Cam switches

CQ Series

BREMAS

Overview

The range of cam switches **CQ series** includes ratings from 12 to 32A with insulation voltage of 690V. According to the latest industrial application standards, CQ series offers IP 20 terminals protection degree and up to IP66 handle protection degree.
Available with different mounting systems: rear panel with screws, base mounting with screws or snap mounting on DIN rail (EN 50022) with escutcheon plate for 45mm standard knock-out.
Available diagrams for every application: ON-OFF switches, line switches, cam switches for motor control, ammeter and voltmeter switches.

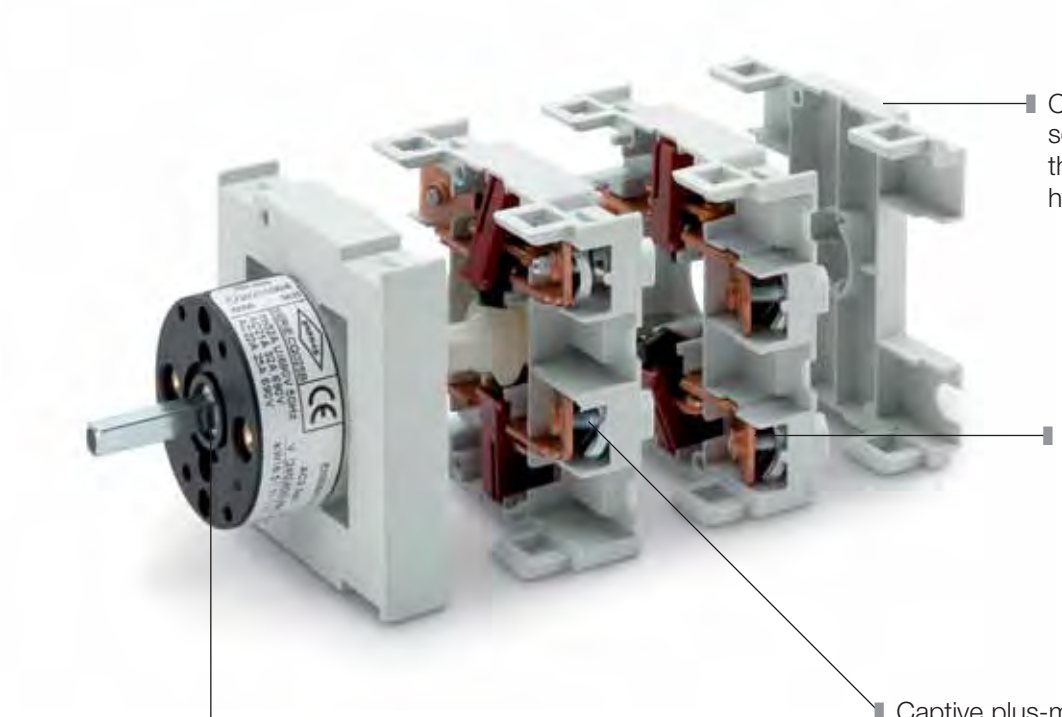
Easy made wiring

- Rear access to terminals screws for rear mounting versions

- Front access to terminals screws for base mounting versions

Escutcheon plate for 45mm (1.77”) standard knock-out

45mm (1.77”) plate for fixing in standard panel/distribution boards slots.
Available diagrams for ON-OFF switches, line switches, ammeter and voltmeter switches



Class V2 self-extinguishing thermoplastic housing

Positive opening and double break contacts, silver alloy made

Captive plus-minus terminals screws

Assembled with metal shaft and without threaded stud bolts to ensure maximum operating reliability and minimum dimensions

