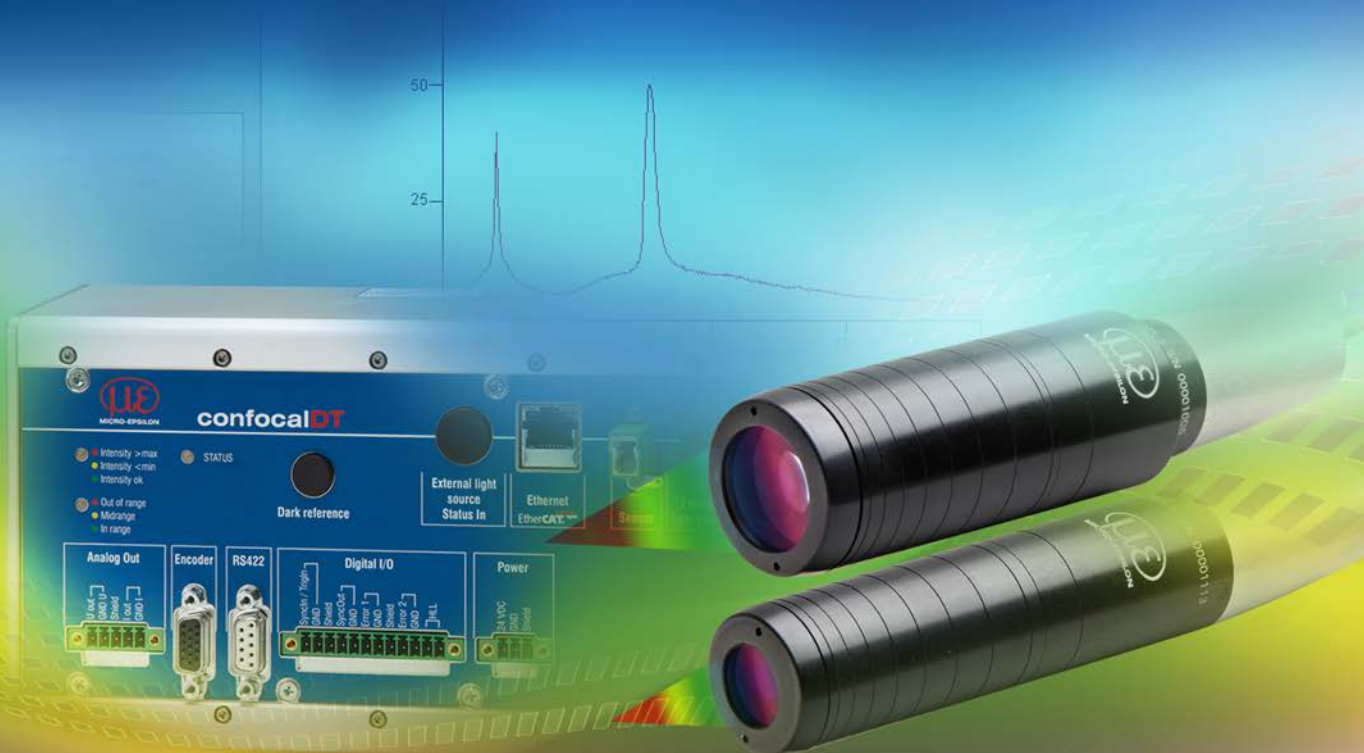




More Precision

confocalDT // Confocal chromatic measurement system





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

The new confocalDT 2451/2471 high precision controllers are the next generation of confocal chromatic measuring technology. Due to their excellent signal/noise ratio, these new models can achieve measuring rates of 10kHz with white light LEDs (IFC2451) and 70kHz (IFC2471) using an external Xenon light source.

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

Thanks to a user-friendly web interface, the entire configuration can be carried out without using any additional software. Data output is via Ethernet, EtherCAT, RS422 or analogue output.

