



# S3N

## MINIATURE PHOTOELECTRIC SENSOR



- All models with visible and bright red emission
- LED and Laser emission models
- Multiple Background suppression functions
- Shiny and clear object detection
- Single, Double trimmer & Push Button models
- Diffuse proximity up to 100 cm
- Background suppression up to 800 mm (LED trimmer version)
- Polarized RRX 7 m (Red LED emission)

- Polarized RRX 12 m (Red Laser emission)
- Through-beam 20 m and Laser 30 m
- Connection with 2 m Cable or M8 connector
- Rugged IP67 Plastic miniature case
- M3 threaded holes on the front side with metal inserts
- State of the art IO-Link connectivity with extended Smart Tasks





### CODE DESCRIPTION



**S3N - P R - 5 - B 0 1 - P L**

series	<b>S3N</b>	Miniature photoelectric sensor
housing	<b>P</b>	standard housing
emission	<b>R</b>	Radial LED emission
	<b>H</b>	Radial LASER emission
connection	<b>5</b>	M8 connector
	<b>2</b>	2 m cable
function	<b>B</b>	Retro Reflex Polarized
	<b>C</b>	Diffused
	<b>FG</b>	Through Beam
	<b>M</b>	Background suppression
	<b>T</b>	Transparent (not available yet)
	<b>W</b>	Mark reader (not available yet)
distance	<b>0</b>	Standard distance
	<b>1</b>	Long distance
adjustment	<b>1</b>	Trimmer adjustment
	<b>3</b>	Teach-In push button
output	<b>P</b>	PNP output
	<b>N</b>	NPN output
	<b>0</b>	IO-Link configurable static output
output configuration		L/D configurable by trimmer
	<b>L</b>	Light mode
	<b>D</b>	Dark mode
	<b>Z</b>	IO-Link + configurable static output

# TECHNICAL FEATURES


	S3N-PR-*-B01-**	S3N-PR-*-C01-**	S3N-PR-*-C11-**
			
Optical Function	Polarized retroreflective	Diffuse narrow beam	Diffuse beam Long Range
Operating Distance	0.05...7 m on R5	2...250 mm (White 90%)	0...1000 mm (White 90%)
Emission	red LED (635 nm) EC62471 EXEMPT RISK GROUP (RG0)		
Switching Frequency	1 kHz		
Response Time	500 µs		
Supply Voltage	10-30 VDC		
Ripple	≤ 10% peak to peak max.		
No load Current	35 mA max.		
Voltage Leakage	≤ 2 V		
Current Leakage	≤ 300 µA static output; ≤ 400 µA for -03 (IO-Link) models with Push pull enabled		
Load Current	100 mA Max, short circuit protected		
Output Type	PNP or NPN Discrete output all models - IO-Link + static configurable output (S3N...OZ models)		
Indicators	yellow OUTPUT LED - green Power ON LED (blue LED: IO-Link activity (S3N...OZ models)		
Short Circuit Protection	●		
Reverse Polarity Protection	●		
Overvoltage Protection	●		
Insulation Resistance	>20 MΩ 500 Vdc, between electronics and housing		
Ground resistivity	500 Vac 1 min., between electronics and housing		
Shock and Vibration	0.5 mm amplitude - 10 ... 55 Hz frequency for every axis (EN60068-2-6)		
Dimensions	11 x 32 x 20 mm		
Housing Material	Body: technopolymer Fiber Glass reinforced; indicators: TPE		
Actuators Material	POM, PMMA		
Plug Material	Nickel plated brass		
Optical Window Material	PMMA		
Mechanical Protection	IP67		
Electromagnetic Compatibility	according to EN 60947-5-2:2020 requirements		
Certifications	CE, UKCA, cULus (IO-Link: S3N...OZ models)		
Ambient Light Immunity	according to EN 60947-5-2 : 2020		
Operating Temperature	-25 ... +55 °C		
Storage Temperature	-40°C...+70°C		

# TECHNICAL FEATURES



	S3N-PR-*-FG01-**	S3N-PR-5-FG03-OZ	S3N-PR-*-M01-**	S3N-PR-*-M03-OZ
				
Optical Function	Through beam emitter and receiver		Background suppression	
Operating Distance	0...20 m		3...350 mm 0...800 mm (White 90%) <sup>(1)</sup>	18...180 mm (Black 6%)
Emission	red LED (635 nm)			
Switching Frequency	500 Hz			
Response Time	1 ms			
Supply Voltage	10-30 VDC			
Ripple	≤ 10% peak to peak max.			
No load Current	35 mA max.			
Voltage Leakage	≤ 2 V			
Current Leakage	≤ 300 µA static output; ≤ 400 µA for -03 (IO-Link) models with Push pull enabled			
Load Current	100 mA Max, short circuit protected			
Output Type	PNP or NPN Discrete output all models - IO-Link + static configurable output (S3N...OZ models)			
Indicators	yellow OUTPUT LED - green Power ON LED (blue LED: IO-Link activity (S3N...OZ models))			
Short Circuit Protection	●			
Reverse Polarity Protection	●			
Overvoltage Protection	●			
Insulation Resistance	>20 MΩ 500 Vdc, between electronics and housing			
Ground resistivity	500 Vac 1 min., between electronics and housing			
Shock and Vibration	0.5 mm amplitude - 10 ... 55 Hz frequency for every axis (EN60068-2-6)			
Dimensions	11 x 32 x 20 mm			
Housing Material	Body: technopolymer Fiber Glass reinforced; indicators: TPE			
Actuatuators Material	POM, PMMA			
Plug Material	Nickel plated brass			
Optical Window Material	PMMA			
Mechanical Protection	IP67			
Electromagnetic Compatibility	according to EN 60947-5-2:2020 requirements			
Certifications	CE, UKCA, cULus (IO-Link: S3N...OZ models)			
Ambient Light Immunity	according to EN 60947-5-2 : 2020			
Operating Temperature	-25 ... +55 °C			
Storage Temperature	-40°C...+70°C			

<sup>(1)</sup> on white object with 90% remission

# TECHNICAL FEATURES

	S3N-PH-* -B01-**	S3N-PH-5-B03-OZ
		
Optical Function	Polarized retroreflective	
Operating Distance	0.1...12 m on R7	
Emission	Laser light 650 nm (red), Class 1 IEC60825-1 Ed. 3 2014	
Switching Frequency	2 kHz	
Response Time	250 µs	
Supply Voltage	10-30 VDC	
Ripple	≤ 10% peak to peak max.	
No load Current	35 mA max.	
Voltage Leakage	≤ 2 V	
Current Leakage	≤ 300 µA static output; ≤ 400 µA for -03 (IO-Link) models with Push pull enabled	
Load Current	100 mA Max, short circuit protected	
Output Type	PNP or NPN Discrete output all models - IO-Link + static configurable output (S3N...OZ models)	
Indicators	yellow OUTPUT LED - green Power ON LED (blue LED: IO-Link activity (S3N...OZ models)	
Short Circuit Protection	●	
Reverse Polarity Protection	●	
Overvoltage Protection	●	
Insulation Resistance	>20 MΩ 500 Vdc, between electronics and housing	
Ground resistivity	500 Vac 1 min., between electronics and housing	
Shock and Vibration	0.5 mm amplitude - 10 ... 55 Hz frequency for every axis (EN60068-2-6)	
Dimensions	11 x 32 x 20 mm	
Housing Material	Body: technopolymer Fiber Glass reinforced; indicators: TPE	
Actuators Material	Trimmers POM	Push button POM
Plug Material	Nickel plated brass	
Optical Window Material	PMMA	
Mechanical Protection	IP67	
Electromagnetic Compatibility	according to EN 60947-5-2:2020 requirements	
Certifications	CE, UKCA, cULus, CDRH 1 (IO-Link: S3N...OZ models)	
Ambient Light Immunity	according to EN 60947-5-2 : 2020	
Operating Temperature	-25 ... +55 °C	
Storage Temperature	-40°C...+70°C	

# TECHNICAL FEATURES

	S3N-PH-*-M01-**	S3N-PH-5-M03-OZ	S3N-PH-*-FG01-**	S3N-PH-5-FG03-OZ
				
Optical Function	Background suppression		Through beam emitter and receiver	
Operating Distance	9...250 mm 0...600 mm (White 90%) <sup>1)</sup>	22...130 mm (Black 6%)	0...30 m	
Emission	Laser light 650 nm (red), Class 1 IEC60825-1 Ed. 3 2014			
Switching Frequency	2 kHz	1.5 kHz	2 kHz	
Reponse Time	250 µs	333 µs	250 µs	
Supply Voltage	10-30 VDC			
Ripple	≤ 10% peak to peak max.			
No load Current	35 mA max.			
Voltage Leakage	≤ 2 V			
Current Leakage	≤ 300 µA static output; ≤ 400 µA for -03 (IO-Link) models with Push pull enabled			
Load Current	100 mA Max, short circuit protected			
Output Type	PNP or NPN Discrete output all models - IO-Link + static configurable output (S3N...OZ models)			
Indicators	yellow OUTPUT LED - green Power ON LED (blue LED: IO-Link activity (S3N...OZ models)			
Short Circuit Protection	●			
Reverse Polarity Protection	●			
Overvoltage Protection	●			
Insulation Resistance	>20 MΩ 500 Vdc, between electronics and housing			
Ground resistivity	500 Vac 1 min., between electronics and housing			
Shock and Vibration	0.5 mm amplitude - 10 ... 55 Hz frequency for every axis (EN60068-2-6)			
Dimensions	11 x 32 x 20 mm			
Housing Material	Body: technopolymer Fiber Glass reinforced; indicators: TPE			
Actuatuators Material	POM, PMMA			
Plug Material	Nickel plated brass			
Optical Window Material	PMMA			
Mechanical Protection	IP67			
Electromagnetic Compatibility	according to EN 60947-5-2:2020 requirements			
Certifications	CE, UKCA, cULus (IO-Link: S3N...OZ models)			
Ambient Light Immunity	according to EN 60947-5-2 : 2020			
Operating Temperature	-25 ... +55 °C			
Storage Temperature	-40°C...+70°C			

