

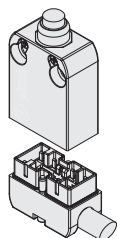
Description



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 features make these series unique in the current European panorama, ideal for easily providing our customers with customised switches.

Switches with connectors



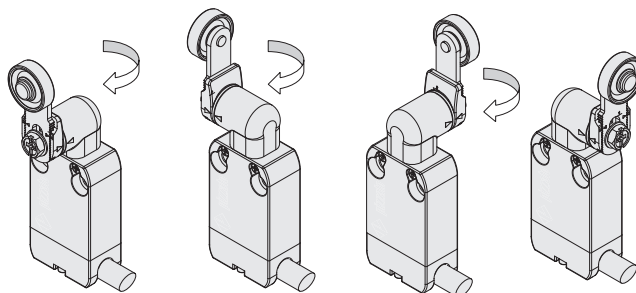
The new fundamental feature of this series of pre-wired switches is that the switch body and the wired connector are separated.

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

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.



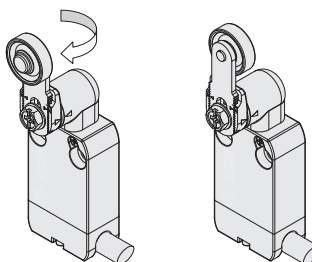
Protection degrees IP67 and IP69K

IP69K
IP67

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



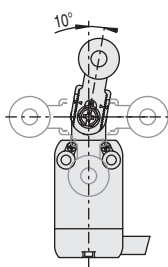
For switches with swivelling lever, the lever can be fastened on straight or reverse side maintaining the positive coupling.

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

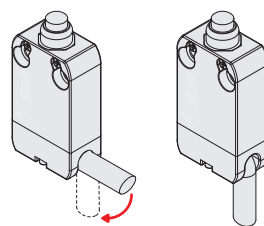
Adjustable levers

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.



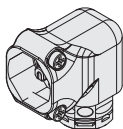
Orientable cable outputs



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.

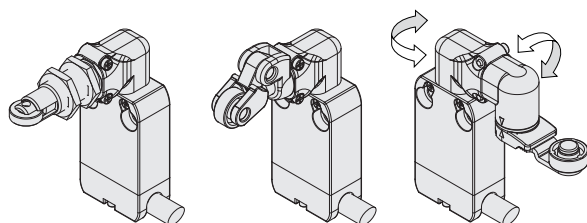
90° redirection for actuators



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 impossible.

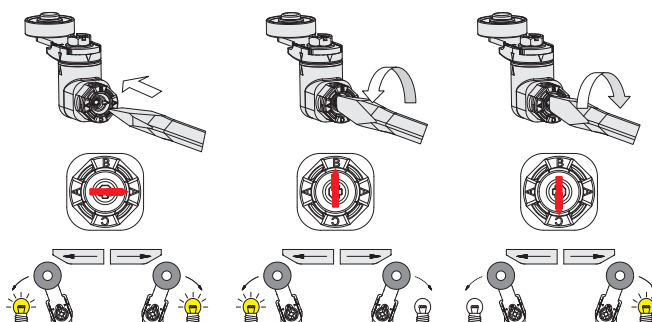
The redirection piece can also be used in case of heads for swivelling levers. Although technically possible, the use of multiple transmissions in series is not recommended.



Unidirectional heads

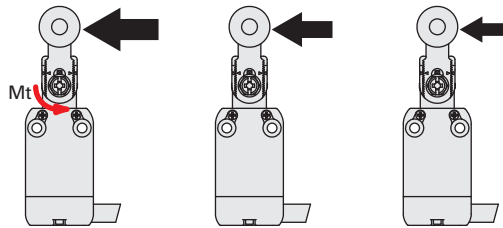
All switches with swivelling lever are supplied with a selector for choosing the lever operating direction.

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.

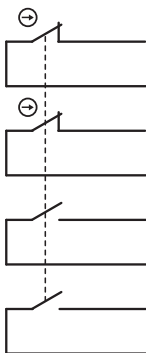


Forza maggiorata
Mt = 0,09 Nm
(opzione E25 serie NA NB)

Forza standard
Mt = 0,07 Nm

Forza ridotta
Mt = 0,04 Nm
(opzione E24)

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).

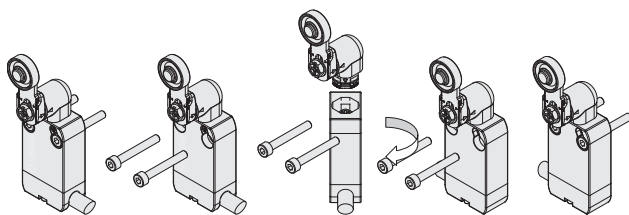
The allowed standard combinations are: 1NO+1NC, 2NC, 1NO+2NC, 2NO+2NC. Other combinations available on request.

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.

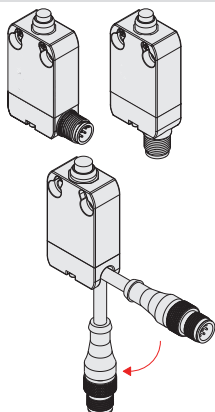
Reversible housing

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). Exit directions below or to the right allow application in narrow spaces; in addition the reversible housing easily allows changing the exit direction from right to left by simply turning the switch. The M12 connector is also available at the end of the cable, whose length can be tailored to the customer's requirements, and the cable can be bent at 90°, allowing installation on walls.

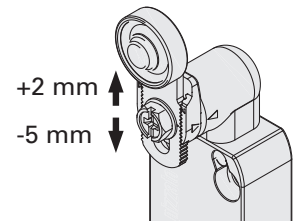
Adjustable levers with anti-unscrewing washer

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 swivelling 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.

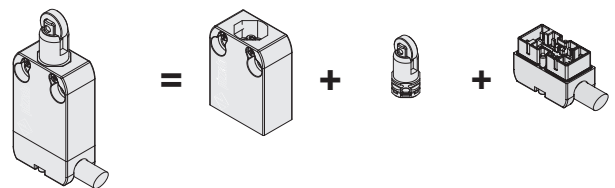
All this while maintaining the positive geometric locking between lever and swivel shaft as prescribed for safety applications.



Компоненты переключателя доступны отдельно

Данная серия изделий имеет модульную конструкцию, что позволяет заказывать отдельные детали по отдельности. Это преимущество позволяет потребителям электротехнических материалов приобретать запасные части, а также создавать индивидуальные комбинации.

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



Extended temperature range

-40°C

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

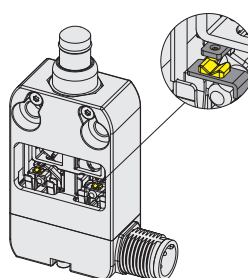
They can therefore be used for applications in cold stores, sterilisers, and other equipment operated in very low-temperature environments. The special materials used to produce these versions retain their characteristics even under these conditions, thereby expanding the installation possibilities.

AMP connectors



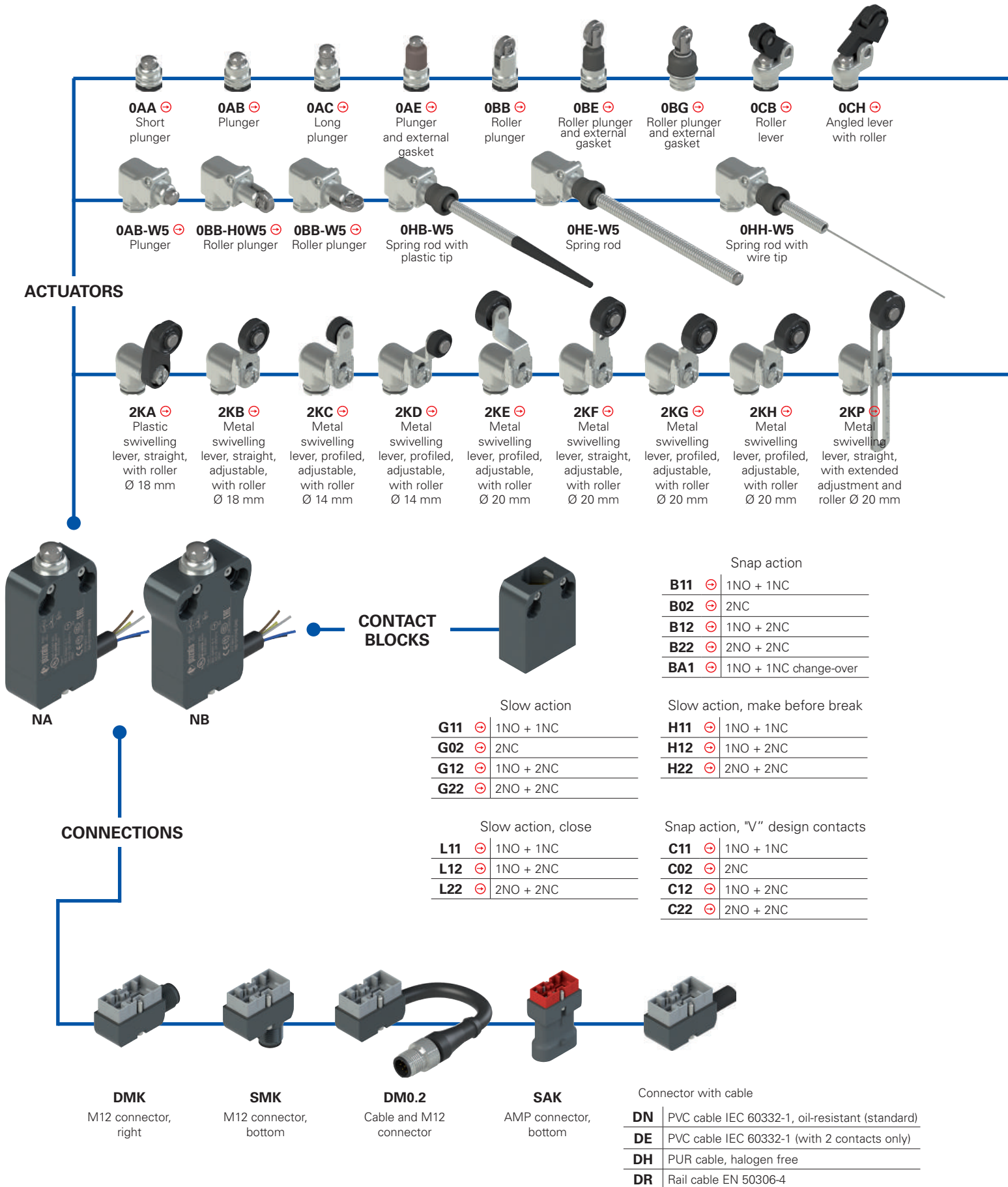
Furthermore, AMP connectors for 2-contact versions are available too. These connectors, specially developed for the automotive industry, are immune to vibration due to the quick coupling.

High reliability contacts with "V" design

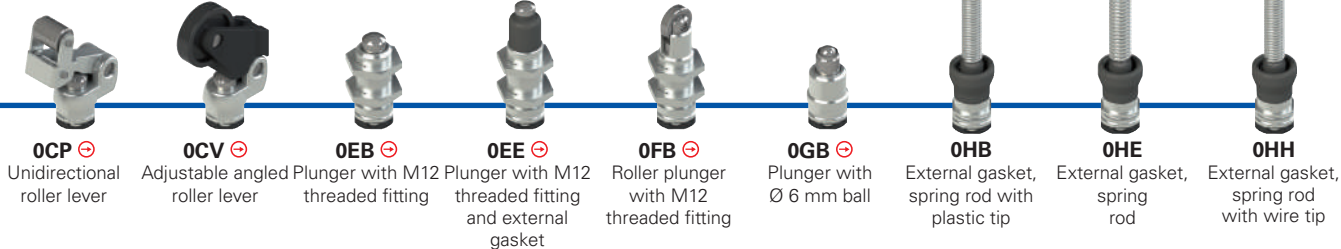


Articles with contact block C11, C02, C12, C22 are characterised by electrical contacts with a "V" design. This configuration reduces the possibility of error during operation and guarantees even more reliable contact switching, thanks to the contact points doubled compared to the flat-shaped contacts and the self-cleaning action of the contact. In the version with snap action contact, these articles are particularly suitable for use in the railway sector.

