

C025...B CX25...B
C032...B CX32...B
C040...B CX40...B

PHOENIX CAM SWITCHES WITH TYPE "B" BASE MOUNTING (25 A / 32 A / 40 A)

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Before use, read this booklet carefully to acquaint yourself with the features of the product. This booklet is an integral part of the product and therefore must be kept until the product is dismissed.



Giovenzana International B.V. reserves the right to change the features and data shown in this document at any time and without notice. This document cannot therefore be considered a contract with third parties.



C0 and CX series cam switches are designed and manufactured according to IEC international standard and EN European regulations.



Any improper installation or any tampering of the device may cause serious personnel injury or property damage, therefore, the installation and maintenance must be performed by specialized and authorized personnel.



The use of this device is not allowed in environment with a potentially explosive atmosphere or in presence of corrosive substances and in salt spray.

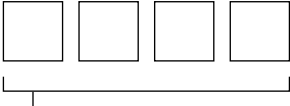
ATTENTION
Before any installation or maintenance operation, disconnect the power supply to the system. Before restoring the power supply, make sure that all connections to the device have been made correctly. Giovenzana International B.V. disclaims any responsibility for any damage to things and people caused by non-compliance with the rules described here.

Cam switches involved in this instruction manual:

Series	Mounting	Terminal protection class	AC-21A (690 V)	AC-23A (400 V)
C025...B	Base	IP20	25 A	22 A
C032...B			32 A	24 A
C040...B			40 A	32 A
CX25...B	Base	IP10	25 A	22 A
CX32...B			32 A	24 A
CX40...B			40 A	32 A

Read the page with the code reading for further useful information on the product in your possession. This instruction manual illustrates features and procedures relating to the products in the Giovenzana catalog. The specifications on p.3 and the mounting instructions on p.11, and following, are also valid for custom products derived from one of the series illustrated in this manual.

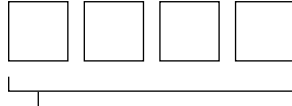
CODE READING



Series

Specifications: p.3

C025	12 A, IP20 contacts
C032	16 A, IP20 contacts
C040	20 A, IP20 contacts
CX25	12 A, IP10 contacts
CX32	16 A, IP10 contacts
CX40	20 A, IP10 contacts



Electrical scheme

Reference table: p.8

ON-OFF switches 0-1	
0002	2 poles
0003	3 poles
0004	4 poles
0006	6 poles
Changeover switches 1-0-2	
0008	1 pole
0009	2 poles
0010	3 poles
0011	4 poles



Cam switch mounting type

Overall dimensions: p.6

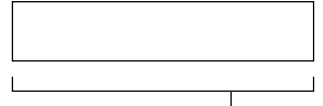
- B** base mounting
- S** custom product (these products have their own electrical scheme, not available in this document)

Actuator code

Each cam switch series can be fitted with one or more actuators with their own code.

This document provides the installation instructions for each cam switch series and its matching actuators.

Actuators reference table: p.9



SPECIFICATIONS

General characteristics

Protection class	control	EN 60529 UL50 / NEMA	IP65 Type 1 - 4 - 4X
	control with knob only		IP40
	terminals		C025... / C032... / C040... CX25... / CX32... / CX40... IP20 IP10
Material group		EN 60947-1	II
Pollution grade		EN 60947-1	3
Flammability		UL94	V0 (live electrical parts)
Ambient temperature	operating		-40 ... +85°C
	storage		-40 ... +70°C
Climate withstand		IEC 68 part 2-3 IEC 68 part 2-30	damp heat, steady state damp heat, cyclic
Terminal screw identification	conforming to		EN50013
Connections	terminal block caliber	EN60947-1	A5
	terminal screw		M4
	tightening torque	EN60947-1 UL508	1.2 N·m (10.6 lb·in) 12 lb·in (1.4 N·m)
Connectable section	flexible conductors		2 × 2.5 ... 10 mm ² AWG 14 ... 6
	solid conductors		2 × 2.5 ... 10 mm ² AWG 14 ... 6
Contacts			double breaking
Opening angles			30° - 45° - 60° - 90°
Mechanical lifetime	@ 120 operations / hour		1 million cycles
Electrical lifetime	@ 120 operations / hour		C025... / CX25... 1 million cycles C032... / CX32... 0.75 million cycles C040... / CX40... 0.75 million cycles

EN 60947-3 characteristics

		C025... / CX25...	C032... / CX32...	C040... / CX40...
Rated operating voltage	U _e	690 V	690 V	690 V
Rated insulation voltage	U _i	690 V	690 V	690 V
Rated impulse withstand voltage (sectionable)	U _{imp}	6 kV	6 kV	6 kV
Rated thermal current	I _{th}	32 A	40 A	50 A
Rated enclosed thermal current	I _{the}	25 A	32 A	40 A
Frequency		50/60 Hz	50/60 Hz	50/60 Hz

Alternate current

Rated operating current		le		C025... / CX25...	C032... / CX32...	C040... / CX40...			
AC-21A	Switching of resistive loads, including moderate overloads		690 V	25 A	32 A	40 A			
AC-22A	Switching of mixed resistive and inductive loads, including moderate overloads		690 V	25 A	32 A	40 A			
AC-23A	Switching of motor loads or other highly inductive loads	1 phase - 1 pole	110 V	25 A	1.5 kW	30 A	2.2 kW	35 A	3 kW
			230 V	25 A	4 kW	30 A	5.5 kW	35 A	6.5 kW
		3 phases - 3 poles	230 V	25 A	7.5 kW	30 A	9 kW	35 A	11 kW
			400 V	22 A	11 kW	24 A	15 kW	32 A	18.5 kW
			500 V	22 A	11 kW	27 A	18.5 kW	32 A	22 kW
690 V	20 A	15 kW	22 A	18.5 kW	25 A	22 kW			
AC-3	Squirrel-cage motors: starting, switches off motors during running time	1 phase - 1 pole	110 V	22 A	1.1 kW	25 A	1.5 kW	30 A	2.5 kW
			230 V	22 A	3.7 kW	25 A	4 kW	30 A	5.5 kW
		3 phases - 3 poles	230 V	18 A	5.5 kW	23 A	7.5 kW	27 A	9 kW
			400 V	18 A	7.5 kW	23 A	11 kW	27 A	15 kW
			500 V	18 A	11 kW	23 A	15 kW	27 A	18.5 kW
690 V	14 A	11 kW	18 A	15 kW	20 A	18.5 kW			
AC-23A	Nominal breaking capacity (cosφ 0.45)		230 V	200 A	240 A	280 A			
			400 V	176 A	216 A	256 A			
			500 V	176 A	216 A	256 A			
			690 V	160 A	176 A	200 A			

Direct current

Rated operating current		le		C025... / CX25...	C032... / CX32...	C040... / CX40...
DC-21A	Switching resistive loads with light overloads	1 phase	50 V	20 A *	25 A *	32 A *
DC-22A	Switching resistive loads with light overloads	1 phase	30 V	16 A *	20 A *	25 A *

* Values not reported on the IMQ files.

