

G125...R

G200...R

PHOENIX CAM SWITCHES WITH TYPE "R" PANEL MOUNTING (125 A / 200 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.



G 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

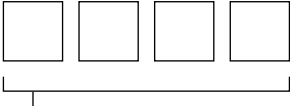
Before any installation or maintenance operation, disconnect the power supply to the system. Before restoring the power supply, make sure that all connections to the device have been made correctly. Giovenzana International B.V. disclaims any responsibility for any damage to things and people caused 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 (415 V)
G125...R	Rear panel	IP00	125 A	78 A
G200...R			200 A	95 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.14, and following, are also valid for custom products derived from one of the series illustrated in this manual.

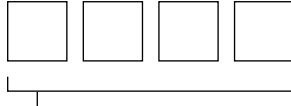
CODE READING



Series

Specifications: p.3

- G125** 125 A, IP00 contacts
- G200** 200 A, IP00 contacts



Electrical scheme

Reference table: p.7

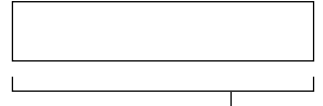
- ON-OFF switches 0-1
 - 0002** 2 poles
 - 0003** 3 poles
 - 0004** 4 poles
 - 0006** 6 poles
- Changeover switches 1-0-2
 - 0008** 1 pole
 - 0009** 2 poles
 - 0010** 3 poles
 - 0011** 4 poles
- Motor switches
 - 0012** Reversing switch 3 poles
 - 0014** Dahlander pole changing two speed switch
 - 0015** Star-Delta starter switch
- Step switches
 - 0025** Step switch 1-2 positions without zero 1 pole
 - 0026** Step switch 1-2 positions without zero 2 poles
 - 0027** Step switch 1-2 positions without zero 3 poles
 - 0038** Step switch 1-2-3 positions without zero 1 pole
 - 0039** Step switch 1-2-3 positions without zero 2 poles
 - 0040** Step switch 1-2-3 positions without zero 3 poles
 - 0041** Step switch 1-2-3-4 positions without zero 1 pole
 - 0042** Step switch 1-2-3-4 positions without zero 2 poles
 - 0043** Step switch 1-2-3-4 positions without zero 3 poles
 - 0028** Step switch 0-1-2 positions with zero 1 pole
 - 0032** Step switch 0-1-2 positions with zero 2 poles
 - 0033** Step switch 0-1-2 positions with zero 3 poles
 - 0029** Step switch 0-1-2-3 positions with zero 1 pole
 - 0034** Step switch 0-1-2-3 positions with zero 2 poles
 - 0035** Step switch 0-1-2-3 positions with zero 3 poles
 - 0030** Step switch 0-1-2-3-4 positions with zero 1 pole
 - 0036** Step switch 0-1-2-3-4 positions with zero 2 poles
 - 0037** Step switch 0-1-2-3-4 positions with zero 3 poles



Cam switch mounting type

Overall dimensions: p.5

- R** rear panel 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.17

SPECIFICATIONS

General characteristics

Protection class	control	EN 60529	IP65
	terminals		IP00
Material group		EN 60947-1	IIIA
Pollution grade		EN 60947-1	3
Flammability		UL94	V0 (live electrical parts)
Ambient temperature	operating		-15 ... +55°C
	storage		-25 ... +70°C
Connections	terminal bolt		G125 M8
			G200 M10
Contacts			double breaking
Opening angles			60° - 90°
Mechanical lifetime	@ 120 operations / hour		0.1 million cycles
Electrical lifetime	@ 120 operations / hour		0.01 million cycles

EN 60947-3 characteristics

		G125...	G200...
Rated operating voltage	Ue	690 V	690 V
Rated insulation voltage	Ui	690 V	690 V
Rated impulse withstand voltage (sectionable)	Uimp	6 kV	6 kV
Rated thermal current	Ith	150 A	225 A
Rated enclosed thermal current	Ithe	150 A	225 A
Frequency		50/60 Hz	50/60 Hz