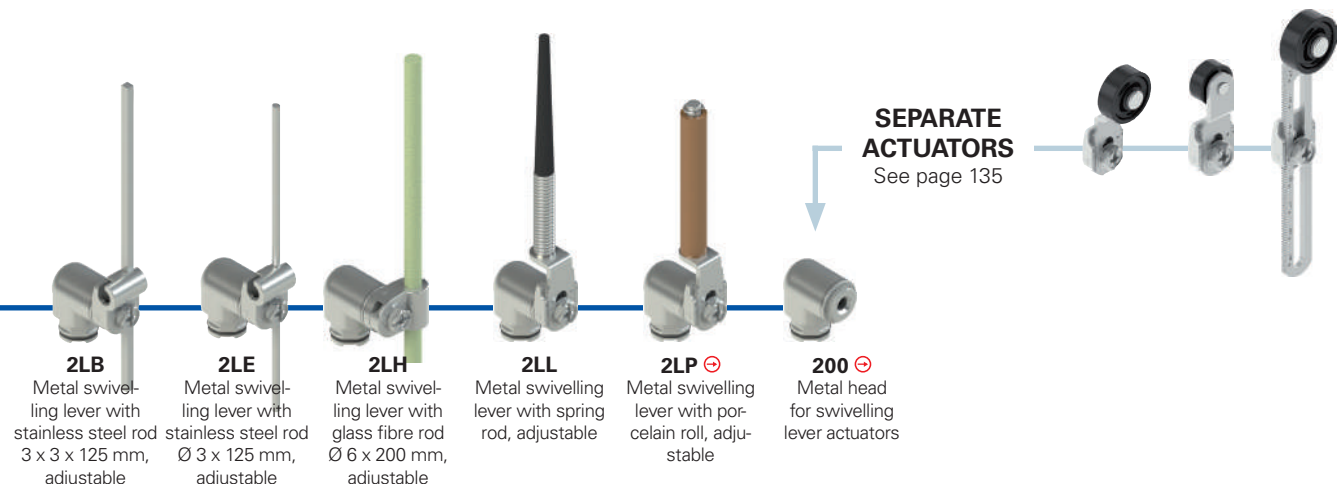
Selection diagram for item combinations of the NA-NB series



● Product options
 → Sold separately as accessory



OCP ⊕ Unidirectional roller lever
OCV ⊕ Adjustable angled roller lever
OEB ⊕ Plunger with M12 threaded fitting
OEE ⊕ Plunger with M12 threaded fitting and external gasket
OFB ⊕ Roller plunger with M12 threaded fitting
OGB ⊕ Plunger with Ø 6 mm ball
OHB External gasket, spring rod with plastic tip
OHE External gasket, spring rod
OHH External gasket, spring rod with wire tip



2LB Metal swivelling lever with stainless steel rod 3 x 3 x 125 mm, adjustable
2LE Metal swivelling lever with stainless steel rod Ø 3 x 125 mm, adjustable
2LH Metal swivelling lever with glass fibre rod Ø 6 x 200 mm, adjustable
2LL Metal swivelling lever with spring rod, adjustable
2LP ⊕ Metal swivelling lever with porcelain roll, adjustable
200 ⊕ Metal head for swivelling lever actuators

SEPARATE ACTUATORS
See page 135



Code structure

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

article options
NA B110AB-DN2 GR7T6W5

Housing	
NA	metal, hole spacing 20 mm (standard)
NB	metal, hole spacing 25 mm

Contact block	
B11	1NO+1NC, snap action (standard)
B02	2NC, snap action (standard)
B12	1NO+2NC, snap action (standard)
B22	2NO+2NC, snap action (standard)
BA1	1NO+1NC, snap action, change-over (available with M connector only)
C11	1NO+1NC, snap action, "V" design contacts
C02	2NC, snap action, "V" design contacts
C12	1NO+2NC, snap action, "V" design contacts
C22	2NO+2NC, snap action, "V" design contacts
G11	1NO+1NC, slow action (standard)
G02	2NC, slow action (standard)
G12	1NO+2NC, slow action (standard)
G22	2NO+2NC, slow action
H11	1NO+1NC, slow action, make before break
H12	1NO+2NC, slow action, make before break
H22	2NO+2NC, slow action, make before break
L11	1NO+1NC, slow action, close
L12	1NO+2NC, slow action, close
L22	2NO+2NC, slow action, close

Other contact blocks on request.

Redirection	
	without redirection
W5	90° redirection

Ambient temperature	
	-25 °C ... +80 °C
T6	-40 °C ... +80 °C

Rollers	
	standard roller
R30	stainless steel Ø 10.6 mm
R29	stainless steel Ø 13 mm
R18	technopolymer, Ø 14 mm
R23	stainless steel Ø 14 mm
R36	stainless steel Ø 16 mm
R7	technopolymer, Ø 18 mm
R22	technopolymer, Ø 20 mm
R24	stainless steel Ø 20 mm
R19	technopolymer, Ø 22 mm
R25	technopolymer, Ø 35 mm

Contact type	
	silver contacts (standard)
G	silver contacts with 1 µm gold coating ⁽¹⁾

⁽¹⁾ Not available for contact block C••

Connection type	
0.2	cable, length: 0.2 m with M12 connector (available for DM0.2 versions only)
2	cable, length: 2 m (standard)
5	cable, length 5 m (other cable lengths available on request)
K	integrated connector

Cable or connector type	
N	PVC cable IEC 60332-1, oil-resistant (standard)
E	PVC cable IEC 60332-1 (with 2 contacts only)
H	PUR cable, halogen free
R	Rail cable EN 50306-4
M	M12 connector
A	AMP Superseal 1.5 connector

Actuator heads	
0	without head
2	head for swivelling lever actuators

Actuators	
00	without actuator
AA	short plunger
AB	plunger
...

Output direction	
D	cable or connector, right
S	connector, bottom



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
- 19 contact blocks available
- 36 actuators available

Quality marks:



IMQ approval:	CA02.04562
UL approval:	E131787
CCC approval:	2020970305002292
EAC approval:	RU C-IT.YT03.B.00035/19

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 request.

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
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General data

Ambient temperature for switches without cable: -25°C ... + 80°C (standard)
-40°C ... + 80°C (T6 option)

Ambient temperature for switches with cable: See table on page 118

Max. actuation frequency: 3600 operating cycles/hour

Mechanical endurance:

B••, G••, H••, L•• contact blocks:	20 million operating cycles
C•• contact block:	5 million operating cycles

Mounting position: any

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 233

Electrical data

Rated impulse withstand voltage (U_{imp}):	4 kV
Conditional short circuit current:	1000 A acc. to EN 60947-5-1
Pollution degree:	3

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, EN IEC 63000, 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, RoHS Directive 2011/65/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 ⊕ 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-trieed 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 234. 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 225 to 240.**

⚠ **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 SELV circuits.**

Features approved by IMQ

Rated insulation voltage (U_i):	250 Vac
Conventional free air thermal current (I_{th}):	10 A (1-2 contacts) / 6 A (2-3 contacts) / 4 A (4 contacts or 5-pole M12 connector)
Protection against short circuits (fuse):	10 A (1-2 contacts) / 6 A (2-3 contacts) / 4 A (4 contacts or 5-pole M12 connector) type gG
Rated impulse withstand voltage (U_{imp}):	4 kV
Protection degree of the housing:	IP67 / IP69K
MA terminals (crimped terminals)	
Pollution degree:	3
Utilization category:	AC15 / DC13 (with connector)
Operating voltage (U_o):	250 Vac (50 Hz) / 24 Vdc (with connector)
Operating current (I_o):	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, 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

Electrical Ratings:	R300 pilot duty (28 VA, 125 250 Vdc) B300 pilot duty (360 VA, 120 240 Vac) (1 cont.) B300 pilot duty (360 VA, 120 240 Vac) (2 - 3 cont. without connector) C300 pilot duty (180 VA, 120 240 Vac) (4 cont.)
Environmental Ratings:	Types 1, 4X, 6, 12, 13 Types 1, 4X "indoor use only" (1 - 2 cont. with "E" type cable)
Screws torque of the detachable connector housing nominal are	0.3 ÷ 0.6 Nm.

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



Ambient temperatures for switches with cable and electrical data

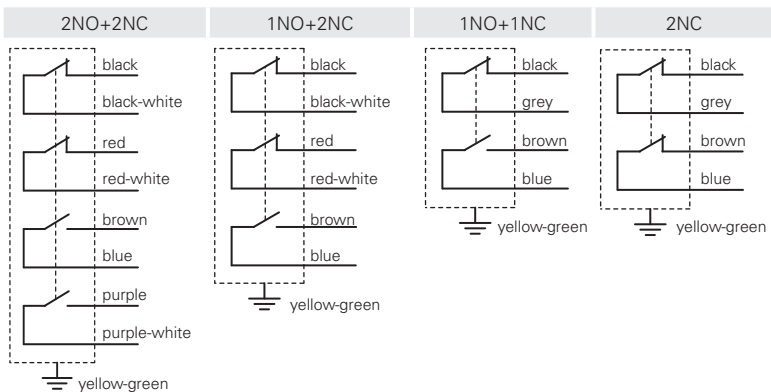
Cable features	Connection type	Output with cable								Output with M12 connector		Output with AMP connector
	Contact blocks	2 contacts				3 contacts		4 contacts		2 contacts	3 or 4 contacts	2 contacts
	Cable or connector type	E	N	H	R	N	H	N	R	M12 connector, 5-pole	M12 connector, 8-pole	AMP Super-seal 1.5 connector
Conductors	5x0.75 mm ²	5x0.75 mm ²	5x0.75 mm ²	5x0.5mm ²	7x0.5 mm ²	7x0.5 mm ²	9x0.34 mm ²	9x0.5 mm ²	5x0.25 mm ²	8x0.25 mm ²		
Application field	General	General	General, mobile installation	Rail	General	General, mobile installation	General	Rail	General	General	General	
In compliance with standards	H05VV-F	H05VV5-F	05EQ-H	EN50306-4 IE-300V 9G0.5 mm ² MMV-90 EN 50306-4 EN 45545	03VV-F	03E7Q-H	03VV-F	EN50306-4 IE-300V 9G0.5 mm ² MMV-90 EN 50306-4 EN 45545	03VV-H	03VV-H	/	
Sheath	PVC	PVC OIL RESISTANT	PUR HALOGEN FREE	/	PVC OIL RESISTANT	PUR HALOGEN FREE	PVC OIL RESISTANT	/	PVC OIL RESISTANT	PVC OIL RESISTANT	/	
Self-extinguishing	IEC 60332-1-2	IEC 60332-1-2 UL 758:FT1 CEI 20-22 II	IEC 60332-1-2 UL 758:FT1	IEC 60332-1 EN 50305 EN 50306-1	IEC 60332-1-2 UL 758:FT1 CEI 20-22 II	IEC 60332-1-2 UL 758:FT1	IEC 60332-1-2 UL 758:FT1 CEI 20-22 II	IEC 60332-1 EN 50305 EN 50306-1	IEC 60332-1-2 UL 758:FT1	IEC 60332-1-2 UL 758:FT1	/	
Oil resistant	/	UL 758 CSA 22.2 N°210	UL 758 CSA 22.2 N°210	/	UL 758 CSA 22.2 N°210	UL 758 CSA 22.2 N°210	UL 758 CSA 22.2 N°210	/	UL 758 CSA 22.2 N°210	UL 758 CSA 22.2 N°210	/	
Max. speed	/	/	300 m/min	/	/	300 m/min	/	/	50 m/min	50 m/min	/	
Max. acceleration	/	/	30 m/s ²	/	/	30 m/s ²	/	/	5 m/s ²	5 m/s ²	/	
Minimum bending radius	80 mm	80 mm	80 mm	60 mm	108 mm	80 mm	108 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	6 mm	6 mm	/	
End stripped	80 mm	80 mm	80 mm	80 mm	80 mm	80 mm	80 mm	80 mm	/	/	/	
Copper conductors IEC 60228	Class 5	Class 5	Class 6	Class 5	Class 5	Class 6	Class 5	Class 5	Class 6	Class 6	/	
Engraving	Standard	6268	6280	Standard	6274	6282	6278	Standard	6267	6275	/	

Ambient temperature with cable extended (T ₀)	Cable, fixed installation	-15°C +60°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	-25°C +80°C	/
	Cable, flexible installation	+5°C +60°C	-5°C +80°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	-15°C +80°C	-15°C +80°C	/
	Cable, mobile installation	/	/	-25°C +80°C	/	/	-25°C +80°C	/	/	-15°C +80°C	-15°C +80°C	/
	Cable, fixed installation	/	/	-40°C +80°C	-40°C +80°C	/	-40°C +80°C	/	-40°C +80°C	/	/	/
	Cable, flexible installation	/	/	-40°C +80°C	-40°C +80°C	/	-40°C +80°C	/	-40°C +80°C	/	/	/
	Cable, mobile installation	/	/	-40°C +80°C	/	/	-40°C +80°C	/	/	/	/	/

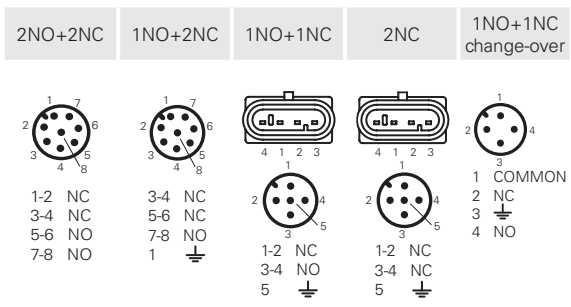
Electrical data	Thermal current I _{th}	10 A	10 A	10 A	6 A	6 A	6 A	3 A	4 A	4 A	2 A	10 A	
	Rated insulation voltage U _i	250 Vac	250 Vac	250 Vac	250 Vac	250 Vac	250 Vac	250 Vac	250 Vac	250 Vac	30 Vac 300 Vdc	30 Vac	
	Protection against short circuits (fuse)	10 A 500 V type gG	10 A 500 V type gG	10 A 500 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	
	Utilization category DC13	24 V	2 A	2 A	2 A	2 A	2 A	2 A	2 A	2 A	2 A	2 A	2 A
		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	/	/
		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	/	/
	Utilization category AC15	24 V	4 A	4 A	4 A	4 A	4 A	4 A	3 A	4 A	4 A	2 A	4 A
120 V		4 A	4 A	4 A	4 A	4 A	4 A	3 A	4 A	4 A	/	/	
250 V		4 A	4 A	4 A	4 A	4 A	4 A	3 A	4 A	4 A	/	/	

Approvals	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 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	CE cULus EAC
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Internal cable wiring



Connector pin assignment



Female connectors see page 210

External gasket	Contact type		
	R = snap action	L = slow action	
Contact block	Contact type		
B11 R	NA B110AA-DN2 (⊕) 1NO+1NC	NA B110AB-DN2 (⊕) 1NO+1NC	NA B110AC-DN2 (⊕) 1NO+1NC
B02 R	NA B020AA-DN2 (⊕) 2NC	NA B020AB-DN2 (⊕) 2NC	NA B020AC-DN2 (⊕) 2NC
B12 R	NA B120AA-DN2 (⊕) 1NO+2NC	NA B120AB-DN2 (⊕) 1NO+2NC	NA B120AC-DN2 (⊕) 1NO+2NC
B22 R	NA B220AA-DN2 (⊕) 2NO+2NC	NA B220AB-DN2 (⊕) 2NO+2NC	NA B220AC-DN2 (⊕) 2NO+2NC
G11 L	NA G110AA-DN2 (⊕) 1NO+1NC	NA G110AB-DN2 (⊕) 1NO+1NC	NA G110AC-DN2 (⊕) 1NO+1NC
G02 L	NA G020AA-DN2 (⊕) 2NC	NA G020AB-DN2 (⊕) 2NC	NA G020AC-DN2 (⊕) 2NC
G12 L	NA G120AA-DN2 (⊕) 1NO+2NC	NA G120AB-DN2 (⊕) 1NO+2NC	NA G120AC-DN2 (⊕) 1NO+2NC
G22 L	NA G220AA-DN2 (⊕) 2NO+2NC	NA G220AB-DN2 (⊕) 2NO+2NC	NA G220AC-DN2 (⊕) 2NO+2NC
Max. speed	page 233 - type 4		
Actuating force	7 N (25 N ⊕)		
Travel diagrams	page 234 - group 1		

