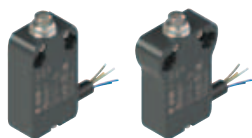
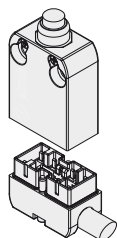


Description



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



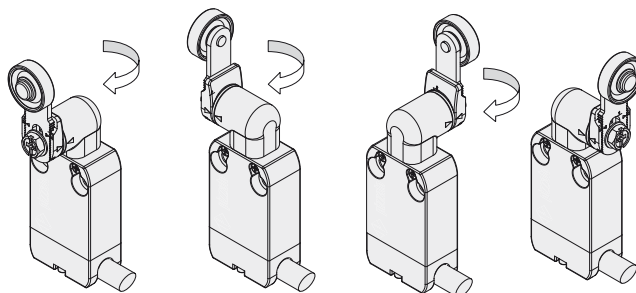
The new fundamental feature of this series of pre-wired switches is that the switch body and the wired connector are separated.

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.



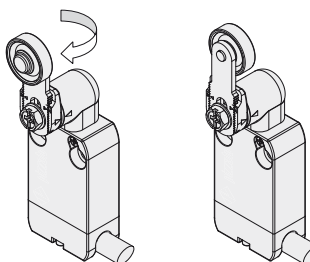
Protection degrees IP67 and IP69K

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



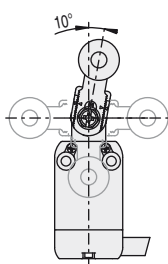
For switches with swivelling lever, the lever can be fastened on straight or reverse side maintaining the positive coupling.

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

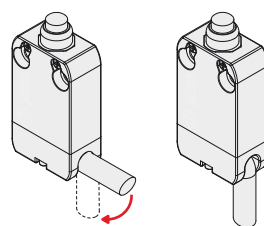
Adjustable levers

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



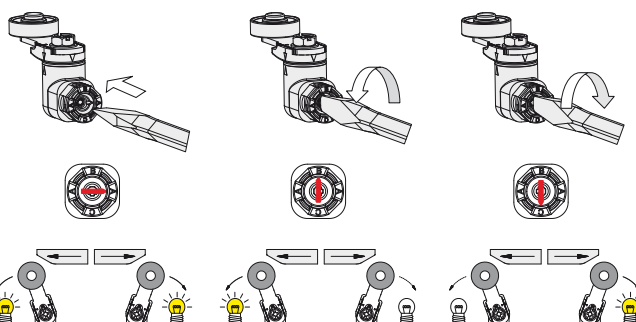
The connector with cable is provided with a cavity to allow cable bending up to 90°.

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

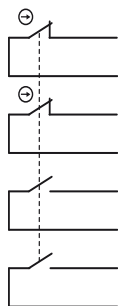
Unidirectional heads

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.



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



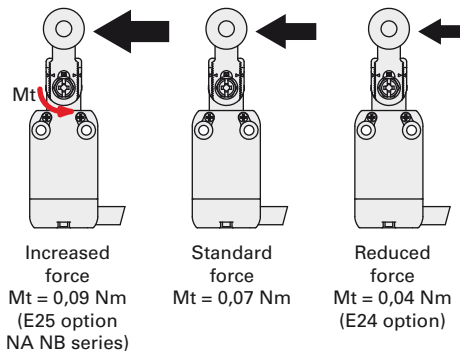
These series of contact blocks are versatile and compact. They have the same dimensions of the previous versions, but now it is possible to have up to 4 different contacts which are galvanically separated and provided with positive opening (NC contacts).

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.

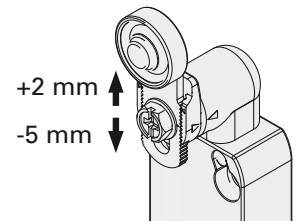
Increased or reduced actuating force

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.

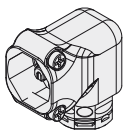


In other cases, small finishing adjustments are required due to the application. Nearly all swivelling levers for switches of the NA, NB and NF series can be adjusted in 1 mm steps along the switch length.

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.

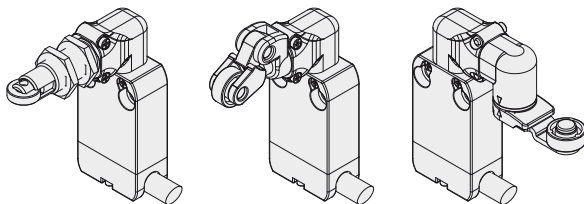
90° redirection for actuators



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-

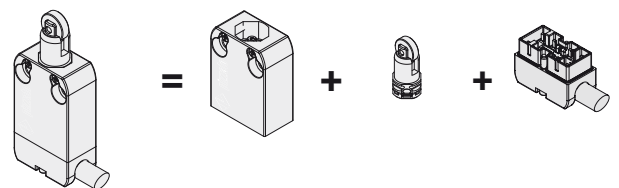
sible. The redirection piece can also be used in case of heads for swivelling levers. Although possible, the use of multiple transmissions in series is not recommended.



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.

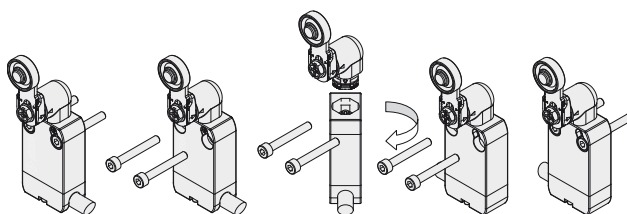
NA B110BB-DN2 **NA B11000** **VN AA0BB** **VN CM11DN2**



Reversible housing

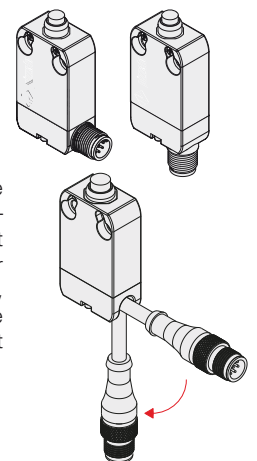
Thanks to the shape of the fixing holes and of the switch body, as well as the possibility of rotating the head, make this switch perfectly symmetrical.

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

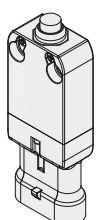
-40°C

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

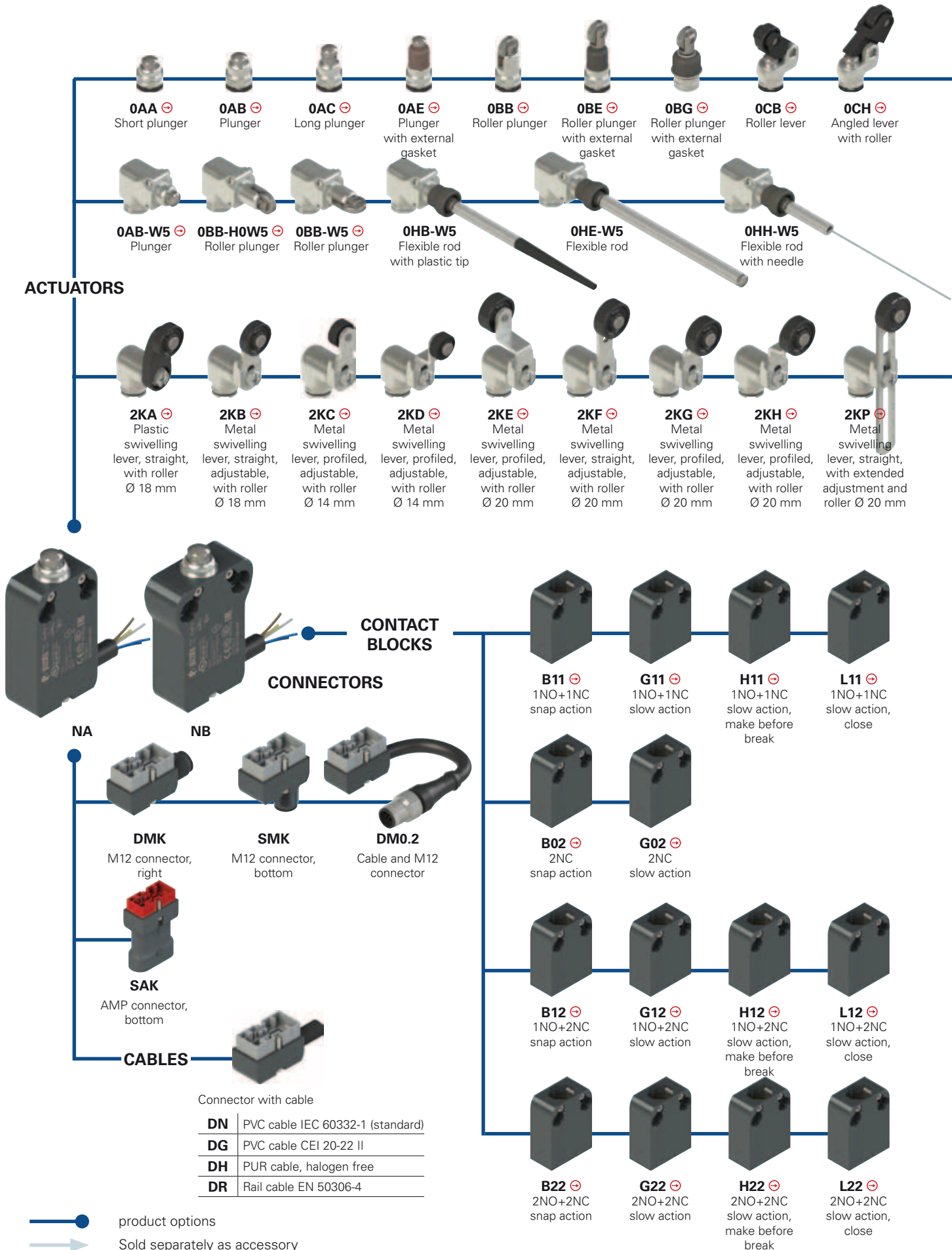
They can therefore be used for applications in cold stores, sterilisers and other equipment with low temperature environments. The special materials used to produce these versions retain their characteristics even under these conditions, thereby expanding the installation possibilities.

