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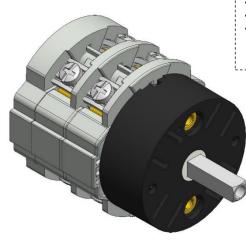
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 www.bremas.eu

 info@bremas.it

ISO 9001 Certified Quality System

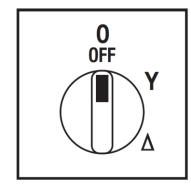
Cod. CA0160010PL2



(Image is purely indicative)



Positions



Standard and Approvals

- Switch according to IEC/EN 60947-3
- Certified UL60947-4-1A and CAN/CSA C22.2 No. 60947-4-1-07
- Suitable as Manual Motor Controller

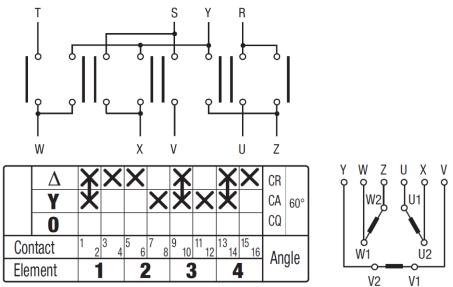


- STAR-DELTA starter
- IP00 Protection degree
- Rated operational current le: 16A (AC-21A)
- Rated thermal current Ith: 20A
- Rated insulation voltage Ui: 690V
- Rear mounting
- Fixing with 2 screw at 28mm vertical
- Switching angle: 60°
- Class V2 self-extinguishing thermoplastic housing
- Assembled with metal shaft and threaded stud bolts to ensure maximum operating reliability
- Positive opening double break contacts, silver alloy made.

Technical characteristics: Knob

- Transparent plate 75,5x75,5mm and black knob
- Fixing with 2 screws at 28mm vertical
- IP 40 Protection degree

Electrical diagram and function



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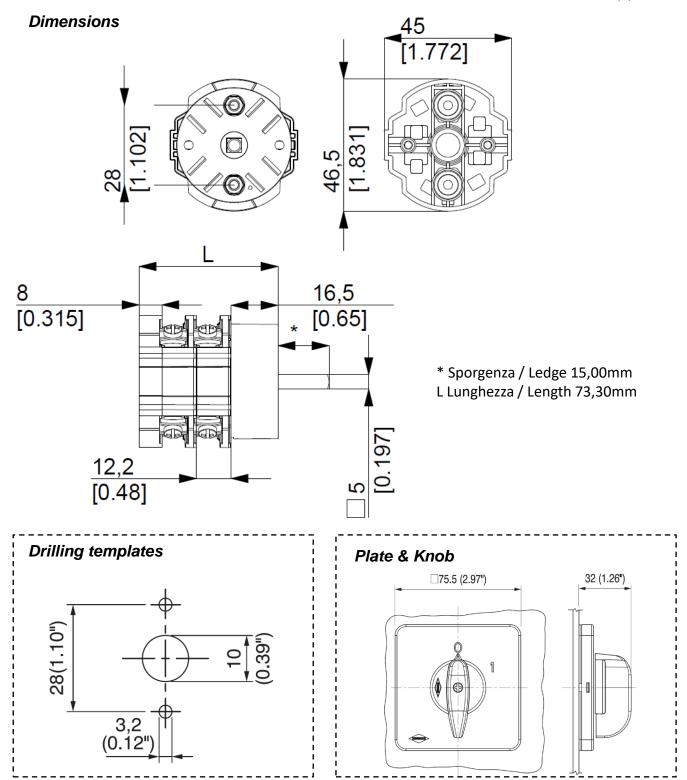


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measures in mm (in)