External gasket	Contact type		
	R = snap action	L = slow action	
Contact block	Contact type		
B11 R	NA B110BB-DN2 (⊕) 1NO+1NC	NA B110BE-DN2 (⊕) 1NO+1NC	NA B110CB-DN2 (⊕) 1NO+1NC
B02 R	NA B020BB-DN2 (⊕) 2NC	NA B020BE-DN2 (⊕) 2NC	NA B020CB-DN2 (⊕) 2NC
B12 R	NA B120BB-DN2 (⊕) 1NO+2NC	NA B120BE-DN2 (⊕) 1NO+2NC	NA B120CB-DN2 (⊕) 1NO+2NC
B22 R	NA B220BB-DN2 (⊕) 2NO+2NC	NA B220BE-DN2 (⊕) 2NO+2NC	NA B220CB-DN2 (⊕) 2NO+2NC
G11 L	NA G110BB-DN2 (⊕) 1NO+1NC	NA G110BE-DN2 (⊕) 1NO+1NC	NA G110CB-DN2 (⊕) 1NO+1NC
G02 L	NA G020BB-DN2 (⊕) 2NC	NA G020BE-DN2 (⊕) 2NC	NA G020CB-DN2 (⊕) 2NC
G12 L	NA G120BB-DN2 (⊕) 1NO+2NC	NA G120BE-DN2 (⊕) 1NO+2NC	NA G120CB-DN2 (⊕) 1NO+2NC
G22 L	NA G220BB-DN2 (⊕) 2NO+2NC	NA G220BE-DN2 (⊕) 2NO+2NC	NA G220CB-DN2 (⊕) 2NO+2NC
Max. speed	page 233 - type 2	page 233 - type 5	page 233 - type 3
Actuating force	7 N (25 N ⊕)	7 N (25 N ⊕)	5 N (25 N ⊕)
Travel diagrams	page 234 - group 1	page 234 - group 1	page 234 - group 2

NB series housing	M12 connector, right	M12 connector, bottom	AMP Superseal 1.5 connector
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 See page 207

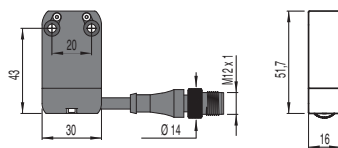
→ The 2D and 3D files are available at www.pizzato.com



Contact type R = snap action L = slow action	With stainless steel roller on request	Unidirectional operation	Secured only by means of threaded head	
Contact block				
B11 R	NA B110CH-DN2	NA B110CP-DN2	NA B110CV-DN2	NA B110EB-DN2
B02 R	NA B020CH-DN2	NA B020CP-DN2	NA B020CV-DN2	NA B020EB-DN2
B12 R	NA B120CH-DN2	NA B120CP-DN2	NA B120CV-DN2	NA B120EB-DN2
B22 R	NA B220CH-DN2	NA B220CP-DN2	NA B220CV-DN2	NA B220EB-DN2
G11 L	NA G110CH-DN2	NA G110CP-DN2	NA G110CV-DN2	NA G110EB-DN2
G02 L	NA G020CH-DN2	NA G020CP-DN2	NA G020CV-DN2	NA G020EB-DN2
G12 L	NA G120CH-DN2	NA G120CP-DN2	NA G120CV-DN2	NA G120EB-DN2
G22 L	NA G220CH-DN2	NA G220CP-DN2	NA G220CV-DN2	NA G220EB-DN2
Max. speed	page 233 - type 3	page 233 - type 3	page 233 - type 3	page 233 - type 4
Actuating force	5 N (25 N	3 N (25 N	3 N (25 N	7 N (25 N
Travel diagrams	page 234 - group 2	page 234 - group 6	page 234 - group 3	page 234 - group 1

Contact type R = snap action L = slow action	Secured only by means of threaded head External gasket	Secured only by means of threaded head	Plunger with Ø 6 mm ball	External gasket
Contact block				
B11 R	NA B110EE-DN2	NA B110FB-DN2	NA B110GB-DN2	NA B110HB-DN2
B02 R	NA B020EE-DN2	NA B020FB-DN2	NA B020GB-DN2	NA B020HB-DN2
B12 R	NA B120EE-DN2	NA B120FB-DN2	NA B120GB-DN2	NA B120HB-DN2
B22 R	NA B220EE-DN2	NA B220FB-DN2	NA B220GB-DN2	NA B220HB-DN2
G11 L	NA G110EE-DN2	NA G110FB-DN2	NA G110GB-DN2	/
G02 L	NA G020EE-DN2	NA G020FB-DN2	NA G020GB-DN2	NA G020HB-DN2
G12 L	NA G120EE-DN2	NA G120FB-DN2	NA G120GB-DN2	/
G22 L	NA G220EE-DN2	NA G220FB-DN2	NA G220GB-DN2	/
Max. speed	page 233 - type 4	page 233 - type 2	page 233 - type 2	1 m/s
Actuating force	7 N (25 N	7 N (25 N	7 N (25 N	0.03 Nm
Travel diagrams	page 234 - group 1	page 234 - group 1	page 234 - group 1	page 234 - group 4

Cable and M12 connector



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

Contact type R = snap action L = slow action	External gasket		External gasket		With stainless steel roller on request		With stainless steel roller on request	
Contact block								
B11 R	NA B110HE-DN2 1NO+1NC	NA B110HH-DN2 1NO+1NC	NA B112KA-DN2 \rightarrow 1NO+1NC	NA B112KB-DN2 \rightarrow 1NO+1NC				
B02 R	NA B020HE-DN2 2NC	NA B020HH-DN2 2NC	NA B022KA-DN2 \rightarrow 2NC	NA B022KB-DN2 \rightarrow 2NC				
B12 R	NA B120HE-DN2 1NO+2NC	NA B120HH-DN2 1NO+2NC	NA B122KA-DN2 \rightarrow 1NO+2NC	NA B122KB-DN2 \rightarrow 1NO+2NC				
B22 R	NA B220HE-DN2 2NO+2NC	NA B220HH-DN2 2NO+2NC	NA B222KA-DN2 \rightarrow 2NO+2NC	NA B222KB-DN2 \rightarrow 2NO+2NC				
G11 L	/	/	NA G112KA-DN2 \rightarrow 1NO+1NC	NA G112KB-DN2 \rightarrow 1NO+1NC				
G02 L	NA G020HE-DN2 2NC	NA G020HH-DN2 2NC	NA G022KA-DN2 \rightarrow 2NC	NA G022KB-DN2 \rightarrow 2NC				
G12 L	/	/	NA G122KA-DN2 \rightarrow 1NO+2NC	NA G122KB-DN2 \rightarrow 1NO+2NC				
G22 L	/	/	NA G222KA-DN2 \rightarrow 2NO+2NC	NA G222KB-DN2 \rightarrow 2NO+2NC				
Max. speed	1 m/s	1 m/s	page 233 - type 1	page 233 - type 1				
Actuating force	0.07 Nm	0.03 Nm	0.07 Nm (0.25 Nm \rightarrow)	0.07 Nm (0.25 Nm \rightarrow)				
Travel diagrams	page 234 - group 4	page 234 - group 4	page 234 - group 5	page 234 - group 5				

Contact type R = snap action L = slow action	With stainless steel roller on request		With stainless steel roller on request		With stainless steel roller on request		With stainless steel roller on request	
Contact block								
B11 R	NA B112KC-DN2 \rightarrow 1NO+1NC	NA B112KD-DN2 \rightarrow 1NO+1NC	NA B112KE-DN2 \rightarrow 1NO+1NC	NA B112KF-DN2 \rightarrow 1NO+1NC				
B02 R	NA B022KC-DN2 \rightarrow 2NC	NA B022KD-DN2 \rightarrow 2NC	NA B022KE-DN2 \rightarrow 2NC	NA B022KF-DN2 \rightarrow 2NC				
B12 R	NA B122KC-DN2 \rightarrow 1NO+2NC	NA B122KD-DN2 \rightarrow 1NO+2NC	NA B122KE-DN2 \rightarrow 1NO+2NC	NA B122KF-DN2 \rightarrow 1NO+2NC				
B22 R	NA B222KC-DN2 \rightarrow 2NO+2NC	NA B222KD-DN2 \rightarrow 2NO+2NC	NA B222KE-DN2 \rightarrow 2NO+2NC	NA B222KF-DN2 \rightarrow 2NO+2NC				
G11 L	NA G112KC-DN2 \rightarrow 1NO+1NC	NA G112KD-DN2 \rightarrow 1NO+1NC	NA G112KE-DN2 \rightarrow 1NO+1NC	NA G112KF-DN2 \rightarrow 1NO+1NC				
G02 L	NA G022KC-DN2 \rightarrow 2NC	NA G022KD-DN2 \rightarrow 2NC	NA G022KE-DN2 \rightarrow 2NC	NA G022KF-DN2 \rightarrow 2NC				
G12 L	NA G122KC-DN2 \rightarrow 1NO+2NC	NA G122KD-DN2 \rightarrow 1NO+2NC	NA G122KE-DN2 \rightarrow 1NO+2NC	NA G122KF-DN2 \rightarrow 1NO+2NC				
G22 L	NA G222KC-DN2 \rightarrow 2NO+2NC	NA G222KD-DN2 \rightarrow 2NO+2NC	NA G222KE-DN2 \rightarrow 2NO+2NC	NA G222KF-DN2 \rightarrow 2NO+2NC				
Max. speed	page 233 - type 1	page 233 - type 1	page 233 - type 1	page 233 - type 1				
Actuating force	0.07 Nm (0.25 Nm \rightarrow)	0.07 Nm (0.25 Nm \rightarrow)	0.07 Nm (0.25 Nm \rightarrow)	0.07 Nm (0.25 Nm \rightarrow)				
Travel diagrams	page 234 - group 5	page 234 - group 5	page 234 - group 5	page 234 - group 5				

NB series housing	M12 connector, right	M12 connector, bottom	AMP Superseal 1.5 connector
To order a product of the NB series, replace NA with NB in the codes shown above. Example: NA B110AA-DN2 \rightarrow NB B110AA-DN2	To order a product with M12 right connector, replace DN2 with DMK in the codes shown above. Example: NA B110AA-DN2 \rightarrow NA B110AA-DMK	To order a product with M12 bottom connector, replace DN2 with SMK in the codes shown above. Example: NA B110AA-DN2 \rightarrow NA B110AA-SMK	To order a product with AMP connector, replace DN2 with SAK in the codes shown above. Example: NA B110AA-DN2 \rightarrow NA B110AA-SAK

All values in the drawings are in mm

Accessories See page 207

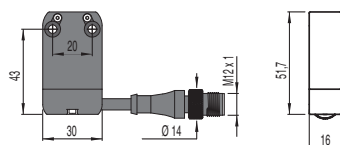
\rightarrow The 2D and 3D files are available at www.pizzato.com



Contact type	With stainless steel roller on request	With stainless steel roller on request	With stainless steel roller on request	Square rod, 3x3 mm, stainless steel
R = snap action L = slow action				
Contact block				
B11 R	NA B112KG-DN2 (+) 1NO+1NC	NA B112KH-DN2 (+) 1NO+1NC	NA B112KP-DN2 (+) 1NO+1NC	NA B112LB-DN2 1NO+1NC
B02 R	NA B022KG-DN2 (+) 2NC	NA B022KH-DN2 (+) 2NC	NA B022KP-DN2 (+) 2NC	NA B022LB-DN2 2NC
B12 R	NA B122KG-DN2 (+) 1NO+2NC	NA B122KH-DN2 (+) 1NO+2NC	NA B122KP-DN2 (+) 1NO+2NC	NA B122LB-DN2 1NO+2NC
B22 R	NA B222KG-DN2 (+) 2NO+2NC	NA B222KH-DN2 (+) 2NO+2NC	NA B222KP-DN2 (+) 2NO+2NC	NA B222LB-DN2 2NO+2NC
G11 L	NA G112KG-DN2 (+) 1NO+1NC	NA G112KH-DN2 (+) 1NO+1NC	NA G112KP-DN2 (+) 1NO+1NC	NA G112LB-DN2 1NO+1NC
G02 L	NA G022KG-DN2 (+) 2NC	NA G022KH-DN2 (+) 2NC	NA G022KP-DN2 (+) 2NC	NA G022LB-DN2 2NC
G12 L	NA G122KG-DN2 (+) 1NO+2NC	NA G122KH-DN2 (+) 1NO+2NC	NA G122KP-DN2 (+) 1NO+2NC	NA G122LB-DN2 1NO+2NC
G22 L	NA G222KG-DN2 (+) 2NO+2NC	NA G222KH-DN2 (+) 2NO+2NC	NA G222KP-DN2 (+) 2NO+2NC	NA G222LB-DN2 2NO+2NC
Max. speed	page 233 - type 1	page 233 - type 1	page 233 - type 1	1.5 m/s
Actuating force	0.07 Nm (0.25 Nm (+))	0.07 Nm (0.25 Nm (+))	0.07 Nm (0.25 Nm (+))	0.07 Nm
Travel diagrams	page 234 - group 5	page 234 - group 5	page 234 - group 5	page 234 - group 5

