

FT 50 C

Colour sensor with a switching output



PRODUCT HIGHLIGHTS

- Colours are reliably detected despite fluctuating scanning distances thanks to patented optical technology
- Very good depth of field
- Very simple setup (via button and control line)
- Even the smallest of colour differences are reliably detected due to pulsed white light
- Varying light spot sizes depending on task

Optical data		Functions	
Scanning distance	See Selection Table	Indicator LED, green	Operating voltage indicator
Scanning distance tolerance	See Selection Table	Indicator LED, yellow	Switching output indicator
Type of light	LED, white	Colour setting	Via teach-in button and control line
Light spot size	See Selection Table	Default setting	N.O.
Electrical data		Mechanical data	
Operating voltage, +U _B	12 ... 28 V DC ¹	Dimensions	50 x 50 x 17 mm ³
No-load current, I ₀	≤ 40 mA	Enclosure rating	IP 67 ²
Output current, I _e	≤ 100 mA	Material, housing	ABS, impact-resistant
Voltage drop, U _D	≤ 2.4 V	Material, front screen	PMMA
Max. capacitive load	< 100 nF	Type of connection	Plug, M12, 5-pin, rotatable
Protective circuits	Reverse-polarity protection, U _B / short-circuit protection (Q)	Ambient temperature: operation	-10 ... +55 °C
Protection Class	2	Ambient temperature: storage	-20 ... +80 °C
Power On Delay	≤ 300 ms	Weight (plug device)	40 g
Input IN ET (external teach-in)	> 12 V ... 28 V: button locked < 3 V or open: normal operation Min. response time: 100 ms	Vibration and impact resistance	EN 60947-5-2
Input lock (button lock)	> 12 V ... 28 V: button locked < 3 V or open: button free		
Switching output, Q	PNP		
Output function	N.O.		
Switching frequency, f (ti/tp 1:1)	≤ 500 Hz		

¹ Max. 10 % ripple, within U_B ² With connected IP 67 plug ³ At scanning distance of 22 mm

Scanning distance/Scanning distance tolerance/Light spot size	Switching output	Type of connection	Part number	Article number
12 ... 32 mm / ± 6 mm / Ø 4 mm ³	PNP	Plug, M12, 5-pin	FT 50 C-1-PSL5	575-11016
15 ... 30 mm / ± 5 mm / 2 x 2 mm ³	PNP	Plug, M12, 5-pin	FT 50 C-2-PSL5	575-11017
18 ... 22 mm / ± 2 mm / 5 x 1 mm ³	PNP	Plug, M12, 5-pin	FT 50 C-3-PSL5	575-11018

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Colour sensor with 3 switching outputs