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Technical data IEC 947-3 EN 60947-3			
Rated insulation voltage	Ui	v	690
Rated operating voltage	Ue	v	690
Rated impulse withstand voltage	Uimp	kV	6
Rated thermal current for open switch	lth	A	20
Rated thermal current for enclosed switch	Ithe	A	20
Rated operation frequency	Turc	Hz	50/60
Power dissipation for each pole		w	0,5
Rated operating current		w	0,5
AC-21A Switching resistive loads, including moderate overloads	le	A	16
AC-22A Switching of mixed resistive and inductive loads, including moderate overloads	le	A	16
AC-20A Connecting and disconnecting under no loads conditions			-
Rated operating power			
AC-23A Switching of motor loads or other highly inductive loads 3 phase - 3 pole	230V	Kw (A)	4 (14)
	400V	Kw (A)	7,5 (14)
	500V	Kw (A)	-
	690V	Kw (A)	-
AC-23A Switching of motor loads or other highly inductive loads 1 phase - 2 pole	110V	Kw (A)	1,1 (12)
	230V	Kw (A)	2,2 (14)
AC-3 Squirrel cage motors: starting, swtiching off motors during running 3 phase - 3 pole	230V	Kw (A)	3,7 (12)
	400V	Kw (A)	5,5 (10)
	500V	Kw (A)	-
	690V	Kw (A)	-
AC-3 Squirrel cage motors: starting, swtiching off motors during running 1 phase - 2 pole	110V	Kw (A)	0,75 (9)
	230V	Kw (A)	1,5 (8)
	400V	Kw (A)	-
AC-4 Squirrel cage motors: starting, pluggign, inching	230V	Kw (A)	-
	400V	Kw (A)	-
AC-15 Control of a.c electromagnetic loads	230V	А	6
	400V	А	4
Rated breaking capability in AC-23A (cos φ=0,45)	230V	А	112
	400V	А	112
Short circuit protection			
Rated short time withstand current	Icw	А	240
Rated short-circuit make capacity	Icm	А	-
Rated conditional short-circuit current	-	kA	4
With fuses class gG	500V	A	20
Technical data UL/CSA			
Rated operating voltage			600/-
	Ue	UL/CSA V	,
General use current	Ue Ie	UL/CSA V UL/CSA A	16
General use current Short circuit rating @600Vac		UL/CSA A	16 5000
General use current Short circuit rating @600Vac Fuse size (Class RK5, 600Vac, 200KA A.I.C.)		UL/CSA A Arms	16
General use current Short circuit rating @600Vac Fuse size (Class RK5, 600Vac, 200kA.A.I.C.) Rated operating power		UL/CSA A Arms A	16 5000
General use current Short circuit rating @600Vac Fuse size (Class RK5, 600Vac, 200KA A.I.C.)	le	UL/CSA A Arms	16 5000 25 (30)
General use current Short circuit rating @600Vac Fuse size (Class RK5, 600Vac, 200kA.A.I.C.) Rated operating power	le 	UL/CSA A Arms A Hp (A)	16 5000 25 (30) 1 (16)
General use current Short circuit rating @600Vac Fuse size (Class RK5, 600Vac, 200kA A.I.C.) Rated operating power 1 phase - 2 pole	le 	UL/CSA A Arms A Hp (A) Hp (A)	16 5000 25 (30) 1 (16) 2 (12)
General use current Short circuit rating @600Vac Fuse size (Class RK5, 600Vac, 200kA A.I.C.) Rated operating power 1 phase - 2 pole	le 120V 240V 200V	UL/CSA A Arms A Hp (A) Hp (A) Hp (A)	16 5000 25 (30) 1 (16) 2 (12) 2 (7,8)
General use current Short circuit rating @600Vac Fuse size (Class RK5, 600Vac, 200kA A.I.C.) Rated operating power 1 phase - 2 pole	le 120V 240V 200V 240V	UL/CSA A Arms A Hp (A) Hp (A) Hp (A) Hp (A)	16 5000 25 (30) 1 (16) 2 (12) 2 (7,8) 3 (9,6)