Contact type	Round rod, Ø 3 mm, stainless steel	Glass fibre rod	Porcelain roller
R = snap action L = slow action			
Contact block			
B11 R	NA B112LE-DN2 1NO+1NC	NA B112LH-DN2 1NO+1NC	NA B112LP-DN2E24 (+) 1NO+1NC
B02 R	NA B022LE-DN2 2NC	NA B022LH-DN2 2NC	NA B022LP-DN2E24 (+) 2NC
B12 R	NA B122LE-DN2 1NO+2NC	NA B122LH-DN2 1NO+2NC	NA B122LP-DN2E24 (+) 1NO+2NC
B22 R	NA B222LE-DN2 2NO+2NC	NA B222LH-DN2 2NO+2NC	NA B222LP-DN2E24 (+) 2NO+2NC
G11 L	NA G112LE-DN2 1NO+1NC	NA G112LH-DN2 1NO+1NC	NA G112LP-DN2E24 (+) 1NO+1NC
G02 L	NA G022LE-DN2 2NC	NA G022LH-DN2 2NC	NA G022LP-DN2E24 (+) 2NC
G12 L	NA G122LE-DN2 1NO+2NC	NA G122LH-DN2 1NO+2NC	NA G122LP-DN2E24 (+) 1NO+2NC
G22 L	NA G222LE-DN2 2NO+2NC	NA G222LH-DN2 2NO+2NC	NA G222LP-DN2E24 (+) 2NO+2NC
Max. speed	1.5 m/s	1.5 m/s	0.5 m/s
Actuating force	0.07 Nm	0.07 Nm	0.04 Nm
Travel diagrams	page 234 - group 5	page 234 - group 5	page 234 - group 5

Cable and M12 connector



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

Contact type		External gasket		External gasket		External gasket	
R = snap action L = slow action							
B11	R NA B110AB-DN2W5	⊕	1NO+1NC	⊕	1NO+1NC	⊕	1NO+1NC
B02	R NA B020AB-DN2W5	⊕	2NC	⊕	2NC	⊕	2NC
B12	R NA B120AB-DN2W5	⊕	1NO+2NC	⊕	1NO+2NC	⊕	1NO+2NC
B22	R NA B220AB-DN2W5	⊕	2NO+2NC	⊕	2NO+2NC	⊕	2NO+2NC
G11	L NA G110AB-DN2W5	⊕	1NO+1NC	⊕	1NO+1NC	⊕	1NO+1NC
G02	L NA G020AB-DN2W5	⊕	2NC	⊕	2NC	⊕	2NC
G12	L NA G120AB-DN2W5	⊕	1NO+2NC	⊕	1NO+2NC	⊕	1NO+2NC
G22	L NA G220AB-DN2W5	⊕	2NO+2NC	⊕	2NO+2NC	⊕	2NO+2NC
Max. speed	page 233 - type 4		page 233 - type 2		page 233 - type 2		
Actuating force	9.5 N (25 N ⊕)		9.5 N (25 N ⊕)		9.5 N (25 N ⊕)		
Travel diagrams	page 234 - group 1		page 234 - group 1		page 234 - group 1		

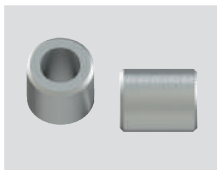
Contact type		External gasket		External gasket		External gasket	
R = snap action L = slow action							
B11	R NA B110HB-DN2W5		1NO+1NC		1NO+1NC		1NO+1NC
B02	R NA B020HB-DN2W5		2NC		2NC		2NC
B12	R NA B120HB-DN2W5		1NO+2NC		1NO+2NC		1NO+2NC
B22	R NA B220HB-DN2W5		2NO+2NC		2NO+2NC		2NO+2NC
G11	L /	/		/		/	
G02	L NA G020HB-DN2W5		2NC		2NC		2NC
G12	L /	/		/		/	
G22	L /	/		/		/	
Max. speed	1 m/s		1 m/s		1 m/s		
Actuating force	0.08 Nm		0.12 Nm		0.08 Nm		
Travel diagrams	page 234 - group 4		page 234 - group 4		page 234 - group 4		

NB series housing	M12 connector, right	M12 connector, bottom	AMP Superseal 1.5 connector
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

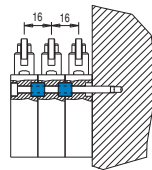
Accessories

 Packs of **10 pcs.**

Article	Description
VN DT1F	Spacer for NA and NF series
VF D16B	Spacer for NB series



By installing spacers between two switches, it is possible to have 2 or more pre-wired switches, preventing them from slipping.


M12 female connectors with cable

For details see page 210


General data

- Polyurethane connector body
- Class 6 copper conductors acc. to IEC 60228 - mobile installation
- Gold-plated contacts
- Self-locking ring nut made of nickel-plated brass, available on request in AISI 316L stainless steel hex version.
- High flexibility cable with oil resistant PVC or PUR sheath suitable to be used in drag chains, acc. to IEC 60332-1-2

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

article
options
VF CA4PD3M-X

No. of poles	
4	4 poles
5	5 poles
8	8 poles
12	12 poles

Cable sheath	
P	PVC (standard)
U	PUR

Connector type	
D	straight (standard)
G	angled

Connection type		Fixing ring	
M	M12x1		cylindrical ring nut (standard)
		X	stainless steel hex ring nut

Cable length (L)		4	5	8	12
		poles	poles	poles	poles
1	1 metre				
2	2 metres				
3	3 metres (standard)	•	•		
4	4 metres				
5	5 metres (standard)	•	•	•	•
...					
0	10 metres (standard)	•	•	•	•

Other lengths on request

Stock items

VF CA4PD3M
VF CA4PD5M
VF CA4PD0M
VF CA5PD3M
VF CA5PD5M
VF CA5PD0M
VF CA8PD5M
VF CA8PD0M
VF CA12PD5M
VF CA12PD0M
VF CA8UD5M-X
VF CA8UD0M-X
VF CA12UD0M-X

Attention! For items not in stock the minimum order quantity is 100 pcs.

Field wireable M12 female connectors

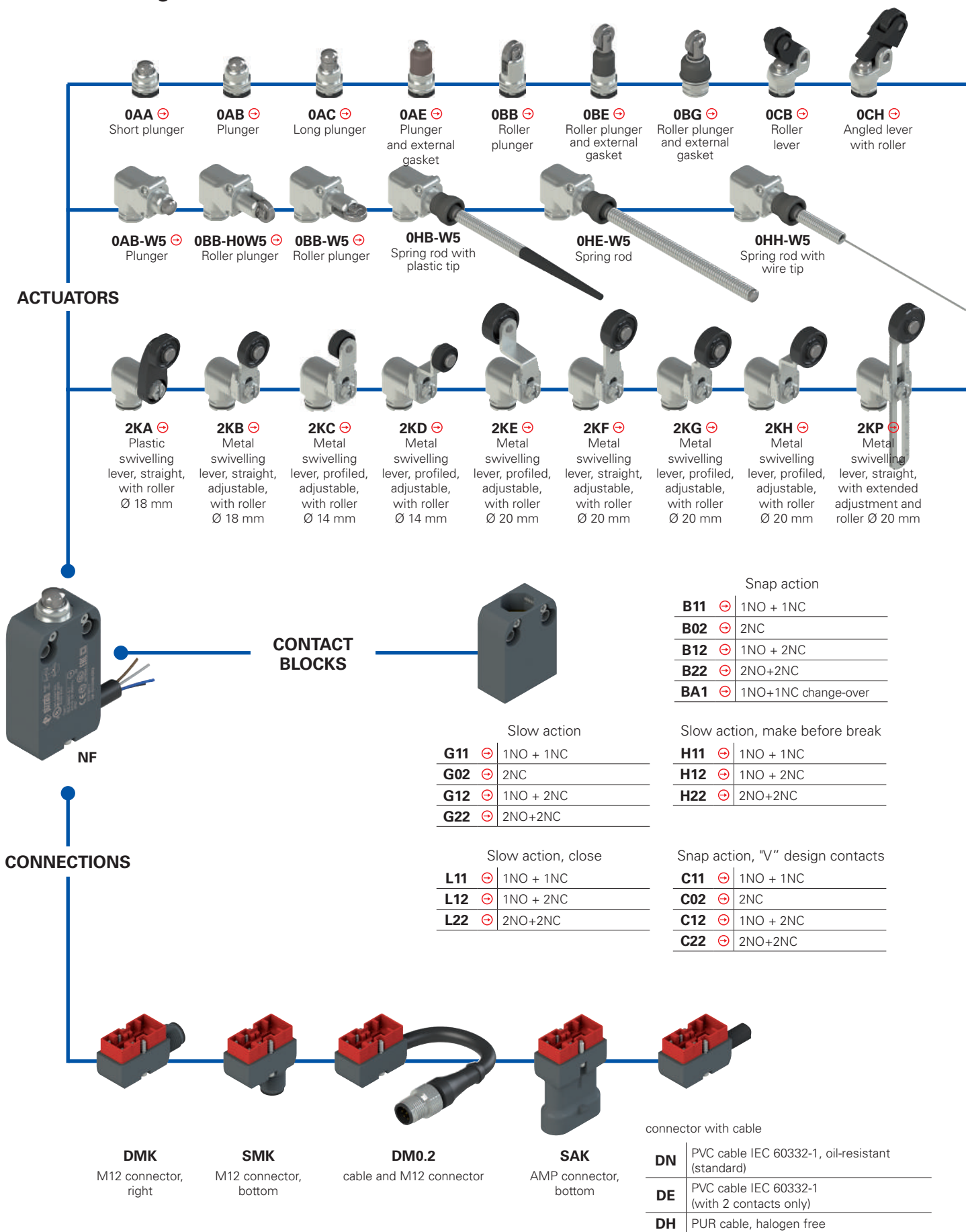
General data

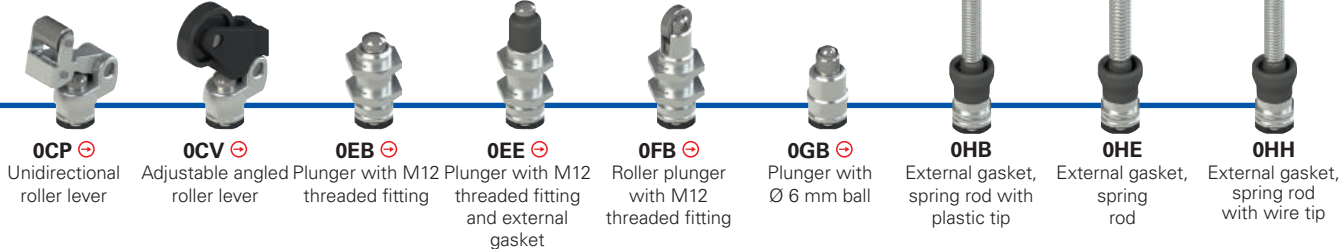
Technopolymer connector body	
Gold-plated contacts	
Screw terminals for cable screw fittings	
Max. operating voltages	250 Vac/dc (4 and 5-pole) 30 Vac/dc (8-pole)
Maximum current	4 A (4 and 5-pole) 2 A (8-pole)
Protection degree	IP67 acc. to EN 60529
Ambient temperature	-25°C ... +85°C
Wire cross-section	0.25 mm ² (23 AWG) ... 0.5 mm ² (20 AWG)
Tightening torque:	0.6 ... 0.8 Nm

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

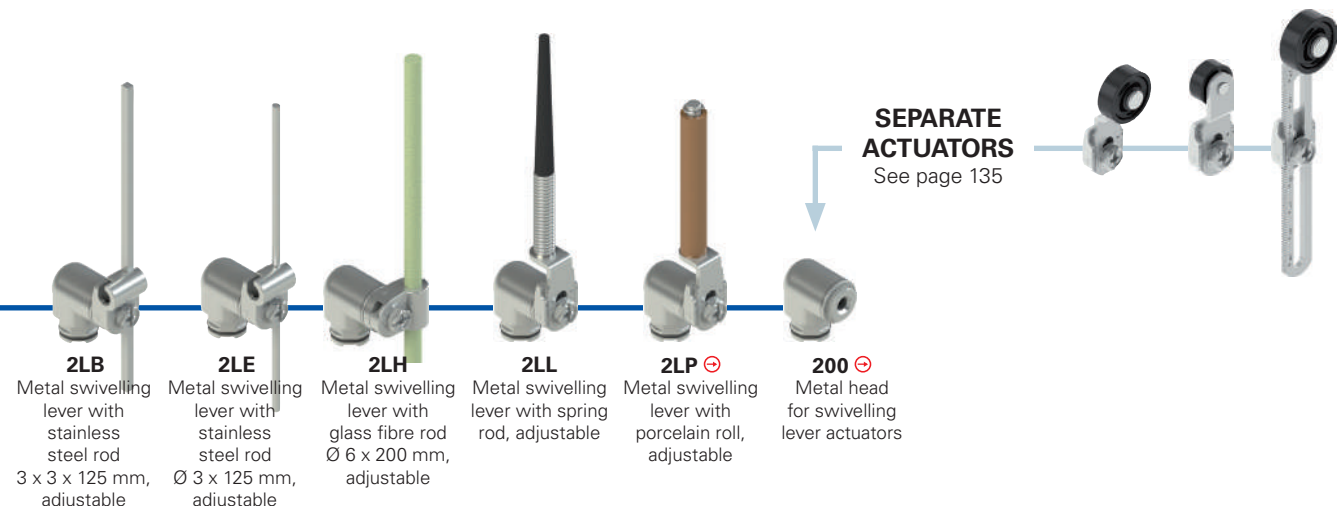
 → The 2D and 3D files are available at www.pizzato.com

Selection diagram for item combinations of the NF series





OCP ⊖ Unidirectional roller lever
OCV ⊖ Adjustable angled roller lever
OEB ⊖ Plunger with M12 threaded fitting
OEE ⊖ Plunger with M12 threaded fitting and external gasket
OFB ⊖ Roller plunger with M12 threaded fitting
OGB ⊖ Plunger with Ø 6 mm ball
OHB External gasket, spring rod with plastic tip
OHE External gasket, spring rod
OHH External gasket, spring rod with wire tip



2LB Metal swivelling lever with stainless steel rod 3 x 3 x 125 mm, adjustable
2LE Metal swivelling lever with stainless steel rod Ø 3 x 125 mm, adjustable
2LH Metal swivelling lever with glass fibre rod Ø 6 x 200 mm, adjustable
2LL Metal swivelling lever with spring rod, adjustable
2LP ⊖ Metal swivelling lever with porcelain roll, adjustable
200 ⊖ Metal head for swivelling lever actuators

SEPARATE ACTUATORS
See page 135



Code structure

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

article options
NF B110AB-DN2 GR7T6W5

Housing
NF technopolymer, hole spacing 20 mm

Contact block	
B11	1NO+1NC, snap action (standard)
B02	2NC, snap action (standard)
B12	1NO+2NC, snap action (standard)
B22	2NO+2NC, snap action (standard)
BA1	1NO+1NC, snap action, change-over (available with M connector only)
C11	1NO+1NC, snap action, "V" design contacts
C02	2NC, snap action, "V" design contacts
C12	1NO+2NC, snap action, "V" design contacts
C22	2NO+2NC, snap action, "V" design contacts
G11	1NO+1NC, slow action (standard)
G02	2NC, slow action (standard)
G12	1NO+2NC, slow action (standard)
G22	2NO+2NC, slow action
H11	1NO+1NC, slow action, make before break
H12	1NO+2NC, slow action, make before break
H22	2NO+2NC, slow action, make before break
L11	1NO+1NC, slow action, close
L12	1NO+2NC, slow action, close
L22	2NO+2NC, slow action, close

Other contact blocks on request.

