NA-NB-NF series modular pre-wired switches

Description

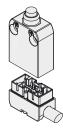






The result of the long-standing expertise of Pizzato Elettrica in the creation of position switches, the NA, NB, NF series achieve the highest standard of flexibility and depth of range present today on the pre-wired switches market. Configurable, adjustable, pivotable and, not least, customisable with special cables or custom wiring - these are features that today make these series unique in the European panorama, ideal for easily providing our customers with customised switches.

Switches with connectors



The new fundamental feature of this series of prewired switches is that the switch body and the wired connector are separated.

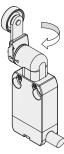
Using the connector the end-user can replace a product on field without having to disconnect the com-

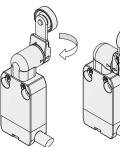
Moreover in this way it is easier to combine products with different cable types and lengths.

Head with variable orientation

All heads can be turned in 90° steps. The new head for swivelling levers has been designed with compact dimensions so that it does not protrude over the switch profile. Therefore, it is also possible to install the switches on the wall.





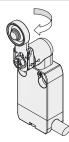


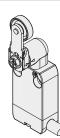
Protection degrees IP67 and IP69K

These devices are designed to be used in the toughest environmental conditions and they pass the IP67 immersion test acc. to EN 60529. They can therefore be used in all environments where maximum protection degree of the housing is required. Due to

their special design, these devices are suitable for use in equipment subjected to cleaning with high pressure hot water jets. These devices meet the IP69K test requirements according to ISO 20653 (water jets with 100 bar and 80°C).

Reversible levers





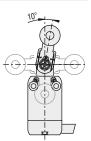
For switches with swivelling lever, the lever can be fastened on straight or reverse side maintaining the positive coupling.

In this way two different working planes of the lever are possible.

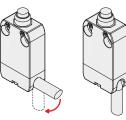
Adjustable levers

For switches with swivelling lever, the lever can be adjusted in 10° steps over the entire 360° range.

The positive movement transmission is always guaranteed thanks to the particular geometrical coupling between the lever and the revolving shaft as prescribed for safety applications by the German standard BG-GS-ET-15.



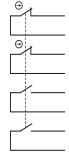
Orientable cable outputs



The connector with cable is provided with a cavity to allow cable bending up to 90°.

In this way a flush wall mounting is also possible as well as an easier adjustment of the cable to the supporting flange.

Positive opening contact blocks with 1, 2, 3 or 4 poles



These series of contact blocks are versatile and compact. They have the same dimensions of the previous versions, but now it is possible to have up to 4 different contacts which are galvanically separated and provided with positive opening (NC contacts).

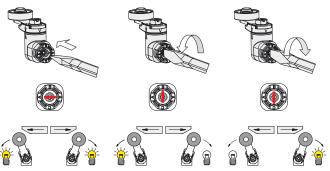
The allowed standard combinations are: 1NO+1NC. 2NC, 1NO+2NC, 2NO+2NC. Other combinations available on request.

The contact blocks have been designed so that they keep the same pin assignment on the connector independently of the action type (slow or snap action) and the number of contacts. In this way, the same cables with connector can be used for units with slow action and snap action as well.

Unidirectional heads

All switches with swivelling lever are supplied with a selector for choosing the lever operating direction.

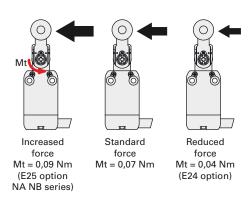
The following operations are possible: right/left (standard factory setting), only from the right or only from the left. The operating direction can be selected by rotating the dedicated ring mounted on all heads of this kind.





Increased or reduced actuating force

For actuators with swivelling lever, versions with increased or reduced actuating force are available upon request, in order to have a switch perfectly tailored for the application. For further information contact our technical department.



Adjustable levers with anti-unscrewing washer

In some applications during the installation of the switches problems are encountered due to the variability of the fastenings and the folds of the structural work.

In other cases, small finishing adjustments are required due to the application. Nearly all swivel-



ling levers for switches of the NA, NB and NF series can be adjusted in 1 mm steps along the switch length.

This feature, combined with the additional possibility of the radial adjustment of the actuator, provides the installer with a never before achieved flexibility in the final adjustment of the product.

All this while maintaining the positive geometric locking between lever and swivel shaft as prescribed for safety applications.

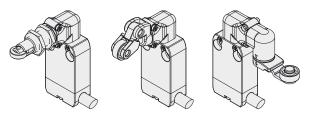
90° redirection for actuators



This component highly extends the application possibilities of this product range.

All the actuators that can be attached directly to the body of the switch can also be fastened on this transmission, thus making feasible applications and positioning of the switch that were previously impos-

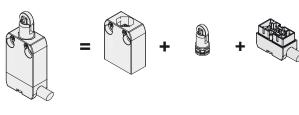
sible. The redirection piece can also be used in case of heads for swivelling levers. Although possible, the use of multiple transmissions in series is not recommended.



Switch components available separately

This product series has been provided with a modular design so that single parts can also be ordered separately. This is an asset both for distributors and for final customers of electrical material in the procurement of spare parts as well as for custom combinations.

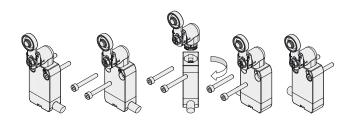
NA B110BB-DN2 **NA B11000 VN AA0BB** VN CM11DN2



Reversible housing

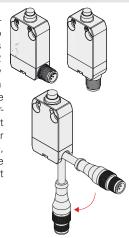
Thanks to the shape of the fixing holes and of the switch body, as well as the possibility of rotating the head, make this switch perfectly symmetrical.

If a switch with cable output on the left (since the connector cannot be rotated) is required, it is possible to rotate the complete device by maintaining the final position of the actuator unchanged.



M12 connectors

All contact configurations are available with M12 connector both with two contacts (with 5-pin M12 connector) as well as 3 or 4 contacts (with 8-pin M12 connector). With exit direction below or to the right, these make application in narrow spaces possible, as, with the simple rotation of the switch, the reversible housing also easily allows the exit direction to the left. The M12 connector is also available at the end of the cable, whose length can be tailored to the customer, and the cable can be bent at 90°, allowing installation on walls.



