



More Precision

color**CONTROL** ACS7000 // Inline color measuring system





- Color measurement of structured, highly reflective surfaces and lustrous metals
- Measurement distance: 28mm / 27.5mm
- Measurement geometry: 45° circular / 0°
- Measurement spot: ø5mm / 3x2mm

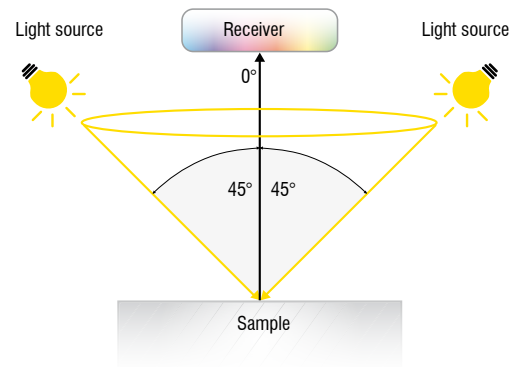
The ACS2 circular sensor is used for measurement of structured and highly reflective surfaces as well as lustrous metals.

In the sensor, 24 lighting optics are arranged in a circular fashion around the receiving optics, providing continuous lighting that allows measurements to be carried out regardless of the angular position of the target object.

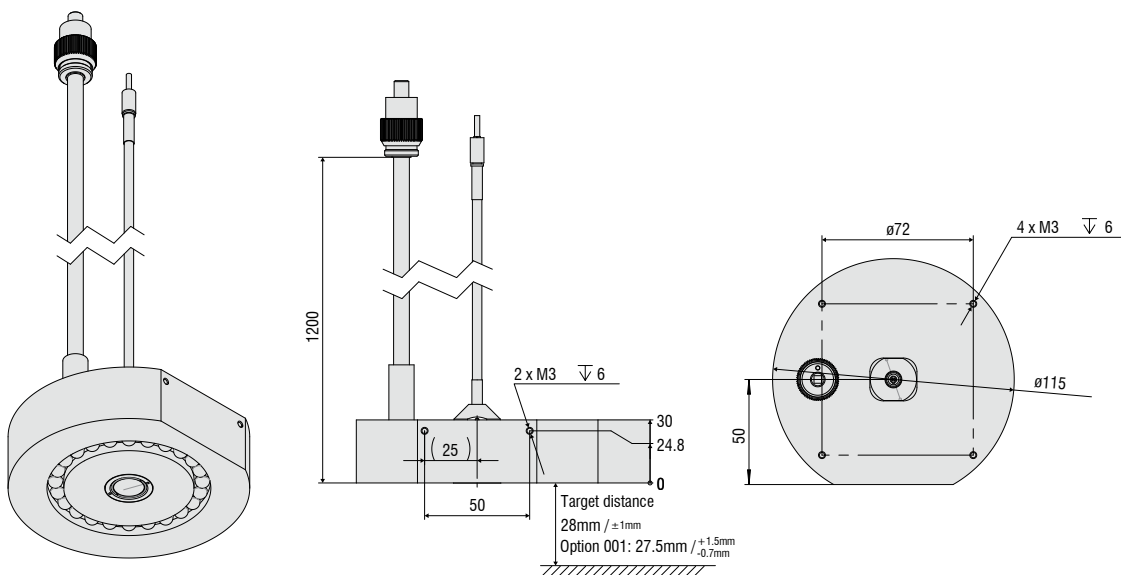
This sensor enables to detect extremely small measurement objects and objects with a curved surface.