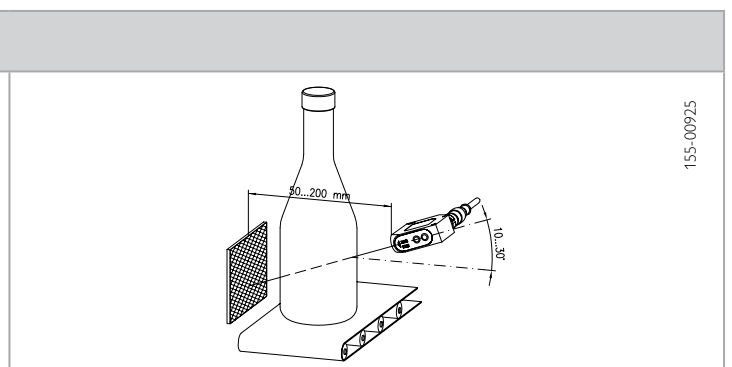
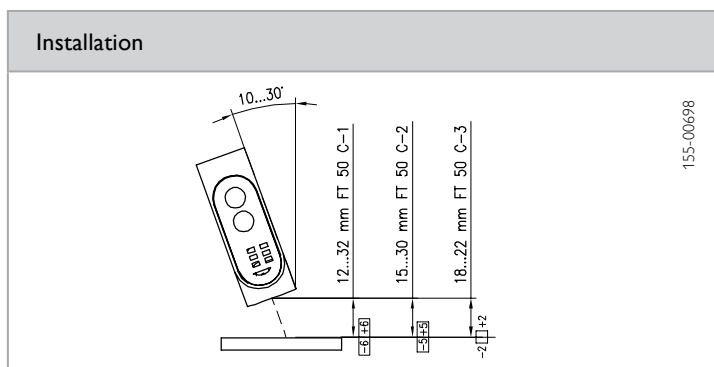
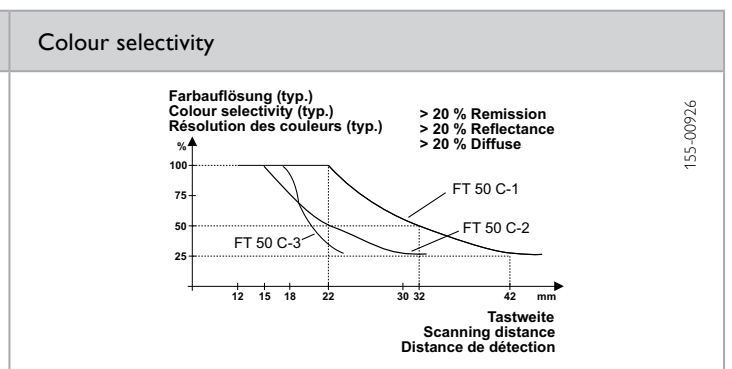
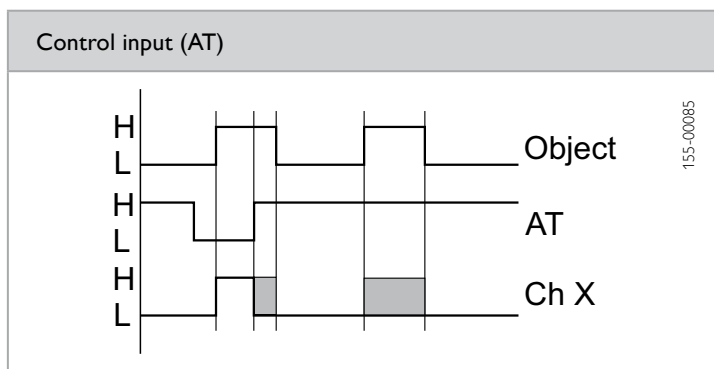
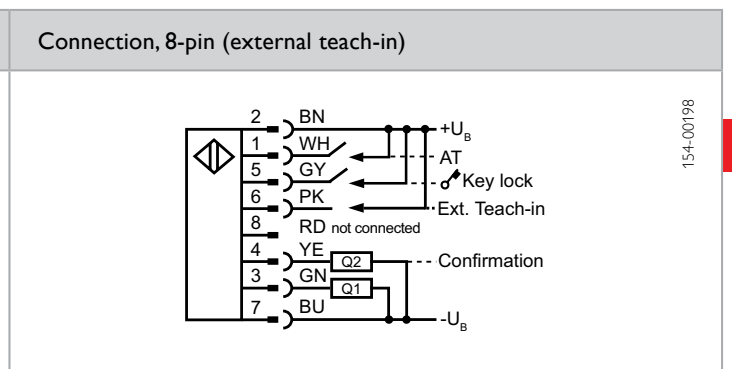
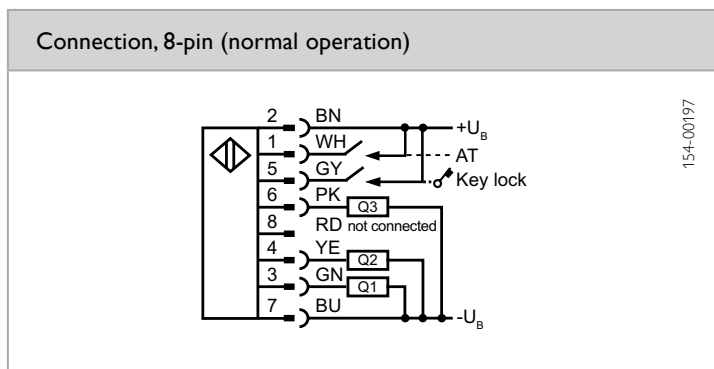
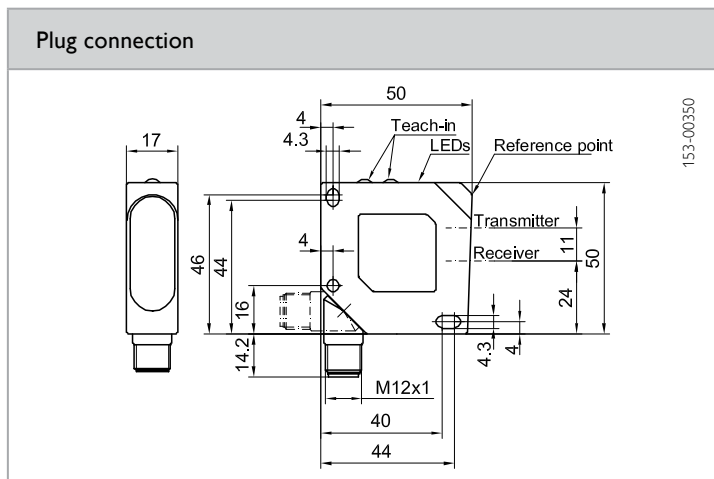
PRODUCT HIGHLIGHTS

