










# More Precision

**confocalDT** // Confocal chromatic measurement system





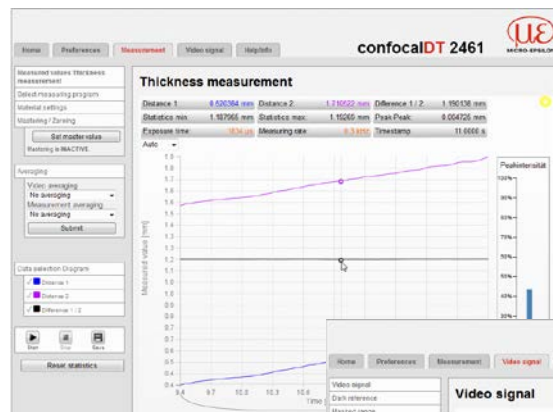
-  **Fast confocal controller: up to 25kHz**
-  **INTERFACE** Interfaces: Ethernet / EtherCAT / RS422 / Analog
-  **Fast surface compensation**
-  **Configuration via web interface**
-  **Submicrometer resolution**
-  **Multi-layer thickness measurement**
-  **Robust design with passive cooling**

confocalDT 2461 systems are used for complex distance and thickness measurements. The IFC2461 controller is equipped with enhanced, optimized optical components enabling measuring rates up to 25kHz without having to use an external light source. The high light intensity enables reliable measurements on difficult surfaces, e.g. on matt black objects or for multi-layer thickness measurement of glass.

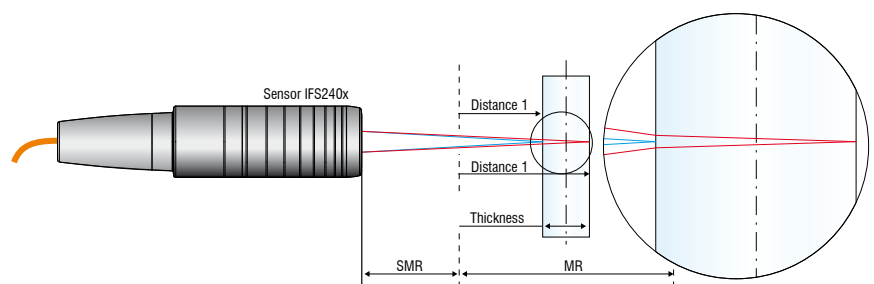
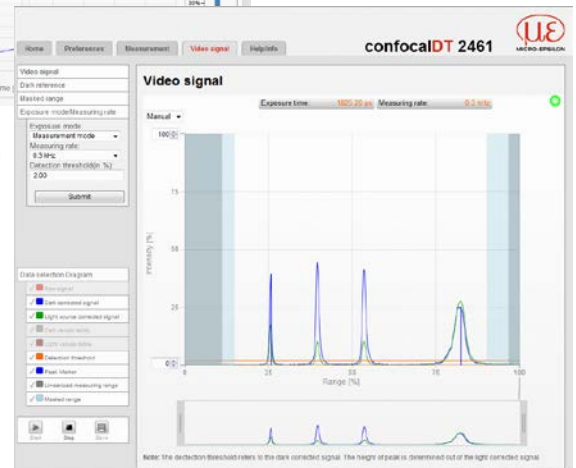
The active exposure regulation feature in the CCD array enables accurate, fast surface compensation on changing surfaces during dynamic measurement processes.


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.

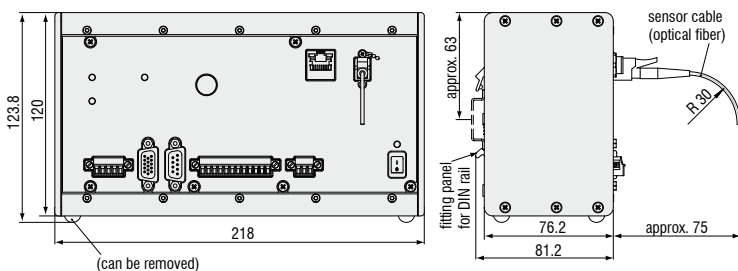


All settings are performed in the web interface. Materials are stored in an expandable materials database.



| Controller  |                                | IFC2461  | IFC2461MP     |
|---|--------------------------------|--|---------------|
| Multi peak measurement  |                                | 2 peaks  | up to 6 peaks |
| Light source  |                                | internal white LED   |               |
| Measuring rate  |                                | continuously adjustable from 100Hz to 25kHz  |               |
| Resolution  | Ethernet / EtherCAT            | 1nm  |               |
|   | RS422                          | 18bit  |               |
|   | analog                         | 16bit  |               |
| Storage   |                                | up to 20 calibration tables for different sensors, menu selection  |               |
| Controller inputs / outputs                                     |                                | sync-in / trigger-in, sync-out<br>error1-out, error2-out<br>encoder (3x A, B, Index)<br>EtherCAT/Ethernet<br>RS422<br>analog: current, voltage (16bit 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)<br>4x LED for intensity, range, status, supply voltage               |               |
| Supply voltage, power consumption                               |                                | 24VDC $\pm$ 15%, $\sim$ 10W  |               |
| Housing   |                                | Aluminum case for DIN rail mounting  |               |
| Protection class  |                                | IP40   |               |
| Operating temperature   |                                | 5 °C ... 50 °C   |               |
| Storage temperature   |                                | -20 °C ... 70 °C   |               |
| Permissible ambient light                                       |                                | 30,000lx   |               |
| Safety;<br>EMC interference emission<br>Interference resistance |                                | CE<br>EN 61 000-6-3 / DIN EN 61326-1 (class B)<br>EN 61 000-6-2 / DIN EN 61326-1   |               |
| Shock   |                                | 15g, 6ms   |               |
| Vibration   |                                | 2g / 10Hz ... 500Hz  |               |
| Optical fiber cable length                                      | Sensor                         | 2 ... 50m  |               |
|   | Connector                      | E2000  |               |
| Cable length<br>(all cables are shielded)                       | EtherCAT, Ethernet             | CAT5E; length <100m  |               |
|   | Supply, RS422, sync./<br>error | <30m   |               |
|   | analog                         | <30m   |               |
|   | Encoder                        | <3m  |               |

