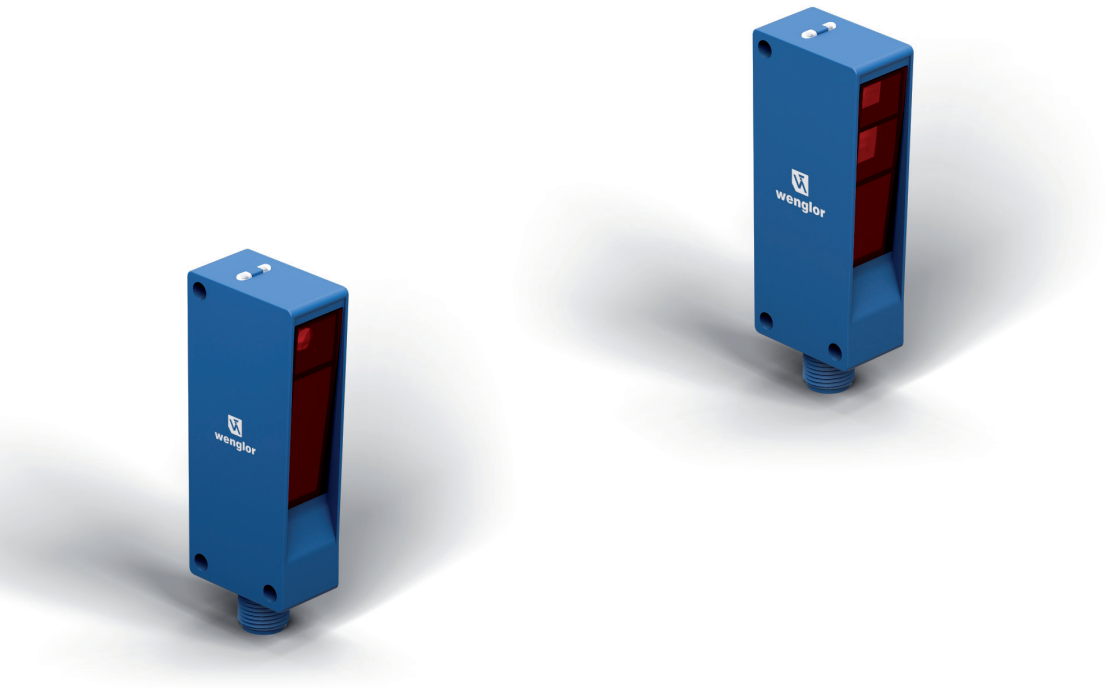
EN

P1NLxxx
P1NKxxx

Retro-Reflex Sensors/
Retro-Reflex Sensors for Transparent Objects



IO-Link

Interface Description

Subject to change without notice
Available as PDF version only
Version: 1.3.0
Status: 24.04.2025
www.wenglor.com

IO-Link P1NLxxx/P1NKxxx

Vendor ID

Produkt	hex	dec	hex (Bytes)	dec (Bytes)
wenglor sensoric GmbH	0x0057	87	00 57	0 87

Device ID

Produkt	hex	dec	hex (Bytes)	dec (Bytes)
P1NL101	0x2A0E01	2756097	2A 0E 01	42 14 1
P1NL104	0x2A0E0F	2756111	2A 0E 0F	42 14 15
P1NL301	0x2A0E05	2756101	2A 0E 05	42 14 5
P1NL302	0x2A0E06	2756102	2A 0E 06	42 14 6
P1NL303	0x2A0E0C	2756108	2A 0E 0C	42 14 12
P1NL401	0x2A0E07	2756103	2A 0E 07	42 14 7
P1NL404	0x2A0E0A	2756106	2A 0E 0A	42 14 10
P1NL406	0x2A0E10	2756112	2A 0E 10	42 14 16
P1NL408	0x2A0E12	2756114	2A 0E 12	42 14 18
P1NL410	0x2A0E11	2756113	2A 0E 11	42 14 17
P1NL411	0x2A0E0D	2756109	2A 0E 0D	42 14 13
P1NK202	0x2A0E66	2756198	2A 0E 66	42 14 102
P1NK206	0x2A0E6A	2756202	2A 0E 6A	42 14 106

IO-Link Version:	V1.1
Parameter Server / Data Storage:	No
Blockparameter:	No
MinCycletime:	4,8 ms
SIO-Mode:	Yes
COM-Mode:	COM2
ISDU:	No
Process data In (Device to Master):	16 Bit
Process data Out (Master to Device):	-

Process data (Length: 16 Bit)

Subindex	Name	Bit Offset	Data Type	Valid for versions	Range
1	A1 Output	0	Bool	all	0 = Off 1 = On
2	Signal Warning	1	Bool	all	0 = Off 1 = On
3	---	2	---	---	**---**
4	---	3	---	---	---
5	Short Circuit	4	Bool	P1NL101, P1NL104 P1NL301–P1NL303, P1NL401, P1NL404, P1NL408, P1NL411 P1NL406, P1NL410, P1NK202, P1NK206	0 = Off 1 = On
6	Laser Error	5	Bool	P1NL401–P1NL411	0 = Off 1 = On
7	Overtemperature	6	Bool	all	0 = Off 1 = On
8	Memory Busy	7	Bool	all	0 = Off 1 = On
9	Signal	8	Uint8	all	0...255

