MERLIN GERIN



)

mastering electrical power

Compact CJ circuit breaker table of contents

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Compact CJ circuit breaker introduction, description

standard compliance

CJ circuit breakers are built in accordance with Underwriters Laboratories standard UL 489. The circuit breaker and its accessories, except when noted, are listed under UL files E107820, E107821, E107822, E116305 and E103740.

additional tests

in addition to standard tests, CJ circuit breakers meet UL standard 489 optional requirements (high available fault current).

compliance with international standards

Compact CJ has been designed to comply also with the international standard IEC 157-1 as well as with the major standards :

- british BS 4752,
- german VDE 660,
- french NF C63-120,
- australian AS 2184.

Compact circuit breakers have been approved for marine application by American Bureau of Shipping, Bureau Veritas, Lloyd's Register of Shipping, Registro Italiano Navale, Germanische Lloyd's and Det Norske Veritas.

description

1 three-pole high strength glass polyester casing

- 2 front accessory cover (accessory) terminals located on left and right hand side behind this cover)
- quick-make/quick break mechanism 3

handle with three positions : **ON-TRIPPED-OFF**

- 5
- shunt trip or undervoltage trip devices 6 auxiliary and alarm switches
- rotary operating handle
- 8 motor operator

test receptacle is provided on each trip 9 unit for use with the mini test kit in addition, the push to trip button can achieve a mechanical checking.

10 rotary switches adjust continuously the protection to the requirments of the distribution system

11 solid state trip unit containing three parts : current sensors, solid state logic unit and flux-transfer device) 12 the rating plug sets the maximum ampere rating of the circuit breaker. Rejection keying assures that the plug is

used with the proper circuit breaker. When the plug is not installed, the current setting automaticaly returns to its minimum value. 13 plug-in disconnecting interlock

14 plug-in assembly



interrupting ratings

Compact circuit breakers are listed for 3 levels of interrupting capabilities : ■ 35,000 Amps at 480V for the standard

- breaker
- 42,000 Amps at 480V for the high interrupting breaker

■ 150,000 Amps at 480V for the current limiting breaker.

ratings

Compact CJ are equipped with thermal-magnetic or solid state trip units. ■ thermal-magnetic :

rating: 250-300-350-400A CJ400 CJ600 rating: 350-400-450-500-600A solid state : Rating plugs are provided to set the

maximum current setting at a value equal or lower than the basic breaker selected. CJ400 plug: 200-225-250-300-350-400A plug: 300-350-400-500-600A CJ600

CJ type	
3-pole	
600V AC	

UL listed interrupting ratings RMS Sym. Amps 240V 480V ♦ 600V

standard breakers

CJ 600N	65,000	35,000	14,000
00 40011	03,000	35,000	14,000

CJ 400H 100,000 42,000 18 000 CJ 600H 100,000 42,000 18,000

current limiting breakers CJ 400L 150.000 150.000 65.000

motor circuit protectors

	•		
CJ 400HC	100,000	42,000	18,000
CJ 600HC	100,000	42,000	18,000
CJ 400LC	150,000	150,000	65,000



Compact CJ circuit breaker advantages

reinforced insulation

Two insulation barriers separate the front face of the circuit breaker from the main contacts.

This reinforced insulation allows safe operation and installation of the electrical auxiliaries. The compartment in which they are installed is independent from the compartment of the main contacts.



integral partioning

Once the front cover has been removed, to give access to the auxiliary compartments, the main circuits remain fully insulated. Furthermore, interphase partitioning allows full insulation between each pole even if the front cover has been removed.

built-in terminal blocks

are provided with the accessories. Consequently, intermediate terminals are not required for the connection of control wiring. They are located behind a front accessory cover. Removing this cover gives no access to direct access to live parts. Internal accessories are UL listed and are field installable.



isolation function

The operating handle is representative of the position of the main contacts. The OFF position can be reached only when the main contacts are fully opened.

The handle will reach the OFF position only if the pin \mathbf{A} can be engaged into the slot \mathbf{B} of the operating mechanism.