Short circuit characteristics

		C025... / CX25...	C032... / CX32...	C040... / CX40...
Rated short-time short circuit withstand current (1 s) <i>I_{cw}</i>		500 A	500 A	500 A
Rated short circuit making capacity	<i>I_{cm}</i>	2840 A	2840 A	2840 A
Conditional rated short circuit withstand current		10 kA	10 kA	10 kA
Fuse rating (type gG)	500 V	40 A	40 A	40 A

UL 508 characteristics

		C025... / CX25...	C032... / CX32...	C040... / CX40...	
General use	600 V AC	25 A	32 A	20 A	
Standard motor load	1 phase - 2 poles	120 V AC	1.5 HP 20 FLA	2 HP 24 FLA	3 HP 34 FLA
		240 V AC	3 HP 17 FLA	5 HP 28 FLA	5 HP 28 FLA
	3 phases - 3 poles	200 V AC	7.5 HP 25.3 FLA	7.5 HP 25.3 FLA	10 HP 32.2 FLA
		240 V AC	7.5 HP 22 FLA	7.5 HP 22 FLA	10 HP 28 FLA
		480 V AC	15 HP 21 FLA	20 HP 27 FLA	20 HP 27 FLA
		600 V AC	15 HP 17 FLA	20 HP 22 FLA	20 HP 22 FLA

Marking

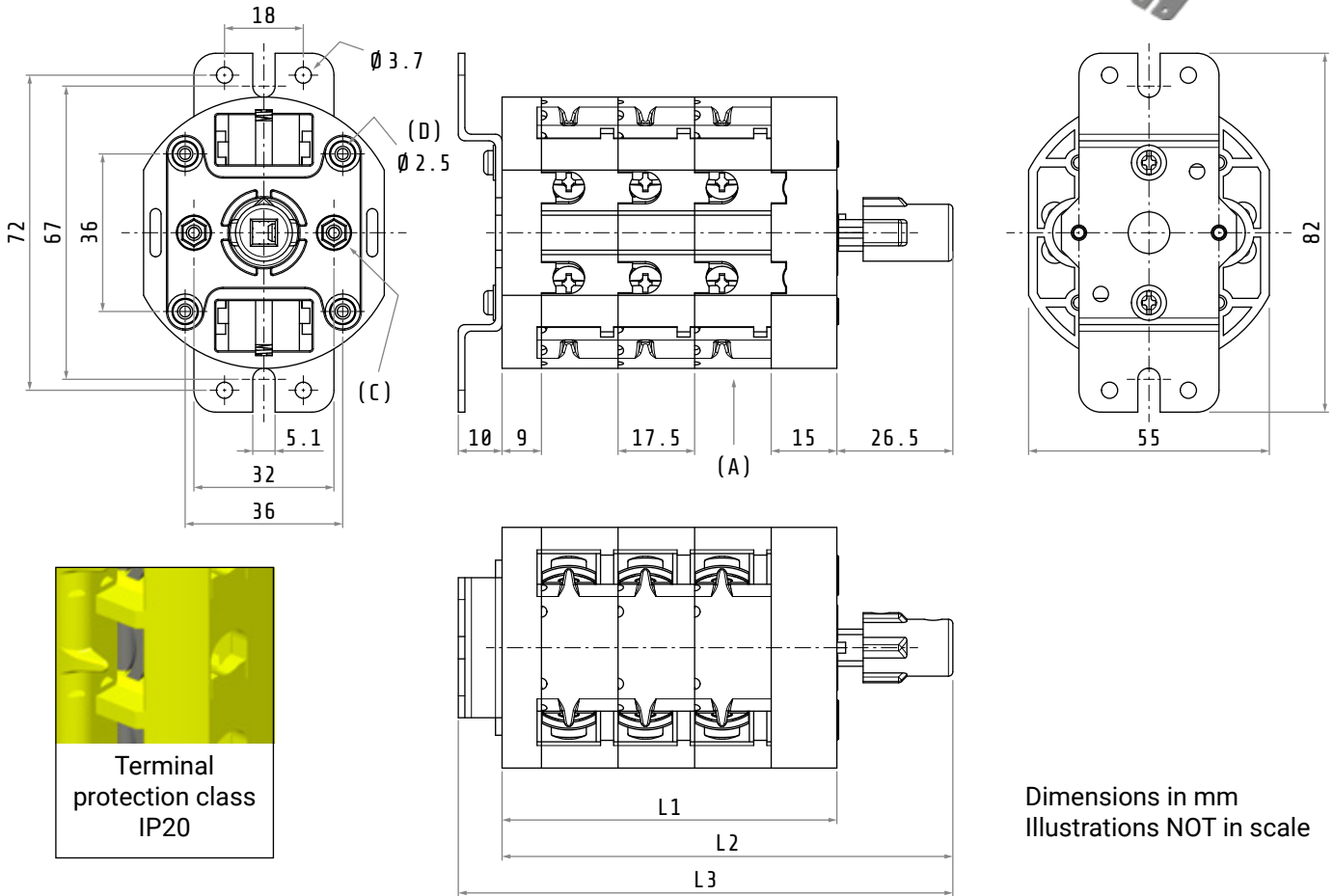
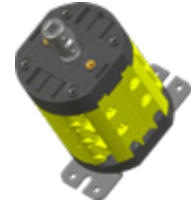
Compliance by passed test

Approved



OVERALL DIMENSIONS

C025...B / C032...B / C040...B



- (A) wafer (thickness = 17.5 mm)
- (C) metric screw (M3) fixing hole
- (D) self tapping screw (Ø 3.2) fixing hole

Some dimensions depend on the number of wafers of the cam switch and can be calculated with these formulas:

$$L1 \text{ [mm]} = 9 + (17.5 \times \text{n. of wafers}) + 15$$

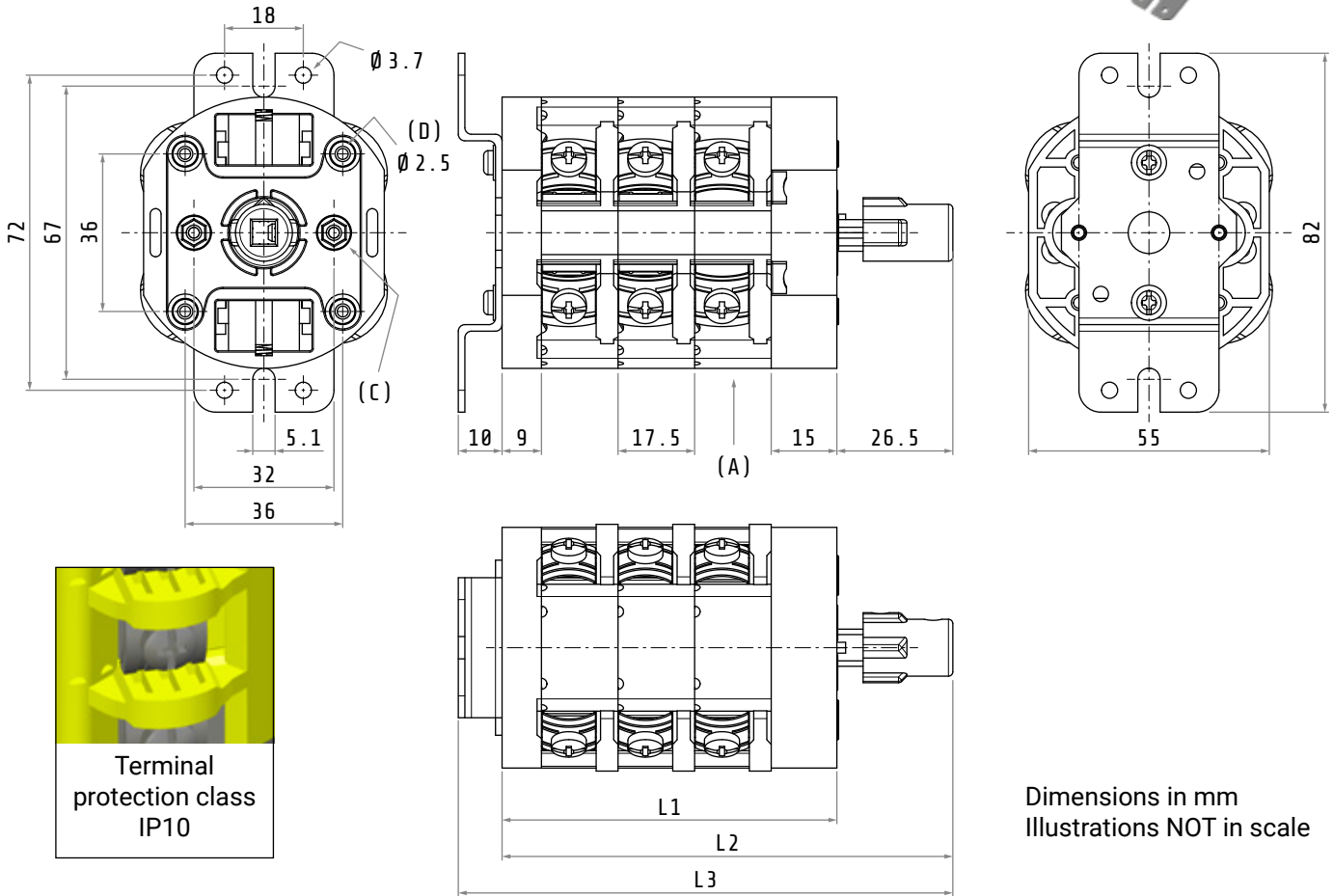
$$L2 \text{ [mm]} = L1 + 26.5$$

$$L3 \text{ [mm]} = L2 + 10$$

Examples:

n. of wafers	1	2	3	4	5	6
L1 [mm]	41.5	59	76.5	94	111.5	129
L2 [mm]	68	85.5	103	120.5	138	155.5
L3 [mm]	78	95.5	113	130.5	148	165.5

CX25...B / CX32...B / CX40...B



- (A) wafer (thickness = 17.5 mm)
- (C) metric screw (M3) fixing hole
- (D) self tapping screw (Ø 3.2) fixing hole

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ELECTRICAL SCHEMES

Code checking pattern

								B
Series			Function				Mounting	
C025... / CX25... / C032... / CX32... / C040... / CX40...								

Function	N. of wafers	Electrical scheme
ON-OFF switches 0-1		
0002 ON-OFF switch 2 poles	1	p.8
0003 ON-OFF switch 3 poles	2	
0004 ON-OFF switch 4 poles	2	
0006 ON-OFF switch 6 poles	3	
Changeover switches 1-0-2		
0008 Changeover switch 1 pole	1	p.8
0009 Changeover switch 2 poles	2	
0010 Changeover switch 3 poles	3	
0011 Changeover switch 4 poles	4	

ON-OFF switches 0-1

0002 • 2 poles

0003 • 3 poles

0004 • 4 poles

0006 • 6 poles

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Changeover switches 1-0-2

0008 • 1 pole

0009 • 2 poles

0010 • 3 poles

0011 • 4 poles








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W Wafers
CNT Contacts

ACTUATORS

Cam switches / actuators matrix















Check the "Operation schemes matrix" (p.10) to identify the available operation scheme for each operator. Each actuator is referenced to the relevant page of the mounting instructions.

Series and size		C025 C032 C040	CX25 CX32 CX40
Terminal protection class		IP20	IP10
Mounting type		B	
48x48	Grey/Black		
Ø 22	IP65	095/... (p.11)	
48x48	Yellow/Red		
Ø 22	IP65	070/... (p.11)	
48x48	Grey/Black padlock in 0		
screw Ø 22	IP65 / 4-4X IP65 / 4-4X	005/... (p.12) 077/... (p.13)	
48x48	Yellow/Red padlock in 0		
screw Ø 22	IP65 / 4-4X IP65 / 4-4X	006/... (p.12) 069/... (p.13)	
64x64	Grey/Black		
screw	IP65	021/... (p.14)	
67x67	Grey/Black max 3 padlocks		
screw Ø 22	IP65 / 4-4X IP65 / 4-4X	011/... (p.15) 063/... (p.16)	
67x67	Yellow/Red max 3 padlocks		
screw Ø 22	IP65 / 4-4X IP65 / 4-4X	012/... (p.15) 064/... (p.16)	