Measurement geometry

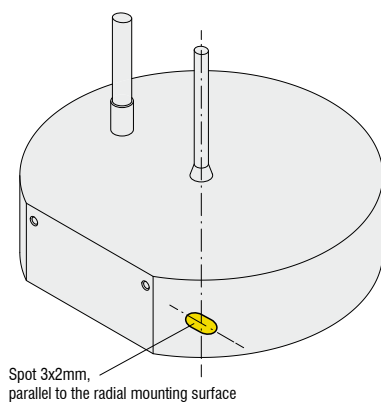
Circular sensor 45°c:0°



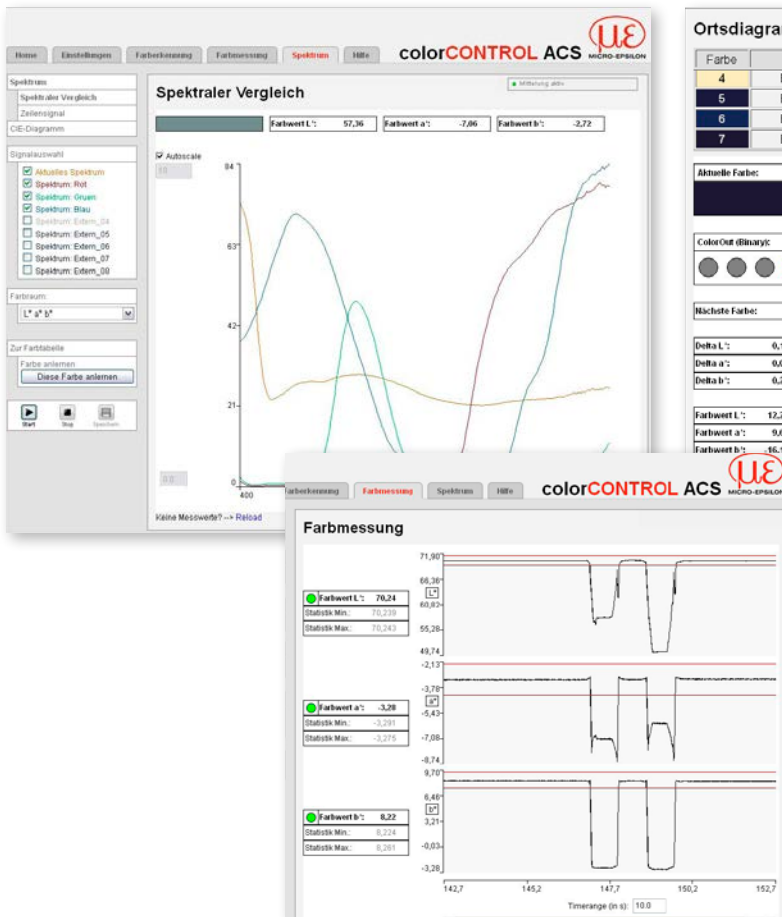
| Fiber-optic sensor FCS-T | ACS2-R45/0-28-1200 | ACS2-R45/0-28-1200(001) |
|--|---|-------------------------------------|
| Article number | 10824370 | 10824370.001 |
| Measurement geometry (illumination / receiver) | 45°c:0° (circular) | 45°c:0° (circular) |
| Measuring spot diameter | 5mm (optional 9mm) | 3 x 2mm |
| Optimal measurement distance | 28mm | 27.5mm |
| Permissible measurement distance | ±1mm of optimal measurement distance ($\Delta E < 1$) | +1.5mm / -0.7mm |
| Distance tolerance | 1 ΔE /mm | 1 ΔE /mm |
| Tilt angle tolerance | <0.3 ΔE ° | <0.3 ΔE ° |
| Ambient light tolerance at max. LED performance | <0.3 ΔE /1000lux | <0.3 ΔE /1000lux |
| Dimensions | Ø115 x 65mm | Ø115 x 65mm |
| Weight (sensor incl. optical fiber) | 822g | 822g |
| Length of the optical fiber/sensor cable (optical-fiber cable) | 1.2m (max 1.8m) | 1.2m (max 1.8m) |
| Bending radius sensor cable | 70mm | 70mm |
| Protection class | IP64 | IP64 |
| Operating temperature | -20°C ... +50°C | -20°C ... +50°C |
| Storage temperature | -20°C ... +50°C | -20°C ... +50°C |
| Shock resistance | DIN EN 60068-2-29; 15g, 6ms | DIN EN 60068-2-29; 15g, 6ms |
| Vibration resistance | DIN EN 60068-2-6; 2g / 10Hz...500Hz | DIN EN 60068-2-6; 2g / 10Hz...500Hz |