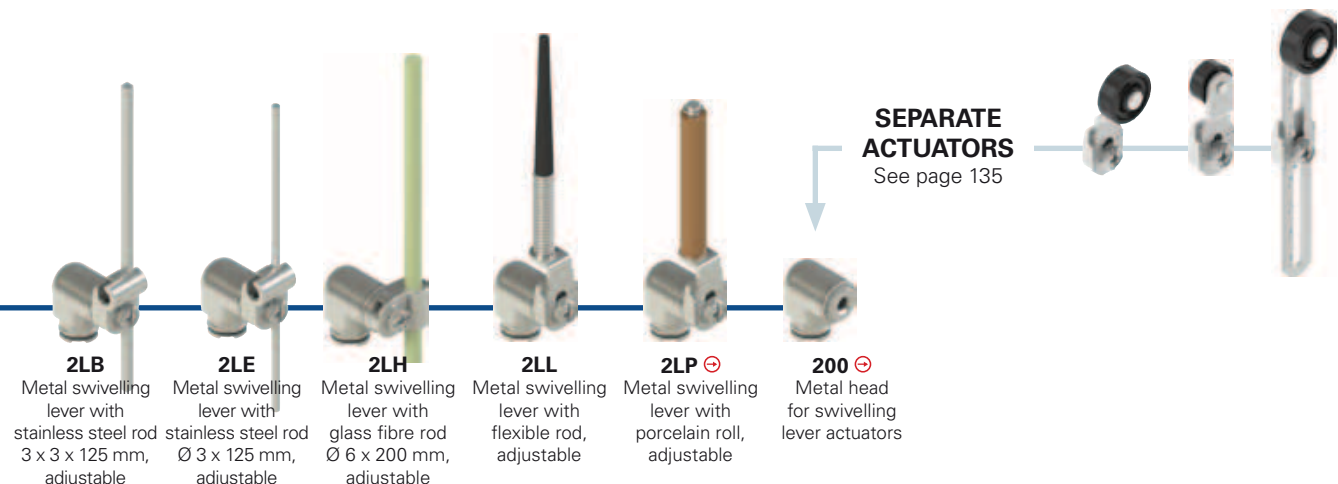
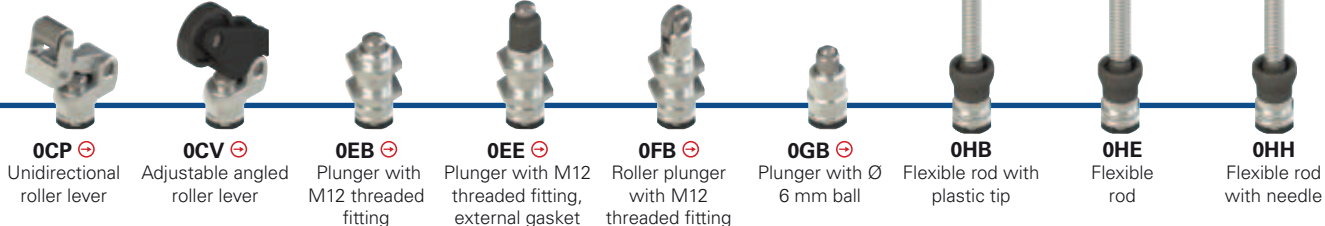
AMP connectors

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.



Selection diagram for item combinations of the NA-NB series





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)
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	
00	without actuator
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
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
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, 1 µm gold coating

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 (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



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:



IMQ approval:	CA02.04562
UL approval:	E131787
CCC approval:	2013010305653520
EAC approval:	RU C-IT.AJ35.B.00454

⚠ 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-ried 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.**

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

General data

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

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

Max. actuation frequency: 3600 operating cycles/hour

Mechanical endurance: 20 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 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: 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, 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.

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
MA terminals (crimped terminals)	3
Pollution degree:	3
Utilization category:	AC15 / DC13 (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 + A1:2009, fundamental requirements of the Low Voltage Directive 2014/35/EU.

Features approved by UL

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



Ambient temperatures for switches with cable and electrical data

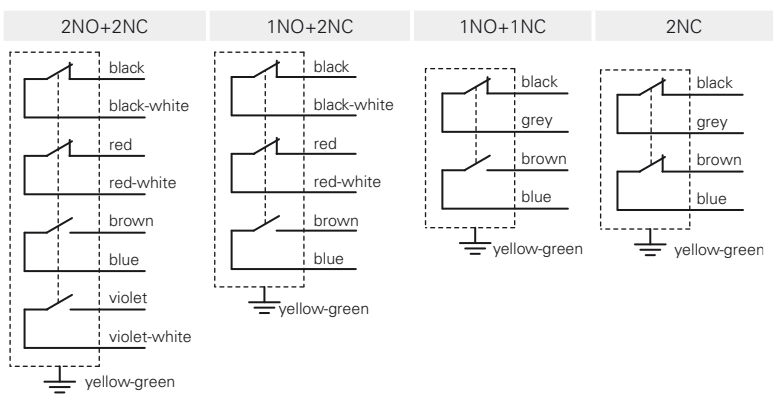
Connection type	Output with cable								Output with M12 connector		Output with AMP connector
	2 contacts				3 contacts		4 contacts		2 contacts	3 or 4 contacts	2 contacts
	N	G	H	R	N	H	N	R	M12 connector, 5-pole	M12 connector, 8-pole	AMP Super-seal 1.5 connector
Cable or connector type	5x0.75 mm ²	5x0.75 mm ²	5x0.75 mm ²	5x0.5 mm 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	
Conductors	5x0.75 mm ²	5x0.75 mm ²	5x0.75 mm ²	5x0.5 mm 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	05VV-F	05VV-F	05EQ-H	EN50306-4 IE-300V 5G0.5 mm ² MM-30 EN 50306-4 EN 45545	03VV-F	03E7Q-H	03VV-F	EN50306-4 1P-300V 9G0.5 mm ² MM-30 EN 50306-4 EN 45545	03VV-H	03VV-H	/
Sheath	PVC	PVC	PUR HALOGEN FREE	/	PVC	PUR HALOGEN FREE	PVC	/	PVC	PVC	/
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	/	/	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	/	/	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	/	/	/
Copper conductors IEC 60228	Class 5	Class 5	Class 6	Class 5	Class 5	Class 6	Class 5	Class 5	Class 6	Class 6	/

Ambient temperature with cable extended (T ₀) standard	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	/
	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	/
	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	/	-30°C +80°C	/	-40°C +80°C	/	/	/
	Cable, mobile installation	/	/	-40°C +80°C	/	/	-30°C +80°C	/	/	/	/	/

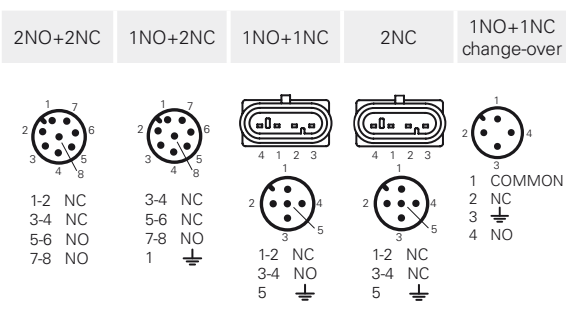
Electrical data	Thermal current I _{th}	10 A	10 A	10 A	6 A	6 A	6 A	3 A	4 A	4 A	2 A	10 A	
	Rated insulation voltage U _i	250 Vac	250 Vac	250 Vac	250 Vac	250 Vac	250 Vac	250 Vac	250 Vac	250 Vac	250 Vac 300 Vdc	30 Vac 36 Vdc	250 Vac 300 Vdc
	Protection against short circuits (fuse)	10 A 500 V type gG	10 A 500 V type gG	10 A 500 V type gG	6 A 500 V type gG	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	/	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	/	0.3 A
	Utilization category AC15	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
120 V		4 A	4 A	4 A	4 A	4 A	4 A	3 A	4 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	/	4 A	

Approvals	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 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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Internal cable wiring



Connector pin assignment



Contact type:

- R = snap action
- L = slow action

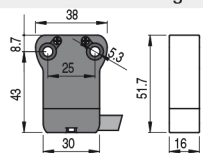
Contact block

				With external rubber gasket
B11 R	NA B110AA-DN2 ⊕ 1NO+1NC	NA B110AB-DN2 ⊕ 1NO+1NC	NA B110AC-DN2 ⊕ 1NO+1NC	NA B110AE-DN2 ⊕ 1NO+1NC
B02 R	NA B020AA-DN2 ⊕ 2NC	NA B020AB-DN2 ⊕ 2NC	NA B020AC-DN2 ⊕ 2NC	NA B020AE-DN2 ⊕ 2NC
B12 R	NA B120AA-DN2 ⊕ 1NO+2NC	NA B120AB-DN2 ⊕ 1NO+2NC	NA B120AC-DN2 ⊕ 1NO+2NC	NA B120AE-DN2 ⊕ 1NO+2NC
B22 R	NA B220AA-DN2 ⊕ 2NO+2NC	NA B220AB-DN2 ⊕ 2NO+2NC	NA B220AC-DN2 ⊕ 2NO+2NC	NA B220AE-DN2 ⊕ 2NO+2NC
G11 L	NA G110AA-DN2 ⊕ 1NO+1NC	NA G110AB-DN2 ⊕ 1NO+1NC	NA G110AC-DN2 ⊕ 1NO+1NC	NA G110AE-DN2 ⊕ 1NO+1NC
G02 L	NA G020AA-DN2 ⊕ 2NC	NA G020AB-DN2 ⊕ 2NC	NA G020AC-DN2 ⊕ 2NC	NA G020AE-DN2 ⊕ 2NC
G12 L	NA G120AA-DN2 ⊕ 1NO+2NC	NA G120AB-DN2 ⊕ 1NO+2NC	NA G120AC-DN2 ⊕ 1NO+2NC	NA G120AE-DN2 ⊕ 1NO+2NC
G22 L	NA G220AA-DN2 ⊕ 2NO+2NC	NA G220AB-DN2 ⊕ 2NO+2NC	NA G220AC-DN2 ⊕ 2NO+2NC	NA G220AE-DN2 ⊕ 2NO+2NC
Max. speed	page 219 - type 4	page 219 - type 4	page 219 - type 4	page 219 - type 4
Actuating force	7 N (25 N ⊕)	7 N (25 N ⊕)	7 N (25 N ⊕)	7 N (25 N ⊕)
Travel diagrams	page 220 - group 1	page 220 - group 1	page 220 - group 1	page 220 - group 1