<sup>(1)</sup> on white object with 90% remission

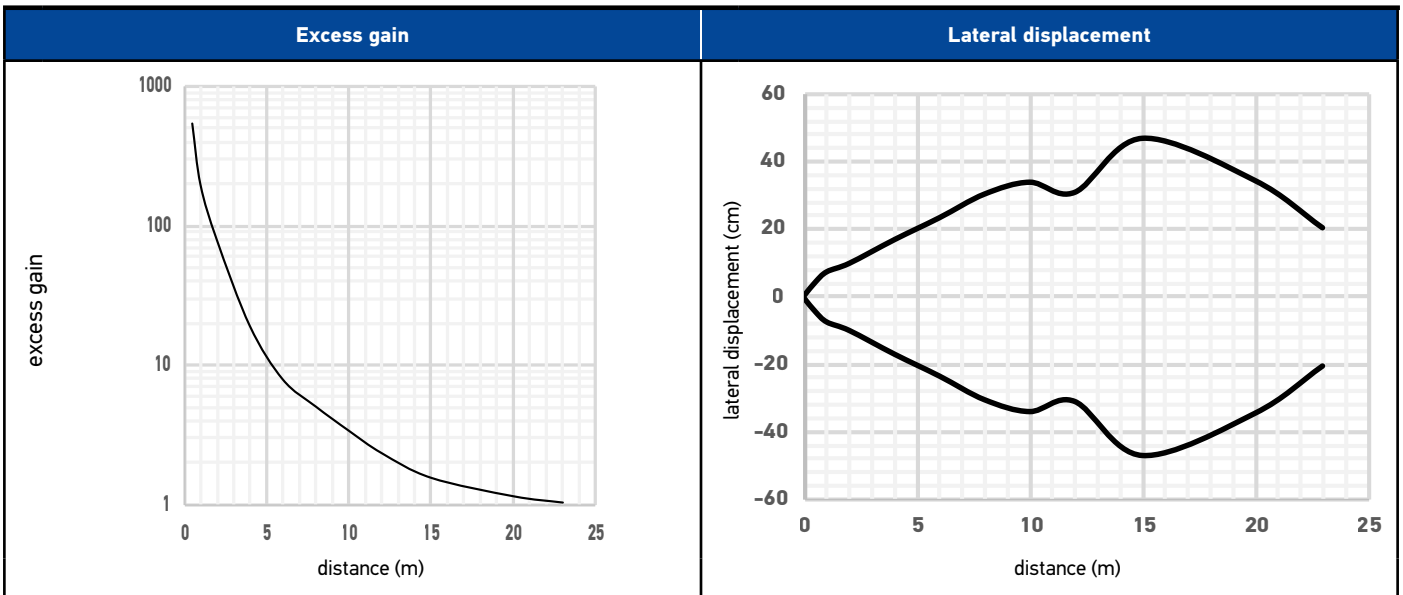
**AVAILABLE MODELS**

Distance	Adjustment	2 m 3 wires cable Ø 3.5 mm		M8 4pin		IO-Link + Conf. out
		PNP	NPN	PNP	NPN	
Red LED retro reflective polarized 0.05...7 m on R5	1 Trimmer (Adj.) LIGHT	<b>S3N-PR-2-B01-PL</b> (95B010082)	<b>S3N-PR-2-B01-NL</b> (95B010242)	<b>S3N-PR-5-B01-PL</b> (95B010092)	<b>S3N-PR-5-B01-NL</b> (95B010252)	-
	1 Trimmer (Adj.) DARK	<b>S3N-PR-2-B01-PD</b> (95B010102)	<b>S3N-PR-2-B01-ND</b> (95B010262)	<b>S3N-PR-5-B01-PD</b> (95B010112)	<b>S3N-PR-5-B01-ND</b> (95B010272)	-
	2 Trimmers (Adj.+ L/D)	<b>S3N-PR-2-B01-P</b> (95B010592)	<b>S3N-PR-2-B01-N</b> (95B010582)	<b>S3N-PR-5-B01-P</b> (95B010612)	<b>S3N-PR-5-B01-N</b> (95B010602)	-
	Push button	-	-	-	-	<b>S3N-PR-5-B03-OZ</b> (95B010780)
Red LED diffused Narrow Beam 2...250 mm	1 Trimmer (Adj.) LIGHT	<b>S3N-PR-2-C01-PL</b> (95B010042)	<b>S3N-PR-2-C01-NL</b> (95B010202)	<b>S3N-PR-5-C01-PL</b> (95B010052)	<b>S3N-PR-5-C01-NL</b> (95B010212)	-
	1 Trimmer (Adj.) DARK	<b>S3N-PR-2-C01-PD</b> (95B010062)	<b>S3N-PR-2-C01-ND</b> (95B010222)	<b>S3N-PR-5-C01-PD</b> (95B010072)	<b>S3N-PR-5-C01-ND</b> (95B010232)	-
	2 Trimmers (Adj.+ L/D)	<b>S3N-PR-2-C01-P</b> (95B010672)	<b>S3N-PR-2-C01-N</b> (95B010662)	<b>S3N-PR-5-C01-P</b> (95B010692)	<b>S3N-PR-5-C01-N</b> (95B010682)	-
	Push Button	-	-	-	-	<b>S3N-PR-5-C03-OZ</b> (95B010790)
Red LED diffused Long Distance 0...1000 mm	1 Trimmer (Adj.) LIGHT	<b>S3N-PR-2-C11-PL</b> (95B010002)	<b>S3N-PR-2-C11-NL</b> (95B010162)	<b>S3N-PR-5-C11-PL</b> (95B010012)	<b>S3N-PR-5-C11-NL</b> (95B010172)	-
	1 Trimmer (Adj.) DARK	<b>S3N-PR-2-C11-PD</b> (95B010022)	<b>S3N-PR-2-C11-ND</b> (95B010182)	<b>S3N-PR-5-C11-PD</b> (95B010032)	<b>S3N-PR-5-C11-ND</b> (95B010192)	-
	2 Trimmers (Adj.+ L/D)	<b>S3N-PR-2-C11-P</b> (95B010632)	<b>S3N-PR-2-C11-N</b> (95B010622)	<b>S3N-PR-5-C11-P</b> (95B010652)	<b>S3N-PR-5-C11-N</b> (95B010642)	-
	Push Button	-	-	-	-	<b>S3N-PR-5-C13-OZ</b> (95B010800)
Red LED through beam emitter and receiver 0...20 m	1 Trimmer (Adj.) LIGHT	<b>S3N-PR-2-FG01-PL</b> (95B010122)	<b>S3N-PR-2-FG01-NL</b> (95B010282)	<b>S3N-PR-5-FG01-PL</b> (95B010132)	<b>S3N-PR-5-FG01-NL</b> (95B010292)	-
	1 Trimmer (Adj.) DARK	<b>S3N-PR-2-FG01-PD</b> (95B010142)	<b>S3N-PR-2-FG01-ND</b> (95B010302)	<b>S3N-PR-5-FG01-PD</b> (95B010152)	<b>S3N-PR-5-FG01-ND</b> (95B010312)	-
	2 Trimmers (Adj.+ L/D)	<b>S3N-PR-2-FG01-P</b> (95B010712)	<b>S3N-PR-2-FG01-N</b> (95B010702)	<b>S3N-PR-5-FG01-P</b> (95B010732)	<b>S3N-PR-5-FG01-N</b> (95B010722)	-
	Push Button	-	-	-	-	<b>S3N-PR-5-FG03-OZ</b> (95B010810)
Red LED Mechanic BGS 3...350 mm 0...800 mm <sup>(1)</sup>	1 Trimmer (Adj.) LIGHT	<b>S3N-PR-2-M01-PL</b> (95B010332)	<b>S3N-PR-2-M01-NL</b> (95B010322)	<b>S3N-PR-5-M01-PL</b> (95B010352)	<b>S3N-PR-5-M01-NL</b> (95B010342)	-
	1 Trimmer (Adj.) DARK	-	-	<b>S3N-PR-5-M01-PD</b> (95B010562)	-	-
	2 Trimmers (Adj.+ L/D)	<b>S3N-PR-2-M01-P</b> (95B010752)	<b>S3N-PR-2-M01-N</b> (95B010742)	<b>S3N-PR-5-M01-P</b> (95B010772)	<b>S3N-PR-5-M01-N</b> (95B010762)	-
Red LED bkgd.suppression electronic 0...180 mm on black 6%	Push Button	-	-	-	-	<b>S3N-PR-5-M03-OZ</b> (95B010820)
Distance	Adjustment	2 m 3 wires cable Ø 3.5 mm		M8 4pin		IO-Link + Conf. out
		PNP	NPN	PNP	NPN	
Red Laser Retro Reflex Polarized 0.05...12 m on R7	2 Trimmers (Adj.+ L/D)	<b>S3N-PH-2-B01-P</b> (95B010442)	<b>S3N-PH-2-B01-N</b> (95B010452)	<b>S3N-PH-5-B01-P</b> (95B010462)	<b>S3N-PH-5-B01-N</b> (95B010472)	-
	Push Button	-	-	-	-	<b>S3N-PH-5-B03-OZ</b> (95B010880)
Red Laser Mechanic BGS 9...250 mm 0...600 mm <sup>(1)</sup> Red Laser bkgd. suppression electronic 0...130 mm on black 6%	2 Trimmers (Adj.+ L/D)	<b>S3N-PH-2-M01-P</b> (95B010482)	<b>S3N-PH-2-M01-N</b> (95B010492)	<b>S3N-PH-5-M01-P</b> (95B010502)	<b>S3N-PH-5-M01-N</b> (95B010512)	-
	Push Button	-	-	-	-	<b>S3N-PH-5-M03-OZ</b> (95B010900)
Red Laser Through beam emitter and receiver 0...30 m	2 Trimmers (Adj.+ L/D)	<b>S3N-PH-2-FG01-P</b> (95B010522)	<b>S3N-PH-2-FG01-N</b> (95B010532)	<b>S3N-PH-5-FG01-P</b> (95B010542)	<b>S3N-PH-5-FG01-N</b> (95B010552)	-
	Push Button	-	-	-	-	<b>S3N-PH-5-FG03-OZ</b> (95B010890)

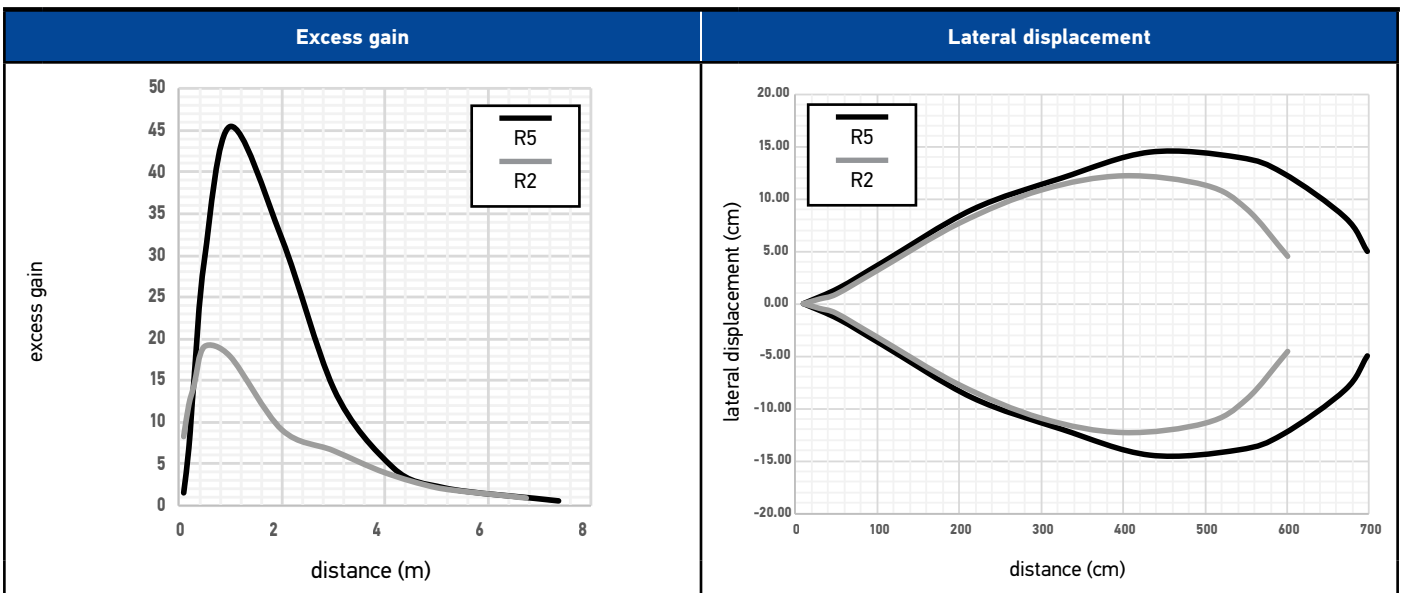
<sup>(1)</sup> on white object with 90% remission)