Alternate current

Rated operating current		I_e		G125...	G200...		
AC-21A	Switching of resistive loads, including moderate overloads	690 V		125 A	200 A		
AC-22A	Switching of mixed resistive and inductive loads, including moderate overloads	690 V		125 A	200 A		
AC-23A	Switching of motor loads or other highly inductive loads	1 phase - 1 pole	110 V 230 V	- -	-		
		3 phases - 3 poles	230 V	140 A	45 kW	169 A	55 kW
			415 V	78 A	45 kW	95 A	55 kW
			500 V	65 A	45 kW	79 A	55 kW
		690 V	47 A	45 kW	57 A	55 kW	
AC-3	Squirrel-cage motors: starting, switches off motors during running time	3 phases - 3 poles	230 V	115 A	37 kW	140 A	45 kW
			415 V	64 A	37 kW	78 A	45 kW
			500 V	53 A	37 kW	64 A	45 kW
			690 V	39 A	37 kW	47 A	45 kW

Short circuit characteristics

			G125...	G200...	
Conditional rated short circuit withstand current			20 kA	20 kA	
Fuse rating (type gG/Gm)		690 V	125 A	200 A	

UL 508 characteristics

			G125...	G200...		
General use		600 V AC	125 A	175 A		
Standard motor load	3 phases - 3 poles	200 V AC	10 HP	56 FLA	15 HP	84 FLA
		240 V AC	20 HP	54 FLA	25 HP	68 FLA
		480 V AC	40 HP	52 FLA	50 HP	65 FLA
		600 V AC	50 HP	52 FLA	50 HP	52 FLA

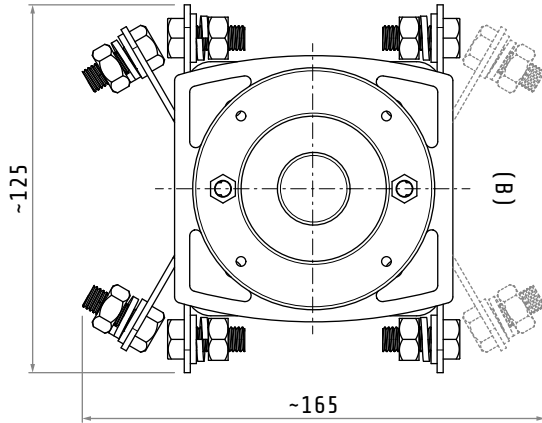
Marking

Compliance by passed test Approved

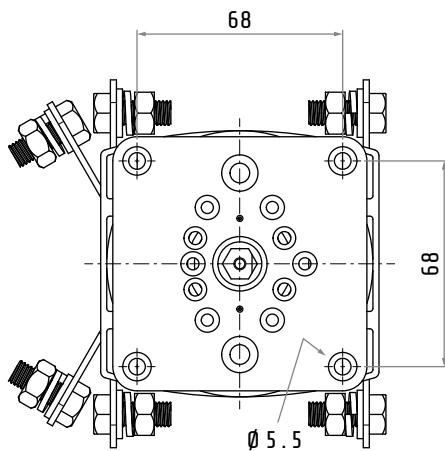
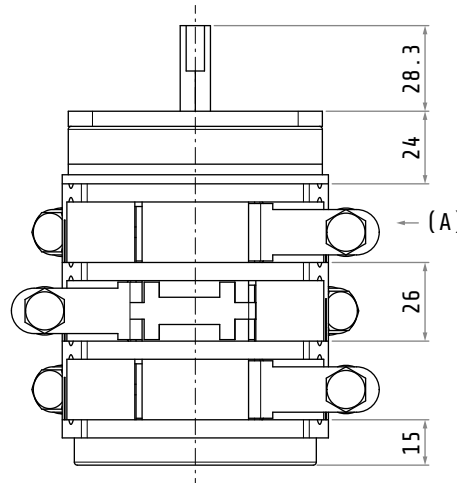
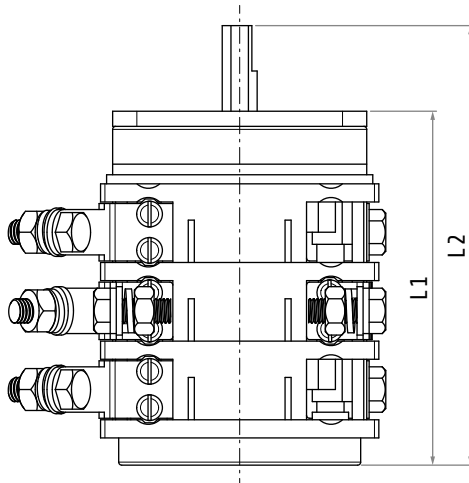