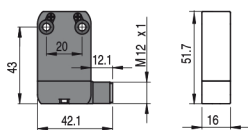
Contact block

		With external rubber gasket	With external rubber gasket	With stainless steel roller on request
B11 R	NA B110BB-DN2 ⊕ 1NO+1NC	NA B110BE-DN2 ⊕ 1NO+1NC	NA B110BG-DN2 ⊕ 1NO+1NC	NA B110CB-DN2 ⊕ 1NO+1NC
B02 R	NA B020BB-DN2 ⊕ 2NC	NA B020BE-DN2 ⊕ 2NC	NA B020BG-DN2 ⊕ 2NC	NA B020CB-DN2 ⊕ 2NC
B12 R	NA B120BB-DN2 ⊕ 1NO+2NC	NA B120BE-DN2 ⊕ 1NO+2NC	NA B120BG-DN2 ⊕ 1NO+2NC	NA B120CB-DN2 ⊕ 1NO+2NC
B22 R	NA B220BB-DN2 ⊕ 2NO+2NC	NA B220BE-DN2 ⊕ 2NO+2NC	NA B220BG-DN2 ⊕ 2NO+2NC	NA B220CB-DN2 ⊕ 2NO+2NC
G11 L	NA G110BB-DN2 ⊕ 1NO+1NC	NA G110BE-DN2 ⊕ 1NO+1NC	NA G110BG-DN2 ⊕ 1NO+1NC	NA G110CB-DN2 ⊕ 1NO+1NC
G02 L	NA G020BB-DN2 ⊕ 2NC	NA G020BE-DN2 ⊕ 2NC	NA G020BG-DN2 ⊕ 2NC	NA G020CB-DN2 ⊕ 2NC
G12 L	NA G120BB-DN2 ⊕ 1NO+2NC	NA G120BE-DN2 ⊕ 1NO+2NC	NA G120BG-DN2 ⊕ 1NO+2NC	NA G120CB-DN2 ⊕ 1NO+2NC
G22 L	NA G220BB-DN2 ⊕ 2NO+2NC	NA G220BE-DN2 ⊕ 2NO+2NC	NA G220BG-DN2 ⊕ 2NO+2NC	NA G220CB-DN2 ⊕ 2NO+2NC
Max. speed	page 219 - type 2	page 219 - type 5	page 219 - type 5	page 219 - type 3
Actuating force	7 N (25 N ⊕)	7 N (25 N ⊕)	7 N (25 N ⊕)	5 N (25 N ⊕)
Travel diagrams	page 220 - group 1	page 220 - group 1	page 220 - group 1	page 220 - group 2

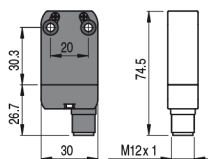
NB series housing



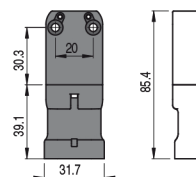
M12 connector, right



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

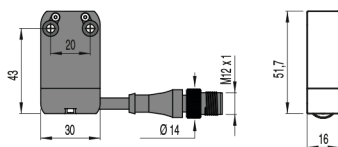


Contact type: R = snap action L = slow action	With stainless steel roller on request	Unidirectional operation	Secured only by means of threaded head	
Contact block				
B11 R	NA B110CH-DN2 (1NO+1NC)	NA B110CP-DN2 (1NO+1NC)	NA B110CV-DN2 (1NO+1NC)	NA B110EB-DN2 (1NO+1NC)
B02 R	NA B020CH-DN2 (2NC)	NA B020CP-DN2 (2NC)	NA B020CV-DN2 (2NC)	NA B020EB-DN2 (2NC)
B12 R	NA B120CH-DN2 (1NO+2NC)	NA B120CP-DN2 (1NO+2NC)	NA B120CV-DN2 (1NO+2NC)	NA B120EB-DN2 (1NO+2NC)
B22 R	NA B220CH-DN2 (2NO+2NC)	NA B220CP-DN2 (2NO+2NC)	NA B220CV-DN2 (2NO+2NC)	NA B220EB-DN2 (2NO+2NC)
G11 L	NA G110CH-DN2 (1NO+1NC)	NA G110CP-DN2 (1NO+1NC)	NA G110CV-DN2 (1NO+1NC)	NA G110EB-DN2 (1NO+1NC)
G02 L	NA G020CH-DN2 (2NC)	NA G020CP-DN2 (2NC)	NA G020CV-DN2 (2NC)	NA G020EB-DN2 (2NC)
G12 L	NA G120CH-DN2 (1NO+2NC)	NA G120CP-DN2 (1NO+2NC)	NA G120CV-DN2 (1NO+2NC)	NA G120EB-DN2 (1NO+2NC)
G22 L	NA G220CH-DN2 (2NO+2NC)	NA G220CP-DN2 (2NO+2NC)	NA G220CV-DN2 (2NO+2NC)	NA G220EB-DN2 (2NO+2NC)
Max. speed	page 219 - type 3	page 219 - type 3	page 219 - type 3	page 219 - type 4
Actuating force	5 N (25 N ⊕)	3 N (25 N ⊕)	3 N (25 N ⊕)	7 N (25 N ⊕)
Travel diagrams	page 220 - group 2	page 220 - group 6	page 220 - group 3	page 220 - group 1

Contact block	Secured only by means of threaded head With external rubber gasket	Secured only by means of threaded head	Plunger with Ø 6 mm ball	With external rubber gasket
B11 R	NA B110EE-DN2 (1NO+1NC)	NA B110FB-DN2 (1NO+1NC)	NA B110GB-DN2 (1NO+1NC)	NA B110HB-DN2 (1NO+1NC)
B02 R	NA B020EE-DN2 (2NC)	NA B020FB-DN2 (2NC)	NA B020GB-DN2 (2NC)	NA B020HB-DN2 (2NC)
B12 R	NA B120EE-DN2 (1NO+2NC)	NA B120FB-DN2 (1NO+2NC)	NA B120GB-DN2 (1NO+2NC)	NA B120HB-DN2 (1NO+2NC)
B22 R	NA B220EE-DN2 (2NO+2NC)	NA B220FB-DN2 (2NO+2NC)	NA B220GB-DN2 (2NO+2NC)	NA B220HB-DN2 (2NO+2NC)
G11 L	NA G110EE-DN2 (1NO+1NC)	NA G110FB-DN2 (1NO+1NC)	NA G110GB-DN2 (1NO+1NC)	
G02 L	NA G020EE-DN2 (2NC)	NA G020FB-DN2 (2NC)	NA G020GB-DN2 (2NC)	NA G020HB-DN2 (2NC)
G12 L	NA G120EE-DN2 (1NO+2NC)	NA G120FB-DN2 (1NO+2NC)	NA G120GB-DN2 (1NO+2NC)	
G22 L	NA G220EE-DN2 (2NO+2NC)	NA G220FB-DN2 (2NO+2NC)	NA G220GB-DN2 (2NO+2NC)	
Max. speed	page 219 - type 4	page 219 - type 2	page 219 - 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 220 - group 1	page 220 - group 1	page 220 - group 1	page 220 - group 4

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

Contact type:

R = snap action
L = slow action

Contact block

	With external rubber gasket		With external rubber gasket		With stainless steel roller on request		With stainless steel roller on request		
B11	R	NA B110HE-DN2	1NO+1NC	NA B110HH-DN2	1NO+1NC	NA B112KA-DN2	➔ 1NO+1NC	NA B112KB-DN2	➔ 1NO+1NC
B02	R	NA B020HE-DN2	2NC	NA B020HH-DN2	2NC	NA B022KA-DN2	➔ 2NC	NA B022KB-DN2	➔ 2NC
B12	R	NA B120HE-DN2	1NO+2NC	NA B120HH-DN2	1NO+2NC	NA B122KA-DN2	➔ 1NO+2NC	NA B122KB-DN2	➔ 1NO+2NC
B22	R	NA B220HE-DN2	2NO+2NC	NA B220HH-DN2	2NO+2NC	NA B222KA-DN2	➔ 2NO+2NC	NA B222KB-DN2	➔ 2NO+2NC
G11	L					NA G112KA-DN2	➔ 1NO+1NC	NA G112KB-DN2	➔ 1NO+1NC
G02	L	NA G020HE-DN2	2NC	NA G020HH-DN2	2NC	NA G022KA-DN2	➔ 2NC	NA G022KB-DN2	➔ 2NC
G12	L					NA G122KA-DN2	➔ 1NO+2NC	NA G122KB-DN2	➔ 1NO+2NC
G22	L					NA G222KA-DN2	➔ 2NO+2NC	NA G222KB-DN2	➔ 2NO+2NC
Max. speed	1 m/s		1 m/s		page 219 - type 1		page 219 - 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 220 - group 4		page 220 - group 4		page 220 - group 5		page 220 - group 5		

	With stainless steel roller on request		With stainless steel roller on request		With stainless steel roller on request		With stainless steel roller on request		
B11	R	NA B112KC-DN2	➔ 1NO+1NC	NA B112KD-DN2	➔ 1NO+1NC	NA B112KE-DN2	➔ 1NO+1NC	NA B112KF-DN2	➔ 1NO+1NC
B02	R	NA B022KC-DN2	➔ 2NC	NA B022KD-DN2	➔ 2NC	NA B022KE-DN2	➔ 2NC	NA B022KF-DN2	➔ 2NC
B12	R	NA B122KC-DN2	➔ 1NO+2NC	NA B122KD-DN2	➔ 1NO+2NC	NA B122KE-DN2	➔ 1NO+2NC	NA B122KF-DN2	➔ 1NO+2NC
B22	R	NA B222KC-DN2	➔ 2NO+2NC	NA B222KD-DN2	➔ 2NO+2NC	NA B222KE-DN2	➔ 2NO+2NC	NA B222KF-DN2	➔ 2NO+2NC
G11	L	NA G112KC-DN2	➔ 1NO+1NC	NA G112KD-DN2	➔ 1NO+1NC	NA G112KE-DN2	➔ 1NO+1NC	NA G112KF-DN2	➔ 1NO+1NC
G02	L	NA G022KC-DN2	➔ 2NC	NA G022KD-DN2	➔ 2NC	NA G022KE-DN2	➔ 2NC	NA G022KF-DN2	➔ 2NC
G12	L	NA G122KC-DN2	➔ 1NO+2NC	NA G122KD-DN2	➔ 1NO+2NC	NA G122KE-DN2	➔ 1NO+2NC	NA G122KF-DN2	➔ 1NO+2NC
G22	L	NA G222KC-DN2	➔ 2NO+2NC	NA G222KD-DN2	➔ 2NO+2NC	NA G222KE-DN2	➔ 2NO+2NC	NA G222KF-DN2	➔ 2NO+2NC
Max. speed	page 219 - type 1		page 219 - type 1		page 219 - type 1		page 219 - 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 220 - group 5		page 220 - group 5		page 220 - group 5		page 220 - 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 → 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

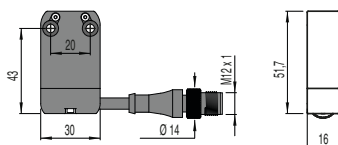


Contact type:	With stainless steel roller on request	With stainless steel roller on request	With stainless steel roller on request	Square rod, 3x3 mm, stainless steel
R = snap action L = slow action				
Contact block				
B11	R NA B112KG-DN2	R NA B112KH-DN2	R NA B112KP-DN2	R NA B112LB-DN2
B02	R NA B022KG-DN2	R NA B022KH-DN2	R NA B022KP-DN2	R NA B022LB-DN2
B12	R NA B122KG-DN2	R NA B122KH-DN2	R NA B122KP-DN2	R NA B122LB-DN2
B22	R NA B222KG-DN2	R NA B222KH-DN2	R NA B222KP-DN2	R NA B222LB-DN2
G11	L NA G112KG-DN2	L NA G112KH-DN2	L NA G112KP-DN2	L NA G112LB-DN2
G02	L NA G022KG-DN2	L NA G022KH-DN2	L NA G022KP-DN2	L NA G022LB-DN2
G12	L NA G122KG-DN2	L NA G122KH-DN2	L NA G122KP-DN2	L NA G122LB-DN2
G22	L NA G222KG-DN2	L NA G222KH-DN2	L NA G222KP-DN2	L NA G222LB-DN2
Max. speed	page 219 - type 1	page 219 - type 1	page 219 - type 1	1.5 m/s
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
Travel diagrams	page 220 - group 5	page 220 - group 5	page 220 - group 5	page 220 - group 5

