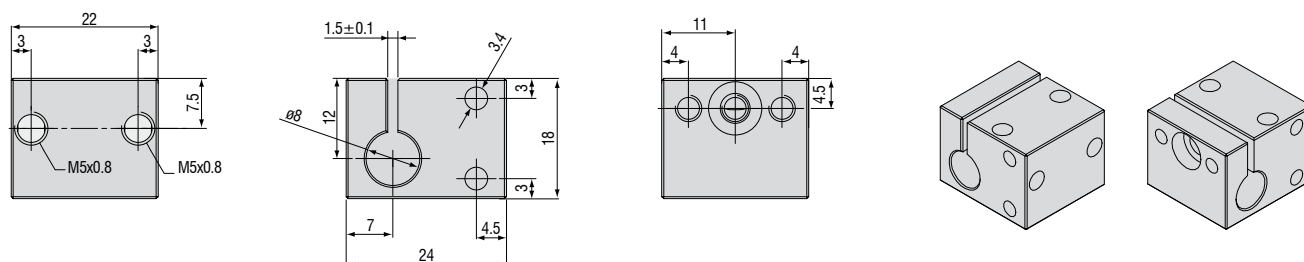


**Accessories: mounting adapter**

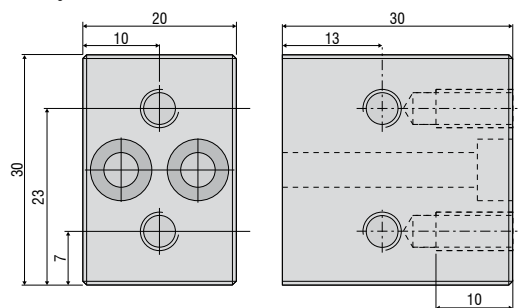
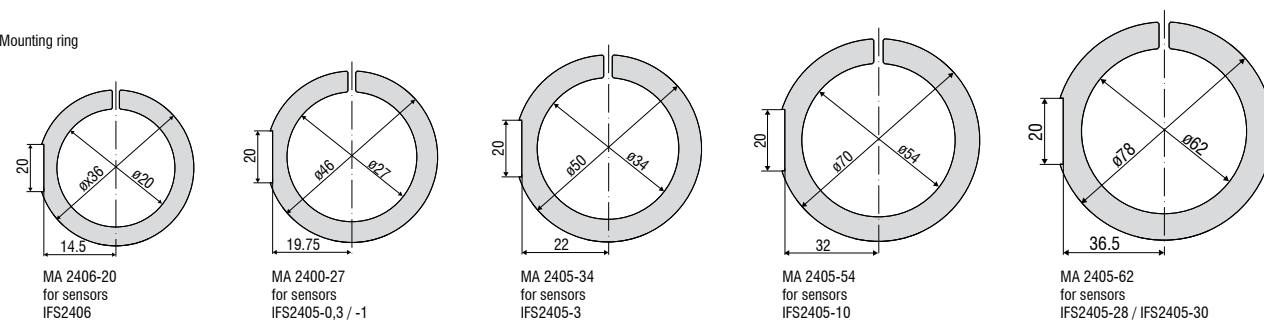
MA2402 for sensors 2402

**Accessories: mounting adapter**

MA2403 for sensors 2403

**Accessories: mounting adapter**

MA2400 for sensors IFS2405/IFS2406 (consisting of a mounting block and a mounting ring)

**Mounting block****Mounting ring**



## Accessories

### Software

IFD24n1-Tool Free demo software tool included

### Accessories light source

IFL2422/LE Lamp module for IFC2422  
 IFL24x1/LED Lamp module for IFC24x1  
 IFL2451/LED(003) Lamp module for IFC2451(003)

### Cables for IFS2402/IFS2403 sensors

CE2402 cable with 2x E2000/APC connectors  
 CE2402-x Extension for optical fiber (3 m, 10 m, 13 m, 30 m, 50 m)  
 CE2402-x/PT Optical fiber with protection tube for mechanical stress  
 (3 m, 10 m, customer-specific length up to 50 m)

### Cables for IFS2405/IFS2406 sensors

C2401 cable with FC/APC and E2000/APC connectors  
 C2401-x Optical fiber (3 m, 5 m, 10 m, customer-specific length up to 50 m)  
 C2401/PT-x Optical fiber with protection tube for mechanical stress  
 (3 m, 5 m, 10 m, customer-specific length up to 50 m)  
 C2401-x (01) Optical fiber core diameter 26  $\mu\text{m}$  (3 m, 5 m, 15 m)  
 C2401-x(10) Drag-chain suitable optical fiber (3 m, 5 m, 10 m)

### C2400 cable with 2x FC/APC connectors

C2400-x Optical fiber (3 m, 5 m, 10 m, customer-specific length up to 50 m)  
 C2400/PT-x Optical fiber with protection tube for mechanical stress  
 (3 m, 5 m, 10 m, customer-specific length up to 50 m)  
 C2400/PT-x-Vac Optical fiber with protection tube suitable for use in vacuum  
 (3 m, 5 m, 10 m, customer-specific length up to 50 m)

### Cable for IFS2407 sensors

C2404-x Optical fiber with DIN connector and E2000/APC (2 m, 5 m)

### Vacuum feed through

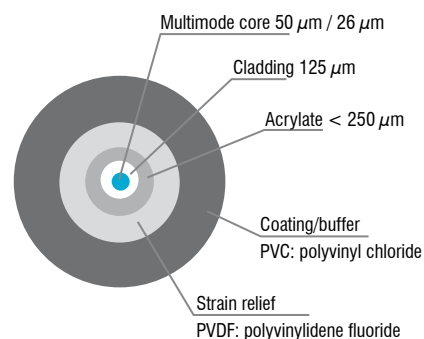
C2402/Vac/KF16 Vacuum feed through with optical fiber, 1 channel, vacuum side FC/APC  
 non-vacuum side E2000/APC, clamping flange KF 16  
 C2405/Vac/1/KF16 Vacuum feed through on both sides FC/APC socket, 1 channel,  
 clamping flange type KF 16  
 C2405/Vac/1/CF16 Vacuum feed through on both sides FC/APC socket, 1 channel,  
 flange type CF 16  
 C2405/Vac/6/CF63 Vacuum feed through FC/APC socket, 6 channels,  
 flange type CF 63

### Other accessories

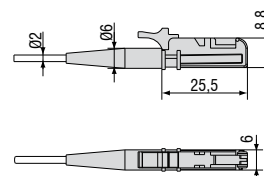
SC2471-x/USB/IND Connector cable IFC2451/61/71, 3 m, 10 m, 20 m  
 SC2471-x/IF2008 Connector cable IFC2451/61/71-IF2008, 3 m, 10 m, 20 m  
 PS2020 Power supply 24 V / 2.5 A  
 EC2471-3/OE Encoder cable, 3 m

### Optical fiber

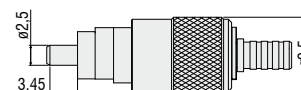
Temperature range : -50 °C to 90 °C  
 Bending radius: 30/40 mm



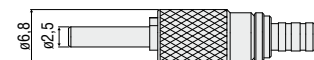
### E2000/APC standard connector



### FC/APC standard connector



### DIN 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