Base mounting

All base mounting items (BL6 - BK6 handles) include a 175 mm (6.89”) shaft

Technical data IEC 947-3 EN 60947-3

Rated insulation voltage	
Rated operating voltage	
Rated impulse withstand voltage	
Rated thermal current for open switch	
Rated thermal current for enclosed switch	
Rated operation frequency	
Power dissipation for each pole	
Rated operating current Ie	
AC-21A Switching resistive loads, including moderate overloads	
AC-22A Switching of mixed resistive and inductive loads, including moderate overloads	
AC-20A Connecting and disconnecting under no load conditions	
Rated operating power	
AC-23A Switching of motor loads or other highly inductive loads 3 phase - 3 pole	
AC-3 Squirrel cage motors: starting, switching off motors during running 3 phase - 3 pole	
AC-4 Squirrel cage motors: starting, plugging, inching	
AC-15 Control of a.c. elettromagnetic loads ≥ 72 VA	
Rated breaking capability in category in AC-23A (cos φ= 0,45)	
Short circuit protection	
Rated short time withstand current (1s)	
Rated short-circuit make capacity	
Rated conditional short-circuit current	
With fuses class gG	

Technical data UL/CSA

Rated insulation voltage	
Rated operating voltage	
General Use Current	
Rated operating power	
1 phase - 2 pole	
3 phase - 3 pole	

Mechanical characteristics

Mechanical life	
Connections according to IEC 9471-1 and EN 60947-1	
Connecting capability	Connecting capability with flexible wires
	Connecting capability with solid wires
Connection terminal screw dimensions	
Screw tightening torque	
Protection degree IEC 529 EN 60529	
Terminals	
Ambient conditions	
Operating ambient temperature	
Storage ambient temperature	
Withstand to constant humid according to IEC 60068	
Withstand to cyclic humid according to IEC 60068	

		CQ012	CQ016	CQ025	CQ032
Ui	V	690	690	690	690
Ue	V	690	690	690	690
Uimp	kV	6	6	4	4
Ith	A	16	20	32	40
Ithe	A	16	20	25	32
	Hz	50	50	50	50
	W	0,4	0,6	0,85	1,3
Ie	A	16	20	32	40
Ie	A	12	16	25	32
-	-	-	-	-	-
230V	Kw (A)	4 (13)	5,5 (17)	9 (28)	11 (35)
400V	Kw (A)	7,5 (14)	9 (16)	15 (27)	18,5 (33)
500V	Kw (A)	7,5 (11)	9 (13)	15 (22)	18 (27)
690V	Kw (A)	7,5 (8)	9 (9)	15 (16)	18,5 (19)
230V	Kw (A)	2,8 (9)	4 (13)	6,5 (20)	8,5 (26)
400V	Kw (A)	5,5 (10)	7,5 (14)	11 (21)	15 (27)
500V	Kw (A)	5,5 (8)	7,5 (11)	11 (16)	14 (20)
690V	Kw (A)	5,5 (6)	7,5 (8)	11(12)	14 (15)
230V	Kw (A)	1,1 (3)	1,5 (4)	3,7 (12)	4 (12)
400V	Kw (A)	1,75 (3)	2,2 (4)	4 (7)	5,5 (10)
230V	A	5	6	8	10
400V	A	3	4	6	8
230V	A	112	128	240	280
400V	A	112	128	216	264
Icw	A	200	240	500	640
Icm	A	1000	1000	2000	2000
-	kA	5	5	10	10
500V	A	20	20	50	50
Ui	UL/CSA V	600	600	-	-
Ue	UL/CSA V	600	600	-	-
Ie	UL/CSA A	16	20	-	-
120V	UL/CSA Hp	0,5/0,5	1,5 /0,5	-	-
240V	UL/CSA Hp	1,5/1,5	3/1,5	-	-
200V	UL/CSA Hp	2/2	5/3	-	-
240V	UL/CSA Hp	3/3	7,5/5	-	-
480V	UL/CSA Hp	5/5	7,5/7,5	-	-
600V	UL/CSA Hp	7,5/7,5	10/10	-	-
-	cycles x 10^6	2	2	2	1,5
-	cycles/hour	120	120	120	120
Min-Max	mm^2	2x1,5-2,5	2x1,5-2,5	2x2,5-6	2x2,5-6
Min-Max	AWG	16-12	16-12	14-10	14-10
Min-Max	mm^2	2x1,5-4	2x1,5-4	2x2,5-10	2x2,5-10
-	Type	M3,5	M3,5	M5	M5
-	Nm	1,0	1,0	2,8	2,8
	IP	20			
	°C	-25 ÷ +55			
	°C	-30 ÷ +70			
		2-78			
		2-30			

