## **Color Sensor**

## OFP401P0189

Part Number

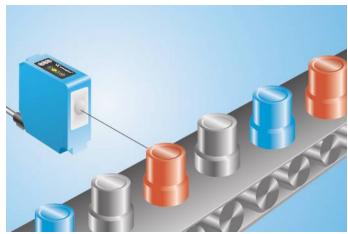


- Extremely fine color nuances can be recognized
- Reflex mode operation
- Teach-in, external teach-in

Technical Data

Working Range3040 mmWorking Distance35 mmLight SourceWhite LightService Life (T = +25 °C)100000 hMax. Ambient Light10000 LuxLight Spot Diameter3 mmElectrical DataTSupply Voltage1030 VCurrent Consumption (Ub = 24 V)< 80 mASwitching Frequency1,8 kHzResponse Time300 µsTemperature Range-2560 °CSwitching Output Voltage Drop1,5 VPNP Switching Output Voltage Drop1,5 VPNP Switching Output Voltage Drop1,5 VShort Circuit ProtectionyesReverse Polarity ProtectionyesOverload ProtectionyesTeach ModeFTInterfaceRS-232Digital Inputs2Potection ClassIIIMechanical DataAdjustmentTeach-InHousing MaterialPlasticDegree of ProtectionIP68ConnectionM12 × 1; 8-pinNO/NC switchableConfigurable as PNP/NPN/Push-PullRS-232 InterfaceError OutputConnection Diagram No.193Control Panel No.X2Suitable Connection Technology No.89Suitable Mounting Technology No.380	Optical Data							
Light SourceWhite LightService Life (T = +25 °C)100000 hMax. Ambient Light10000 LuxLight Spot Diameter3 mmElectrical Data3Supply Voltage1030 VCurrent Consumption (Ub = 24 V)< 80 mA	Working Range	ange 3040 mm						
Service Life (T = +25 °C)100000 hMax. Ambient Light10000 LuxLight Spot Diameter3 mmElectrical Data3Supply Voltage1030 VCurrent Consumption (Ub = 24 V)< 80 mA	Working Distance	35 mm						
Max. Ambient Light10000 LuxLight Spot Diameter3 mmElectrical Data3 mmSupply Voltage1030 VCurrent Consumption (Ub = 24 V)< 80 mA	Light Source	White Light						
Light Spot Diameter 3 mm Electrical Data Supply Voltage 1030 V Current Consumption (Ub = 24 V) < 80 mA Switching Frequency 1,8 kHz Response Time 300 µs Temperature Range -2560 °C Switching Outputs 3 Switching Outputs 3 Switching Output Voltage Drop 1,5 V PNP Switching Output/Switching Current 100 mA Short Circuit Protection yes Reverse Polarity Protection yes Teach Mode FT Interface RS-232 Digital Inputs 2 Protection Class III Mechanical Data Adjustment Teach-In Housing Material Plastic Degree of Protection IP68 Connection M12 × 1; 8-pin NO/NC switchable Configurable as PNP/NPN/Push-Pull RS-232 Interface Error Output Connection Diagram No. Connection Technology No. 89	Service Life (T = +25 °C)	100000 h						
Electrical DataSupply Voltage1030 VCurrent Consumption (Ub = 24 V)< 80 mA	Max. Ambient Light	10000 Lux						
Supply Voltage1030 VCurrent Consumption (Ub = 24 V)< 80 mA	Light Spot Diameter	3 mm						
Current Consumption (Ub = 24 V)< 80 mASwitching Frequency1,8 kHzResponse Time300 µsTemperature Range-2560 °CSwitching Outputs3Switching Output Voltage Drop1,5 VPNP Switching Output/Switching Current100 mAShort Circuit ProtectionyesReverse Polarity ProtectionyesOverload ProtectionyesTeach ModeFTInterfaceRS-232Digital Inputs2Protection ClassIIIMechanical DataAdjustmentTeach-InHousing MaterialPlasticDegree of ProtectionIP68ConnectionM12 × 1; 8-pinNO/NC switchableIP68Configurable as PNP/NPN/Push-PullIP33Control Diagram No.193Control Panel No.X2Suitable Connection Technology No.89	Electrical Data							
Switching Frequency1,8 kHzResponse Time300 µsTemperature Range-2560 °CSwitching Outputs3Switching Output Voltage Drop1,5 VPNP Switching Output/Switching Current100 mAShort Circuit ProtectionyesReverse Polarity ProtectionyesOverload ProtectionyesTeach ModeFTInterfaceRS-232Digital Inputs2Protection ClassIIIMechanical DataPlasticAdjustmentTeach-InHousing MaterialPlasticDegree of ProtectionIP68ConnectionM12 × 1; 8-pinNO/NC switchableImage: Control Protection ProtectionContamination OutputImage: Control Protection Protection ProtectionConnection Diagram No.193Control Panel No.X2Suitable Connection Technology No.89	Supply Voltage	1030 V						
Response Time300 µsTemperature Range-2560 °CSwitching Outputs3Switching Output Voltage Drop1,5 VPNP Switching Output/Switching Current100 mAShort Circuit ProtectionyesReverse Polarity ProtectionyesOverload ProtectionyesTeach ModeFTInterfaceRS-232Digital Inputs2Protection ClassIIIMechanical DataPlasticAdjustmentTeach-InHousing MaterialPlasticDegree of ProtectionIP68ConnectionM12 × 1; 8-pinNO/NC switchableImage: Connection Diagram No.Connection Diagram No.193Control Panel No.X2Suitable Connection Technology No.89	Current Consumption (Ub = 24 V)	< 80 mA						