General use current Short circuit rating @600Vac Fuse size (Class RK5, 600Vac, 200kA A.I.C.) Rated operating power 1 phase - 2 pole	le 120V 240V 200V 240V 240V 480V	UL/CSA A Arms A Hp (A) Hp (A) Hp (A) Hp (A) Hp (A)	16 5000 25 (30) 1 (16) 2 (12) 2 (7,8) 3 (9,6) 7,5 (11)
General use current Short circuit rating @600Vac Fuse size (Class RK5, 600Vac, 200kA A.I.C.) Rated operating power 1 phase - 2 pole 3 phase - 3 pole	le 120V 240V 200V 240V 240V 480V	UL/CSA A Arms A Hp (A) Hp (A) Hp (A) Hp (A) Hp (A)	16 5000 25 (30) 1 (16) 2 (12) 2 (7,8) 3 (9,6) 7,5 (11)
General use current Short circuit rating @600Vac Fuse size (Class RK5, 600Vac, 200kAA.I.C.) Rated operating power 1 phase - 2 pole 3 phase - 3 pole Mechanical characteristics	le 120V 240V 200V 240V 480V 600V	UL/CSA A Arms A Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Hp (A)	16 5000 25 (30) 1 (16) 2 (12) 2 (7,8) 3 (9,6) 7,5 (11) 7,5 (9)
General use current Short circuit rating @600Vac Fuse size (Class RK5, 600Vac, 200kAA.I.C.) Rated operating power 1 phase - 2 pole 3 phase - 3 pole Mechanical characteristics Panel thickness	le 120V 240V 200V 240V 480V 600V	UL/CSA A Arms A Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) mm	16 5000 25 (30) 1 (16) 2 (12) 2 (7,8) 3 (9,6) 7,5 (11) 7,5 (9) 4
General use current Short circuit rating @600Vac Fuse size (Class RK5, 600Vac, 200kAA.I.C.) Rated operating power 1 phase - 2 pole 3 phase - 3 pole Mechanical characteristics Panel thickness	le 120V 240V 200V 240V 480V 600V	UL/CSA A Arms A Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Mp (A) Cycles x 10 ⁶	16 5000 25 (30) 1 (16) 2 (12) 2 (7,8) 3 (9,6) 7,5 (11) 7,5 (9) 4 4 2
General use current Short circuit rating @600Vac Fuse size (Class RK5, 600Vac, 200kA A.I.C.) Rated operating power 1 phase - 2 pole 3 phase - 3 pole Mechanical characteristics Panel thickness Mechanical life Connection according to IEC 9471-1 and EN 50947-1	le 120V 240V 200V 240V 480V 600V	UL/CSA A Arms A Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Mp (A) Cycles x 10 ⁶	16 5000 25 (30) 1 (16) 2 (12) 2 (7,8) 3 (9,6) 7,5 (11) 7,5 (9) 4 4 2
General use current Short circuit rating @600Vac Fuse size (Class RK5, 600Vac, 200kA A.I.C.) Rated operating power 1 phase - 2 pole 3 phase - 3 pole Mechanical characteristics Panel thickness Mechanical life Connection according to IEC 9471-1 and EN 50947-1	le 120V 240V 240V 240V 480V 600V Max Min-Max	UL/CSA A Arms A Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Cycles x 10 ⁶ Cycles/hr mm ²	16 5000 25 (30) 1 (16) 2 (12) 2 (7,8) 3 (9,6) 7,5 (11) 7,5 (9) 4 2 120 2x1,5-4
General use current Short circuit rating @600Vac Fuse size (Class RK5, 600Vac, 200KA A.I.C.) Rated operating power 1 phase - 2 pole 3 phase - 3 pole Mechanical characteristics Panel thickness Mechanical life Connection according to IEC 9471-1 and EN 50947-1 Connecting capability With flexible wires	le 120V 240V 240V 240V 480V 600V Max Min-Max	UL/CSA A Arms A Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Cycles x 10 ⁶ Cycles/hr Mm ² AWG	16 5000 25 (30) 1 (16) 2 (12) 2 (7,8) 3 (9,6) 7,5 (11) 7,5 (9) 4 2 120 2x1,5-4 16-10
