

MC30

MC07^{-R4}



50/51, 50N/51N, 51BF, 49

- Three independent overcurrent elements.
- Three Earth Fault elements.
- One Thermal Image element.
- Blocking Output and Blocking Input for pilot wire selectivity coordination.
- Breaker Failure protection.
- Time tagged multiple event recording.
- Oscillographic wave form capture.
- Modbus RTU / IEC870-5-103 Communication Protocols
- Display LCD 16 (2x8) characters .



Three phase overcurrent & earth fault relay with programmable time-current 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.

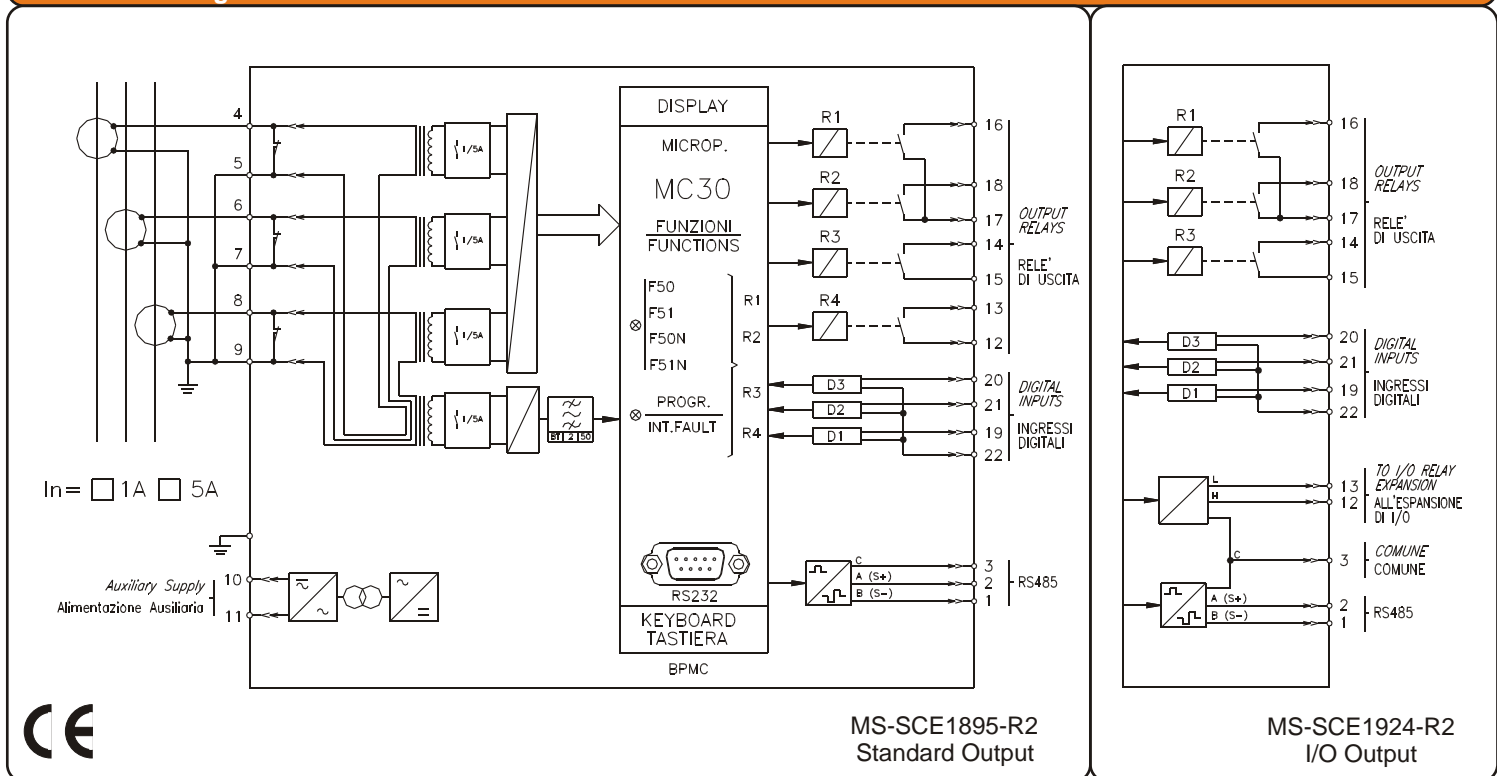
Connection through 3 CTs.

