

NELES LIMIT SWITCHES AND POSITION TRANSMITTER SERIES NI700 AND NT700

Neles NI700 and NT700 series are reliable units for indicating control valve position, engineered for easy mounting on various types of valve units. NI/NT units can be mounted on a Metso Automation pneumatic actuator with or without a pneumatic or electropneumatic positioner. NI700 and NT700 units have the same mounting parts as NP700 and NE700 positioners; thus the units can easily be added later to an installed valve unit.



FEATURES

Reliability

- Maximum reliability in outdoor as well as indoor applications.
- Compact robust design, protection class IP65.

Backlash free operation

- Cam movement drives directly from actuator shaft.

Easy to adjust

- Stepless adjustable.
- Fine-tune possible.

Junction box

- Additional conduit entry for wiring solenoid valve etc.

Connections

- VDI/VDE 3845 as an option.

CE-mark

- The components carry the CE-mark concerning the countries which belong to the European Economic Area.

Inductive proximity limit switches, series NI700

- No moving parts.
- Cam movement drives directly from shaft.
- Intrinsically safe according to ATEX II 2 G EEx ia IIC T6.

Position transmitter, series NT700

- Contact-free capacitive measuring (no wearing parts) ensures stable and long life even under vibration.
- Accuracy <0.5 % ensures exact position measurement within the range.
- The fully rotatable drive shaft without stops (compare to potentiometers) makes breakage impossible.
- The measuring range of transmitter fulfills the desired value travels.
- Intrinsically safe according to ATEX II 2 G EEx ia IIC T6.
- Available for globe valves as an option.

OPERATION PRINCIPLE

Series NI700



Series NT700

The transducer consists of two main parts: the differential capacitor D and the electronic circuitry E.

The angular deflection (α) of the device to be measured is transferred to the rotor R of the differential capacitor with the aid of a mechanical coupling. It is then converted into a change of capacitance proportional to the angle.

The generator G produces 2 square voltages of 2 kHz shifted inphase by 180 degrees. These voltages are applied to the differential capacitor.

Any change in the rotor position results in a change of current at the charge amplifier input L. This current is amplified, rectified with the synchronous rectifier S, and passes to the output amplifier V, which converts it into a load-independent DC current.

The constant voltage source U_H supplies the circuit with a stable voltage which is independent of power supply fluctuations. Zero setting and span can be adjusted with potentiometers P_1 and P_2 .

Connection mode

2-wire connection

3-wire connection

4-wire connection

TECHNICAL SPECIFICATION

NI700

NT700

Switch type: Inductive proximity switch

Code 7201/XS1: 2-wire; intrinsically safe according to ATEX II 2 G EEx ia IIC T6

Supply voltage: 8 VDC (Ri > 1 kOhm)

Output current: active face free: > 3 mA
active face covered: < 1 mA

Nominal sensing range: 2 mm

Ambient temperature: -25 ... +65 °C / -13 ... +150 °F

Protection class: Housing: IP65 (NEMA4&4x)
Switches: IP67

Body: Anodized aluminum, epoxy coated

Cover: Polycarbonate

Internal parts: Stainless steel and plastic

Pointer cover: Polycarbonate

Sealing: Neopren and nitrile rubber

Conduit entry: PG 13.5; ISO M20 or 1/2 NPT adapter

Knockout additional entry: PG9

Switches hysteresis: < 2°

Other sensors: on request

Weight: 0.6 kg / 1.1 lbs

Code NT7211/S1: 2-wire

Code NT7411/S1: 3- or 4-wire

Angle transducer type: KINAX 3W2

Output signal: 4 - 20 mA or 0 - 20 mA

Ambient temperature: -25 ... +70 °C / -13...+158 °F (Climate Class 3Z to VDI/VDE 3540)

Rated voltage: 12 - 33 VDC (12 - 22 VDC, intrinsic safety according to ATEX II 2 G EEx ia IIC T6)

Max. current consumption: Output signal +3 mA

Permissible vibration: 5 g every 2 h, x, y and z; f ≤ 200 Hz

Temperature influence: ±0.3 %/10 K

Housing (angle transmitter): Metal, cast aluminum, corrosion resistance finish

Protection class: IP65 (NEMA4&4x)

