PROTECTION RELAYS

MC2-30T

Three phase + neutral current protection relay

General Characteristics

MC2 is the new generation of Microelettrica Scientifica's base-performance protection relays. This range is the ideal solution for protection and automation, thanks to its high configurability.

The platform is based on a four-channel c onfiguration, allowing it to be used for current or voltage protection functions.

MC2-30T is a relay designed for the interface to the power distribution grid.

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

Protective Functions

- F46 : 2 Inverse sequence
- F49 : Thermal Image with prealarm
- F50/51 : 3 Overcurrent Elements
- F50N/51N: 3 Earth Fault Elements
- F51BF : Breaker Failure protection
- 74TCS : Trip circuit supervision
- F79 : Four-shot programmable autoreclosing

Measurements

- Real Time Measurements (IA - IB - IC - Io)
- Maximum Demand and Inrush Recording (IA - IB - IC - Io)
- Trip Recording (30 last trip)

Control

- Two complete setting programs switchable locally or remotely
- Time tagged multiple event recording and journal (500 events)
- Oscillographic wave form capture up to 40 sec.
- Complete autodiagnostic program
- Blocking Outputs and Blockings Inputs for pilot wire
- File system - Mass storage device
- Oscillo available also in comtrade format

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Technical Characteristics

- 8 Programmable Output Relays
- 8 Programmable Digital Inputs
- Hi-resolution graphic display (240*128)
- 10 Programmable Leds
- 6 Programmable push buttons

Communications

- RS485 Serial communication port on rear side
- USB communication port on front panel
- Modbus RTU / IEC870-5-103 Communication protocol

Software

- MSCom2 Program interface for device management

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.

