

## Instructions Manual for Cam Switches VSN10, VSN16, VSN20, VSR10, VSR16, VSR20

The VSN 10-20, VSR 10-20 series cam switches are tested as isolating switches suitable for safe isolating of electrical equipment; they are maintenance-free.

The cam switches must not be overloaded and the passing current must not exceed the specified thermal current without the cover (I<sub>th</sub>). The VSN10-20, VSR10-20 series switches are capable to switch on, switch off, and isolate safely the power circuits in machines and other devices.

In basic design, the switch body meets the IP 20 protection. In the case the switch is provided with two jumpers on a single terminal, the wire cannot be connected to this terminal!

The IP 65 protection from the front will be met under the following conditions:

- The cam switch must be fitted with a seal on its shaft;
- The switch must be secured through the front mounting holes;
- Opening for the shaft and bolts will be drilled according to the drawing, which is included in the installation plan.

The cam switches of up to six levels can be secured from front through the front mounting holes or from behind through the rear mounting holes. The switches higher than 6 levels must be secured through the front as well as rear mounting holes. The switch is possible to be mounted on the DIN rail only if it has maximum of 6 levels.

The warranty period for the cam switch is limited by the number of switching cycles of electrical and mechanical durability, but not more than 60 months from the date of delivery. The cam switches meet the requirements of the CSN EN 60 947-1 and CSN EN 60 947-3 standards.

When selecting the cam switches for given external influences, we recommend to consult the designer.

### Assembly procedure:

1. Secure the cam switches to the device through the front or rear sliding plate according to the switch type.
2. Connect the wires to the switch (maximum wire stripping length is 10 mm). If the maximum wire stripping length is exceeded or if unconnected terminals are not blinded, **the switch does not meet the IP 20 protection in these cases**. The connected wires must be lightened to avoid mechanical strain on the switch by the weight of the wires.
3. Check all the screws are tightened. The connecting terminal screws must be tightened to a specified tightening torque of 1 Nm. Failure to follow the specified torque can damage the switch!
4. Install a control and test the functions without load.

Installation must be carried out by a qualified electrician and the connection must comply with the relevant electrotechnical and safety regulations.

This product does not contain any hazardous substances. At the end of its life, it must be handled in terms of the applicable Waste Act, as amended.

Caution: Do not use the malfunctioning or damaged cam switch and secure it against use. The disassembly needs to be carried out by a qualified electrician. If the cam switch is not fitted with the control and the front plate, it must not be operated!



For further information on range of the cam switches, see the catalogue that can be found at [www.obzor.cz](http://www.obzor.cz). The printed catalogue can be requested by phone +420 577 195 151 or by email [marketing@obzor.cz](mailto:marketing@obzor.cz).