Actuator heads	
0	without head
2	head for swivelling lever actuators

Actuators	
AA	short plunger
AB	plunger
...

Output direction	
D	cable or connector, right
S	connector, bottom

Redirection	
	without redirection
W5	90° redirection

Ambient temperature	
	-25°C ... +80°C (standard)
T6	-40 °C ... +80 °C

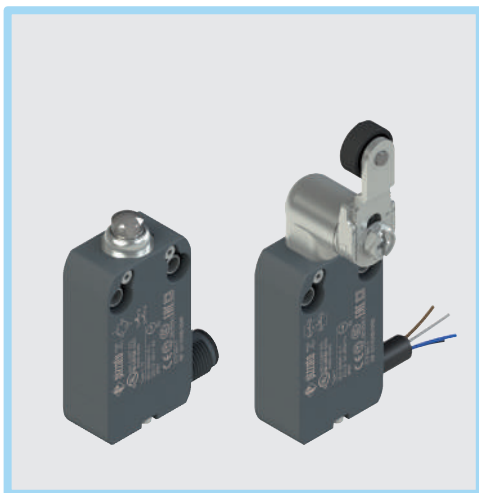
Rollers	
	standard roller
R30	stainless steel Ø 10.6 mm
R29	stainless steel Ø 13 mm
R18	technopolymer, Ø 14 mm
R23	stainless steel Ø 14 mm
R36	stainless steel Ø 16 mm
R7	technopolymer, Ø 18 mm
R22	technopolymer, Ø 20 mm
R24	stainless steel Ø 20 mm
R19	technopolymer, Ø 22 mm
R25	technopolymer, Ø 35 mm

Contact type	
	silver contacts (standard)
G	silver contacts with 1 µm gold coating ⁽¹⁾

⁽¹⁾ Not available for contact block C••

Connection type	
0.2	cable, length: 0.2 m with M12 connector (available for DM0.2 versions only)
2	cable, length: 2 m (standard)
5	cable, length 5 m (other cable lengths available on request)
K	integrated connector

Cable or connector type	
N	PVC cable IEC 60332-1, oil-resistant (standard)
E	PVC cable IEC 60332-1 (with 2 contacts only)
H	PUR cable, halogen free
M	M12 connector
A	AMP Superseal 1.5 connector



Main features

- Technopolymer housing, right or bottom cable output
- Protection degrees IP67 and IP69K
- 2 types of integrated cable available
- Versions with M12 connector suitable for safety applications ⊕
- Versions with AMP connector
- 19 contact blocks available
- 37 actuators available

Quality marks:



IMQ approval:	CA02.04562
UL approval:	E131787
CCC approval:	2020970305002292
EAC approval:	RU C-IT.YT03.B.00035/19

Technical data

Housing

Housing made of glass fibre reinforced technopolymer, self-extinguishing, shock-proof and with double insulation □.

Versions with integrated cable, standard length 2 m. Other lengths 0.5 ... 10 m or special cables available on request.

Versions with integrated M12 connector.

Versions with 0.2 m cable length and M12 connector, other lengths from 0.1 ... 3 m 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 (T6 option)

Ambient temperature for switches with cable: See table on page 128

Max. actuation frequency: 3600 operating cycles/hour

Mechanical endurance:

B••, G••, H••, L•• contact blocks: 20 million operating cycles

C•• contact block: 5 million operating cycles

Mounting position: any

Safety parameter B_{10D} : 40,000,000 for NC contacts

Mechanical interlock, not coded: type 1 acc. to EN ISO 14119

Tightening torques for installation: see page 233

Electrical data

Rated impulse withstand voltage (U_{imp}): 4 kV

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

Pollution degree: 3

In compliance with standards:

IEC 60947-5-1, EN 60947-5-1, IEC 60204-1, EN 60204-1, EN ISO 14119, EN ISO 12100, EN 60529, EN IEC 63000, 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, RoHS Directive 2011/65/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 ⊕ next to the product code. Always connect the safety circuit to the **NC contacts** (normally closed contacts: see "Internal cable wiring" on page 128) as required by **EN ISO 14119, paragraph 5.4** for specific interlock applications and **EN ISO 13849-2 tables D3** (well-tries 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 234. Actuate the switch **at least with the positive opening force**, reported in brackets below each article, next to the actuating force value. All applicable standards must be respected too.

⚠ **If not expressly indicated in this chapter, for correct installation and utilization of all articles see the instructions given on pages 225 to 240.**

⚠ **Important: Switch off the circuit voltage before disconnecting the connector from the switch. The connector is not suitable for separation of electrical loads.**

Features approved by IMQ

Rated insulation voltage (U):	250 Vac
Conventional free air thermal current (I_{th}):	10 A (1-2 contacts) / 6 A (2-3 contacts) / 4 A (4 contacts or 4-pole M12 connector)
Protection against short circuits (fuse):	10 A (1-2 contacts) / 6 A (2-3 contacts) / 4 A (4 contacts or 4-pole M12 connector) type gG
Rated impulse withstand voltage (U_{imp}):	4 kV
Protection degree of the housing:	IP67 / IP69K
MA terminals (crimped terminals)	3
Pollution degree:	AC15 / DC13 (with connector)
Utilization category:	250 Vac (50 Hz) / 24 Vdc (with connector)
Operating voltage (U_e):	250 Vac (50 Hz) / 24 Vdc (with connector)
Operating current (I_o):	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, 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

Electrical Ratings:	R300 pilot duty (28 VA, 125 250 Vdc) B300 pilot duty (360 VA, 120 240 Vac) (1 cont.) B300 pilot duty (360 VA, 120 240 Vac) (2 - 3 cont. without connector) C300 pilot duty (180 VA, 120 240 Vac) (2 - 3 cont. with connector) C300 pilot duty (180 VA, 120 240 Vac) (4 cont.)
Environmental Ratings:	Types 1, 4X, 6, 12, 13 Types 1, 4X "indoor use only" (1 - 2 cont. with "E" type cable)
Screws torque of the detachable connector housing nominal is	0.2 ÷ 0.3 Nm.

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



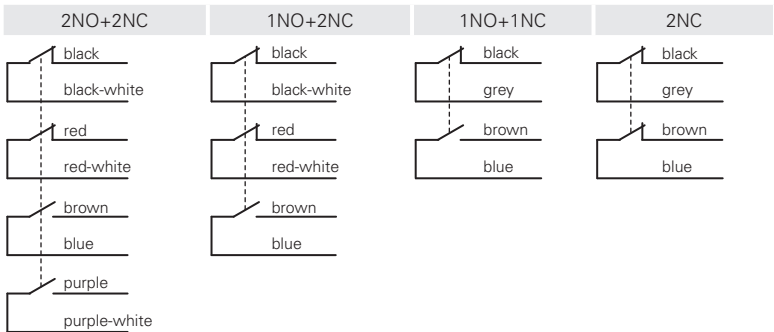
Ambient temperatures for switches with cable and electrical data

	Output with cable							Output with M12 connector		Output with AMP connector
	2 contacts			3 contacts	4 contacts			2 contacts	3 or 4 contacts	2 contacts
	E	N	H	N	N	H	M12 connector, 5-pole	M12 connector, 8-pole	AMP Superseal 1.5 connector	
Cable features										
Conductors	4x0.75 mm ²	4x0.75 mm ²	4x0.75 mm ²	6x0.5 mm ²	8x0.34 mm ²	8x0.34 mm ²	4x0.34 mm ²	8x0.25mm ²		
Application field	General	General	General, mobile installation	General	General	General, mobile installation	General	General	General	General
In compliance with standards	H05VV-F	H05VV5-F	05EQ-H	03VV-F	03VV-F	03E7Q-H	03VV-H	03VV-H		/
Sheath	PVC	PVC OIL RESISTANT	PUR HALOGEN FREE	PVC OIL RESISTANT	PVC OIL RESISTANT	PUR HALOGEN FREE	PVC OIL RESISTANT	PVC OIL RESISTANT		/
Self-extinguishing	IEC 60332-1-2	IEC 60332-1-2 UL 758:FT1 CEI 20-22 II	IEC60332-1-2 UL 758:FT1	IEC 60332-1-2 UL 758:FT1 CEI 20-22 II	IEC 60332-1-2 UL 758:FT1 CEI 20-22 II	IEC 60332-1-2 UL 758:FT1 CEI 20-22 II	IEC60332-1-2 UL 758:FT1 CEI 20-22 II	IEC60332-1-2 UL 758:FT1 CEI 20-22 II		/
Oil resistant	/	UL 758 CSA 22.2 N°210	UL 758 CSA 22.2 N°210	UL 758 CSA 22.2 N°210	UL 758 CSA 22.2 N°210	UL 758 CSA 22.2 N°210	UL 758 CSA 22.2 N°210	UL 758 CSA 22.2 N°210		/
Max. speed	/	/	300 m/min	/	/	300 m/min	50 m/min	50 m/min		/
Max. acceleration	/	/	30 m/s ²	/	/	30 m/s ²	5 m/s ²	5 m/s ²		/
Minimum bending radius	70 mm	70 mm	70 mm	108 mm	108 mm	70 mm	75 mm	90 mm		/
Outer diameter	7 mm	7 mm	7 mm	7 mm	7 mm	7 mm	6 mm	6 mm		/
End stripped	80mm	80mm	80mm	80mm	80mm	80mm	/	/		/
Copper conductors IEC 60228	Class 5	Class 5	Class 6	Class 5	Class 5	Class 6	Class 6	Class 6		/
Engraving	Standard	6266	6279	6272	6276	6283	6263	6275		/

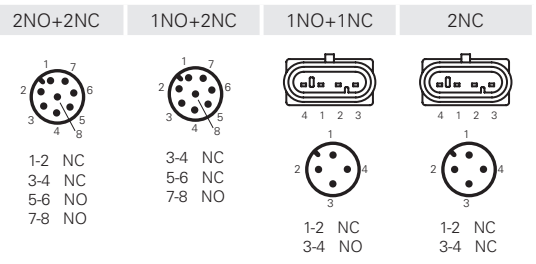
Ambient temperature with cable extended (T₆) standard	Cable, fixed installation	-15°C +60°C	-25°C +80°C	-25°C +80°C	-25°C +80°C	-25°C +80°C	-25°C +80°C	-25°C +80°C	-25°C +80°C	/
	Cable, flexible installation	+5°C +60°C	-5°C +80°C	-25°C +80°C	-5°C +80°C	-5°C +80°C	-25°C +80°C	-15°C +80°C	-15°C +80°C	/
	Cable, mobile installation	/	/	-25°C +80°C	/	/	-25°C +80°C	-15°C +80°C	-15°C +80°C	/
	Cable, fixed installation	/	/	-40°C +80°C	/	/	-40°C +80°C	/	/	/
	Cable, flexible installation	/	/	-40°C +80°C	/	/	-40°C +80°C	/	/	/
	Cable, mobile installation	/	/	-40°C +80°C	/	/	-40°C +80°C	/	/	/

Electrical data	Thermal current I _{th}	10 A	10 A	10 A	6 A	3 A	3 A	4 A	2 A	10 A	
	Rated insulation voltage U _i	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
	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	3 A 500 V type gG	3 A 500 V type gG	4 A 500 V type gG	2 A 500 V type gG	10 A 500 V type gG	
	Utilization category DC13	24 V	2 A	2 A	2 A	2 A	2 A	2 A	2 A	2 A	2 A
		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
		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
	Utilization category AC15	24 V	4 A	4 A	4 A	4 A	3 A	3 A	4 A	2 A	4 A
120 V		4 A	4 A	4 A	4 A	3 A	3 A	4 A	/	4 A	
250 V		4 A	4 A	4 A	4 A	3 A	3 A	4 A	/	4 A	
Approvals	CE cULus IMQ EAC CCC	CE cULus IMQ EAC CCC	CE cULus EAC	CE cULus IMQ EAC CCC	CE cULus IMQ EAC CCC	CE cULus EAC	CE cULus EAC	CE cULus IMQ EAC CCC	CE cULus EAC	CE cULus EAC CCC	

