Series MC409 and MC639

The MC409 and MC639 breakers have respectively 400A and 630A rated current, in the same size.
They can be equipped with two type of electronic protection trip unit: the standard type and the SMR2 type.

The standard electronic protection is a new generation of trip unit, with a very wide range of threshold (from 0,3 to 1 In), and many functions like LS (Long time delay, Short time delay), LSI (with additional Istantaneus protection channel), LSIG (with Ground protection channel).
On the front of the trip unit, there is a micro USB port where it is possible to connect a PC and supply the unit to check the tripping functions.

All the standard electronic type breakers have the possibility to adjust the Neutral protection as 0%, 50%, 100% of the rated current.

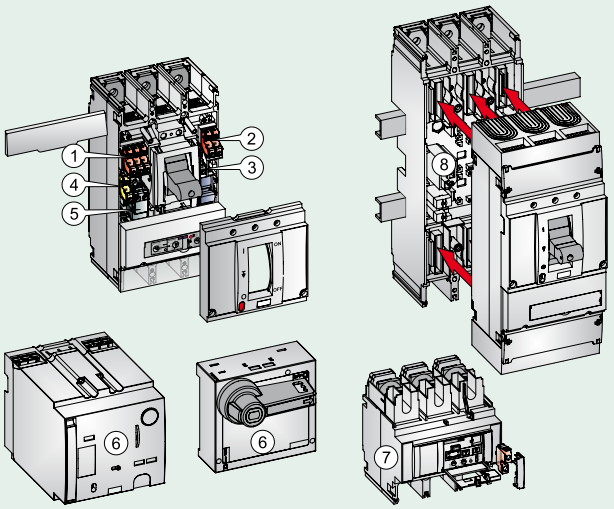
The SMR2 trip unit is used when it is necessary to adjust the time delay of the protection. It has also many additional modules to increase communication or protections.

Protection	Series	Rated current In (A)	Protezione sovraccarico L (A)	Protezione cortocircuito Im (A)	Emergency setting I (A)	Canale di terra G Ir (A)	Breaking capacity (Icu a 415V AC)
Electronic LSI	MCA409	250, 400	0,3... 1In	2... 13Ir	fissa 14Ir	-	50 80 150
	MCA639	400, 630	0,3... 1In	2... 10Ir	fissa 11Ir	-	50 80 150
Electronic SI	MCB409	250, 400	-	2... 13Ir	fissa 14Ir	-	50 80 150
	MCB639	400, 630	-	2... 10Ir	fissa 11Ir	-	50 80 150
Electronic LSIG	MCC409	250, 400	0,3... 1In	2... 13Ir	fissa 14Ir	0,4... 1Ir	50 80 150
	MCC639	400, 630	0,3... 1In	2... 10Ir	fissa 11Ir	0,4... 1Ir	50 80 150
Electronic SMR2 [1]	MCF409	250, 350	0,4... 1In	1,5... 12Ir	2... 13Ir	0,2... 1Ir [2]	50 80 150
		400	0,4... 1In	1,5... 10Ir	2... 11Ir	0,2... 1Ir [2]	50 80 150
Electronic SMR2 [1]	MCF639	400, 500	0,4... 1In	1,5... 12Ir	2... 13Ir	0,2... 1Ir [2]	50 80 150
		630	0,4... 1In	1,5... 10Ir	2... 11Ir	0,2... 1Ir [2]	50 80 150

1) la protezione tipo SMR2 è dotata di regolazione del tempo di intervento per canali L e S
2) con modulo di espansione

Accessories:

1: Auxiliary contact left mounted (NO o NC),1, 2 or 3 pieces
2: Auxiliary contact right mounted (NO o NC), 1 or 2 pieces
3: Bell alarm thermal magnetic trip unit (NO o NC)
4: Bell alarm mechanism (1CO)
5: Shunt or Undervoltage release
6: Electrical operator or Rotary handle
7: Residual Current Devices: bottom mounted (below trip unit) (insert indicates bell alarm countact mounting)
8: Plug-in or draw-out system



MC409: Moulded Case Circuit Breakers up to 400A

Line protection (LSI) (electronic)

Capacità di rottura (kA)	In (A)	3 Poles	4 Poles
50	250	**MCA409S3250**	**MCA409S4250**
50	400	**MCA409S3400**	**MCA409S4400**
80	250	**MCA409H3250**	**MCA409H4250**
80	400	**MCA409H3400**	**MCA409H4400**
150	250	**MCA409X3250**	**MCA409X4250**
150	400	**MCA409X3400**	**MCA409X4400**