MOUNTING INSTRUCTIONS

Operation schemes matrix

Actuator code example: 005/0001

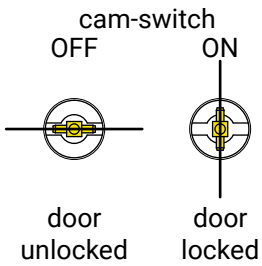
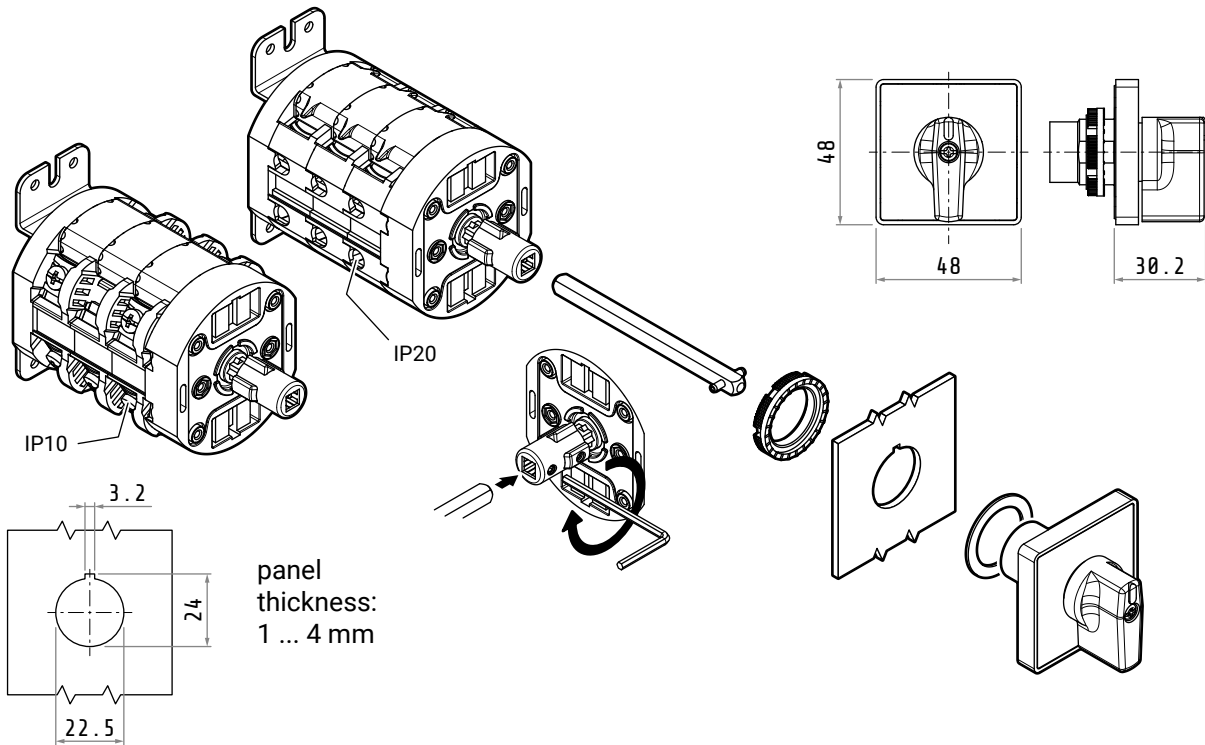
		ON-OFF switches 0-1		Changeover switches 1-0-2 / Motor switches
		 90°	 90°	 45°
	005/...	0001	0001-1	0008
	006/...	0001	0001-1	0008
	011/...	0001	0001-A	0008
	012/...	0001	0001-2	0008
	021/...	0001	-	0008
	063/...	0001	0001-1	0008
	064/...	0001	0001-1	0008
	069/...	0001	-	0008
	070/...	0001	-	0008
	077/...	0001	-	0008
	095/...	0001	-	0008

MOUNTING INSTRUCTIONS

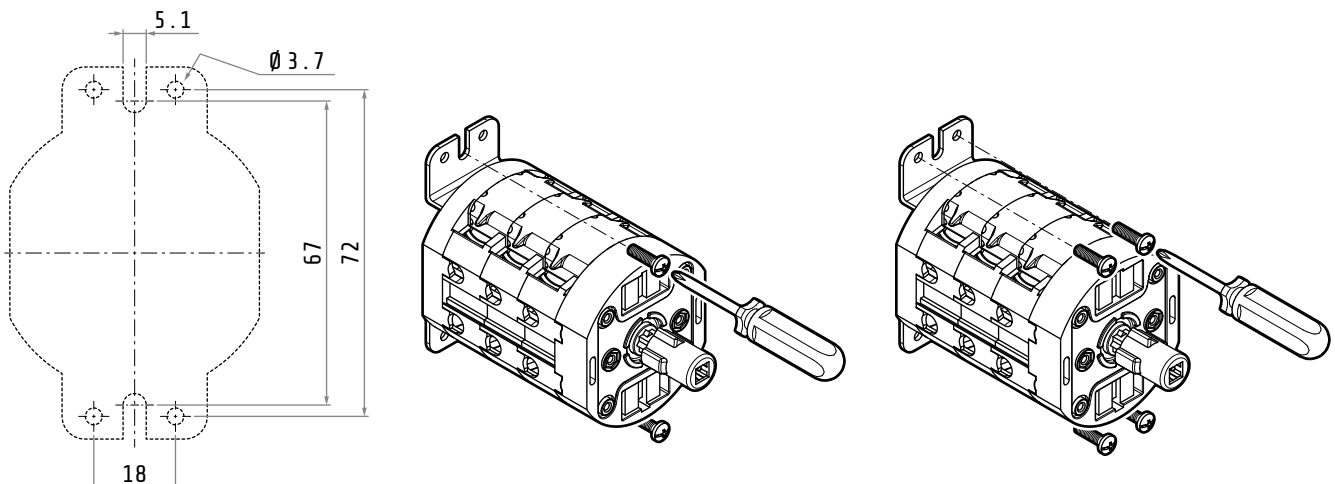
095/... - 070/...