# RESPONSE DIAGRAMS (LED EMISSION)

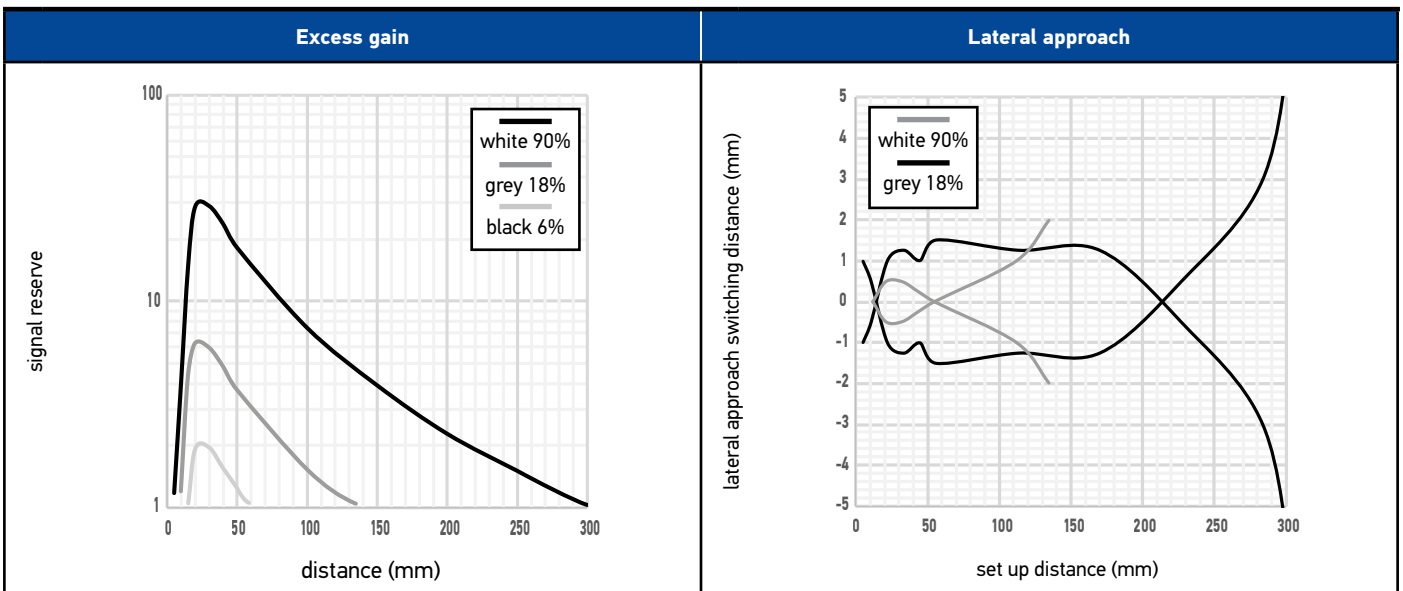
## S3N - PR - \* - FG\*\* - \*\*



## S3N - PR - \* - B\*\* - \*\*

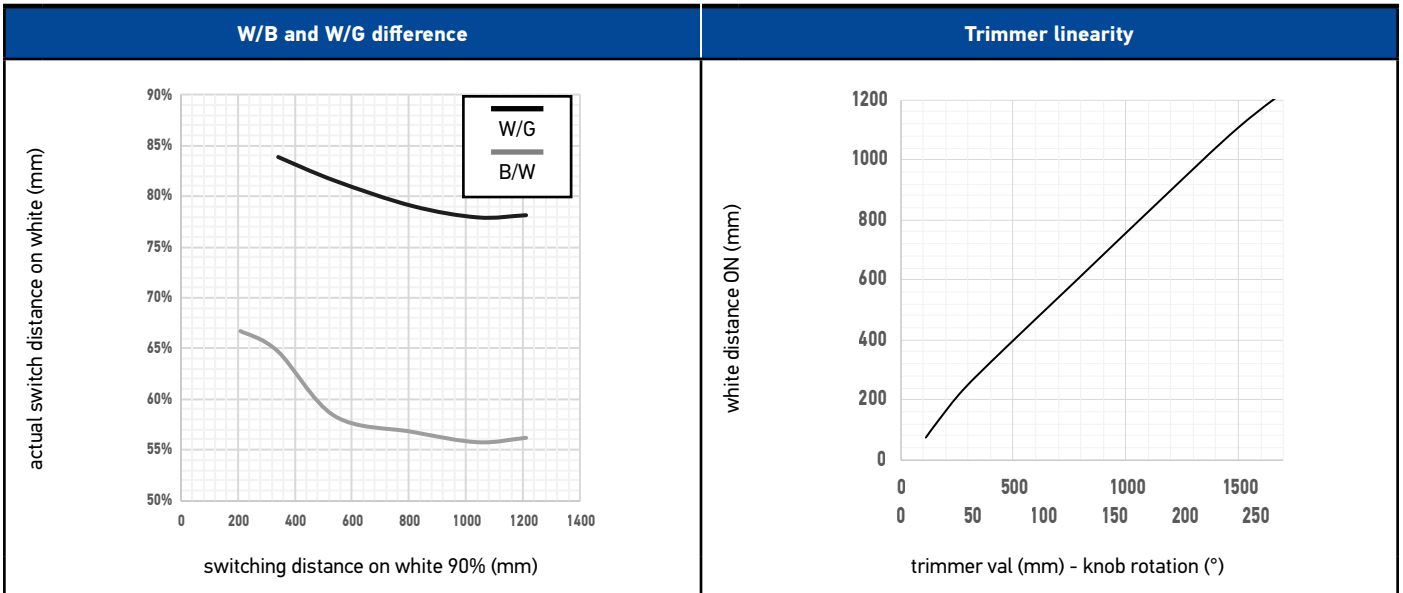
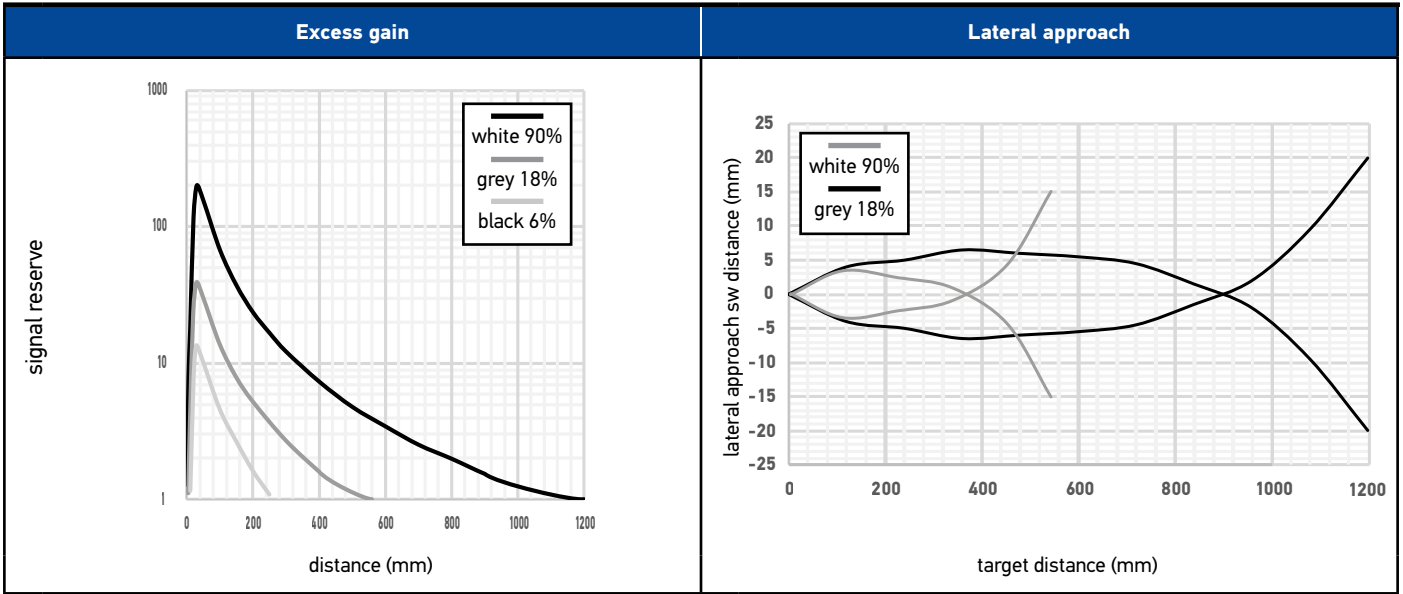


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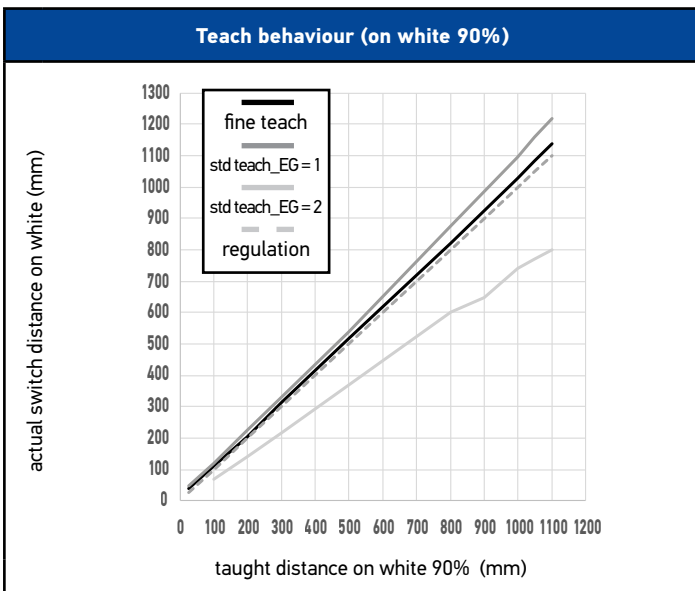


