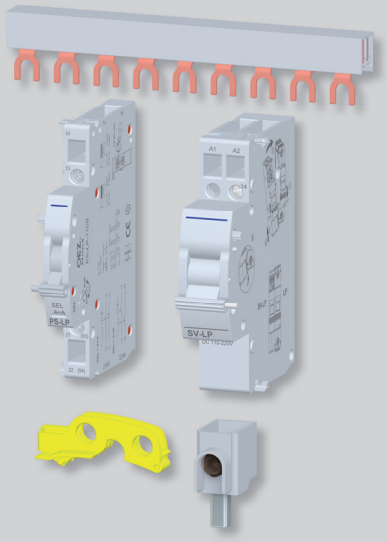
TUMBLER POWER SWITCHES



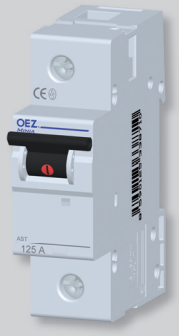
Tumbler power switches APN-..

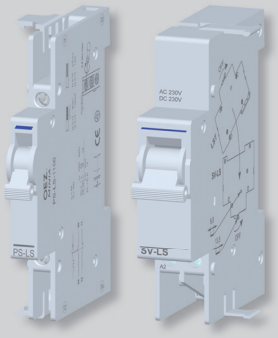
- For building, commercial and industrial installations up to 63 A, 230/400 V a.c.
- For electric circuit switching.
- Wide range of accessories – auxiliary switches, undervoltage releases and shunt trips, interconnecting busbars etc.
- Possible interconnection by means of busbars.

Rated operating current I_e	Number of poles	Type	Product code	Number of modules	Weight [kg]	Package [pcs]
32 A	1	**APN-32-1**	34338	1	0.12	12
	1+N	**APN-32-1N**	34339	2	0.235	6
	2	**APN-32-2**	34340	2	0.235	6
	3	**APN-32-3**	34341	3	0.355	4
	3+N	**APN-32-3N**	34342	4	0.47	3
63 A	1	**APN-63-1**	34343	1	0.12	12
	1+N	**APN-63-1N**	34344	2	0.235	6
	2	**APN-63-2**	34345	2	0.235	6
	3	**APN-63-3**	34346	3	0.355	4
	3+N	**APN-63-3N**	34347	4	0.47	3

Accessories

Auxiliary and relative switches	**PS-LP-..**	page B19
Shunt trips	**SV-LP-..**	page B22
Undervoltage releases	**SP-LP-..**	page B25
Locking insert	**OD-LP-VU01**	page B28
Sealing insert	**OD-LP-VP01**	page B29
Interpole barriers	**OD-LP-MP01**	page B30
Interconnecting busbars	**G1L-.., G2L-.., G3L-.., G4L-.., S1L-.., S2L-.., S3L-..**	page E49
Terminal extensions	**AS-..**	page E54





Tumbler power switches AST-..

- For building, commercial and industrial installations up to 125 A, 230/400 V a.c., 48 V d.c.
- For electric circuit switching.
- Wide range of accessories – auxiliary switches, undervoltage releases and shunt trips, interconnecting busbars etc.
- Possible interconnection by means of busbars.

Rated current I_n	Number of poles	Type	Product code	Number of modules	Weight [kg]	Package [pcs]
125 A	1	**AST-125-1**	37284	1.5	0.21	3
	3	**AST-125-3**	37285	4.5	0.63	1
	3+N	**AST-125-3N**	37286	6	0.84	1

Accessories

Auxiliary switches	**PS-LS-..**	page B19
Shunt trips	**SV-LS-..**	page B22
Undervoltage releases	**SP-LS-..**	page B25
Interconnecting busbars	**S1L-27-.., S3L-27-.., S4L-27-..**	page E49
Terminal extensions	**AS-50-S-AL01, CS-FH000-.., N3x10-FH000**	page E54

