Appendix E

Efector

Capacitive Liquid Level Sensors

Appendix E

efector150 ifm electronic

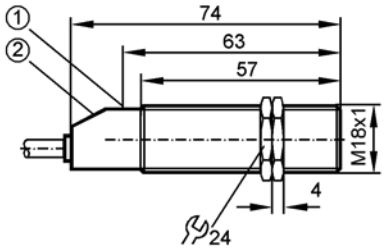
Capacitive sensors

KG5025

KG-3008-FNKG/NI
Capacitive sensor
Plastic thread M18 x 1
Cable

Increased immunity to conducted radio frequency interference

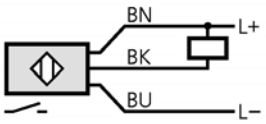
Sensing range 8mm [nf]
adjustable 2.5...8 mm
non-flush mountable

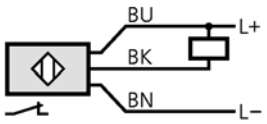


1: Programming button
2: 3 LED

Electrical design		**DC NPN**
Output		**normally open / closed programmable**
Operating voltage	[V]	10...36 DC
Current rating [mA]		250
Short-circuit protection		pulsed
Reverse polarity protection		yes
Overload protection		yes
Voltage drop	[V]	< 2.5
Current consumption	[mA]	< 30 (24 V)
Switch-point drift	[% of Sr]	-15...15
Hysteresis	[% of Sr]	1...15
Switching frequency	[Hz]	40
Correction factors		water = 1 / glass approx. 0.4 / ceramics approx. 0.2 / PVC approx. 0.2
Operating temperature	[°C]	-25...80
Protection		IP 65, II
EMC		EN 60947-5-2
Housing material		PBT
Function display		
Switching status	LED	yellow
Operation	LED	green
Function	LED	red
Connection		PVC cable / 2 m; 3 x 0.34 mm²
Accessories (included)		2 lock nuts, screwdriver

Wiring


BN
L+
BK
BU
L–


BU
L+
BK
BN
L–

CE

ifm electronic

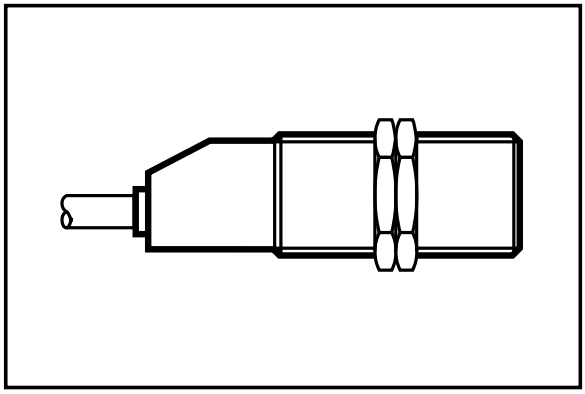
Bedienungsanleitung
Operating instructions
Notice pour utilisateurs

efector150®

Kapazitiver Näherungsschalter KG/P

Capacitive proximity switch KG/P

Détecteur de proximité capacitif KG/P



Sachnr. 701294/00 02/2006

APPENDIX E

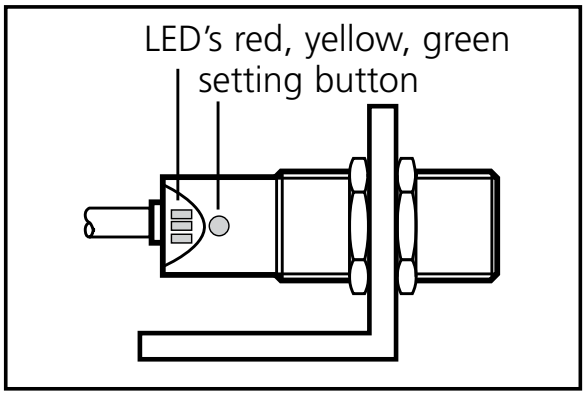
Function and features

This proximity switch detects metals, almost all plastics, glass, ceramics, wood, paper, oils, greases, water and all hydrous materials without contact and indicates their presence by providing a switched signal.

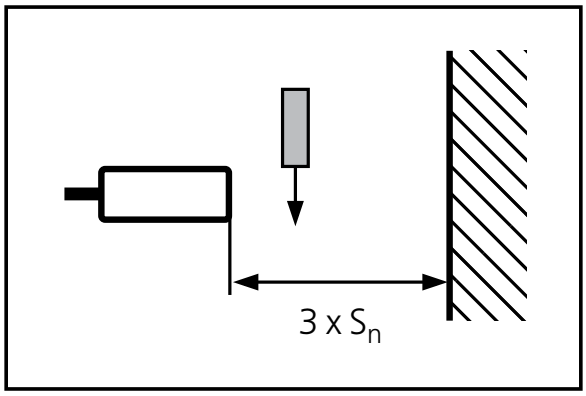
- Nominal sensing range (Sn) 8 mm (measured on an earthed metal plate and water; a shorter sensing range for other materials).
- Automatic adjustment to the medium to be detected.

