

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. 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 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.



SENSOR

HIGHLIGHTS

- 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

APPLICATIONS

Automatic machines



Automotive

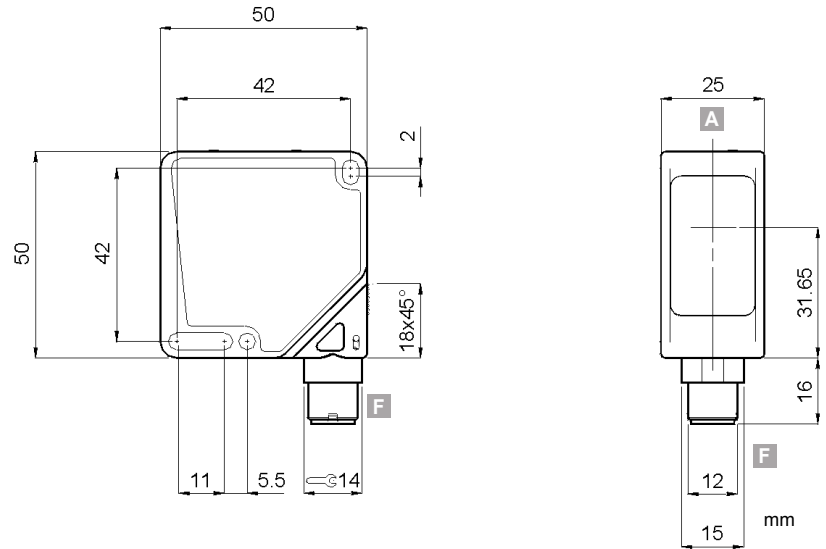


Packaging lines

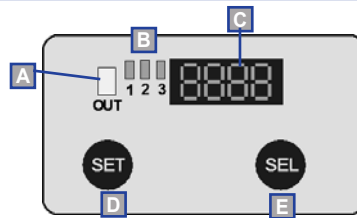


The colour sensor can be configured in a 'C' or 'C+' detection mode. The 'C' type algorithm is used to obtain a larger depth of field, or to detect colours on different opaque, shiny or reflecting surfaces. The 'C+' type algorithm offers a higher sensitivity towards tone variations, and is recommended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

DIMENSIONS



INDICATORS AND SETTING



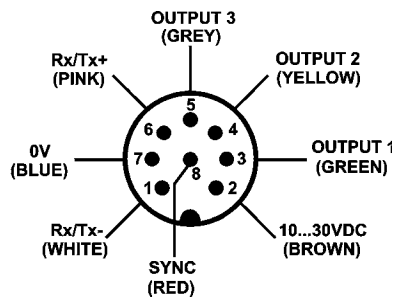
- A Output 'OR' function LED
- B Output status LEDs
- C 4 digit display
- D SET push-button
- E SEL push-button
- F +/- selection push-buttons
- G M12 connector output, orientable on two positions

ACCESSORIES

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

Refer also to **Connectors and Fixing Brackets and Supports** of the **General Catalogue**.

CONNECTIONS



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

TECHNICAL DATA

TECHNICAL NOTES

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

		S65-PA-5-V09-NNN	S65-PA-5-V09-NNNZ	S65-PA-5-V09-PPP	S65-PA-5-V09-PPZ	S65-PA-5-V19-NNN	S65-PA-5-V19-NNNZ	S65-PA-5-V19-PPP	S65-PA-5-V19-PPZ
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	•	•	•	•	•	•	•	•

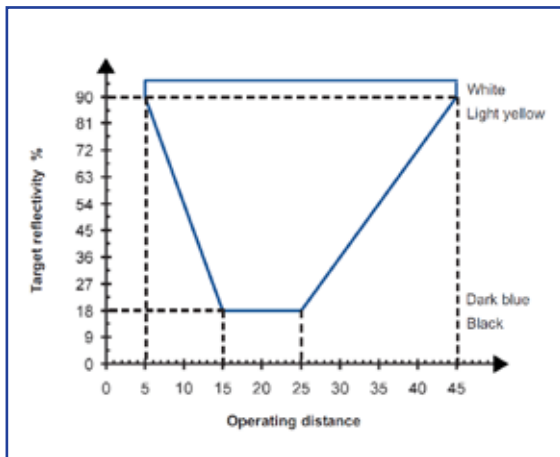
SELECTION TABLE

colour sensors			
S65-PA-5-V09-NNN	956251030	NPN	
S65-PA-5-V09-NNNZ	956251010	NPN	RS485
S65-PA-5-V09-PPP	956251020	PNP	RS485
S65-PA-5-V09-PPZ	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-PPZ	956251080	PNP	RS485