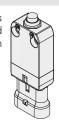
Extended temperature range

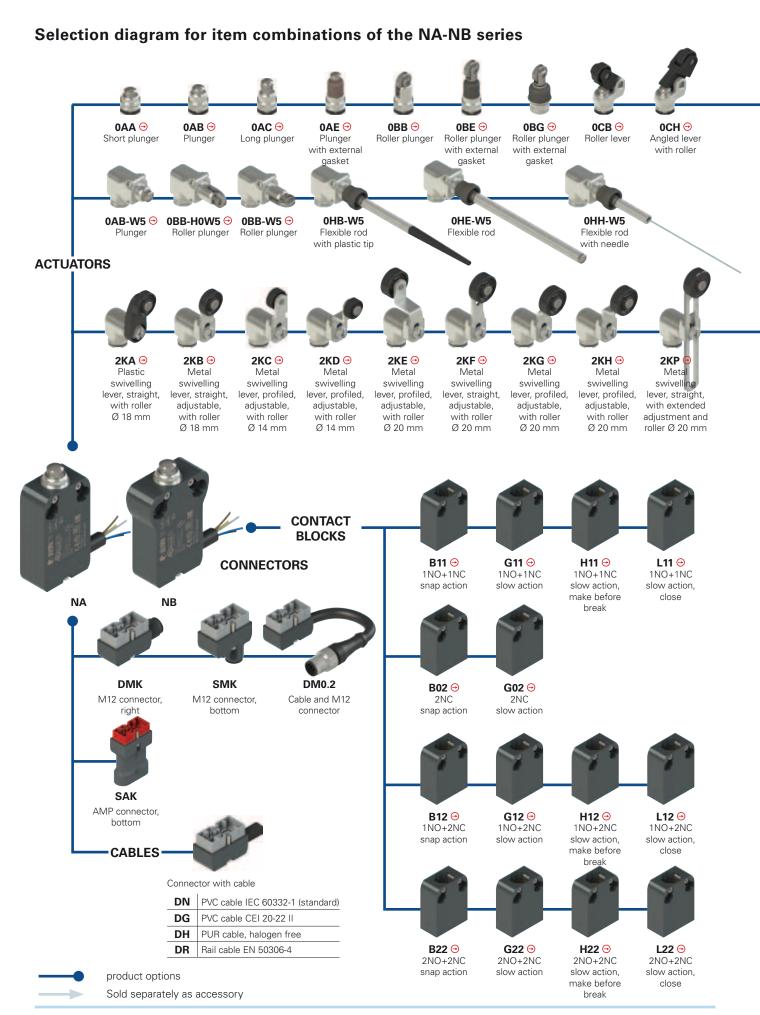
These devices are also available in a special version suitable for an ambient operating temperature range from -40°C up to +80°C.

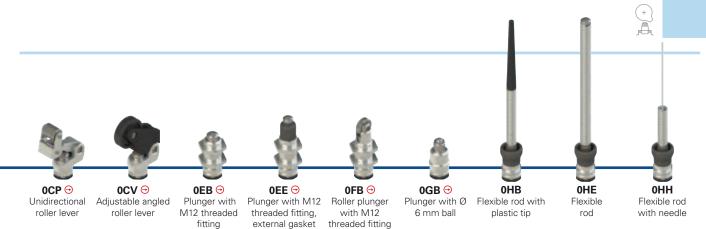
They can therefore be used for applications in cold stores, sterilisers and other equipment with low temperature environments. The special materials used to produce these versions retain their characteristics even under these conditions, thereby expanding the installation possibilities.

AMP connectors

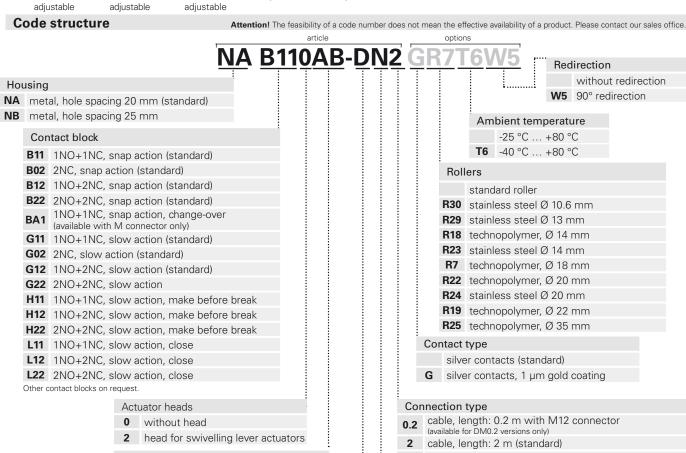
Furthermore, AMP connectors for 2-contact versions are available too. These connectors, specially developed for the automotive industry, are immune to vibration due to the quick coupling.











- Actuators 5 cable, length 5 m (other cable lengths available on request)
- 00 without actuator K integrated connector

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AA short plunger Cable or connector type

- AB plunger N PVC cable IEC 60332-1 (standard)
 - **G** PVC cable CEI 20-22 II
 - H PUR cable, halogen free
 - R Rail cable EN 50306-4
 - M M12 connector
 - A AMP Superseal 1.5 connector

Output direction

D cable or connector, right

S connector, bottom

NA-NB series modular metal pre-wired switches



Main features

- Metal housing, right or bottom cable output
- Protection degrees IP67 and IP69K
- 4 types of integrated cable available
- Versions with M12 connector suitable for safety applications
- Versions with AMP connector
- 14 contact blocks available
- 36 actuators available

Quality marks:



CA02.0456

UL approval: E131787 CCC approval: 2013010305653520 EAC approval: RU C-IT.AД35.B.00454

Technical data

Housing

Metal housing, baked with UV resistant powder coating.

Versions with integrated cable, standard length 2 m, other lengths 0.5 ... 10 m on

Versions with integrated M12 connector.

Versions with 0.2 m cable length and M12 connector, other lengths 0.1 ... 3 m

available on request.