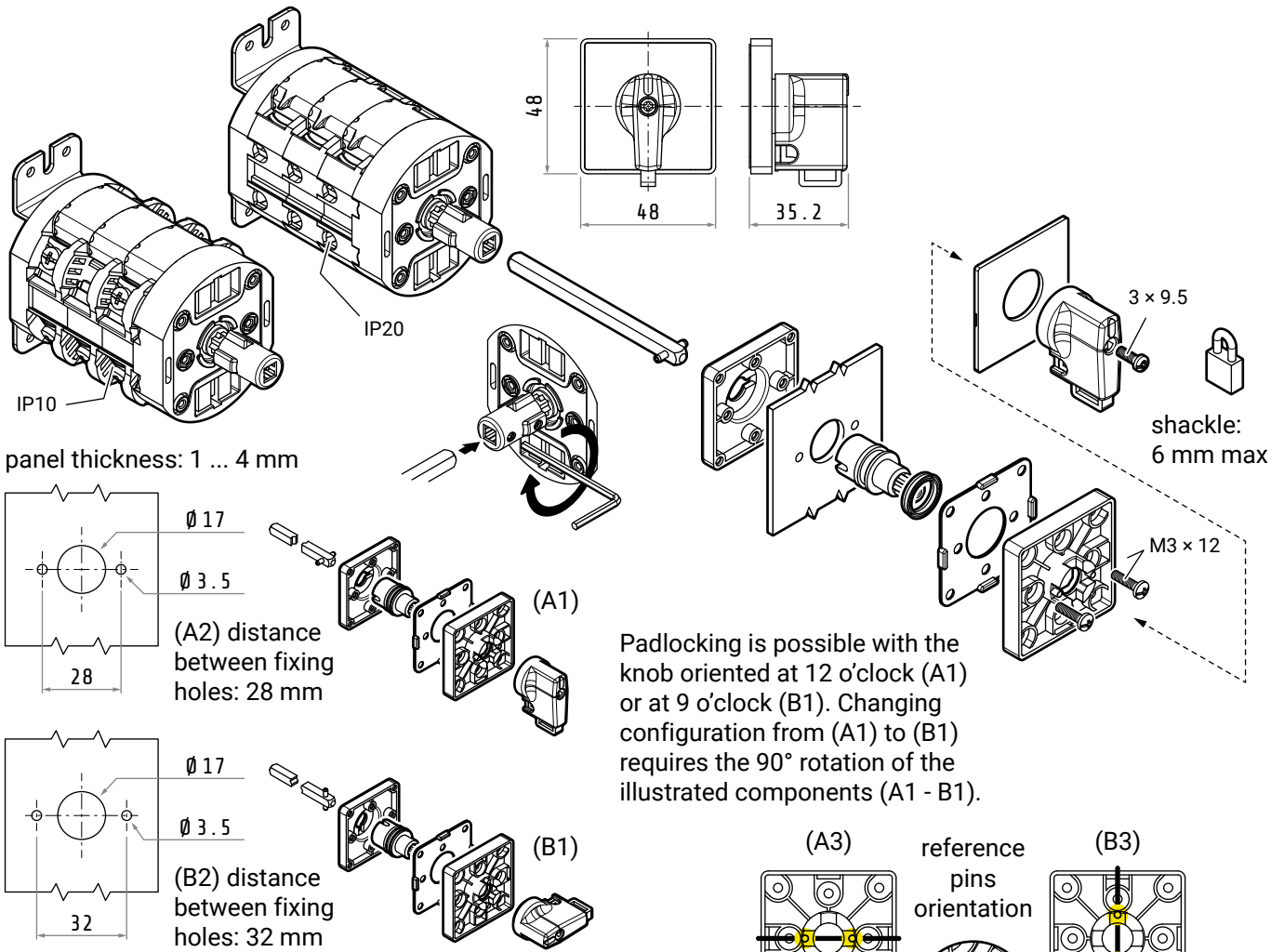
Ø 22 fixing

The instructions are valid for both cam switches with terminal protection class of IP20 and IP10



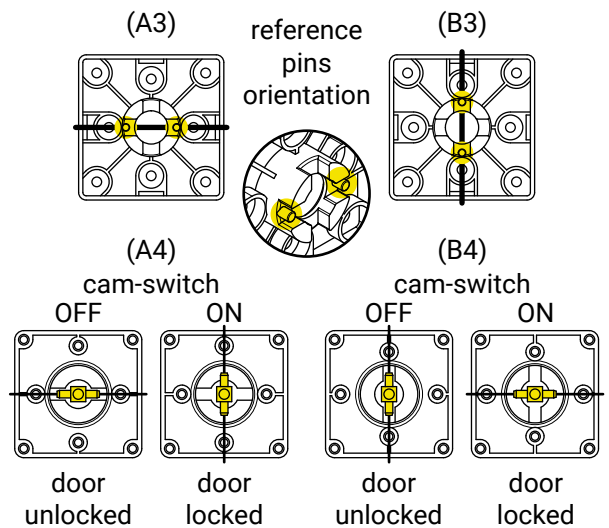
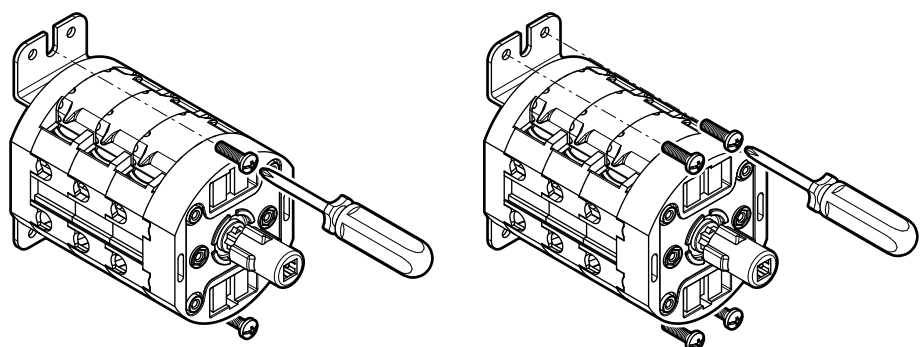
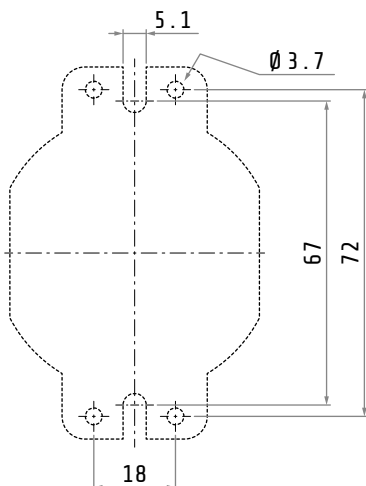
Mounting