In case of unbreakable welding of any main contact due to non correct application of the circuit breaker, the mechanism will bump on this pin.

field interchangeable rating plug

All solid state trip units have a field installable rating plug located on the front face. The interchangeability makes rating changes simple. To avoid inadvertent errors, frames and rating plugs are keyed together and are not interchangeable with CK 1200 frame rating plugs and circuit breaker.





plug-in disconnecting interlock

As a safety feature, in the event of disconnecting a closed breaker, a mechanical interlock will trip the breaker before the separation of the main disconnects.

Compact CJ circuit breaker description

current limiting circuit breakers

A series association of the basic circuit breaker and of a current limiting compartment equipped with an original system enables outstanding performances to be obtained :

very high interrupting capability

specialization of the devices according to the current to be interrupted : □ the basic circuit breaker interrupts currents of up to 6,000 Amps
□ over 6,000 Amps, both devices operate simultaneously. This mutual assistance noticeably reduces contact wear.
These performances are obtained by combination of the following techniques in the current limiting block :
■ contact repulsion

- enhancement of induced magnetic field
- arc quenching.

contact and tripping coordination By means of calibrated U-shaped circuit, inertia and spring force, full opening of basic circuit breaker is ensured by tripping before reclosing of current limiting unit contacts arms.



arc quenching due to the design and materials of the arc chute, a magnetic force F draws the arc into the V-shaped plates. It is then split and cooled until extinction.



The combined effect of these three forces, together with the double break in series, allow very rapid interruption of any fault current.



contact repulsion

MM

Electrodynamic forces are generated by the current flowing in parallel conductors **b** and **c**. The moving contact is blown-apart by those repulsive forces, which are created by a short circuit.



Compact CJ circuit breaker description

Ip and I²t curves

The limitation capability of a circuit breaker is that characteristic whereby only a current less than the prospective fault current is allowed to flow under short-circuit conditions.

This is illustrated by limitation curves which give :

• **the limited peak let-through current** in relation to the RMS sym. value of the prospective short-circuit current (the short-circuit current that would flow continuously in the absence of protective equipment);

the limited let-through energy (thermal stress) in relation to the RMS sym. value of the prospective short-circuit current.



Installation of current limiting circuit breakers offers several advantages :

better protection

Current limiting circuit breakers considerably reduce the undesirable effects of short-circuit currents in an installation

reduced mechanical effects

Electrodynamic forces are reduced, thus electrical contacts are less likely to be deformed or broken.

reduced electromagnetic effects Measuring equipment situated near an electrical circuit is less affected.



thermal-magnetic trip unit

Compact CJ circuit breaker trip units

thermal-magnetic trip unit	ampere rating (A)	magneti low	c settings high			\mathbf{O}
	CJ 400					
	250	1250	2500			•
	300	1500	3000			
2011 - 1. W	350	1750	3500			
	400	2000	4000			
	CJ 600	1750				
	350	1/50	3500			
	400	2000	4000			
	500	2500	5000	_		
	600	3000	6000		$\mathbf{\vee}$	
	time current	t curve : pag	e 9	0		
instantaneous trip unit for	type	ampere	magnetic			_ <u></u>
motor circuit protectors		rating (A) settings (A)			
motor circuit protectors	CJ 400HC,	400	2000-4000			
And the second sec		600	3000-6000			ĸ
Instantaneous trip circuit breakers are similar to standard circuit breakers except that they do not provide overload protection.	time current	t curve : pag	e 12			
for all three poles. They are equipped with a push to trip.						, .
4						

Compact CJ circuit breaker trip units

solid state trip unit



Compact CJ circuit breaker trip units





ST 114D trip unit







Compact CJ circuit breaker accessories

terminals

Internal accessories comply with requirements of Underwriters Laboratories Standard UL 489. Most of them as noted are listed for field installation per UL file E107821.

accessories	installation
shunt trip	field installable
undervoltage trip	field installable
2 auxiliary switches	field installable
1 aux. + 1 alarm switches	field installable
3 aux. + 1 alarm switches	field installable
motor operator	field installable
overcurrent trip switch	factory mounted

terminals

internal accessory terminals are standard and located within the breaker, behind the accessory cover. Each terminal may be connected by one or two stranded copper wires 18 to 14 AWG. Tightening torque : 12 lb. in. Cable strip length : 3/8" approximate.