Protection degree: IP67 acc. to EN 60529

IP69K acc. to ISO 20653

(Protect the cables from direct high-pressure and

high-temperature jets)

Corrosion resistance in saline mist: ≥ 300 hours in NSS acc. to ISO 9227

General data

Ambient temperature for switches without cable: -25°C ... + 80°C (standard)

-40°C ... + 80°C (extended T6)

See table on page 118 Ambient temperature for switches with cable: Max. actuation frequency: 3600 operating cycles/hour 20 million operating cycles Mechanical endurance:

Mounting position:

Safety parameter B_{10D}: 40,000,000 for NC contacts Mechanical interlock, not coded: type 1 acc. to EN ISO 14119 Vibration resistance 5 ... 150 Hz (7.9 m/s²) (0BB, 2KB, 2KC, 2KD actuators): acc. to EN 61373 cl. 9 Tightening torques for installation: see page 211-222

Electrical data

Rated impulse withstand voltage (U_{imp}):

4 kV

Conditional short circuit current: 1000 A acc. to EN 60947-5-1

Pollution degree:

In compliance with standards:

IEC 60947-5-1, EN 60947-5-1, IEC 60204-1, EN 60204-1, EN ISO 14119, EN ISO 12100, IEC 60529, EN 60529, ISO 20653, UL 508, CSA 22.2 No.14.

Compliance with the requirements of:

Low Voltage Directive 2014/35/EU, EMC Directive 2014/30/EU.

Positive contact opening in conformity with standards:

IEC 60947-5-1, EN 60947-5-1.

⚠ Installation for safety applications:

Use only switches marked with the symbol Θ next to the product code. Always connect the safety circuit to the **NC contacts** (normally closed contacts: see "Internal cable wiring" on page 118) as required by EN ISO 14119, paragraph 5.4 for specific interlock applications and EN ISO 13849-2 tables D3 (well-tried components) and D.8 (failure exclusions) for safety applications in general. Actuate the switch at least up to the positive opening travel shown in the travel diagrams on page 220. Actuate the switch at least with the positive opening force, reported in brackets below each article, next to the actuating force value.

🛆 If not expressly indicated in this chapter, for correct installation and utilization of all articles see the instructions given on pages 211 to 222.

⚠ Important: Switch off the circuit voltage before disconnecting the connector from the switch. The connector is not suitable for separation of electrical loads. According to EN 60204-1, versions with 8-pole M12 (2NO+2NC) and AMP connector can be used only in PELV circuits.

Features approved by IMQ

Rated insulation voltage (U): Conventional free air thermal current 10 A (1-2 contacts) / 6 A (2-3 contacts) /

Protection against short circuits (fuse)

Rated impulse withstand voltage

(U_{imp}): Protection degree of the housing: MA terminals (crimped terminals) Pollution degree:

Utilization category Operating voltage (U_e):

Operating current (I_):

250 Vac

4 A (4 contacts or 5-pole M12 connector) 10 A (1-2 contacts) / 6 A (2-3 contacts) / 4 A (4 contacts or 5-pole M12 connector) type gG

AC15 / DC13 (with connector) 250 Vac (50 Hz) / 24 Vdc (with connector) 3 A / 2 A (with connector)

Forms of the contact element: X, Y, X+Y, X+X, Y+Y, Y+Y+X, X+X+Y, X+X+Y+Y, Zb Positive opening of contacts on contact blocks B01, B11, B02, B12, B21, B22, G01, G11, G02, G12, G21, G22, L01, L11, L02, L12, L21, L22, H01, H11, H02, H12, H21, H22

In compliance with standards: EN 60947-1, EN 60947-5-1 + A1:2009, fundamental requirements of the Low Voltage Directive 2014/35/EU.

Please contact our technical department for the list of approved products

Features approved by UL

R300 pilot duty (28 VA, 125-250 Vdc) Utilization categories

B300 pilot duty (360 VA, 120-240 Vac) (1-2-3 cont.) C300 pilot duty (180 VA, 120-240 Vac) (4 cont.)

Housing features type 1, 4X "indoor use only", 12.

Housing features for the version with 1-2 contacts and type N cable

Type 1, 4X "indoor use only"

In compliance with standard: UL 508, CSA 22.2 No.14

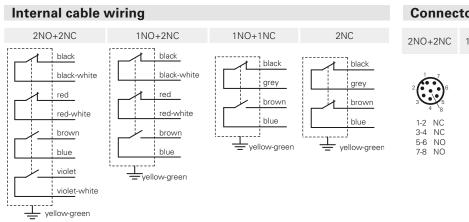
Please contact our technical department for the list of approved products.

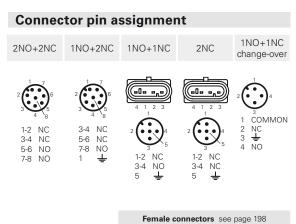


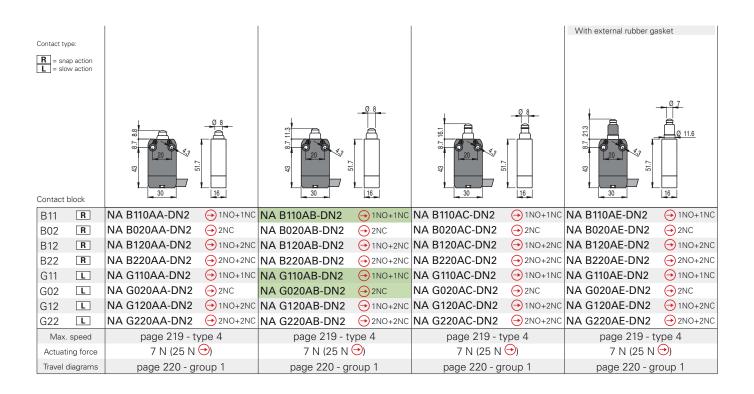
Ambient temperatures for switches with cable and electrical data

