

High-Performance Distance Sensor

PNBC001

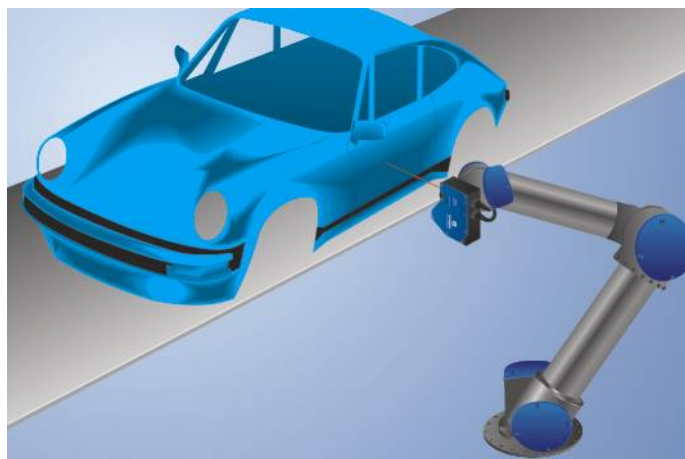
LASER

Part Number



- **Constant, surface-independent measured values**
- **Highly precise measurement with a maximum linearity deviation of 0.05%**
- **Industry 4.0 compatible thanks to Industrial Ethernet**
- **Thermally stable measured values without any warm-up phase**

Sensors from the PNBC range work with a high resolution CMOS line array and determine distance to the object by means of angular measurement. Top quality optics permit measured values with 16-bit resolution. Thanks to proven algorithms, stable measured values are obtained even for complex surfaces, for example sheet metal with speckle effect. They demonstrate outstanding accuracy with maximum linearity deviation of just 0.05%, and required only a short warm-up phase thanks to minimized temperature drift. Values are read out simultaneously via the analog output and the interface. Up to 4 switching outputs can be taught in externally. An incremental encoder input rounds the product out.



Technical Data

Optical Data	
Working Range	20...24 mm
Measuring Range	4 mm
Resolution	0,06 μ m
Linearity Deviation	2 μ m
Light Source	Laser (red)
Wavelength	658 nm
Service Life (T = +25 °C)	100000 h
Laser Class (EN 60825-1)	2
Max. Ambient Light	10000 Lux
Light Spot Diameter	< 0,15 mm

Electrical Data	
Supply Voltage	15...30 V DC
Current Consumption (U _b = 24 V)	280 mA
Switching Frequency	15 kHz
Response Time	< 33 μ s
Output rate	10...30000 /s
Temperature Drift	0,005 %/K
Temperature Range	-10...40 °C
Number of Switching Outputs	4
Switching Output Voltage Drop	< 1,5 V
Switching Output/Switching Current	100 mA
Analog Output	0...10 V/4...20 mA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Teach Mode	VT, FT
Interface	Ethernet TCP/IP
Baud Rate	100 Mbit/s
Protection Class	III
FDA Accession Number	1620645-000

Mechanical Data	
Setting Method	Teach-In
Housing Material	Aluminum
Degree of Protection	IP67
Connection	M12 \times 1; 8-pin
Type of Connection Ethernet	M12 \times 1; 4-pin, D-cod.
Optic Cover	Glass
Weight	230 g

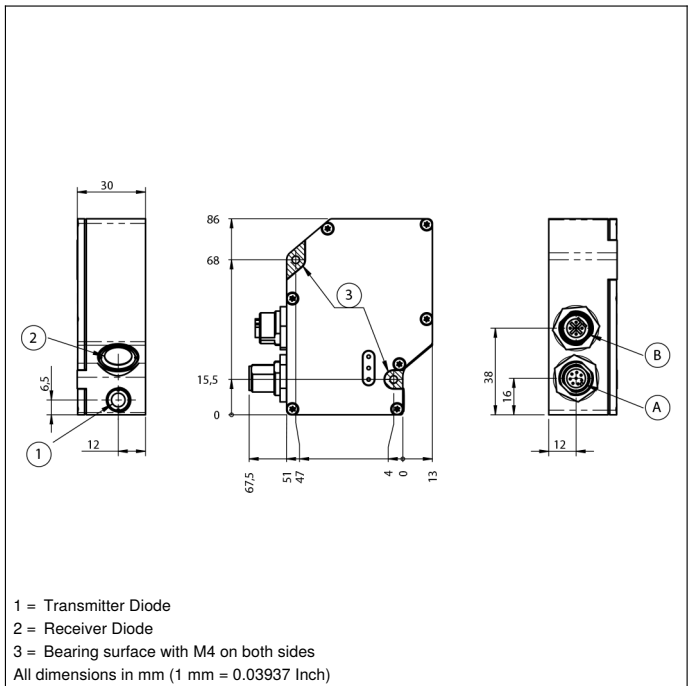
Web server	yes
Scope of delivery	Calibration report