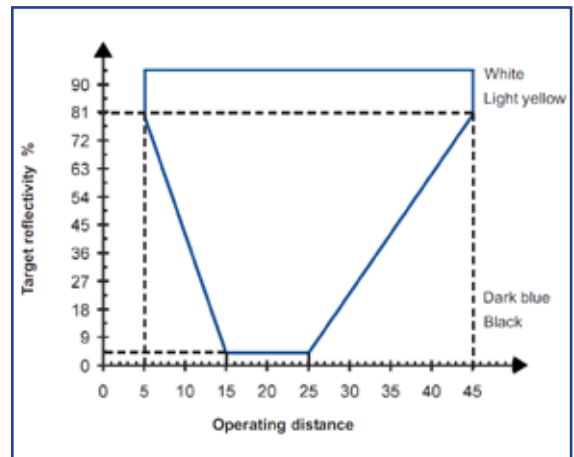


* refer to detection diagrams

DETECTION DIAGRAMS



S65-V0: operating distance according to target reflectivity degree

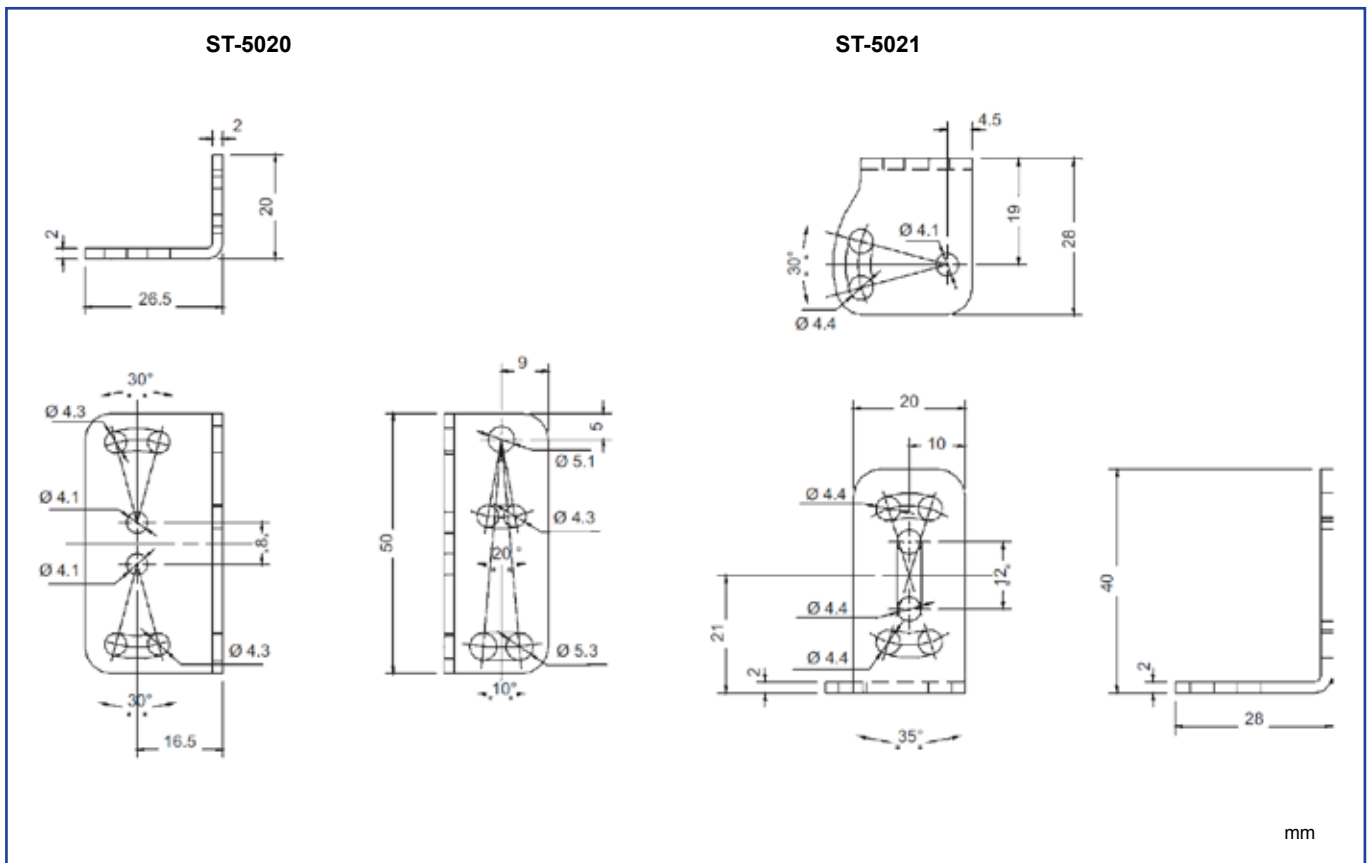


S65-V1: operating distance according to target reflectivity degree

MODEL SELECTION AND ORDER INFORMATION

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

ACCESSORY DIMENSIONS



ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
ST-5020	fixing bracket 50 x 27 x 20 mm	95ACC5330
ST-5021	fixing bracket 20 x 40 x 28 mm	95ACC5340
Refer also to Accessories for Sensors		
CS-A1-06-B-03	M12 8-pole unshielded axial 3 m connector	95ACC2230
CS-A1-06-B-05	M12 8-pole unshielded axial 5 m connector	95ACC2240
CS-A1-06-B-10	M12 8-pole unshielded axial 10 m connector	95ACC2250



The company 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, the company can guarantee only the data indicated in the instruction manual supplied with the products.