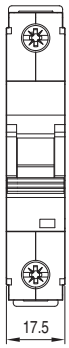
TUMBLER POWER SWITCHES

Specifications

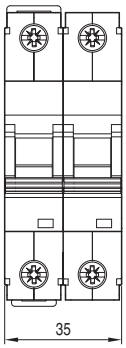
Type		APN-..	AST-..
Standards		EN 60947-3	EN 60947-3
Approval marks			
Number of poles		1, 1+N, 2, 3, 3+N	1, 3, 3+N
Rated operating current	I_e	32 A, 63 A	125 A
Rated operating voltage	U_e	230/400 V a.c.	230/400 V a.c., 48 V d.c.
Max. operating voltage	U_{max}	253/440 V a.c.	253/440 V a.c., 52 V d.c.
Min. operating voltage	U_{min}	12 V a.c./d.c.	12 V a.c./d.c.
Rated frequency	f_n	40 ÷ 60 Hz	40 ÷ 60 Hz
Rated conditional short-circuit current with backup fuse max 1:1 gG		10 kA	10 kA
Mechanical endurance		20 000 operating cycles	10 000 operating cycles
Electrical endurance		4 000 operating cycles	4 000 operating cycles
Rated impulse withstand voltage (1.2/50 µs)	U_{imp}	6 kV	6 kV
Overvoltage category (IEC 664-1)		IV	IV
Utilization category		AC-22A	AC-22A, DC-22A
Mounting on "U" rail according to EN 60715 - type		TH 35	TH 35
Degree of protection		IP20	IP20
Connection			
Conductor Cu – rigid (solid stranded)		0.5 ÷ 25 mm², 2x(0.5÷10) mm²	1.5 ÷ 50 mm², 2x16 mm²
Conductor Cu – flexible		0.5 ÷ 16 mm²	1.5 ÷ 50 mm², 2x16 mm²
Torque		2 Nm	3.5 Nm
Top or bottom connection		yes	yes
Operating conditions			
Ambient temperature		-20 ÷ + 55 °C	-20 ÷ + 55 °C
Working position		arbitrary	arbitrary