#### Controller IFC2461



## System design

### The confocalDT 247x system consists of:

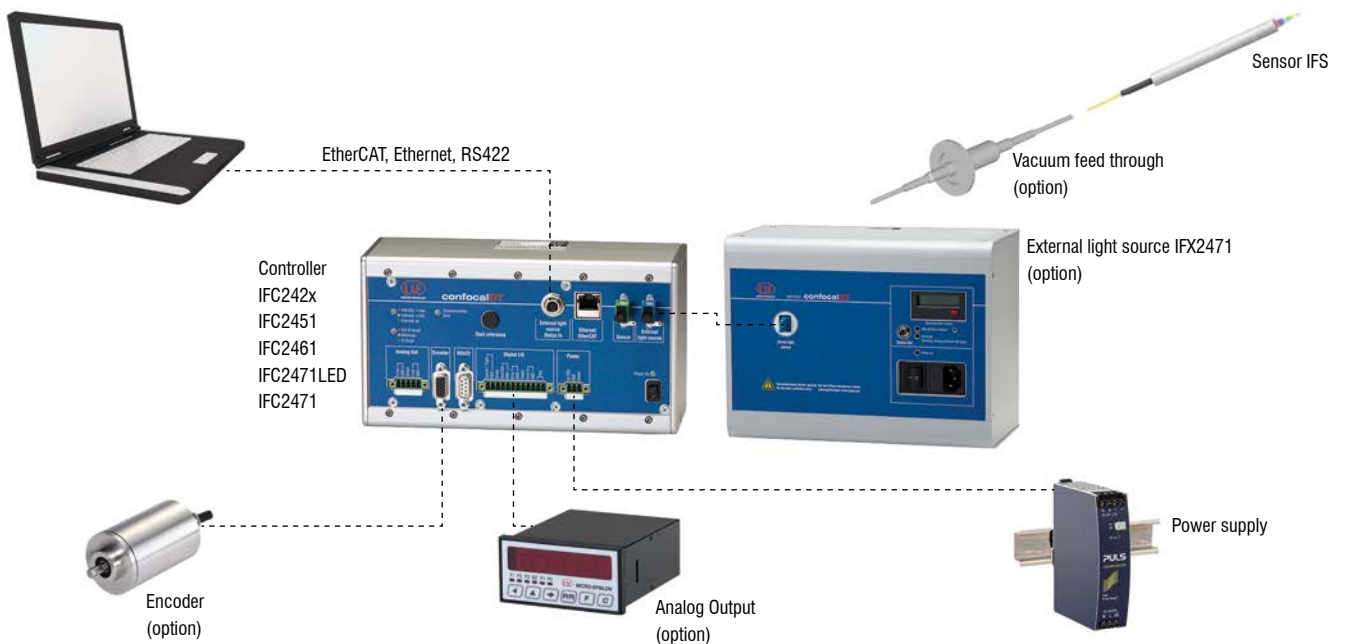
- Sensor IFS240x
- Controller IFC242x

### 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

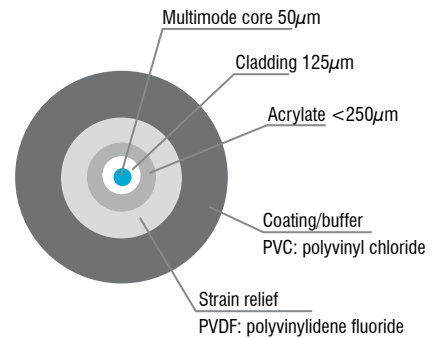
CE2402-X Sensor cable extension (3/10/13/30/50m)  
 CE2402-X/PT Sensor with protection tube (for mechanical stress)  
 (3m/10m, customer-specific length up to 50m)  
 C2402/Vac/KF16 Vacuum feed through for optical fiber, 1 channel  
 C2405/Vac/6/CF63 Vacuum feed through for optical fiber, 6 channels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

### Other accessories

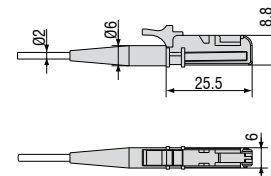
SC2471-3/USB/IND Connector cable IFC2451/61/71, 3m  
 SC2471-3/IF2008 Connector cable IFC2451/61/71-IF2008, 3m  
 SC2471-3/CSP Connector cable IFC2451/61/71-CSP2008, 3m  
 SC2471-10/IF2008 Connector cable IFC2451/61/71-IF2008, 10m  
 SC2471-10/CSP Connector cable IFC2451/61/71-CSP2008, 10m  
 SC2471-10/USB/IND 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 :  $-50^{\circ}\text{C}$  to  $90^{\circ}\text{C}$   
 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