Octet 0

Subindex	9							
Bit Offset	15	14	13	12	11	10	9	8

Octet 1

Subindex	8	7	6	5	4	3	2	1
Bit Offset	7	6	5	4	3	2	1	0

Parameter

Name	Index (hex)	Index (dec)	Sub-index	R/W	Data type	Default value	Range
Identification							
Parameter.Serial number	0x0001	**1**	12...15	R	Uint32	-	-
Direct Parameters 1.Vendor ID 1	0x0000	**0**	8	R	Uint8	0	-
Direct Parameters 1.Vendor ID 2	0x0000	**0**	9	R	Uint8	87	-
Direct Parameters 1.Device ID1	0x0000	**0**	10	R	Uint8	-	-
Direct Parameters 1.Device ID2	0x0000	**0**	11	R	Uint8	-	-
Direct Parameters 1.Device ID3	0x0000	**0**	12	R	Uint8	-	-
Parameter							
Write parameters to OTP memory	0x0001	**1**	16	R/W	Uint8	0 = No action	0 = No action 148 = Write parameters
Counter OTP memory	0x0001	**1**	5	R	Uint8	0	0…255
OFF Delay (Available for P1NL101, P1NL104, P1NL301–P1NL303, P1NL401, P1NL406, P1NL410, P1NK202, P1NK206)	0x0001	**1**	4 (Bit0...2)	R/W	Uint3	0 = Off	0 = Off 1 = 2 ms 2 = 5 ms 3 = 10 ms 4 = 20 ms 5 = 50 ms 6 = 100 ms 7 = 200 ms
ON Delay (Available for P1NL101, P1NL104, P1NL301–P1NL303, P1NL401, P1NL406, P1NL410, P1NK202, P1NK206)	0x0001	**1**	4 (Bit3...5)	R/W	Uint3	0 = Off	0 = Off 1 = 2 ms 2 = 5 ms 3 = 10 ms 4 = 20 ms 5 = 50 ms 6 = 100 ms 7 = 200 ms
Operating Mode	0x0001	**1**	4 (Bit7)	R/W	Boolean	0 = Standard: P1NL101, P1NL104, P1NL301–P1NL303, P1NL401, P1NL406, P1NL410, P1NK202, P1NK206 1 = Speed: P1NL404, P1NL408, P1NL411	0 = Standard 1 = Speed
Switch Point	0x0001	**1**	3	R/W	Uint8	250: P1NL101, P1NL104 253: P1NL301–P1NL303 255: P1NL401, P1NL404, P1NL406, P1NL408, P1NL410–P1NL411 244: P1NK202, P1NK206	0...250: P1NL101, P1NL104 0...253: P1NL301–P1NL303 0...255: P1NL401, P1NL404, P1NL406, P1NL408, P1NL410–P1NL411 0...244: P1NK202, P1NK206
A1 NO/NC	0x0001	**1**	2 (Bit0)	R/W	Boolean	0 = NO	0 = NO 1 = NC
A2 Pin Function (Available for P1NL101, P1NL104, P1NL301–P1NL303, P1NL401, P1NL406, P1NL410, P1NK202, P1NK206)	0x0001	**1**	2 (Bit1...2)	R/W	Uint2	0 = Antivalent	0 = Antivalent 1 = Error NO 2 = Error NC 3 = Deactivated

Name	Index (hex)	Index (dec)	Sub-index	R/W	Data type	Default value	Range
PNP/NPN/ Push-Pull	0x0001	**1**	2 (Bit3...4)	R/W	Uint2	1 = PNP: P1NL101, P1NL301, P1NL302, P1NL401, P1NL404, P1NL410–P1NL411, P1NK202 2 = NPN: P1NL104, P1NL303, P1NL406, P1NL408, P1NK206	0 = Push-Pull 1 = PNP 2 = NPN 3 = deactivated
Source SwitchPoint	0x0001	**1**	2 (Bit5)	R/W	Boolean	0 = Potentiometer	0 = Potentiometer 1 = IO-Link
Hysteresis	0x0001	**1**	2 (Bit6)	R/W	Boolean	0 = Small	0 = Small 1 = Large
Emitted Light	0x0001	**1**	2 (Bit7)	R/W	Boolean	0 = On	0 = On 1 = Off

Notes for the use of the IODD

RAM-memory
The changed parameters are stored in the volatile memory of the sensor. This could be used for testing and if the configuration of the sensor changes often (e. g. for different production batches).

Changes have the following effects:
• Sensor behavior is adjusted immediately without a restart according to the changed parameter.
• In case of a sensor restart (e. g. by turning power off and on) the settings are lost.
• Changes have no effects on the OTP-memory of the sensor.

OTP-memory
By writing the parameters, they are stored in the non-volatile memory. At every start-up the OTP parameters are loaded to the RAM of the sensor. The OTP-memory has limited write cycles. The wenglor sensoric GmbH can guarantee at least 240 writes to the OTP-memory at delivery.
The current number of writes is readable from the parameter “Counter OTP memory”.

Procedure to save parameters in the OTP-memory of the sensor:
1. Test the sensor settings within the application until the desired configuration is clear.
2. Set the parameter “Write parameters to OTP memory” to “write parameters” and send it to the sensor.
3. The configuration is applied directly, and after a restart it is loaded from the OTP-memory.
4. New configuration is stored in the sensors RAM and OTP-memory.