# RESPONSE DIAGRAMS (LED EMISSION)

**S3N - PR - \* - C1\* - \*\***



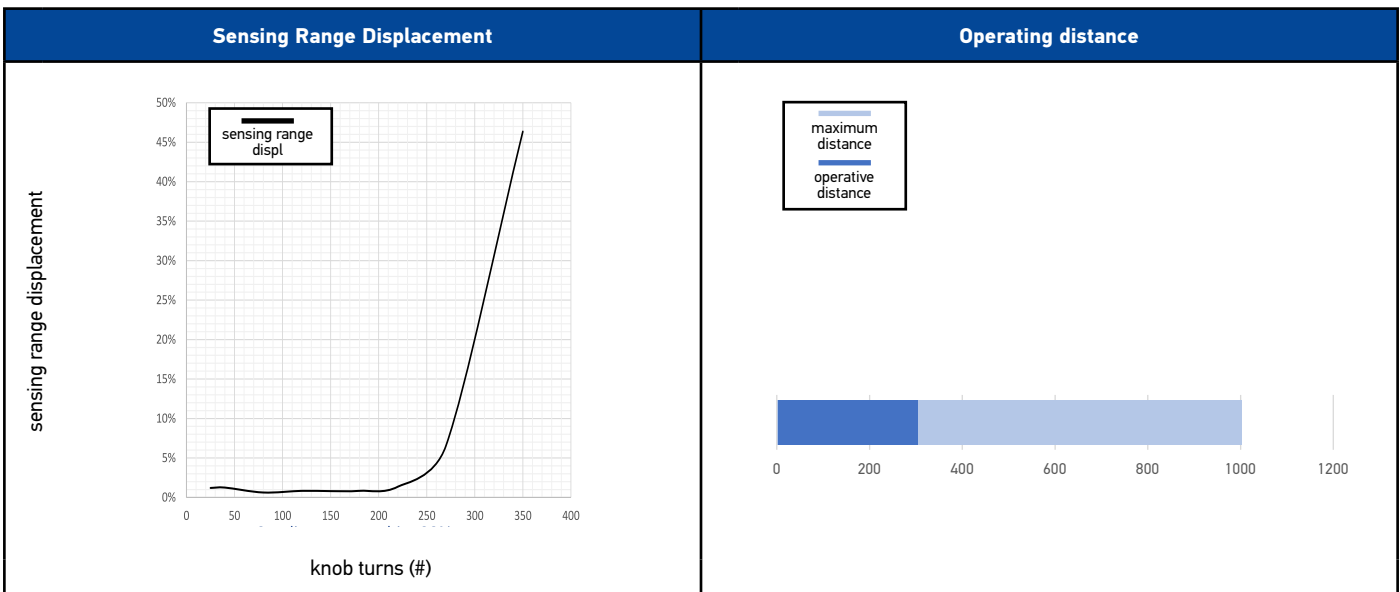
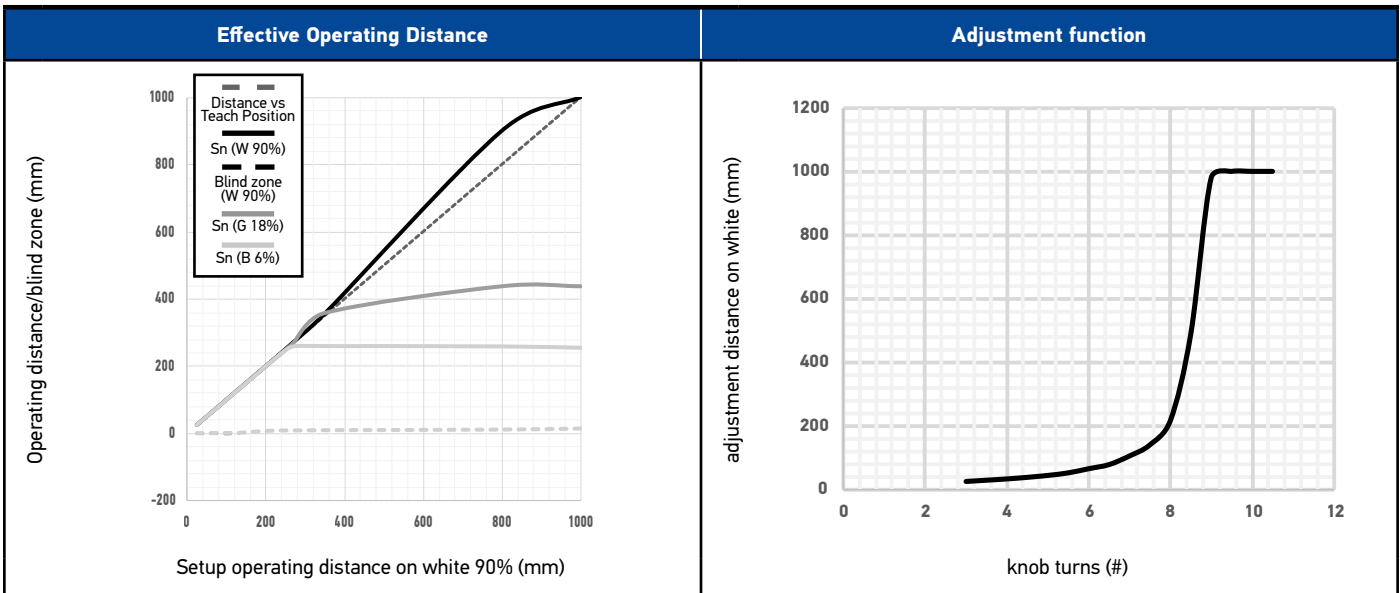
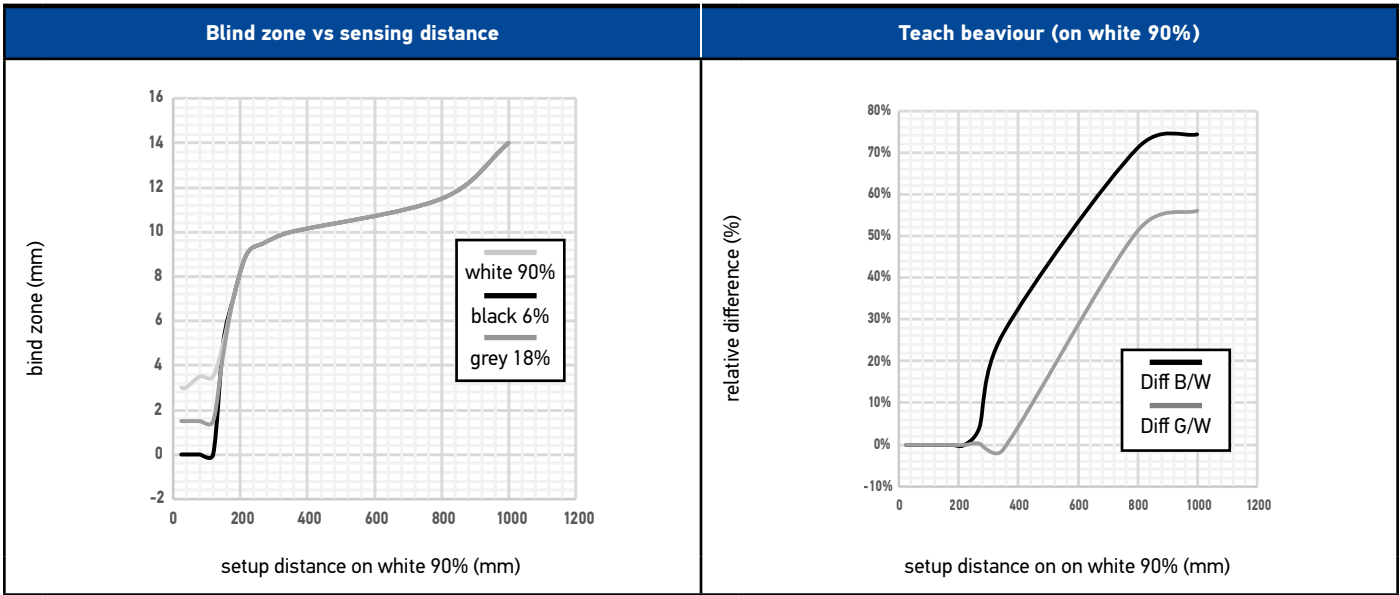
**S3N - PR - \* - C03 - \*\***





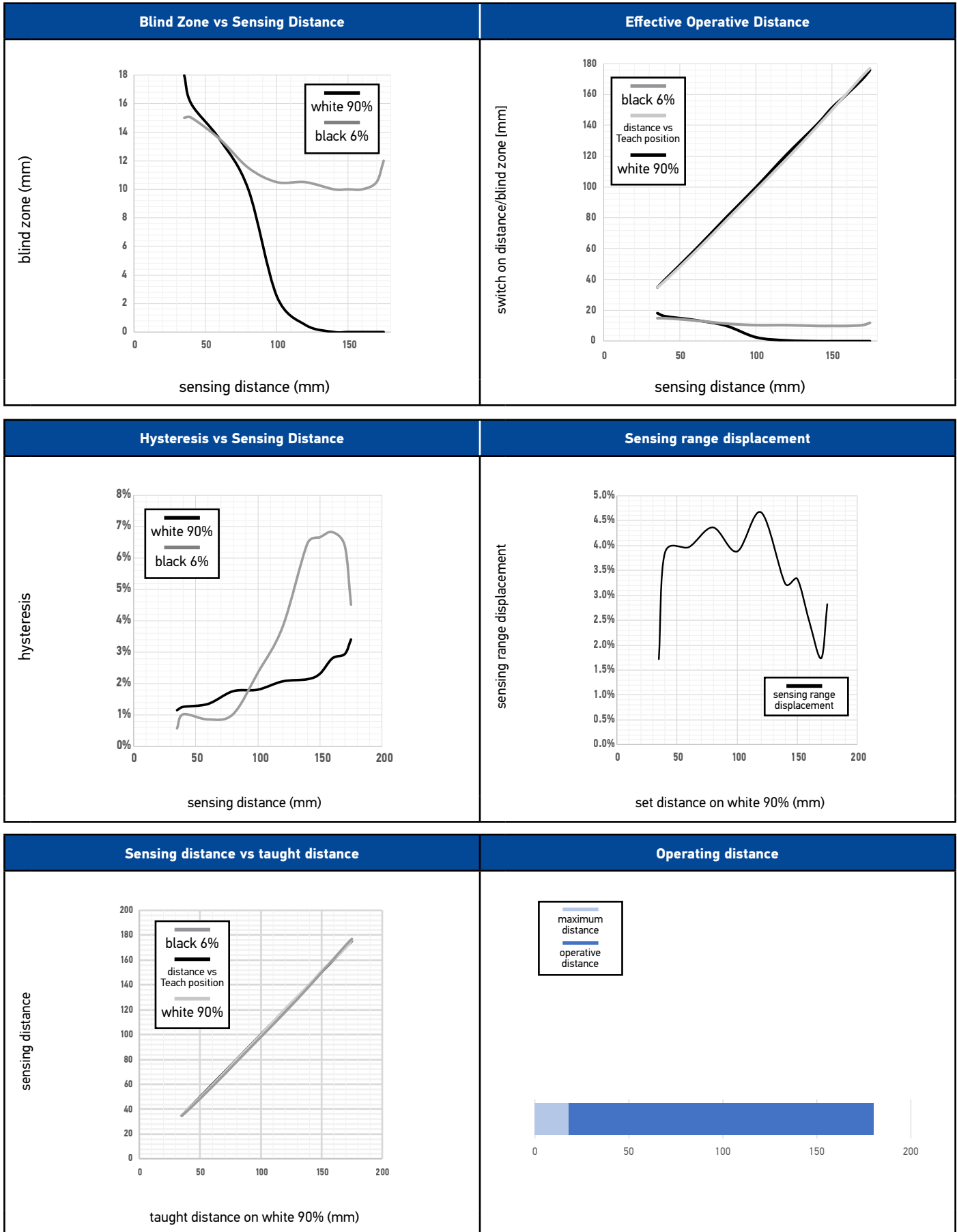
# RESPONSE DIAGRAMS (LED EMISSION)

