SELECTION GUIDE

The choice of a rotary cam switch and the relative type are based on the functional diagram and the type of application as well.

IEC standards provide a comprehensible and quick classification of the most frequent utilisation categories:

AC1: Connection and disconnection of non-inductive or slightly inductive loads ($\cos\varphi \geq 0.95$)
AC21: Resistance furnaces
AC3: Starting and switching off motors during running
AC23A: Switching of motor loads or other highly inductive loads
AC15: Control of electromagnetic loads

For DC applications. the rotary cam switches are used for the switching of minor loads or in control circuits. such as:

DC13: Control of electromagnets
DC21A: Switching of resistive loads
DC23: Switching of highly inductive loads

Other prescriptions and recommendations concerning the use of cam switches as auxiliary equipment of electrical machines are given in IEC/EN 60204-1 standards and specifically as given under utilisation.

UTILISATION

MAIN SUPPLY DISCONNECTING SWITCH WITH EMERGENCY-STOP OPERATION:
- Red operating handle with yellow background
- Lockable in open position (OFF).

EMERGENCY-STOP SWITCH
- Red operating handle with yellow background
- Independent operation and the breaking of the load circuit of switching devices before the opening of its main contacts
- Rated capacity is to sufficient in order to break the sum of the rated operating currents of all the connected equipment
- Breaking capacity equal to the current of the largest motor when stalled (locked rotor) together with the total of the normal running currents of the other motors or loads.

MAIN SUPPLY DISCONNECTING SWITCH
- Used to disconnect all live electrical equipment from the power supply circuit
- Contact clearance distance is to comply with IEC/EN 60947-3 standards
- Provided with a means in order to be locked in the OFF position
- Selection of current breaking according to IEC AC1 and AC21 utilisation categories.

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TYPE			GX16	GX20	GX32	GX40	GN12	GN20	GN25	GN32	GN40	GN63	GN125
Rated insulation voltage❶ Ui IEC/EN		V	690	690	690	690	690	690	690	690	690	690	690
UL/CSA		V	600	600	600	600	600	600	600	600	600	600	600
Rated impulse withstand voltage ❶ Uimp IEC/EN 60947-3		kV	6	6	6	6	6	6	6	6	6	6	8
Conventional free air thermal current Ith IEC/EN		A	16	20	32	40	16	20	25	32	40	63	125
UL/CSA (general purpose use)		A	12	15	32	40	15	20	30	40	50	60	130
Rated operating voltage (switch disconnect) ❶		V	440	440	440	440	480	480	480	480	480	480	690
Operatioanl impulse voltage (switch disconnect)		kV	4	4	4	4	4	4	4	4	4	4	6
Maximum fuse size for short-circuit protection In (gG)	10kA	A	20	20	40	40	16	20	25	32	40	63	125
	25kA	A	16	16	35	35	10	16	25	32	40	63	100
	50kA	A	–	–	32	35	–	–	–	32	40	63	100
	63kA	A	–	–	–	35	–	–	–	–	40	63	100
Short-time withstand current Icw	1sec	A	250	250	800	800	200	250	400	800	1000	1600	2100
Rated operational current Ie AC1/AC21A (IEC/EN)		A	16	20	32	40	12	20	25	32	40	63	125
AC15 (IEC/EN)	110V	A	10	10	25	25	10	10	16	25	25	32	40
	220-230V	A	8	8	20	22	8	8	12	20	22	25	28
	380-400V	A	4	6	10	12	4	6	8	10	12	15	15
	660-690V	A	3	3.7	5.5	7.5	1.5	1.5	2	2	2	4	5
Motor power for switches in AC utilisation categories AC3 (IEC/EN) 3 phases	220-230V	kW	3.5	3.7	7.5	7.5	2.5	3	5.5	7.5	8	11	18.5
	380-440V	kW	4.5	5.5	11	15	4	5.5	7.5	11	15	18.5	37
	500-690V	kW	5.5	5.5	11	15	5.5	5.5	7.5	11	15	18.5	33
1 phase (2 poles)	110V	kW	0.55	0.75	1.8	2.2	0.8	0.8	1.5	2.2	3	3.7	5
	220-230V	kW	1.5	1.8	3.5	4.4	1.5	2.2	3	4	6.5	6.5	11
	380-440V	kW	2.2	3	5.5	7	2.2	3	5.5	6.5	8	11.5	15
AC23A (IEC/EN) 3 phases	220-230V	kW	3.7	4	8	9	3	5	6.5	8	8	12.5	30
	380-440V	kW	6.5	7.5	15	18.5	5.5	7.5	11	15	18.5	30	45
	500-690V	kW	7.5	7.5	15	15	7.5	7.5	11	18.5	22	30	37
1 phase (2 poles)	110V	kW	0.75	0.75	2.2	3	0.8	0.8	1.5	2.2	3	3.7	5
	220-230V	kW	1.8	2.2	3.5	5.2	1.7	2.5	3.7	4	6	7.5	11
	380-440V	kW	3	3.5	6	7.5	3	3.7	5.5	7.5	11	12.5	15

❶ Valid for systems with earthed neutral, overvoltage category III, pollution degree 3.