Selective electronic trip unit type SMR2 (without rating plug)

Capacità di rottura (kA)	In (A)	3 Poles	4 Poles
50	250	**MCF409S3250**	**MCF409S4250**
50	350	**MCF409S3350**	**MCF409S4350**
50	400	**MCF409S3400**	**MCF409S4400**
80	250	**MCF409H3250**	**MCF409H4250**
80	350	**MCF409H3350**	**MCF409H4350**
80	400	**MCF409H3400**	**MCF409H4400**
150	250	**MCF409X3250**	**MCF409X4250**
150	350	**MCF409X3350**	**MCF409X4350**
150	400	**MCF409X3400**	**MCF409X4400**

Motor protection (SI) (electronic only magnetic)

Capacità di rottura (kA)	In (A)	3 Poles	4 Poles
50	250	**MCB409S3250**	**MCB409S4250**
50	400	**MCB409S3400**	**MCB409S4400**
80	250	**MCB409H3250**	**MCB409H4250**
80	400	**MCB409H3400**	**MCB409H4400**
150	250	**MCB409X3250**	**MCB409X4250**
150	400	**MCB409X3400**	**MCB409X4400**

Rating plugs (1) (for trip unit type SMR2)

	In (A)	3 Poles	4 Poles
Line/Motor protection, adjustable Ir=0,64÷1xIn	160	**RPF43250-160**	**RPF44250-160**
	250	**RPF43250-250**	**RPF44250-250**
	250	**RPF43350-250**	**RPF44350-250**
	350(1)	**RPF43400-350**	**RPF44400-350**
	400(2)	**RPF43400-400**	**RPF44400-400**

(1) Specific for moror protection
(2) In = 400A for line protection only

Line protection and ground fault (LSIG) (electronic)

Capacità di rottura (kA)	In (A)	3 Poles	4 Poles
50	250	**MCC409S3250**	**MCC409S4250**
50	400	**MCC409S3400**	**MCC409S4400**
80	250	**MCC409H3250**	**MCC409H4250**
80	400	**MCC409H3400**	**MCC409H4400**
150	250	**MCC409X3250**	**MCC409X4250**
150	400	**MCC409X3400**	**MCC409X4400**

Extension modules (for trip unit SMR2)

Description	Catalogue number
Ammeter with digital display	**FAMAM2**
Bell alarm earth fault + Modbus communication (Rtu)	**FAMGAM2**
Bell alarm earth fault + 2 channel load shedding device	**FAMGAS2**
Bell alarm earth fault + fault type indicators	**FAMGAT2**
Groundfault protection + Modbus communication (Rtu)	**FAMGFM2**
Groundfault protection + 2 channel load shedding device	**FAMGFS2**
Groundfault protection + fault type indicators	**FAMGFT2**
2 channel load shedding device + Modbus communication (Rtu)	**FAMSM2**
2 channel load shedding device + fault type indicators	**FAMST2**
Fault type indicators + Modbus communication (Rtu)	**FAMMT2**
Spare filler module	**FAMB2**
External communications module	**FAMECM**

Each code includes 1 extension module and where it required the need for the connection

Non-automatic breakers

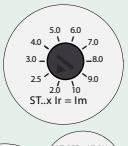
	In (A)	3 Poles	4 Poles
	400	**MCT4093400**	**MCT4094400**

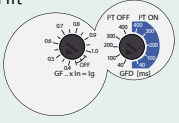
Residual Current Device (see also Accessories)

	Un (V)	3 Poles	4 Poles
Bottom mounting	440	**DB3/M96-2**	**DB4/M96-2**
	690	**DB3/M96-4**	**DB4/M96-4**

Idn settings (A) 0,030 - 0,300 - 1 - 3 - 10
Delay (ms) istantaneous - 60 - 150 - 300 - 600

- An overload protection (LT) with a range of 0.3 to 1 times the chosen trip unit rating. Each of the possible 15 positions has a rating mentioned in Amps.
- A delayed short-circuit protection (ST) with a wide setting band of 2 to 13 times the LT device setting or Ir value. A fixed time setting per breaker size is applied.
- A selective instantaneous device (I) set at a fixed value of 14 times the chosen trip unit rating, using waveform recognition to assure selectivity.
- An optional ground fault protection device (GF) (residual principle) can be set from 0.4 to 1 times the chosen trip unit rating and be used with multiple delay and/or I^2t settings.





