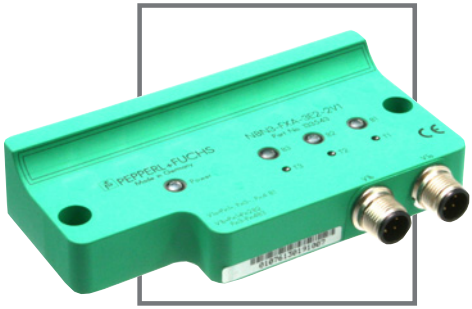
FACTORY AUTOMATION

INSTRUCTION MANUAL

Interrogation data set for welding tongs

NBN3-FXA-3E2-2V1



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Used symbols

Warning

This symbol warns the user of potential danger. Nonobservance may lead to personal injury or death and/or damage to property.

Attention

This symbol warns the user of potential device failure. Nonobservance may lead to the complete failure of the device or other devices connected.

Note

This symbol calls attention to important notes.

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Security advice

Warning

This product must not be used in applications, where safety of persons depend on the correct device function.
This product is not a safety device according to EC machinery directive.

Notes

These operating instructions refer to proper and intended use of this product. They must be read and observed by all persons making use of this product. This product is only able to fulfill the tasks for which it is designed if it is used in accordance with specifications of Pepperl+Fuchs.

The warrantee offered by Pepperl+Fuchs for this product is null and void if the product is not used in accordance with the specifications of Pepperl+Fuchs.

Changes to the devices or components and the use of defective or incomplete devices or components are not permitted. Repairs to devices or components may only be performed by Pepperl+Fuchs or authorized work shops. These work shops are responsible for acquiring the latest technical information about Pepperl+Fuchs devices and components.Repair tasks made on the product that are not performed by Pepperl+Fuchs are not subject to influence on the part of Pepperl+Fuchs. Our liability is thus limited to repair tasks that are performed by Pepperl+Fuchs.

The preceding information does not change information regarding warrantee and liability in the terms and conditions of sale and delivery of Pepperl+Fuchs.

This device contains sub-assemblies that are electrostatically sensitive. Only qualified specialists may open the device to perform maintenance and repair tasks. Touching the components without protection involves the risk of dangerous electrostatic discharge, and must be avoided. Destruction of basic components caused by an electrostatic discharge voids the warrantee!

Subject to technical modifications.

Pepperl+Fuchs GmbH in D-68301 Mannheim maintains a quality assurance system certified according to ISO 9001.

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ISO**9001**

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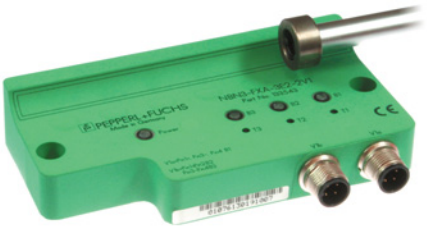
1 System overview



The new interrogation data set for welding tongs NBN3-FXA-3E2-2V1 is optimised for a high-precision, continuous position detection.

Based on the high-precision evaluation of multiple coil systems, it is a combination of tried and tested inductive sensor technology and innovative microcontroller technology.

The compact and robust design FXA allows for a contactless and thus wear-free position detection. Thanks to the integrated temperature compensation, it is also optimally suited for rough environments and critical positioning tasks.

Due to the inductive principle of operation, you do not need any ferrites or magnets as a counterpart. As in the case of an inductive proximity switch, the actuator can be made of any metal.

The advantages of the interrogation data set for welding tongs NBN3-FXA-3E2-2V1 are:

- Teach-in
- High resolution and accuracy
- Error detection
- Low interference sensitivity due to inductive principle of operation

The interrogation data set for welding tongs NBN3-FXA-3E2-2V1 offers 3 switching points, which can be tought, independent from each other, simply by pressing the corresponding key. These switching points are represented by corresponding switching outputs. The output status of each output is indicated by a LED.

2 Programming of the NBN3-FXA-3E2-2V1

The sensor NBN3-FXA-3E2-2V1 is equipped with 3 small, slightly recessed keys, which are located on the upper side for configuration of the switching points. The keys are labeled T1 for switching point 1, T2 for switching point 2 and T3 for switching point 3. The corresponding LEDs are labeled with B1, B2 and B3.

