



PROTECTION RELAYS

MC30-R2

Three phase overcurrent & earth fault relay + autoreclosing-relay

Three phase overcurrent & earth fault relay + autoreclosure relay with programmable timecurrent curves suitable for protection of power distribution systems with insulated, resistance earthed or compensated neutral.

Rated input current selectable 1A or 5A, 50/60 Hz.
Connection through 3 CTs.

Protective Functions

- F49 : One Thermal Image element
- F50/51 : Three independent overcurrent elements
- F50N/51N : Three Earth Fault elements
- F51BF : Breaker Failure protection
- F79 : Four/shot programmable Autoreclosing Reclosure sequence coordination and Blocking Reclosing Push Button
- Two complete setting programs switchable locally or remotely

Measurements

- Real Time Measurements (IA - IB - IC - Io)
- Maximum Demand and Inrush Recording (IA - IB - IC - Io)
- Trip Recording (last 20 trips with date & time)

Control

- 4 Output Relays (programmable)
- 3 Digital Inputs
- Time tagged multiple event recording
- Oscillographic wave form capture
- Blocking Outputs and Blockings Input for pilot wire selectivity coordination

Technical Characteristics

- Complete autodiagnostic program
- Display LCD 16 (2x8) characters
- 4 Leds for signalization



MICROELETTRICA

Communications

- 1 RS485 Serial communication port on rear side
- 1 RS232 Serial communication port on front panel
- Modbus RTU / IEC870-5-103 Communication Protocols

Mounting

- 1 Module box
- IP44 protection case (on request IP54)

Power Supply Ratings

- Type 1 : 24V(-20%) / 110V(+15%) a.c. - 24V(-20%) / 125V(+20%) d.c.
- Type 2 : 80V(-20%) / 220V(+15%) a.c. - 90V(-20%) / 250V(+20%) d.c.

Software

- MCom2 Program interface for device management

Programmable Input Quantities		
In : Rated primary current of phase CTs	$(1 \div 9999)A$	step 1A
Fn : System frequency	$(50 \div 60)Hz$	
F49 (T>): Thermal Image		
Function enabling	Enable/Disable	
Temperature prealarm	$T_{al} = (50 \div 110)\%T_b$	step 1% T_b
Thermal Image reset level	$T_{st} = (10 \div 100)\%T_b$	step 1% T_b
Continuous admissible current	$I_b = (50 \div 130)$	step 1% I_n
Warming-up Time constant	$TW = (1 \div 60)min$	step 1min
1F - 50/51 (I>): First Overcurrent Element		
Function enabling	Enable/Disable	
Current setting range	$I_{>} = (0.20 \div 4)I_n$	step 0.01 I_n
Definite trip time delay (10x[I>] in inverse time operation modes)	$t_{I>} = (0.05 \div 60)s$	step 0.01s
Instantaneous output	$\leq 0,03s$	
Time current curves	Indep.Definite Time (D), IEC (A / B / C), IEEE (MI / VI / I / EI / SI)	
2F - 50/51 (I>>): Second Overcurrent Element		
Function enabling	Enable/Disable	
Current setting range	$I_{>>} = (0.50 \div 40)I_n$	step 0.01 I_n
Definite trip time delay	$t_{I>>} = (0.05 \div 60)s$	step 0.01s
Instantaneous output	$\leq 0,03s$	
Automatic threshold doubling on inrush	$2xI = Enable/Disable$	
3F - 50/51 (IH): Third Overcurrent Element		
Function enabling	Enable/Disable	
Current setting range	$I_H = (0.50 \div 40)I_n$	step 0.01 I_n
Definite trip time delay	$t_{IH} = (0.05 \div 60)s$	step 0.01s
Instantaneous output	$\leq 0,03s$	
Automatic threshold doubling on inrush	$2xI = Enable/Disable$	
1F - 50N/51N (Io>): First Earth Fault Element		
Function enabling	Enable/Disable	
Current setting range	$I_{o>} = (0.01 \div 4)I_{on}$	step 0.01 I_{on}
Definite trip time delay (10x[Io>] in inverse time operation modes)	$t_{Io>} = (0.05 \div 60)s$	step 0.01s
Instantaneous output	$\leq 0,04s$	
Time current curves	Indep.Definite Time (D), IEC (A / B / C), IEEE (MI / VI / I / EI / SI)	

2F - 50N/51N (Io>>): Second Earth Fault Element

Function enabling	Enable/Disable	
Current setting range	$I_{o>>} = (0.01 \div 9.99)I_{on}$	step 0.01I _{on}
Definite trip time delay	$t_{Io>>} = (0.05 \div 60)s$	step 0.01s
Instantaneous output	$\leq 0,04s$	

3F - 50N/51N (IoH): Third Earth Fault Element

Function enabling	Enable/Disable	
Current setting range	$I_{oH} = (0.01 \div 9.99)I_{on}$	step 0.01I _{on}
Definite trip time delay	$t_{IoH} = (0.05 \div 60)s$	step 0.01s
Instantaneous output	$\leq 0,04s$	