MC639: Moulded Case Circuit Breakers up to 630A

Line protection (LSI) (electronic)

Breaking capacity (kA)	In (A)	3 Poles	4 Poles
50	400	**MCA639S3400**	**MCA639S4400**
50	630	**MCA639S3630**	**MCA639S4630**
80	400	**MCA639H3400**	**MCA639H4400**
80	630	**MCA639H3630**	**MCA639H4630**
150	400	**MCA639X3400**	**MCA639X4400**
150	630	**MCA639X3630**	**MCA639X4630**

Selective electronic trip unit type SMR2 (without rating plug)

Breaking capacity (kA)	In (A)	3 Poles	4 Poles
50	400	**MCF639S3400**	**MCF639S4400**
50	500	**MCF639S3500**	**MCF639S4500**
50	630	**MCF639S3630**	**MCF639S4630**
80	400	**MCF639H3400**	**MCF639H4400**
80	500	**MCF639H3500**	**MCF639H4500**
80	630	**MCF639H3630**	**MCF639H4630**
150	400	**MCF639X3400**	**MCF639X4400**
150	500	**MCF639X3500**	**MCF639X4500**
150	630	**MCF639X3630**	**MCF639X4630**

Motor protection (SI) (electronic only magnetic)

Breaking capacity (kA)	In (A)	3 Poles	4 Poles
50	400	**MCB639S3400**	**MCB639S4400**
50	630	**MCB639S3630**	**MCB639S4630**
80	400	**MCB639H3400**	**MCB639H4400**
80	630	**MCB639H3630**	**MCB639H4630**
150	400	**MCB639X3400**	**MCB639X4400**
150	630	**MCB639X3630**	**MCB639X4630**

Rating plugs (1) (for trip unit type SMR2)

	In (A)	3 Poles	4 Poles
Line/Motor protection, adjustable Ir=0,64÷1xIn	250	**RPF63400-250**	**RPF64400-250**
	400	**RPF63400-400**	**RPF64400-400**
	400	**RPF63500-400**	**RPF64500-400**
	500(1)	**RPF63500-500**	**RPF64500-500**
	630(2)	**RPF63630-630**	**RPF64630-630**

(1) Specific for moror protection
(2) Motor protection mode limited to 500A

Line protection and ground fault (LSIG) (electronic)

Breaking capacity (kA)	In (A)	3 Poles	4 Poles
50	400	**MCC639S3400**	**MCC639S4400**
50	630	**MCC639S3630**	**MCC639S4630**
80	400	**MCC639H3400**	**MCC639H4400**
80	630	**MCC639H3630**	**MCC639H4630**
150	400	**MCC639X3400**	**MCC639X4400**
150	630	**MCC639X3630**	**MCC639X4630**

Extension modules (for trip unit SMR2)

Description	Catalogue number
Ammeter with digital display	**FAMAM2**
Bell alarm earth fault + Modbus communication (Rtu)	**FAMGAM2**
Bell alarm earth fault + 2 channel load shedding device	**FAMGAS2**
Bell alarm earth fault + fault type indicators	**FAMGAT2**
Groundfault protection + Modbus communication (Rtu)	**FAMGFM2**
Groundfault protection + 2 channel load shedding device	**FAMGFS2**
Groundfault protection + fault type indicators	**FAMGFT2**
2 channel load shedding device + Modbus communication (Rtu)	**FAMSM2**
2 channel load shedding device + fault type indicators	**FAMST2**
Fault type indicators + Modbus communication (Rtu)	**FAMMT2**
Spare filler module	**FAMB2**
External communications module	**FAMECM**

Each code includes 1 extension module and where it required the need for the connection

Non-automatic breakers

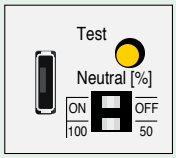
	In (A)	3 Poles	4 Poles
	630	**MCT6393630**	**MCT6394630**

Residual Current Device (see also Accessories)

	Un (V)	3 Poles	4 Poles
Bottom mounting	440	**DB3/M96-2**	**DB4/M96-2**
	690	**DB3/M96-4**	**DB4/M96-4**

Idn settings (A) 0,030 - 0,300 - 1 - 3 - 10
Delay (ms) istantaneous - 60 - 150 - 300 - 600

Each device is equipped with a LED indicator that flashes when the current reaches 0.95 times Ir and illuminates constantly when an overload trip is imminent (at 1.05 times Ir). The electronics also continuously perform self diagnostics and warn the user of any defect by the LED indicator.
An integrated temperature sensor prevents the electronic components from reaching temperatures that could damage the breaker or it's surroundings.



Simply connect a standard mobile phone charger to the micro USB port and the "TEST" button goes live. Depress it and it checks the full electronic circuit and then trips the connected breaker.