



- 3 channel colour sensor with C or C+I functions and 10 tolerance levels
- Wide spectrum white light LED emission and RGB photoreceiver
- 3 independent NPN or PNP outputs and RS485 serial interface
- 2 push-button easy setting and 4 digit display

S65-V SERIES

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 μ s, 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.

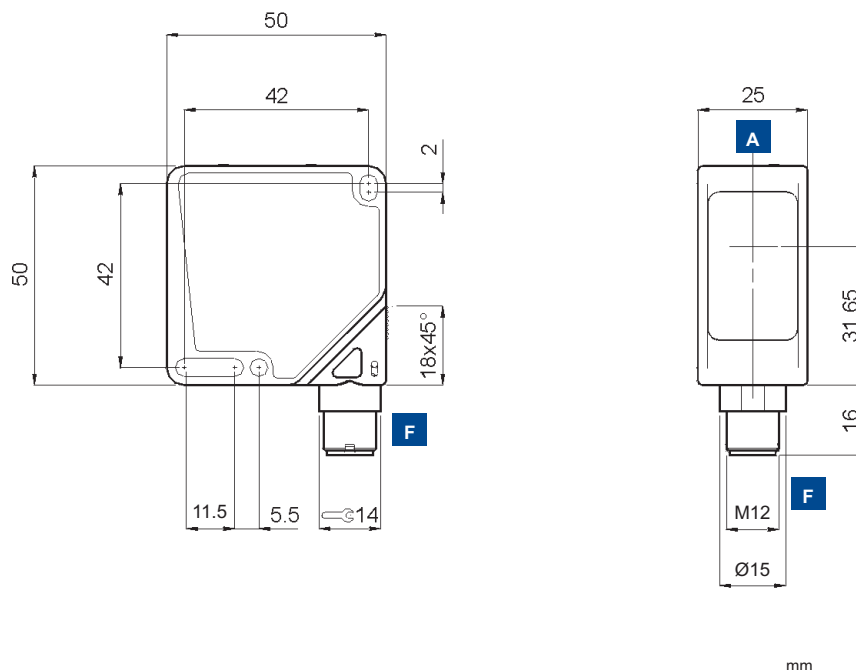
The auxiliary functions include keylock and synchronisation with external events through a specific input. The control panel presents two setting push-buttons, outputs LEDs and a 4-digit display for functioning messages and sensor configuration. Complete remote control is possible for the version with the RS485 serial interface, which in the **S65-V1** sensor can also receive RGB chromatic information.

V COLOUR SENSORS

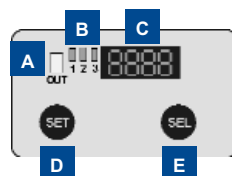
The colour sensor can be configured in a 'C' or 'C+' detection mode. The 'C' type algorithm is used to obtain a larger depth of field, or to detect colours on different opaque, shiny or reflecting surfaces. The 'C+' type algorithm offers a higher sensitivity towards tone variations, and is recommended for the detection of different colours on the same type of material. It will also distinguish grey tones.



DIMENSIONS



INDICATORS AND SETTINGS



- A** Output 'OR' function LED
- B** Output status LEDs
- C** 4 digit display
- D** SET push-button
- E** SEL push-button
- F** M12 connector output, orientable on two positions

ACCESSORIES

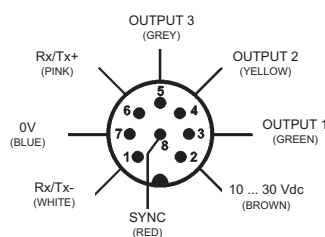
For dedicated accessories refer to the **ACCESSORIES** section of this catalogue.

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

CONNECTIONS



S65-PA-5





TECHNICAL DATA

		S65-PA-5-V09-NNN	S65-PA-5-V09-NNZ	S65-PA-5-V09-PPP	S65-PA-5-V09-PPPZ	S65-PA-5-V19-NNN	S65-PA-5-V19-NNZ	S65-PA-5-V19-PPP	S65-PA-5-V19-PPPZ
Operating distance:	5 ... 45 mm *	●	●	●	●	●	●	●	●
Power supply:	10 ... 30 Vdc ¹	●	●	●	●	●	●	●	●
Ripple:	2 Vpp	●	●	●	●	●	●	●	●
Consumption:	60 mA at 24 V	●	●	●	●	●	●	●	●
Light emission:	white LED 400 -700 nm ²	●	●	●	●	●	●	●	●
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 ³	●	●	●	●	●	●	●	●
	RS485 serial interface		●	●	●			●	●
Connection:	M12 8-pole connector ⁴	●	●	●	●	●	●	●	●
Electrical protection:	class 2	●	●	●	●	●	●	●	●
Mechanical protection:	IP67	●	●	●	●	●	●	●	●
Protection devices:	A, B ⁵	●	●	●	●	●	●	●	●
Housing material:	ABS	●	●	●	●	●	●	●	●
Lens material:	glass	●	●	●	●	●	●	●	●
Weight:	100 g max.	●	●	●	●	●	●	●	●
Operating temperature:	-10 ... +55°C	●	●	●	●	●	●	●	●
Storage temperature:	-25 ... +70°C	●	●	●	●	●	●	●	●
Reference standard:	EN 60947-5-2	●	●	●	●	●	●	●	●