Standard plates and knobs

Rear mounting with screws

	**Q01**	Rear mounting with screws, grey plate 48x48mm (1.89x1.89”), black knob, IP65
	**Q06**	Rear mounting with screws, grey plate 64x64mm (2.52x2.52”), black knob, IP65
	**RL6**	Rear mounting with screws, yellow plate 67x67mm(2.64x2.64”), red padlockable knob (max 3 padlocks), IP66

Base mounting with screws or snap on DIN rail

	**BL6**	Base mounting with screws or with snap mount on DIN rail, yellow plate 67x67mm(2.64x2.64”), red padlockable knob (max 3 padlocks), door interlock in “ON” position, IP66
	**DDN**	Base mounting with screws or snap mount on DIN rail, escutcheon plate for standard 45mm (1.77”) knock-out, black knob, IP40

Optional plates and knobs

Rear mounting with screws

	**QG1**	Rear mounting with screws, yellow plate 48x48mm (1.89x1.89”), red knob, IP65
	**QG6**	Rear mounting with screws, yellow plate 64x64mm (2.52x2.52”), red knob, IP65
	**RK6**	Rear mounting with screws, grey plate 67x67mm(2.64x2.64”), black padlockable knob (max 3 padlocks), IP66

Base mounting with screws or snap mount on DIN rail

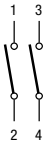
	**BK6**	Base mounting with screws or witn snap on DIN rail, grey plate 67x67mm (2.64x2.64”), black padlockable knob (max 3 padlocks), door interlock in “ON” position, IP66

Rear mounting

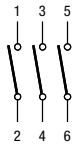
Q01

Q06

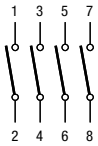
ON-OFF switch 2 pole

	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
0 1 0002		12A	CQ0120002Q01	1		
		16A	CQ0160002Q01	1	CQ0160002Q06	R
		25A			CQ0250002Q06	R
		32A				

ON-OFF switch 3 pole

	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
0 1 0003		12A	CQ0120003Q01	1	CQ0120003Q06	R
		16A	CQ0160003Q01	1	CQ0160003Q06	R
		25A			CQ0250003Q06	R
		32A			CQ0320003Q06	R

ON-OFF switch 4 pole

	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
0 1 0004		12A	CQ0120004Q01	1	CQ0120004Q06	R
		16A	CQ0160004Q01	1	CQ0160004Q06	R
		25A			CQ0250004Q06	R
		32A			CQ0320004Q06	R

Change-over switch 1 pole

	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
1 0 2 0005		12A	CQ0120005Q01	1	CQ0120005Q06	R
		16A				
		25A				
		32A				

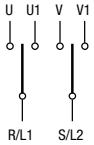
standard article R = on Request

Rear mounting

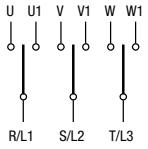
Q01

Q06

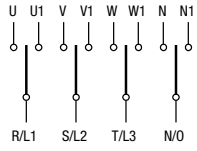
Change-over switch 2 pole

	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
 0006		12A	CQ0120006Q01	1		
		16A	CQ0160006Q01	1	CQ0160006Q06	R
		25A			CQ0250006Q06	R
		32A			CQ0320006Q06	R

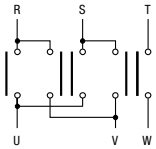
Change-over switch 3 pole

	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
 0007		12A	CQ0120007Q01	1	CQ0120007Q06	R
		16A	CQ0160007Q01	1	CQ0160007Q06	R
		25A			CQ0250007Q06	R
		32A			CQ0320007Q06	R

Change-over switch 4 pole

	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
 0039		12A	CQ0120039Q01	1		
		16A	CQ0160039Q01	1	CQ0160039Q06	R
		25A			CQ0250039Q06	R
		32A			CQ0320039Q06	R

Reversing switch 3 pole

	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
 0008		12A	CQ0120008Q01	1	CQ0120008Q06	R
		16A	CQ0160008Q01	1	CQ0160008Q06	R
		25A			CQ0250008Q06	R
		32A			CQ0320008Q06	R