Dimensions

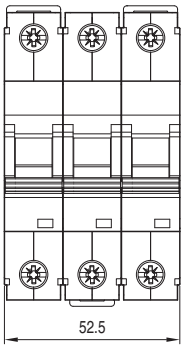
APN-..-1



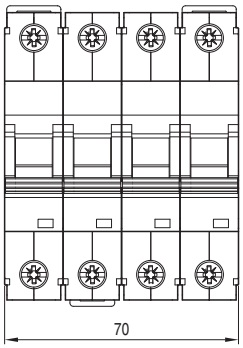
APN-..-1N
APN-..-2

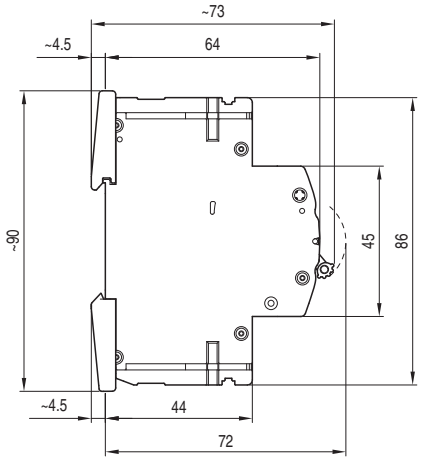


APN-..-3

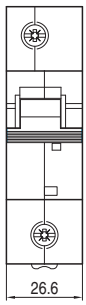


APN-..-3N

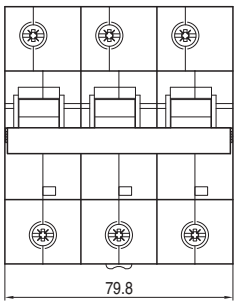




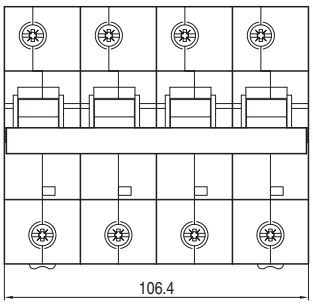
AST-..-1

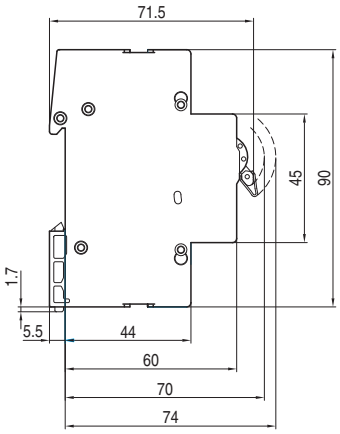


AST-..-3



AST-..-3N

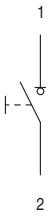




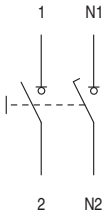
TUMBLER POWER SWITCHES

Diagram

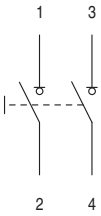
APN-..-1, AST-..-1



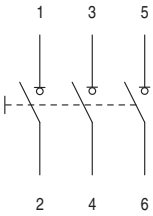
APN-..-1N



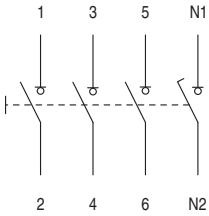
APN-..-2



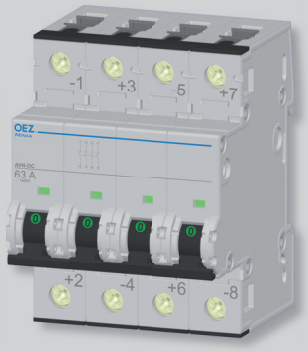
APN-..-3, AST-..-3



APN-..-3N, AST-..-3N



TUMBLER POWER SWITCHES



- Switch-disconnector, in particular for photovoltaic applications with high rated operating voltage up to 1000 V d.c.
- New terminal system.
- Easy connection and check of conductors.
- Possibility of connection up to 4 conductors in the terminal.
- Possibility of connection conductors of various cross sections.
- Easy installation by means of the new clip system on or from DIN rail.

Switch-disconnector AVN-DC-63-4

Rated operating current	Type	Product code	Number of modules	Weight [kg]	Package [pcs]
63 A	**AVN-DC-63-4**	39752	4	0.672	1

Auxiliary switch PS-LV-1100

- Accessories to AVN-DC-63-4.
- Installation: on the right side of the switch-disconnector.
- For signalling the position of contacts of the switch-disconnector.
- Rated operating voltage / current: AC-14 230 V / 6 A, DC-13 220 V / 1 A.
- Connection of conductors: 0.75 ÷ 2.5 mm².

Arrangement of contacts	Type	Product code	Number of modules	Weight [kg]	Package [pcs]
11 [1]	**PS-LV-1100-K**	38938	0.5	0.05	1

[1] Each digit indicates successively the number of make and break contacts

Specifications

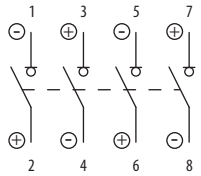
Type			**AVN-DC-63-4**
Standards			EN 60947-3, IEC/EN 60669-1
Approval marks			CE
Number of poles			4
Rated operating current		I_e	63 A
Rated operating voltage in connection 4 poles in series		U_e	1000 V d.c.
Min. voltage / current			24 V / 300 mA
Rated short-time withstand current	DC-1000 V 4 pole	I_{cw}	760 A
Rated short-circuit making capacity	DC-1000 V 4 pole	I_{cm}	500 A
Mechanical endurance			10 000 operating cycles
Electrical endurance			5 000 operating cycles
Rated power losses per pole			4.4 W
Rated impulse withstand voltage (1.2/50 µs)		U_{imp}	> 5 kV
Utilization category			DC-21B
Mounting on "U" rail according to EN 60715 - type			TH 35
Degree of protection			IP20
Connection			
Conductor Cu – rigid (solid, stranded)			0.75 ÷ 35 mm²
Conductor Cu – flexible (with a sleeve)			0.75 ÷ 25 mm²
Torque			2.5 ÷ 3 Nm
Top or bottom connection			yes [1]
Operating conditions			
Ambient temperature			-25 ÷ + 45 °C
Working position			Arbitrary