Temperature Range-2560 °CSwitching Outputs3Switching Output Voltage Drop1,5 VPNP Switching Output/Switching Current100 mAShort Circuit ProtectionyesReverse Polarity ProtectionyesOverload ProtectionyesTeach ModeFTInterfaceRS-232Digital Inputs2Protection ClassIIIMechanical DataPlasticAdjustmentTeach-InHousing MaterialPlasticDegree of ProtectionIP68ConnectionM12 × 1; 8-pinNO/NC switchableImage: Contamination OutputContamination OutputImage: Contamination OutputConnection Diagram No.193Control Panel No.X2Suitable Connection Technology No.89	Switching Frequency	1,8 kHz						
Switching Outputs3Switching Output Voltage Drop1,5 VPNP Switching Output/Switching Current100 mAShort Circuit ProtectionyesReverse Polarity ProtectionyesOverload ProtectionyesTeach ModeFTInterfaceRS-232Digital Inputs2Protection ClassIIIMechanical DataPlasticAdjustmentTeach-InHousing MaterialPlasticDegree of ProtectionIP68ConnectionM12 × 1; 8-pinNO/NC switchableImage: Contamination OutputContamination OutputImage: Contamination OutputConnection Diagram No.193Control Panel No.X2Suitable Connection Technology No.89	Response Time	300 <i>µ</i> s						
Switching Output Voltage Drop1,5 VPNP Switching Output/Switching Current100 mAShort Circuit ProtectionyesReverse Polarity ProtectionyesOverload ProtectionyesTeach ModeFTInterfaceRS-232Digital Inputs2Protection ClassIIIMechanical DataPlasticAdjustmentTeach-InHousing MaterialPlasticDegree of ProtectionIP68ConnectionM12 × 1; 8-pinNO/NC switchableImage: Contamination OutputContamination OutputImage: Contamination OutputConnection Diagram No.193Control Panel No.89	Temperature Range	-2560 °C						
PNP Switching Output/Switching Current100 mAShort Circuit ProtectionyesReverse Polarity ProtectionyesOverload ProtectionyesTeach ModeFTInterfaceRS-232Digital Inputs2Protection ClassIIIMechanical DataAdjustmentTeach-InHousing MaterialPlasticDegree of ProtectionIP68ConnectionM12 × 1; 8-pinNO/NC switchableConfigurable as PNP/NPN/Push-PullRS-232 InterfaceError OutputConnection Diagram No.193Control Panel No.X2Suitable Connection Technology No.89	Switching Outputs	3						
Short Circuit ProtectionyesReverse Polarity ProtectionyesOverload ProtectionyesTeach ModeFTInterfaceRS-232Digital Inputs2Protection ClassIIIMechanical DataAdjustmentTeach-InHousing MaterialPlasticDegree of ProtectionIP68ConnectionM12 × 1; 8-pinNO/NC switchableConfigurable as PNP/NPN/Push-PullRS-232 InterfaceError OutputContamination OutputConnection Diagram No.193Control Panel No.X2Suitable Connection Technology No.89	Switching Output Voltage Drop	1,5 V						
Reverse Polarity ProtectionyesOverload ProtectionyesTeach ModeFTInterfaceRS-232Digital Inputs2Protection ClassIIIMechanical DataAdjustmentTeach-InHousing MaterialPlasticDegree of ProtectionIP68ConnectionM12 × 1; 8-pinNO/NC switchable●Configurable as PNP/NPN/Push-Pull●RS-232 Interface●Error Output●Contamination Output●Connection Diagram No.193Control Panel No.X2Suitable Connection Technology No.89	PNP Switching Output/Switching Current	100 mA						
Overload ProtectionyesTeach ModeFTInterfaceRS-232Digital Inputs2Protection ClassIIIMechanical DataIIIAdjustmentTeach-InHousing MaterialPlasticDegree of ProtectionIP68ConnectionM12 × 1; 8-pinNO/NC switchableImage: Configurable as PNP/NPN/Push-PullRS-232 InterfaceImage: Contamination OutputConnection Diagram No.193Control Panel No.X2Suitable Connection Technology No.89	Short Circuit Protection	yes						
Teach Mode   FT     Interface   RS-232     Digital Inputs   2     Protection Class   III     Mechanical Data   III     Adjustment   Teach-In     Housing Material   Plastic     Degree of Protection   IP68     Connection   M12 × 1; 8-pin     NO/NC switchable   Image: Configurable as PNP/NPN/Push-Pull     RS-232 Interface   Image: Contamination Output     Connection Diagram No.   193     Control Panel No.   X2     Suitable Connection Technology No.   89	Reverse Polarity Protection	yes						