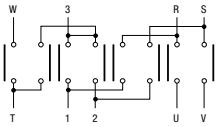
standard article R = on Request

Rear mounting

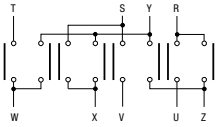
Q01

Q06

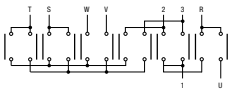
Changing switch Dahlander pole

	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
 0009		12A	CQ0120009Q01	1	CQ0120009Q06	R
		16A	CQ0160009Q01	1	CQ0160009Q06	R
		25A			CQ0250009Q06	R
		32A			CQ0320009Q06	R

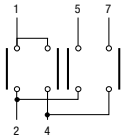
STAR-DELTA Starter

	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
 0010		12A				
		16A	CQ0160010Q01	1	CQ0160010Q06	R
		25A			CQ0250010Q06	R
		32A			CQ0320010Q06	R

Reversing switch pole changing

	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
 0011		12A				
		16A	CQ0160011Q01	1		
		25A				
		32A				

Voltmeter switch 3 concatenated voltages

	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
 0016		12A	CQ0120016Q01	1	CQ0120016Q06	R
		16A				
		25A				
		32A				

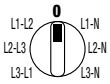
standard article R = on Request

Rear mounting

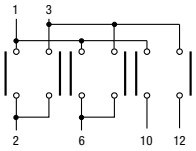
Q01

Q06

Voltmeter switch 3 concatenated voltages and 3 phase voltages



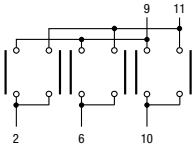
0018



Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
	12A	CQ0120018Q01	1	CQ0120018Q06	1
	16A				
	25A				
	32A				

Ammeter switch 1 pole 3 current transformers

0022

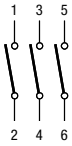


Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
	12A	CQ0120022Q01	1	CQ0120022Q06	R
	16A				
	25A				
	32A				

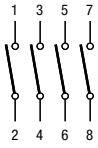
standard article R = on Request

	Rear mounting	Base mounting*
		
	RL6	BL6

ON-OFF switch 3 pole with padlockable handle

	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
0 1 0003		12A	CQ0120003RL6	1	CQ0120003BL6	1
		16A	CQ0160003RL6	1	CQ0160003BL6	1
		25A	CQ0250003RL6	R	CQ0250003BL6	R
		32A	CQ0320003RL6	R	CQ0320003BL6	R

ON-OFF switch 4 pole with padlockable handle

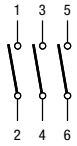
	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
0 1 0004		12A	CQ0120004RL6	1	CQ0120004BL6	1
		16A	CQ0160004RL6	1	CQ0160004BL6	1
		25A	CQ0250004RL6	R	CQ0250004BL6	R
		32A	CQ0320004RL6	R	CQ0320004BL6	R

* Base mounting switches are supplied with standard 175mm (6.89”) shaft

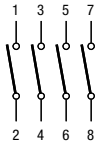
standard article R = on Request

	Rear mounting	Base mounting*
		
	RK6	BK6

ON-OFF switch 3 pole with padlockable handle

	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
 0003		12A	CQ0120003RK6	R	CQ0120003BK6	R
		16A	CQ0160003RK6	R	CQ0160003BK6	R
		25A	CQ0250003RK6	R	CQ0250003BK6	R
		32A	CQ0320003RK6	R	CQ0320003BK6	R

ON-OFF switch 4 pole with padlockable handle

	Circuit diagram	Rated nom. current	Part no.	Pack	Part no.	Pack
 0004		12A	CQ0120004RK6	R	CQ0120004BK6	R
		16A	CQ0160004RK6	R	CQ0160004BK6	R
		25A	CQ0250004RK6	R	CQ0250004BK6	R
		32A	CQ0320004RK6	R	CQ0320004BK6	R