OVERALL DIMENSIONS

G125...R



- (A) wafer (thickness = 26 mm)
- (B) overall dimensions with the more complex configuration



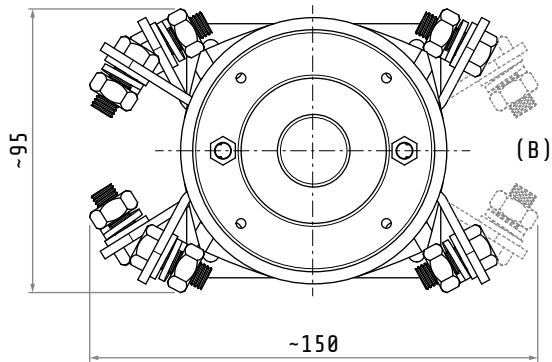
Some dimensions depend on the number of wafers of the cam switch and can be calculated with these formulas:

L1 [mm]	$15 + (26 \times \text{n. of wafers}) + 24$
L2 [mm]	$L1 + 28.3$

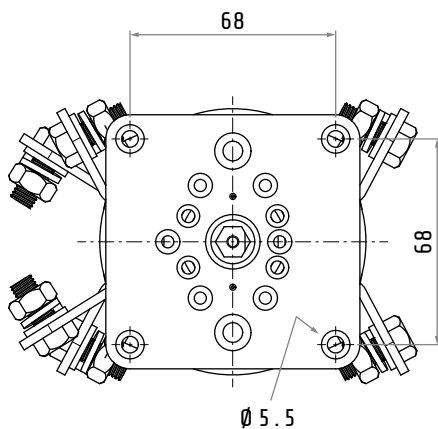
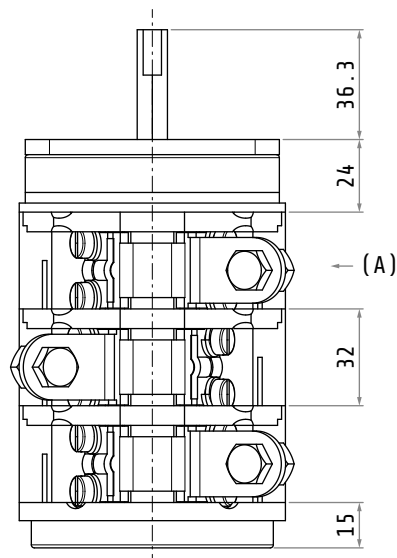
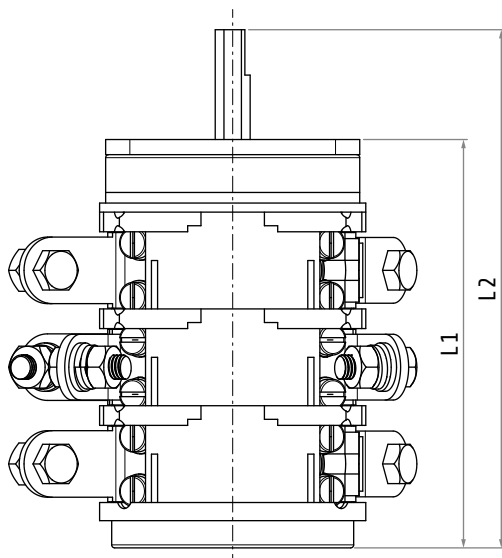
Examples:

n. of wafers	1	2	3	4
L1 [mm]	65	91	117	143
L2 [mm]	93.3	119.3	145.3	171.3

Dimensions in mm
Illustrations NOT in scale



- (A) wafer (thickness = 32 mm)
- (B) overall dimensions with the more complex configuration