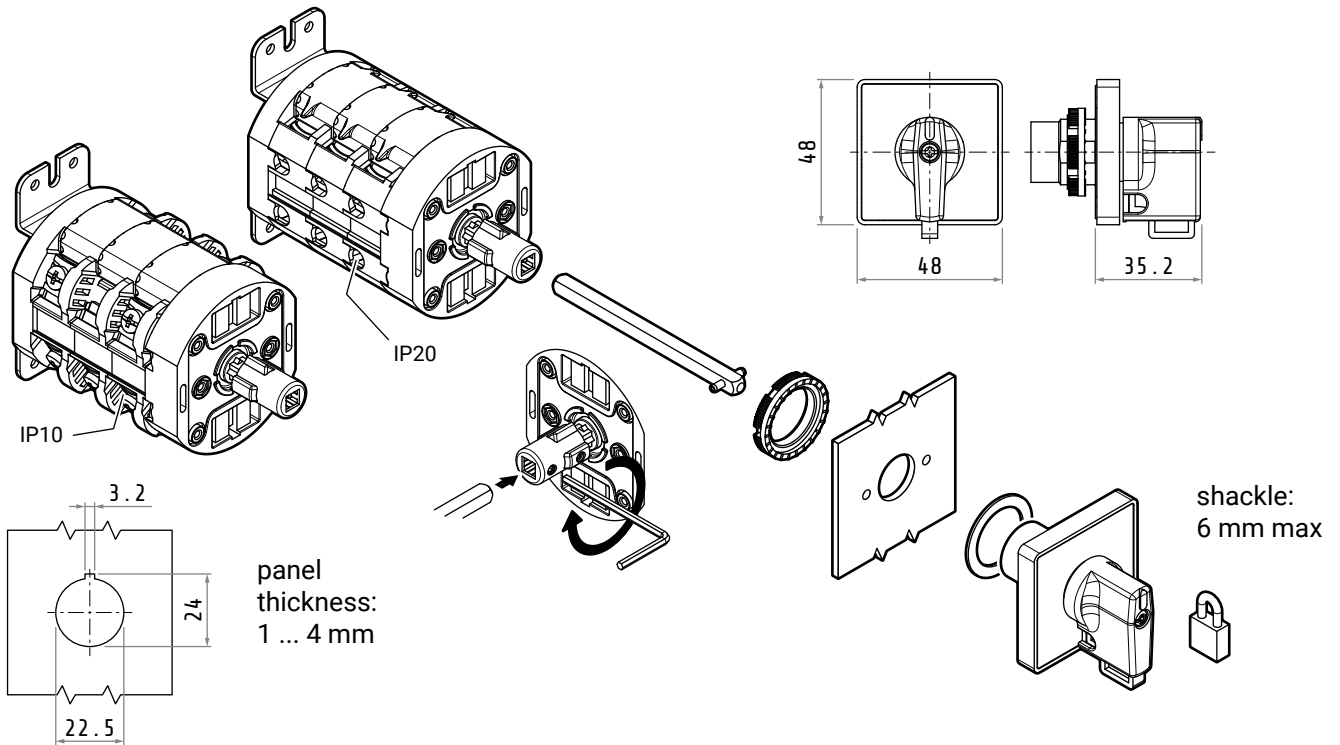




The distance between the holes (A2 - B2), the reference pins orientation (A3 - B3) and the orientation of the shaft (A4 - B4), change accordingly. Padlocking is possible only with the cam-switch in OFF position (A4 - B4) with the door unlocked. ATTENTION: padlocking does not lock the door but prevents any operation on the handle.

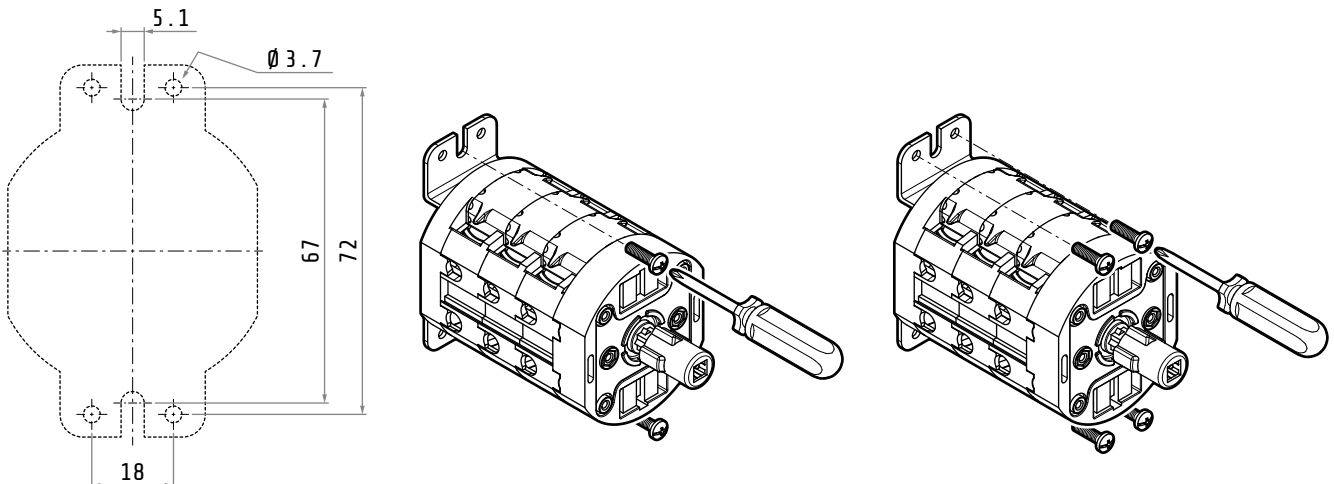
Mounting

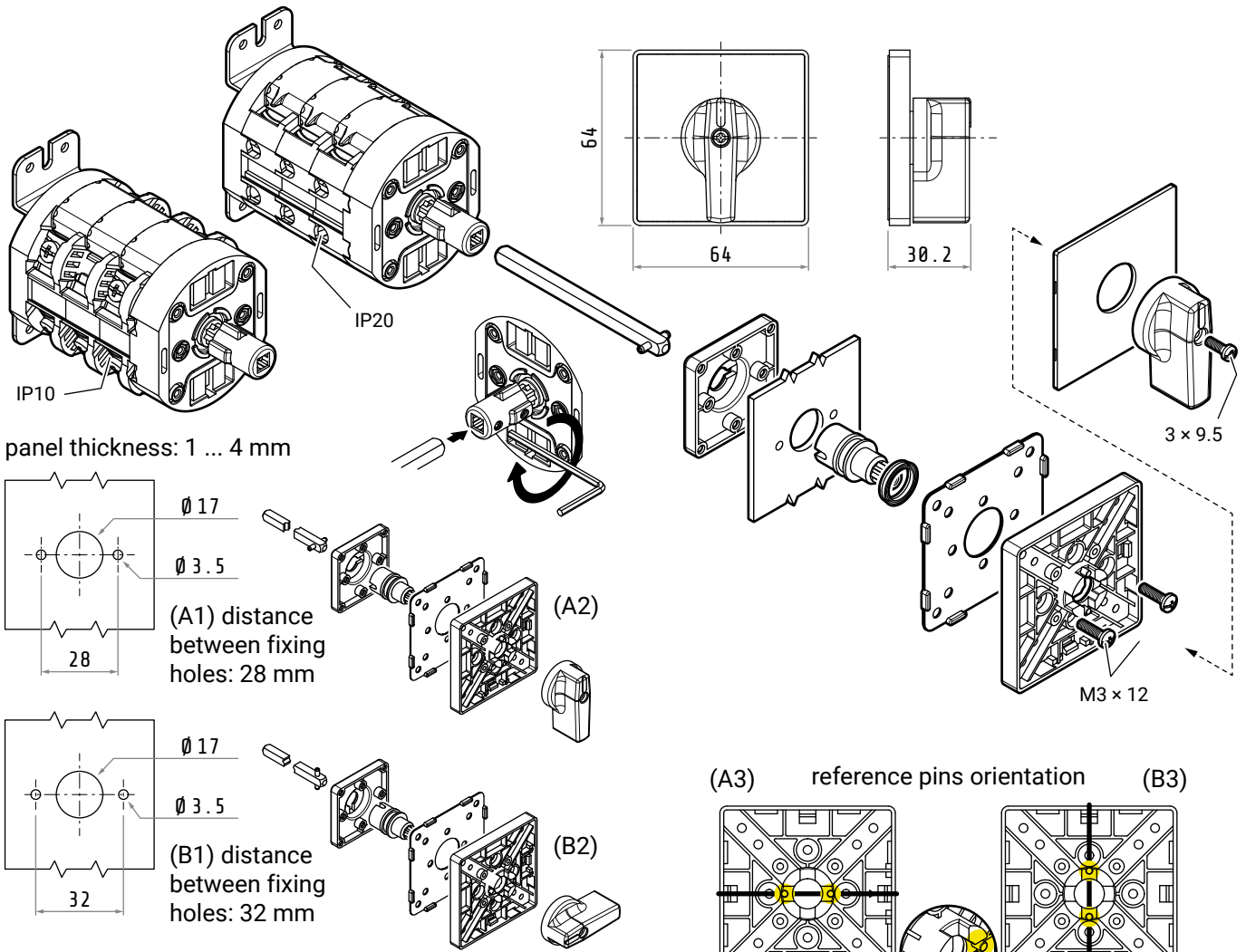




Padlocking is possible only with the cam-switch in OFF position with the door unlocked.
ATTENTION: padlocking does not lock the door but prevents any operation on the handle.