- Colours are reliably detected despite fluctuating scanning distances thanks to patented optical technology
- 3 colours distinguishable via 3 switching outputs
- Even the smallest of colour differences are reliably detected
- Easy teach-in of colours via Teach-in button or control line

Optical data		Functions	
Scanning distance	See Selection Table	Indicator LED, green	Operating voltage indicator
Scanning distance tolerance	See Selection Table	Indicator LED, yellow	3 x switching output indicators
Type of light	LED, white	Indicator LED, red	3 x tolerance level indicators
Light spot size	See Selection Table	Colour and tolerance settings	Via teach-in button and control line
		Adjustment possibilities	Colours taught-in via Teach-in button and control line
			Pulse stretching via Teach-in button
			Button lock via control input
		Default setting	Normal operation, Tol. 3 for X01, typ. = Tol. 5
Electrical data		Mechanical data	
Operating voltage, +U _B	12 ... 28 V DC ²	Dimensions	50 x 50 x 17 mm ³
No-load current, I ₀	≤ 40 mA	Enclosure rating	IP 67 ³
Output current, I _e	≤ 100 mA	Material, housing	ABS, impact-resistant
Voltage drop, U _d	≤ 2.4 V	Material, front screen	PMMA
Protective circuits	Reverse-polarity protection, U _B / short-circuit protection (Q)	Type of connection	See Selection Table
Protection Class	2	Ambient temperature: operation	-10 ... +55 °C
Power On Delay	≤ 300 ms	Ambient temperature: storage	-20 ... +80 °C
Switching output, Q	3 x PNP	Weight (plug device)	40 g
Output function	N.O.	Vibration and impact resistance	EN 60947-5-2
Switching frequency, f (ti/tp 1:1)	500 Hz		
Response time	10 ms		
Control input, AT	> 12 V ... 28 V = triggered < 3 V / open = free-running Response time: 10 ms		
Control input, KeyLock	> 12 V ... 28 V = button locked < 3 V / open = normal operation Pulse stretching / release delay: 50 ms		
Control input, Ext. Teach-in (normal operation Q3)	> 12 V ... 28 V = Teach-in < 3 V / open = normal operation Min. response time: 2 ms		

¹ At scanning distance of 22 mm ² Max. 10 % ripple, within U_B ³ With connected IP 67 plug

Scanning distance/Scanning distance tolerance/Light spot size	Switching output	Type of connection	Part number	Article number
12 ... 32 mm / ± 6 mm / Ø 4 mm ¹	3 x PNP	Plug, M12, 8-pin	FT 50 C-1-PSL8	575-11000
15 ... 30 mm / ± 5 mm / 2 x 2 mm ¹	3 x PNP	Plug, M12, 8-pin	FT 50 C-2-PSL8	575-11003
18 ... 22 mm / ± 2 mm / 5 x 1 mm ¹	3 x PNP	Plug, M12, 8-pin	FT 50 C-3-PSL8	575-11004



Accessories	
Connection cables	From Page A-34
Brackets	From Page A-4

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Colour sensor with serial switching interface