Internal cable wiring



Connector pin assignment

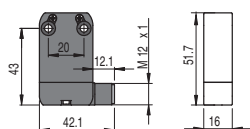


Female connectors see page 210

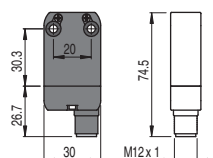
Contact type		External gasket		
R = snap action L = slow action				
Contact block				
B11	R NF B110AA-DN2 → 1NO+1NC	R NF B110AB-DN2 → 1NO+1NC	R NF B110AC-DN2 → 1NO+1NC	R NF B110AE-DN2 → 1NO+1NC
B02	R NF B020AA-DN2 → 2NC	R NF B020AB-DN2 → 2NC	R NF B020AC-DN2 → 2NC	R NF B020AE-DN2 → 2NC
B12	R NF B120AA-DN2 → 1NO+2NC	R NF B120AB-DN2 → 1NO+2NC	R NF B120AC-DN2 → 1NO+2NC	R NF B120AE-DN2 → 1NO+2NC
B22	R NF B220AA-DN2 → 2NO+2NC	R NF B220AB-DN2 → 2NO+2NC	R NF B220AC-DN2 → 2NO+2NC	R NF B220AE-DN2 → 2NO+2NC
G11	L NF G110AA-DN2 → 1NO+1NC	L NF G110AB-DN2 → 1NO+1NC	L NF G110AC-DN2 → 1NO+1NC	L NF G110AE-DN2 → 1NO+1NC
G02	L NF G020AA-DN2 → 2NC	L NF G020AB-DN2 → 2NC	L NF G020AC-DN2 → 2NC	L NF G020AE-DN2 → 2NC
G12	L NF G120AA-DN2 → 1NO+2NC	L NF G120AB-DN2 → 1NO+2NC	L NF G120AC-DN2 → 1NO+2NC	L NF G120AE-DN2 → 1NO+2NC
G22	L NF G220AA-DN2 → 2NO+2NC	L NF G220AB-DN2 → 2NO+2NC	L NF G220AC-DN2 → 2NO+2NC	L NF G220AE-DN2 → 2NO+2NC
Max. speed	page 233 - type 4	page 233 - type 4	page 233 - type 4	page 233 - type 4
Actuating force	7 N (25 N →)	7 N (25 N →)	7 N (25 N →)	7 N (25 N →)
Travel diagrams	page 234 - group 1	page 234 - group 1	page 234 - group 1	page 234 - group 1

Contact type		External gasket		With stainless steel roller on request	
R = snap action L = slow action					
Contact block					
B11	R NF B110BB-DN2 → 1NO+1NC	R NF B110BE-DN2 → 1NO+1NC	R NF B110BG-DN2 → 1NO+1NC	R NF B110CB-DN2 → 1NO+1NC	R NF B110CB-DN2 → 1NO+1NC
B02	R NF B020BB-DN2 → 2NC	R NF B020BE-DN2 → 2NC	R NF B020BG-DN2 → 2NC	R NF B020CB-DN2 → 2NC	R NF B020CB-DN2 → 2NC
B12	R NF B120BB-DN2 → 1NO+2NC	R NF B120BE-DN2 → 1NO+2NC	R NF B120BG-DN2 → 1NO+2NC	R NF B120CB-DN2 → 1NO+2NC	R NF B120CB-DN2 → 1NO+2NC
B22	R NF B220BB-DN2 → 2NO+2NC	R NF B220BE-DN2 → 2NO+2NC	R NF B220BG-DN2 → 2NO+2NC	R NF B220CB-DN2 → 2NO+2NC	R NF B220CB-DN2 → 2NO+2NC
G11	L NF G110BB-DN2 → 1NO+1NC	L NF G110BE-DN2 → 1NO+1NC	L NF G110BG-DN2 → 1NO+1NC	L NF G110CB-DN2 → 1NO+1NC	L NF G110CB-DN2 → 1NO+1NC
G02	L NF G020BB-DN2 → 2NC	L NF G020BE-DN2 → 2NC	L NF G020BG-DN2 → 2NC	L NF G020CB-DN2 → 2NC	L NF G020CB-DN2 → 2NC
G12	L NF G120BB-DN2 → 1NO+2NC	L NF G120BE-DN2 → 1NO+2NC	L NF G120BG-DN2 → 1NO+2NC	L NF G120CB-DN2 → 1NO+2NC	L NF G120CB-DN2 → 1NO+2NC
G22	L NF G220BB-DN2 → 2NO+2NC	L NF G220BE-DN2 → 2NO+2NC	L NF G220BG-DN2 → 2NO+2NC	L NF G220CB-DN2 → 2NO+2NC	L NF G220CB-DN2 → 2NO+2NC
Max. speed	page 233 - type 2	page 233 - type 5	page 233 - type 5	page 233 - type 3	page 233 - type 3
Actuating force	7 N (25 N →)	7 N (25 N →)	7 N (25 N →)	5 N (25 N →)	5 N (25 N →)
Travel diagrams	page 234 - group 1	page 234 - group 1	page 234 - group 1	page 234 - group 2	page 234 - group 2

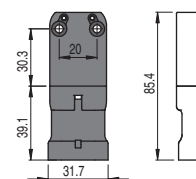
M12 connector, right



M12 connector, bottom



AMP Superseal 1.5 connector



To order a product with M12 right connector, replace DN2 with DMK in the codes shown above.

Example:
NF B110AA-DN2 → NF B110AA-DMK

To order a product with M12 bottom connector, replace DN2 with SMK in the codes shown above.

Example:
NF B110AA-DN2 → NF B110AA-SMK

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

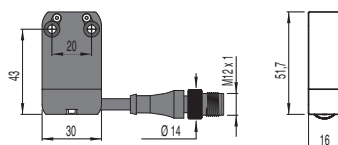
NF B110AA-DN2 → NF B110AA-SAK



Contact type R = snap action L = slow action	With stainless steel roller on request	Unidirectional operation	Secured only by means of threaded head	
Contact block				
B11 R	NF B110CH-DN2	NF B110CP-DN2	NF B110CV-DN2	NF B110EB-DN2
B02 R	NF B020CH-DN2	NF B020CP-DN2	NF B020CV-DN2	NF B020EB-DN2
B12 R	NF B120CH-DN2	NF B120CP-DN2	NF B120CV-DN2	NF B120EB-DN2
B22 R	NF B220CH-DN2	NF B220CP-DN2	NF B220CV-DN2	NF B220EB-DN2
G11 L	NF G110CH-DN2	NF G110CP-DN2	NF G110CV-DN2	NF G110EB-DN2
G02 L	NF G020CH-DN2	NF G020CP-DN2	NF G020CV-DN2	NF G020EB-DN2
G12 L	NF G120CH-DN2	NF G120CP-DN2	NF G120CV-DN2	NF G120EB-DN2
G22 L	NF G220CH-DN2	NF G220CP-DN2	NF G220CV-DN2	NF G220EB-DN2
Max. speed	page 233 - type 3	page 233 - type 3	page 233 - type 3	page 233 - type 4
Actuating force	5 N (25 N	3 N (25 N	3 N (25 N	7 N (25 N
Travel diagrams	page 234 - group 2	page 234 - group 6	page 234 - group 3	page 234 - group 1

Contact type R = snap action L = slow action	Secured only by means of threaded head External gasket	Secured only by means of threaded head	Plunger with Ø 6 mm ball	External gasket
Contact block				
B11 R	NF B110EE-DN2	NF B110FB-DN2	NF B110GB-DN2	NF B110HB-DN2
B02 R	NF B020EE-DN2	NF B020FB-DN2	NF B020GB-DN2	NF B020HB-DN2
B12 R	NF B120EE-DN2	NF B120FB-DN2	NF B120GB-DN2	NF B120HB-DN2
B22 R	NF B220EE-DN2	NF B220FB-DN2	NF B220GB-DN2	NF B220HB-DN2
G11 L	NF G110EE-DN2	NF G110FB-DN2	NF G110GB-DN2	/
G02 L	NF G020EE-DN2	NF G020FB-DN2	NF G020GB-DN2	NF G020HB-DN2
G12 L	NF G120EE-DN2	NF G120FB-DN2	NF G120GB-DN2	/
G22 L	NF G220EE-DN2	NF G220FB-DN2	NF G220GB-DN2	/
Max. speed	page 233 - type 4	page 233 - type 2	page 233 - type 2	1 m/s
Actuating force	7 N (25 N	7 N (25 N	7 N (25 N	0.03 Nm
Travel diagrams	page 234 - group 1	page 234 - group 1	page 234 - group 1	page 234 - group 4

Cable and M12 connector

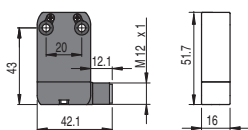


To order a product with cable and M12 connector:
replace DN2 with DM0.2 in the codes shown above. Example:
NF B110AA-DN2 → NF B110AA-DM0.2

Contact type R = snap action L = slow action	External gasket		External gasket		With stainless steel roller on request		With stainless steel roller on request	
Contact block								
B11 R	NF B110HE-DN2	1NO+1NC	NF B110HH-DN2	1NO+1NC	NF B112KA-DN2	1NO+1NC	NF B112KB-DN2	1NO+1NC
B02 R	NF B020HE-DN2	2NC	NF B020HH-DN2	2NC	NF B022KA-DN2	2NC	NF B022KB-DN2	2NC
B12 R	NF B120HE-DN2	1NO+2NC	NF B120HH-DN2	1NO+2NC	NF B122KA-DN2	1NO+2NC	NF B122KB-DN2	1NO+2NC
B22 R	NF B220HE-DN2	2NO+2NC	NF B220HH-DN2	2NO+2NC	NF B222KA-DN2	2NO+2NC	NF B222KB-DN2	2NO+2NC
G11 L	/	/	/	/	NF G112KA-DN2	1NO+1NC	NF G112KB-DN2	1NO+1NC
G02 L	NF G020HE-DN2	2NC	NF G020HH-DN2	2NC	NF G022KA-DN2	2NC	NF G022KB-DN2	2NC
G12 L	/	/	/	/	NF G122KA-DN2	1NO+2NC	NF G122KB-DN2	1NO+2NC
G22 L	/	/	/	/	NF G222KA-DN2	2NO+2NC	NF G222KB-DN2	2NO+2NC
Max. speed	1 m/s		1 m/s		page 233 - type 1		page 233 - type 1	
Actuating force	0.07 Nm		0.03 Nm		0.07 Nm (0.25 Nm)		0.07 Nm (0.25 Nm)	
Travel diagrams	page 234 - group 4		page 234 - group 4		page 234 - group 5		page 234 - group 5	

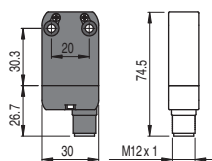
Contact type R = snap action L = slow action	With stainless steel roller on request		With stainless steel roller on request		With stainless steel roller on request		With stainless steel roller on request	
Contact block								
B11 R	NF B112KC-DN2	1NO+1NC	NF B112KD-DN2	1NO+1NC	NF B112KE-DN2	1NO+1NC	NF B112KF-DN2	1NO+1NC
B02 R	NF B022KC-DN2	2NC	NF B022KD-DN2	2NC	NF B022KE-DN2	2NC	NF B022KF-DN2	2NC
B12 R	NF B122KC-DN2	1NO+2NC	NF B122KD-DN2	1NO+2NC	NF B122KE-DN2	1NO+2NC	NF B122KF-DN2	1NO+2NC
B22 R	NF B222KC-DN2	2NO+2NC	NF B222KD-DN2	2NO+2NC	NF B222KE-DN2	2NO+2NC	NF B222KF-DN2	2NO+2NC
G11 L	NF G112KC-DN2	1NO+1NC	NF G112KD-DN2	1NO+1NC	NF G112KE-DN2	1NO+1NC	NF G112KF-DN2	1NO+1NC
G02 L	NF G022KC-DN2	2NC	NF G022KD-DN2	2NC	NF G022KE-DN2	2NC	NF G022KF-DN2	2NC
G12 L	NF G122KC-DN2	1NO+2NC	NF G122KD-DN2	1NO+2NC	NF G122KE-DN2	1NO+2NC	NF G122KF-DN2	1NO+2NC
G22 L	NF G222KC-DN2	2NO+2NC	NF G222KD-DN2	2NO+2NC	NF G222KE-DN2	2NO+2NC	NF G222KF-DN2	2NO+2NC
Max. speed	page 233 - type 1		page 233 - type 1		page 233 - type 1		page 233 - type 1	
Actuating force	0.07 Nm (0.25 Nm)		0.07 Nm (0.25 Nm)		0.07 Nm (0.25 Nm)		0.07 Nm (0.25 Nm)	
Travel diagrams	page 234 - group 5		page 234 - group 5		page 234 - group 5		page 234 - group 5	

M12 connector, right



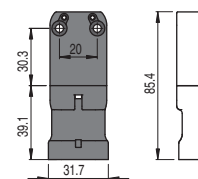
To order a product with M12 right connector, replace DN2 with DMK in the codes shown above.
Example:
NF B110AA-DN2 → NF B110AA-DMK

M12 connector, bottom



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

AMP Superseal 1.5 connector



To order a product with AMP connector, replace DN2 with SAK in the codes shown above. Example:
NF B110AA-DN2 → NF B110AA-SAK



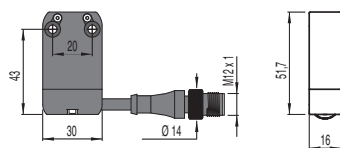
Contact type
R = snap action
L = slow action

	With stainless steel roller on request	With stainless steel roller on request	With stainless steel roller on request	Square rod, 3x3 mm, stainless steel
Contact block				
B11	R NF B112KG-DN2 1NO+1NC	R NF B112KH-DN2 1NO+1NC	R NF B112KP-DN2 1NO+1NC	R NF B112LB-DN2 1NO+1NC
B02	R NF B022KG-DN2 2NC	R NF B022KH-DN2 2NC	R NF B022KP-DN2 2NC	R NF B022LB-DN2 2NC
B12	R NF B122KG-DN2 1NO+2NC	R NF B122KH-DN2 1NO+2NC	R NF B122KP-DN2 1NO+2NC	R NF B122LB-DN2 1NO+2NC
B22	R NF B222KG-DN2 2NO+2NC	R NF B222KH-DN2 2NO+2NC	R NF B222KP-DN2 2NO+2NC	R NF B222LB-DN2 2NO+2NC
G11	L NF G112KG-DN2 1NO+1NC	L NF G112KH-DN2 1NO+1NC	L NF G112KP-DN2 1NO+1NC	L NF G112LB-DN2 1NO+1NC
G02	L NF G022KG-DN2 2NC	L NF G022KH-DN2 2NC	L NF G022KP-DN2 2NC	L NF G022LB-DN2 2NC
G12	L NF G122KG-DN2 1NO+2NC	L NF G122KH-DN2 1NO+2NC	L NF G122KP-DN2 1NO+2NC	L NF G122LB-DN2 1NO+2NC
G22	L NF G222KG-DN2 2NO+2NC	L NF G222KH-DN2 2NO+2NC	L NF G222KP-DN2 2NO+2NC	L NF G222LB-DN2 2NO+2NC
Max. speed	page 233 - type 1	page 233 - type 1	page 233 - type 1	1.5 m/s
Actuating force	0.07 Nm (0.25 Nm)	0.07 Nm (0.25 Nm)	0.07 Nm (0.25 Nm)	0.07 Nm
Travel diagrams	page 234 - group 5	page 234 - group 5	page 234 - group 5	page 234 - group 5

