

Code structure

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

BN AC<u>3</u>Z<u>A01</u>

Number of devices

- 1 device
- 2 devices
- 3 devices
- 4 devices
- 6 devices
- 7 devices
- 8 8 devices

Butt	on and connector configuration
	0
A01	A01 configuration
A02	A02 configuration
A03	A03 configuration
	other configurations on request



Main features

- Modular control device unit for 1 to 8 devices
- Rotatable fixing position
- Flush-mounted control devices
- Compact dimensions, minimal housing width
- Numerous control devices available

Quality marks:



E131787

Features approved by UL

Electrical ratings: 24 Vdc Class 2, 0,1 A

Model BN with base module dimensions 40 mm by 38.5 mm by 145.5 mm:

Input Supplied by 24 Vdc, Class 2 Source or limited voltage limited energy, 0,096 A max. (Maximum eight leds).

Output 24 Vac/dc "Class 2" 0.25 A Pilot Duty (Maximum eight Actuators, with maximum twelve contacts, NO or NC or both) or 0.18 A Pilot Duty (Maximum eight Actuators, with maximum sixteen contacts, NO or NC or both)

Model BN with base module dimensions 40 mm by 38.5 mm by 82.1 mm:

Input Supplied by 24 Vdc, Class 2 Source or limited voltage limited energy, 0,048 A max. (Maximum four leds).

Output 24 Vac/dc "Class 2" 0.25 A Pilot Duty (Maximum four Actuators, with maximum eight contacts, NO or NC or both) or 0.18 A Pilot Duty (Maximum four Actuators, with maximum eight contacts, NO or NC or both)

Environmental ratings: Type 1

Technical data

Housing made of glass fibre reinforced technopolymer, self-extinguishing and shock-proof Versions with 12x0.14 mm² or 8x0.25 mm² integrated cable, length 2 m, other lengths from 0.5 to 10 m on request Versions with integrated M12 stainless steel connector, single or double, or with M23 connector

Versions with 1megrated W12 stanless steel connector, single of double, of with M25 connector Versions with 2 m cable and M12 connector, other lengths from 0.1 ... 3 m on request Protection degree: IP65 acc. to EN 60529

General data Ambient temperature: Storage temperature: Fixing screws for the housing: Fixing screws for turnable modules: External protection fuse:	-25°C +70°C -40°C +80°C 2 x M5, tightening torque 3 Nm Tightening torque of 0.8 1.2 Nm 1 A type Gg or equivalent device		
Technical data of control devices Mechanical endurance: Spring-return button: Emergency stop button: Selector switch: Key selector switch:	1 million operati 50,000 operatin 300,000 operati 50,000 operatin 30,000 operatin removal of the k	g cycles ng cycles g cycles g cycles including	
Safety parameter B _{10D} : Actuating force: Spring-return button: Emergency stop button: Selector switch: Key selector switch: Material of the contacts: Contact type: Thermal current I _{th} : Rated insulation voltage U _i : Rated impulse withstand voltage U _{imp} :	130,000 (emerge min. 4 N min. 20 N min. 0.1 Nm min. 0.1 Nm silver contacts Self-cleaning cont interruption 1 A 32 Vac/dc 1.5 kV	max. 1.3 Nm	
Utilization category of the contact block: LED supply voltage: Single LED supply current:	DC-13; U _e = 24 V, I _e = 0.55 A 24 Vdc \pm 15% 12 mA		
M12 connector electrical data Max. operating voltage: Max. operating current:	32 Vac/dc max. 1.5 A		
M23 connector electrical data Max. operating voltage: Max. operating current:	32 Vac/dc Max. 3 A		

In compliance with standards:

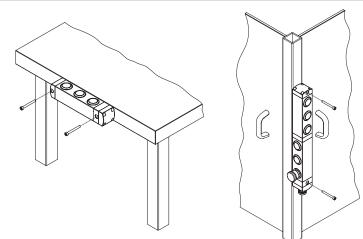
IEC 60947-5-1, IEC 60947-5-5, EN ISO 13850, UL 508, CSA C22.2 No. 14.

Compliance with the requirements of:

Machinery Directive 2006/42/EC, Low Voltage Directive 2014/35/EU, EMC Directive 2014/30/EU, RoHS Directive 2011/65/EU.

▲ Installation for safety applications: Always connect the safety circuit to the NC contacts (normally closed contacts) as stated in standard EN 60947-5-1.

Actuation of the control devices from various directions



Thanks to the design with turnable modules, the control device units of the BN series offer the user many different options for fixing to the machine.