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

L1 [mm]	$15 + (32 \times \text{n. of wafers}) + 24$
L2 [mm]	$L1 + 36.3$

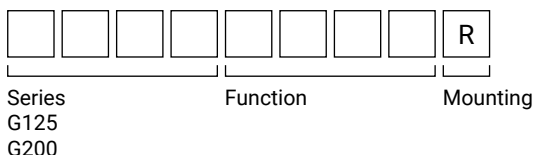
Examples:

n. of wafers	1	2	3	4
L1 [mm]	71	103	135	167
L2 [mm]	107.3	139.3	171.3	203.3

Dimensions in mm
Illustrations NOT in scale

ELECTRICAL SCHEMES

Code checking pattern



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	
Motor switches		
0012 Reversing switch 3 poles	3	p.9
0014 Dahlander pole changing two speed switch	4	
0015 Star-Delta starter switch	4	
Step switches		
0025 Step switch 1-2 positions without zero 1 pole	1	p.10
0026 Step switch 1-2 positions without zero 2 poles	2	
0027 Step switch 1-2 positions without zero 3 poles	3	
0038 Step switch 1-2-3 positions without zero 1 pole	2	
0039 Step switch 1-2-3 positions without zero 2 poles	3	
0040 Step switch 1-2-3 positions without zero 3 poles	5	
0028 Step switch 0-1-2 positions with zero 1 pole	1	
0032 Step switch 0-1-2 positions with zero 2 poles	2	
0033 Step switch 0-1-2 positions with zero 3 poles	3	
0025 Step switch 1-2 positions without zero 1 pole	1	
0026 Step switch 1-2 positions without zero 2 poles	2	
0027 Step switch 1-2 positions without zero 3 poles	3	
0038 Step switch 1-2-3 positions without zero 1 pole	2	
0039 Step switch 1-2-3 positions without zero 2 poles	3	
0040 Step switch 1-2-3 positions without zero 3 poles	5	
0041 Step switch 1-2-3-4 positions without zero 1 pole	2	
0042 Step switch 1-2-3-4 positions without zero 2 poles	4	
0043 Step switch 1-2-3-4 positions without zero 3 poles	6	
0028 Step switch 0-1-2 positions with zero 1 pole	1	
0032 Step switch 0-1-2 positions with zero 2 poles	2	
0033 Step switch 0-1-2 positions with zero 3 poles	3	
0029 Step switch 0-1-2-3 positions with zero 1 pole	2	
0034 Step switch 0-1-2-3 positions with zero 2 poles	3	
0035 Step switch 0-1-2-3 positions with zero 3 poles	5	
0030 Step switch 0-1-2-3-4 positions with zero 1 pole	2	
0036 Step switch 0-1-2-3-4 positions with zero 2 poles	4	
0037 Step switch 0-1-2-3-4 positions with zero 3 poles	6	