* refer to detection diagrams

SELECTION TABLE

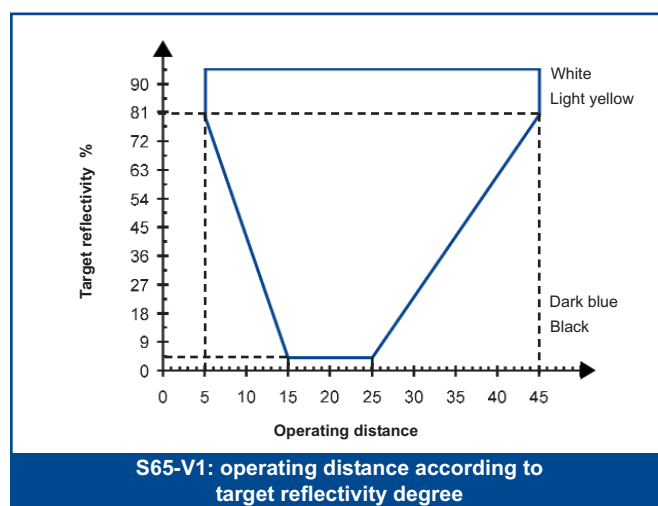
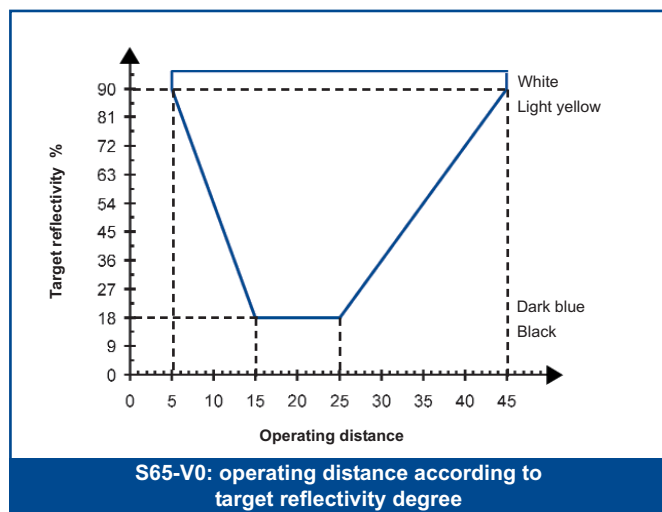
colour sensors			
S65-PA-5-V09-NNN	956251030	NPN	
S65-PA-5-V09-NNNZ	956251010	NPN	RS485
S65-PA-5-V09-PPP	956251020	PNP	
S65-PA-5-V09-PPPZ	956251000	PNP	RS485
S65-PA-5-V19-NNN	956251110	NPN	
S65-PA-5-V19-NNNZ	956251090	NPN	RS485
S65-PA-5-V19-PPP	956251100	PNP	
S65-PA-5-V19-PPPZ	956251080	PNP	RS485

TECHNICAL NOTES

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



DETECTION DIAGRAMS



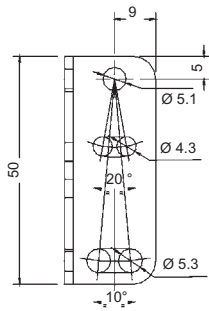
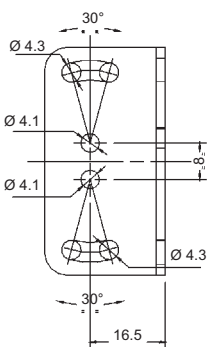
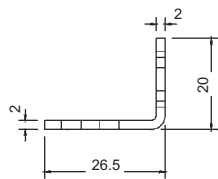
MODEL SELECTION AND ORDER INFORMATION

MODEL	FUNCTION	CONNECTION	OUTPUT	RS485	ORDER N°
S65-PA-5-V09-NNN	colour sensor	M12 connector	NPN		956251030
S65-PA-5-V09-NNNZ	colour sensor	M12 connector	NPN	•	956251010
S65-PA-5-V09-PPP	colour sensor	M12 connector	PNP		956251020
S65-PA-5-V09-PPPZ	colour sensor	M12 connector	PNP	•	956251000
S65-PA-5-V19-NNN	colour sensor	M12 connector	NPN		956251110
S65-PA-5-V19-NNNZ	colour sensor	M12 connector	NPN	•	956251090
S65-PA-5-V19-PPP	colour sensor	M12 connector	PNP		956251100
S65-PA-5-V19-PPPZ	colour sensor	M12 connector	PNP	•	956251080

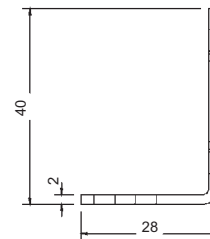
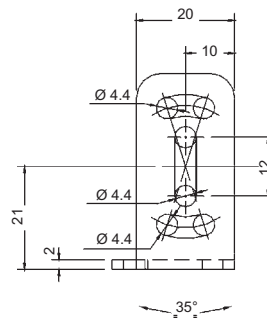
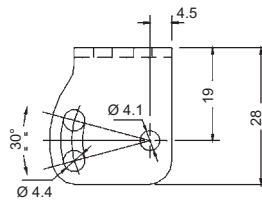
ACCESSORIES

DIMENSIONS

ST-5020



ST-5021



ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	N° ORDER
ST-5020	fixing bracket 50 x 27 x 20 mm	95ACC5330
ST-5021	fixing bracket 20 x 40 x 28 mm	95ACC5340
<i>Refer also to Accessories for Sensors of the General Catalogue</i>		
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



Distributed by:

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

Datasensor SpA endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use Datasensor SpA can guarantee only the data indicated in the instruction manual supplied with the products.