Contact block	Round rod, Ø 3 mm, stainless steel	Glass fibre rod		Porcelain roller
B11	R NA B112LE-DN2	R NA B112LH-DN2	R NA B112LL-DN2	R NA B112LP-DN2E24
B02	R NA B022LE-DN2	R NA B022LH-DN2	R NA B022LL-DN2	R NA B022LP-DN2E24
B12	R NA B122LE-DN2	R NA B122LH-DN2	R NA B122LL-DN2	R NA B122LP-DN2E24
B22	R NA B222LE-DN2	R NA B222LH-DN2	R NA B222LL-DN2	R NA B222LP-DN2E24
G11	L NA G112LE-DN2	L NA G112LH-DN2	L NA G112LL-DN2	L NA G112LP-DN2E24
G02	L NA G022LE-DN2	L NA G022LH-DN2	L NA G022LL-DN2	L NA G022LP-DN2E24
G12	L NA G122LE-DN2	L NA G122LH-DN2	L NA G122LL-DN2	L NA G122LP-DN2E24
G22	L NA G222LE-DN2	L NA G222LH-DN2	L NA G222LL-DN2	L NA G222LP-DN2E24
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 220 - group 5	page 220 - group 5	page 220 - group 5	page 220 - group 5

Cable and M12 connector

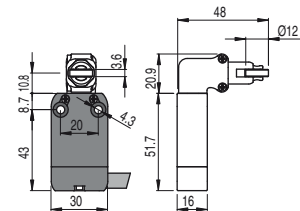
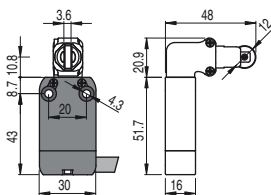
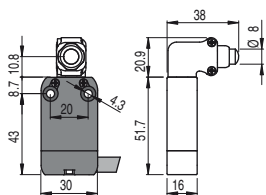
All values in the drawings are in mm



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

Contact type:

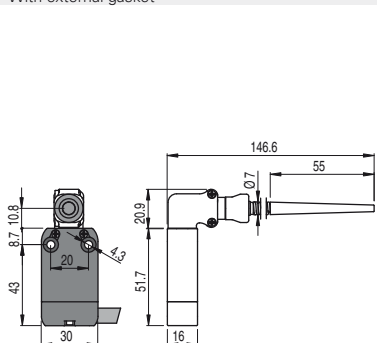
- R** = snap action
- L** = slow action



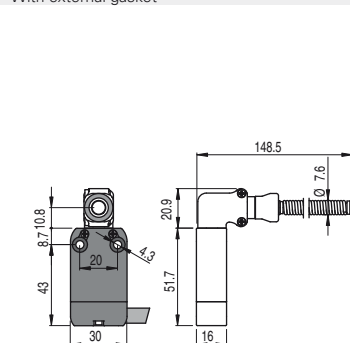
Contact block

B11	R	NA B110AB-DN2W5	↻ 1NO+1NC	NA B110BB-DN2H0W5	↻ 1NO+1NC	NA B110BB-DN2W5	↻ 1NO+1NC
B02	R	NA B020AB-DN2W5	↻ 2NC	NA B020BB-DN2H0W5	↻ 2NC	NA B020BB-DN2W5	↻ 2NC
B12	R	NA B120AB-DN2W5	↻ 1NO+2NC	NA B120BB-DN2H0W5	↻ 1NO+2NC	NA B120BB-DN2W5	↻ 1NO+2NC
B22	R	NA B220AB-DN2W5	↻ 2NO+2NC	NA B220BB-DN2H0W5	↻ 2NO+2NC	NA B220BB-DN2W5	↻ 2NO+2NC
G11	L	NA G110AB-DN2W5	↻ 1NO+1NC	NA G110BB-DN2H0W5	↻ 1NO+1NC	NA G110BB-DN2W5	↻ 1NO+1NC
G02	L	NA G020AB-DN2W5	↻ 2NC	NA G020BB-DN2H0W5	↻ 2NC	NA G020BB-DN2W5	↻ 2NC
G12	L	NA G120AB-DN2W5	↻ 1NO+2NC	NA G120BB-DN2H0W5	↻ 1NO+2NC	NA G120BB-DN2W5	↻ 1NO+2NC
G22	L	NA G220AB-DN2W5	↻ 2NO+2NC	NA G220BB-DN2H0W5	↻ 2NO+2NC	NA G220BB-DN2W5	↻ 2NO+2NC
Max. speed		page 219 - type 4		page 219 - type 2		page 219 - type 2	
Actuating force		9.5 N (25 N ↻)		9.5 N (25 N ↻)		9.5 N (25 N ↻)	
Travel diagrams		page 220 - group 1		page 220 - group 1		page 220 - group 1	

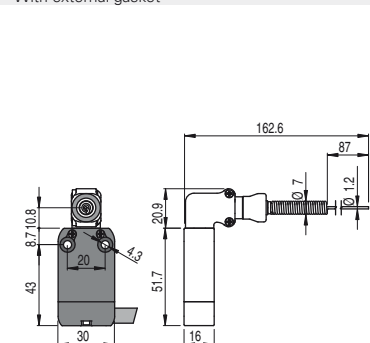
With external gasket



With external gasket



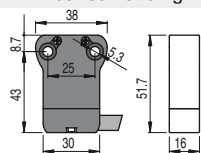
With external gasket



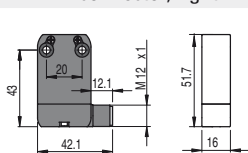
Contact block

B11	R	NA B110HB-DN2W5	1NO+1NC	NA B110HE-DN2W5	1NO+1NC	NA B110HH-DN2W5	1NO+1NC
B02	R	NA B020HB-DN2W5	2NC	NA B020HE-DN2W5	2NC	NA B020HH-DN2W5	2NC
B12	R	NA B120HB-DN2W5	1NO+2NC	NA B120HE-DN2W5	1NO+2NC	NA B120HH-DN2W5	1NO+2NC
B22	R	NA B220HB-DN2W5	2NO+2NC	NA B220HE-DN2W5	2NO+2NC	NA B220HH-DN2W5	2NO+2NC
G11	L						
G02	L	NA G020HB-DN2W5	2NC	NA G020HE-DN2W5	2NC	NA 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 220 - group 4		page 220 - group 4		page 220 - group 4	

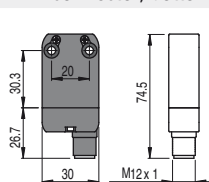
NB series housing



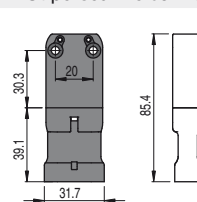
M12 connector, right



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

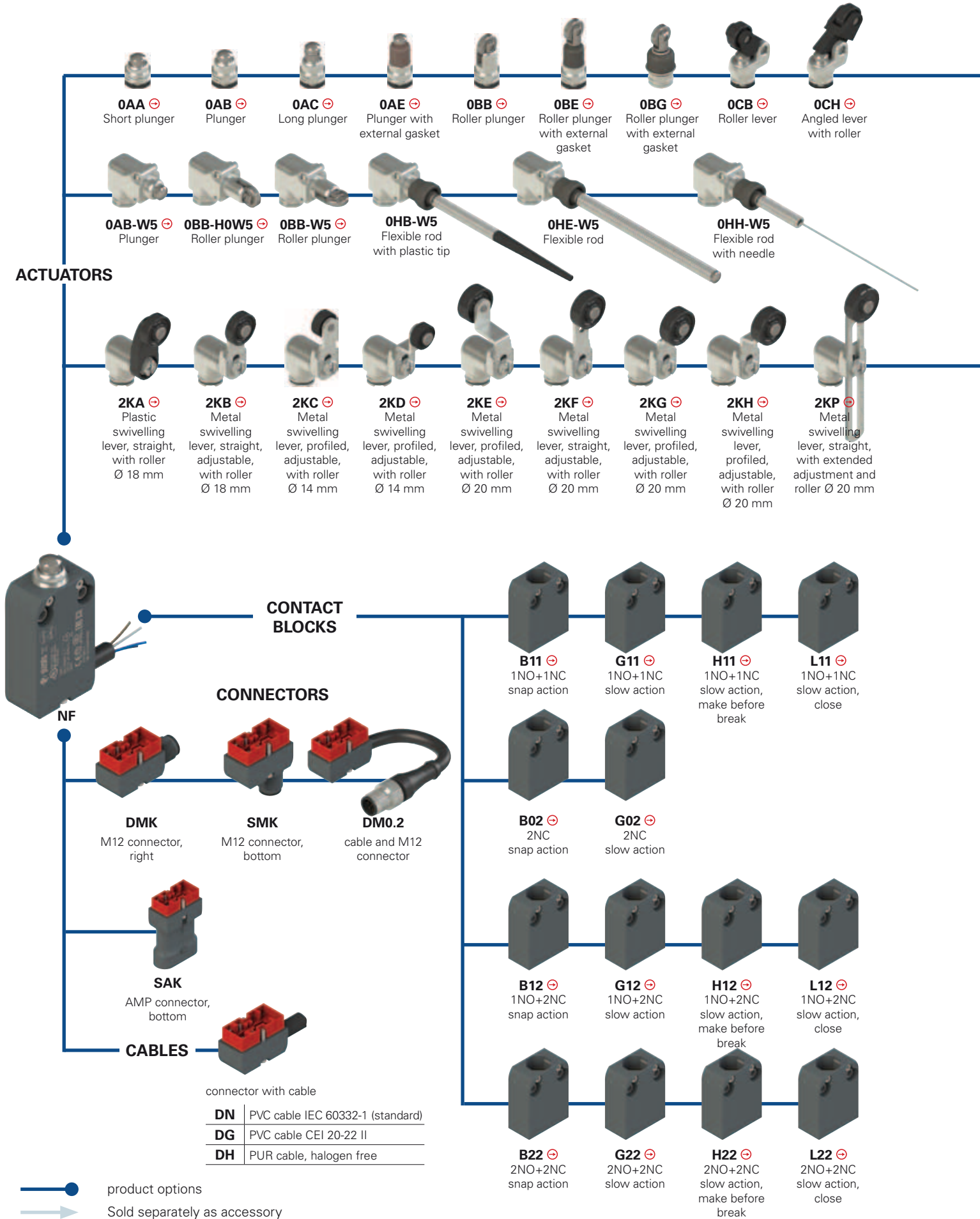
To order a product with M12 right connector, replace DN2 with DMK in the codes shown above. Example:
NA B110AA-DN2 → NA B110AA-DMK