S3N - PR - \* - M01 - \*\*



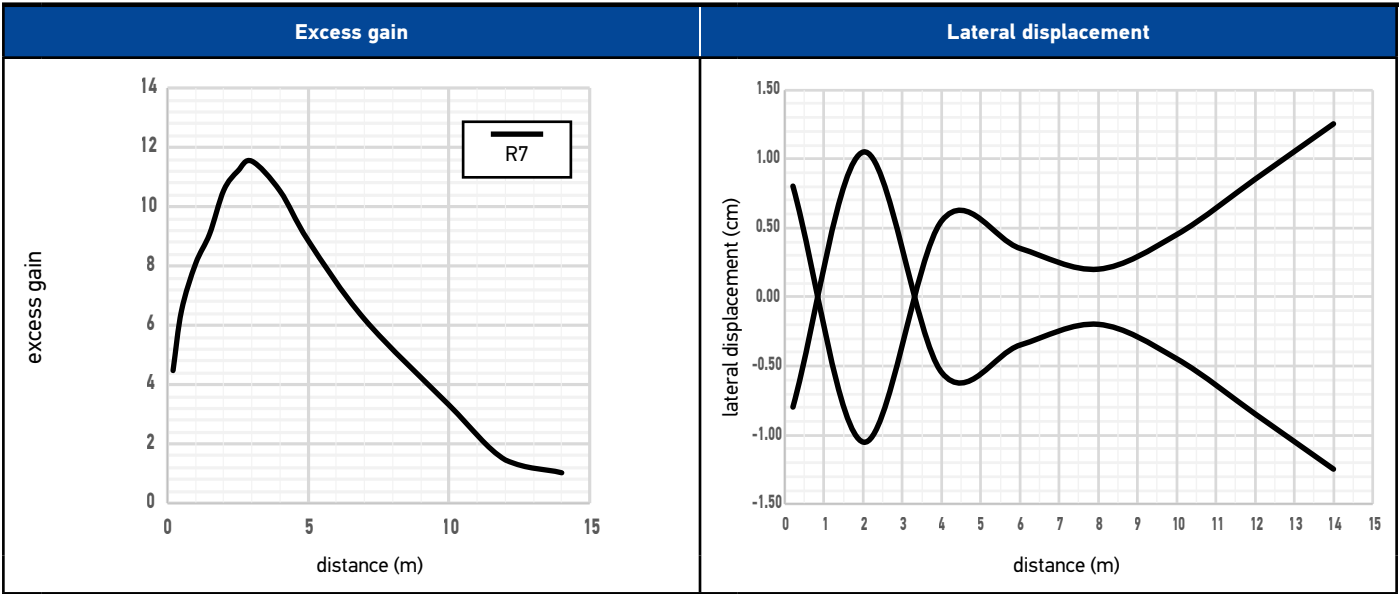
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**S3N - PR -5 \* - M03-OZ**

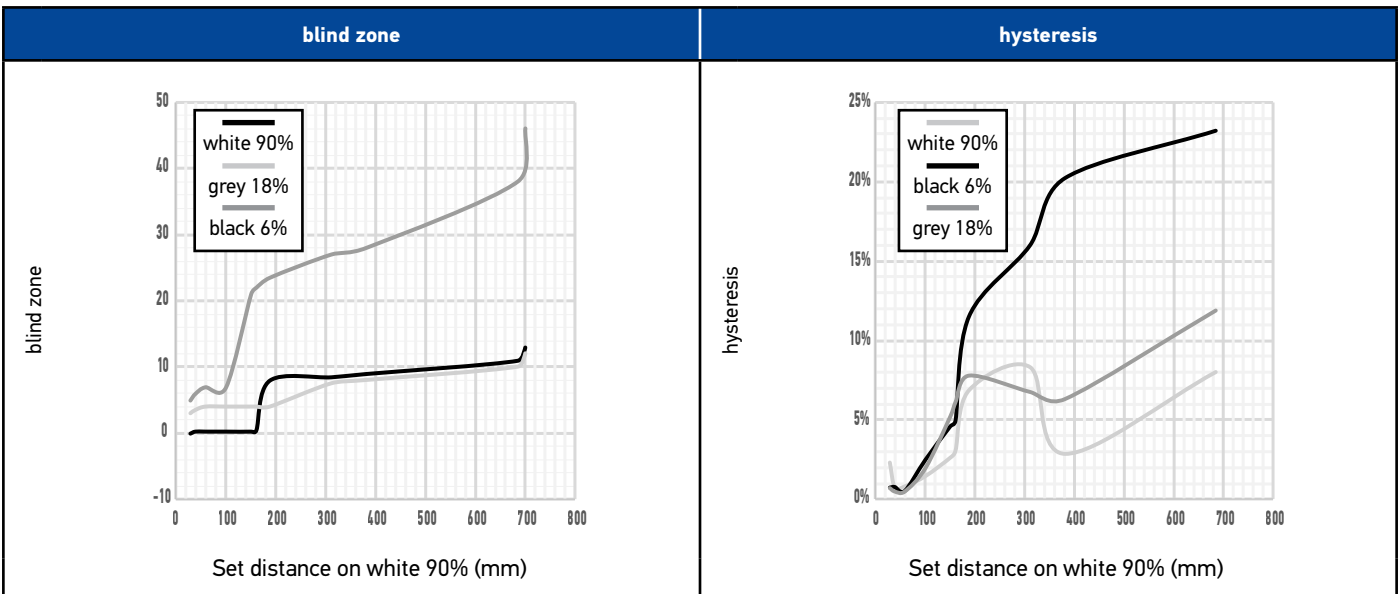


# RESPONSE DIAGRAMS (LASER EMISSION)

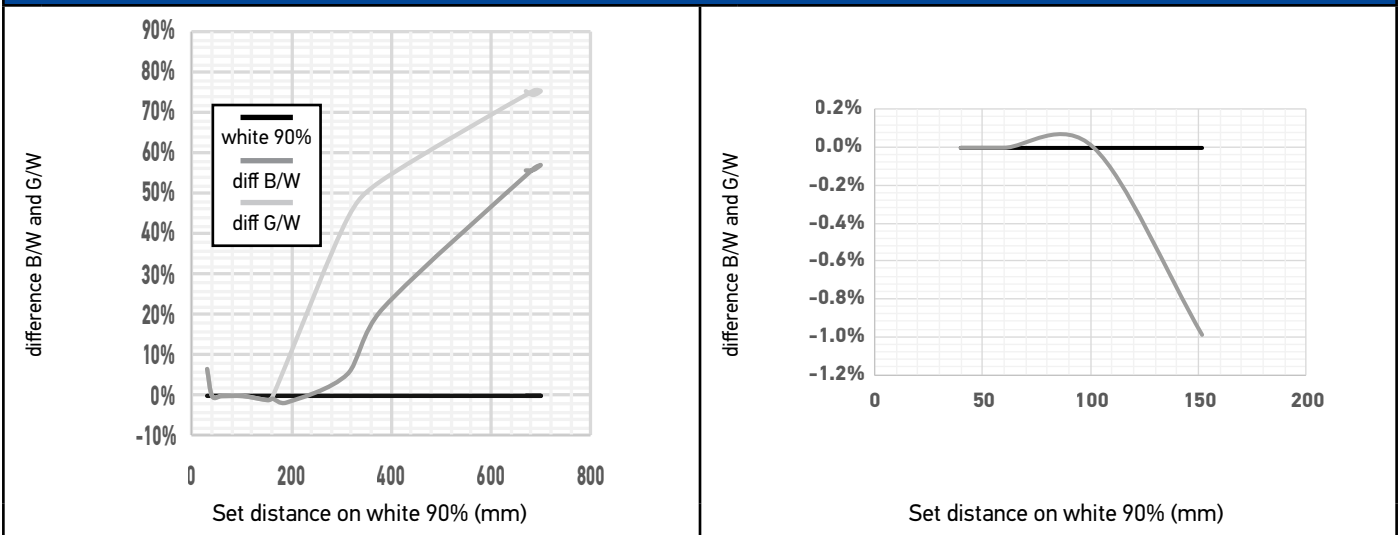
**S3N - PH - \* - B\*\* - \*\***



**S3N - PH - \* - M01 - \*\***

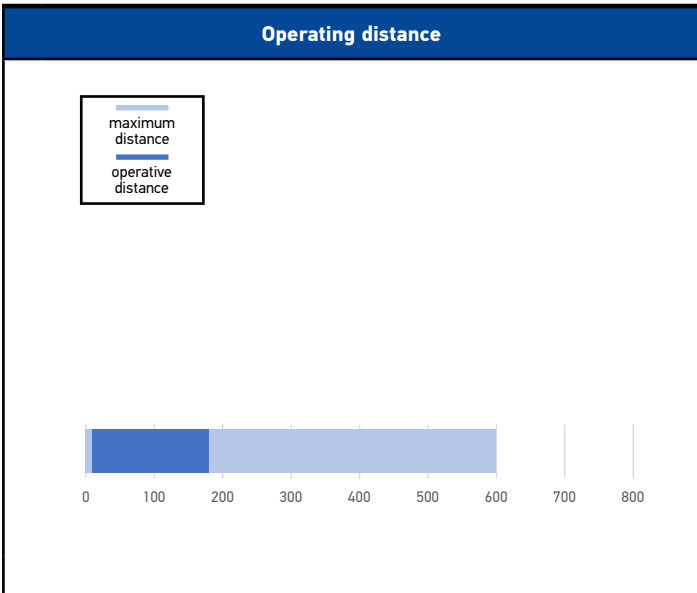
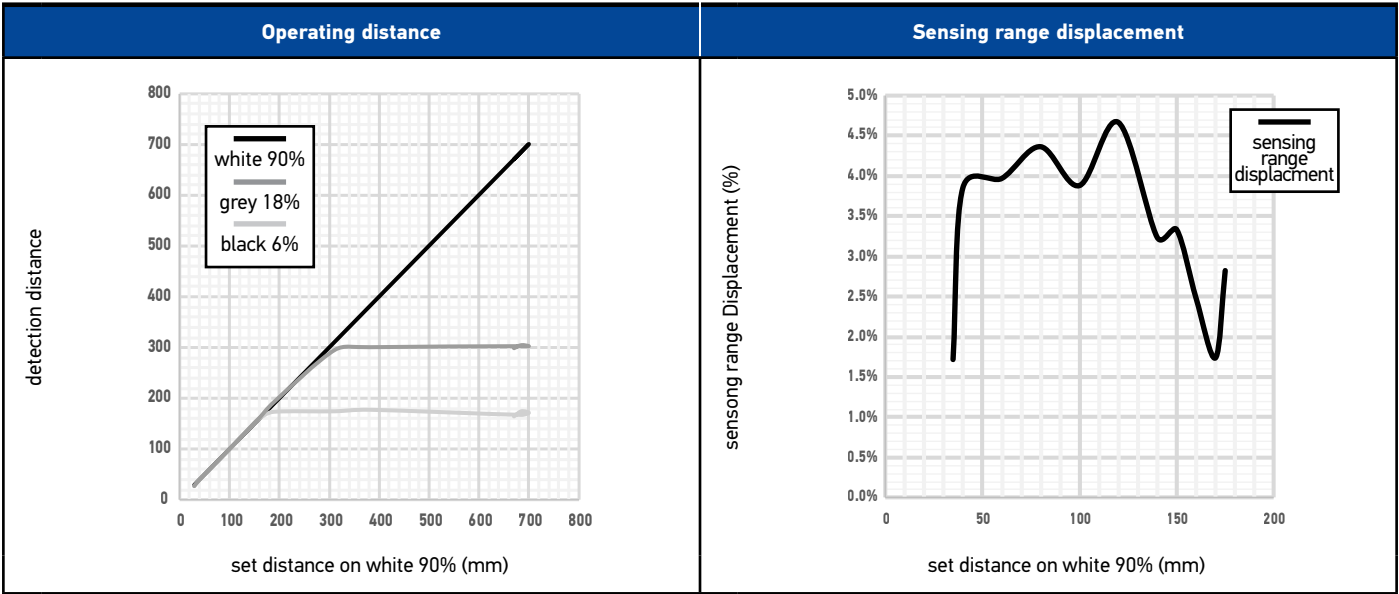