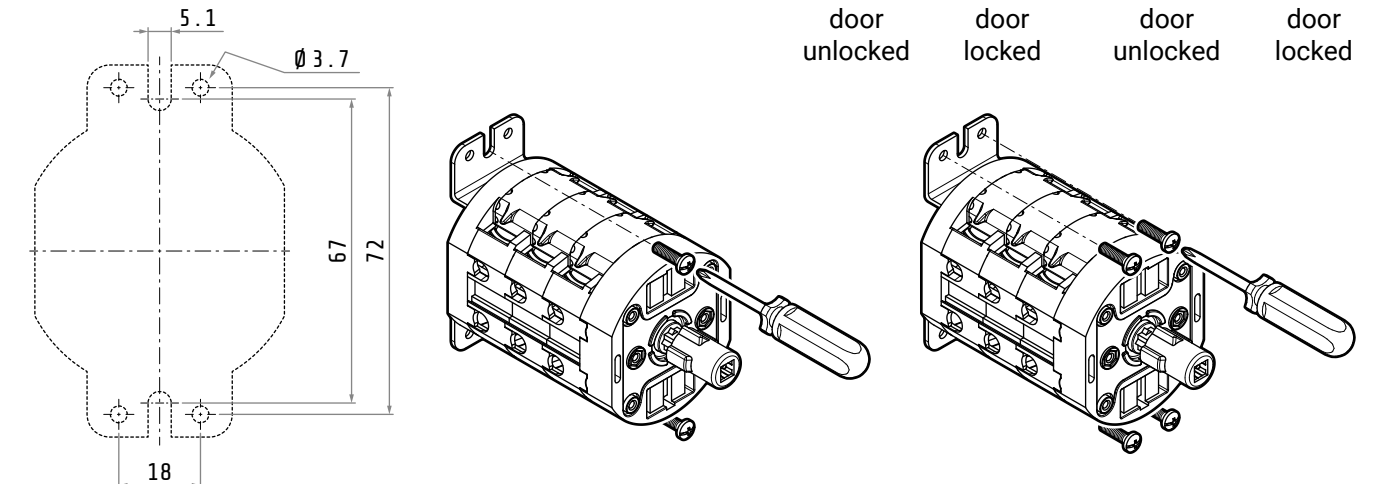
Mounting



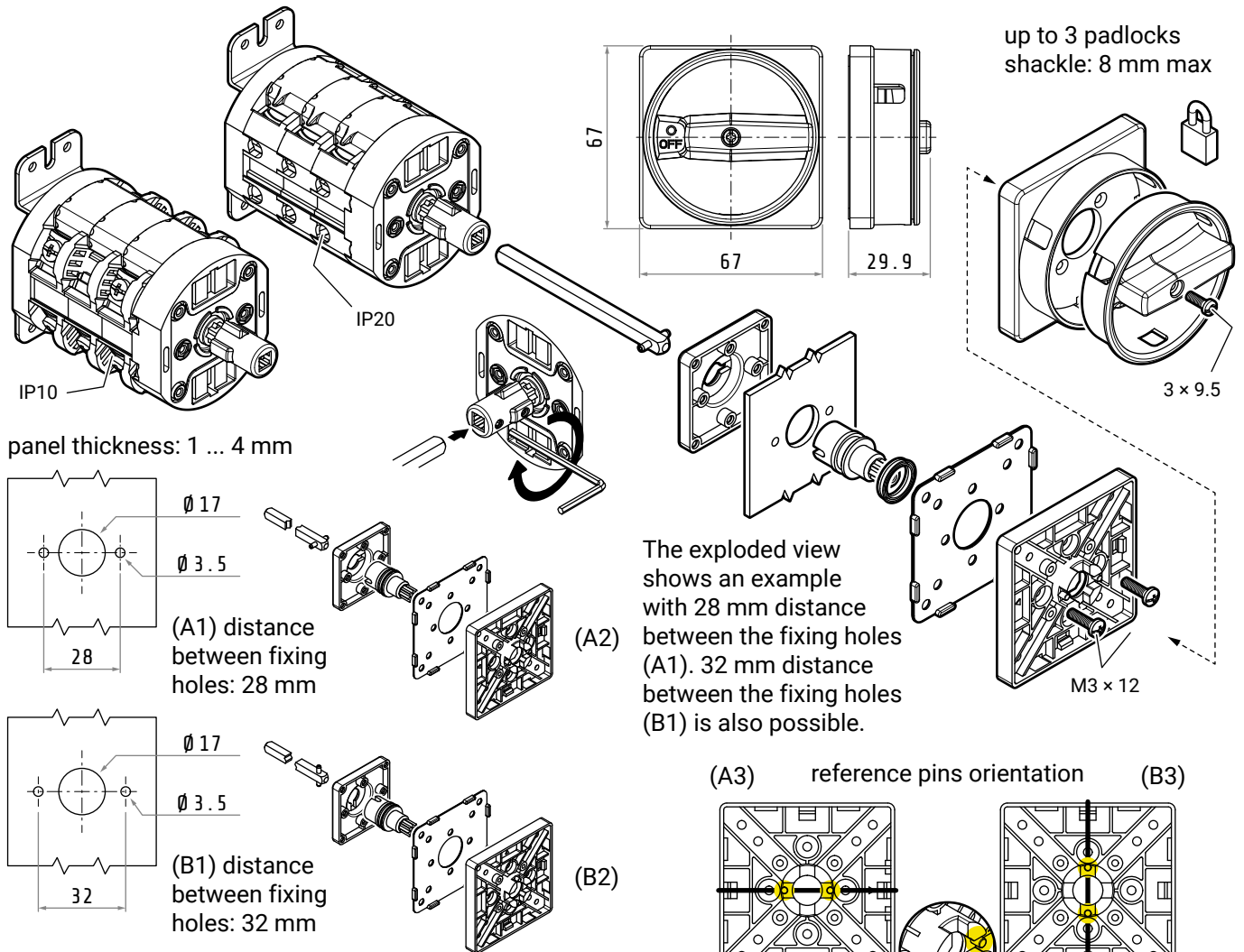


The exploded view shows an example with 28 mm distance between the fixing holes (A1). 32 mm distance between the fixing holes (B1) is also possible. Changing configuration from (A1) to (B1) requires the 90° rotation of the illustrated components (A2 - B2). The reference pins orientation (A3 - B3) and the orientation of the shaft (A4 - B4), change accordingly.