Contact type
R = snap action
L = slow action

	Round rod, Ø 3 mm, stainless steel	Glass fibre rod		Porcelain roller
Contact block				
B11	R NF B112LE-DN2 1NO+1NC	R NF B112LH-DN2 1NO+1NC	R NF B112LL-DN2 1NO+1NC	R NF B112LP-DN2E24 1NO+1NC
B02	R NF B022LE-DN2 2NC	R NF B022LH-DN2 2NC	R NF B022LL-DN2 2NC	R NF B022LP-DN2E24 2NC
B12	R NF B122LE-DN2 1NO+2NC	R NF B122LH-DN2 1NO+2NC	R NF B122LL-DN2 1NO+2NC	R NF B122LP-DN2E24 1NO+2NC
B22	R NF B222LE-DN2 2NO+2NC	R NF B222LH-DN2 2NO+2NC	R NF B222LL-DN2 2NO+2NC	R NF B222LP-DN2E24 2NO+2NC
G11	L NF G112LE-DN2 1NO+1NC	L NF G112LH-DN2 1NO+1NC	L NF G112LL-DN2 1NO+1NC	L NF G112LP-DN2E24 1NO+1NC
G02	L NF G022LE-DN2 2NC	L NF G022LH-DN2 2NC	L NF G022LL-DN2 2NC	L NF G022LP-DN2E24 2NC
G12	L NF G122LE-DN2 1NO+2NC	L NF G122LH-DN2 1NO+2NC	L NF G122LL-DN2 1NO+2NC	L NF G122LP-DN2E24 1NO+2NC
G22	L NF G222LE-DN2 2NO+2NC	L NF G222LH-DN2 2NO+2NC	L NF G222LL-DN2 2NO+2NC	L NF G222LP-DN2E24 2NO+2NC
Max. speed	1.5 m/s	1.5 m/s	1.5 m/s	0.5 m/s
Actuating force	0.07 Nm	0.07 Nm	0.07 Nm	0.04 Nm
Travel diagrams	page 234 - group 5	page 234 - group 5	page 234 - group 5	page 234 - group 5

Cable and M12 connector

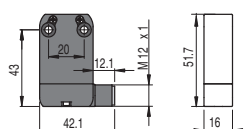


To order a product with cable and M12 connector:
 replace DN2 with DM0.2 in the codes shown above. Example:
 NF B110AA-DN2 → NF B110AA-DM0.2

Contact type										
R	= snap action									
L	= slow action									
Contact block										
B11	R	NF B110AB-DN2W5	⊕	1NO+1NC	NF B110BB-DN2H0W5	⊕	1NO+1NC	NF B110BB-DN2W5	⊕	1NO+1NC
B02	R	NF B020AB-DN2W5	⊕	2NC	NF B020BB-DN2H0W5	⊕	2NC	NF B020BB-DN2W5	⊕	2NC
B12	R	NF B120AB-DN2W5	⊕	1NO+2NC	NF B120BB-DN2H0W5	⊕	1NO+2NC	NF B120BB-DN2W5	⊕	1NO+2NC
B22	R	NF B220AB-DN2W5	⊕	2NO+2NC	NF B220BB-DN2H0W5	⊕	2NO+2NC	NF B220BB-DN2W5	⊕	2NO+2NC
G11	L	NF G110AB-DN2W5	⊕	1NO+1NC	NF G110BB-DN2H0W5	⊕	1NO+1NC	NF G110BB-DN2W5	⊕	1NO+1NC
G02	L	NF G020AB-DN2W5	⊕	2NC	NF G020BB-DN2H0W5	⊕	2NC	NF G020BB-DN2W5	⊕	2NC
G12	L	NF G120AB-DN2W5	⊕	1NO+2NC	NF G120BB-DN2H0W5	⊕	1NO+2NC	NF G120BB-DN2W5	⊕	1NO+2NC
G22	L	NF G220AB-DN2W5	⊕	2NO+2NC	NF G220BB-DN2H0W5	⊕	2NO+2NC	NF G220BB-DN2W5	⊕	2NO+2NC
Max. speed	page 233 - type 4		page 233 - type 2		page 233 - type 2					
Actuating force	9.5 N (25 N ⊕)		9.5 N (25 N ⊕)		9.5 N (25 N ⊕)					
Travel diagrams	page 234 - group 1		page 234 - group 1		page 234 - group 1					

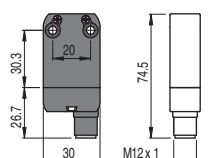
Contact type		External gasket		External gasket		External gasket	
R	= snap action						
L	= slow action						
Contact block							
B11	R	NF B110HB-DN2W5	1NO+1NC	NF B110HE-DN2W5	1NO+1NC	NF B110HH-DN2W5	1NO+1NC
B02	R	NF B020HB-DN2W5	2NC	NF B020HE-DN2W5	2NC	NF B020HH-DN2W5	2NC
B12	R	NF B120HB-DN2W5	1NO+2NC	NF B120HE-DN2W5	1NO+2NC	NF B120HH-DN2W5	1NO+2NC
B22	R	NF B220HB-DN2W5	2NO+2NC	NF B220HE-DN2W5	2NO+2NC	NF B220HH-DN2W5	2NO+2NC
G11	L	/	/	/	/	/	/
G02	L	NF G020HB-DN2W5	2NC	NF G020HE-DN2W5	2NC	NF G020HH-DN2W5	2NC
G12	L	/	/	/	/	/	/
G22	L	/	/	/	/	/	/
Max. speed	1 m/s		1 m/s		1 m/s		
Actuating force	0.08 Nm		0.12 Nm		0.08 Nm		
Travel diagrams	page 234 - group 4		page 234 - group 4		page 234 - group 4		

M12 connector, right



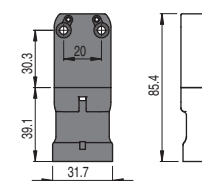
To order a product with M12 right connector, replace DN2 with DMK in the codes shown above.
Example:
NF B110AA-DN2 → NF B110AA-DMK

M12 connector, bottom



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

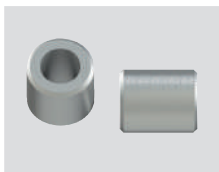
AMP Superseal 1.5 connector



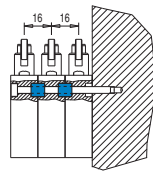
To order a product with AMP connector, replace DN2 with SAK in the codes shown above. Example:
NF B110AA-DN2 → NF B110AA-SAK

Accessories Packs of **10 pcs.**

Article	Description
VN DT1F	Spacer for NA and NF series



By installing spacers between two switches, it is possible to have 2 or more pre-wired switches, preventing them from slipping.


M12 female connectors with cable For details see page 210

General data

- Polyurethane connector body
- Class 6 copper conductors acc. to IEC 60228 - mobile installation
- Gold-plated contacts
- Self-locking ring nut made of nickel-plated brass, available on request in AISI 316L stainless steel hex version.
- High flexibility cable with oil resistant PVC or PUR sheath suitable to be used in drag chains, acc. to IEC 60332-1-2

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

article
options
VF CA4PD3M-X

No. of poles	
4	4 poles
5	5 poles
8	8 poles
12	12 poles

Cable sheath	
P	PVC (standard)
U	PUR

Connector type	
D	straight (standard)
G	angled

Connection type		Fixing ring	
M	M12x1		cylindrical ring nut (standard)
		X	stainless steel hex ring nut

Cable length (L)		4 poles 5 poles 8 poles 12 poles			
		4 poles	5 poles	8 poles	12 poles
1	1 metre				
2	2 metres				
3	3 metres (standard)	•	•		
4	4 metres				
5	5 metres (standard)	•	•	•	•
...					
0	10 metres (standard)	•	•	•	•

Other lengths on request

Stock items

- VF CA4PD3M
- VF CA4PD5M
- VF CA4PD0M
- VF CA5PD3M
- VF CA5PD5M
- VF CA5PD0M
- VF CA8PD5M
- VF CA8PD0M
- VF CA12PD5M
- VF CA12PD0M
- VF CA8UD5M-X
- VF CA8UD0M-X
- VF CA12UD0M-X

Attention! For items not in stock the minimum order quantity is 100 pcs.

Field wireable M12 female connectors

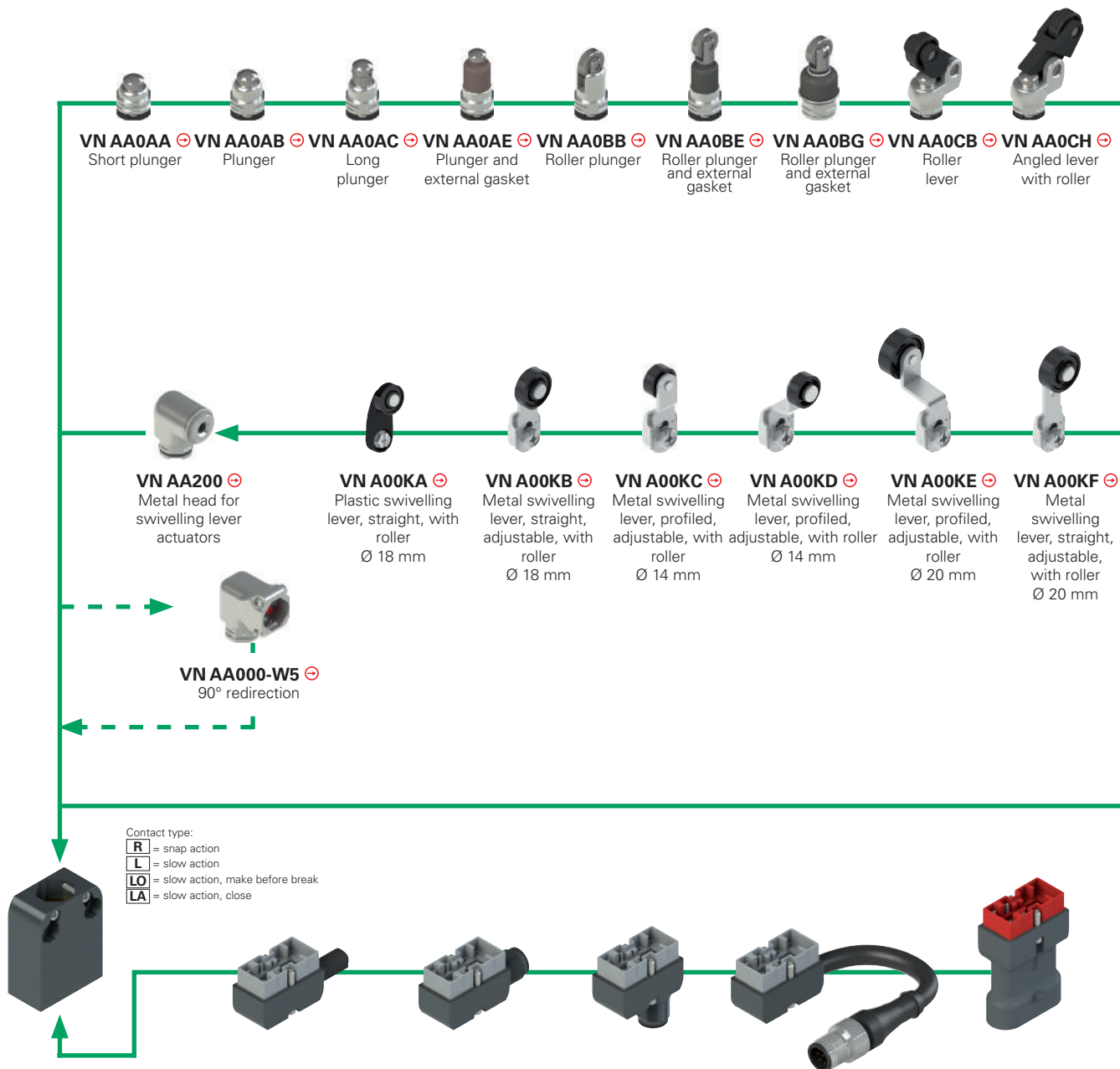
General data

- 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 (4 and 5-pole), 2 A (8-pole)
- Protection degree: IP67 acc. to EN 60529
- Ambient temperature: -25°C ... +85°C
- Wire cross-section: 0.25 mm² (23 AWG) ... 0.5 mm² (20 AWG)
- Tightening torque: 0.6 ... 0.8 Nm

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

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

Selection diagram for item combinations of the NA, NB, NF series

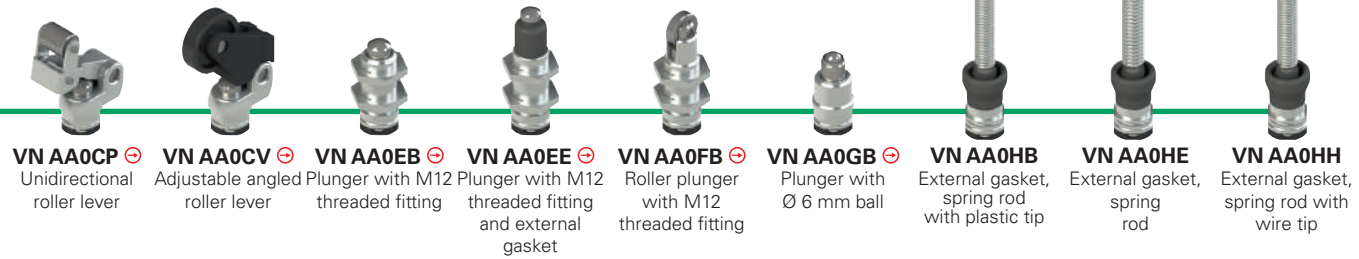


Contact type:
R = snap action
L = slow action
LO = slow action, make before break
LA = slow action, close