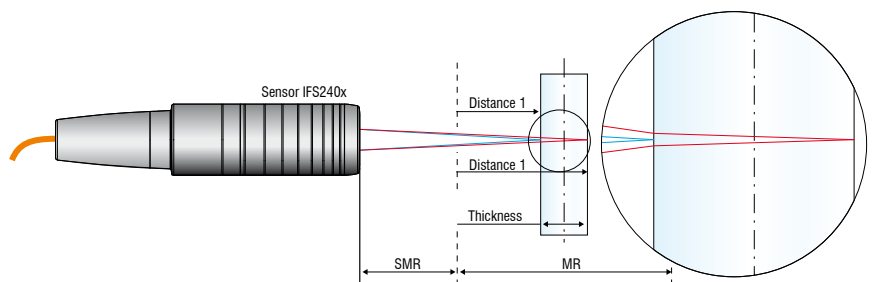
confocalDT 2451/2471 systems are used for complex distance and thickness measurements and can be used with any IFSsensor. Optical signals are transferred between sensor and controller via optical fibres.

Thickness
Difference 1 to 2: 1,73576 mm
Measuring rate: 10 kHz
Exposure time: 1482,0 µs



Material database

| Material name | Description | Refractive index n ₀ at 589nm | Refractive index n ₀ at 633nm | Refractive index n ₀ at 650nm | Abbe value v _d | Delete |
|---------------|--|--|--|--|---------------------------|--------------------------|
| Vacuum, air | Vacuum, Luft (unbestimmtes/ungefähr) | 1,000000 | 1,000000 | 1,000000 | | <input type="checkbox"/> |
| Water | Wasser | 1,337121 | 1,333044 | 1,331162 | | <input type="checkbox"/> |
| Ethanol | Alkohol (ethyl alcohol) | 1,361400 | 1,361400 | 1,361400 | | <input type="checkbox"/> |
| Acrylic | Acrylnitril, Härter, Lacke, Klebstoffe, Kleber, Klebmittel | 1,497528 | 1,491568 | 1,488528 | | <input type="checkbox"/> |
| PMMA | Polyethylmethacrylat, Plexiglas, Acrylglass (clear glass) | 1,497761 | 1,491756 | 1,489200 | | <input type="checkbox"/> |
| PMMA | Polyethylmethacrylat, ein Kunststoff (a plastic) | 1,534000 | 1,534000 | 1,534000 | | <input type="checkbox"/> |
| PS | Polystyrol, Styropor, ein Kunststoff (a plastic) | 1,504279 | 1,500481 | 1,500481 | | <input type="checkbox"/> |
| PC | Polycarbonat, Makrolon, Lexan, ein Kunststoff (a plastic) | 1,599429 | 1,595470 | 1,595664 | | <input type="checkbox"/> |
| Fused silica | Quarzglas, Silica | 1,463120 | 1,459464 | 1,459267 | | <input type="checkbox"/> |

All thickness measurement settings are configured through the web interface. A number of transparent materials are stored in the expandable materials database.

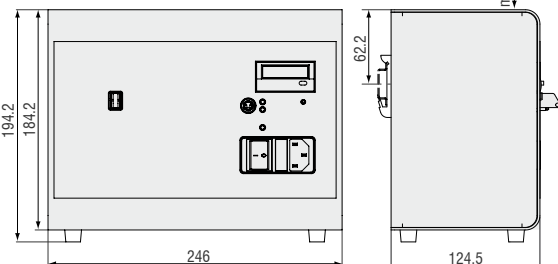
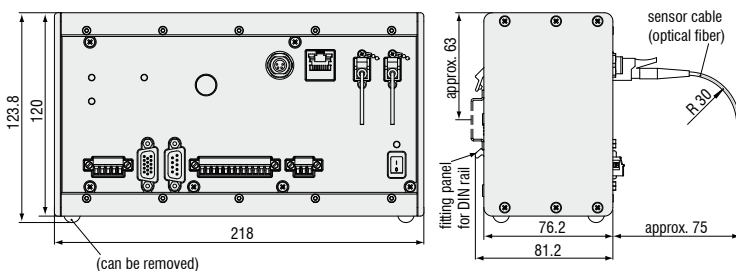