The orientation of the control devices can be selected independent of the fastening.

With the configurations for 6, 7 and 8 devices, the upper and lower part can be oriented independent of one another. This is especially useful if it should be possible to achieve a command state from two different sides of the machine. In these cases, a single device and single wiring harness can be used, thereby saving time and money.

General data





The new modular control device units of the BN series from Pizzato Elettrica can be combined perfectly with the RFID safety switches with lock of the NS series. Machine manufacturers who already use these products thereby have the possibility to attach a control device unit directly next to the safety switch that is identical in shape and dimensions.

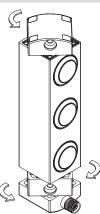
The control device units of the BN series are available in configurations with 1 to 8 devices. The unique design with individually turnable modules allows the user to select from a number of combinations. He receives a very versatile product that is immediately ready for use.

Compatibility with NS series switches



The control device units of the BN series have the same dimensions as the RFID safety switches with lock of the NS series. When mounted directly to the side of the switch, one obtains an integrated safety device whose components are made of the same material and have identical dimensions.

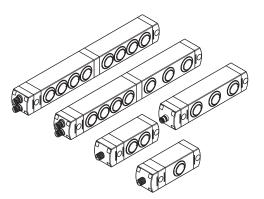
Turnable and non-detachable modules



During installation, the fixing modules can be turned on the top and bottom of the device to enable variable orientation of the control devices.

Operation is very simple: after loosening the fixing screws, the device body can be turned in steps of 90° and fixed in the desired position. Another advantage for the installer is that the fixing modules cannot be detached from the device body. Disassembly of the individual parts is not necessary and there is no risk of losing parts or reassembling incorrectly.

Individually and freely configurable



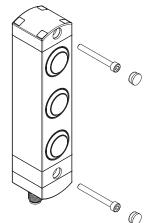
The control device unit is available in various configurations: for standard applications there are configurations with 1 to 4 devices, while configurations with 6, 7 or 8 devices are available for more complex applications that allow a larger number of control and signalling devices to be attached at the same location for the user.

Minimal dimensions

One special feature of the control device units of the BN series is the slim thickness of just 40 mm. The control devices are embedded in the housing of the unit and protrude only slightly out of the front. This protects the control devices from unintended impacts, thereby increasing the service life of the devices and, at the same time, giving the devices an attractive design, making them predestined for use on modern machines in which this aspect is also given special consideration.



Protection against tampering



Each control device unit of the BN series is supplied complete with snap-on protection caps to be applied on the holes of the fixing screws. Not only do the caps prevent deposits of dirt from accumulating and simplify cleaning, they also prevent access to the fixing screws of the device, thereby offering increased protection against tampering.

Removable and laser-markable lenses



With all product configurations, a number of devices can be installed that can also be illuminated via LEDs integrated in the device.

The buttons are equipped with removable lenses that can be laser-marked for a resistant, indelible engraving. This allows customization of the lenses with a wide range of text and symbols, and replace-

ment with lenses of a different colour or with different markings. For a full list of available markings, see the Accessories chapter on page 371 General Catalogue Safety Devices.

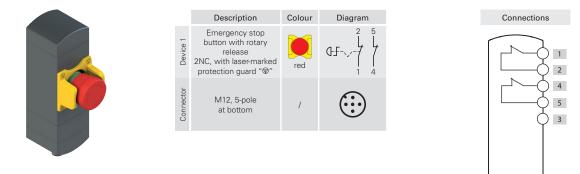
Protection guard for emergency stop button



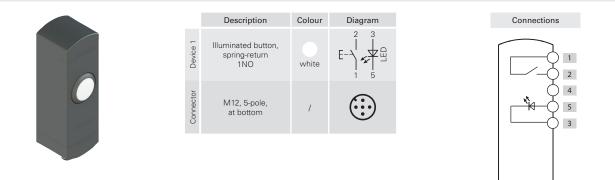
The mushroom-shaped emergency stop button can be combined with a yellow protection guard that serves to protect the device from shocks. The protection guard can also be provided with a laser marking in accordance with EN ISO 13850.