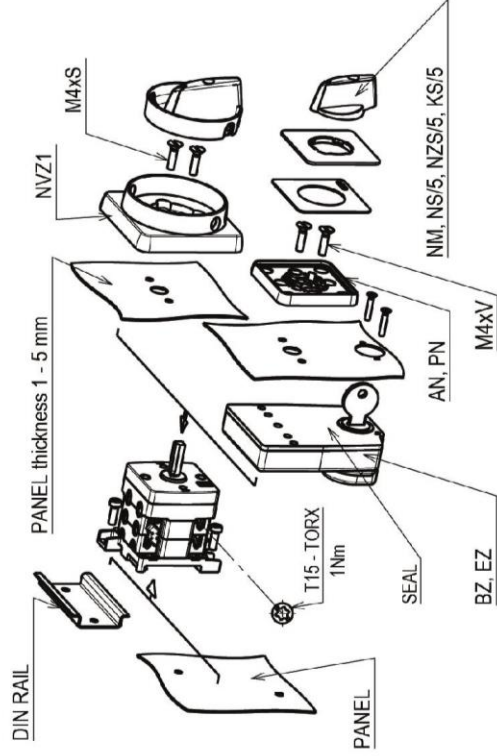
## Cam switches technical data

Type range	VSN10	VSR10	VSN16	VSR16	VSN20	VSR20
Suitable for safe disconnection:	YES					
Impuls withstand voltage (U <sub>imp</sub> )	4 kV		4 kV		4 kV	
Isolation voltage (U <sub>i</sub> )	690 V		690 V		690 V	
Thermal current without cover (I <sub>th</sub> )	10 A		16 A		20 A	
Thermal current with cover 95 x 95 x 102 (I <sub>th</sub> e)	10 A		16 A		20 A	
Nominal on-load voltage (U <sub>e</sub> ) / Working frequency	400 V / 500 V / 50 Hz					
Working current (I <sub>e</sub> )	AC 21	10 A		16 A		20 A
	AC 23	10 A		16 A		20 A
	AC 3	8 A		12 A		14 A
Short-term withstand current (I <sub>cw</sub> )	300 A / 1 s		400 A / 1 s		500 A / 1 s	
Short-circuit switching capacity (I <sub>cm</sub> )	200 A		230 A		280 A	
Conductor diameter (mm <sup>2</sup> )	1 - 4		1 - 4		1 - 4	
Maximum number of switching positions	12		12		12	
Maximum number of levels	12		12		12	
Maximum number of contacts	24		24		24	
Control shaft size (mm)	5 x 5		5 x 5		5 x 5	
Electrical endurance in AC3 classes acc. CSN EN 60947-3 chart A4	100 000		70 000		50 000	
Mechanical endurance (number of cycles)	250 000		250 000		250 000	
Maximum switching frequency / h	900		900		900	
Connection screw	torx n. 15		torx n. 15		torx n. 15	
Power dissipation (during max loading) per contact	0,9 W		1,4 W		1,8 W	
Weather resistance (°C)	- 40°C to + 50°C					
Mounting position	any					
Maximum tightening torque	1 Nm					
Front and backside mounting within hole spacing	30 mm					
Max. length of conductor stripping	10 mm					

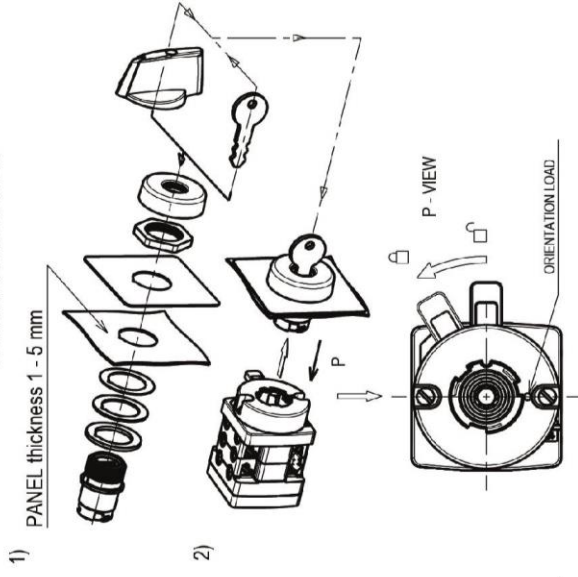
We offer technical assistance free of charge when selecting and ordering the cam switches – just call +420 577 195 153, +420 577 195 175.