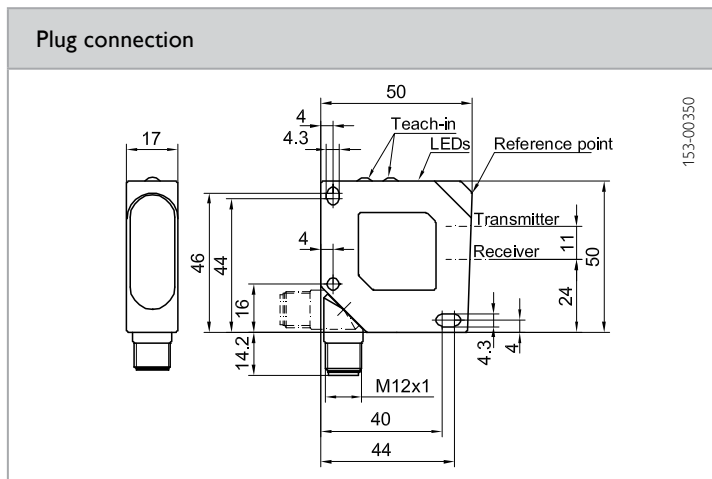
PRODUCT HIGHLIGHTS

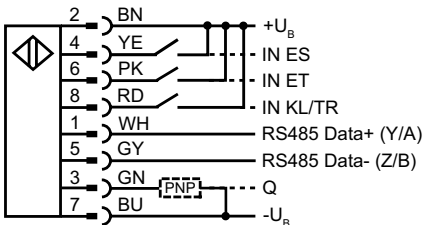
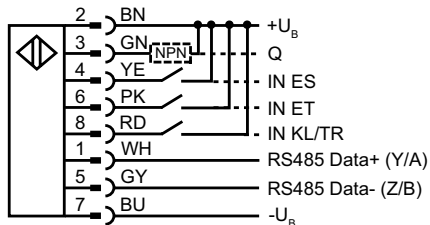
- Colours are reliably detected despite fluctuating scanning distances thanks to patented optical technology
- Transfer of colour channel or colour value, as well as reading, modification and storage of sensor parameters, via RS485 interface
- Even the smallest of colour differences are reliably detected
- ColourScan function for detection of colour ranges
- Reliable detection of even the smallest of coloured objects

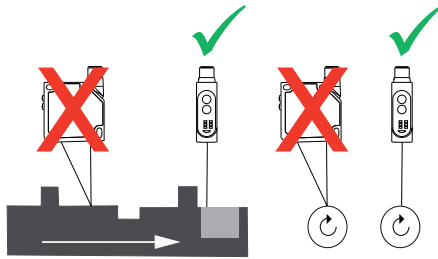
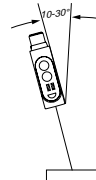
Optical data		Functions	
Scanning distance	See Selection Table	Indicator LED, green	Operating voltage indicator
Scanning distance tolerance	See Selection Table	3 x indicator LEDs, yellow	Switching output indicators
Type of light	LED, white	3 x indicator LEDs, red	Tolerance level indicators
Light spot size	See Selection Table	Colour & tolerance setting	Via teach-in button and control line
		Default setting	White, 90 %, taught-in, sensor address = 1 (RS485)
		Supplementary functions	ColourScan, triggering, teach-in, button lock
Electrical data		Mechanical data	
Operating voltage, +U _B	12 ... 28 V DC ¹	Dimensions	50 x 50 x 17 mm ³
No-load current, I ₀	≤ 40 mA	Enclosure rating	IP 67 ³
Output current, I _e	≤ 100 mA	Material, housing	ABS, impact-resistant
Voltage drop, U _D	≤ 2.4 V	Material, front screen	PMMA
Max. capacitive load	< 100 nF	Type of connection	Plug, M12x1, 8-pin, rotatable
Protective circuits	Reverse-polarity protection, U _B / short-circuit protection (Q) (not RS485)	Ambient temperature: operation	-10 ... +55 °C
Protection Class	2	Ambient temperature: storage	-20 ... +80 °C
Power On Delay	< 300 ms	Weight (plug device)	40 g
Switching output, Q	See Selection Table	Vibration and impact resistance	EN 60947-5-2
Output function	N.O. / N.C.		
Switching frequency, f (ti/tp 1:1)	Max. 500 Hz		
Time stage for Q	50 ms release delay, adjustable		
Control input, KL / TR	Button lock input (KL) or triggering (TR), adjustable		
Control input, IN ET	PNP / NPN, input for external teach-in		
Min. response time	2 ms		
Control input, IN ES	PNP / NPN, input for external scanning		
Serial interface	RS485 (half-duplex)		

¹ At scanning distance of 22 mm ² Max. 10 % ripple, within U_B ³ With connected IP 67 plug

Scanning distance/Scanning distance tolerance/Light spot size	Switching output	Type of connection	Part number	Article number
12 ... 32 mm / ± 6 mm / $\varnothing 4$ mm ¹	PNP	Plug, M12, 8-pin	FT 50 C-1-PS1-L8	575-11007
12 ... 32 mm / ± 6 mm / $\varnothing 4$ mm ¹	NPN	Plug, M12, 8-pin	FT 50 C-1-NS1-L8	575-11010
15 ... 30 mm / ± 5 mm / 2×2 mm ¹	PNP	Plug, M12, 8-pin	FT 50 C-2-PS1-L8	575-11008
15 ... 30 mm / ± 5 mm / 2×2 mm ¹	NPN	Plug, M12, 8-pin	FT 50 C-2-NS1-L8	575-11011
18 ... 22 mm / ± 2 mm / 5×1 mm ¹	PNP	Plug, M12, 8-pin	FT 50 C-3-PS1-L8	575-11009
18 ... 22 mm / ± 2 mm / 5×1 mm ¹	NPN	Plug, M12, 8-pin	FT 50 C-3-NS1-L8	575-11012



Connection, 8-pin	Connection, 8-pin
	

Installation	
	

Accessories	
IO-Box T-CS1T-12T34PRD	From Page 202
Connection cables	From Page A-34
Brackets	From Page A-4
Progsensor software	www.sensopart.com