The TEACH-IN of the switching points determines 3 areas, where the related outputs change into an active status:

- for switching point 1: area from the tought point (+ 1mm to the left) up to the sensors right edge.
- for switching point 2: motion area of the activator, which is ± 1 mm to both sides of the tought switching point.
- for switching point 3: area from the tought point (+ 1mm to the right) up to the sensors left edge.

For teach-in of a switching point, proceed as follows:

- Place the activator at the desired switching position.
- Press the related key for at least 2 seconds. The corresponding LED flashes now and indicates the TEACH-IN mode.
- Press the key again within a time interval of 80 seconds to confirm the switching point. The related LED is now continuously on, if the activator is not moved away.

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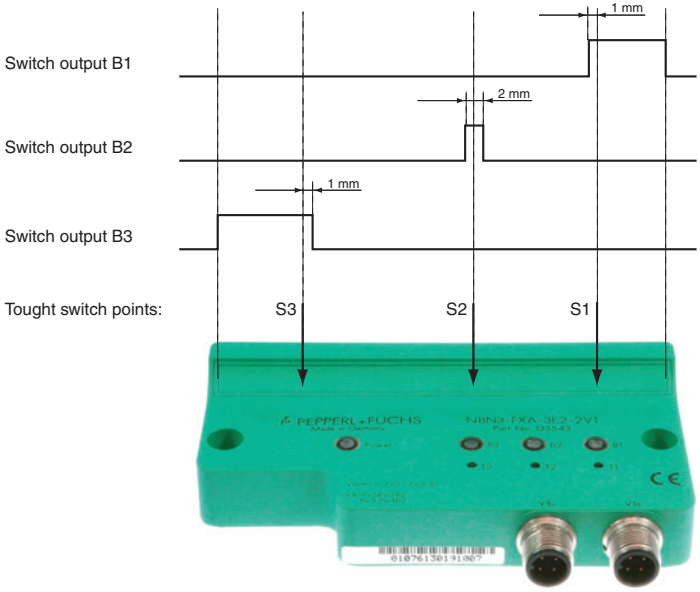
Attention

If the switching point is not confirmed within 80 seconds, the sensor leaves the "TEACH-IN mode" and continues the operation with the previous values.

Beispiel:



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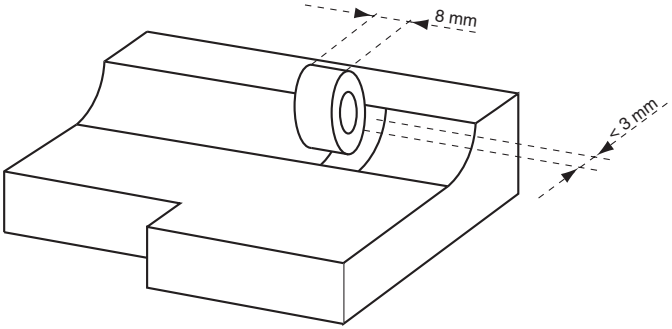
3 Activator

The interrogation data set for welding tongs NBN3-FXA-3E2-2V1 is optimally adjusted to the geometry of the attenuating elements we deliver with this sensor.



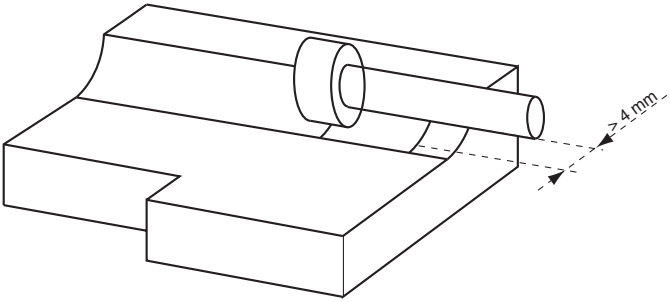
Attention

In case of using your own activators, you have to ensure that its active width is exactly 8 mm.
A different width has a direct impact on the achievable resolution and accuracy of the system.

4 Installation and operation

4.1 Notes on installation

- the installation is non flush
- The spacing between the measuring field (bordered area at the front of the sensor) and the driving rod, which carries the actuator, must at least be 4 mm.