General use current Short circuit rating @600Vac Fuse size (Class RK5, 600Vac, 200KA A.I.C.) Rated operating power 1 phase - 2 pole 3 phase - 3 pole Mechanical characteristics Panel thickness Mechanical life Connecting capability With flexible wires With solid wires	le 120V 240V 240V 240V 480V 600V Max Min-Max	UL/CSA A Arms A Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Mp (A) Cycles x 10 ⁶ Cycles x 10 ⁶ Cycles x 10 ⁶ Cycles x 10 ⁶ Cycles x 10 ⁶	16 5000 25 (30) 1 (16) 2 (12) 2 (7,8) 3 (9,6) 7,5 (11) 7,5 (9) 4 2 120 2x1,5-4 16-10 2x1,5-6
General use current Short circuit rating @600Vac Fuse size (Class RK5, 600Vac, 200KA A.I.C.) Rated operating power 1 phase - 2 pole 3 phase - 3 pole Mechanical characteristics Panel thickness Mechanical life Connection according to IEC 9471-1 and EN 50947-1 Connecting capability Connection terminal screw dimensions	le 120V 240V 240V 240V 480V 600V Max Min-Max	UL/CSA A Arms A Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Mp (A) Cycles x 10 ⁶ Cycles/hr Cycles/hr Mm ² AWG mm ² Type	16 5000 25 (30) 1 (16) 2 (12) 2 (7,8) 3 (9,6) 7,5 (11) 7,5 (9) 4 2 120 2 2x1,5-4 16-10 2x1,5-6 M3,5
General use current Short circuit rating @600Vac Fuse size (Class RK5, 600Vac, 200kA A.I.C.) Rated operating power 1 phase - 2 pole 3 phase - 3 pole Mechanical characteristics Panel thickness Mechanical life Connection according to IEC 9471-1 and EN 50947-1 Connecting capability Connecting capability Connecting capability Connecting capability Connection terminal screw dimensions Screw tightening torque	le 120V 240V 240V 240V 480V 600V Max Min-Max	UL/CSA A Arms A Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Mp (A) Cycles x 10 ⁶ Cycles x 10 ⁶ Cycles x 10 ⁶ Cycles x 10 ⁶ Cycles x 10 ⁶	16 5000 25 (30) 1 (16) 2 (12) 2 (7,8) 3 (9,6) 7,5 (11) 7,5 (9) 4 2 120 2x1,5-4 16-10 2x1,5-6
General use current Short circuit rating @600Vac Fuse size (Class RK5, 600Vac, 200kA A.I.C.) Rated operating power 1 phase - 2 pole 3 phase - 3 pole Mechanical characteristics Panel thickness Mechanical life Connection according to IEC 9471-1 and EN 50947-1 Connecting capability Connecting capability Connection terminal screw dimensions Screw tightening torque Protection degree IEC 529 EN 60529	le 120V 240V 240V 240V 480V 600V Max Min-Max	UL/CSA A Arms A Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Cycles x 10 ⁶ Cycles x 10 ⁶ Cycles/hr Mm ² AWG mm ² Type Nm	16 5000 25 (30) 1 (16) 2 (12) 2 (7,8) 3 (9,6) 7,5 (11) 7,5 (9) 4 2 120 2x1,5-4 16-10 2x1,5-6 M3,5 1
General use current Short circuit rating @600Vac Fuse size (Class RK5, 600Vac, 200KA A.I.C.) Rated operating power 1 phase - 2 pole 3 phase - 3 pole Mechanical characteristics Panel thickness Mechanical life Connection according to IEC 9471-1 and EN 50947-1 Connecting capability Connecting capability Connection terminal screw dimensions Screw tightening torque Protection degree IEC 529 EN 60529 Terminals	le 120V 240V 240V 240V 480V 600V Max Min-Max	UL/CSA A Arms A Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Mp (A) Cycles x 10 ⁶ Cycles/hr Cycles/hr Mm ² AWG mm ² Type	16 5000 25 (30) 1 (16) 2 (12) 2 (7,8) 3 (9,6) 7,5 (11) 7,5 (9) 4 2 120 2 2x1,5-4 16-10 2x1,5-6 M3,5