* Base mounting switches are supplied with standard 175mm (6.89") shaft

standard article R = on Request

Plates and knobs

	Part no.	Description	Legend included		Pack
			Type	Degrees	
	**FINRL6Q5**	Rear mounting with screws, yellow plate 67x67mm (2.64x2.64”), red padlockable knob (max 3 padlocks), IP66	0 - 1	90°	5
	**FINRK6Q5**	Rear mounting with screws, grey plate 67x67mm (2.64x2.64”), black padlockable knob (max 3 padlocks), IP66	0 - 1	90°	5
	**FINBL6Q5**	Remounting with screws, yellow plate 67x67mm (2.64x2.64ar”), red padlockable knob (max 3 padlocks), IP66	0 - 1	90°	5
	**FINBK6Q5**	Rear mounting with screws, grey plate 67x67mm (2.64x2.64”), black padlockable knob (max 3 padlocks), IP66	0 - 1	90°	5
	**FINQ01Q5**	Rear mounting with screws, plate 48x48mm (1.89x1.89”), black knob, IP65	0 - 1 1 - 0 - 2	90° 90°	5
	**FINQ06Q5**	Rear mounting with screws, plate 64x64mm (2.52x2.52”), black knob, IP65	0 - 1 1 - 0 - 2	90° 90°	5

Accessories

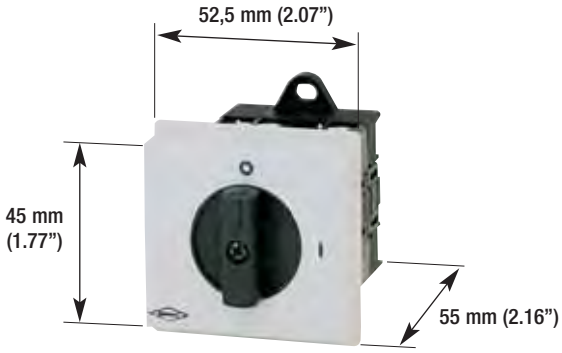
Optional shafts

Part no.	Description	Pack
PALBL300	Shaft L=300mm Ø5	5
PALBL500	Shaft L=500mm Ø5	5
PALBL065	Shaft L=65mm Ø5	R
PALBL075	Shaft L=75mm Ø5	R
PALBL095	Shaft L=95mm Ø5	R
PALBL115	Shaft L=115mm Ø5	R
PALBL135	Shaft L=135mm Ø5	R
PALBL155	Shaft L=155mm Ø5	R
PALBL175	Shaft L=175mm Ø5	5

standard article R = on Request

Construction data

DDN is the solution proposed by BREMAS for mounting the switch in panel/distribution boards standard slots, with 45mm (1.77”) plate.
The main mounting system is snap mount on DIN rail, otherwise it’s possible to fix the switch with screws with 48mm (1.89”) or 75mm (2.95”) interaxis between the holes.
Available diagrams for ON-OFF switches, line switches, ammeter and voltmeter switches.
Grey escuteon plate, black knob, IP40.

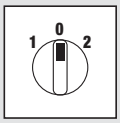
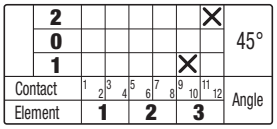
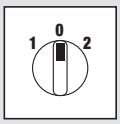
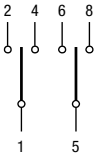
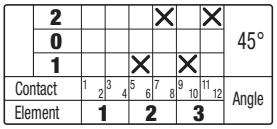
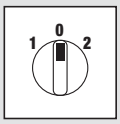
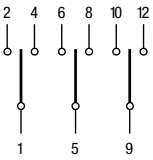
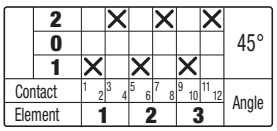
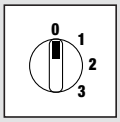
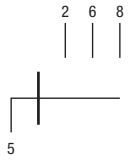
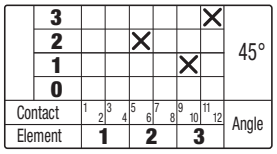
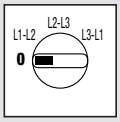
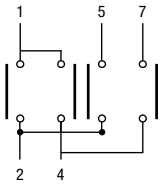
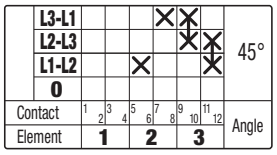
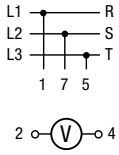
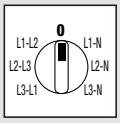
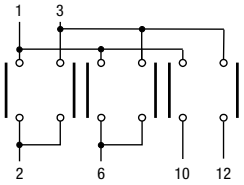
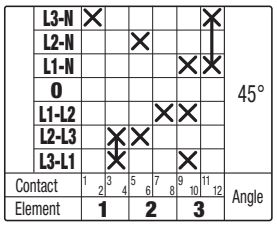
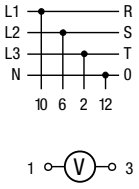
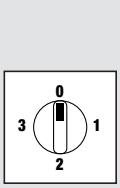
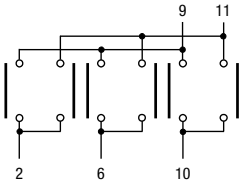
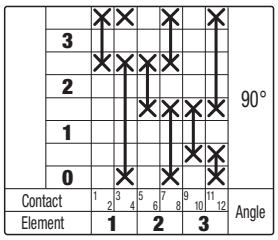
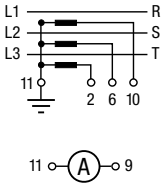