InterfaceRS-232Digital Inputs2Protection ClassIIIMechanical DataIIIAdjustmentTeach-InHousing MaterialPlasticDegree of ProtectionIP68ConnectionM12 × 1; 8-pinNO/NC switchable●Configurable as PNP/NPN/Push-Pull●RS-232 Interface●Error Output●Connection Diagram No.193Control Panel No.X2Suitable Connection Technology No.89	Overload Protection	yes						
Digital Inputs2Protection ClassIIIMechanical DataIIIAdjustmentTeach-InHousing MaterialPlasticDegree of ProtectionIP68ConnectionM12 × 1; 8-pinNO/NC switchableImage: Configurable as PNP/NPN/Push-PullRS-232 InterfaceImage: Contamination OutputConnection Diagram No.193Control Panel No.X2Suitable Connection Technology No.89	Teach Mode	FT						
Protection ClassIIIMechanical DataTeach-InAdjustmentTeach-InHousing MaterialPlasticDegree of ProtectionIP68ConnectionM12 × 1; 8-pinNO/NC switchable●Configurable as PNP/NPN/Push-Pull●RS-232 Interface●Error Output●Connection Diagram No.193Control Panel No.X2Suitable Connection Technology No.89	Interface	RS-232						
Mechanical Data     Adjustment   Teach-In     Housing Material   Plastic     Degree of Protection   IP68     Connection   M12 × 1; 8-pin     NO/NC switchable   ●     Configurable as PNP/NPN/Push-Pull   ●     RS-232 Interface   ●     Error Output   ●     Connection Diagram No.   193     Control Panel No.   X2     Suitable Connection Technology No.   89	Digital Inputs	2						
Adjustment   Teach-In     Housing Material   Plastic     Degree of Protection   IP68     Connection   M12 × 1; 8-pin     NO/NC switchable   ●     Configurable as PNP/NPN/Push-Pull   ●     RS-232 Interface   ●     Error Output   ●     Contamination Output   ●     Connection Diagram No.   193     Control Panel No.   X2     Suitable Connection Technology No.   89	Protection Class	tion Class III						
Housing Material   Plastic     Degree of Protection   IP68     Connection   M12 × 1; 8-pin     NO/NC switchable   ●     Configurable as PNP/NPN/Push-Pull   ●     RS-232 Interface   ●     Error Output   ●     Contamination Output   ●     Connection Diagram No.   193     Control Panel No.   X2     Suitable Connection Technology No.   89	Mechanical Data							
Degree of Protection   IP68     Connection   M12 × 1; 8-pin     NO/NC switchable   •     Configurable as PNP/NPN/Push-Pull   •     RS-232 Interface   •     Error Output   •     Contamination Output   •     Connection Diagram No.   193     Control Panel No.   X2     Suitable Connection Technology No.   89	Adjustment	Teach-In						
ConnectionM12 × 1; 8-pinNO/NC switchable•Configurable as PNP/NPN/Push-Pull•RS-232 Interface•Error Output•Contamination Output•Connection Diagram No.193Control Panel No.X2Suitable Connection Technology No.89	Housing Material	Plastic						
NO/NC switchable   Image: Configurable as PNP/NPN/Push-Pull     Configurable as PNP/NPN/Push-Pull   Image: Configurable as PNP/NPN/Push-Pull     RS-232 Interface   Image: Configurable as PNP/NPN/Push-Pull     Error Output   Image: Configurable as PNP/NPN/Push-Pull     Contamination Output   Image: Configurable as PNP/NPN/Push-Pull     Connection Diagram No.   Image: Push-Pull     Control Panel No.   X2     Suitable Connection Technology No.   89	Degree of Protection	e of Protection IP68						
Configurable as PNP/NPN/Push-PullRS-232 InterfaceError OutputContamination OutputConnection Diagram No.Control Panel No.X2Suitable Connection Technology No.89	Connection	M12 × 1; 8-pin						
RS-232 Interface     Error Output     Contamination Output     Connection Diagram No.     193     Control Panel No.     Suitable Connection Technology No.     89	NO/NC switchable							
Error Output     Contamination Output     Connection Diagram No.     193     Control Panel No.     Suitable Connection Technology No.     89	Configurable as PNP/NPN/Push-Pull							
Contamination OutputConnection Diagram No.193Control Panel No.X2Suitable Connection Technology No.89	RS-232 Interface							
Connection Diagram No. 193   Control Panel No. X2   Suitable Connection Technology No. 89	Fror Output							
Control Panel No. X2   Suitable Connection Technology No. 89	Contamination Output							
Suitable Connection Technology No. 89	Connection Diagram No.	193						
<u>.</u>	Control Panel No.	X2						
Suitable Mounting Technology No. 380	Suitable Connection Technology No.	89						
	Suitable Mounting Technology No.	380						