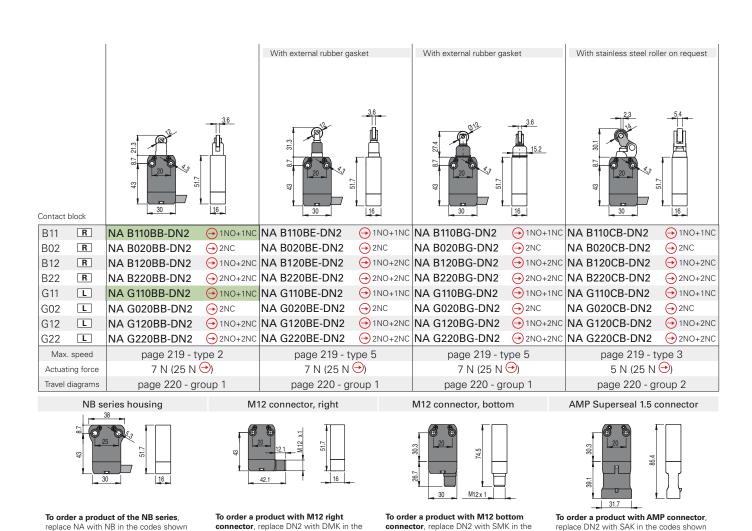
Connection type	Output with cable									Output with M12 connector	
Contact block	2 contacts				3 co	ntacts	4 cc	ntacts	2 contacts	3 or 4 contacts	2 contacts
Cable or connector type	N	G	Н	R	N	Н	N	R	M12 connec- tor, 5-pole	M12 connec- tor, 8-pole	AMP Super- seal
Conductors	5x0.75 mm ²	5x0.75 mm ²	5x0.75 mm²	5x0.5 mm ²	7x0.5 mm²	7x0.5 mm ²	9x0.34 mm²	9x0.5 mm²	5x0.25 mm ²	8x0.25 mm ²	1.5 con- nector
Application field	General	General	General, mobile installation	Rail	General	General, mobile installation	General	Rail	General	General	General
In compliance with standards	05VV-F	05VV-F	05EQ-H	EN50306-4 1E-300V 5G0,5 mm ² MM-90 EN 50306-4 EN 45545	03VV-F	03E7Q-H	03VV-F	EN50306-4 1P-300V- 9G0.5 mm ² MM-90 EN 50306-4 EN 45545	03VV-H	03VV-H	/
Sheath	PVC	PVC	PUR HALOGEN FREE	/	PVC	PUR HALOGEN FREE	PVC	1	PVC	PVC	/
Sheath Self-extinguishing	IEC 60332-1-2 IEC 60332-1-3	IEC 60332-1-2 IEC 60332-1-3 IEC 60332-3 CEI 20-22 II	IEC 60332-1-2 IEC 60332-1-3	IEC 60332-1 EN 50305 EN 50306-1	IEC 60332-1-2 IEC 60332-1-3	IEC 60332-1-2 IEC 60332-1-3	IEC 60332-1-2 IEC 60332-1-3	IEC 60332-1 EN 50305 EN 50306-1	IEC 60332-3 CEI 20-22 II	IEC 60332-3 CEI 20-22 II	/
Oil resistant	/	/	UL 758	1	/	UL 758	/	/	ISO 6722-1	ISO 6722-1	/
Max. speed	/	/	100 m/min	/	/	300 m/min	/	/	50m/min	50m/min	/
Max. acceleration	/	/	2 m/s ²	1	/	25 m/s ²	/	/	5m/s ²	5m/s ²	/
Minimum bending radius	80 mm	80 mm	80 mm	60 mm	108 mm	108 mm	94 mm	65 mm	75 mm	90 mm	/
Outer diameter	8 mm	8 mm	8 mm	6 mm	7 mm	7 mm	7 mm	6.5 mm	5 mm	6 mm	/
End stripped	80 mm	80 mm	80 mm	80 mm	80 mm	80 mm	80 mm	80 mm	/	1	/
Copper conductors IEC 60228	Class 5	Class 5	Class 6	Class 5	Class 5	Class 6	Class 5	Class 5	Class 6	Class 6	/

p.	Cable,	, fixed installation	-25°C +70°C	-25°C +70°C	-25°C +80°C	-25°C +80°C	-25°C +80°C	-25°C +80°C	-25°C +80°C	-25°C +80°C	-25°C +80°C	-25°C +80°C	/
vith ca andar	Cable, flexible installation		+5°C +70°C	-25°C +70°C	-25°C +80°C	-25°C +80°C	-5°C +80°C	-25°C +80°C	-5°C +80°C	-25°C +80°C	-25°C +80°C	-25°C +80°C	/
ure v	Cable,	mobile installation	/	/	-25°C +80°C	/	/	-25°C +80°C	/	/	-15°C +80°C	-15°C +80°C	/
mperat (T6)	Cable	Cable, fixed installation		/	-40°C +80°C	-40°C +80°C	/	-40°C +80°C	/	-40°C +80°C	/	/	/
Ambient temperature with cable extended (T6) standard	Cable,	flexible installation	/	/	-40°C +80°C	-40°C +80°C	/	-30°C +80°C	/	-40°C +80°C	/	/	/
Amb	Cable,	mobile installation	1	/	-40°C +80°C	/	/	-30°C +80°C	/	/	1	/	1
	Thermal current Ith		10 A	10 A	10 A	6 A	6 A	6 A	3 A	4 A	4 A	2 A	10 A
	Rated in	Rated insulation voltage Ui 250 Va		250 Vac	250 Vac	250 Vac	250 Vac	250 Vac	250 Vac	250 Vac	250 Vac 300 Vdc	30 Vac 36 Vdc	250 Vac 300 Vdc
data	Protection	against short circuits (fuse)	10 A 500 V type gG	10 A 500 V type gG	10 A 500 V type gG	6 A 500 V type gG	6 A 500 V type gG	6 A 500 V type gG	3 A 500 V type gG	4 A 500 V type gG	4 A 500 V type gG	2 A 500V type gG	10 A 500 V type gG
ical	u ≻	24 V	2 A	2 A	2 A	2 A	2 A	2 A	2 A	2 A	2 A	2 A	2 A
Electrical data	Utilization category DC13	125 V	0.4 A	0.4 A	0.4 A	0.4 A	0.4 A	0.4 A	0.4 A	0.4 A	0.4 A	/	0.4 A
ш	7 8 _	250 V	0.3 A	0.3 A	0.3 A	0.3 A	0.3 A	0.3 A	0.3 A	0.3 A	0.3 A	/	0.3 A
	ნ ≿	24 V	4 A	4 A	4 A	0.3 A	4 A	4 A	3 A	4 A	4 A	2 A	4 A
	Utilization category AC15	120 V	4 A	4 A	4 A	4 A	4 A	4 A	3 A	4 A	4 A	/	4 A
	5 ö	250 V	4 A	4 A	4 A	4 A	4 A	4 A	3 A	4 A	4 A	/	4 A
	Ар	provals	CE cULus IMQ EAC CCC	CE EAC CCC	CE cULus IMQ EAC CCC	CE IMQ EAC CCC	CE cULus IMQ EAC CCC	CE cULus IMQ EAC CCC	CE cULus IMQ EAC CCC	CE IMQ EAC CCC	CE cULus IMQ EAC CCC	CE cULus EAC CCC	CE cULus EAC CCC