DDN version

Circuit diagram	Rated nominal current 12A Part no.	12A Pack	16A Part no.	16A Pack
DN07	CQ012DN07DDN	R	CQ016DN07DDN	R
DN08	CQ012DN08DDN	1	CQ016DN08DDN	1
DN09	CQ012DN09DDN	1	CQ016DN09DDN	1
DN10	CQ012DN10DDN	R	CQ016DN10DDN	R
DN16	CQ012DN16DDN	R		
DN18	CQ012DN18DDN	R		
DN22	CQ012DN22DDN	R		

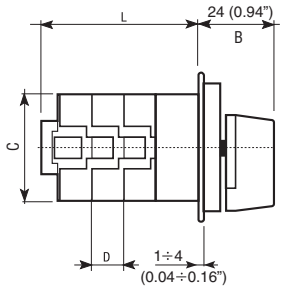
standard article R = on Request

Switches

plate	circuit diagram	function	circuit diagram	contact/element description
	**DN07**	Change-over switch 1 pole		
	**DN08**	Change-over switch 2 pole		
	**DN09**	Change-over switch 3 pole		
	**DN10**	Multi step switch 1 pole 3 steps with “OFF”		
	**DN16**	Voltmeter switch 3 concatenated voltages		 
	**DN18**	Voltmeter switch 3 concatenated voltages and 3 phase voltages		 
	**DN22**	Ammeter switch 1 pole 3 current transformers		 

Rear mounting - Q01/Q06/QG1/QG6 handles

Measures in mm (in)

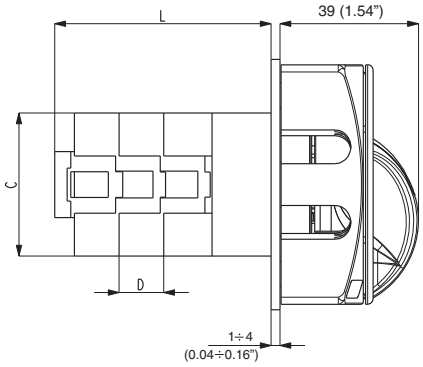


	B (mm)	B (in)
Q01-QG1	24	0.94
Q06-QG6	30	1.18

Stages no		1	2	3	4	6
CQ 012-016 D = 12,5 0.49 C = 40x40 1.57x1.57	L (mm)	48,0	60,5	73,0	85,5	110,5
	L (in)	1.89	2.38	2.87	3.37	4.35
CQ 025-032 D = 12,5 0.49 C = 63X62 2.42x2.40	L (mm)	50,5	63,0	75,5	88,0	113,0
	L (in)	1.99	2.48	2.97	3.46	4.45

Rear mounting - RL6/RK6 handles

Measures in mm (in)