Caution :

open circuit breaker and disconnect control power before removing the front accessory cover.



Compact CJ circuit breaker accessories

shunt trip undervoltage trip device auxiliary and alarm switches overcurrent trip switch



motor operator

Compact CJ circuit breaker accessories

motor operator

The motor operator remotely operates the circuit breaker and provides a handle to manually operate it as well. ON. TRIPPED and OFF positions are clearly indicated by the operating handle. Provision for padlocking is provided as standard to lock the toggle in the OFF position.



When locked manual or remote closing is impossible.

Interlock switches electrically disconnect the motor operator when the front transparent cover is open for local operation or padlocking and when the complete mechanism is opened for connecting internal accessories (shunt trip, undervoltage trip device, auxiliary switches or the motor operator)

Under fault conditions the operating handle will indicate the tripped position of the breaker. Depending on the wiring, resetting can be done locally, remotely or automatically (see wiring diagrams).

note : when using an overcurrent trip switch (cat. no. 37403), automatic resetting is not possible after an overcurrent, i.e. short circuit or overload, but possible after a voluntary tripping, local or remote (field installable)

volta	ge	catalog n	umber
(V)		standard	synchronizing
AC	120	36464	44984
	240	36465	44985
DC	24	36460	
	48	36461	
	125	36462	44982

① caution : control diagram shall be designed to interlock remote on and off orders

- 2 overcurrent trip switch is recommended to lock remote
- resetting after an electrical fault C1 (limit switch CV locking switch, opens when :
- the breaker is manually operated the breaker is padlocked
- e motor operator is rocked
- CD built-in alarm switch, operates when breaker trips by an
- electrical fault or opening coils.
- CA self feeding switch CS electrical interlock switch delivered with automatic
- source changeover
- motor











operator

trip switch 2

Compact CJ circuit breaker

rotary operating handle padlock adaptator door escutcheon label holder boot

rotary operating handle

Two versions are available :

directly mounted

This handle is directly mounted on the circuit breaker. It accomodates as standard up to three padlocks to lock the handle in the OFF position. However, a knockout tab can be removed to allow the locking of the handle in the ON position. Due to the trip free mechanism padlocking in such a position will not prevent the circuit breaker from tripping under overcurrent conditions. The handle will continue to indicate ON. Padlock shackle diameter : 1/4 to 5/16. note :

A mechanical interlock (cat. no. 44826) links two rotary handles and constitues a manual source changeover. This device is only available for direct rotary handles. Simultaneous closing of the two breakers is prevented but simultaeous opening is possible. The breakers are normally fixed on a panel or on rails.

door-mounted type

The handle is removable and can be fitted on a door-mounted mechanism. A 16" long shaft extension is supplied and can be cut to a suitable length. A cutting and drilling jig is provided.

The mechanism has the same functions as the directly mounted type and provides door interlocking preventing the door from being opened when the breaker is closed. The handle mechanism can be used in NEMA 3R and 12 enclosure applications.

padlock adaptator

A padlock adaptator is available to padlock the circuit breaker in the OFF position. It is similar to the one used on CE,CF and CJ type.

The adaptator accomodates up to 3 padlocks.