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codes shown above. Example:
NA B110AA-**DN2** → NA B110AA-**DMK**

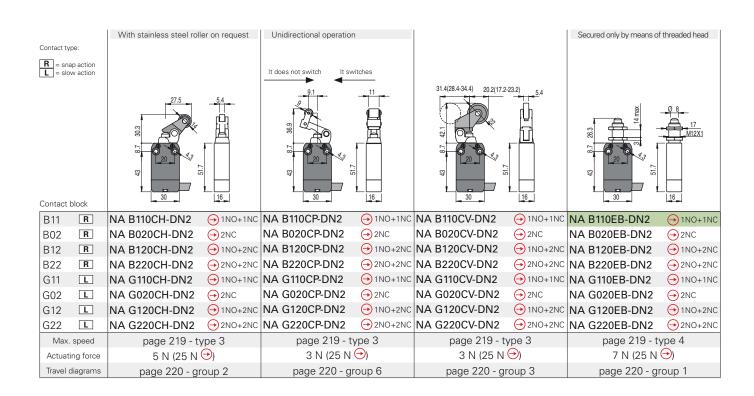
above. Example

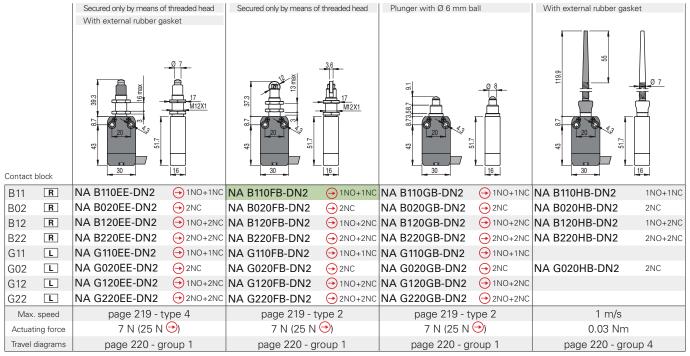
NA B110AA-DN2 → NB B110AA-DN2

codes shown above. Example:
NA B110AA-**DN2** → NA B110AA-**SMK**

NA B110AA-DN2 → NA B110AA-SAK

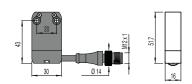
above. Example



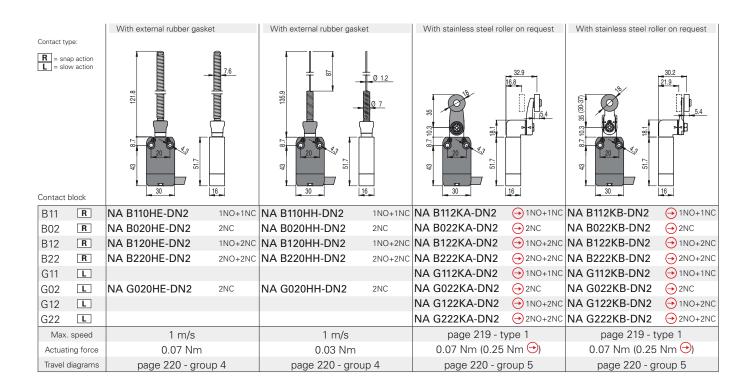


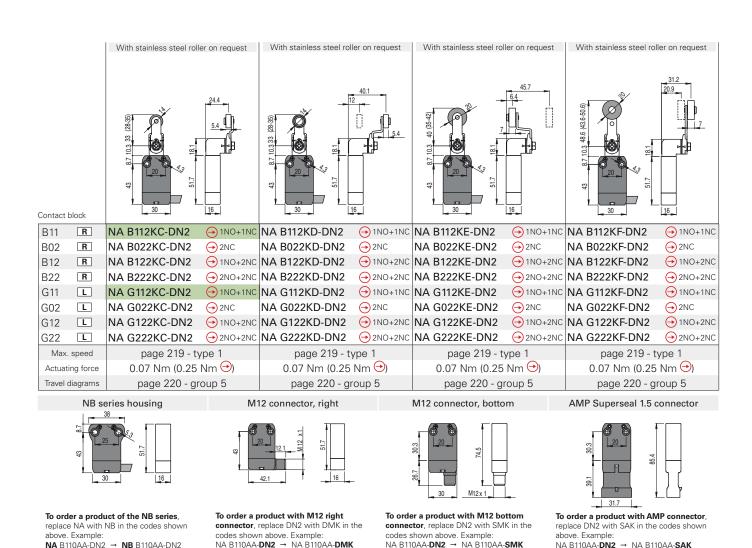
Cable and M12 connector

All values in the drawings are in mm



To order a product with cable and M12 connector:
replace DN2 with DM0.2 in the codes shown above. Example:
NA B110AA-DN2 → NA B110AA-DM0.2