ON-OFF switches 0-1

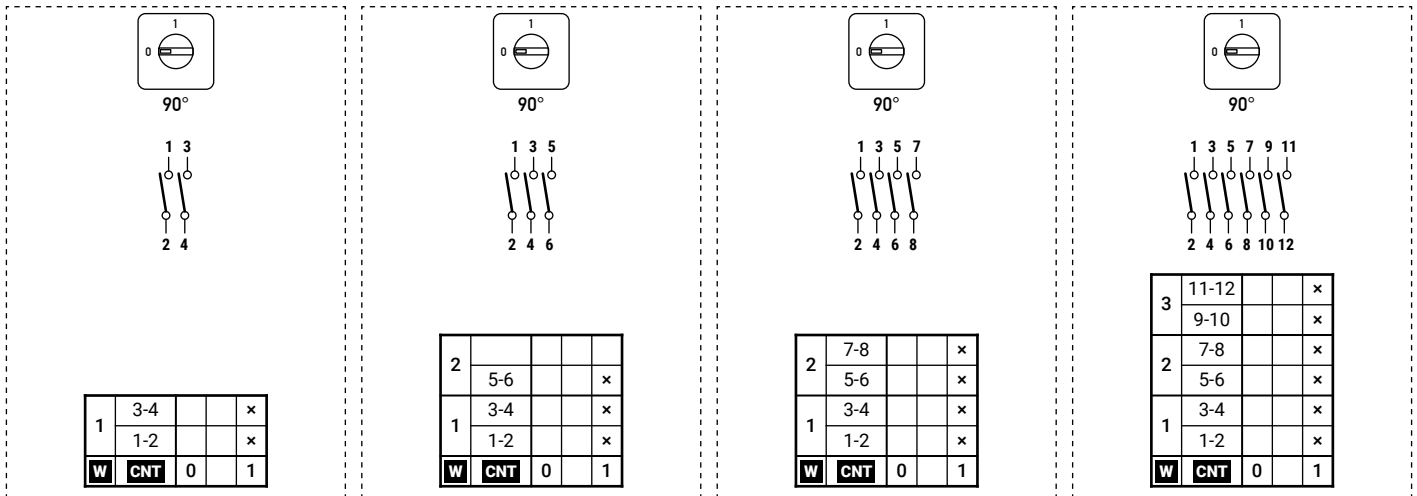
1/1

0002 • 2 poles

0003 • 3 poles

0004 • 4 poles

0006 • 6 poles



Changeover switches 1-0-2

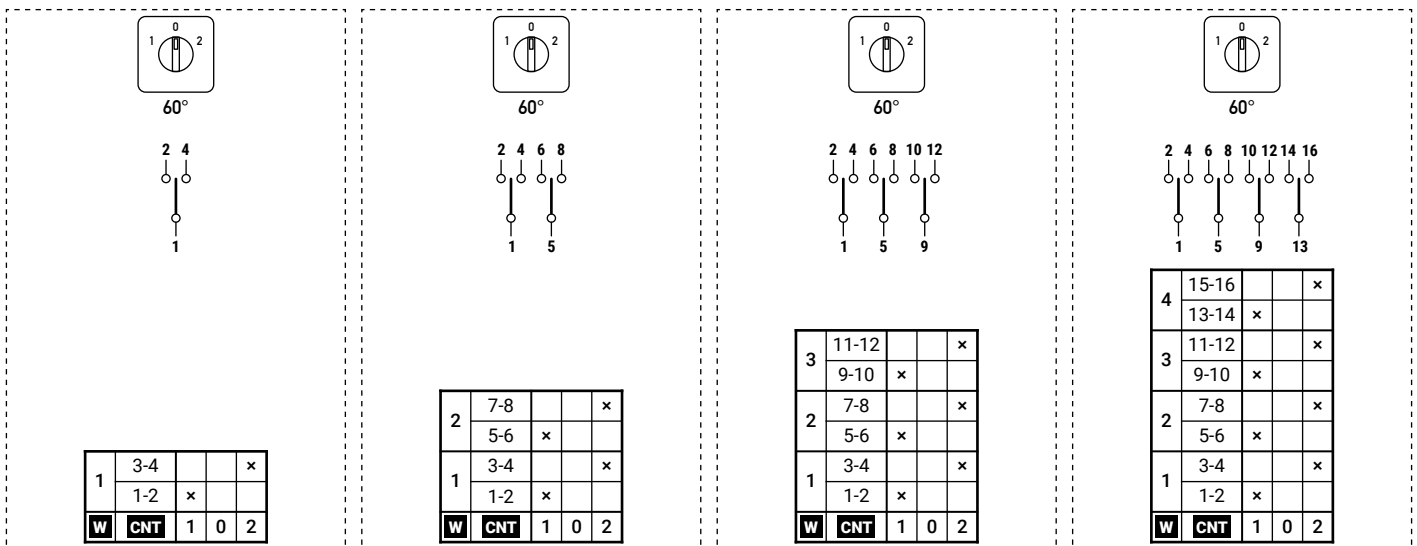
1/1

0008 • 1 pole

0009 • 2 poles

0010 • 3 poles

0011 • 4 poles



Motor switches

1/1

0012 • Reversing switch 3 poles

0014 • Dahlander pole changing two speed switch

0015 • Star-Delta starter switch

3				
	9-10	x		x
2	7-8	x		
	5-6			x
1	3-4			x
	1-2	x		
W	CNT	1	0	2

4	15-16			x
	13-14			x
3	11-12	x		
	9-10	x		
2	7-8			x
	5-6			x
1	3-4	x		
	1-2			x
W	CNT	1	0	2