[1] It is necessary to observe the polarity marked on the device

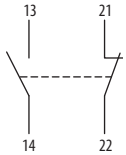
TUMBLER POWER SWITCHES

Diagram

AVN-DC-63-4

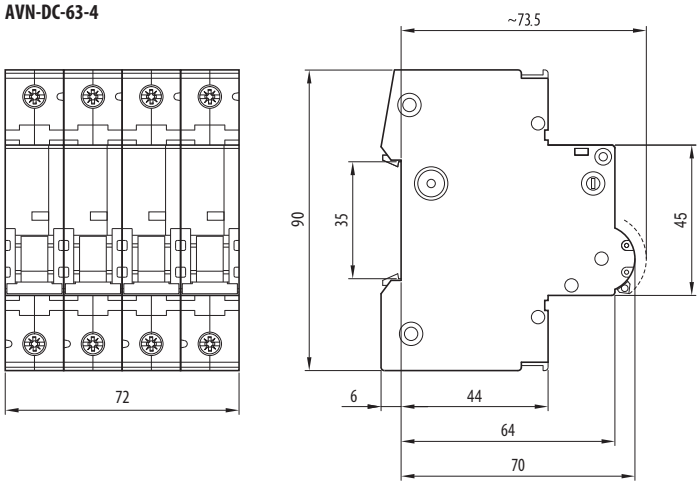


PS-LV-1100

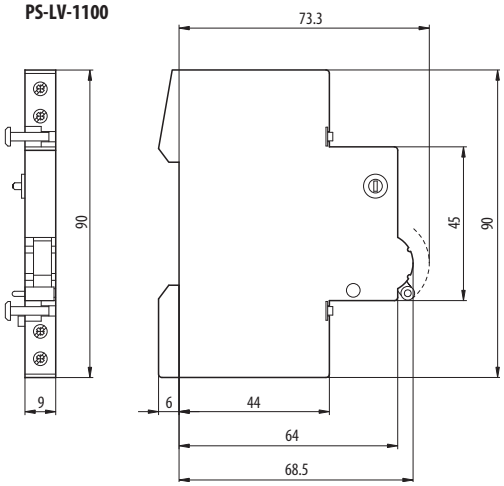


Dimensions

AVN-DC-63-4

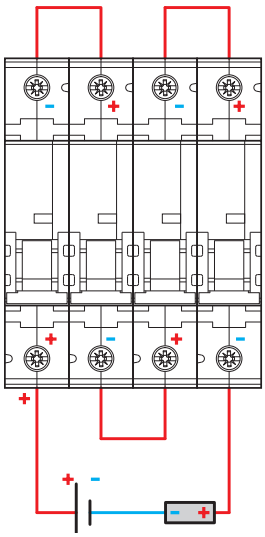


PS-LV-1100

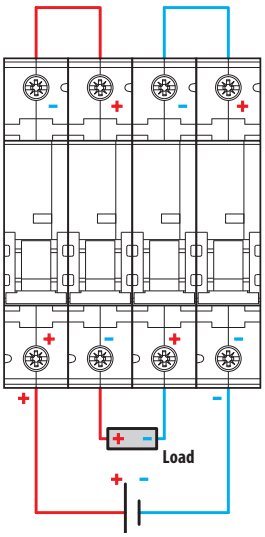


Connection

Both grounded and ungrounded systems
1000 V d.c.



Only ungrounded system
1000 V d.c.