Examples of available configurations

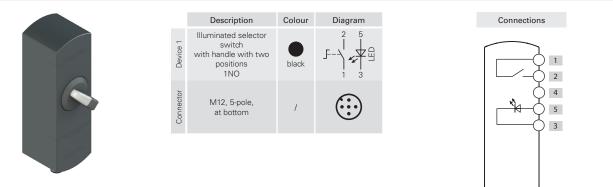
BN AC1ZA12



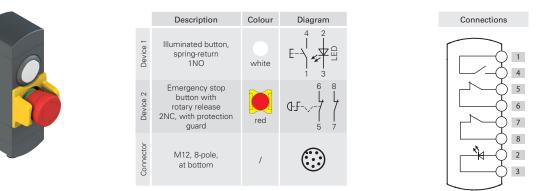
BN AC1ZA02



BN AC1ZA03

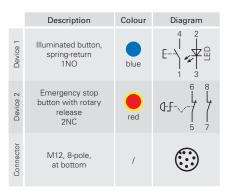


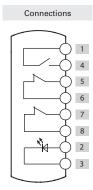
BN AC2ZA26



BN AC2ZA02



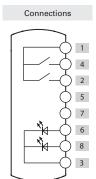




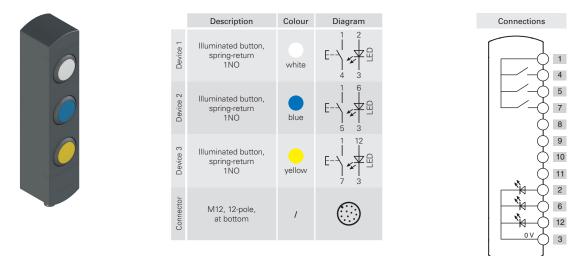
BN AC2ZA03



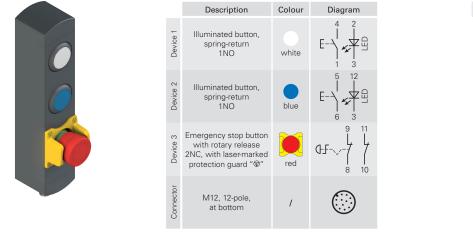
	Description	Colour	Diagram
Device 1	Illuminated button, spring-return 1NO	white	
Device 2	Illuminated button, spring-return 1NO	blue	$E - \frac{1}{2} \frac{1}{3} \frac{1}{3}$
Connector	M12, 8-pole, at bottom	/	

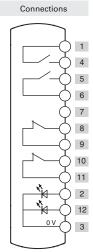


BN AC3ZA01

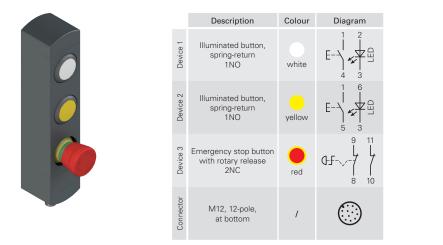


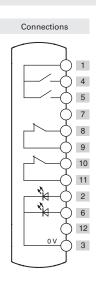
BN AC3ZB59





BN AC3ZA03



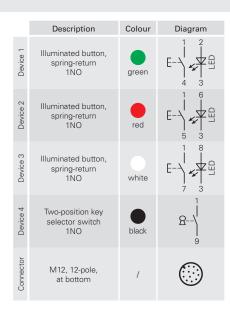


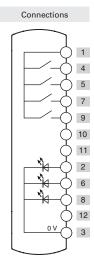
For pin assignments of the connectors, see page 12



BN AC4ZA01

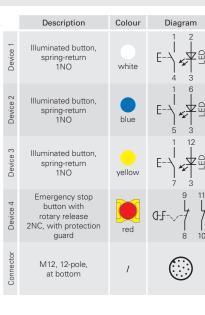


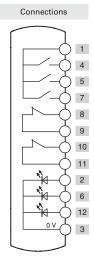




BN AC4ZB19

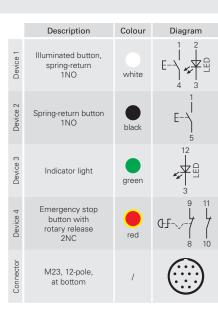


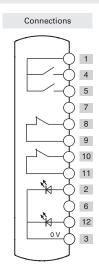




BN AC4ZA03





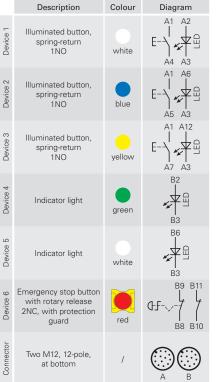


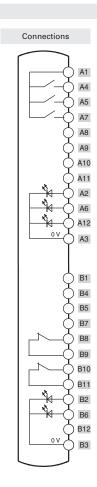
For pin assignments of the connectors, see page 12