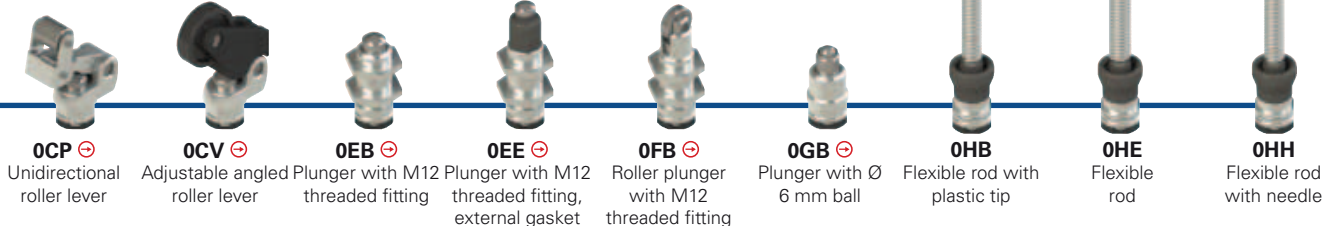
To order a product with M12 bottom connector, replace DN2 with SMK in the codes shown above. Example:
NA B110AA-DN2 → NA B110AA-SMK

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

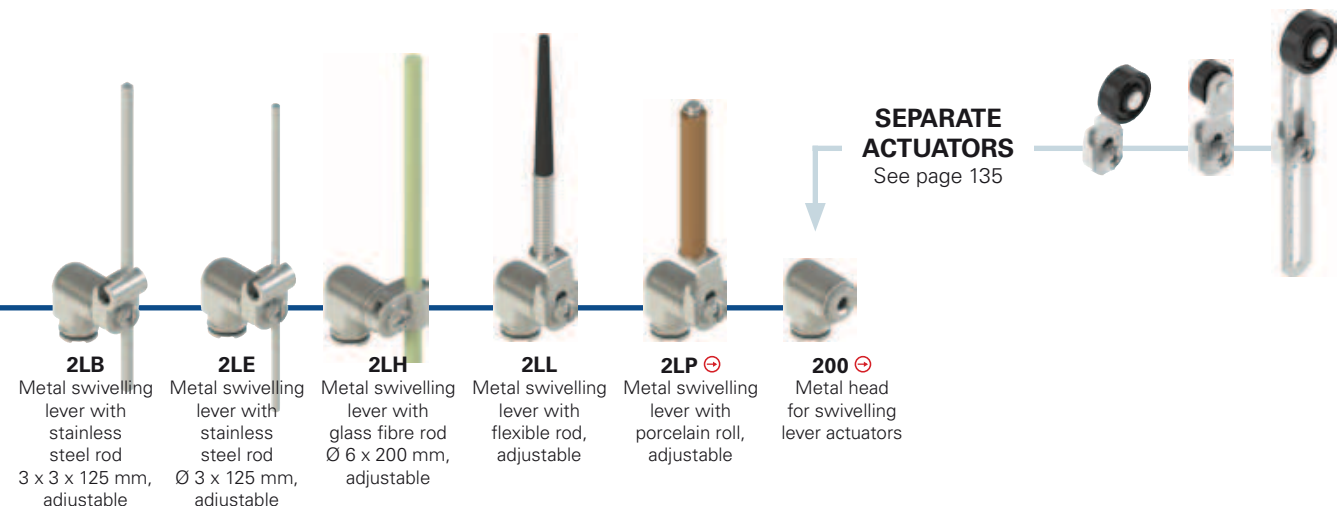
All values in the drawings are in mm

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, external gasket
- OFB** ⊕ Roller plunger with M12 threaded fitting
- OGB** ⊕ Plunger with Ø 6 mm ball
- OHB** Flexible rod with plastic tip
- OHE** Flexible rod
- OHH** Flexible rod with needle



- 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 flexible 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)
- 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
- 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

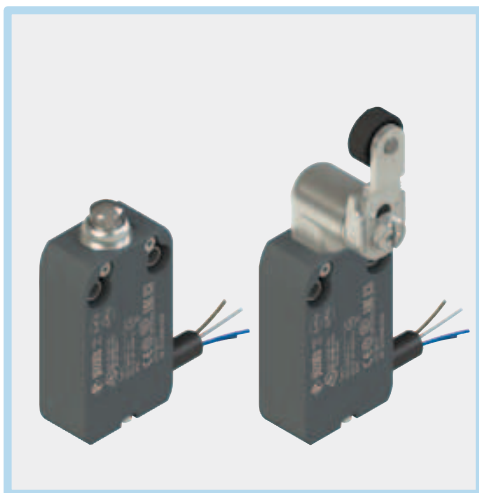
- silver contacts (standard)
- G** silver contacts, 1 µm gold coating

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 (standard)
- G** PVC cable CEI 20-22 II
- 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
- 14 contact blocks available
- 37 actuators available

Quality marks:



IMQ approval:	CA02.04562
UL approval:	E131787
CCC approval:	2013010305653520
EAC approval:	RU C-IT.A.135.B.00454

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 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)
Ambient temperature for switches with cable:	See table on page 128
Max. actuation frequency:	3600 operating cycles/hour
Mechanical endurance:	20 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 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:	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, 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 ⊕ 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 220. 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 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.**

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
MA terminals (crimped terminals)	
Pollution degree:	3
Utilization category:	AC15 / DC13 (with connector)
Operating voltage (U _e):	250 Vac (50 Hz) / 24 Vdc (with connector)
Operating current (I _e):	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.

Features approved by UL

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

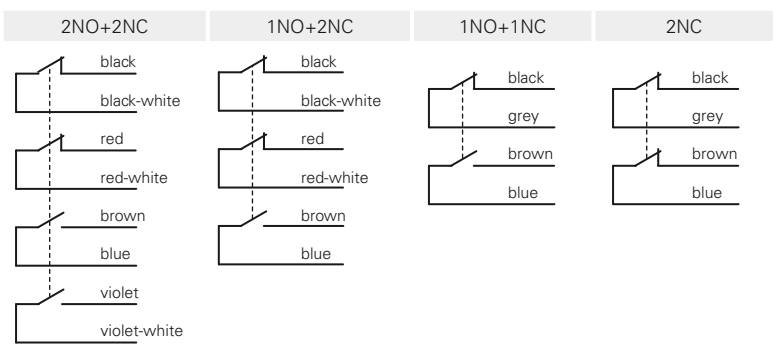


Ambient temperatures for switches with cable and electrical data

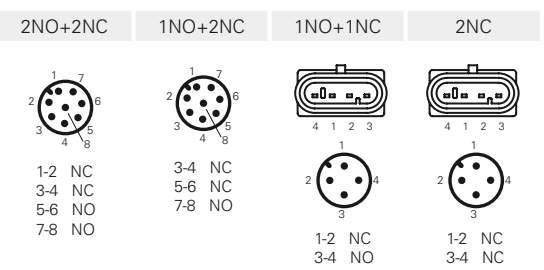
Connection type	Output with cable						Output with M12 connector		Output with AMP connector
	2 contacts			3 contacts	4 contacts		2 contacts	3 or 4 contacts	2 contacts
Cable or connector type	N	G	H	N	N	H	M12 connector, 5-pole	M12 connector, 8-pole	AMP Superseal 1.5 connector
Conductors	4x0.75 mm ²	4x0.75 mm ²	4x0.75 mm ²	6x0.5 mm ²	8x0.34 mm ²	8x0.34 mm ²	4x0.25 mm ²	8x0.25mm ²	
Application field	General	General	General, mobile installation	General	General	General, mobile installation	General	General	General
In compliance with standards	05VV-F	05VV-F	05EQ-H	03VV-F	03VV-F	03E7Q-H	03VV-H	03VV-H	/
Sheath	PVC	PVC	PUR HALOGEN FREE	PVC	PVC	PUR HALOGEN FREE	PVC	PVC	/
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	IEC60332-1-2 IEC60332-1-3	IEC 60332-1-2 IEC 60332-1-3	IEC 60332-1-2 IEC 60332-1-3	IEC60332-1-2 IEC60332-1-3	IEC60332-3 CEI 20-22 II	IEC60332-3 CEI 20-22 II	/
Oil resistant	/	/	UL 758	/	/	UL 758	ISO 6722-1	ISO 6722-1	/
Max. speed	/	/	300m/min	/	/	300m/min	50m/min	50m/min	/
Max. acceleration	/	/	30m/s ²	/	/	30m/s ²	5m/s ²	5m/s ²	/
Minimum bending radius	70 mm	70 mm	70 mm	108 mm	94mm	70 mm	75 mm	90 mm	/
Outer diameter	7 mm	7 mm	7 mm	7 mm	7 mm	7 mm	5 mm	5 mm	/
End stripped	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 6	Class 6	/

Ambient temperature with cable extended (T16)	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	/
	Cable, flexible installation	+5°C +70°C	+5°C +70°C	-25°C +80°C	-5°C +80°C	-5°C +80°C	-25°C +80°C	-25°C +80°C	-25°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	/	/	/
	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 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	
	125 V	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	
Utilization category AC15	24 V	4 A	4 A	4 A	3 A	3 A	4 A	2 A	4 A	
	120 V	4 A	4 A	4 A	3 A	3 A	4 A	/	4 A	
	250 V	4 A	4 A	4 A	3 A	3 A	4 A	/	4 A	
Approvals	CE cULus IMQ EAC CCC	CE EAC CCC	CE EAC	CE cULus IMQ EAC CCC	CE cULus IMQ EAC CCC	CE EAC	CE cULus IMQ EAC CCC	CE cULus EAC CCC	CE cULus EAC CCC	

Internal cable wiring



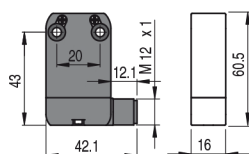
Connector pin assignment



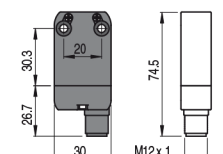
Contact type:						With external rubber gasket			
R = snap action L = slow action									
Contact block									
B11	R	NF B110AA-DN2	⊕ 1NO+1NC	NF B110AB-DN2	⊕ 1NO+1NC	NF B110AC-DN2	⊕ 1NO+1NC	NF B110AE-DN2	⊕ 1NO+1NC
B02	R	NF B020AA-DN2	⊕ 2NC	NF B020AB-DN2	⊕ 2NC	NF B020AC-DN2	⊕ 2NC	NF B020AE-DN2	⊕ 2NC
B12	R	NF B120AA-DN2	⊕ 1NO+2NC	NF B120AB-DN2	⊕ 1NO+2NC	NF B120AC-DN2	⊕ 1NO+2NC	NF B120AE-DN2	⊕ 1NO+2NC
B22	R	NF B220AA-DN2	⊕ 2NO+2NC	NF B220AB-DN2	⊕ 2NO+2NC	NF B220AC-DN2	⊕ 2NO+2NC	NF B220AE-DN2	⊕ 2NO+2NC
G11	L	NF G110AA-DN2	⊕ 1NO+1NC	NF G110AB-DN2	⊕ 1NO+1NC	NF G110AC-DN2	⊕ 1NO+1NC	NF G110AE-DN2	⊕ 1NO+1NC
G02	L	NF G020AA-DN2	⊕ 2NC	NF G020AB-DN2	⊕ 2NC	NF G020AC-DN2	⊕ 2NC	NF G020AE-DN2	⊕ 2NC
G12	L	NF G120AA-DN2	⊕ 1NO+2NC	NF G120AB-DN2	⊕ 1NO+2NC	NF G120AC-DN2	⊕ 1NO+2NC	NF G120AE-DN2	⊕ 1NO+2NC
G22	L	NF G220AA-DN2	⊕ 2NO+2NC	NF G220AB-DN2	⊕ 2NO+2NC	NF G220AC-DN2	⊕ 2NO+2NC	NF G220AE-DN2	⊕ 2NO+2NC
Max. speed		page 219 - type 4		page 219 - type 4		page 219 - type 4		page 219 - type 4	
Actuating force		7 N (25 N ⊕)		7 N (25 N ⊕)		7 N (25 N ⊕)		7 N (25 N ⊕)	
Travel diagrams		page 220 - group 1		page 220 - group 1		page 220 - group 1		page 220 - group 1	

