MFA

Sensor system for LED tests
colorCONTROL MFA

	Multipoint color recognition system
	Series with 7 detection points: MFA-7, MFA-14, MFA-21, MFA-28
	Color inspection in the XYZ, xyY, Luv, uvL and RGB color spaces
	Color distinction, intensity test & functional test
	Output of the dominant wavelength (λ_{dom}) and color temperature (CCT)

Features:
- Universal coupling of MFS receiver sensors
- Available with either 7, 14, 21 or 28 measurement channels
- Individual adaption of the sensor configuration
- Each measuring position is freely configurable in terms of color, intensity and function
- Integration into testing process via RS232, RS422 or USB interface
- Output of XYZ, xyY, Luv, uvL, RGB, CCT, λ_{dom} values
- Exchangeable MFS receiver sensors
- Sensor cables with max. 2m-plastic fiber or with max. 5m-glass fibers
- Software for comprehensive evaluation and display

Applications:
- Testing self-luminous objects
- LED tests (binning)
- Indicator tests
- Display tests
- 7-segment display tests
- Front panel tests

Function:
The information about color, intensity and light are directly transmitted from the measuring object to the MFA sensor via single fiber bundles. One MFA-28 simultaneously monitors up to 28 specimens.

The inspection of inaccessible specimens and/or specimens that are situated far apart from one another can easily be achieved using the MFA series, as optical fibers transmit the information to the evaluation unit.

Advantages
- High repeatability
- High measuring rate and dynamics
- Customer-specific MFS sensors (length and design)
- Digital interfaces: USB, RS422 or RS232

Model	MFA-7	MFA-14	MFA-21	MFA-28
Article number	11094994	11094995	11094996	11094997
No. of measurement channels	7	14	21	28
Repeatability [1]	xy < ±0.000025			
Spectral range	400 … 700 nm			
Sensitivity range	1 … 50.000 lx			
Measurement values	XYZ, xyY, Luv, uvL, RGB, CCT, λdom			
Measuring rate [2]	< 100 Hz	< 80 Hz	< 60 Hz	< 50 Hz
Temperature stability — Zero point	< 0.09 % FSO / K			
Temperature stability — Sensitivity	< 0.09 % FSO / K			
Supply voltage	+ 24 V DC ±10%			
Maximum power consumption	500 mA			
Digital interface	USB, RS422 or RS232			
Connector — Optical	7 connections or ports for MFS sensors	14 connections or ports for MFS sensors	21 connections or ports for MFS sensors	28 connections or ports for MFS sensors
Connector — Electrical	8-pole M12 socket for RS422 / RS232 / USB 4-pin plug for power supply			
Mounting	Screw connection with four through-holes			
Temperature range — Storage	-10 … +55 °C			
Temperature range — Operation	+0 … +50 °C			
Air humidity	20 ... 80 % r.H. (non-condensing)			
Shock (DIN EN 60068-2-27)	15 g / 6 ms + two directions, 1000 shocks in each of 3 axes			
Vibration (DIN EN 60068-2-6)	2 g / 10 … 500 Hz + 10 cycles in each of 3 axes			
Protection class (DIN EN 60529) Front side	IP20			
Material	Aluminum housing, coated in black			
Weight	247 g	262 g	278 g	293 g
Compatibility	with all MFS sensors			
Control and indicator elements	Status LED (green: smooth operation; orange: error; blue: overmodulation)			

FSO = Full Scale Output

[1] Maximum color deviation in x and y of 1000 consecutive measurements on red, green, blue and white light of an RGB LED with 12W/m and 300 lm/m.
  Measured with MFS-K04 sensor at 10 Hz data rate and brightness adjustment to RGB color mixture white with maximum illuminance.
[2] Valid for a baud rate of 230400 and the transmission of the color values plus time stamp. The measuring rate decreases when transmitting λdom and CCT.

Dimensions:

Dimensions in mm, not to scale