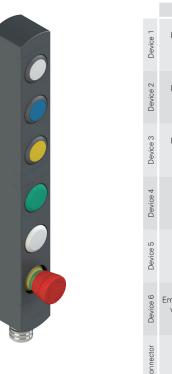
BN AC6ZA40

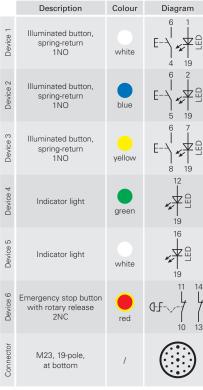


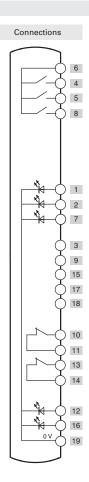




BN AC6ZA02

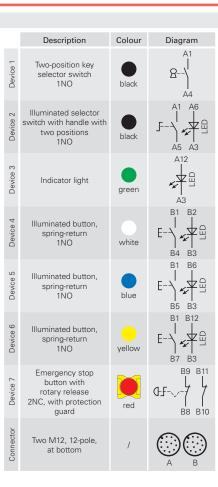


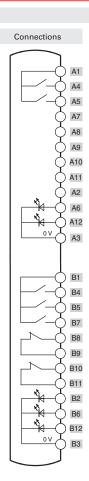




BN AC7ZA07

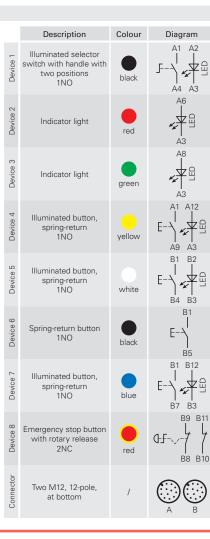


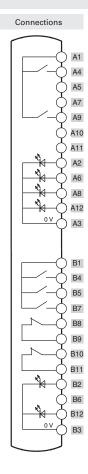




BN AC8ZA01







For pin assignments of the connectors, see page 12



Available control devices

	Description	Colour	Spare part number	Combinable with contacts	Protrusion (x) mm
0	Illuminated button, spring-return	White Red Green Yellow Blue	VN NG-AC27121 VN NG-AC27123 VN NG-AC27124 VN NG-AC27125 VN NG-AC27126	1NO (1NC) (2NO) (1NO+1NC)	3
	Non-illuminated button, spring-return	Black	VN NG-AC27122	1NO (1NC) (2NO) (1NO+1NC)	3
	Non-laser-markable, illuminated, projecting spring-return push button	Red	VN NG-AC26018	1NO (1NC) (2NO) (1NO+1NC)	6,1
	Indicator light	 Red Yellow Green Blue White 	VN NG-AC26060 VN NG-AC26061 VN NG-AC26062 VN NG-AC26063 VN NG-AC26064	/	2,7
	Emergency stop button acc. to. EN ISO 13850 Rotary release Push-pull release	 Red Red 	VN NG-AC26052 VN NG-AC26055	2NC	26,4
	Emergency stop button acc. to. EN ISO 13850 for 2NC + 1NO contacts, spring-return ⁽²⁾			2NC + 1NO, spring-return	26,4
	Rotary release	Red	VN NG-AC26056		
	Illuminated emergency stop button acc. to. EN ISO 13850 Rotary release Push-pull release	 Red Red 	VN NG-AC26051 VN NG-AC26054	2NC	26,4
	Simple stop button Rotary release Push-pull release	 Black Black 	VN NG-AC26053 VN NG-AC26057	2NC	26,4
	Illuminated selector switch with handle with 2 or 3 positions and transparent lens for LED	 Black Black Black Black 	VN NG-AC26033 VN NG-AC26030 VN NG-AC26034 VN NG-AC26031	1NO (1NC) (2NO) (1NO+1NC)	16,8
	Key selector switch, 2 or 3 positions	BlackBlackBlack	VN NG-AC26043 VN NG-AC26040 VN NG-AC26041	1NO (1NC) (2NO) (1NO+1NC)	39 (a) 14 (b)
	Closing cap	 Black 	VN NG-AC26020	/	2,7
	Fixing key	Black	VN NG-AC26080	/	/

¹⁰ The contacts in brackets are on request. Contact our technical department to verify the effective feasibility of the control device unit with the chosen combination of control devices. ²¹ The NO contact with spring-return is only activated if the emergency stop button reaches the limit of travel. The signal of the NO contact is captured by analysing the rising edge.