- Real Time Measurements = IA - IB - IC - I_o
- Maximum Demand and Inrush Recording = IA - IB - IC - I_o

Programmable Input Quantities

- **F_n** = System frequency : (50 - 60)Hz
- **I_n** = Rated primary current of phase CTs : (1 - 9999)A, step 1A

Connection Diagram



F49 (T>): Thermal Image

- ⊙ Function enabling : **Enable/Disable**
- ⊙ Temperature prealarm : **Tal = (50 _ 110)%Tb,** step 1%Tb
- ⊙ Thermal Image reset level : **Tst = (10 _ 100)%Tb,** step 1%Tb
- ⊙ Continuous admissible current : **Ib = (50 - 130),** step 1 %In
- ⊙ Warming-up Time constant : **TW = (1 - 60)min,** step 1min

1F - 50/51 (I>): First Overcurrent Element

- ⊙ Function enabling : **Enable/Disable**
- ⊙ Current setting range : **I>> = (0.20 _ 4.00)In,** step 0.01In
- ⊙ Definite trip time delay : **tl>> = (0.05 _ 60.00)s,** step 0.01s
- ⊙ Instantaneous output : **£ 0.03s**
- ⊙ Time current curves : **Indep. Definite Time (D), IEC (A / B / C), IEEE (MI / VI / I / EI / SI)**
- ⊙ Definite trip time delay (10x[I>] in inverse time operation modes) : **tl> = (0.05 - 60.00)s,** step 0.01s

2F - 50/51 (I>>): Second Overcurrent Element

- ⊙ Function enabling : **Enable/Disable**
- ⊙ Current setting range : **I>> = (0.50 _ 40.00)In,** step 0.01In
- ⊙ Definite trip time delay : **tl>> = (0.05 _ 60.00)s,** step 0.01s
- ⊙ Instantaneous output : **£ 0.03s**
- ⊙ Automatic threshold doubling on inrush : **2xI = Enable/Disable**

3F - 50/51 (IH): Third Overcurrent Element

- ⊙ Function enabling : **Enable/Disable**
- ⊙ Current setting range : **IH = (0.50 _ 40.00)In,** step 0.01In
- ⊙ Definite trip time delay : **tlH = (0.05 _ 60.00)s,** step 0.01s
- ⊙ Instantaneous output : **£ 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 : **Io> = (0.01 _ 4.00)Ion,** step 0.01Ion
- ⊙ Definite trip time delay : **tIo> = (0.05 _ 60.00)s,** step 0.01s
- ⊙ Instantaneous output : **£ 0.04s**
- ⊙ Time current curves : **Indep. Definite Time (D), IEC (A / B / C), IEEE (MI / VI / I / EI / SI)**
- ⊙ Definite trip time delay (10x[Io>] in inverse time operation modes) : **tl> = (0.05 - 60.00)s,** step 0.01s

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

- ⊙ Function enabling : **Enable/Disable**
- ⊙ Current setting range : **Io>> = (0.01 _ 9.99)In,** step 0.01In
- ⊙ Definite trip time delay : **tIo>> = (0.05 _ 60.00)s,** step 0.01s
- ⊙ Instantaneous output : **£ 0.04s**