Materials: Equal to NI700 except cover

Cover: Polycarbonate + aluminum

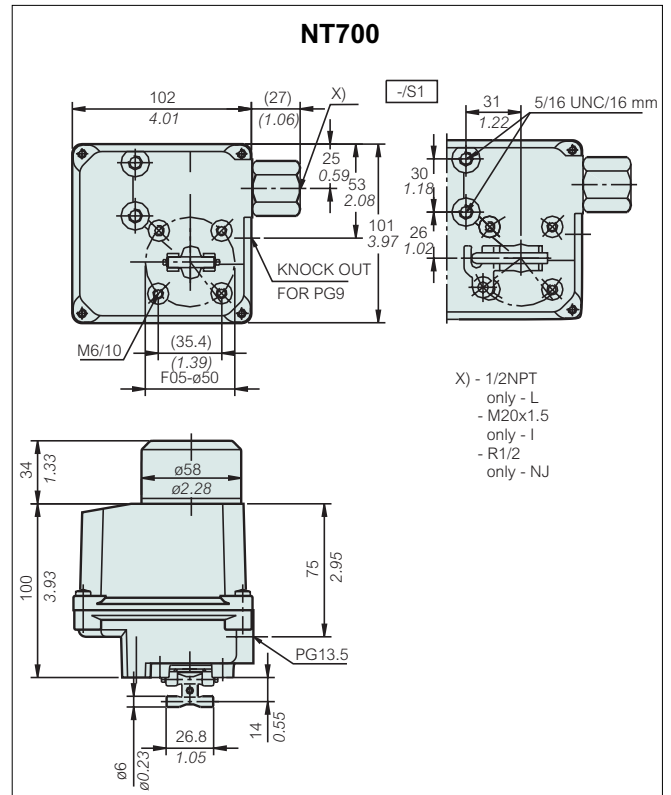
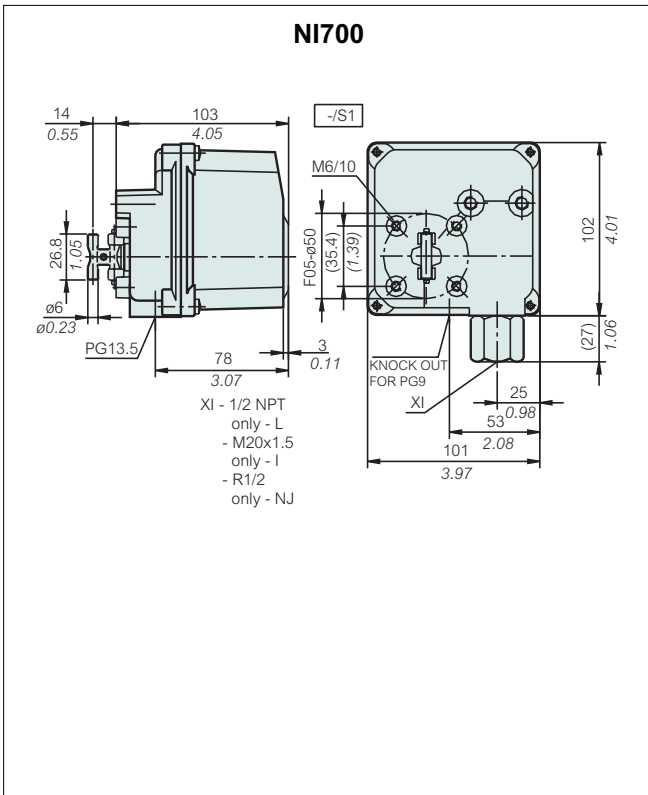
Pointer: No

Basic accuracy: ± 0.5 %

Weight: Approx. 0.7 kg / 1.3 lbs

Other versions: on request

DIMENSIONAL DRAWINGS, mm / inch



HOW TO ORDER

LIMIT SWITCH NI700

1.	2.	3.	4.	5.	*)	6.		
NI	7	1	11	A	/	S1	-	L

*) Slash shall always be marked before option codes (6. sign)

1.	PRODUCT GROUP
NI	Limit switch with inductive proximity switches

2.	SERIES CODE
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3.	QTY OF SWITCHES
1	1 pc, 5. sign always to be defined
2	2 pcs.

4.	SWITCH TYPE
01	P+F; NJ2-12GK-N. DC; > 3mA;< 1mA. Intrinsically safe according to EEx ia IIC T6, 2-wire type. 6. sign always X. Temperature range -25 °C... +65 °C / -13 °F... +149 °F.