To order buttons with marking: add the marking code indicated in the chapter Accessories on page 371 General Catalogue Safety Devices to the article codes. Example: Black spring-return button with "O" engraving. VN NG-AC27122 → VN NG-AC27122-L1







Technical data of the control devices

min. 4 N

min. 0.1 Nm

min. 0.1 Nm

General data

Protection degree: Mechanical endurance: Spring-return button: Emergency stop button: Selector switch: Key selector switch:

IP65 acc. to EN 60529

1 million operating cycles 50,000 operating cycles 300,000 operating cycles 50,000 operating cycles 30,000 operating cycles including removal of the key 130,000 (emergency stop button)

max. 100 N

max. 100 N

max. 1.5 Nm

max. 1.3 Nm

Safety parameter B_{10D}: Actuating force

Spring-return button: Emergency stop button: min. 20 N Selector switch: Key selector switch:

Contact blocks of the control devices

Material of the contacts: silver contacts Contact type:

Self-cleaning contacts with double interruption

Electrical data:

Thermal current I_{th}: Rated insulation voltage U: Rated impulse withstand voltage U LED supply voltage: LED supply current:

1 A 32 Vac/dc 1.5 kV 24 Vdc ± 15% 10 mA per LED

Utilization category of the contact block:

Direct current: DC13 U (V) I (A) 24 0.55

Signalling contact with spring return:

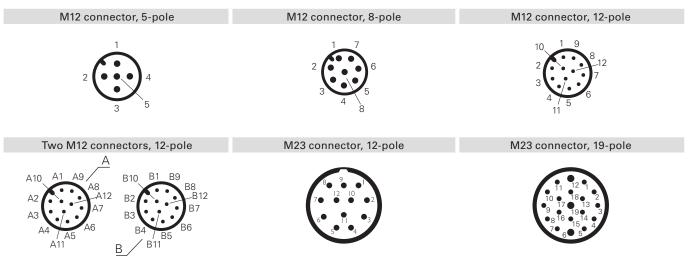
Direct current: DC13 U_e (V) 24 l (mA) 10

In compliance with standards: IEC 60947-5-1, IEC 60947-5-5, EN ISO 13850

▲ Installation for safety applications:

Always connect the safety circuit to the $\ensuremath{\text{NC}}$ contacts (normally closed contacts) as stated in standard EN 60947-5-1.

Internal connections for versions with connector



Internal connections for versions with cable

5 poles		8 poles		12 poles		
	Cable 5x0.34 mm²		Cable 8x0.25 mm²	$ \begin{array}{c} 10 & 1 & 9 \\ 2 & & & & \\ 3 & & & & & \\ 4 & & & & & \\ 4 & & & & & \\ 11 & & & & & \\ \end{array} $	Cable 12x0.14 mm²	
Pin	Wire colour	Pin	Wire colour	Pin	Wire colour	
1	Brown	1	White	1	Brown	
2	White	2	Brown	2	Blue	
3	Blue	3	Green	3	White	
4	Black	4	Yellow	4	Green	
5	Grey	5	Grey	5	Pink	
		6	Pink	6	Yellow	
		7	Blue	7	Black	
		8	Red	8	Grey	
				9	Red	
				10	Purple	
				11	Grey-Pink	
				12	Red-Blue	

Lenses for VN NG-AC •• series buttons

	Article	Description	Colours	Pieces/ package
	VN NG-AC01	Lens for flush button, black, without engraving		10
	VN NG-AC02	Lens for flush button, white, without engraving	\bigcirc	10
	VN NG-AC03	Lens for flush button, red, without engraving		10
	VN NG-AC04	Lens for flush button, green, without engraving		10
	VN NG-AC05	Lens for flush button, yellow, without engraving		10
	VN NG-AC06	Lens for flush button, blue, without engraving		10
	VN NG-ACA0	6 lenses for flush button without engraving, colours: black, white, red, green, yellow and blue		1
		Lenses with engraving		
	Article	Description	Colours	Pieces/ package
	VN NG-AC01-•••	Lens for flush button, black, with engraving		1
	VN NG-AC02-•••	Lens for flush button, white, with engraving	\bigcirc	1
(RESET)	VN NG-AC03-•••	Lens for flush button, red, with engraving		1
	VN NG-AC04-•••	Lens for flush button, green, with engraving		1
5	VN NG-AC05-•••	Lens for flush button, yellow, with engraving		1
	VN NG-AC06-•••	Lens for flush button, blue, with engraving		1

The black lens cannot be used with illuminated buttons.