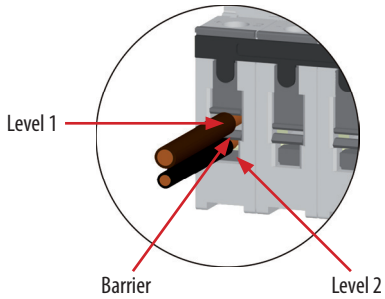


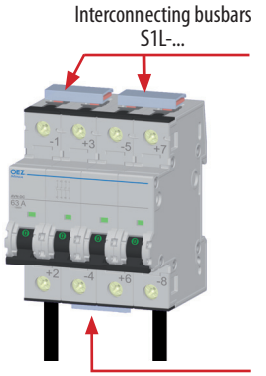
TUMBLER POWER SWITCHES

Connection of conductors and interconnecting busbars

Terminal system

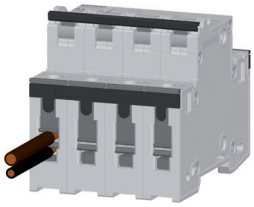
Design: two levels of terminals with a fixed barrier between them.
Connection: each level enables connection of both the conductor and interconnecting busbar (interconnecting busbars with pins, type „S“ are shown on page E52). This is possible from both sides of the device. For connection range see the table below.
Safety: the terminals are equipped with sliding plastic caps, which effectively increase protection against dangerous contact with live parts.

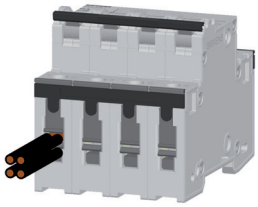




Advantages

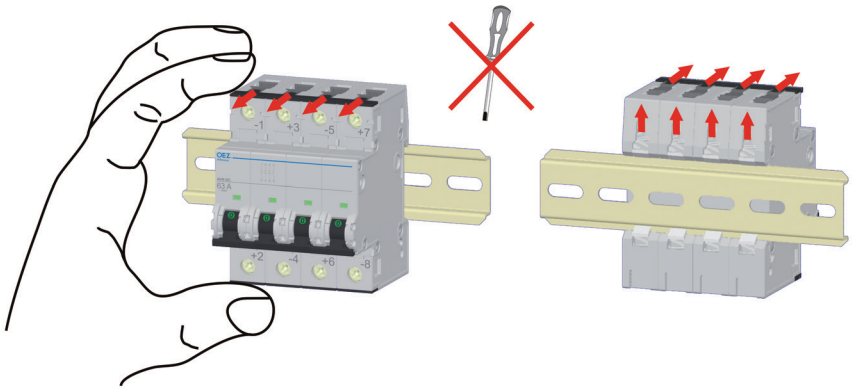
Possibility of connection:
- conductors of various cross sections
- up to 4 conductors in the terminal
- conductor of cross section up to 35 mm²





Mounting/demounting on/from „DIN“ rails

New system of latches enables:
- very quick mounting and demounting by hand, without any tool needed.
- withdrawal/replacement of the switch-disconnector from a row of devices interconnected by the interconnecting busbar up or down without interruption of adjacent circuit or removal of the busbar.



Connection range

Number of connected conductors	Rigid conductor (solid, stranded)		Conductor flexible with a sleeve	
	Level 1	Level 2	Level 1	Level 2
1× conductor	1× (≤ 35 mm²)		1× (≤ 25 mm²)	
		1× (≤ 25 mm²)		1× (≤ 16 mm²)
2× conductor	2× (≤ 10 mm²)		2× (≤ 6 mm²)	
		2× (≤ 6 mm²)		2× (≤ 4 mm²)
	1× (≤ 35 mm²)	1× (≤ 10 mm²)	1× (≤ 25 mm²)	1× (≤ 6 mm²)
	1× (≤ 25 mm²)	1× (≤ 16 mm²)		
	1× (≤ 16 mm²)	1× (≤ 25 mm²)	1× (≤ 16 mm²)	1× (≤ 16 mm²)
3× conductor	1× (≤ 35 mm²)	2× (≤ 6 mm²)	1× (≤ 25 mm²)	2× (≤ 2,5 mm²)
			1× (≤ 16 mm²)	2× (≤ 4 mm²)
	2× (≤ 10 mm²)	1× (≤ 25 mm²)	2× (≤ 6 mm²)	1× (≤ 16 mm²)
4× conductor	2× (≤ 10 mm²)	2× (≤ 6 mm²)	2× (≤ 6 mm²)	2× (≤ 4 mm²)