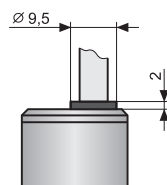
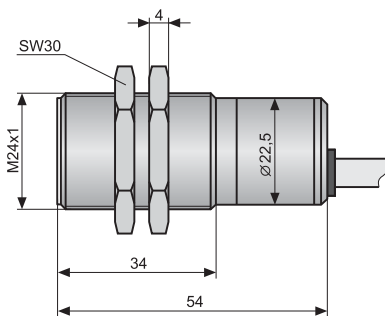


- Detect liquids in glass or plastic pipes, indicate liquids in inter-coat space of double coated tanks
- Adjustable sensitivity
- NPN, PNP or NAMUR output
- Material of housing and nut from stainless steel
- Version for usage in explosive areas
- LED state indication

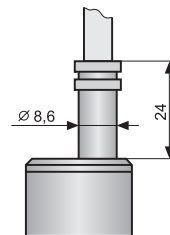


Capacitive proximity switch CPS-24 is intended for detection of proximity or motion of solid objects. It is suitable for indication of the liquid level through non-conductive walls of vessels or on non-conductive gauge-pipes. It is excellent for liquid leakage detection in collection pits or directly on floors. The sensor state is indicated by LED. The sensitivity is adjustable by a trimmer located under a cover screw on the rear side. The design and housing materials of CPS allow the use in complicated environments (harsh, dusty, explosive, aggressive) as well as in clean environments (medical technology).

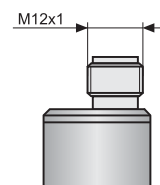
DIMENSIONS DRAWINGS



Variant "A"
(Short cable outlet)



Variant "B"
(Long cable outlet)



Variant "C"
(Connector)

TECHNICAL SPECIFICATIONS

| | | |
|-------------------------------------|--------------------------|---|
| Supply voltage | 7 ... 36V DC * | |
| Current supply (state OFF / ON) | 3 / 6mA * | |
| Switching current (NPN, PNP output) | 200mA * | |
| Electric strength | 500V AC | |
| Coupling capacity | 2.2 nF | |
| Max. switching frequency | 5 Hz | |
| Sensitivity – sensing distance | 0 ... 10 mm (adjustable) | |
| Hysteresis | 5 ... 15% | |
| Ambient temperature range | -20 ... +70°C | |
| Protection class | IP67 | |
| Cable (version with cable outlets) | CPS-24N CPS-24Xi | PVC 3 x 0.5 mm ² PVC 2 x 0.75 mm ² |
| Weight (incl. 2 m cable) | Approx. 0.3 kg | |

* Only for variants "N"

ELECTRICAL PARAMETERS – variant Xi

| | |
|---|---|
| Supply voltage | 8 ... 9V DC (Max. 12V DC) |
| Current supply (state OFF / ON) – NAMUR | ≤ 1 mA / ≥ 2.2 mA |
| Max. internal values | U _i = 12V DC; I _i = 15 mA; P _i = 45 mW; C _i = 15 nF; L _i = 10 μH |

WORKING AREAS (EN 60079-10, 14 and EN 50281-1-2)

| | |
|----------|--|
| CPS-24N | Performance for non-explosive areas |
| CPS-24Xi | Performance for explosive areas, $\text{Ex II 1G Ex ia IIC T6 Ga}$ with intrinsically safe supply units, whole sensor zone 0 |

USED MATERIALS

| Part of the sensor | Material |
|----------------------------|------------------------|
| Housing | St. steel W.Nr. 1.4301 |
| Sensing surface | PTFE |
| Ending | St. steel W.Nr. 1.4301 |
| Cable outlet (Variant "A") | Plastic POM |
| Cable outlet (Variant "B") | St. steel W.Nr. 1.4301 |

TYPE OF OUTPUT

| Output | Variants |
|--------------------|----------|
| NPN ("NC", "NO") | N |
| PNP ("PC", "PO") | N |
| NAMUR ("RC", "RO") | Xi |

ELECTRICAL CONNECTION

Sensor with NPN or PNP output is allowed to lead only by resistive or inductive load. Positive supply voltage (+U) is connected to the brown conductor BN (1), negative (0V) to the blue conductor BU (3) and the leads (only NPN or PNP type of output) to the black conductor BK (4). The capacity loads and low resistance loads (bulb) is evaluated by the sensor as short circuit.

Note: In case of strong ambient electromagnetic interference, paralleling of conductors with power distribution, or for the distribution to distance over 30 m, we recommend to use shielded cable..

