BERNSTEIN

DETECT

Capacitive proximity switches

KC...

We make safety happen.

Contents

1 Intended use

Capacitive proximity switches detect non-electrical physical quantities without contact and convert them into electrical quantities such as currents or voltages.
They detect conductive and non-conductive materials in solid or liquid state. The capacitive proximity switches consist of 4 functional groups: a sensor electrode, an oscillator, a threshold switch and a switching output stage. They must not be used as a mechanical stop.

2 Type designation and identification

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.
K	C	N	-	T	1	2	N	S	/	0	0	4	-	K	L	P		
A				B			C			D				E				

A Product group

1. K = Non-contact proximity switch
2. C = Capacitive
3. B = Flush mount
   N = Non-flush mount
4. Dash (fixed)

B Type of enclosure

5. M = Metric thread (metal enclosure)
   T = Metric thread (plastic enclosure)
   P = PG thread size
   D = Round enclosure (metal)
   R = Round enclosure (plastic)
   Q = Cuboid enclosure (metal)
   E = Rectangular enclosure (plastic)
   N = Standard mounting (to DIN 50025/50037)

6.-7. Two-digit number for:
Round types = Ø as specified
Threaded types = standard designation
Rectangular types = consecutive type numbers
Design examples:
12 = Thread M12 x 1
18 = Thread M18 x 1
30 = Thread M30 x 1,5
32 = Thread M32 x 1,5
34 = Ø34 mm (metal/plastic)
20 = Ø20 mm (plastic)
22 = Ø22 mm (plastic)
50 = 50 x 25 x 10 mm
68 = 68 x 30 x 15 mm
44 = 41,5 x 41,5 x 120 mm (European standard enclosure)

C Output function

8. P = PNP
   N = NPN
   A = AC 2-wire
   E = NAMUR
   Z = DC 2-wire
   M = AC/DC-universal current
   R = Relay
   Q = AC-Triac
   T = Thyristor (AC 3-wire)
   G = Push-pull
   D = Dual output stage (NPN/PNP selectable)
9. S = NO contact
   Ö = NC contact
   P = Programmable
   A = Analogue
   U = Antivalent (selectable)
10. Slash (fixed)

D Sensing distance S_n

11.-13. Examples
1,5 = 1,5 mm
002 = 2,0 mm
040 = 40 mm

14. Dash (fixed)

E Options

(Examples, not a complete overview)

15.-... K = Short circuit-proof
L = LED
2 = Cable length in m
V = Shortened type
P = Potentiometer
PU = PUR cable
SD = Connector to DIN 43650 (including socket)

3 Mounting recommendations

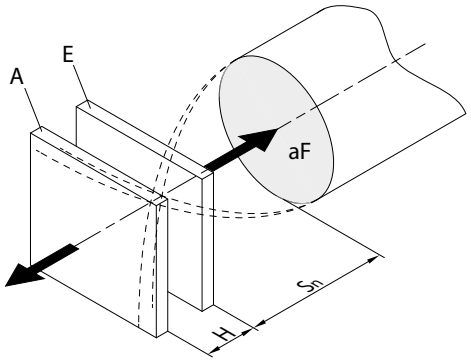
3.1 Wiring diagrams

The pin assignment can be found on the circuit diagram on the bag.

3.2 Operating direction

The Standard calibrating plate will be moved in its axial direction with ≤ 1 mm/s towards or away from the active surface.

A - Switch off point
E - Switch on point
aF - Active surface
H - Differential travel (hysteresis)
S_n - Rated operating distance

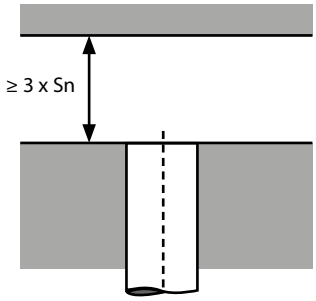


3.3 Technical Data

Rated operating distance (S_n): see Type designation (D 11. - 13.)
Switching element function: see Type designation (C 8., 9.)
Mounting: see Type designation (A 3.)
For product-specific properties as well as for further technical datas please refer to our technical data sheet.
Additional information can be found at www.bernstein.eu.

3.4 Free zones

Capacitive proximity switches must maintain a free zone with the following criteria:



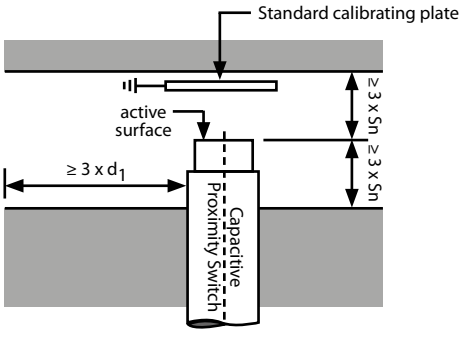
Flush

- With flush proximity switches, the active surface can be flush with a metal surface without interference.

Non flush

Capacitive proximity switches must maintain a free zone with the following criteria:

- parallel to the active surface a free zone at a distance of ≥ 3 x rated operating distance
- laterally to the active surface a free zone at a distance of ≥ 3 x enclosure diameter
- Free zone in depth to the active surface ≥ 3 x rated switching distance



3.5 Tightening torque

Tightening torque examples for Proximity Switches

with brass enclosure	
M12	10,0 Nm
M18	25,0 Nm
M30	70,0 Nm

with plastic nuts / plastic enclosures	
M12	0,8 Nm
M18	2,0 Nm
M30	5,0 Nm

There is no label on the proximity switch, as it is supplied loose as an accessory:
If there insufficient space available for the label, it is included separately with the product. The purpose is to identify the proximity switch. Therefore, the label must be attached near to the proximity switch appropriately.

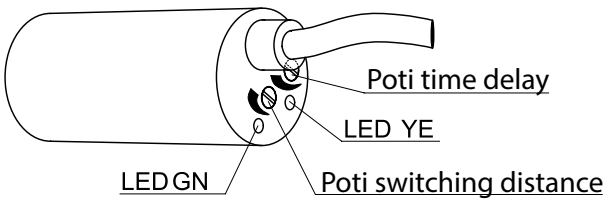
3.6 LED / Potentiometer

Depending on the equipment version, capacitive proximity switches can be equipped with LED(s) and potentiometer(s) - see data sheet.

A **lit, green LED** indicates that the **supply voltage** is present.
A **lit, yellow LED** indicates that the **switching element** has the status **„ON“**.
A **flashing, yellow LED** indicates that the set **delay time is expiring**.

If the **switching distance** can be **adjusted by a potentiometer** (Poti), the **sensitivity is increased by turning right**.
Turning to the left reduces the sensitivity.

If a **time delay** can be **set by potentiometer** (Poti), it is **increased by turning to the right**.
Turning to the left decreases the time delay.



4 Safety Instructions – product-specific properties

4.1 Safety Instructions

- The installation and electrical connection must only be carried out by authorized personnel.
- The fields of application / mounting position for the
- Proximity Switch shall be chosen such that the functional safety will not be affected by external influences such as dirt (chips, dust and liquids...).
- The switch shall not be used as a mechanical stop.
- The mounting and electrical connection must be undertaken in a no voltage state.

4.2 Approvals

If the proximity switch has approvals, these are listed on the switching label.

5 Conformity

CE UKCA

6 Disposal

2012/19/EU (EU-WEEE II); WEEE-Reg.-No. DE 50560927

The original operating and installation instructions are the German language version. Other languages are a translation of the original operating and installation instructions.

BERNSTEIN

We make
safety happen.

We keep safe
your visions.

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