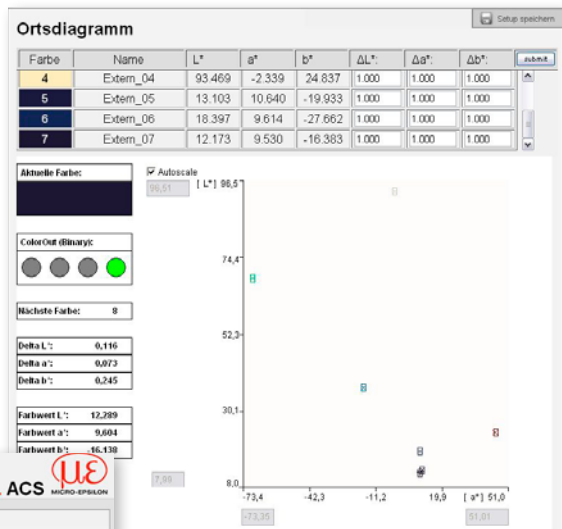
ACS2-R45/0-28-1200(001)



Spectrum and color location in user interface



Depiction of color values in the color space



Measurements of XYZ, L*a*b*, L*u*v*, L*c*h shown over time

Applications:

- Inline measurement in production lines, all industries: plastics, wood, paper, glass, films, injection molding, textiles and medicine
- Color measurement of interior parts
- Inspection of car paint

Advantages:

- Continuous process measurement to ensure consistent product quality
- Direct influence on the production process is possible
- Reduction of production cost
- Waste reduction



Inline measurement of the color gradient of glass, Plexiglas®, PET and PVC films and paper



Measurement of the zinc strip color in production



Interior and attachment parts in the automotive industry

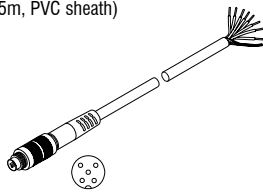


colorCONTROL ACS accessories

| Art. no. | Description | suitable for |
|----------|---|--|
| 11234694 | White standard 30mm Zenith | colorSENSOR and colorCONTROL |
| 11234695 | White standard 30mm Zenith | colorSENSOR and colorCONTROL |
| 11234696 | White standard 5x5cm Zenith | colorSENSOR and colorCONTROL |
| 11234697 | White standard 5x5cm Zenith calibrated | colorSENSOR and colorCONTROL |
| 11234222 | CAB-M9-4P-St-ge;2m-PUR;open | colorCONTROL ACS7000 (power) |
| 11234225 | CAB-M9-4P-St-ge;5m-PUR;open | colorCONTROL ACS7000 (power) |
| 11234091 | CAB-M9-8P-St-ge;2m-PUR;open | colorCONTROL ACS7000 (digital I/O, Sync.) |
| 11234099 | CAB-M9-8P-St-ge;5m-PUR;open | colorCONTROL ACS7000 (digital I/O, Sync.) |
| 11234223 | CAB-M9-7P-St-ge;2m-PUR;open | colorCONTROL ACS7000 (Color Out) |
| 11234226 | CAB-M9-7P-St-ge;5m-PUR;open | colorCONTROL ACS7000 (Color Out) |
| 11294232 | CAB-RJ45-Eth; 2m-PVC-Cat5e; RJ45-Eth | colorCONTROL ACS7000 (Ether-net/-CAT) |
| 11293257 | CAB-RJ45-Eth; 5m-PVC-Cat5e; RJ45-Eth | colorCONTROL ACS7000 (Ether-net/-CAT) |
| 11294277 | CAB-RJ45-Eth-Cross; 3m-PVC-Cat5e; RJ45-Eth | colorCONTROL ACS7000 (Ether-net/-CAT) |
| 11293258 | CAB-RJ45-Eth-Cross; 5m-PVC-Cat5e; RJ45-Eth | colorCONTROL ACS7000 (Ether-net/-CAT) |
| 11234224 | CAB-M9-5P-co-straight; 2m-PVC-RS422; open ends | colorCONTROL ACS7000 (RS422) |
| 11234227 | CAB-M9-5P-co-straight; 5m-PVC-RS422; open ends | colorCONTROL ACS7000 (RS422) |
| 11234230 | CAB-M9-5P-co-straight; 2m-PVC-RS422; Sub-D-15P-co-straight | colorCONTROL ACS7000 (IF2008) |
| 11234231 | CAB-M9-5P-co-straight; 5m-PVC-RS422; Sub-D-15P-co-straight | colorCONTROL ACS7000 (IF2008) |
| 2213017 | IF2008 Interface card RS422 / PCI-card | colorCONTROL ACS7000 (RS422/PC) |
| 2213025 | IF2001/USB 1-channel RS422/USB converter | colorCONTROL ACS7000 |
| 10824338 | FCS-ACS1-30/0 adapter tactile | FCS-X-ACS1-30/0-50-XXXX |
| 10824424 | FCS-ACS adapter TT-TR | all ACS sensor heads (connection illumination into receiving fibers) |
| 10824804 | FCS-ACS3 90° Aufsatz | FCS-X-ACS3 TT and TR |
| 10824414 | FCS-ACS3-200 mounting rail | FCS-X-ACS3 |
| 10824423 | FCS-ACS3 mounting adapter 50mm | FCS-ACS3-200 mounting rail |
| 10824422 | FCS-ACS3 mounting adapter 150mm | FCS-ACS3-200 mounting rail |
| 10824708 | FCS-ACS1/ILD1420 adapter plate angled | FCS-X-ACS1 distance readjustment with ILD1420 |
| 10824709 | FCS-ACS2/ILD1420 adapter plate angled | FCS-X-ACS2 distance readjustment with ILD1420 |
| 10824710 | FCS-ACS2/ILD1420 adapter plate angled | FCS-X-ACS2 distance readjustment with ILD1420 |
| 2420065 | PS2030 power supply 24V/24W/ 1A; 2m-PVC; terminal-2P-co-fm-straight | CAB-M9-4P-co-straight; Xm-PUR; open ends (power) |