Contact block		With external rubber gasket		With external rubber gasket		With stainless steel roller on request			
B11	R	NF B110BB-DN2	⊕ 1NO+1NC	NF B110BE-DN2	⊕ 1NO+1NC	NF B110BG-DN2	⊕ 1NO+1NC	NF B110CB-DN2	⊕ 1NO+1NC
B02	R	NF B020BB-DN2	⊕ 2NC	NF B020BE-DN2	⊕ 2NC	NF B020BG-DN2	⊕ 2NC	NF B020CB-DN2	⊕ 2NC
B12	R	NF B120BB-DN2	⊕ 1NO+2NC	NF B120BE-DN2	⊕ 1NO+2NC	NF B120BG-DN2	⊕ 1NO+2NC	NF B120CB-DN2	⊕ 1NO+2NC
B22	R	NF B220BB-DN2	⊕ 2NO+2NC	NF B220BE-DN2	⊕ 2NO+2NC	NF B220BG-DN2	⊕ 2NO+2NC	NF B220CB-DN2	⊕ 2NO+2NC
G11	L	NF G110BB-DN2	⊕ 1NO+1NC	NF G110BE-DN2	⊕ 1NO+1NC	NF G110BG-DN2	⊕ 1NO+1NC	NF G110CB-DN2	⊕ 1NO+1NC
G02	L	NF G020BB-DN2	⊕ 2NC	NF G020BE-DN2	⊕ 2NC	NF G020BG-DN2	⊕ 2NC	NF G020CB-DN2	⊕ 2NC
G12	L	NF G120BB-DN2	⊕ 1NO+2NC	NF G120BE-DN2	⊕ 1NO+2NC	NF G120BG-DN2	⊕ 1NO+2NC	NF G120CB-DN2	⊕ 1NO+2NC
G22	L	NF G220BB-DN2	⊕ 2NO+2NC	NF G220BE-DN2	⊕ 2NO+2NC	NF G220BG-DN2	⊕ 2NO+2NC	NF G220CB-DN2	⊕ 2NO+2NC
Max. speed		page 219 - type 2		page 219 - type 5		page 219 - type 5		page 219 - type 3	
Actuating force		7 N (25 N ⊕)		7 N (25 N ⊕)		7 N (25 N ⊕)		5 N (25 N ⊕)	
Travel diagrams		page 220 - group 1		page 220 - group 1		page 220 - group 1		page 220 - group 2	

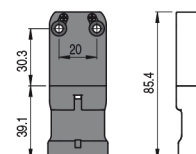
M12 connector, right



M12 connector, bottom



AMP Superseal 1.5 connector



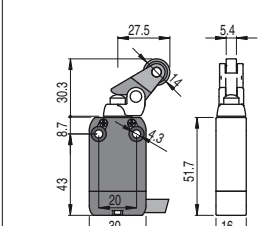
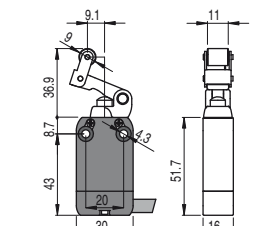
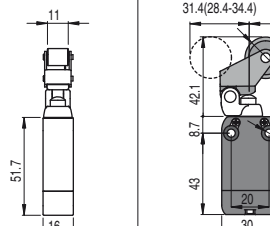
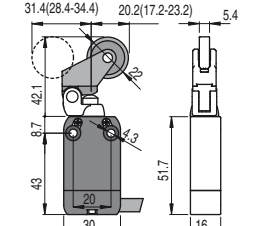
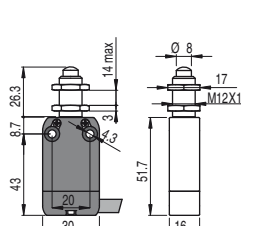
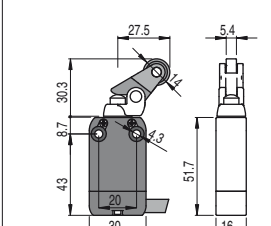
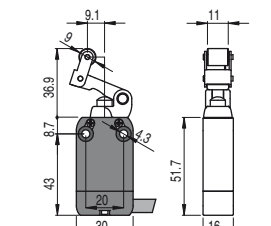
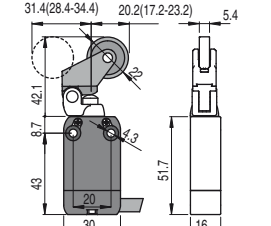
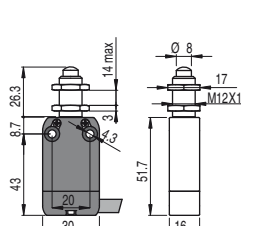




































To order a product with M12 right connector, replace DN2 with DMK in the codes shown above.
Example:
NF B110AA-DN2 → NF B110AA-DMK

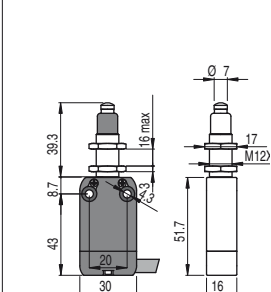
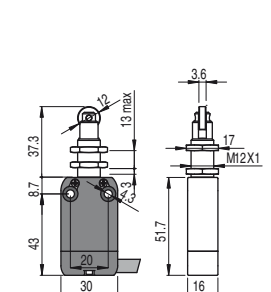
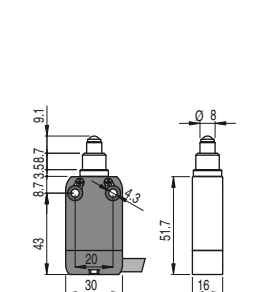
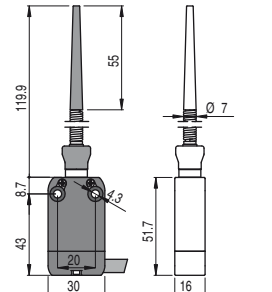



























To order a product with M12 bottom connector, replace DN2 with SMK in the codes shown above.
Example:
NF B110AA-DN2 → NF B110AA-SMK

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

All values in the drawings are in mm

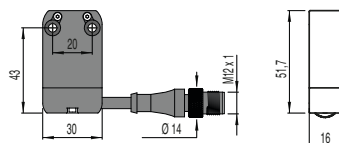


Contact type:	With stainless steel roller on request	Unidirectional operation	Secured only by means of threaded head	
		It does not switch  It switches 		
R = snap action L = slow action				
Contact block				
B11 R	NF B110CH-DN2  1NO+1NC	NF B110CP-DN2  1NO+1NC	NF B110CV-DN2  1NO+1NC	NF B110EB-DN2  1NO+1NC
B02 R	NF B020CH-DN2  2NC	NF B020CP-DN2  2NC	NF B020CV-DN2  2NC	NF B020EB-DN2  2NC
B12 R	NF B120CH-DN2  1NO+2NC	NF B120CP-DN2  1NO+2NC	NF B120CV-DN2  1NO+2NC	NF B120EB-DN2  1NO+2NC
B22 R	NF B220CH-DN2  2NO+2NC	NF B220CP-DN2  2NO+2NC	NF B220CV-DN2  2NO+2NC	NF B220EB-DN2  2NO+2NC
G11 L	NF G110CH-DN2  1NO+1NC	NF G110CP-DN2  1NO+1NC	NF G110CV-DN2  1NO+1NC	NF G110EB-DN2  1NO+1NC
G02 L	NF G020CH-DN2  2NC	NF G020CP-DN2  2NC	NF G020CV-DN2  2NC	NF G020EB-DN2  2NC
G12 L	NF G120CH-DN2  1NO+2NC	NF G120CP-DN2  1NO+2NC	NF G120CV-DN2  1NO+2NC	NF G120EB-DN2  1NO+2NC
G22 L	NF G220CH-DN2  2NO+2NC	NF G220CP-DN2  2NO+2NC	NF G220CV-DN2  2NO+2NC	NF G220EB-DN2  2NO+2NC
Max. speed	page 219 - type 3	page 219 - type 3	page 219 - type 3	page 219 - type 4
Actuating force	5 N (25 N )	3 N (25 N )	3 N (25 N )	7 N (25 N )
Travel diagrams	page 220 - group 2	page 220 - group 6	page 220 - group 3	page 220 - group 1

Contact block	Secured only by means of threaded head With external rubber gasket	Secured only by means of threaded head	Plunger with Ø 6 mm ball	With external rubber gasket
				
B11 R	NF B110EE-DN2  1NO+1NC	NF B110FB-DN2  1NO+1NC	NF B110GB-DN2  1NO+1NC	NF B110HB-DN2 1NO+1NC
B02 R	NF B020EE-DN2  2NC	NF B020FB-DN2  2NC	NF B020GB-DN2  2NC	NF B020HB-DN2 2NC
B12 R	NF B120EE-DN2  1NO+2NC	NF B120FB-DN2  1NO+2NC	NF B120GB-DN2  1NO+2NC	NF B120HB-DN2 1NO+2NC
B22 R	NF B220EE-DN2  2NO+2NC	NF B220FB-DN2  2NO+2NC	NF B220GB-DN2  2NO+2NC	NF B220HB-DN2 2NO+2NC
G11 L	NF G110EE-DN2  1NO+1NC	NF G110FB-DN2  1NO+1NC	NF G110GB-DN2  1NO+1NC	
G02 L	NF G020EE-DN2  2NC	NF G020FB-DN2  2NC	NF G020GB-DN2  2NC	NF G020HB-DN2 2NC
G12 L	NF G120EE-DN2  1NO+2NC	NF G120FB-DN2  1NO+2NC	NF G120GB-DN2  1NO+2NC	
G22 L	NF G220EE-DN2  2NO+2NC	NF G220FB-DN2  2NO+2NC	NF G220GB-DN2  2NO+2NC	
Max. speed	page 219 - type 4	page 219 - type 2	page 219 - 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 220 - group 1	page 220 - group 1	page 220 - group 1	page 220 - group 4