# INSTALLATION PLAN VSN, VSR 10 - 20

## FRONT MOUNTED, BACK MOUNTED

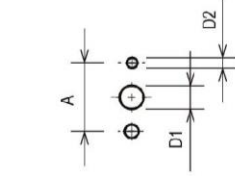


## CENTRAL MOUNTED

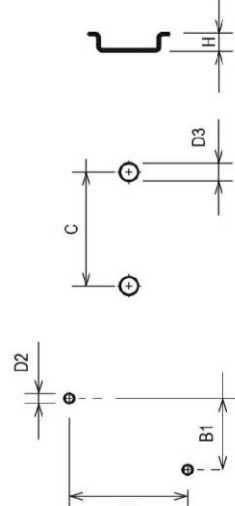


## INSTALLATION PLAN:

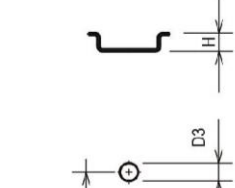
### FRONT MOUNTED - V



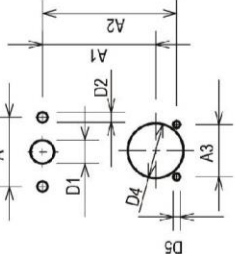
### BACK MOUNTED - Z



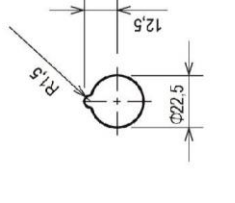
### DIN RAIL - Z



### BLOCK LOCK - BZ, EZ



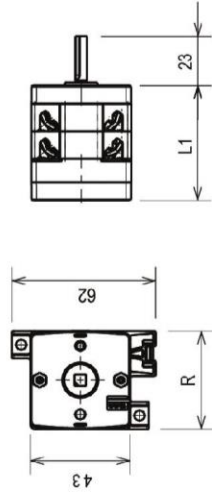
### CENTRAL MOUNTED - VZ2



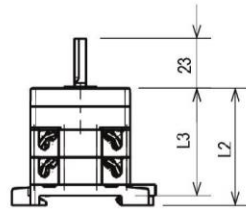
FRONT PANEL AN LOCKABLE EXTENSION	SCREW M4				BACK MOUNTED + DIN RAIL				BLOCK LOCK				SCREW M4								
	A	D1	D2	S	B1	B2	H	C	D3	BZ	EZ	BZ	EZ	BZ	EZ	D4	D5	V	PANEL		
FN	30	10	4,3	14	1-5	31	51	7,5	50	8	57,5	49	72	58,5	28	22	24	21	3	30	1-5
NVZ1																					

## DIMENSIONAL PLAN:

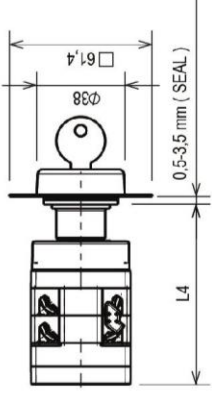
### FRONT MOUNTED - V



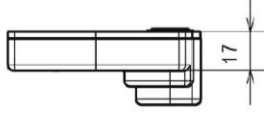
### BACK MOUNTED - Z



### CENTRAL MOUNTED - VZ2



### BLOCK LOCK - BZ, EZ



NUMBER OF LEVELS	L1		L2	L3	L4
	VSN	VSR			
1	38,3	34,5	39,3	35,1	67
2	50,3	46,5	51,3	47,1	79
3	62,3	58,5	63,3	59,1	91
4	74,3	70,5	75,3	71,1	103
5	86,3	82,5	87,3	83,1	115
6	98,3	94,5	99,3	95,1	127
7	110,3	106,5	111,3	107,1	139
8	122,3	118,5	123,3	119,1	151
9	134,3	130,5	135,3	131,1	163
10	146,3	142,5	147,3	143,1	175
11	158,3	154,5	159,3	155,1	187
12	170,3	166,5	171,3	167,1	199

## ALLOCATION OF CONTROLLERS TO FRONT PANELS

CONTROLLER FRONT PANEL	CONTROLLER			
	AN	PN	PNZ	2) PNZ
NM	✓	✓	✓	✓
NS/5	✓	✓	✓	✓
NZS/5	✓	✓	✓	✓
KS/5	✓	✓	✓	✓

## RECOMMENDED SWITCHING LEVERS

CONTROLLER	VSN 10 - 20	
	NUMBER OF LEVELS 1 - 6	7 - 12
NM	✓	✓
NS/5	✓	✓
NZS/5	✓	✓
KS/5	✓	✓
NVZ1	✓	✓

R	VSN	VSR
43	43	45

- WITH KEY CONTROL, THE SWITCHES CAN BE APPLIED ONLY UP TO 4 LEVELS BOTH REAR AND FRONT MOUNTING IS NECESSARY WITH MORE THAN 6 LEVELS.
- AS A SPARE PART ONLY

NOTE: dimensions in mm.