4	15-16				x
	13-14		x	x	x
3	11-12		x		
	9-10		x	x	x
2	7-8		x		
	5-6				x
1	3-4				x
	1-2		x	x	x
W	CNT	1	Y		Δ

Step switches

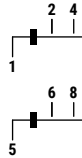
1/3

0025 • Step switch 1-2 positions without zero 1 pole



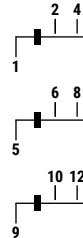
1	3-4		x
	1-2	x	
W	CNT	1	2

0026 • Step switch 1-2 positions without zero 2 poles



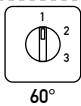
2	7-8		x
	5-6	x	
1	3-4		x
	1-2	x	
W	CNT	1	2

0027 • Step switch 1-2 positions without zero 3 poles



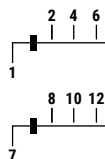
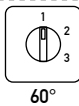
3	11-12		x
	9-10	x	
2	7-8		x
	5-6	x	
1	3-4		x
	1-2	x	
W	CNT	1	2

0038 • Step switch 1-2-3 positions without zero 1 pole



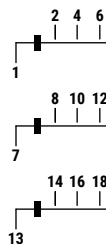
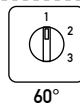
2	5-6			x
1	3-4		x	
	1-2	x		
W	CNT	1	2	3

0039 • Step switch 1-2-3 positions without zero 2 poles



3	11-12			x
	9-10		x	
2	7-8	x		
	5-6			x
1	3-4		x	
	1-2	x		
W	CNT	1	2	3

0040 • Step switch 1-2-3 positions without zero 3 poles

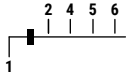
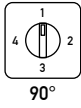


5	17-18			x
4	15-16		x	
	13-14	x		
3	11-12			x
	9-10		x	
2	7-8	x		
	5-6			x
1	3-4		x	
	1-2	x		
W	CNT	1	2	3

Step switches

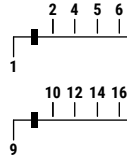
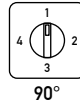
2/3

0041 • Step switch 1-2-3-4 positions without zero 1 pole



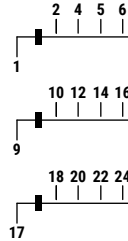
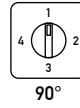
2	7-8			x	
	5-6		x		
1	3-4	x			
	1-2	x			
W	CNT	1	2	3	4

0042 • Step switch 1-2-3-4 positions without zero 2 poles



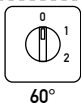
4	15-16			x	
	13-14		x		
3	11-12	x			
	9-10	x			
2	7-8			x	
	5-6		x		
1	3-4	x			
	1-2	x			
W	CNT	1	2	3	4

0043 • Step switch 1-2-3-4 positions without zero 3 poles



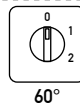
6	23-24			x	
	21-22		x		
5	19-20	x			
	17-18	x			
4	15-16			x	
	13-14		x		
3	11-12	x			
	9-10	x			
2	7-8			x	
	5-6		x		
1	3-4	x			
	1-2	x			
W	CNT	1	2	3	4

0028 • Step switch 0-1-2 positions with zero 1 pole



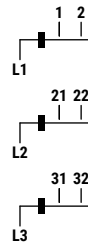
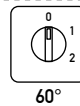
1	3-4			x
	1-2		x	
W	CNT	0	1	2

0032 • Step switch 0-1-2 positions with zero 2 poles



2	7-8			x
	5-6		x	
1	3-4			x
	1-2		x	
W	CNT	0	1	2

0033 • Step switch 0-1-2 positions with zero 3 poles

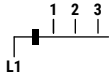
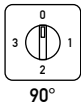


3	11-12			x
	9-10		x	
2	7-8			x
	5-6		x	
1	3-4			x
	1-2		x	
W	CNT	0	1	2

Step switches

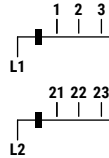
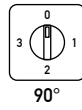
3/3