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:
 NF B110AA-DN2 → NF B110AA-DM0.2

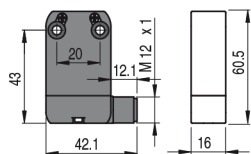
Contact type:
R = snap action
L = slow action

Contact block

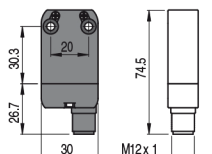
	With external rubber gasket		With external rubber gasket		With stainless steel roller on request		With stainless steel roller on request		
B11	R	NF B110HE-DN2	1NO+1NC	NF B110HH-DN2	1NO+1NC	NF B112KA-DN2	⊕ 1NO+1NC	NF B112KB-DN2	⊕ 1NO+1NC
B02	R	NF B020HE-DN2	2NC	NF B020HH-DN2	2NC	NF B022KA-DN2	⊕ 2NC	NF 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 219 - type 1		page 219 - 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 220 - group 4		page 220 - group 4		page 220 - group 5		page 220 - group 5		

	With stainless steel roller on request		With stainless steel roller on request		With stainless steel roller on request		With stainless steel roller on request		
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 219 - type 1		page 219 - type 1		page 219 - type 1		page 219 - 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 220 - group 5		page 220 - group 5		page 220 - group 5		page 220 - group 5		

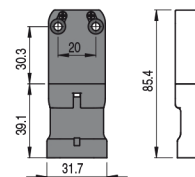
M12 connector, right



M12 connector, bottom



AMP Sealseal 1.5 connector



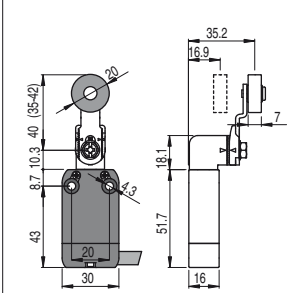
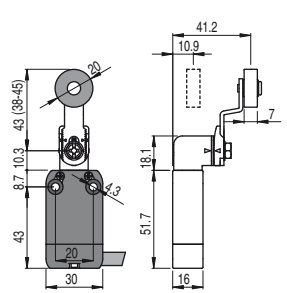
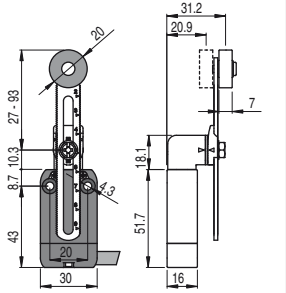
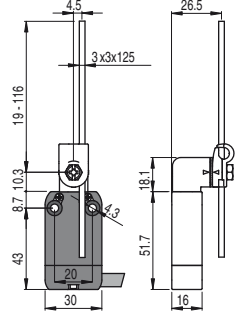
To order a product with M12 right connector, replace DN2 with DMK in the codes shown above.
 Example:
 NF B110AA-DN2 → NF B110AA-DMK

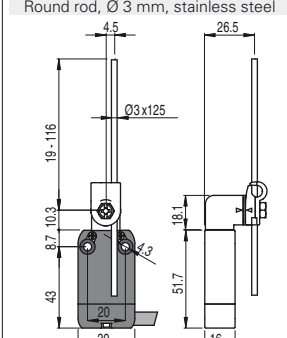
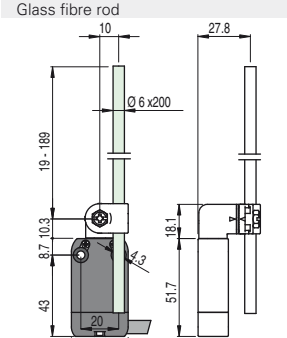
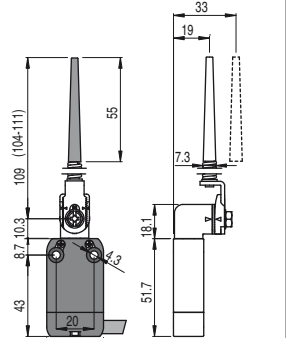
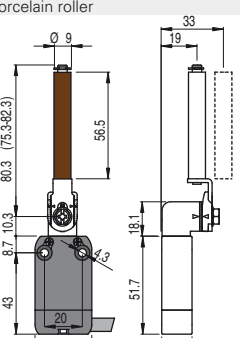
To order a product with M12 bottom connector, replace DN2 with SMK in the codes shown above.
 Example:
 NF B110AA-DN2 → NF B110AA-SMK

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

All values in the drawings are in mm

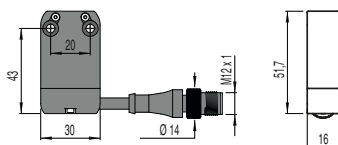


Contact type:	With stainless steel roller on request	With stainless steel roller on request	With stainless steel roller on request	Square rod, 3x3 mm, stainless steel
R = snap action L = slow action				
Contact block				
B11	R NF B112KG-DN2	R NF B112KH-DN2	R NF B112KP-DN2	R NF B112LB-DN2
B02	R NF B022KG-DN2	R NF B022KH-DN2	R NF B022KP-DN2	R NF B022LB-DN2
B12	R NF B122KG-DN2	R NF B122KH-DN2	R NF B122KP-DN2	R NF B122LB-DN2
B22	R NF B222KG-DN2	R NF B222KH-DN2	R NF B222KP-DN2	R NF B222LB-DN2
G11	L NF G112KG-DN2	L NF G112KH-DN2	L NF G112KP-DN2	L NF G112LB-DN2
G02	L NF G022KG-DN2	L NF G022KH-DN2	L NF G022KP-DN2	L NF G022LB-DN2
G12	L NF G122KG-DN2	L NF G122KH-DN2	L NF G122KP-DN2	L NF G122LB-DN2
G22	L NF G222KG-DN2	L NF G222KH-DN2	L NF G222KP-DN2	L NF G222LB-DN2
Max. speed	page 219 - type 1	page 219 - type 1	page 219 - type 1	1.5 m/s
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
Travel diagrams	page 220 - group 5	page 220 - group 5	page 220 - group 5	page 220 - group 5

Contact block	Round rod, Ø 3 mm, stainless steel	Glass fibre rod		Porcelain roller
				
B11	R NF B112LE-DN2	R NF B112LH-DN2	R NF B112LL-DN2	R NF B112LP-DN2E24
B02	R NF B022LE-DN2	R NF B022LH-DN2	R NF B022LL-DN2	R NF B022LP-DN2E24
B12	R NF B122LE-DN2	R NF B122LH-DN2	R NF B122LL-DN2	R NF B122LP-DN2E24
B22	R NF B222LE-DN2	R NF B222LH-DN2	R NF B222LL-DN2	R NF B222LP-DN2E24
G11	L NF G112LE-DN2	L NF G112LH-DN2	L NF G112LL-DN2	L NF G112LP-DN2E24
G02	L NF G022LE-DN2	L NF G022LH-DN2	L NF G022LL-DN2	L NF G022LP-DN2E24
G12	L NF G122LE-DN2	L NF G122LH-DN2	L NF G122LL-DN2	L NF G122LP-DN2E24
G22	L NF G222LE-DN2	L NF G222LH-DN2	L NF G222LL-DN2	L NF G222LP-DN2E24
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 220 - group 5	page 220 - group 5	page 220 - group 5	page 220 - group 5

Cable and M12 connector

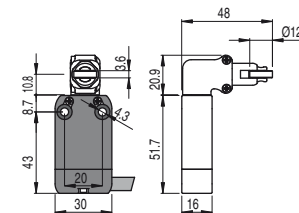
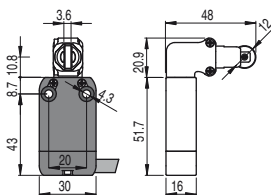
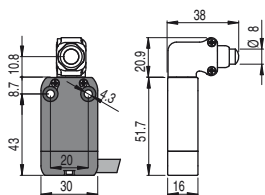
All values in the drawings are in mm



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

Contact type:

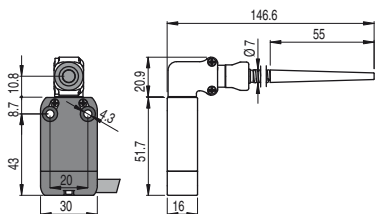
- R** = snap action
- L** = slow action



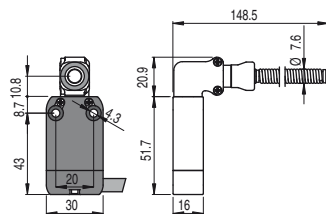
Contact block

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 219 - type 4		page 219 - type 2		page 219 - type 2	
Actuating force		9.5 N (25 N ↻)		9.5 N (25 N ↻)		9.5 N (25 N ↻)	
Travel diagrams		page 220 - group 1		page 220 - group 1		page 220 - group 1	

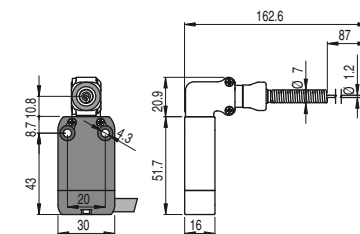
With external gasket



With external gasket



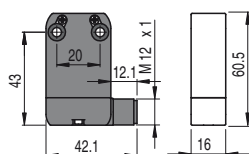
With external gasket



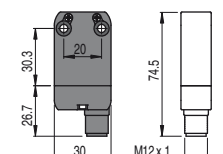
Contact block

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 220 - group 4		page 220 - group 4		page 220 - group 4	