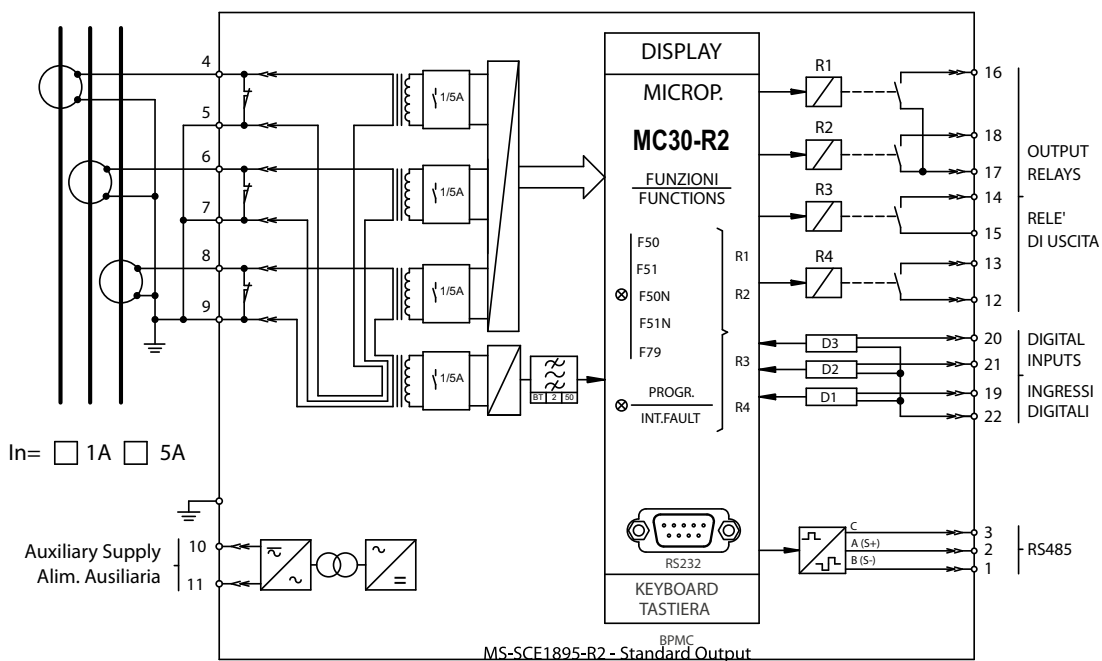
Breaker Failure Element

Trip time delay	$t_{BF} = (0.05 \div 0.75)s$	step 0.01s
-----------------	------------------------------	------------

F79 - Autoreclose

Number of reclosure shots to Lock-out	RSh (1 / 2 / 3 / 4)	
Reclosing time delay first shot	RCL1 (0.1 ÷ 300)s	step 0.1 s
Reclosing time delay first second	RCL2 (0.1 ÷ 300)s	step 0.1 s
Reclosing time delay first third	RCL3 (0.1 ÷ 300)s	step 0.1 s
Reclosing time delay first fourth	RCL4 (0.1 ÷ 300)s	step 0.1 s
Reset (Reclaim) time	RCLtr = (0.1 ÷ 300)s	step 0.1 s

Connection Diagram



Typical Characteristics			
Accuracy at reference value of influencing factors	2% In - 0.2% On		for measurements
	2% + (to = 20 ÷ 30ms @ 2xIs)		for times
Rated current	In = 1A/5A; On = 1A/5A		
Current Overload	400A for 1 sec; 20A continuous		
Burden on current input	0.1VA a In = 1A; 0.3VA a In = 5A		
Average power supply consumption	≤7 VA		
Output relays	rating 6 A; Vn = 250 V		
	A.C. resistive switching = 1500W (400V max)		
	make = 30 A (peak) 0.5 sec.; break = 0.3 A, 110 Vcc, L/R = 40 ms (100.000 op.)		
Order code - Example			
MC30-R2	1	2	1
	Power Supply	Phase Rated Input Current	Zero sequence Input Current
	1 = Type 1	1 = 1A	1 = 1A
	2 = Type 2	2 = 5A	2 = 5A

The technical specifications reported are not binding and they should be agreed in the contract.

For further technical information on our products visit www.microelettrica.com

Microelettrica Scientifica S.p.A.

20090 Buccinasco (MI) , Via Lucania 2, Italy

Tel.: +39 02 575731

E-mail: info@microelettrica.com

www.microelettrica.com



 **KNORR-BREMSE**

 **SELECTRON**

 **NEW YORK AIR BRAKE**

 **KIEPE ELECTRIC**

 **IFE**

 **EVAC**

 **MERAK**

 **ZELISKO**

 **MICROELETRICA**

 **RAILSERVICES**