Configurable as PNP/NPN/Push-Pull	●
Switchable to NC/NO	●

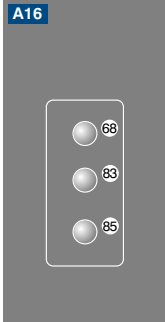
Connection Diagram No.	004	134
Control Panel No.	A16	
Suitable Connection Equipment No.	51	89
Suitable Mounting Technology No.	341	

Complementary Products

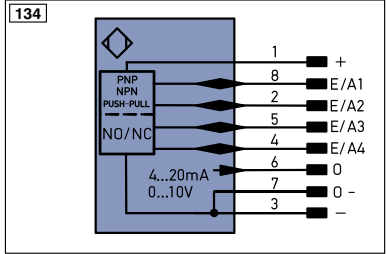
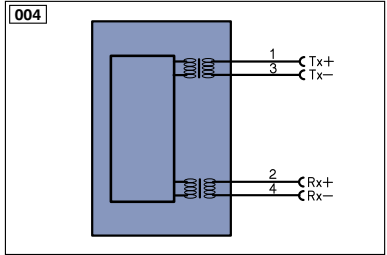
Cooling Unit ZNBK001
Protective Screen Retainer ZNBS001
Software
Switch ZAC51xN01



Ctrl. Panel



68 = Supply Voltage Indicator
83 = Signal
85 = Link/Act LED



Legend

+	Supply Voltage +	PT	Platinum measuring resistor	EN0RS42Z	Encoder A/Ā (TTL)
-	Supply Voltage 0 V	nc	not connected	EN0RS42Z	Encoder B/B̄ (TTL)
~	Supply Voltage (AC Voltage)	U	Test Input	ENa	Encoder A
A	Switching Output (NO)	Ū	Test Input inverted	ENb	Encoder B
Ā	Switching Output (NC)	W	Trigger Input	AMIN	Digital output MIN
V	Contamination/Error Output (NO)	W-	Ground for the Trigger Input	AMAX	Digital output MAX
Ū	Contamination/Error Output (NC)	O	Analog Output	AOK	Digital output OK
E	Input (analog or digital)	O-	Ground for the Analog Output	SY in	Synchronization In
T	Teach Input	BZ	Block Discharge	SY OUT	Synchronization OUT
Z	Time Delay (activation)	AMV	Valve Output	OLt	Brightness output
S	Shielding	a	Valve Control Output +	M	Maintenance
RxD	Interface Receive Path	b	Valve Control Output 0 V	rsv	reserved
TxD	Interface Send Path	SY	Synchronization	Wire Colors according to IEC 60757	
RDY	Ready	SY-	Ground for the Synchronization	BK	Black
GND	Ground	E+	Receiver-Line	BN	Brown
CL	Clock	S+	Emitter-Line	RD	Red
E/A	Output/Input programmable	±	Grounding	OG	Orange
IO-Link	IO-Link	SnR	Switching Distance Reduction	YE	Yellow
PoE	Power over Ethernet	Rx+/-	Ethernet Receive Path	GN	Green
IN	Safety Input	Tx+/-	Ethernet Send Path	BU	Blue
OSSD	Safety Output	Bus	Interfaces-Bus A(+)/B(-)	VT	Violet
Signal	Signal Output	La	Emitted Light disengageable	GY	Grey
BI-D+/-	Ethernet Gigabit bidirect. data line (A-D)	Mag	Magnet activation	WH	White
EN0RS42Z	Encoder 0-pulse 0-0̄ (TTL)	RES	Input confirmation	PK	Pink
		EDM	Contact Monitoring	GNYE	Green/Yellow