Padlock shackle diameter : 1/4 to 5/16.





note : door interlock can be disabled or defeated by turning the defeating screw located on the front face. It accomodates as standard up to three padlocks to lock the handle in the OFF or ON (by removing a knockout) position. Padlocking is possible only if the coupling of the extension shaft and the door mounted mechanism is correct.

door escutcheon

A door escutcheon provides better appearance of the door cutout. It is fixed to the door with two screws.

catalog number 44938

boot

The boot provides a light seal when a breaker is used behind a panel or door with cutout. The square part fits over the breaker cover and the middle provides a rubber cover for the toggle, improving protection to NEMA 3R.



label holder

A label holder can be clipped onto the front cover. It permits an easy circuit breaker identification. It comes in pack of ten.

catalog number

42976

Compact CJ circuit breaker wiring diagrams



Compact CJ circuit breaker main connections

s or cables on both line and load sides.

CJ circuit breakers may be connected with bus bars or cables on both line and load sides. The type of connections should be specified when ordering.

A field modification is possible to either mount or remove the pressure type terminals.

Complete instructions are given with the set of pressure type terminals and in the

installation instructions provided with the breaker.

Caution : modification of terminals requires removing of a front terminal cover (line side only). When the modification is completed, this cover must be replaced.

front connection

with bus bars

CJ circuit breaker may be connected with copper or aluminium bus bars.

tightening

The bus bars shall be secured with the screws and Belleville washers provided. Tightening torque is 275 lb-in.

note : for voltages above 240V, insulation of bus bars may be required to meet spacings between phases required by the NEC.







Pressure terminal can accomodate one or two cables. An intermediary binding screw is inserted between the two cables. The looseness between the two threads allows the screw to move axially. After a few months of installation, this looseness will allow the retightening of the two cables using only the upper binding screw.

with cables

Cables can be connected by pressure type terminals with a range of :

- 400 Amp. terminal :
- 1 cable 2/0 to 600 MCM Cu or
- 1 cable 4/0 to 500 MCM AI
- 600 Amp. terminal :

1 cable 2/0 to 500 MCM Cu or 1 to 2 cables 2/0 to 350 MCM Cu

or 1 to 2 cables 4/0 to 500 MCM Al.

The cable strip length is : 1 3/8" Screws shall be torqued at 375 lb. in. (3/8" allen wrench).

Caution : for reliable electrical contact, connectors are plated, do not abrase them.

The connectors are secured on breaker by screws tightened at 275 lb. in. (5/16" allen wrench).



Compact CJ circuit breaker main connections

rear connection

Rear bus bar connections are used for switchboard mounting. According to the rear connection mounting, they provide for vertical or horizontal connection.

cat. no.
36704
36705



plug-in mounting



When the breaker is in the connected position, the primary voltage is fed through the breaker by means of multiple finger disconnects.

As a safety feature, in the event of disconnecting a closed breaker, a mechanical interlock will trip the breaker before the separation of the main disconnects. UL listed under file E 116305.

secondary disconnects

control voltage of internal accessories is provided through secondary disconnects in the connected position only. See page 17 for the number of secondary disconnects required.

		cat. no.
moving block	3 wires	36393
	6 wires	36696
fixed block	3 wires	42940
	6 wires	42941

MEDING

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Compact CJ switch



construction

CJ molded case switches are designed identically to CJ molded case circuit breakers, except that they are not equipped with trip unit.

They are listed under UL file E107822.

Caution :

molded case switches do not provide overcurrent protection.

Molded case switches can be protected by a CJ circuit breaker.

ratings

		max. rating	when protect	ted by Merlin	Gerin CB's :
CJ 600NA		600A	CJ 600N	CJ 600H	•
suitable for use on a circuit	at 240V		65,000	100,000	
(max. RMS sym. amps)	at 480V		35,000	42,000	
×	at 600V		14,000	18,000	
CJ 400NA		400A	CJ 400N	CJ 400H	CJ 400L
suitable for use on a circuit	at 240V		65,000	100,000	150,000
(max. RMS sym. amps)	at 480V		35,000	42,000	150,000
	at 600V		14,000	18,000	65,000

accessories

i

The following accessories of the CJ circuit breaker may be used with the CJ molded case switch :

	page
shunt trip	14
undervoltage trip device	14
2 auxiliary switches	14
1 auxiliary + 1 alarm switches	14
3 auxiliary + 1 alarm switches	14
motor operator	15
rotary operating handle	16
padlock adaptor	16
door escutcheon	16
boot	16
label holder	16

dimensions-installationconnections

Molded case switch dimensions, installation and connection are identical to those of the corresponding circuit breaker. See page 21 to 24.