For ordering engraved lenses for buttons: replace the dots •••• in the article codes with the engraving code reported in the chapter Accessories on page 371 General Catalogue Safety Devices.

Example: white lens for flush button with "O" engraving. VN NG-AC02-●●● → VN NG-AC02-L1

How to replace lenses on buttons

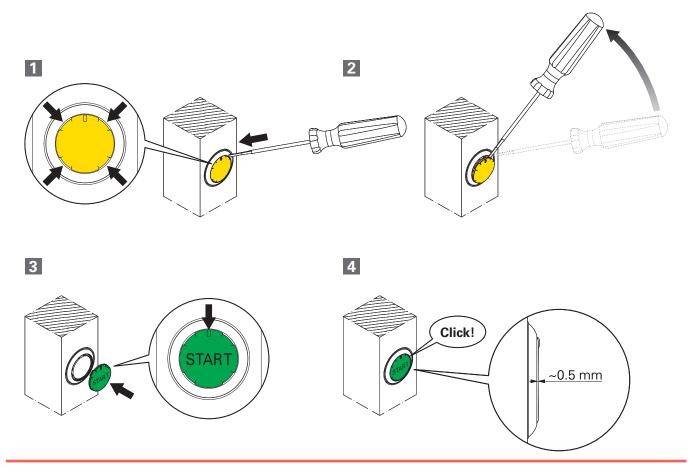
The buttons in the BN series control device units feature replaceable lenses. When replacing the lens on a button, work must be performed with care to avoid irreversibly damaging the button. It is therefore recommended to carefully follow the sequence of steps described below for replacing the button lenses, and to avoid applying excessive force:

Locate one of the four slots on the lens.

Insert a small flathead screwdriver or cutter into one of the slots and gently pry off the old lens. Be careful not to scratch or damage the _____button during this step.

Position the new lens parallel to the button, using the reference notch on the button to align the lens correctly. For proper lens installation, make sure the reference notch faces upwards, as shown in the figure, or turn the lens in 90° steps with respect to the vertical axis. If the ______ notch is not positioned correctly, the lens will not fit into the button and could be damaged.

Press down lightly and evenly on the lens until you hear a "click" confirming that the lens has snapped into place. Once properly installed, the lens should be perfectly horizontal and slightly raised — about 0.5 mm — above the edge of the button.



Dimensional drawings BN AC2••••

BN AC3••••

BN AC4 ••••

5.3

6

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159,4

38,8

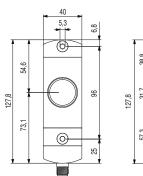
31.7

31,7

31,7

57,3

BN AC8 ••••



BN AC6 ••••

310,3

25

40 5,3

38,8

47,5

47,5

55,8

47,5

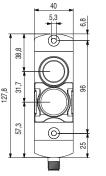
47,5

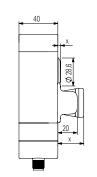
57,3

0

342.1

BN AC1 ••••





BN AC7 ····

310,3

25

38,8

47,5

47.5

55,8

31.7

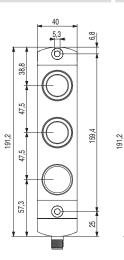
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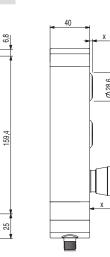
31.7

57,3

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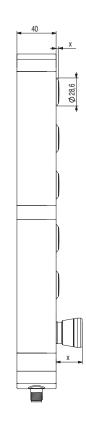
342,1

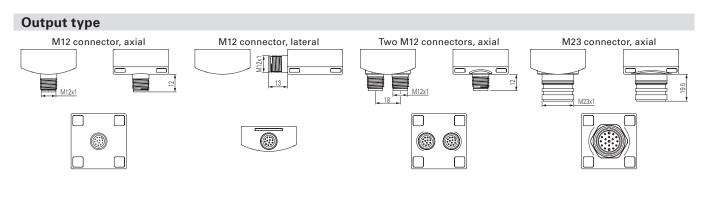




Ø 28,6

38,8 31,7 31,7 31,7 55,8 310,3 342,1 31,7 31,7 31,7 57,3 \bigcirc 25





All values in the drawings are in mm

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





General Catalogue Detection



General Catalogue HMI



General Catalogue Safety Devices



General Catalogue - PLCs & Safety Modules



General Catalogue Lift



Website www.pizzato.com



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