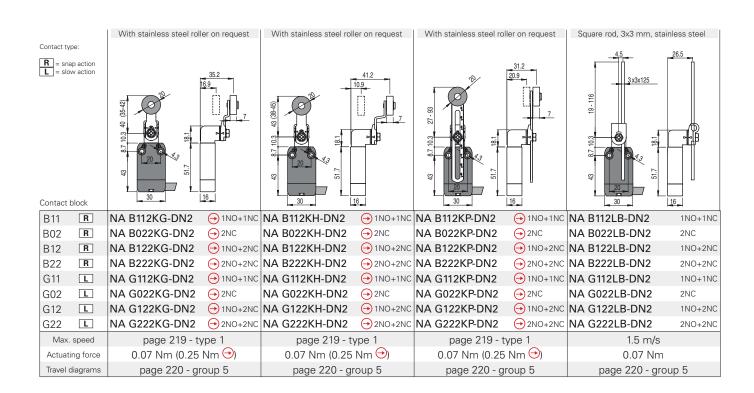


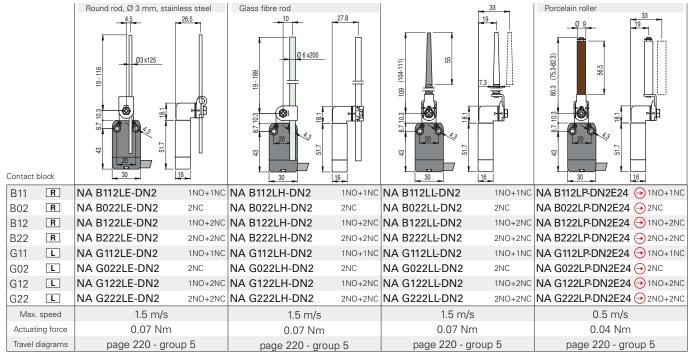
NA B110AA-DN2 → NB B110AA-DN2

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All values in the drawings are in mm

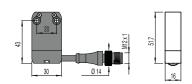
NA B110AA-DN2 → NA B110AA-SAK



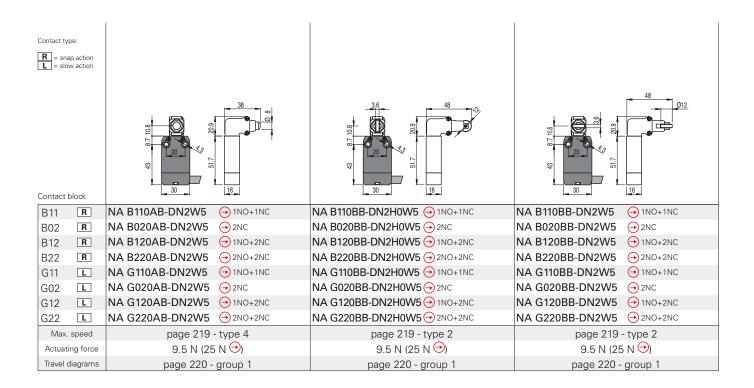


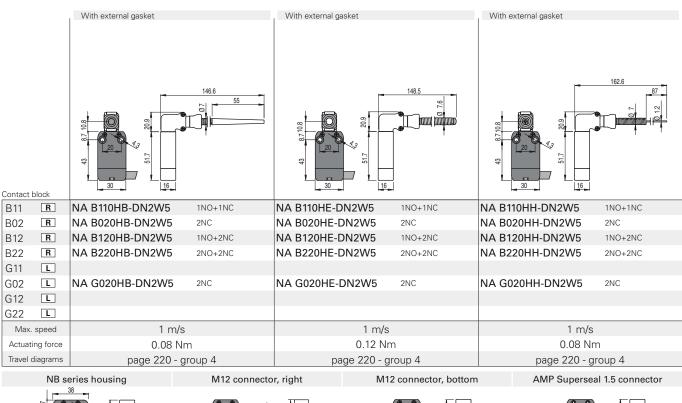
Cable and M12 connector

All values in the drawings are in mm



To order a product with cable and M12 connector: replace DN2 with DM0.2 in the codes shown above. Example: NA B110AA-DN2 → NA B110AA-DM0.2



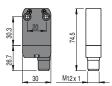


To order a product of the NB series, replace NA with NB in the codes shown above. Example:

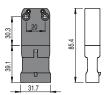
NA B110AA-DN2 → NB B110AA-DN2



To order a product with M12 right connector, replace DN2 with DMK in the codes shown above. Example:
NA B110AA-DN2 → NA B110AA-DMK



To order a product with M12 bottom connector, replace DN2 with SMK in the codes shown above. Example:
NA B110AA-DN2 → NA B110AA-SMK



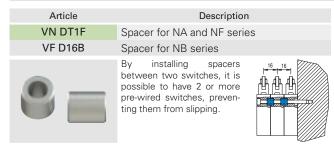
To order a product with AMP connector, replace DN2 with SAK in the codes shown above. Example:

NA B110AA-DN2 → NA B110AA-SAK

All values in the drawings are in mm



Accessories Packs of 10 pcs.



M12 female connectors with cable

For details see page 198



Technical data:

- Polyurethane connector body
- Class 6 copper conductors acc. to IEC 60228 mobile installation
- Gold-plated contacts (resistance < 5 m Ω)
- Self-locking ring nut
- High flexibility cable with PVC sheath suitable to be used in drag chains, acc. to IEC 60332-3 and CEI 20-22II. With polyurethane sheath on request.

Code structure

Attention! The feasibility of a code number does not mean the effective availability of a product. Please contact our sales office.

VF CA4PD3M

			:	: :	: :						
No. of poles				Connection type							
	4	4 p	ooles		ı	VI	M12x1				
	5	5 p	ooles					No.	of p	oles	
	8	8 p	ooles		: Cable length (L)			4	5	8	12
	12	12	poles		1	1 r	netre				
(Cabl	le sl	heath		2	2 r	netres				
P PVC (standard)			3	3 r	netres (standard)	•	•				
ı	U	PUR			4	4 r	netres				
				5	5 r	netres (standard)	•	•	•	•	
	C	oni	nector type	·							
D straight (standard)		0	10	metres (standard)	•	•	•	•			
G angled					Other lengths on request						

Stock items VF CA4PD3M VF CA4PD5M VF CA4PD0M

VF CA4PD0M VF CA5PD3M VF CA5PD5M VF CA5PD0M VF CA8PD5M VF CA8PD0M VF CA12PD5M VF CA12PD0M

Attention! No stock items, minimum order quantity 100 pcs.