MM-

Compact CJ circuit breaker dimensions

inch / mm





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CJ 400 - CJ 600 plug-in mounting

inch / mm





Compact CJ circuit breaker dimensions

CJ 400L plug-in mounting

inch / mm



Compact CJ circuit breaker appendix

routine and maintenance guidelines

recommended inspection intervals

Merlin Gerin circuit breakers are designed to be maintenance-free. However, all equipment with moving parts requires periodic inspection to ensure optimum performance and reliability. We recommend that the circuit breakers be routinely inspected six months after installation, followed by annual inspection. Intervals can vary depending on your particular experience.

inspection of terminals

■ Connections to circuit breaker terminals could be inspected. If there is discoloration due to overheating, the joint should be dissassembled and the surface cleaned before reinstallation. It is essential that electrical connections be made carefully in order to prevent overheating.

Check for terminal tightness.

cleaning

۲

Remove the dust and dirt that have accumulated on the circuit breaker surface and terminals.

mechanical checks

Even over long periods circuit breakers are not often required to operate on overload or short-circuit conditions. Therefore it is essential to operate the breaker periodically.

To trip the breaker, push the push-to-trip button.

insulation resistance tests

When breakers are subjected to severe operating conditions, insulation resistance test should be performed as indicated in NEMA standard publication no AB2-1980. An insulation resistance test is used to determine the quality of the insulation between phases and phase to ground. The resistance test is made with a DC voltage higher than the rated voltage, to determine the actual resistance of the insulation. The most common method employs a "megger" type instrument. A 1000V instrument will provide a more reliable test because it is capable of detecting tracking on insulated surfaces. Resistance values below 1 megohm are unsafe and should be investigated. An insulation test should be made :

between line and load terminals of individual poles with the circuit breaker contacts open.

■ between adjacent poles and from poles to the metallic supporting structure with the circuit breaker contacts closed. The latter test may be done with the circuit breaker in place after the line and load conductors have been removed, or with the circuit breaker bolted to a metallic base which simulates the in-service mounting.

electrical tests

These tests require equipment for conducting pole resistance, overcurrent and instantaneous tripping, in accordance with NEMA standard publication no AB2. They are not within the scope of normal field operation.

Important

All tests must be made on circuit breakers which have been de-energized, and disconnected so as to prevent accidental contact with live parts.

Caution

Since molded case circuit breakers contain factory-sealed and calibrated elements, it is essential that the seal be not broken and the circuit breaker be not tampered with.

Molded-case circuit breakers should not be field adjusted or repaired. In the case of malfunction, the circuit breaker should be replaced or repaired at the Merlin Gerin factory, or by an authorized representative.

Compact CJ circuit breaker appendix

UL 489 test procedures (abstract from UL 489 with revisions through April 6th, 1987)

standard tests	test		sequer	nce	
For solid state trip breaker, and			X	Y	Z
uncompensated thermal breaker rated	200% calibration at 25°C (77°F)				
40°C, the test sequences are :	135% calibration at 25°C (77°F)			•	
	calibration of adjust instant trip				
	overload				
	tungsten lamp load		0		
	100% calibration at 40°C (104°F)		2		
	temperature and 100% calibration at 25°C (77°F	F)			
	endurance			Q	
	200% calibration at 25°C (77°F) repeated				
	135% calibration at 25°C (77°F) repeated				
	interrupting ability (Y sequence)				
	interrupting ability (Z sequence)				
	200% trip out at 25°C (77°F)				
	dielectric voltage withstand				
	① Applies only for breakersrated 55 A or less, 125 or 125/250V	or less			
	2 Applies only for thermal breakers rated 40°C.				
standard specifications 200% calibration at 25°C The breaker must trip within time limits which depend on the rating from 3 minutes	Temperature When connected with specified cables or bus bars (see below) and with its rated current, the temperature rises on the breaker and at its terminals does not	Endurance The breaker must of test : operations at rate voltage	complete a	an endura	nce d
for a SUA rated breaker, up to SU minutes	and a second second the state of the state o				

Th wh for over 2000A.