Mounting

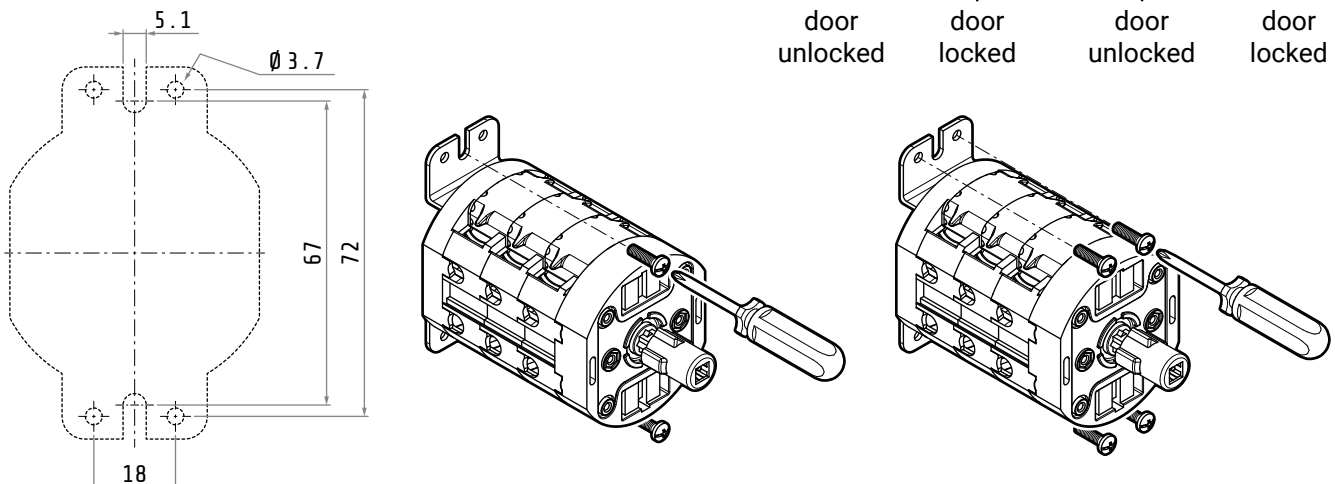


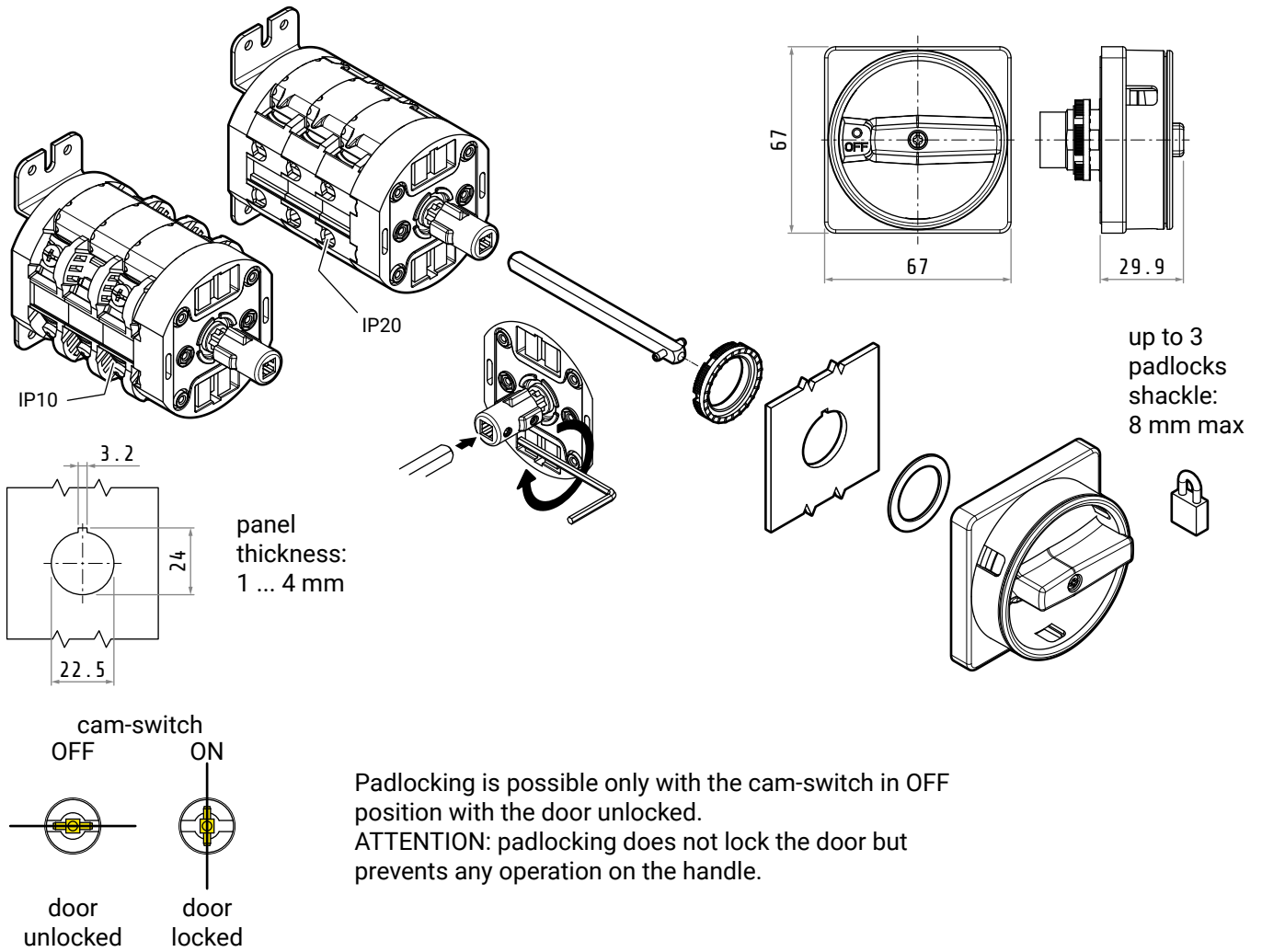
The instructions are valid for both cam switches with terminal protection class of IP20 and IP10



Changing configuration from (A1) to (B1) requires the 90° rotation of the illustrated components (A2 - B2). The reference pins orientation (A3 - B3) and the orientation of the shaft (A4 - B4), change accordingly. Padlocking is possible only with the cam-switch in OFF position (A4 - B4) with the door unlocked. ATTENTION: padlocking does not lock the door but prevents any operation on the handle.

Mounting





Mounting