## B06/W90 and G18/W90 Shift

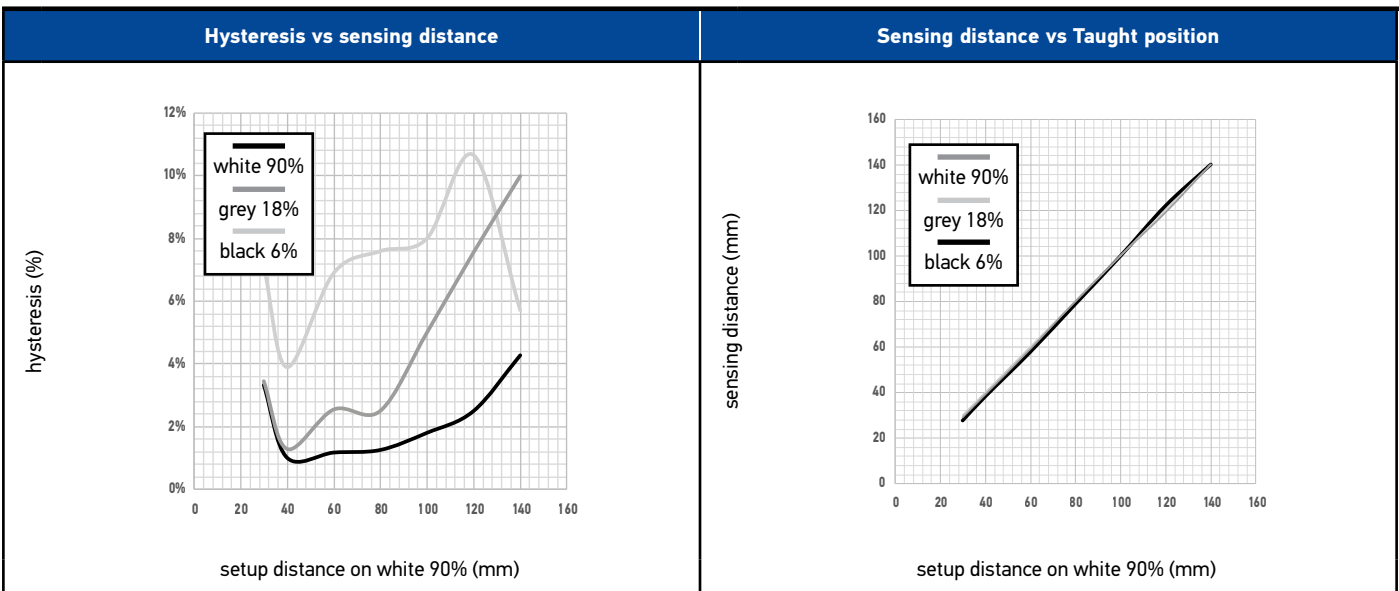


# RESPONSE DIAGRAMS (LASER EMISSION)

**S3N - PH - \* - M01 - \*\***

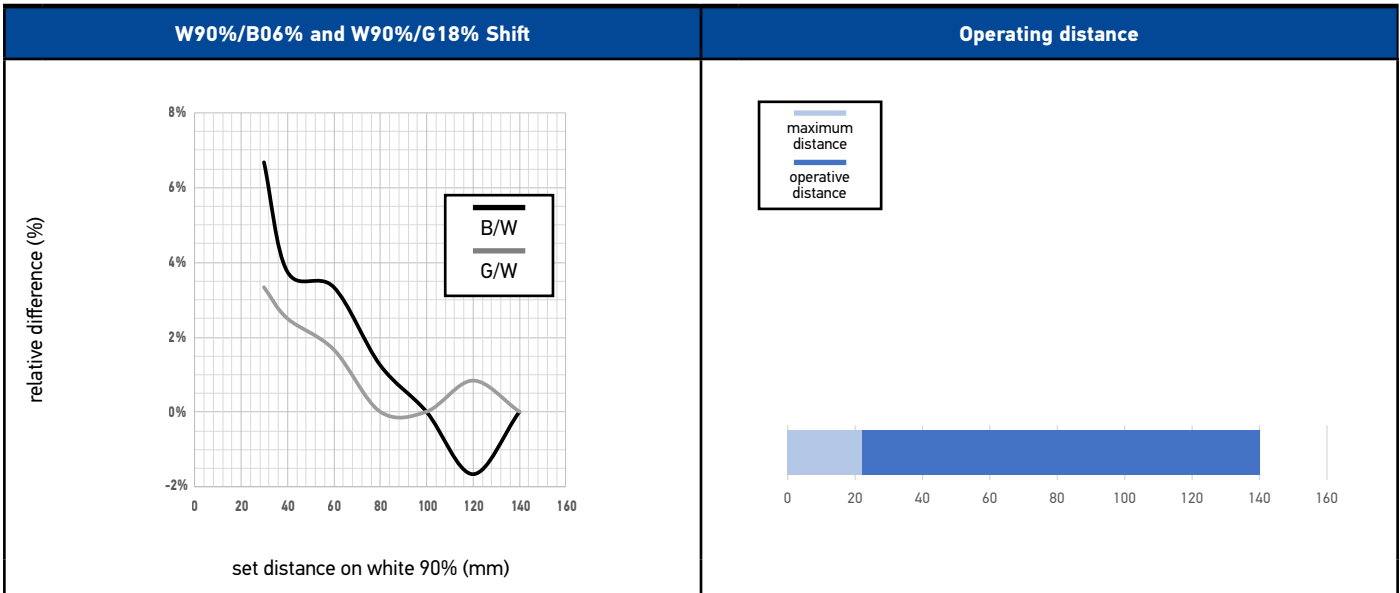
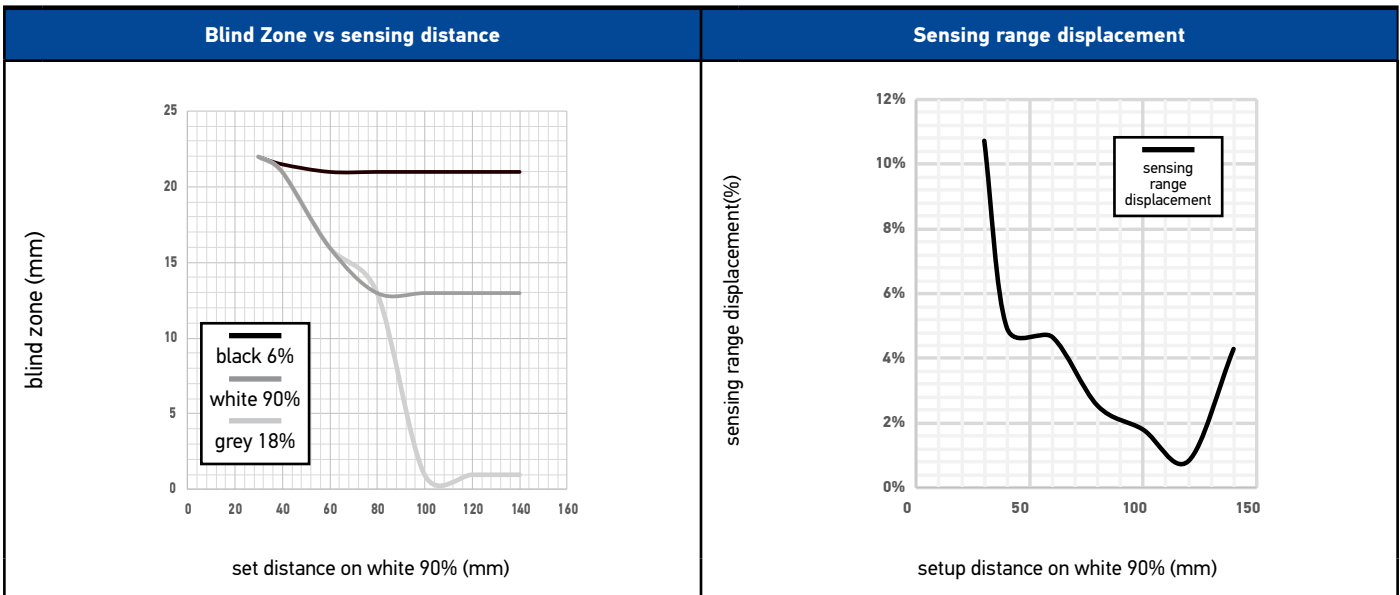


**S3N - PH - \* - M03 - \*\***

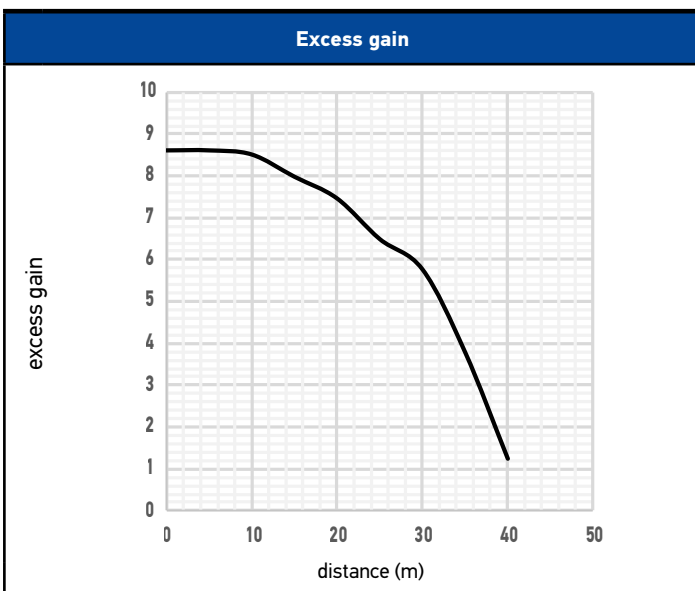


# RESPONSE DIAGRAMS (LASER EMISSION)

**S3N - PH - \* - M03 - \*\***

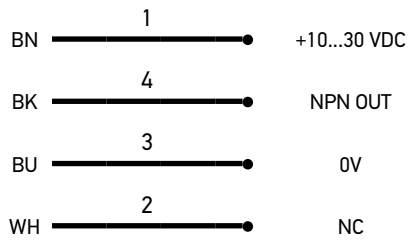
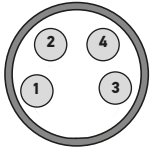


**S3N - PH - \* - FG\*\* - \*\***

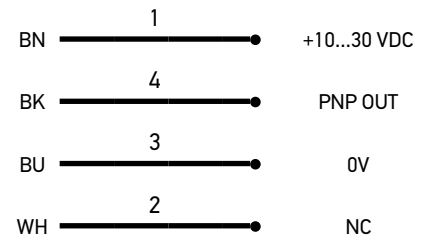
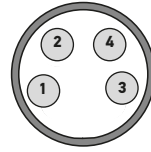