General use current Short circuit rating @600Vac Fuse size (Class RK5, 600Vac, 200KA A.I.C.) Rated operating power 1 phase - 2 pole 3 phase - 3 pole Mechanical characteristics Panel thickness Mechanical life Connection according to IEC 9471-1 and EN 50947-1 Connecting capability Connecting capability With flexible wires Connection degree IEC 529 EN 60529 Terminals	le 120V 240V 240V 240V 480V 600V Max Min-Max	UL/CSA A Arms A Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Mr Cycles x 10 ⁶ Cycles x 10 ⁶ Cycles x 10 ⁶ Cycles/hr Mr AWG mm ² AWG mm ² Type Nm	16 5000 25 (30) 1 (16) 2 (12) 2 (7,8) 3 (9,6) 7,5 (11) 7,5 (9) 4 4 2 120 2x1,5-4 16-10 2x1,5-6 M3,5 1 00
General use current Short circuit rating @600Vac Fuse size (Class RK5, 600Vac, 200KA A.I.C.) Rated operating power 1 phase - 2 pole 3 phase - 3 pole Mechanical characteristics Panel thickness Mechanical life Connecting capability Connecting capability Connecting torque Protection degree IEC 529 EN 60529 Terminals Ambient conditions Operating ambient temperature	le 120V 240V 240V 240V 480V 600V Max Min-Max	UL/CSA A Arms A Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Cycles x 10 ⁶ Cycles x	16 5000 25 (30) 1 (16) 2 (12) 2 (7,8) 3 (9,6) 7,5 (11) 7,5 (9) 4 4 2 120 2 2x1,5-4 16-10 2x1,5-6 M3,5 1 00 -25 ÷ +55
General use current Short circuit rating @600Vac Fuse size (Class RK5, 600Vac, 200K A.I.C.) Rated operating power 1 phase - 2 pole 3 phase - 3 pole Mechanical characteristics Panel thickness Mechanical life Connection according to IEC 9471-1 and EN 50947-1 Connection gcapability Connection terminal screw dimensions Screw tightening torque Protection degree IEC 529 EN 60529 Terminals Ambient conditions Operating ambient temperature Storage ambient temperature	le 120V 240V 240V 240V 480V 600V Max Min-Max	UL/CSA A Arms A Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Mr Cycles x 10 ⁶ Cycles x 10 ⁶ Cycles x 10 ⁶ Cycles/hr Mr AWG mm ² AWG mm ² Type Nm	16 5000 25 (30) 1 (16) 2 (12) 2 (7,8) 3 (9,6) 7,5 (11) 7,5 (9) 4 2 2 2 2 2 2 3 (9,6) 7,5 (11) 7,5 (9) 2 2 2 2 2 3 3 (9,6) 7,5 (11) 7,5 (9) 2 2 2 2 3 3 (9,6) 7,5 (11) 7,5 (9) 2 2 2 2 3 (9,6) 7,5 (11) 7,5 (9) 2 2 2 2 2 3 (9,6) 7,5 (11) 7,5 (9) 2 2 2 2 2 2 2 3 (9,6) 7,5 (11) 7,5 (9) 2 2 2 2 2 2 2 2 2 2 2 2 2
General use current Short circuit rating @600Vac Fuse size (Class RKS, 600Vac, 200KA A.I.C.) Rated operating power 1 phase - 2 pole 3 phase - 3 pole Mechanical characteristics Panel thickness Mechanical life Connection according to IEC 9471-1 and EN 50947-1 Connecting capability Connecting capability Connection terminal screw dimensions Connecting capability Connecting capabil	le 120V 240V 240V 240V 480V 600V Max Min-Max	UL/CSA A Arms A Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Hp (A) Cycles x 10 ⁶ Cycles x	16 5000 25 (30) 1 (16) 2 (12) 2 (7,8) 3 (9,6) 7,5 (11) 7,5 (9) 4 4 2 120 2x1,5-4 16-10 2x1,5-6 M3,5 1 00 -25 ÷ +55

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