

PNP, Normally open Specification: Electrical



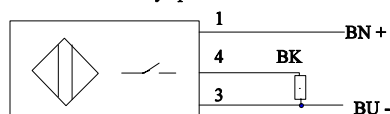
Pat. Pend

Type approval pending from:
Det Norske Veritas and Lloyd's Register

Recommended power supply	24 vdc
Rated operational volt. (U_e)	12 to 36 VDC
(U_B)	10 to 40 VDC
Ripple	$\leq 10\%$
Rated operational current (I_e)	≤ 200 mA
Supply current (I_e)	$\leq 6,5$ mA
Voltage drop	$\leq 2,0$ VDC at max load
Protection	Reverse polarity, short-circuit transients
Time delay before availability	
(Delay after power on)	typ. 6,5 ms (≤ 10 ms)
Frequency of operation cycles (f)	> 800 Hz
Assured operation dist. (S_a)	$S_a \leq 1,0$ mm
Repeat accuracy (R)	$\leq 5\%$
Hysteresis (H)	
(differential travel)	1 to 15 % of sensing dist.
Ambient temperature	
Operating	-25 to +70 °C
Storage	-30 to +80 °C
EMC-protection	According to EN 50081

PNP wiring diagram

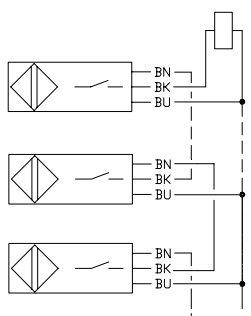
DC 3-wire - normally open



BN + (1) brown wire
BU - (3) blue wire
BK (4) black wire

Series connection of DC 3-wire:

The type-specific delay before availability can result in a delayed reaction time. It is possible to connect Indupec® detectors and mechanical contacts. The maximum number of detectors to be connected in this way is determined by the voltage drop and the required supply voltage.



Voltage drop (U_d):

Voltage measured across the active output at rated operational current. When prolonging the cable, the voltage drop is increased by the value of

$$U_d \approx 2 \frac{\rho l I}{a}$$

$\rho = 0,01725$ for copper wire
 l = Length of cable (in metres)
 I = Output current (in Amps.)
 a = Cross section of wire (in mm²)

Electrical conn. 4 poles, IEC 947-5-2

Pin configuration for connector:



1~+(BN)
2~ blind
3~ -(BU)
4~ (BK)signal

Plugs and cable

Only on request

Recommendation

Oil resistant plastic straight cable socket, screw locking, self ass. (Hirschmann M12 ELST, IP67)

or

Indication for output

Straight cable socket, with integrally moulded lead, self-securing lock nut, LED display Max 30 VDC with LED's. (Hirschmann ELKA-KV, IP 68) with 2 m or 5 m PUR-cable. (up to 10 metre cable on request) Can be equipped on special request

Conduct

Specification: Mechanical

Material

Body and house Stainless steel (316)
Front Al_2O_3 (ceramic)

Threaded housing

3/8" BSP

Sealing

Doughty ring or similar

Design pressure or

Max. allowable operating pressure

(MAOP)static = 500 bar (50 MPa)

(MAOP) dyn. = 400 bar (40 MPa)

Test pressure

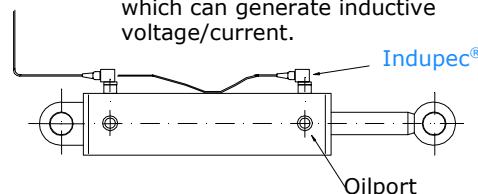
(TP) = 600 bar (60 MPa)

Features:

Mounting directly in oilport
Detecting end position of piston
Housing and detector unit is designed to separate without spillage of oil, if mechanical distortion should occur.

Installation hints:

- Avoid pulling of the cable.
- Place a cableloop on the cylinder and fix it with a wirestrap.
- Avoid interference with other cables which can generate inductive voltage/current.



Ordering example:

Indupec, PNP, with indication for output and with 2 m cable.

or Indupec, PNP, with separate plug and no cable

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This equipment is not to be used where personal safety is required (cannot meet the requirements acc. to fail-safe scenarios). If fail-safe equipment is required, you should use the [Indupec® System](#).

Important dimensions to consider when preparing the integrating of the [Indupec®](#) detector in the oil hydraulic cylinder.

Fig. 1

Cross section of a cylinder
with the most important dimensions which have to be considered to be sure that the [Indupec®](#) detector will work under safe conditions
We cannot guarantee accurate and continuous reliability if not the respective dimensions and tolerances is observed.

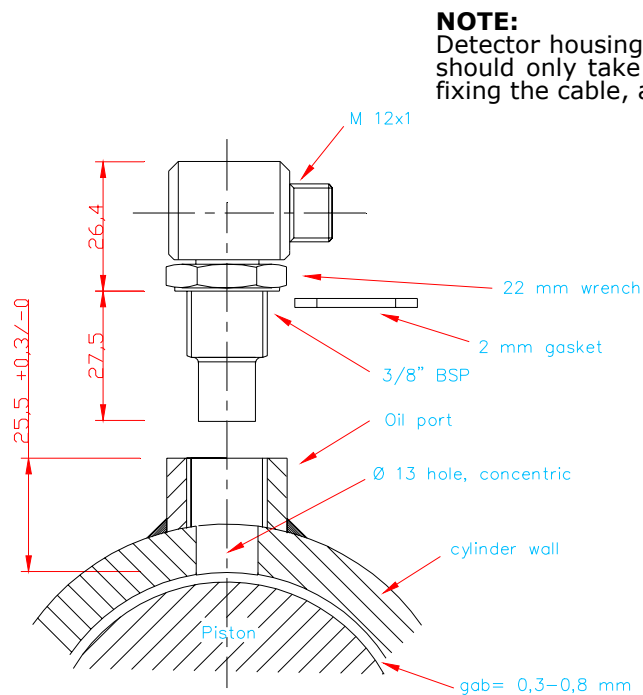
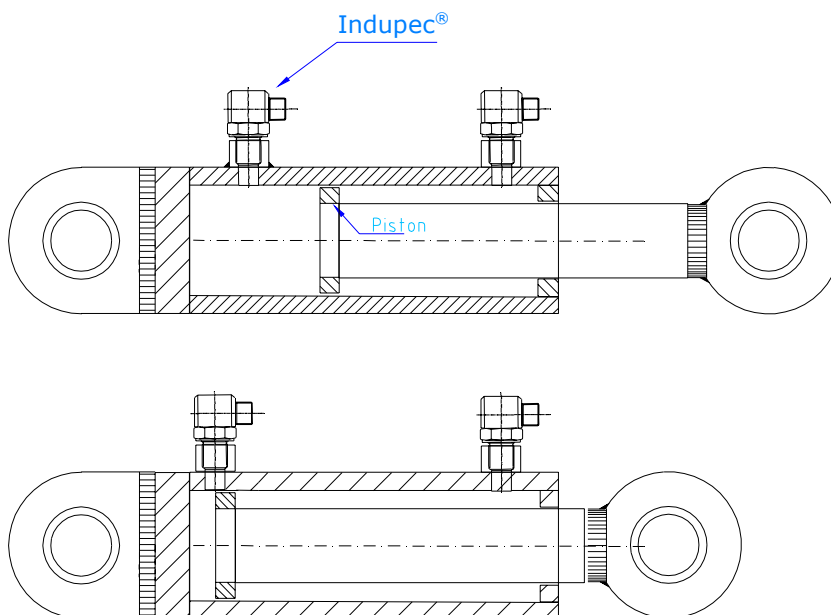


Fig. 1



Length section of a cylinder.