## CONNECTION DIAGRAMS

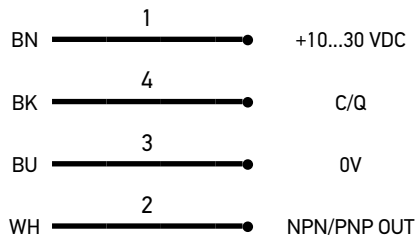
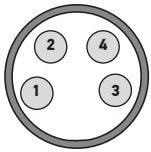
**S3N-P\*-\*-\*\*\*-N\***



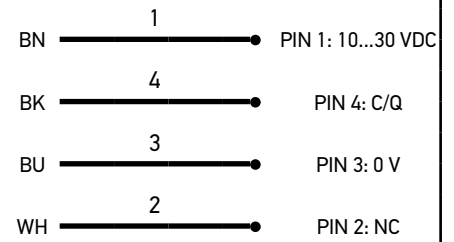
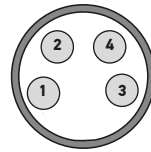
**S3N-P\*-\*-\*\*\*-P\***



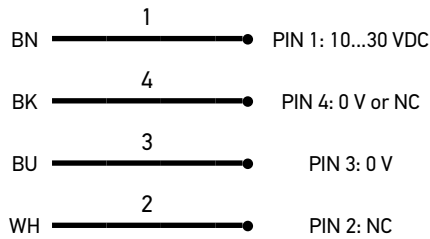
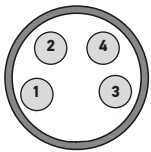
**S3N-P\*-5-\*03-OZ**



**S3N-P\*-\*-G03-OZ**

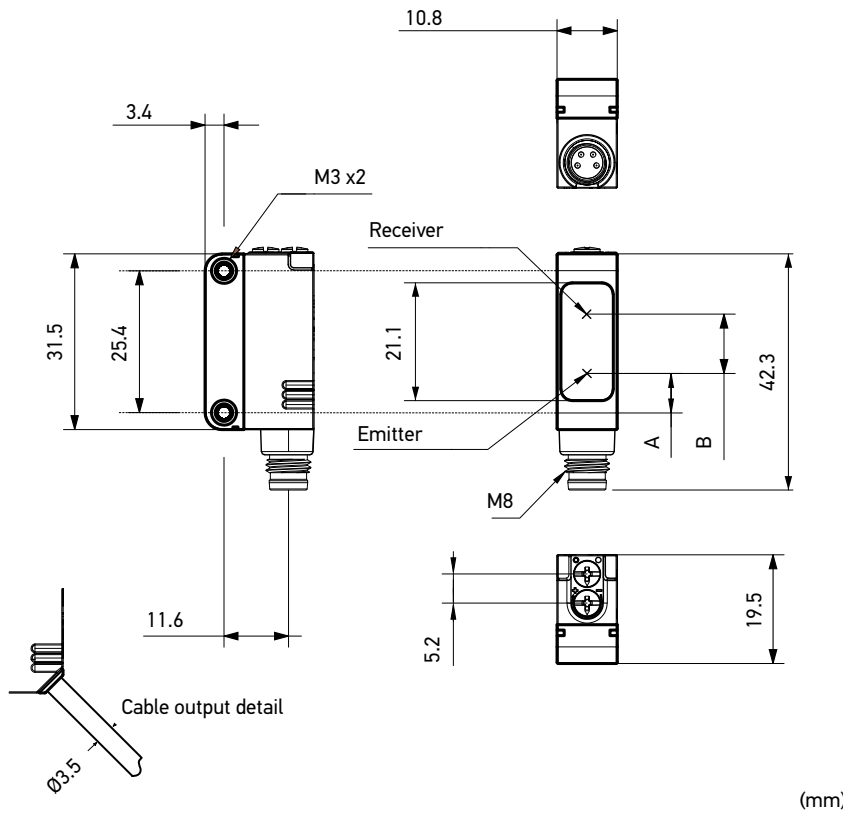


**S3N-P\*-\*-G\*\*-\*\***



# DIMENSIONS

## S3N-PR-\*\_\*\_\*\_\*\_\*\_\*

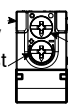


### User interface specifications

#### Dual trimmer Models

Green LED: M01: Power ON  
Others: Stability  
Sensitivity adjust  
M01: 6 turns  
Others: 1 turn

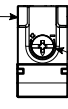
Yellow LED: Output status  
L/D selection



#### Single trimmer Models

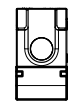
Yellow LED: Output status

Green LED: M01: Power ON  
Others: Stability  
Sensitivity adjust  
M01: 6 turns  
Others: 1 turn



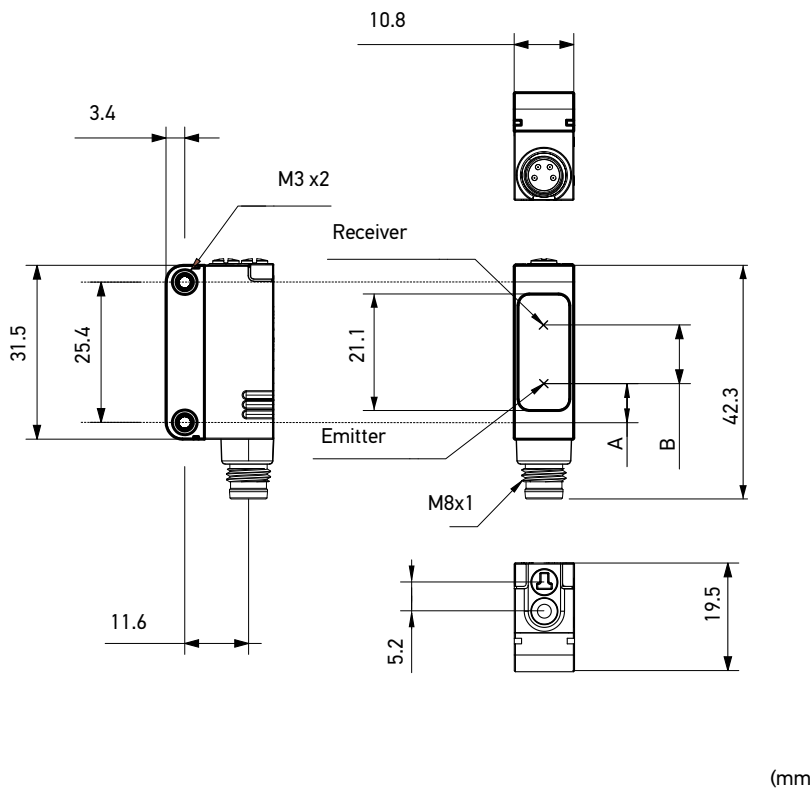
#### G01 model

Green LED: Power ON



version	A	B
S3N-PR-*_*-B0*_*_*	8.25	7.2
S3N-PR-*_*-T5*_*_*	10.3	7.2
S3N-PR-*_*-C0*_*_*	6.3	7.2
S3N-PR-*_*-C1*_*_*	7	7.2
S3N-PR-*_*-M03*_*	10.2	7.2
S3N-PR-*_*-M01*_*	10.65	7.2
S3N-PR-*_*-FG0*_*_* (EMITTER)	-	13.6
S3N-PR-*_*-FG0*_*_* (RECEIVER)	7	7.2

## S3N-PR-5-\*\_\*\_\*\_\*\_\*\_\*-OZ



### User interface specifications

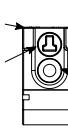
#### IO-Link models

Green LED: Power ON  
U\_I interactions

Yellow LED: Output status  
U\_I interactions

Teach Button

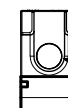
Blue LED: IO-Link activity



#### G03

Green LED: Power ON

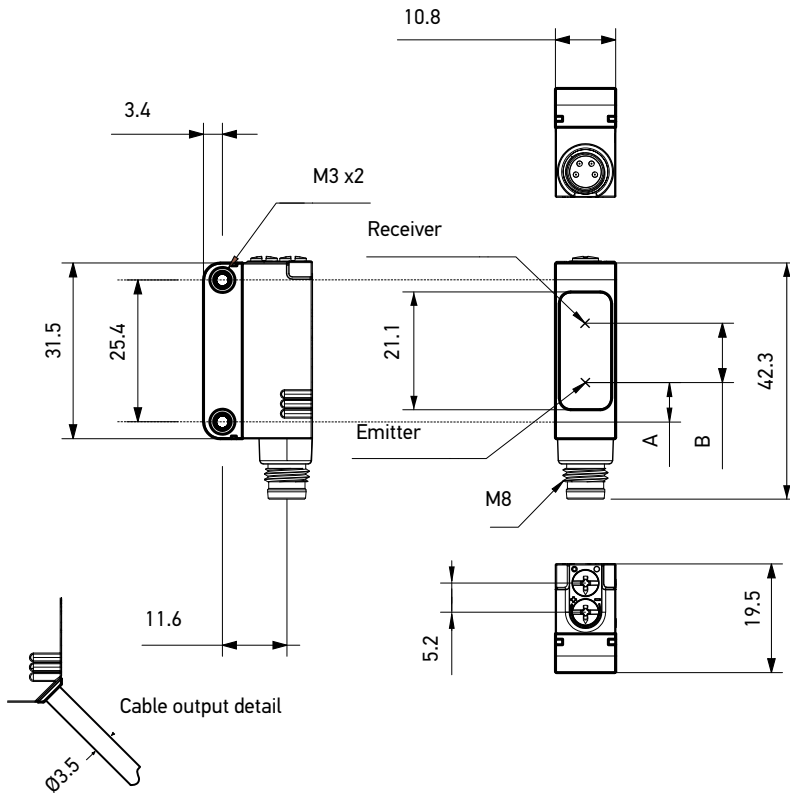
Blue LED: IO-Link activity



version	A	B
S3N-PR-5-B03-OZ	8.25	7.2
S3N-PH-5-B03-OZ	6.2	7.2
S3N-PR-5-T53-OZ (Coaxial optics)	-	17.5
S3N-PR-5-C03-OZ	6.3	7.2
S3N-PR-5-C13-OZ	7	7.2
S3N-PR-5-M03-OZ	10.2	7.2
S3N-PH-5-M03-OZ	10.2	7.2
S3N-PR-5-FG03-OZ (EMITTER)	-	13.6
S3N-PH-5-FG03-OZ (EMITTER)	-	13.6
S3N-PX-5-FG03-OZ (RECEIVER)	7	7.2

# DIMENSIONS

S3N-PH-\*-\*-\*\_\*\*



(mm)

## User interface specifications

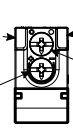
### Dual trimmer Models

Green LED:  
M01: Power ON  
Others: Stability

Yellow LED:  
Output status

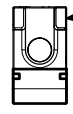
Sensitivity adjust  
M01: 6 turns  
Others: 1 turn

L/D selection



### G01 model

Green LED:  
Power ON



version	A	B
S3N-PH-* -B0* -**	6.2	7.2
S3N-PH-* -M03* -**	10.2	7.2
S3N-PH-* -M01* -**	10.65	7.2
S3N-PH-* -FG0* -** (EMITTER)	-	13.8
S3N-PH-* -FG0* -** (RECEIVER)	7	7.2





# S3N SERIES

## LED MODELS

### Safety Precautions

Read the precautions for all models at <http://www.datasensing.com>.