135% calibration at 25°C

The breaker must trip within two hours (for breakers rated more than 50 A).

Calibration of adjustable instantaneous trip

The breaker must trip within the range of 80-120% of the maximum marked tripping current and 75-125% of the minimum marked tripping current.

Overload

■ up to 1600A : fifty operations at 600% of rated current

- 2000 and 2500A : twenty-five operations at 600 % of rated current
- 3000 to 6000A : three operations at 600% followed by twenty-five operations at 200 % of rated current.

The power factor shall be from 0.45 to 0.50 lagging.

exceed specified limits. Examples of specified wires and bus

∎ "75°C" c	opper wire	
rating	number	size
100A	1	1 AWG (60°C)
	or 1	3 AWG
250A		250 MCM
400A	2	3/0 AWG
600A	2	350 MCM
800A	3	300 MCM
1000A	3	400 MCM
1200A	4	350 MCM

copper bus bar

rating	number	size
1600A	2	1/4 x 3
2000A	2	1/4 x 4
2500A	2	1/4 x 5
	or 4	1/4 x 2
3000A	4	1/4 x 4

(1200A or less : 1000A / in²)

■ followed by no load operation. The power factor shall be 0.75 to 0.80 lagging.

Examples:

frame size	number of cycles of operations				
	with current	without current	total		
100A	6,000	4,000	10,000		
225A	4,000	4,000	8,000		
400A	1,000	5,000	6,000		
600A	1,000	5,000	6,000		
800A	500	3,000	3,500		
1200A	500	2,000	2,500		
1600A	500	2,000	2,500		
2000A	500	2,000	2,500		
2500A	500	2,000	2,500		
3000A	400	1,100	1,500		

Compact CJ circuit breaker appendix

Interrupting ability (Y sequence) After endurance tests and calibrations repeated, the breaker completes an opening followed by a close-open operation (O-t-CO), with specified current.

Examples for three pole breakers :

frame rating	RMS Sym. Amps (3-pole O-t-CO)	
100A 0	3,000	
225A	3,000	_
400A	5,000	
600A	6,000	
800A	10,000	
1200A	14,000	
1600A	20,000	
2000A	25,000	
3000A	35,000	
-		-

Above 250V.

Interrupting ability (Z sequence)

A 3-pole breaker rated 240, 480 or 600V have to complete an opening operation and a close-open operation (O-t-CO) on each pole, at rated voltage, followed by an opening operation (O) using all the three poles for the frame sizes up to 1200A, an additional close-open operation on the three poles is required).

Examples for three pole breaker :

frame rating	RMS Sym. Amps				
	each pole	common			
	O-t-CO	0	O-t-CO		
100 to 800A	8,660	10,000			
1000 to 1200A	12,120	14,000			
1600A	14,000		20,000		
2000A	14,000		25,000		
3000A	25,000		35,000		

Dielectric

After tests, the breaker must withstand for one minute a voltage of 1000V plus twice the rated voltage between :

- line and load terminals
- terminals of opposite polarity
- live parts and the overall enclosure.

Optional tests :

■ high available fault current Breakers having passed all the standard tests may have the UL label applied at higher values than the standard. Test sequence is as follow : □ 200 % calibration □ interrupting capacity : an opening operation followed by a close open operation (O-t-CO) on all poles are performed on the circuit breaker. The power factor over 20000A shall be 0.15 to 0.2 lagging.

□ trip out at 250%

dielectric at twice the rated test voltage.