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

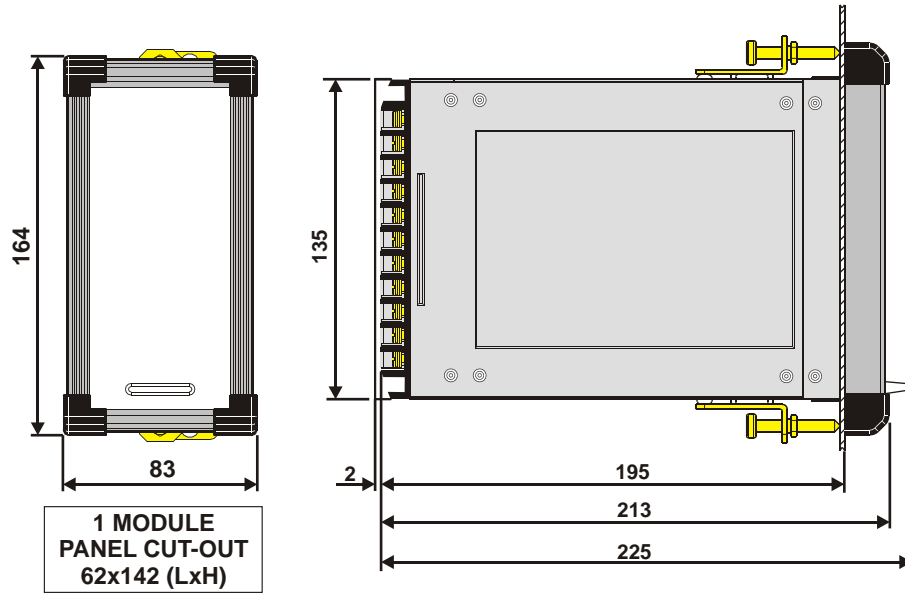
- ⊙ Function enabling : **Enable/Disable**
- ⊙ Current setting range : **IoH = (0.01 _ 9.99)In,** step 0.01In
- ⊙ Definite trip time delay : **tIoH = (0.05 _ 60.00)s,** step 0.01s
- ⊙ Instantaneous output : **£ 0.04s**

Breaker Failure Element

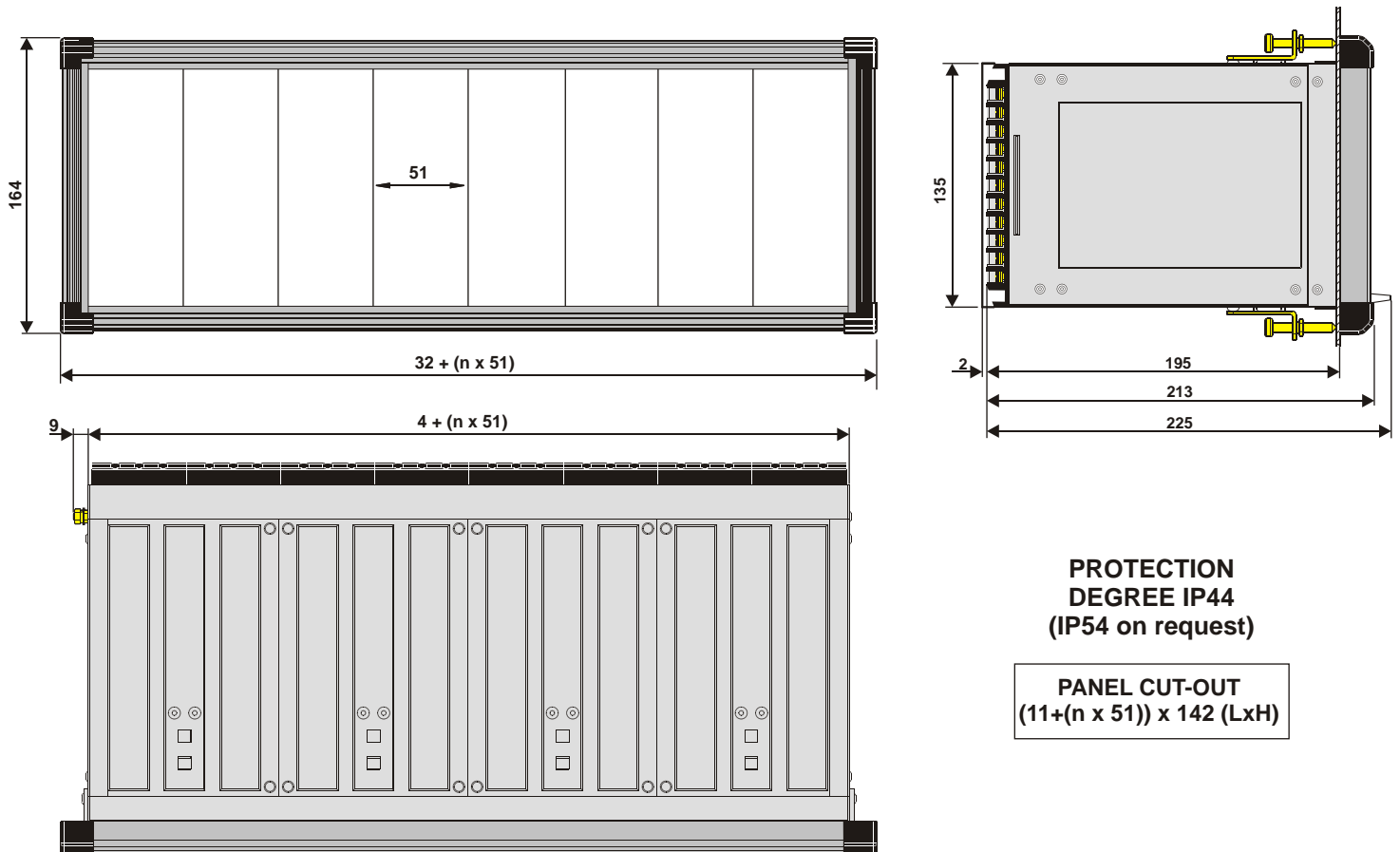
- ⊙ Trip time delay : **tBF = (0.05 - 0.75)s,** step 0.01s

