COLOUR SENSORS

The S65-V colour sensors offer the best performances for colour detection in a standard 50x50x25 mm compact housing. The S65-V0 model, thanks to a good response time of only 340 µs, results to be particularly suitable for automatic packaging applications where high speed and colour mark detection are necessary. The S65-V1 model increases the chromatic sensitivity of S65-V0 towards dark colours, allowing to distinguish even slight tone differences, useful in quality control and part checking, at inferior process speed.
The sensors can memorise and recognise 3 colours on 3 independent channels. The C (chromaticity) or C+I (chromaticity and intensity) detection algorithm and the tolerance level can be chosen for each colour. The 0 - 40 ms delay programming is the same for each channel.
The auxiliary functions include keylock and synchronisation with external events through a specific input. The control panel presents two setting push-buttons, outputs LEDs and a 4-digit display for functioning messages and sensor configuration. Complete remote control is possible for the version with the RS485 serial interface, which in the S65-V1 sensor can also receive RGB chromatic information.
The colour sensor can be configured in a 'C' or 'C+I' detection mode. The 'C' type algorithm is used to obtain a larger depth of field, or to detect colours on different opaque, shiny or reflecting surfaces. The 'C+I' type algorithm offers a higher sensitivity towards tone variations, and is recommended for the detection of different colours on the same type of material. It will also distinguish grey tones.

For dedicated accessories refer to the ACCESORIES section of this catalogue.

Refer also to Connectors (A.03) and Fixing Brackets (A.04) of the General Catalogue.

Versions and options: refer to MODEL SELECTION TABLE
**TECHNICAL DATA**

Operating distance: 5...45 mm

Power supply: 10...30 Vdc

Ripple: 2 Vpp

Consumption: 60 mA at 24 V

Light emission: white LED 400-700 nm

Spot dimension: approx. 4 mm at 20 mm

Setting:

- SET push-button
- SEL push-button

Indicators:

- 4 digit display
- green active OUTPUT LEDs
- yellow 'OR' function OUTPUT LED

Output type:

- PNP - NO
- NPN - NO

Output current: ≤ 100 mA

Saturation voltage: ≤ 2 V

Response time:

- 335 µs
- 1 ms (FAST); 5 ms (NORM)

Switching frequency:

- 1.5 kHz
- 500 Hz (FAST); 100 Hz (NORM)

Operating mode:

- C or C+I independent for each channel

Tolerance level: selectable from TOL0 to TOL9

Timing function: selectable between 5, 10, 20, 30 and 40 ms

Auxiliary functions:

- ext. synchronism
- keylock
- RS485 serial interface

Connection: M12 8-pole connector

Electrical protection: class 2

Mechanical protection: IP67

Protection devices: A, B

Housing material: ABS

Lens material: glass

Weight: 100 g max.

Operating temperature: -25...+70°C

Storage temperature: -25...+85°C

Reference standard: EN 60947-5-2

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**SELECTION TABLE**

<table>
<thead>
<tr>
<th>Colour sensors</th>
<th>S65-PA-5-V09-NNN</th>
<th>956251030</th>
<th>NPN</th>
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<tbody>
<tr>
<td>S65-PA-5-V09-NNNZ</td>
<td>956251010</td>
<td>NPN RS485</td>
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<td>S65-PA-5-V09-PPP</td>
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<td>S65-PA-5-V19-PPPZ</td>
<td>956251080</td>
<td>PNP RS485</td>
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**TECHNICAL NOTES**

1 Limit values
2 Average life of 100.000 h with $T_A = +25 ^\circ C$
3 Is activated with SYNC connected to +V at powering
4 Connector can be blocked on two positions
5 A - reverse polarity protection
   B - overload and short-circuit protection

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**DETECTION DIAGRAMS**

**S65-V0:** operating distance according to target reflectivity degree

**S65-V1:** operating distance according to target reflectivity degree
MODEL SELECTION AND ORDER INFORMATION

<table>
<thead>
<tr>
<th>MODEL</th>
<th>FUNCTION</th>
<th>CONNECTION</th>
<th>OUTPUT</th>
<th>RS485</th>
<th>ORDER N°</th>
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ACCESSORIES

DIMENSIONS

ST-5020

ST-5021

ACCESSORY SELECTION AND ORDER INFORMATION

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<th>DESCRIPTION</th>
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<tr>
<td>ST-5020</td>
<td>fixing bracket 50 x 27 x 20 mm</td>
<td>95ACC5330</td>
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<tr>
<td>ST-5021</td>
<td>fixing bracket 20 x 40 x 28 mm</td>
<td>95ACC5340</td>
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</tbody>
</table>

Refer also to Accessories for Sensors of the General Catalogue

CS-A1-06-B-03 | M12 8-pole conn. with 3 m unshielded cable | 95ACC2230 |
CS-A1-06-B-05 | M12 8-pole conn. with 5 m unshielded cable | 95ACC2240 |
CS-A1-06-B-10 | M12 8-pole conn. with 10 m unshielded cable | 95ACC2250 |

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HEADQUARTERS

DATASENSOR SpA
via Lavino, 265 - 40050 Monte San Pietro, BO - Italy
Tel. +39 051/6765611 • Fax +39 051/6759324
www.datasensor.com • e-mail info@datasensor.com

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