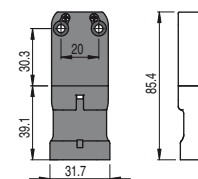
M12 connector, right



M12 connector, bottom



AMP Superseal 1.5 connector



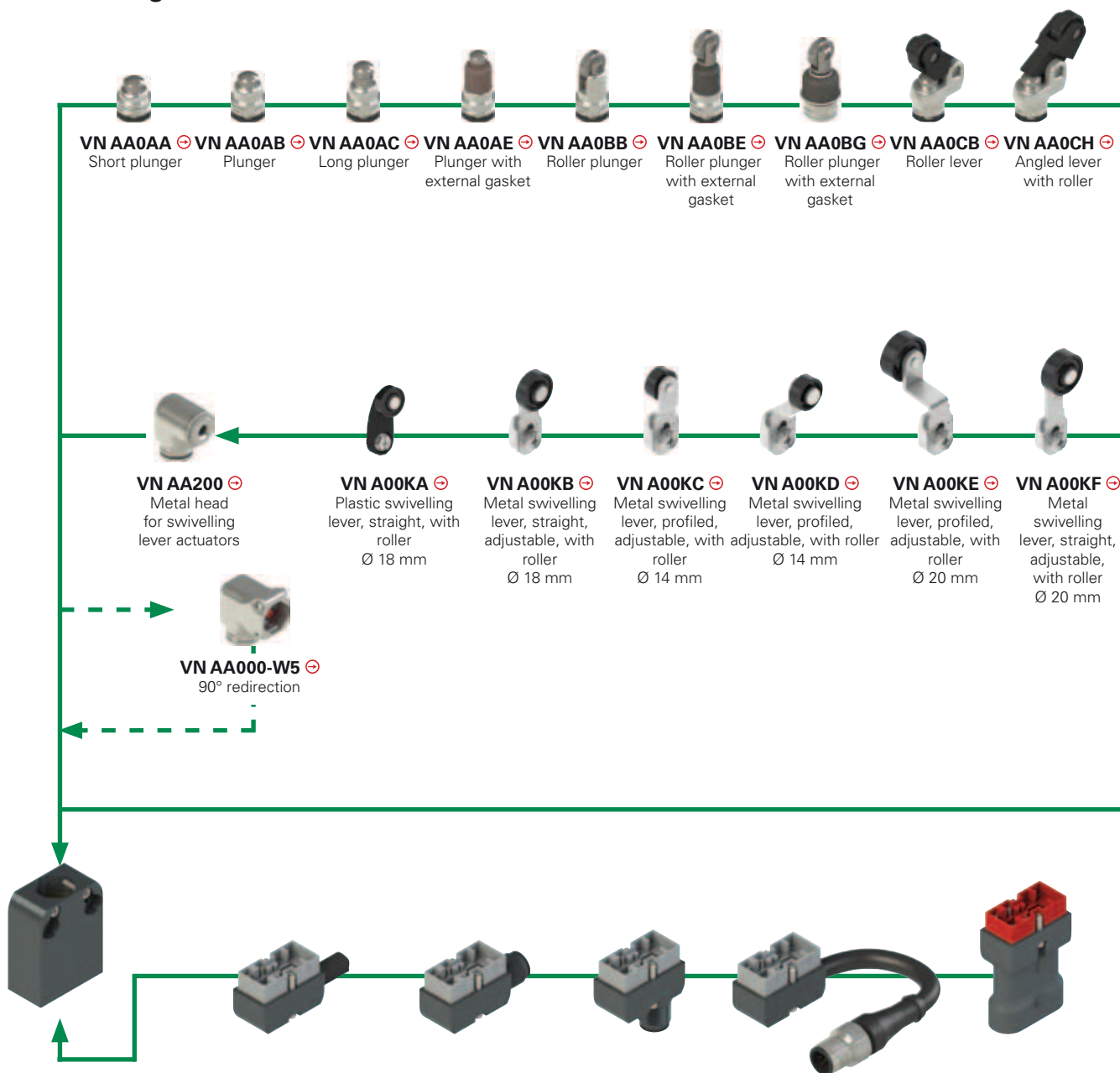
To order a product with M12 right connector, replace DN2 with DMK in the codes shown above.
Example:
NF B110AA-DN2 → NF B110AA-DMK

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

All values in the drawings are in mm

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



METAL housing, NA hole spacing 20 mm
NA B11000 ⊕ 1NO+1NC [R]
NA G11000 ⊕ 1NO+1NC [L]
NA L11000 ⊕ 1NO+1NC [LA]
NA H11000 ⊕ 1NO+1NC [LO]
NA B02000 ⊕ 2NC [R]
NA G02000 ⊕ 2NC [L]
NA B20000 ⊕ 2NO [R]
NA G20000 ⊕ 2NO [L]
NA B12000 ⊕ 1NO+2NC [R]
NA G12000 ⊕ 1NO+2NC [L]
NA L12000 ⊕ 1NO+2NC [LA]
NA H12000 ⊕ 1NO+2NC [LO]
NA B22000 ⊕ 2NO+2NC [R]
NA G22000 ⊕ 2NO+2NC [L]
NA L22000 ⊕ 2NO+2NC [LA]
NA H22000 ⊕ 2NO+2NC [LO]

Metal connector with cable	Cable length (m)
VN CM11DN2	2
VN CM11DN5	5
VN CM02DN2	2
VN CM02DN5	5
/	/
VN CM12DN2	2
VN CM12DN5	5
VN CM22DN2	2
VN CM22DN5	5

M12 metal connector, right
VN CM11DMK
VN CM02DMK
VN CM20DMK
VN CM12DMK
VN CM22DMK

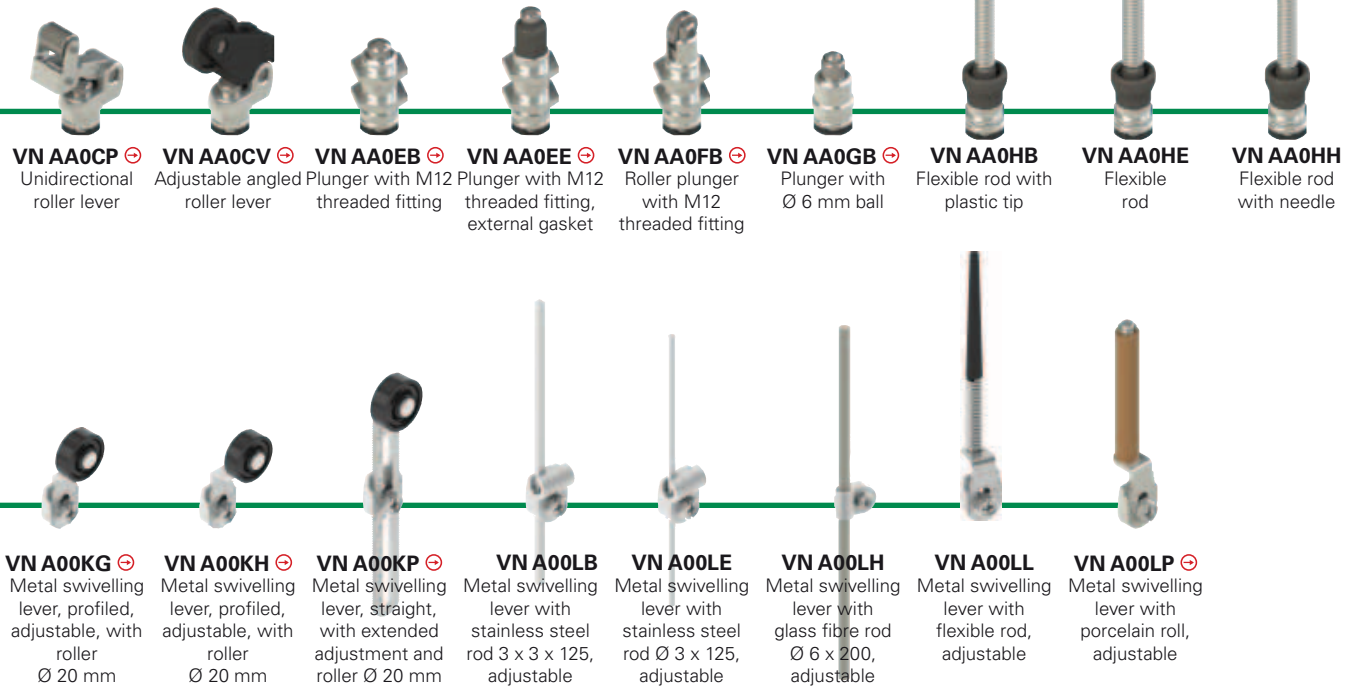
M12 metal connector, bottom
VN CM11SMK
VN CM02SMK
VN CM20SMK
VN CM12SMK
VN CM22SMK

Metal connector with cable and M12 connector	Cable length (m)
VN CM11DM0.2	0,2
VN CM02DM0.2	0,2
VN CM20DM0.2	0,2
VN CM12DM0.2	0,2
VN CM22DM0.2	0,2

AMP technopolymer connector, bottom
VN CM11SAK
VN CM02SAK
VN CM20SAK

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

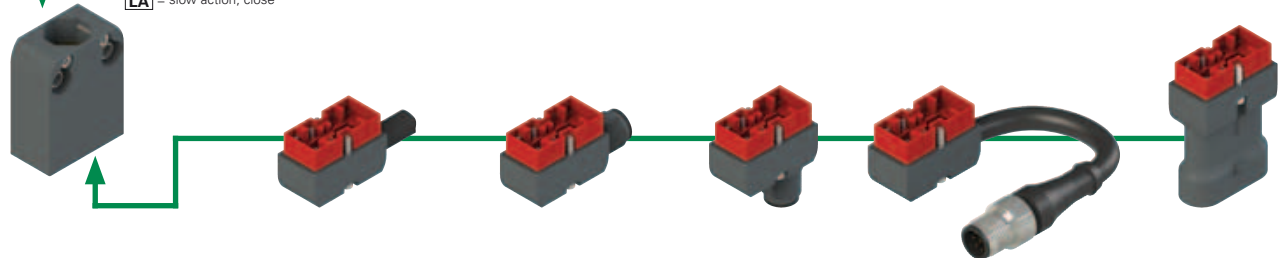
⚠ It is not allowed to install VN CM***** connectors on technopolymer housings



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, external gasket
VN AA0FB ⊕ Roller plunger with M12 threaded fitting
VN AA0GB ⊕ Plunger with Ø 6 mm ball
VN AA0HB Flexible rod with plastic tip
VN AA0HE Flexible rod
VN AA0HH Flexible rod with needle

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 flexible 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



NF TECHNOPOLYMER 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 CP22DMK	VN CP22SMK	VN CP22DM0.2	0,2	
NF G20000 ⊕ 2NO L	VN CP12DN5	5					
NF B12000 ⊕ 1NO+2NC R	VN CP22DN2	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

All values in the drawings are in mm

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

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



NF technopolymer housings	
NF B11000 ⊕ 1NO+1NC R	NF G11000 ⊕ 1NO+1NC L
NF L11000 ⊕ 1NO+1NC LA	NF H11000 ⊕ 1NO+1NC LO
NF B12000 ⊕ 1NO+2NC R	NF G12000 ⊕ 1NO+2NC L
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

Connectors with cable

All values in the drawings are in mm

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

Other cable lengths on request

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

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
VN CP11DMK 1NO+1NC	VN CP11SMK 1NO+1NC
VN CP02DMK 2NC	VN CP02SMK 2NC
VN CP22DMK 2NO+2NC	VN CP22SMK 2NO+2NC

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

AMP superseal 1.5 with cable and M12 connector	
VN CP11SAK 1NO+1NC	VN CP11DM0.2 1NO+1NC
VN CP02SAK 2NC	VN CP02DM0.2 2NC
VN CP20SAK 2NO	VN CP22DM0.2 2NO+2NC



Actuators

All values in the drawings are in mm

 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

All values in the drawings are in mm

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 (↻)	Levers with external metallic parts in stainless steel			
 VN A00KB-V38 (↻)	 VN A00KE-V38 (↻)	 VN A00KG-V38 (↻)	 VN A00KP-V38 (↻)		

Heads

 VN AA200 (↻)

90° redirection

 VN AA000-W5 (↻)