TYPE			GX16	GX20	GX32	GX40	GN12	GN20	GN25	GN32	GN40	GN63	GN125
Motor power for direct-on-line control (UL/CSA-DOL) 3 phases	120V	HP	1.5	1.5	3	5	1.5	1.5	3	5	5	7.5	15
	230V	HP	3	3	7.5	10	3	3	5	10	10	15	25
	480V	HP	5	5	15	15	–	–	10	15	20	25	50
	600V	HP	5	5	15	15	–	–	15	15	20	25	40
1 phase (2 poles)	120V	HP	0.75	0.75	1.5	2	0.75	0.75	1.5	2	2	5	7.5
	230V	HP	1	1.5	3	5	1	2	3	5	5	10	15
Motor power for switches in DC utilisation categories													
1 contact DC21A	48V	A	16	20	32	40	12	20	25	32	40	63	125
	60V	A	16	20	32	40	12	20	25	32	40	50	80
Ie	110V	A	4	4	5	6	4	4	4	6	6	8	10
	220V	A	0.5	0.6	0.8	0.8	0.6	0.6	0.7	0.9	0.9	1	1.2
	440V	A	0.25	0.25	0.25	0.25	0.25	0.25	-	-	-	-	-
DC23A	24V	A	16(1)	20(1)	32(1)	40(1)	10(1)	20(1)	25(1)	32(1)	40(1)	50(1)	125(1)
	48V	A	16(2)	20(2)	32(2)	40(1)	10(2)	20(2)	25(2)	32(2)	40(2)	50(2)	125(2)
Ie	60V	A	16(3)	20(3)	32(3)	40(3)	10(3)	20(3)	25(3)	32(3)	40(3)	50(3)	125(3)
No. of contacts connected in series are indicated in brackets	110V	A	10(3)	10(3)	15(3)	20(3)	5(3)	10(3)	12(3)	15(3)	20(3)	25(3)	50(3)
	220V	A	7(4)	8(4)	12(4)	12(4)	5(4)	8(4)	10(4)	12(4)	12(4)	15(4)	20(4)
	24V	A	16	20	32	40	12	20	25	32	40	63	125
DC13	48V	A	14	16	25	32	10	16	20	25	32	40	100
	60V	A	12	12	16	16	8	12	16	16	16	28	50
Ie	110V	A	0.8	1	3	3	1	1	1.5	3	3	3.3	4
	220V	A	0.3	0.4	0.5	0.5	0.4	0.4	0.4	0.5	-	-	-
	440V	A	0.15	0.15	0.15	0.15	0.15	0.15	-	-	-	-	-
Mechanical life		cycles	$5x10^6$	$5x10^6$	$5x10^6$	$5x10^6$	$3x10^6$	$5x10^6$	$5x10^6$	$5x10^6$	$5x10^6$	$5x10^6$	$1x10^6$
Terminal screw		M	3	3	4	4	3	3	3.5	4	4	5	2x5
Tightening torque	max	Nm	0.5	0.8	1.2	1.2	0.5	0.5	0.8	1.2	1.2	2	2
Conductor cross section	max. r/f	2 mm^2	2.5/2.5	2.5/2.5	10/6	10/6	2.5/2.5	2.5/2.5	4/4	6/4	10/6	16/10	50/50
		2 AWG	14/14	14/14	8/10	8/10	14/16	12/14	10/12	8/10	8/10	6/8	1/0 / 1/0
r: rigid/solid f: flexible/stranded	min. r/f	2 mm^2	0.5/0.5	0.5/0.5	1.5/1.5	1.5/1.5	0.5/0.5	0.5/0.5	0.5/0.5	1.5/1.5	1.5/1.5	2.5/2.5	2.5/2.5
		2 AWG	20/20	20/20	16/16	16/16	20/20	20/20	20/20	16/16	16/16	14/14	14/14

AMBIENT CONDITIONS		
Operating temperature	°C	-25...+55
Storage temperature	°C	-40...+70