- WARNING:** This product is not designed or rated to ensure personal safety either directly or indirectly. Do not use it for such purposes.
- WARNING:** Do not exceed the rated voltage. There is a possibility of failure and fire.
- CAUTION:** Do not use this product above its IP protection ratings. Failing to do so may damage its components.
- CAUTION:** DC models shall never be used with AC mains power supply. Failing to do so may result in explosions or other damage.
- CAUTION:** Do not disassemble this product. Doing so may cause exposure to the built-in light source which can damage eyes and skin. Never disassemble it.

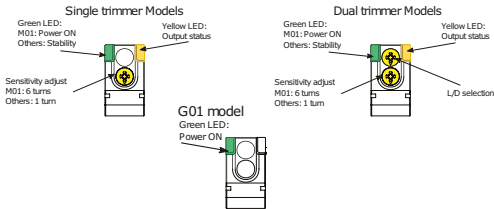
### DESCRIPTION

The Photoelectric sensors of the S3N series are characterized by compact dimensions, rugged package, excellent performances and wide range of models.

The range of optic functions of LED models subfamily includes: Dif-fused proximity (standard and narrow beam), Polarized retroreflex, Barrier, Background suppression.

All models are available with 2m cable or M8 connector connection, with or without Light/Dark function selection knob and 100mA NPN or PNP output.

### GENERAL CONTROLS



### Output LED

The yellow LED indicates the output status.

### Stability LED (S3N-PR-C01/C11/B01/F01)

The green LED ON indicates that the received signal has a safety margin greater than 20% compared to the output switching value.

### Power On LED (S3N-PR-x-G01/M01)

The green LED indicates that the sensor is operating.

### Sensitivity Knob (S3N-PR-x-B01/C01/C11/F01)

The trimmer can be used to adjust sensitivity; the operating distance increases turning the trimmer clockwise.

### Adjustment Screw (S3N-PR-x-M01)

This control can be used to adjust the cutoff distance (6 turns screw); the operating distance increases turning the control clockwise.

### Dark/Light Trimmer (S3N...B01/C01/C11/F01/M01-N/P)

This trimmer can be used to set LIGHT or DARK operation mode.

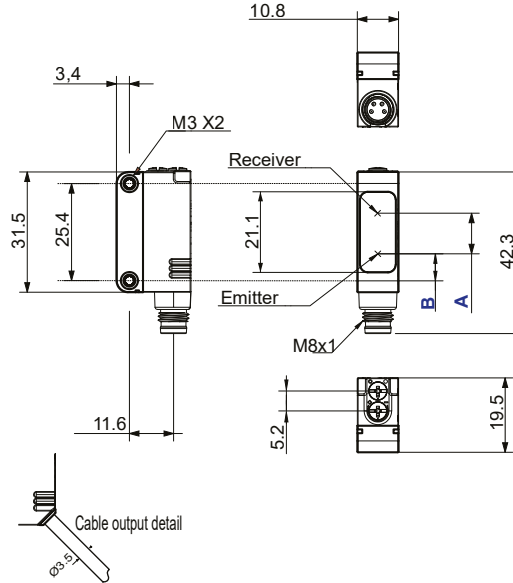
- CAUTION:** The trimmer rotation is limited to 250° by a mechanical stop.
- Do not apply excessive torque when adjusting (max 0.02 Nm).

### Test Input (S3N...G01)

Pin 4/black wire on G01 is active low test input. Connecting it to negative power supply will interrupt the emission. Connecting it to the positive or leaving it unconnected will lead to normal operation.

### DIMENSIONS

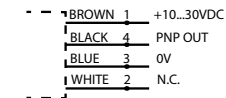
NOTE: "A" and "B" values in the following drawing are indicated in the "Optical Interaxes" table.



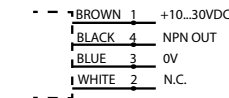
Optical Interaxes		
Version	A	B
S3N-PR-X-B0X-XX	8.25	7.2
S3N-PR-5-C0X-XX	6.3	7.2
S3N-PR-5-C1X-XX	7	7.2
S3N-PR-X-M01-XX	10.65	7.2
S3N-PR-X-FG0X-XX (Emitter)	---	13.6
S3N-PR-X-FG0X-XX (Receiver)	7	7.2

### CONNECTIONS

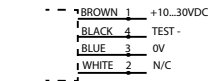
#### PNP



#### NPN



#### G01

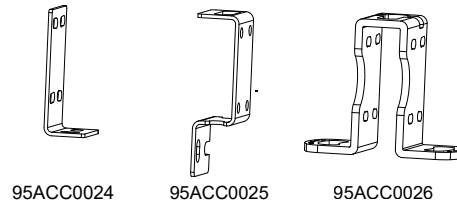
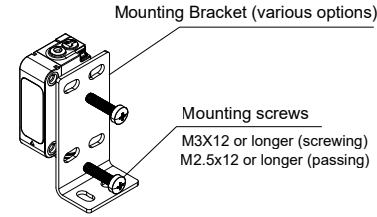


#### M8 CONNECTOR

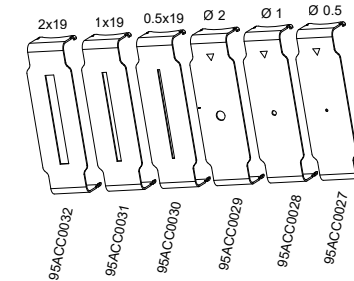
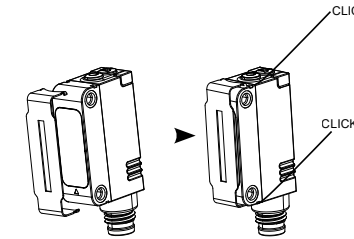


### INSTALLATION

The sensor can be positioned by mean of the two threaded holes (M3) using two screws (M3x12 or longer, or M2.5 passing screw + nuts) and relative washers. Maximum tightening torque is 0.5Nm. Various brackets are available to ease the sensor positioning (please refer also to accessories listed in the catalogue).



For S3N-PR-5-FG01-OZ, special slits to be mounted on the emitter (-G01) are available to narrow the aperture of the beam.



### SETTINGS

#### S3N-PR-X-B01-XX

Position the sensor and reflector on opposite sides of the sensing range. Turn the sensitivity trimmer to maximum. Adjust the direction of the sensor in the middle of the angular sensing range. To perform this procedure: find the angles where the yellow LED (OUT) is switched ON and OFF in both vertical and horizontal directions, and fix the sensor at the center between these angles. Adjust sensitivity (sensitivity knob) to match your application requirements. The optimal operation result is obtained when the green LED turns ON.

If you bought a model with DARK/LIGHT adjustment capability (dual trimmer on user interface), adjust the L/D function to match your application requirements.

**Tab.1: S3N-PR-X-B01-XX max. operating distance table (m)**

Available Reflectors	REFLECTORS						
	R1	R2	R3	R4	R5	R6	R7
-B01	2.5	6.0	3.0	3.5	7.0	4.5	7.0

#### S3N-PR-FG01-XX

Position the emitter and receiver on opposite sides of the desired sensing range. Once the position of the receiver is defined (F01), adjust the direction of the transmitter (G01) in the middle of the angular sensing range. To perform this procedure: find the angles where the yellow LED (OUT) is switched ON and OFF in both vertical and horizontal directions, and fix the sensor at the center between these angles.

Adjust sensitivity (sensitivity knob) to match your application requirements. An optimal operation result is obtained when the green LED turns ON.

If you bought a model with DARK/LIGHT adjustment capability (dual trimmer on user interface), adjust the L/D function to match your application requirements.

#### S3N-PR-C01-XX and S3N-PR-X-C11-X

Adjustment procedure in light mode:

Position the sensor and turn the sensitivity trimmer at minimum: the green LED is ON and the yellow LED is OFF. Place the target in front of the sensor within the specified sensing range. Turn the sensitivity trimmer clockwise until the yellow LED turns ON (Target detected state, pos.A). Remove the target, the yellow LED turns OFF. Turn the trimmer clockwise until the yellow LED turns ON (Background detected state, pos.B). The trimmer reaches maximum if the background is not detected. Turn the trimmer to the intermediate position C, between the two positions A and B.

The green LED must be ON.

Adjustment in dark mode has opposite behavior of yellow LED.

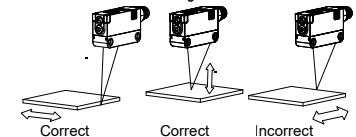
If you bought a model with DARK/LIGHT adjustment capability (dual trimmer on user interface), adjust the L/D function to match your application requirements.

#### S3N-PR-M01-XX

Position the sensor and turn the adjustment screw to maximum (clockwise). Place the target in front of the sensor at a slightly greater distance than desired. Turn the screw counterclockwise until the sensor switches. Verify the adjustment moving the target closer and farther the sensor; tune the adjustment if necessary.

If you bought a model with DARK/LIGHT adjustment capability (dual trimmer on user interface), adjust the L/D function to match your application requirements.

NOTE: This sensor can detect objects correctly when the sensor head is installed perpendicular to the moving object. Install the sensor head as shown below to minimize sensing errors.



## TECHNICAL DATA

	S3N-PR-C01	S3N-PR-C11	S3N-PR-B01	S3N-PR-FG01	S3N-PR-M01
Power Supply:	10-30 Vdc; reverse polarity protected				
Ripple:	p-p 10% max.				
Current consumption	≤35mA				
Output:	Light ON, Dark ON or L/D selectable, PNP or NPN (short circuit protected);				
Output current:	100 mA max. short circuit protected				
Saturation voltage:	2 V max.				
Response time:	0.5 ms	0.5 ms	0.5 ms	1 ms	1 ms
Switching frequency:	1 kHz			500 Hz	
Indicators	Yellow: output status (G01 excluded) Green: Stability			Yellow: output status (G01 excluded) Green: Stability (F01), Power ON (M01 and G01)	
Setting:	Sensitivity: 1 turn trimmer L/D selection (-P, -N models only)			G01: None	Sensitivity: 6 turns L/D selection (-P, -N models only)
Operating Temperature:	-25°C...55°C (not condensing)				
Storage Temperature:	-40 ... +70 °C				
W/G and W/B difference:	W/G: ~70%; W/B: ~85%		n.a.		< 2% in BGS range
Operating distance:	2...250 mm on W90%	0...1000 mm on W90%	50...7000 mm on R5	0...20 m	300mm (W/B <10%) 800 mm (White)
Emission Type:	Red LED 635nm EC 62471 EXEMPT RISK GROUP (RG0)				
Ambient light rejection:	According to 60947-5-2 plus reinforced immunity (internal test)				
Vibration:	0.5 mm amplitude, 10 ... 55 Hz frequency, for each axis (EN60068-2-6)				
Shock resistance:	11 ms (30 G) 6 shock for each axis (EN60068-2-27)				
LIGHT/DARK selection:	By selector on -N and -P models. By purchasing code on other models				
PNP/NPN Output:	Selection by purchasing code				
Housing:	Body: Glass filled technopolymer Indicators: TPE Actuators: POM				
Lenses:	PMMA				
Protection class:	IP67				
Connections:	On S3N-PR-2-xxxx: 3 poles cable Ø3.5mm; On S3N-PR-5-xxxxx M8 connector 4 poles				
Weight:	50 g. max. cable versions / 10 g. connector versions				

See [www.patents.datasensing.com](http://www.patents.datasensing.com) for patent list.

This product is covered by one or more of the following patents:

Utility patents: IT102015000057325, IT102017000151097,

US10823878, US11146425, US11163090.

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