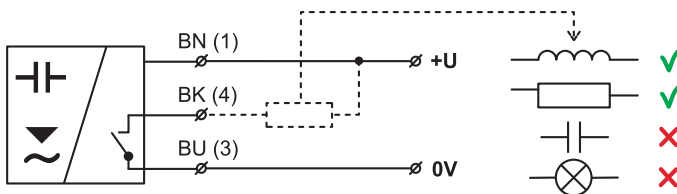


Fig. 1: NPN type sensors connection (version "N")

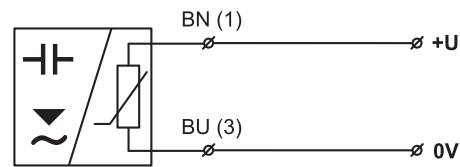


Fig. 3: NAMUR type sensors connection (version "Xi")

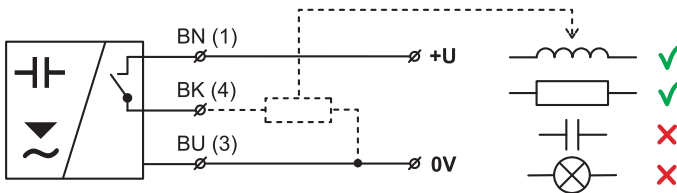


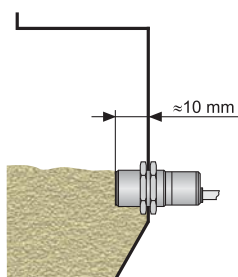
Fig. 2: PNP type sensors connection (version "N")

Legend:

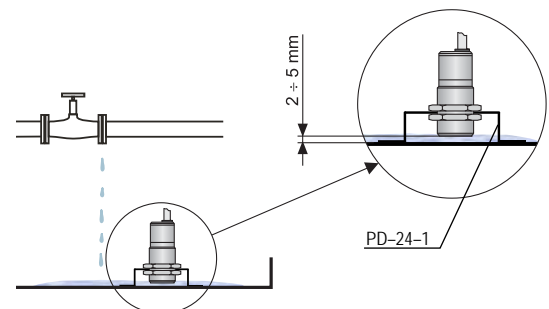
- (*) – Numbers of terminals inside of the connector
- BK – Black
- BN – Brown
- BU – Blue

INSTALLATION AND RECOMMENDATIONS

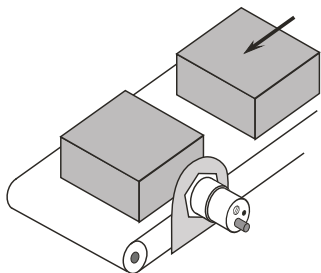
Sensing of bulky-solid materials in metal containers or tanks.



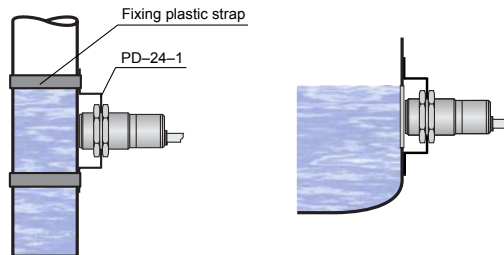
Leakage indication in detention pits and boxes with "Plate holder PD-24-1".



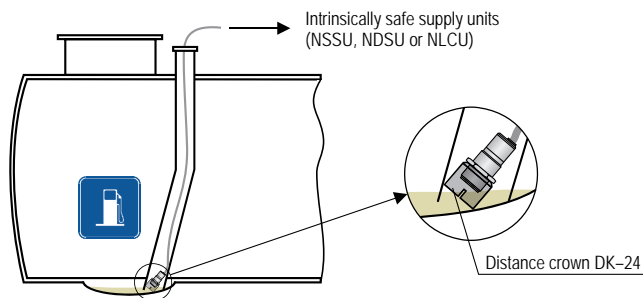
Sensing of moving objects on conveyor



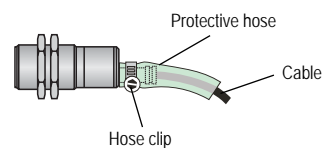
Level sensing through glass, plastic walls or gauge pipe. Outer diameter gauge-pipe min. 20 mm.



Leakage indication in inter-wall space of dual-wall tanks.



In the case of vertical mounting in outer areas or in the case of high mechanical exertion we recommend to install in Variant "B" **protective hose** on the cable (see figure).