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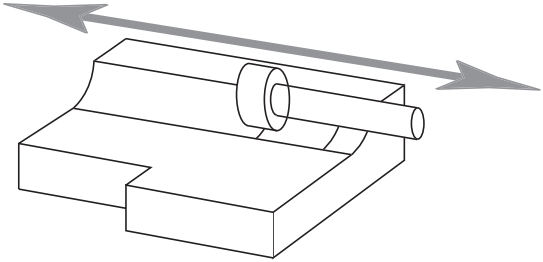
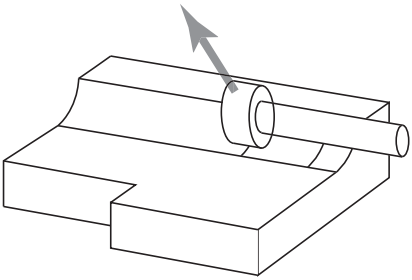
4.2 Notes on operation

If the activator leaves the sensing range (figures below) an active output changes into the inactive status ("off" status).





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5 Technical Data

5.1 General, electrical and mechanical data

Type	NBN3-FXA-3E2-2V1
General data	
Output functions	3 freely teachable switching points
Measurement range	112 mm
Object distance	max. 3 mm
Installation	non flush
Reduction factor r_{Al}	0.4
Reduction factor r_{Cu}	0.3
Reduction factor r_{V2A}	0.7
Characteristics	
Operating voltage U_B	12 ... 30 V
No load current I_0	≤ 35 mA
Polarity protection	Reverse polarity protected
Switch outputs	3 switch outputs pnp, normally open
Operating current I_L	0 ... 100 mA
Switching area	tought switching point + 1 mm/± 1 mm/- 1 mm
Short circuit protection	pulsing
Voltage drop U_d	< 3 V
Repeat accuracy	± 0.2 mm
Switching frequency	≤ 100 Hz
Magnetic alternating field strength	≤ 100 mT
Power on indicator	LED green
Switching status indicator	3 LEDs yellow
Standards compliance	
EMV according to	EN 60947-5-2:2004
Standards	EN 60947-5-2:2004
Ambient conditions	
Ambient temperature	0 ... 50 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)
Mechanical data	
Connection type	2 M12 connectors, 4-pin
Housing material	PA6
Protection degree	IP65

Note: The accuracy values only apply for a distance of the object to be detected of 1 ... 3 mm.

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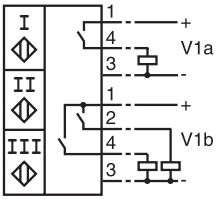
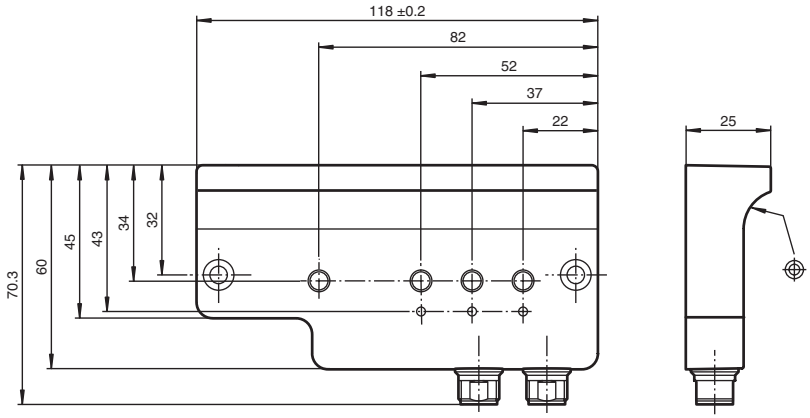
5.2 Electrical connection



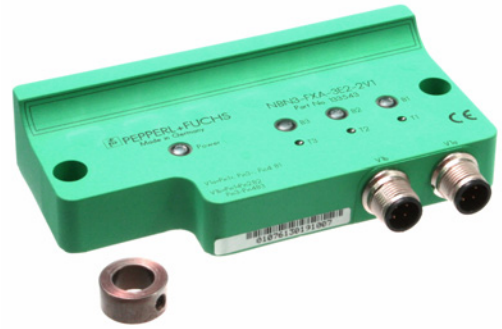
NBN3-FXA-3E2-2V1
Connection via 2 connectors M12 x 1, 4-pin

5.3 Dimensions



6 Scope of delivery

- 1 Interrogation data set for welding tongs NBN3-FXA-3E2-2V1
- 1 activator element with central bore for fixation on a 10 mm driving rod.



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7 Notes

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