Field wireable M12 female connectors



General data

Technopolymer connector body

Gold-plated contacts

Screw terminals for cable screw fittings

Max. operating voltages 250 Vac/dc (4 and 5-pole)

30 Vac/dc (8-pole)

Maximum current 4 A

Protection degree IP67 acc. to EN 60529 Ambient temperature -25°C ... +85°C

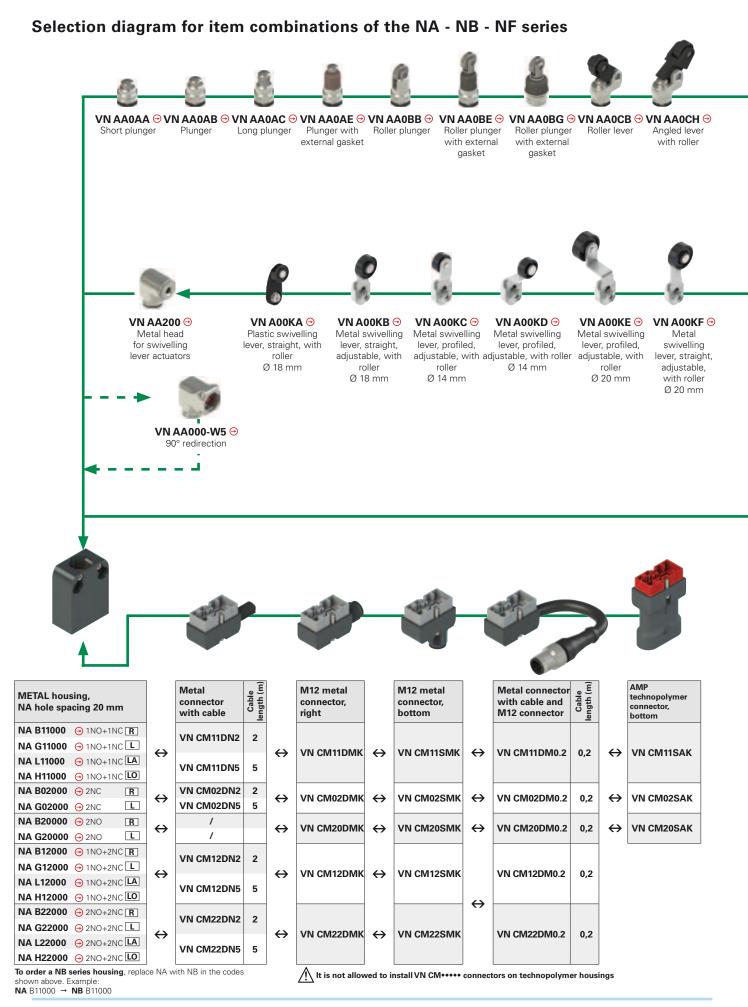
Wire cross-section 0.25 mm² (24 AWG) ... 0.5 mm² (20 AWG)

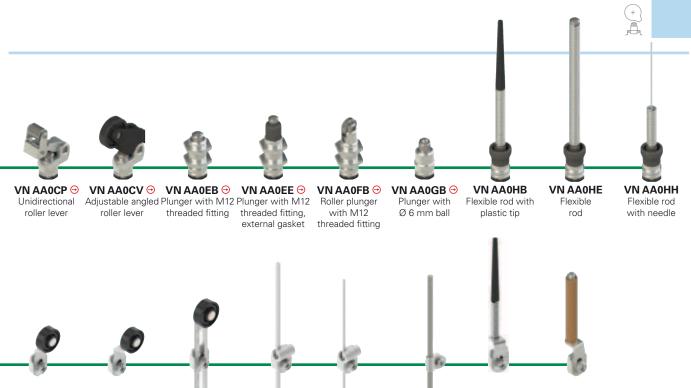
Article	Description	no. of poles
VF CBMP4DM04	Field wireable M12 female connector, straight, for Ø 4 6.5 mm multipolar cables	4
VF CBMP5DM04	Field wireable M12 female connector, straight, for Ø 4 6.5 mm multipolar cables	5
VF CBMP8DM04	Field wireable M12 female connector, straight, for Ø 4 7 mm multipolar cables	8

Items with code on **green** background are stock items

→ The 2D and 3D files are available at www.pizzato.com









VN A00KH ⊕ Metal swivelling lever, profiled, adjustable, with roller

Ø 20 mm

VN A00KP ⊕ Metal swivelling lever, straight, with extended adjustment and

roller Ø 20 mm

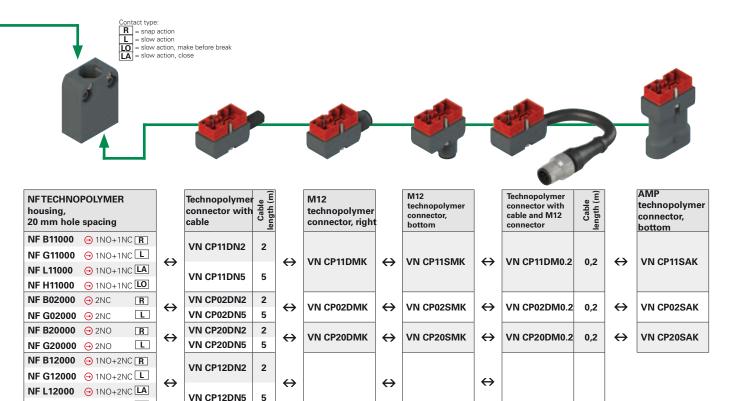
VN A00LB Metal swivelling lever with stainless steel rod 3 x 3 x 125, adiustable

VN A00LE lever with stainless steel rod Ø 3 x 125, adiustable

VN A00LH Metal swivelling Metal swivelling lever with glass fibre rod Ø 6 x 200, adiustable