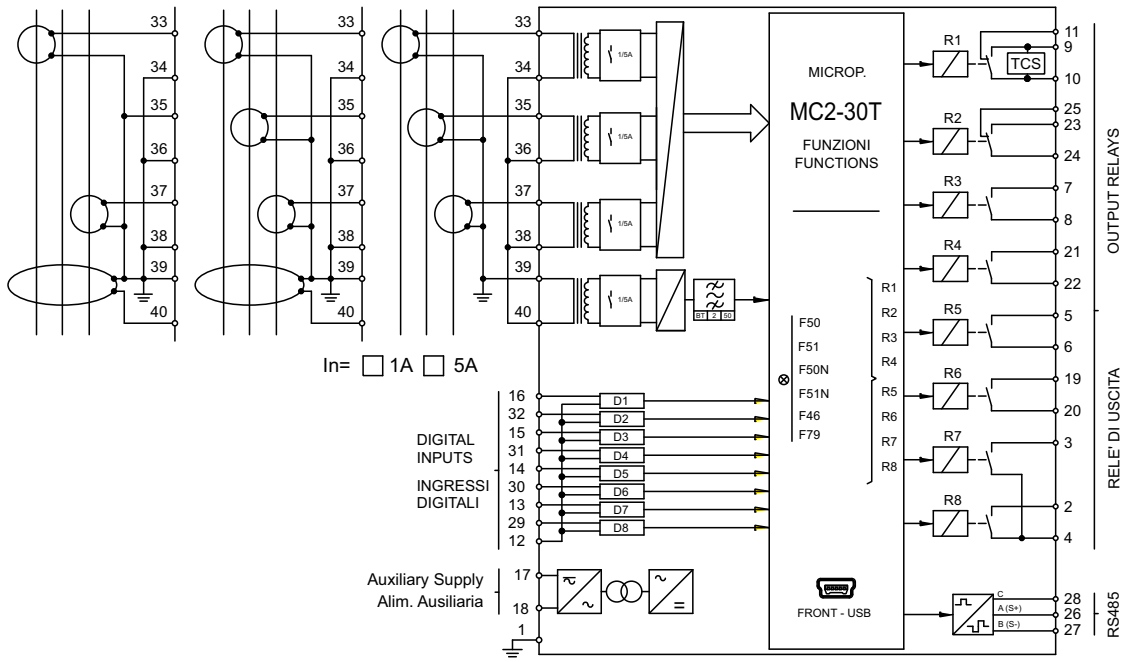
Execution

- Plastic Enclosure
- IP44 degree of protection

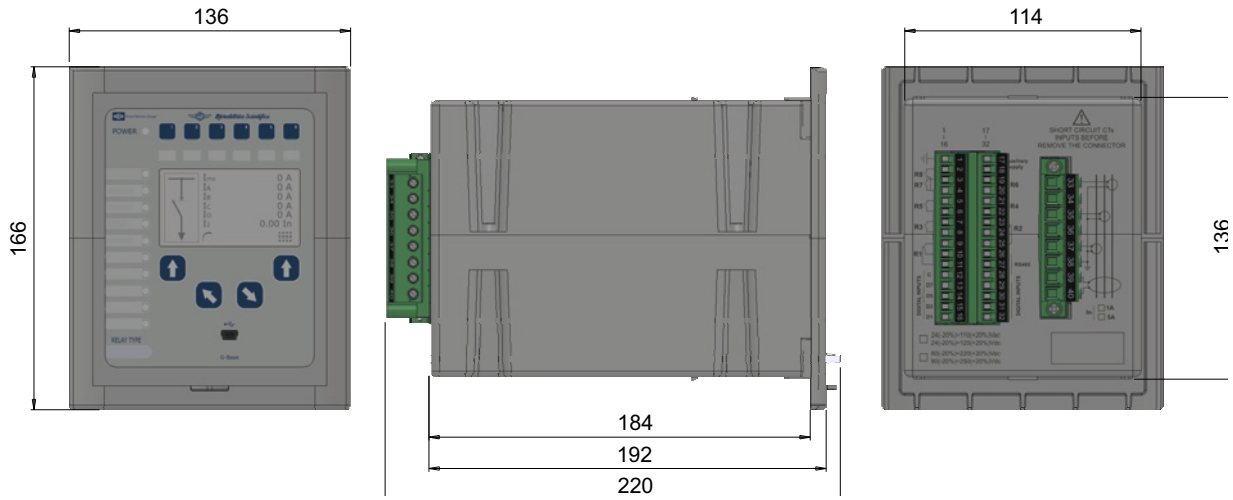
F49 : Thermal Image		
Function enabling	No - Yes	
Operation Mode	I1.I2 / IMax	
Temperature prealarm	Tal = (10 ÷ 100)%Tn	step 1%
Temperature reset	Tres = (10 ÷ 100)%Tn	step 1%
Continuous admissible current	Is = (0.5 ÷ 1.5)In	step 0.01In
Warming-up time constant of the load	Kt = (1 ÷ 600)	step 1
F50/51 (1I>): 1st Overcurrent Element		
Function enabling	No - Yes	
Time current curves	f(t) = Indep.Definite Time (D), IEC (A/B/C), IEEE (MI/VI/I/EI/SI)	
Operation level	Is = (0.1 ÷ 4)In	step 0.01In
Independent time delay	ts = (0.02 ÷ 100)s	step 0.01s
F50/51 (2I>): 2nd Overcurrent Element		
Function enabling	No - Yes	
Automatic doubling of trip level on inrush	Enable / Disable	
Operation level	Is = (0.1 ÷ 40)In	step 0.01In
Independent time delay	ts = (0.02 ÷ 100)s	step 0.01s
F50/51 (3I>): 3rd Overcurrent Element		
Function enabling	No - Yes	
Automatic doubling of trip level on inrush	Enable / Disable	
Operation level	Is = (0.1 ÷ 40)In	step 0.01In
Independent time delay	ts = (0.02 ÷ 100)s	step 0.01s
F64 (1Io>): 1st Earth Fault Element		
Function enabling	No - Yes	
Time current curves	f(t) = Indep.Definite Time (D), IEC (A/B/C), IEEE (MI/VI/I/EI/SI)	
Operation level	Is = (0.01 ÷ 4)On	step 0.01On
Independent time delay	ts = (0.02 ÷ 100)s	step 0.01s
F64 (2Io>): 2nd Earth Fault Element		
Function enabling	No - Yes	
Operation level	Is = (0.01 ÷ 9.99)On	step 0.01On
Independent time delay	ts = (0.02 ÷ 100)s	step 0.01s

F64 (3Io>): 3rd Earth Fault Element		
Function enabling	No - Yes	
Operation level	Is = (0.01 ÷ 9.99)On	step 0.01On
Independent time delay	ts = (0.02 ÷ 100)s	step 0.01s
F46 (1Is>): 1st Current Unbalance Element		
Function enabling	No - Yes	
Time current curves	f(t) = Indep.Definite Time (D), IEC (A/B/C), IEEE (MI/VI/I/EI/SI)	
Operation level	Is = (0.1 ÷ 4)In	step 0.01In
Independent time delay	ts = (0.02 ÷ 100)s	step 0.01s
F46 (2Is>): 2nd Current Unbalance Element		
Function enabling	No - Yes	
Operation level	Is = (0.1 ÷ 4)In	step 0.01In
Independent time delay	ts = (0.02 ÷ 100)s	step 0.01s
Breaker Failure Element		
Alarm time delay	tBF= (0.05 ÷ 0.75)s	step 0.01s
F79 - Autoreclosure		
Number of reclosure shots to Lock-out	RSh (1 / 2 / 3 / 4)	
Reclosing time delay first shot	RCL1 = (0.1 ÷ 200)s	step 1s
Reclosing time delay second shot	RCL2 = (0.1 ÷ 200)s	step 1s
Reclosing time delay third shot	CL3 = (0.1 ÷ 200)s	step 1s
Reclosing time delay fourth shot	RCL4 = (0.1 ÷ 200)s	step 1s
Reset (reclaime) time	RCLtr = (5 ÷ 200)s	step 1s

Connection Diagram



Overall Dimensions (mm)



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	500 A for 1 sec; 20 A continuous	
Burden on current input	0.1 VA at In = 1A; 0.3 VA at In = 5A	
Average power supply consumption	≤ 7 VA	
Output relays	rating 6 A; Vn = 250V 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			
MC2-30T 1	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

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

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