OVERALL DIMENSIONS (mm)

PROTECTION DEGREE IP44
(IP54 on request)



Overall Dimensions - Multi-Modules (mm)



APPROVAL : CE
REFERENCE STANDARDS
IEC 60255 - EN50263 - CE Directive - EN/IEC61000 - IEEE C37 - BSI

⊙ Dielectric test voltage	IEC 60255-5	2kV, 50/60Hz, 1 min.
⊙ Impulse test voltage	IEC 60255-5	5kV (c.m.), 2 kV (d.m.) - 1,2/50ms
⊙ Insulation resistance	>100 M	

Environmental Std. Ref. (IEC 680068)

⊙ Operation ambient temperature	-10°C / +55°C	
⊙ Storage temperature	-25°C / +70°C	
⊙ Environmental testing (Cold)	IEC60068-2-1	
⊙ Environmental testing (Dry heat)	IEC60068-2-2	
⊙ Environmental testing (Change of temperature)	IEC60068-2-14	
⊙ Environmental testing (Damp heat, steady state)	IEC60068-2-78	IEC68-2-3 RH 93% Without Condensing 40°C

CE EMC Compatibility (EN50081-2 - EN50082-2 - EN50263)

⊙ Electromagnetic radiated and conducted emission	EN55022	Industrial Environment
⊙ Radiated electromagnetic field immunity test	IEC61000-4-3 ENV50204	level 3 80-2000MHz/10V/m 900MHz/200Hz 10V/m
⊙ Conducted disturbances immunity test	IEC61000-4-6	level 3 0.15-80MHz/10V
⊙ Electrostatic discharge test	IEC61000-4-2	level 4 6kV contact / 8kV air
⊙ Power frequency magnetic test	IEC61000-4-8	1000A/m, 50/60Hz
⊙ Pulse magnetic field	IEC61000-4-9	1000A/m, 8/20ms
⊙ Damped oscillatory magnetic field	IEC61000-4-10	100A/m, 0.1-1MHz
⊙ Immunity to conducted common mode disturbance 0/150KHz	IEC61000-4-16	level 4
⊙ Electrical fast transient/burst	IEC61000-4-4	level 4 2kV, 5kHz
⊙ HF disturbance test with damped oscillatory wave (1MHz burst test)	IEC60255-22-1	class 3 400pps, 2.5kV (m.c.), 1kV (d.m.)
⊙ Oscillatory waves (Ring waves)	IEC61000-4-12	level 4 4kV(c.m.), 2kV(d.m.)
⊙ Surge immunity test	IEC61000-4-5	level 4 2kV(c.m.), 1kV(d.m.)
⊙ Voltage interruptions	IEC60255-4-11	50ms
⊙ Resistance to vibration and shocks	IEC60255-21-1 - IEC60255-21-2	

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.)	

Auxiliary Power Supply

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