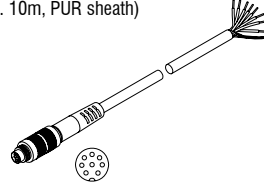
Pin assignment

CAB-M9-5P-co-straight; Xm-PVC-RS422; open ends
 (art.no.: 11234224; 11234227)
 Connection cable RS422
 (max. length 5m, PVC sheath)



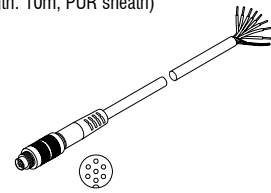
| Pin | Color | ACS7000 | 15 PIN IF2008 | 10 PIN IF2001 |
|-----|--------|-------------------------|---------------|---------------|
| 1 | white | TX | 3 | 3 |
| 2 | brown | /TX | 4 | 4 |
| 3 | green | /RX | 2 | 2 |
| 4 | yellow | RX | 1 | 1 |
| 5 | gray | GND RS422 (DC isolated) | 15 | 9 |

CAB-M9-8P-co-straight; Xm-PUR; open ends
 (art.no.: 11234091; 11234098)
 Connection cable to power/PLC or digital I/O
 (max. length. 10m, PUR sheath)



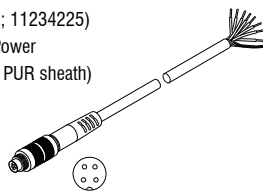
| Pin | Color | ACS7000 |
|-----|--------|---------------|
| 1 | white | Error |
| 2 | brown | GND Error |
| 3 | green | Sync. OUT |
| 4 | yellow | GND Sync. OUT |
| 5 | gray | Sync. IN |
| 6 | pink | GND Sync. IN |
| 7 | blue | LLL/ HLL |
| 8 | red | LLL/ HLL |

CAB-M9-7P-co-straight; Xm-PUR; open ends
 (art.no.: 11234223; 11234226)
 Connection cable color OUT
 (max. length. 10m, PUR sheath)



| Pin | Color | ACS7000 |
|-----|--------|---------|
| 1 | white | OUT0 |
| 2 | brown | OUT1 |
| 3 | green | OUT2 |
| 4 | yellow | OUT3 |
| 5 | gray | GND |
| 6 | pink | n. c. |
| 7 | blue | n. c. |

CAB-M9-4P-co-straight; Xm-PUR; open ends
 (art.no.: 11234222; 11234225)
 Connection cable Power
 (max. length. 10m, PUR sheath)



| Pin | Color | ACS7000 |
|-----|-------|----------------|
| 1 | white | n. c. |
| 2 | brown | +24V DC (±15%) |
| 3 | black | n. c. |
| 4 | blue | GND (0V) |

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