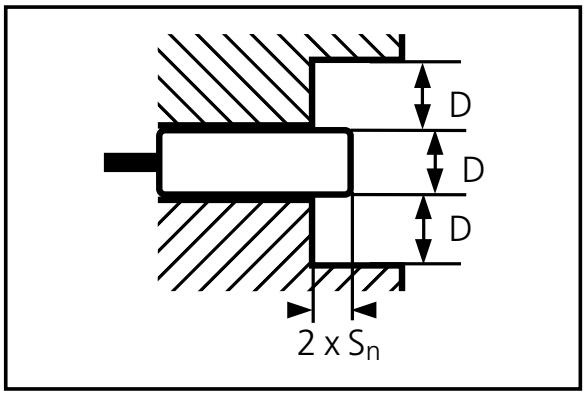
Installation

Mount theunit by means of a mounting device. Secure it by means of the nuts provided so that it cannot work loose.
Non-flush installation.

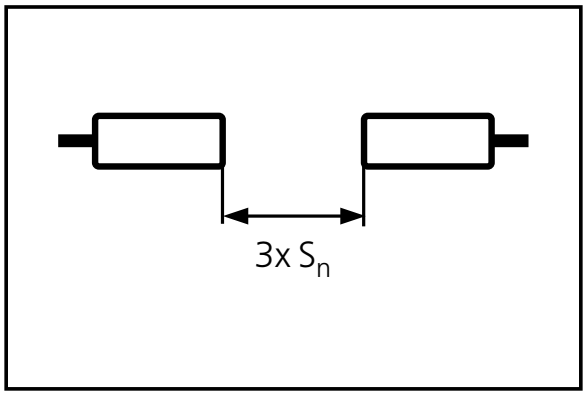


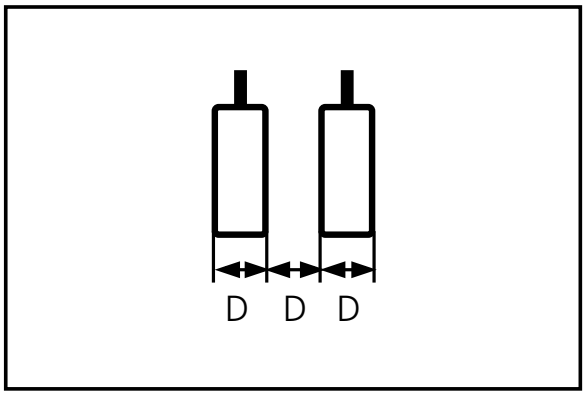
Open space around the sensing face:





Minimum distance when several switches of the same type are mounted:



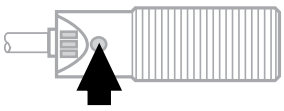
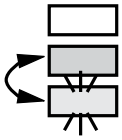
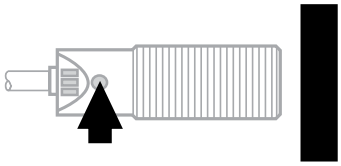
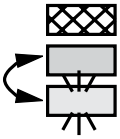
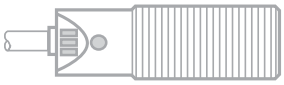
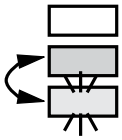


Electrical connection

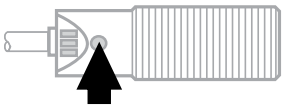
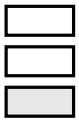
Disconnect power before connecting the proximity switch.
Connection strictly to the indications on the type label.
Core colours: BN = brown, BU = blue, BK = black.

Adjustment

The unit detects the "damped" state (= medium present) and the "undamped" state (= no medium present) and sets the optimum switch point.

1	 Press for 5s.		Yellow and green LEDs flash alternately (= unit is in the programming mode).
2	 Place the medium into the detection area of the sensor and press the button briefly.		The yellow and green LED's go out for a short time, then quickly flash alternately; **the red LED is on**.
3	 Remove the medium and increase the distance between the medium and the unit until the red LED goes out.		The yellow and green LED's continue to flash alternately. **The red LED goes out.**

If the red LED does not go out, the interval between the "damped" and the "undamped" signals is too short.
Press the setting button twice. The unit passes into the operating mode with the switch point being unchanged..

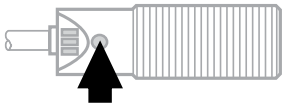
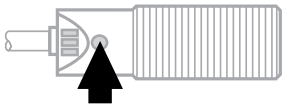
4	 Press briefly.		The yellow and green LED's go out for a short time, then the green LED is on (= unit is in the operating mode).

Steps 2 and 3 can also be taken in reverse order: first align the unit without the medium being present and then place the medium into the detection area until the red LED goes out.

If the setting of the switch point is not possible (the signals for damped/undamped follow too close), the red LED flashes after step 4 (= adjustment error). Press the setting button once. The unit then passes into the operating mode with the switching point being unchanged.

Locking / Unlocking

The unit can be electronically locked to prevent unwanted adjustment of the set parameters:

 Press for 10s.	➡	The yellow and green LED's flash alternately; after 10s the LEDs go out, the unit is locked.
 Press for 10s.	➡	After 10s the LED's go out, locking is annulled.

Operation

Check the safe functioning of the switch.
The operation of the proximity switch is maintenance-free. For perfect functioning make sure that:

- the sensing face and the open space are kept free of deposits and foreign bodies, particularly for installation with the sensing face facing upwards.

LED display:

LED green lights	unit is ready for operation.
LED yellow lights	output is switched.
LED red lights	uncertain working range.
LED red flashes	internal malfunction, adjustment error.
LED's yellow + red	simultaneous flashing: output is short-circuited.