STATUS SIGNALIZATION

| | Level state | Type of output | Output state | LED indication |
|-----------------------|-------------|------------------------------|----------------|----------------|
| Minimum level sensing | | CPS-24N-_-NO CPS-24N-_-PO | CLOSED | (Shine) |
| | | CPS-24Xi-_-RO | HIGHER CURRENT | |
| | | CPS-24N-_-NO CPS-24N-_-PO | OPEN | (Dark) |
| | | CPS-24Xi-_-RO | LOWER CURRENT | |
| Maximum level sensing | | CPS-24N-_-NC CPS-24N-_-PC | CLOSED | (Shine) |
| | | CPS-24Xi-_-RC | HIGHER CURRENT | |
| | | CPS-24N-_-NC CPS-24N-_-PC | OPEN | (Dark) |
| | | CPS-24Xi-_-RC | LOWER CURRENT | |

Notes: For **minimum level** sensing we recommend sensor with normally open output (NO, PO, RO). It is for failure safety reasons – eventual failure of sensor behaves similarly as an exceeding of the limit state.

Analogically for **maximum level** sensing we recommend normally closed outputs (NC, PC, RC).

For leakage indication we recommend the NC, PC, RC version too. It is **maximum level** sensing as well, despite the sensor is at the lowest place in the room.

SENSOR SETTING

The sensitivity is set by trimmer located under cover screw on the rear side. Clockwise turning makes the sensitivity lower, reverse direction turning makes the sensitivity higher. The sensor is factory adjusted to basic sensitivity. Real sensitivity (sensing distance) depends on sensing material.

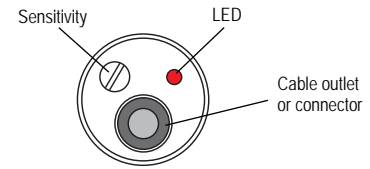
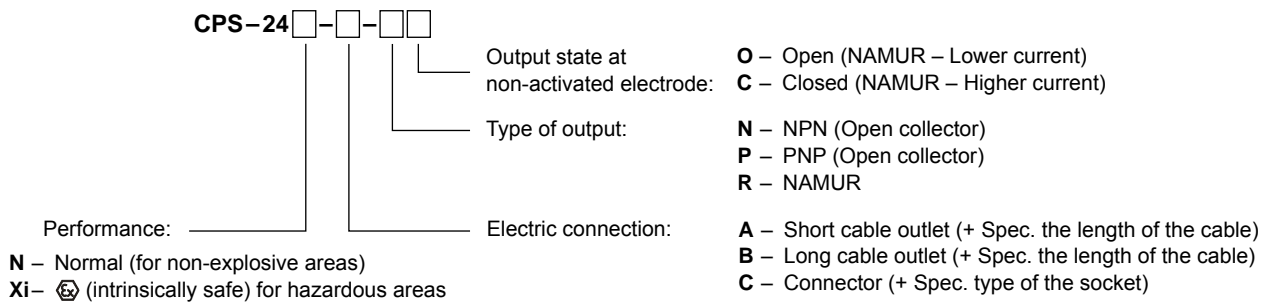


Fig. 4: Top view of level sensor

AREAS OF APPLICATION

Detect liquids in glass or plastic pipes, indicate liquids in inter-coat space of double coated tanks. Detection of various kinds of non-abrasive bulk-solid materials (granulates, cereals, sand) in non-conductive containers. Sensing of moving objects.

ORDER CODE



CORRECT SPECIFICATION EXAMPLES

CPS-24N-A-PC cable 4 m

(N) Performance for non-explosive areas; (A) Short cable outlet with 4 m cable length; (PC) Output type PNP with closed state at non-activated electrode

CPS-24Xi-B-RO cable 7 m

(Xi) Explosion-proof performance; (B) Long cable outlet with 7 m cable length; (RO) Output type NAMUR with lower current at non-activated electrode

CPS-24N-C-NO cable 7 m

(N) Performance for non-explosive areas; (C) Connector; (NO) Output type NPN with open state at non-activated electrode

ACCESSORIES

Standard (included in the level sensors price)

- 2 pcs. of stainless steel fixing nuts
- 1 pcs. Screwdriver for adjustment (each 5 pcs.)

Optional (for extra charge)

- Extra cables over the standard length 2 m (for electric connection type "A" or "B")
- Connector plug (type ELWIKa or ELKA)
- Plate holder PD-24-1
- Distance crown DK-24

SAFETY, PROTECTIONS, COMPATIBILITY AND EXPLOSION PROOF

Level sensor CPS-24 is equipped with protection against reverse polarity, output current overload, short circuit and short time over voltages.

Electromagnetic compatibility (EMC) is provided by conformity with standards EN 55022/B, EN 61326-1, EN 61000-4-2; -3; -4; -5 and -6.

Explosion proof CPS-24Xi is examined by FTZÚ - AO210 Ostrava - Radvanice, certificate No. FTZÚ 02 ATEX 0233X.