0029 • Step switch 0-1-2-3 positions with zero 1 pole



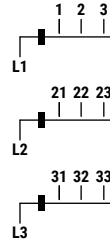
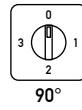
2	7-8			x	
	5-6	x			
1	1-2		x		
W	CNT	0	1	2	3

0034 • Step switch 0-1-2-3 positions with zero 2 poles



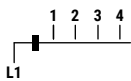
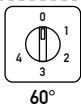
3	11-12			x	
	9-10	x			
2	7-8		x		
	5-6		x		
1	3-4			x	
	1-2	x			
W	CNT	0	1	2	3

0035 • Step switch 0-1-2-3 positions with zero 3 poles



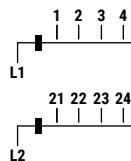
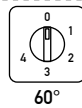
5	19-20			x	
	15-16			x	
4	13-14	x			
	11-12			x	
3	9-10	x			
	7-8		x		
2	5-6		x		
	3-4			x	
1	1-2	x			
W	CNT	0	1	2	3

0030 • Step switch 0-1-2-3-4 positions with zero 1 pole



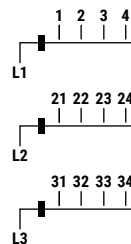
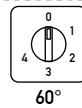
2	7-8			x		
	5-6	x				
1	3-4			x		
	1-2		x			
W	CNT	0	1	2	3	4

0036 • Step switch 0-1-2-3-4 positions with zero 2 poles



4	15-16			x		
	13-14	x				
3	11-12			x		
	9-10		x			
2	7-8			x		
	5-6	x				
1	3-4			x		
	1-2		x			
W	CNT	0	1	2	3	4

0037 • Step switch 0-1-2-3-4 positions with zero 3 poles









6	23-24			x		
	21-22	x				
5	19-20			x		
	17-18		x			
4	15-16			x		
	13-14	x				
3	11-12			x		
	9-10		x			
2	7-8			x		
	5-6	x				
1	3-4			x		
	1-2		x			
W	CNT	0	1	2	3	4

ACTUATORS














Cam switches / actuators matrix

Check the "Operation schemes matrix" (p.13) to identify the available operation scheme for each operator. Each actuator is referenced to the relevant page of the mounting instructions.

Series and size		G125	G200
Terminal protection class		IP00	IP00
Mounting type		R	R
88x88	Grey/Black		
screw	IP65	441/... (p.14)	461/... (p.15)
95x95	Grey/Black max 3 padlocks		
screw	IP65	449/... (p.16)	449/... (p.16)
95x95	Yellow/Red max 3 padlocks		
screw	IP65	450/... (p.16)	450/... (p.16)

