More Precision

confocalDT // Confocal chromatic measuring system
Confocal chromatic sensors confocalDT IFS2404

Model IFS2404-2

<table>
<thead>
<tr>
<th>Description</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring range</td>
<td>2 mm</td>
</tr>
<tr>
<td>Start of measuring range</td>
<td>approx.</td>
</tr>
<tr>
<td>Resolution</td>
<td>14 mm</td>
</tr>
<tr>
<td>Resolution 1)</td>
<td>40 nm</td>
</tr>
<tr>
<td>Linearity 2)</td>
<td>displacement and distance</td>
</tr>
<tr>
<td>Linearity 2)</td>
<td>Thickness</td>
</tr>
<tr>
<td>Light spot diameter</td>
<td>10 µm</td>
</tr>
<tr>
<td>Max. tilt angle</td>
<td>± 12°</td>
</tr>
<tr>
<td>Numerical aperture</td>
<td>0.25</td>
</tr>
<tr>
<td>Connection</td>
<td>pluggable optical fiber via FC socket, type C2404-x; standard length 2 m; extension up to 50 m; bending radius: static 30 mm; dynamic 40 mm</td>
</tr>
<tr>
<td>Mounting</td>
<td>Clamping; mounting adapter (see accessories)</td>
</tr>
<tr>
<td>Temperature range</td>
<td></td>
</tr>
<tr>
<td>Storage</td>
<td>-20…+70 °C</td>
</tr>
<tr>
<td>Operation</td>
<td>+5…+70 °C</td>
</tr>
<tr>
<td>Shock (DIN-EN 60068-2-27)</td>
<td>15 g / 6 ms in XY axes / 1000 shocks per axis</td>
</tr>
<tr>
<td>Vibration (DIN-EN 60068-2-6)</td>
<td>2 g / 20 Hz … 500 Hz in XY axes / 10 cycles per axis</td>
</tr>
<tr>
<td>Protection class (DIN-EN 60529)</td>
<td>IP65, front operated</td>
</tr>
<tr>
<td>Material</td>
<td>stainless steel housing, glass lenses</td>
</tr>
<tr>
<td>Weight</td>
<td>20 g</td>
</tr>
</tbody>
</table>

1) Average from 512 values at 1 kHz, near to the midrange onto optical flat.
2) All data at constant ambient temperature (25±1 °C) against optical flat; specifications can change when measuring different materials.
3) Maximum sensor tilt angle that produces a usable signal on reflecting surfaces. The accuracy decreases when approaching the limit values.

Dimensions in mm, not to scale
The confocalDT system consists of:
- Sensor IFS240x
- Controller IFC24xx
- Fiber optic cable C24xx
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 up to UHV
- Specific lengths
- Customer-specific mounting options
- Optical filter for ambient light compensation
- Housing material
- Measuring range / Offset distance

Vacuum setup

IFS24xx/Vac
C2400-x/Vac
C2401-x
Vacuum feed through
C2405.../Vac (KF or CF flange)
C2402.../Vac (KF flange)

Controller IFC24xx
Accessories: mounting adapter
MA2402 for sensors IFS2402

Accessories: mounting adapter
MA2403 for sensors IFS2404

Accessories: mounting adapter
MA2404-12 for sensors IFS2404-2

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

Mounting block

Mounting ring

MA 2406-20 for sensors IFS2405
MA 2400-27 for sensors IFS2405-0,3 / -1

MA 2405-34 for sensors IFS2405-3

MA 2405-40 for sensors IFS2405-6

MA 2405-54 for sensors IFS2405-10

MA 2405-62 for sensors IFS2405-28 / IFS2405-30
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)

Cable extension for 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  Extension for optical fiber with protection tube for mechanical stress
(3 m, 10 m, customer-specific length up to 50 m)

Cable for IFS2404 sensors
C2404-x (01)  Optical fiber core diameter 20 µm (2 m)

Cables for IFS2405/IFS2406/2407-0,1 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 µm (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 IFS2407/90-0,3 sensors
C2407-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 24V / 2.5A
EC2471-3/OE  Encoder cable, 3m

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

[Diagram of optical fiber components: Multimode core 50 µm / 26 µm / 20 µm, Coating/buffer, PVC: polyvinyl chloride, Casing 125 µm, Acrylate <250 µm, PVDF: polyvinylidene fluoride, Strain relief]

[Diagram of connectors: E2000/APC standard connector, FC/APC standard connector, DiN connector]
Sensors and Systems from Micro-Epsilon

- Sensors and systems for displacement, distance and position
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- Color recognition sensors, LED analyzers and inline color spectrometers
- 3D measurement technology for dimensional testing and surface inspection

MICRO-EPSILON USA
8120 Brownleigh Dr. · Raleigh, NC 27617 / USA
Phone +1/919/787-9707 · Fax +1/919/787-9706
me-usa@micro-epsilon.com · www.micro-epsilon.com