5.	ACTION (with 1 switch only)
A	Switch for open limit
K	Switch for closed limit

6.	OPTIONS
-	If several options below are needed to the same limit switch, the codes shall be marked in presented order from top. Standard, IP 65 enclosure. PG 13.5 conduit entry. Temperature range according to switch type.
X	Intrinsically safe construction. ATEX II 2 G EEx ia IIC T6 -certification (EN 50014, EN 50020). Temperature range -25 °C... +65 °C / -13 °F... +149 °F.
S1	Limit switch attachment face either according to standard VDI/VDE 3845, equipped with an H-clip. When limit switches are separate deliveries, VDI/VDE ear is delivered.
P	Connection plug acc. to DIN 43650A / ISO 4400 (PG 11) with 2-wire types only. Not available with options X and accessories L, I, NJ.
Y	Special construction, to be specified.

- □	ACCESSORIES
CE1	PG 13.5 / 1/2 NPT conduit entry nipple. Will be specified in the option sticker.
CE2	PG 13.5 / M20x1.5 conduit entry nipple. Will be specified in the option sticker.
CE3	PG 13.5 / R1/2 (PF1/2) conduit entry nipple. Will be specified in the option sticker.

POSITION TRANSMITTER NT700

1.	2.	3.	4.	5.	*)	6.		
NT	7	2	1	1	/	K	05	S1

*) Slash shall always be marked before 6., 7., 8. signs

1.	PRODUCT GROUP
NT	Position transmitter

2.	SERIES CODE
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3.	OUTPUT SIGNAL
2	4...20 mA (2-wire connection)
4	4...20 mA (3- or 4-wire connection)

4.	TRANSMITTER
1	Camille Bauer, Kinax 57-3W2.

5.	ACTION
1	Signal rises by counterclockwise rotation seen from the front side of position transmitter. Turning angle = 90°.
2	Signal rises by clockwise rotation seen from the front side of position transmitter. Turning angle = 90°.

6.	LIMIT SWITCH CODE
I	Inductive proximity switches, defined with 7. sign.
K	Micro switches, defined with 7. sign.

7.	LIMIT SWITCH TYPE
01	P+F; NJ2-12GK-N. DC; > 3mA;< 1mA. Inductive proximity switches (I), 2 pcs. Intrinsically safe according to EEx ia IIC T6, 2-wire type. 6. sign always X.
11	P+F; NJ2-12GM40-E2. DC; 200 mA; quiescent current < 15 mA; PNP. 3-wire type. Not applicable to option X.
21	P+F; NJ2-12GM40-E. DC; 200 mA; quiescent current < 15 mA; NPN. 3-wire type. Not applicable to option X.
54	OMRON E2E-X3D1-N (-G). DC; 100 mA; quiescent current < 0.8 mA. 2-wire type. Not applicable to option X.
56	ifm IFC 2002-ARKG/UP. DC; 150 mA; quiescent current < 0.6 mA. 2-wire type. Not applicable to option X.
	Micro switches (K), 2 pcs
05	OMRON D2VW-5, standard. Not applicable to option X.
06	OMRON D2VW-01, gold plated contacts, 24 V DC/AC, 100 mA. Not applicable to option X.

8.	OPTIONS
	If several options below are needed to the same position transmitter, the codes shall be marked in presented order from top. Standard, IP 65 enclosure. PG 13.5 conduit entry. Temperature range -25 °C... +70 °C / -13 °F... +158 °F.
X	Intrinsically safe construction. ATEX II 2 G EEx ia IIC T6. Temperature range -20 °C... +65 °C / -4 °F... +149 °F.
S1	Limit switch attachment face either according to standard VDI/VDE 3845, equipped with an H-clip. When limit switches are separate deliveries. VDI/VDE ear is delivered.
Y	Special construction, to be specified.

- □	ACCESSORIES
CE1	PG 13.5 / 1/2 NPT conduit entry nipple. Will be specified in the option sticker.
CE2	PG 13.5 / M20x1.5 conduit entry nipple. Will be specified in the option sticker.
CE3	PG 13.5 / R1/2 (PF1/2) conduit entry nipple. Will be specified in the option sticker.

Subject to change without prior notice.

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