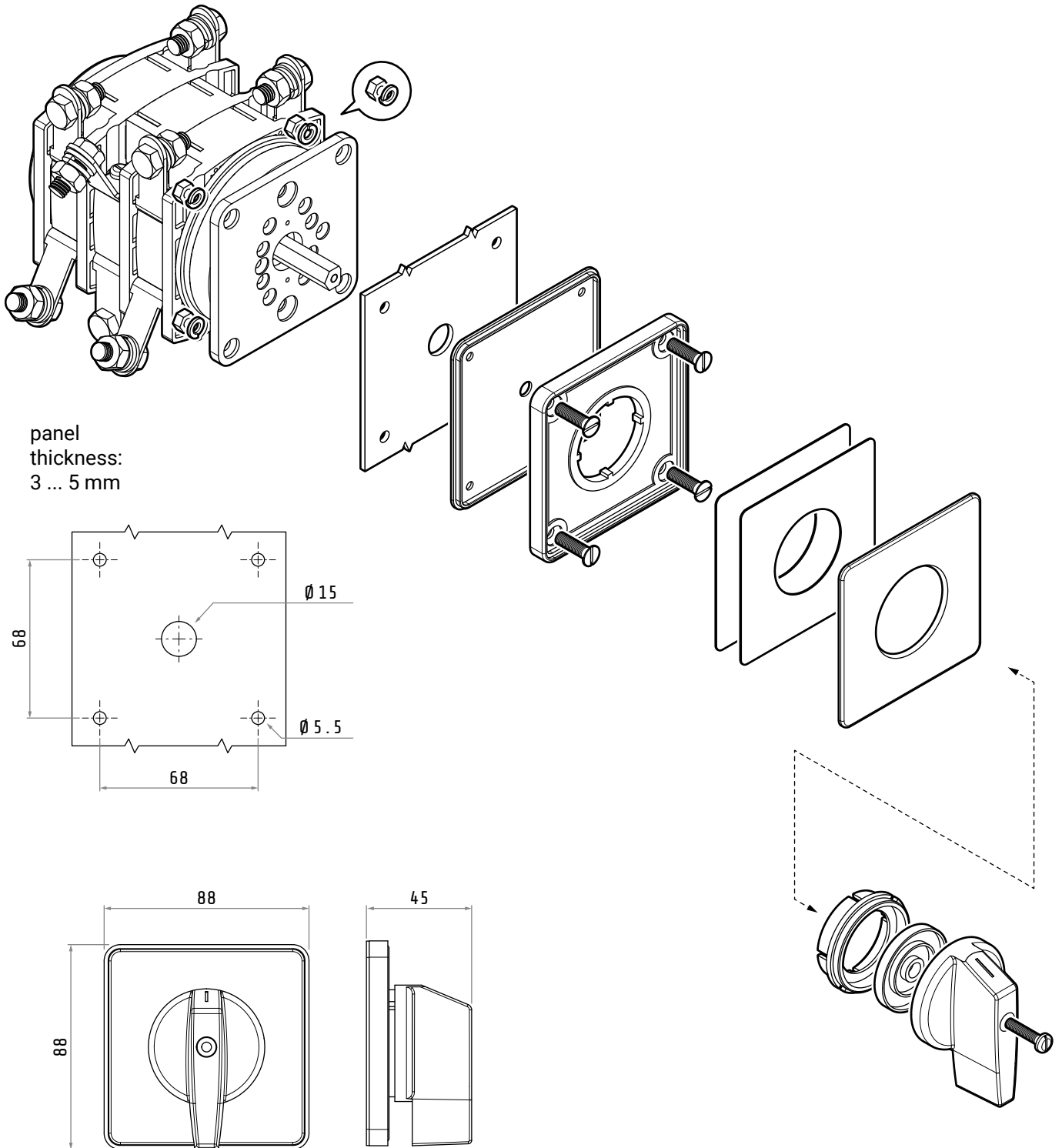
Operation schemes matrix

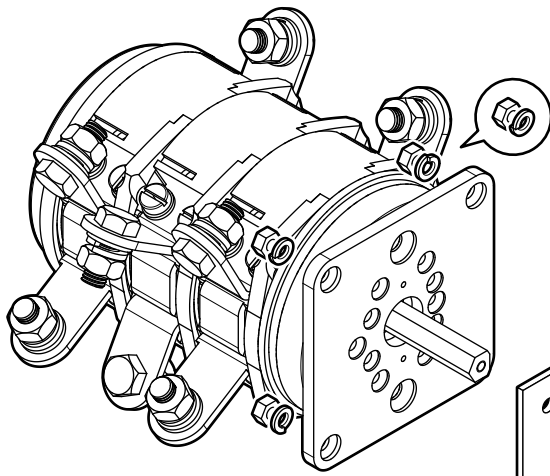
Actuator code example: 441/0001

	ON-OFF switches 0-1	Changeover switches 1-0-2 / Motor switches		Step switches					
	 90°	 60°	 60°	 60°	 60°	 60°	 90°	 90°	 60°
 441/...	0001	0008	0015	0025	0028	0038	0029	0041	0030
 449/...	0001	-	-	-	-	-	-	-	-
 450/...	0001	-	-	-	-	-	-	-	-
 461/...	0001	0008	0015	0025	0028	0038	0029	0041	0030

MOUNTING INSTRUCTIONS

441/...





panel
thickness:
3 ... 5 mm