EtherCAT
Conformance tested
EtherCAT Conformance tested: IFC2451

| Controller | | IFC2451 | IFC2451MP | IFC2471 | IFC2471MP |
|--|--|--|---------------|---|---------------|
| Multi peak measurement | | 2 peaks | up to 6 peaks | 2 peaks | up to 6 Peaks |
| Light source | | internal white LED | | external xenon light source IFX2471 | |
| Measuring rate | | adjustable 10 / 5 / 2.5 / 1 / 0.3 / 0.2 / 0.1kHz | | adjustable 70 / 50 / 25 / 10 / 5 / 2.5 / 1 / 0.3kHz | |
| Resolution | | Ethernet / EtherCAT RS422 Analogue | | 1nm 18bit 16bit | |
| Storage | | up to 20 calibration tables for different sensors, menu selection | | | |
| Controller inputs / outputs | | sync-in / trigger-in, sync-out error1-out, error2-out encoder (3x A, B, Index) EtherCAT/Ethernet RS422 analogue: current, voltage (16bit D/A converter) | | sync-in / trigger-in, sync-out error1-out, error2-out encoder (3x A, B, Index) EtherCAT/Ethernet RS422 analogue: current, voltage (16bit D/A converter) IFX2471: temperature, light-bulb exchange | |
| EtherCAT | |  | |  | |
| Operating elements, controller display | | On/Off switch; Button for dark alignment (as well as for reset to factory setting after 10sec) 4x LED for intensity, range, status, supply voltage | | | |
| Supply voltage, power consumption | | controller 24VDC ±15%, ~10W | | external light source 24VDC ±15%, ~10W 90 ... 265VAC, ~100W | |
| Housing | | Aluminium case for DIN rail mounting | | | |
| Protection class | | IP40 | | | |
| Operating temperature | | controller 5 °C ... 50 °C | | external light source 5 °C ... 50 °C 5 °C ... 40 °C | |
| Storage temperature | | -20 °C ... 70 °C | | | |
| Permissable ambient light | | 30,000lx | | | |
| Safety; EMC | | CE EN 61 000-6-3 / DIN EN 61326-1 (class B) EN 61 000-6-2 / DIN EN 61326-1 | | | |
| Shock | | 15 g, 6ms | | | |
| Vibration | | 2g / 10Hz ... 500Hz | | | |
| Optical fibre cable length | | sensor 2 ... 50m | | xenon light source - 1m | |
| Cable length (all cables are shielded) | | connector E2000 | | EtherCAT, Ethernet CAT5E; length <100m | |
| | | supply, RS422, sync./ error <30m | | | |
| | | analogue <30m | | | |
| | | encoder <3m | | | |

Controller IFC2451/2471

Xenon light source IFX2471



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

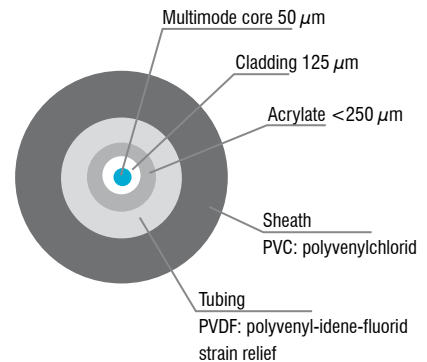
CE2402-X Extension for fibre optical cable (3/10/13/30/50m)
 CE2402-X/PT Sensor with armored cable
 (3/10m, customer specific length up to 50m)
 C2402/Vac/KF16 Vacuum feedthrough, 1 channel
 C2405/Vac/6/CF63 Vacuum feedthrough, 6 channel
 C2405/Vac/9/CF63 Vacuum feedthrough, 9 channel

Accessories

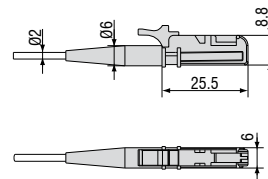
SC2471-3/USB/IND Connector cable IFC2451/61/71, 3m
 SC2471-3/IF2008 Connector cable IFC2451/61/71-IF2008, 3m
 SC2471-3/CSP Connector cable IFC2451/61/71-CSP2008, 3m
 SC2471-10/IF2008 Connector cable IFC2451/61/71-IF2008, 10m
 SC2471-10/CSP Connector cable IFC2451/61/71-CSP2008, 10m
 SC2471-10/USB/IND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