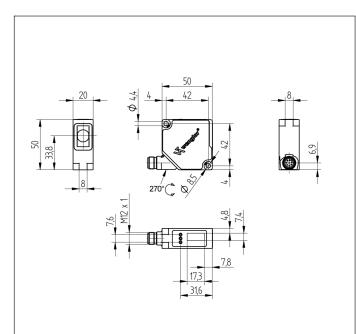
This color sensor is capable of evaluating up to three colors simultaneously. A small spot and a large working range are made possible thanks to single-lens optics. All sensor settings can be selected by means of teach-in, as well as via the RS-232 interface. Values generated by the sensor can be read out via the interface or digital switching outputs. The sensor has 3 switching outputs and supplies RGB, XYZ and HSL color values via the interface.



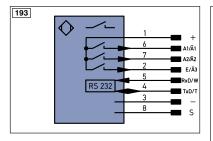


**Photoelectronic Sensors** 





Screw M4 = 0,5 Nm All dimensions in mm (1 mm = 0.03937 Inch)



Legend									
+	Supply Voltage +		nc	not connected					
-	Supply Voltage 0 V		U	Test Input					
~	Supply Voltage (AC Voltage)		Ū	Test Input inverted					
А	Switching Output	(NO)	W	Trigger Input					
Ā	Switching Output	(NC)	0	Analog Output					
V	Contamination/Error Output	(NO)	0-	Ground for the Analog Output					
V	Contamination/Error Output	(NC)	BZ	Block Discharge					
E	Input (analog or digital)		Awv	Valve Output		Wire Colors according to DIN IEC 757			
Т	Teach Input		а	Valve Control Output +					
Z	Time Delay (activation)		b	Valve Control Output 0 V					
S	Shielding		SY	Synchronization		BK	Black		
RxD	Interface Receive Path		E+	Receiver-Line		BN	Brown		
TxD	Interface Send Path		S+	Emitter-Line		RD	Red		
RDY	Ready		÷	Grounding		OG	Orange		
GND	Ground		SnR	Switching Distance Reduction		YE	Yellow		
CL	Clock		Rx+/-	Ethernet Receive Path		GN	Green		
E/A	Output/Input programmable		Tx+/-	Ethernet Send Path		BU	Blue		
0	IO-Link		Bus	Interfaces-Bus A(+)/B(-)		VT	Violet		
PoE	Power over Ethernet		La	Emitted Light disengageable		GY	Grey		
IN	Safety Input		Mag	Magnet activation		WH	White		
OSSD	Safety Output		RES	Input confirmation		PK	Pink		
Signal	Signal Output		EDM	Contactor Monitoring		GNYE	Green Yellow		

## **Complementary Products**

Feldbus Gateways ZAGxxxN01
Interface Cable S232W3
Protection Housing Set ZSP-NN-02
Protection Housing ZSV-0x-01

## Ctrl. Panel



20 = Enter Button 22 = UP Button 23 = Down Button 60 = Display