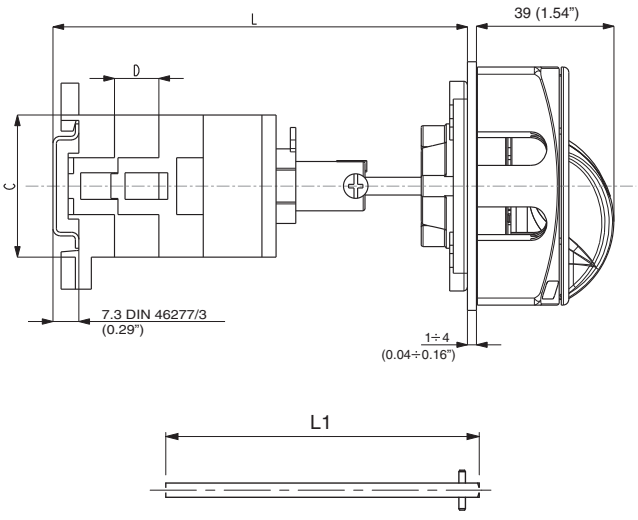


Stages no		2
CQ 012-016 D = 12,5 0.49 C = 40x40 1.57x1.57	L (mm)	60,5
	L (in)	2.38
CQ 025-032 D = 12,5 0.49 C = 63X62 2.42x2.40	L (mm)	63,0
	L (in)	2.48

Rear mounting - BL6/BK6 Handles

Switching angle 90°, padlockable (max 3 padlocks)

Measures in mm (in)



Overall length (min-max) for different shaft lengths (L1):**

Stages no			2
	L1		
CQ 012-016 D = 12,5 0.49 C = 40x40 1.57x1.57	**175***	(mm)	118 - 262
	6.89*	(in)	4.65 - 10.31
	300	(mm)	118 - 387
	11.81	(in)	4.65 - 15.24
	500	(mm)	118 - 587
	19.68	(in)	4.65 - 23.11

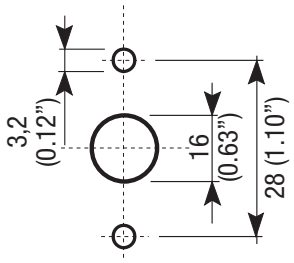
Stages no			2
	L1		
CQ 025-032 D = 12,5 0.49 C = 63X62 2.42x2.40	**175***	(mm)	121 - 265
	6.89*	(in)	4.76 - 10.43
	300	(mm)	121 - 390
	11.81	(in)	4.76 - 15.35
	500	(mm)	121 - 590
	19.68	(in)	4.76 - 23.23

* Standard shaft, bundled

** Minimum length obtainable by cutting the shaft.

Drilling templates

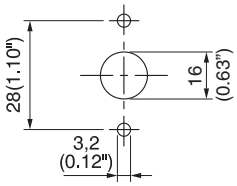
Drilling templates
Rear mounting - Measures in mm (in)



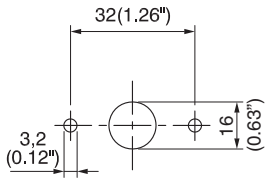
Base mounting

Escutcheon plate mounting options:

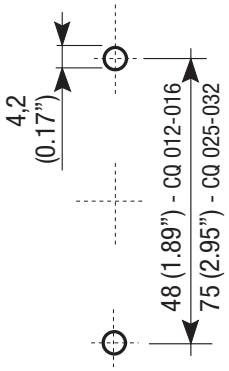
1) 2 holes with vertical distance 28mm (1.10")



2) 2 holes with horizontal distance 32mm (1.26")

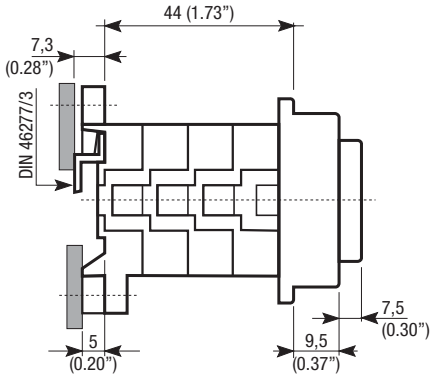


Switch

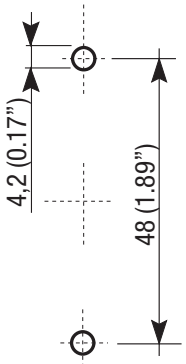


For fixing with screws in alternative to snap mount on DIN rail

Base mounting - DDN
Measures in mm (in)



Drilling templates - DDN
Measures in mm (in)



Fixing with screws in alternative to snap mount on DIN rail