

MTCS-TIAM – OEM True-Color Color Sensor Modules

PRODUCT INFORMATION



JENCOLOR modules

Industrial color detection, measurement and monitoring are becoming easier. Notably, where it is claimed that colors are to be detected, measured or compared "like the human eye" in a highly dynamic working environment and with little technical effort, MAZeT's JENCOLOR OEM color sensor design provides the optimal solution, both technically and economically.

Sensors of this type use the RGB tristimulus method, imitating the human eye's natural color perception (MCS series), or, alternatively, a method according to DIN 5033, Part 2 – Color Measurement; Standard Colorimetric Systems – CIE 1931 Tristimulus Value Function (MTCS series).

In addition to the true-color IC solutions, MAZeT offers a function board based on the MTCS series, which, enhanced by illumination, sensor electronics, software and drivers, presents customers with OEM solutions for color measurement and regulation.

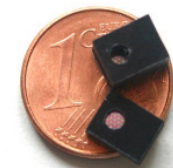
MTCS-TIAM1

In addition to 2 white-light LEDs (optional) and a color sensor IC, the MTCS-TIAM1 board contains the entire programmable signal gain by means of very compact chip-on-board technology.

The board is provided in an optical channel (receivers and LEDs), each one with a mechanical aperture for compliance with the measurement geometry requirements. As compact and integrated detector, the module is suitable for color measurements of reflected surfaces.

MTCS-TIAM2

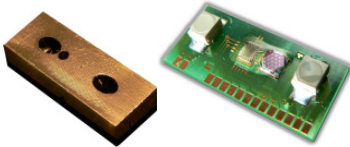
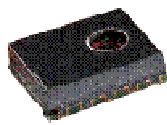
The MTCS-TIAM2 comprises a true-color sensor IC with an integrated programmable signal amplifier. The IC is packaged in a plastic casing and contains also the mechanical aperture for compliance with the measurement geometry requirements. The detector is suitable universal for a width range of applications, e.g. control and regulation of light sources.



Technical Overview

- *Integrated true-color sensor
DIN5033 / CIE 1931*
- *Integrated programmable transimpedance amplifier (8 stages, fast & low noise,*
- *Alternative LED on Board*
- *Customisable to customer requirements*
- *For Color measurements of reflected surfaces or emitted light sources, e.g. backlights, displays, power LEDs, hybrid illumination*

MTCS-TIAM – OEM True-Color Sensor Modules

		
Name	MTCS - TIAM1	MTCS - TIAM2
Receiver / Detector	<ul style="list-style-type: none"> ▶ True-Color-Sensor MTCSiCS ▶ optionally shutter in mechanical casing 	<ul style="list-style-type: none"> ▶ True-Color-Sensor MTCSiCS ▶ optionally shutter in mechanical casing
Amplifier	▶ MTI04C: programmable integrated amplifier (8 stages) with power down mode	
Illumination	▶ white-light LEDs on Board	---
Dimension	▶ with shutter 19,5 x 9,0 x 5,0mm	<ul style="list-style-type: none"> ▶ with shutter 6,5 x 6,0 x 5,0mm (A) ▶ 6,5 x 1,5 x 5,0mm (B)
Application	▶ reflected color measurement, direct connect, e.g. to ADCs, μ C with LED-driver and analogue/digital logics	<ul style="list-style-type: none"> ▶ measurement and regulation of light colors and white points ▶ control of back-light or front-light von TV, Display, Beamer

The following components are integrated on the MTCS-TIAM1 board

▶ **True-color sensor MTCSiCS**

The color sensor IC consists of 19 x 3 Si-PIN photo diodes, which are integrated on a chip. Using Si-PIN photo diodes enables general signal frequencies up to the high kHz range, which are dependant on the subsequent amplifier and its adjustment. Each photo diode on the chip is furnished with dielectric color filters XYZ for a color range, which virtually corresponds to the tri-stimulus value function from DIN 5033 (tri-stimulus) / CIE 1931. Therefore systems for color measurement, detection and regulation in the color space, e.g. xyY, Lab, Luv or based on color standards like RAL, Pantone, Munsel are possible with a high accuracy but without extensive technical effort. The dielectric filters guarantee good optical color characteristics, such high transmission, durability, temperature stability, high signal frequencies, reduced crosstalk. So there is no drift / ageing in the working time and re-calibration during customer processes is unnecessary.

▶ **MTI04CQ transimpedance amplifier**

On the input side, the TIAM1 contains the controls pins of the MTI04C, which allow the amplification and bandwidth to be adapted, as well as a power-down mode. As an interface, 3 analogue voltage values (corresponding to the XYZ tri-stimulus value function in accordance with the sensor calibration) are available on the output side which can be further processed in the ADC of a μ controller as color values in the CIELAB color space.

▶ **Possible applications**

Due to its integrated components and construction, the board is suitable for use as a complete sensor head for direct installation in measurement and control units. General applications are universal color detection, regulation and measurement, consumer goods, portable color detection/readers, RGB-LCD backlight monitors, regulation of RGB power LEDs, detection of a wide variety of light sources.

Within a Design-In project, the form and content of the TIAM function module can be adapted to customer requirements.

For more information please visit our web site at <http://www.JENCOLOR.de>

or contact our sales offices!