VN A00LL Metal swivelling lever with flexible rod, adiustable

VN A00LP Metal swivelling lever with porcelain roll, adjustable



It is not allowed to install VN CP connectors on metal housings

2

5

 \leftrightarrow

VN CP22DN2

VN CP22DN5

 \leftrightarrow

VN CP22DMK

VN CP22SMK

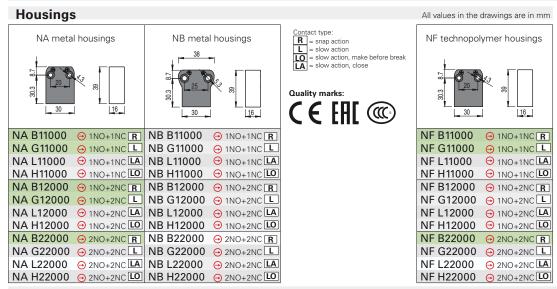
 \leftrightarrow

VN CP22DM0.2

0,2

 \leftrightarrow

NA-NB-NF series modular pre-wired switches



Connectors with cable

All values in the drawings are in mm

metal connectors for NA and NB housings							
30	16	Cable length (m)	Cable type N = PVC H = PUR HALOGEN FREE				
VN CM11DN2 1NO+	1NC	2					
VN CM11DN5 1NO+	1NC	5					
VN CM12DN2 1NO+	2NC	2	N				
VN CM12DN5 1NO+	2NC	5	IN				
VN CM22DN2 2NO+	2NC	2					
VN CM22DN5 2NO+	2NC	5					
VN CM11DH2 1NO+	1NC	2					
VN CM11DH5 1NO+	1NC	5	H				
VN CM12DH2 1NO+	2NC	2					
VN CM12DH5 1NO+	2NC	5					

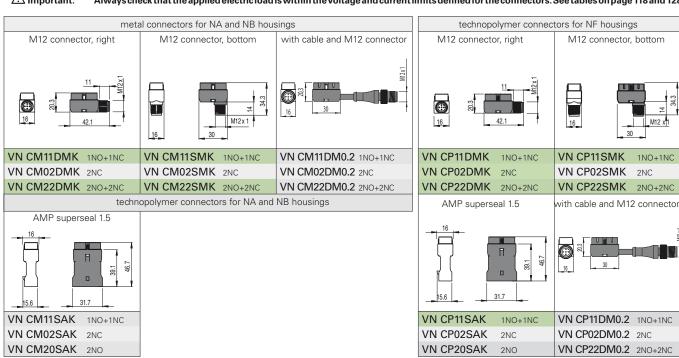
Other cable lengths on request

technopolymer connectors for NF housings								
30	16	Cable length (m)	Cable type N = PVC H = PUR HALOGEN FREE					
VN CP11DN2	1NO+1NC	2						
VN CP11DN5	1NO+1NC	5						
VN CP12DN2	1NO+2NC	2	N					
VN CP12DN5	1NO+2NC	5	IN IN					
VN CP22DN2	2NO+2NC	2						
VN CP22DN5	2NO+2NC	5						
VN CP11DH2	1NO+1NC	2						
VN CP11DH5	1NO+1NC	5	Н					
VN CP22DH2	2NO+2NC	2						
VN CP22DH5	2NO+2NC	5						

M12 or AMP connectors

All values in the drawings are in mm

Important: Always check that the applied electric load is within the voltage and current limits defined for the connectors. See tables on page 118 and 128.

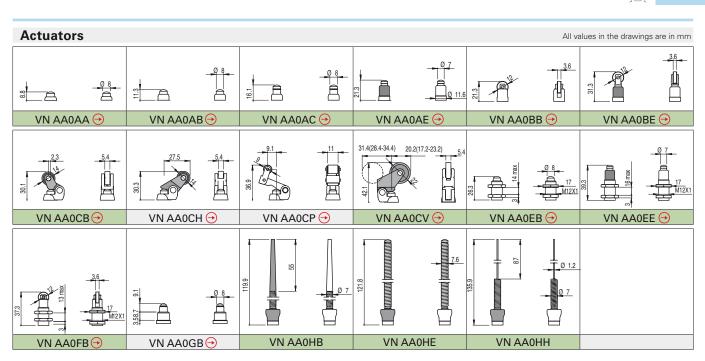


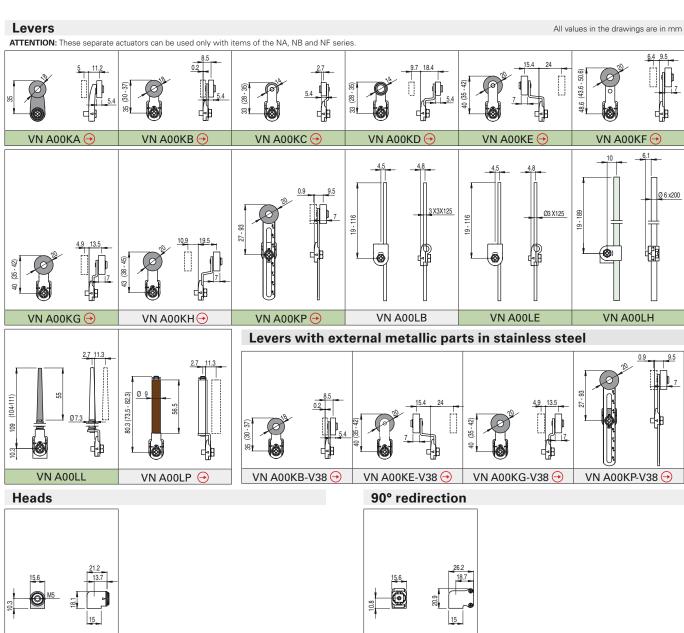
Items with code on **green** background are stock items

Accessories See page 197

→ The 2D and 3D files are available at www.pizzato.com







Accessories See page 197

VN AA000-W5 €

→ The 2D and 3D files are available at www.pizzato.com

VN AA200 →

Items with code on **green** background are stock items