100% rated

Breakers having passed all the standard tests may have the UL label applied to use the circuit breaker in an enclosure, when carrying 100% of its maximum rating. The circuit breaker is submitted to additional temperature tests performed as in Standard tests, except that the breaker is installed in an enclosure. The dimensions and possible ventilations shall be recorded and shall be marked on the breaker.

tests on accessories

Shunt trip and undervoltage trip These devices are submitted to temperature, overvoltage, operation, endurance and dielectric tests. Overvoltage test

It checks that the device is capable of withstanding 110% of its rated voltage continuously without injury (this test does not apply to a shunt trip with an "a" contact connected in series).

Operation

The shunt trip must operate at 75% of its rated voltage (except that shunt trip devices for use with ground fault protection shall operate at 55%).

The undervoltage trip must trip the

breaker when the voltage is between 35 and 70% of its rated voltage and shall seal (i.e.: the breaker cannot be turned on ON position) when the voltage is at 85% or more of its rated voltage.

Endurance

The device must be capable of performing successfully for 10% of the number of "with current" operations of the breaker.

Auxiliary and alarm switches

Auxiliary and alarm switches must be submitted to temperature, overload, endurance and dielectric tests.

Overload test

The test consists of fifty operations making and breaking 150% of rated current at rated voltage, with a 75-80% power factor in AC and non inuductive load in DC.

The switch must make and break its rated current at rated voltage, with a 75-80% power factor in AC, and non inductive load in DC for 100% of the number of operations "with current" for auxiliary switches, and 10% of this number for alarm switches.

Compact CJ circuit breaker international standards

molded case circuit breaker

In addition to UL 489 standard CJ breakers comply with IEC 157-1 standard as per table below :

CJ type 3-pole	ampere rating (A)	interrupti UL listed	ng ratings	3	IEC 157-	1	
		RMS Sym 240V	Amps 480V	600V	240V	415V	660V
standard b	reakers						
CJ 400N	400	65,000	35,000	14,000	85,000	35,000	10,000
CJ 600N	600	65,000	35,000	14,000	85,000	35,000	10,000
high interr	upting breake	r s					
CJ 400H	400	100,000	42,000	18,000	85,000	50,000	12,000
CJ 600H	600	100,000	42,000	18,000	85,000	50,000	12,000
current lim	niting breakers	8					

CJ 400L 400 150,000 150,000 65,000 150,000 150,000 60,000

molded case switch

CJ type 3-pole	ampere rating (A)	short circuit withstand (RMS Sym. Amps)	when prot of maximu	ected by fuses m ratings (A)
CJ 400NA	400	100,000	400	
CJ 600NA	600	100,000	600	

shunt trip

rated [•]	voltage (V) a second	and a state
UL 48	9 listed	IEC 157-1	
60Hz	120	50/60Hz	110-127
	240		220-240
	480		380-415
DC	24	DC	24
	48		48
	125		125

undervoltage trip device

rated	voltage (V)	
UL 4	89 listed	IEC 157	-1
DC 24	24	DC	24
	48		48
	125		125

motor operator

	•			
rated v	voltage (V) ^a n an an a		1
UL 489	listed	IEC 157-1		
50Hz	120	50/60Hz	110-127	_
	240		220-240	
DC	24	DC	24	
	48		48	
	125		125	

auxiliary switches, alarm switch,

overcurrent trip switch

IEC 157-1 characteristics are the same as those indicated in page 14.

circuit breakers for compliance with other world standards

Where compliance with IEC standards is required, Merlin Gerin offers a versatile range (not UL listed) of CJ circuit breakers to meet your specific need. Units include two, three or four poles, ratings from 320 to 630A, three levels of interrupting capabilities up to 660V. An extensive range of accessories complements the product line. For further information, please contact your Merlin Gerin representative.

MERLIN GERIN INC. MERLIN GEHIN INC. 5000 Highlands Pkwy. Suite 150 SMYRNA, GA 30082 tel. (404) 432.2744 fax (404) 432.9179

GROUPE SCHNEIDER

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As standard specifications and designs change from time to time, please ask for confirmation of the information given in this publication.

photos : B. Maurice design by AMEG, Y. Marchand IPV - 02/90 - printed by PONCET

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