METAL housing, NA hole spacing 20 mm	Metal connector with cable	Cable length (m)	M12 metal connector, right	M12 metal connector, bottom	Metal connector with cable and M12 connector	Cable length (m)	AMP technopolymer connector, bottom
NA B11000 ⊕ 1NO+1NC R	VN CM11DN2	2	VN CM11DMK	VN CM11SMK	VN CM11DM0.2	0.2	VN CM11SAK
NA G11000 ⊕ 1NO+1NC L		5					
NA L11000 ⊕ 1NO+1NC LA	VN CM11DN5	5	VN CM11DMK	VN CM11SMK	VN CM11DM0.2	0.2	VN CM11SAK
NA H11000 ⊕ 1NO+1NC LO		2					
NA B02000 ⊕ 2NC R	VN CM02DN2	2	VN CM02DMK	VN CM02SMK	VN CM02DM0.2	0.2	VN CM02SAK
NA G02000 ⊕ 2NC L		5					
NA B20000 ⊕ 2NO R	VN CM20DN2	2	VN CM20DMK	VN CM20SMK	VN CM20DM0.2	0.2	VN CM20SAK
NA G20000 ⊕ 2NO L		5					
NA B12000 ⊕ 1NO+2NC R	VN CM12DN2	2	VN CM12DMK	VN CM12SMK	VN CM12DM0.2	0.2	VN CM12SAK
NA G12000 ⊕ 1NO+2NC L		5					
NA L12000 ⊕ 1NO+2NC LA	VN CM12DN5	5	VN CM12DMK	VN CM12SMK	VN CM12DM0.2	0.2	VN CM12SAK
NA H12000 ⊕ 1NO+2NC LO		2					
NA B22000 ⊕ 2NO+2NC R	VN CM22DN2	2	VN CM22DMK	VN CM22SMK	VN CM22DM0.2	0.2	VN CM22SAK
NA G22000 ⊕ 2NO+2NC L		5					
NA L22000 ⊕ 2NO+2NC LA	VN CM22DN5	5	VN CM22DMK	VN CM22SMK	VN CM22DM0.2	0.2	VN CM22SAK
NA H22000 ⊕ 2NO+2NC LO		2					

To order a NB series housing, replace NA with NB in the codes shown above. Example:
 NA B11000 → NB B11000

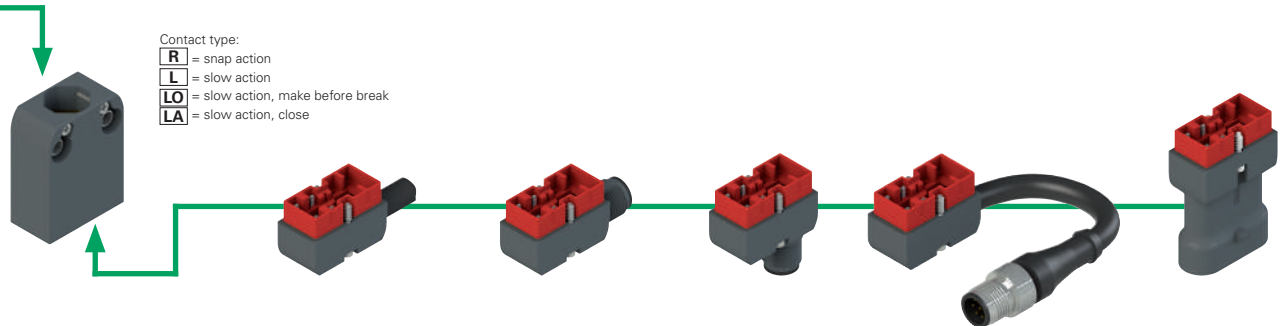
⚠ It is not allowed to install VN CM***** connectors on technopolymer housings



VN AA0CP ⊕ Unidirectional roller lever
VN AA0CV ⊕ Adjustable angled roller lever
VN AA0EB ⊕ Plunger with M12 threaded fitting
VN AA0EE ⊕ Plunger with M12 threaded fitting and external gasket
VN AA0FB ⊕ Roller plunger with M12 threaded fitting
VN AA0GB ⊕ Plunger with Ø 6 mm ball
VN AA0HB External gasket, spring rod with plastic tip
VN AA0HE External gasket, spring rod
VN AA0HH External gasket, spring rod with wire tip



VN A00KG ⊕ Metal swivelling lever, profiled, adjustable, with roller Ø 20 mm
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, adjustable
VN A00LE Metal swivelling lever with stainless steel rod Ø 3 x 125, adjustable
VN A00LH Metal swivelling lever with glass fibre rod Ø 6 x 200, adjustable
VN A00LL Metal swivelling lever with spring rod, adjustable
VN A00LP ⊕ Metal swivelling lever with porcelain roll, adjustable



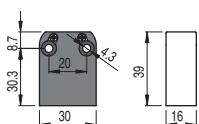
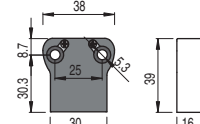
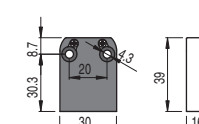
Contact type:
R = snap action
L = slow action
LO = slow action, make before break
LA = slow action, close

NFTECHNOPOLYMER housing, 20 mm hole spacing	Technopolymer connector with cable	Cable length (m)	M12 technopolymer connector, right	M12 technopolymer connector, bottom	Technopolymer connector with cable and M12 connector	Cable length (m)	AMP technopolymer connector, bottom
NF B11000 ⊕ 1NO+1NC R	VN CP11DN2	2	VN CP11DMK	VN CP11SMK	VN CP11DM0.2	0.2	VN CP11SAK
NF G11000 ⊕ 1NO+1NC L	VN CP11DN5	5					
NF L11000 ⊕ 1NO+1NC LA	VN CP02DN2	2	VN CP02DMK	VN CP02SMK	VN CP02DM0.2	0.2	VN CP02SAK
NF H11000 ⊕ 1NO+1NC LO	VN CP02DN5	5					
NF B02000 ⊕ 2NC R	VN CP20DN2	2	VN CP20DMK	VN CP20SMK	VN CP20DM0.2	0.2	VN CP20SAK
NF G02000 ⊕ 2NC L	VN CP20DN5	5					
NF B20000 ⊕ 2NO R	VN CP12DN2	2	VN CP12DMK	VN CP12SMK	VN CP12DM0.2	0.2	
NF G20000 ⊕ 2NO L	VN CP12DN5	5					
NF B12000 ⊕ 1NO+2NC R	VN CP22DN2	2	VN CP22DMK	VN CP22SMK	VN CP22DM0.2	0.2	
NF G12000 ⊕ 1NO+2NC L	VN CP22DN5	5					
NF L12000 ⊕ 1NO+2NC LA							
NF H12000 ⊕ 1NO+2NC LO							
NF B22000 ⊕ 2NO+2NC R							
NF G22000 ⊕ 2NO+2NC L							
NF L22000 ⊕ 2NO+2NC LA							
NF H22000 ⊕ 2NO+2NC LO							

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

Housings

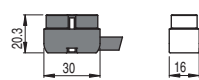
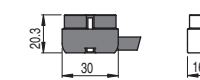
Contact type:
R = snap action
L = slow action
LO = slow action, make before break
LA = slow action, close

	NA metal housings	NB metal housings	NF technopolymer housings
			
R	NA B11000 ⊕ 1NO+1NC	NB B11000 ⊕ 1NO+1NC	NF B11000 ⊕ 1NO+1NC
L	NA G11000 ⊕ 1NO+1NC	NB G11000 ⊕ 1NO+1NC	NF G11000 ⊕ 1NO+1NC
LA	NA L11000 ⊕ 1NO+1NC	NB L11000 ⊕ 1NO+1NC	NF L11000 ⊕ 1NO+1NC
LO	NA H11000 ⊕ 1NO+1NC	NB H11000 ⊕ 1NO+1NC	NF H11000 ⊕ 1NO+1NC
R	NA B12000 ⊕ 1NO+2NC	NB B12000 ⊕ 1NO+2NC	NF B12000 ⊕ 1NO+2NC
L	NA G12000 ⊕ 1NO+2NC	NB G12000 ⊕ 1NO+2NC	NF G12000 ⊕ 1NO+2NC
LA	NA L12000 ⊕ 1NO+2NC	NB L12000 ⊕ 1NO+2NC	NF L12000 ⊕ 1NO+2NC
LO	NA H12000 ⊕ 1NO+2NC	NB H12000 ⊕ 1NO+2NC	NF H12000 ⊕ 1NO+2NC
R	NA B22000 ⊕ 2NO+2NC	NB B22000 ⊕ 2NO+2NC	NF B22000 ⊕ 2NO+2NC
L	NA G22000 ⊕ 2NO+2NC	NB G22000 ⊕ 2NO+2NC	NF G22000 ⊕ 2NO+2NC
LA	NA L22000 ⊕ 2NO+2NC	NB L22000 ⊕ 2NO+2NC	NF L22000 ⊕ 2NO+2NC
LO	NA H22000 ⊕ 2NO+2NC	NB H22000 ⊕ 2NO+2NC	NF H22000 ⊕ 2NO+2NC

Quality marks:

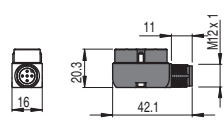
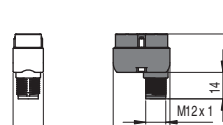
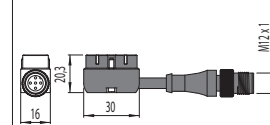


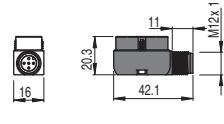
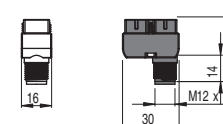
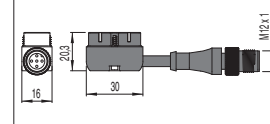
Connectors with cable

Cable type	Length (m)	metal connectors for NA and NB housings	technopolymer connectors for NF housings
			
N PVC	2	VN CM11DN2 1NO+1NC	VN CP11DN2 1NO+1NC
	5	VN CM11DN5 1NO+1NC	VN CP11DN5 1NO+1NC
	2	VN CM12DN2 1NO+2NC	VN CP12DN2 1NO+2NC
	5	VN CM12DN5 1NO+2NC	VN CP12DN5 1NO+2NC
	2	VN CM22DN2 2NO+2NC	VN CP22DN2 2NO+2NC
H PUR halogen free	5	VN CM22DN5 2NO+2NC	VN CP22DN5 2NO+2NC
	2	VN CM11DH2 1NO+1NC	VN CP11DH2 1NO+1NC
	5	VN CM11DH5 1NO+1NC	VN CP11DH5 1NO+1NC
	2	VN CM12DH2 1NO+2NC	VN CP22DH2 2NO+2NC
	5	VN CM12DH5 1NO+2NC	VN CP22DH5 2NO+2NC

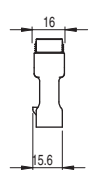
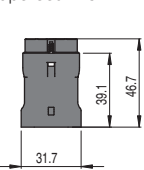
Other cable lengths on request

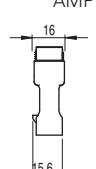
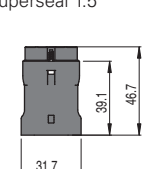
M12 connectors

metal connectors for NA and NB housings		
M12 connector, right	M12 connector, bottom	with cable and M12 connector
		
VN CM11DMK 1NO+1NC	VN CM11SMK 1NO+1NC	VN CM11DM0.2 1NO+1NC
VN CM02DMK 2NC	VN CM02SMK 2NC	VN CM02DM0.2 2NC
VN CM22DMK 2NO+2NC	VN CM22SMK 2NO+2NC	VN CM22DM0.2 2NO+2NC

technopolymer connectors for NF housings		
M12 connector, right	M12 connector, bottom	with cable and M12 connector
		
VN CP11DMK 1NO+1NC	VN CP11SMK 1NO+1NC	VN CP11DM0.2 1NO+1NC
VN CP02DMK 2NC	VN CP02SMK 2NC	VN CP02DM0.2 2NC
VN CP22DMK 2NO+2NC	VN CP22SMK 2NO+2NC	VN CP22DM0.2 2NO+2NC

AMP connectors

technopolymer connectors for NA and NB housings	
AMP superseal 1.5	
	
VN CM11SAK 1NO+1NC	
VN CM02SAK 2NC	
VN CM20SAK 2NO	

technopolymer connectors for NF housings	
AMP superseal 1.5	
	
VN CP11SAK 1NO+1NC	
VN CP02SAK 2NC	
VN CP20SAK 2NO	

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.

All values in the drawings are in mm

Accessories See page 207

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



Actuators

VN AA0AA	VN AA0AB	VN AA0AC	VN AA0AE	VN AA0BB	VN AA0BE
VN AA0CB	VN AA0CH	VN AA0CP	VN AA0CV	VN AA0EB	VN AA0EE
VN AA0FB	VN AA0GB	VN AA0HB	VN AA0HE	VN AA0HH	

Levers

ATTENTION: These separate actuators can be used only with items of the NA, NB and NF series.

VN A00KA	VN A00KB	VN A00KC	VN A00KD	VN A00KE	VN A00KF
VN A00KG	VN A00KH	VN A00KP	VN A00LB	VN A00LE	VN A00LH
VN A00LL	VN A00LP	VN A00KB-V38	VN A00KE-V38	VN A00KG-V38	VN A00KP-V38

Heads

VN AA200

90° redirection

VN AA000-W5

All values in the drawings are in mm

Accessories See page 207

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