

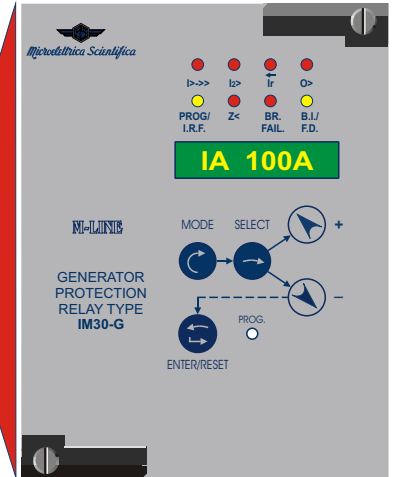
IM30-G

N10_{-R3}



32, 40, 46, 50/51, 51BF, 64S, 68

- Two Overcurrent levels.
- Two Current Unbalance levels.
- Stator Earth Fault.
- Reverse Power.
- Loss of field impedance element.
- Blocking Outputs and Blocking Inputs for pilot wire selectivity coordination.
- Breaker Failure protection.
- Modbus Communication Protocol.
- UL / CSA listed.



Three-phase multifunction generator protection relay.

The relay computes the positive and the negative sequence components of the current system for effective unbalance protection.

Selectable 1A and 5A current inputs; voltage input adjustable 100-125V.

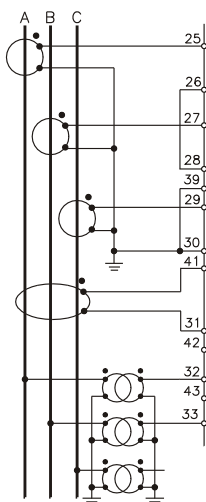
The neutral current input circuit include a 3rd harmonic active filter.

- | | |
|---------------------------------------|--------------------------------|
| ○ Real Time Measurements | = IA - IB - IC - Io - U - I2 - |
| ○ Maximum Demand and Inrush Recording | = IA - IB - IC - Io - U - I2 |

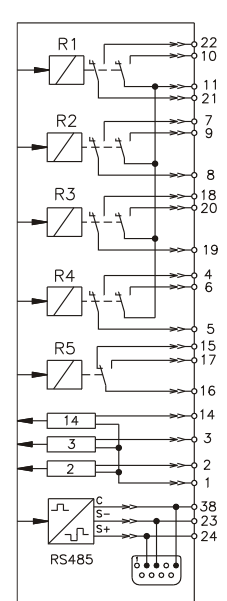
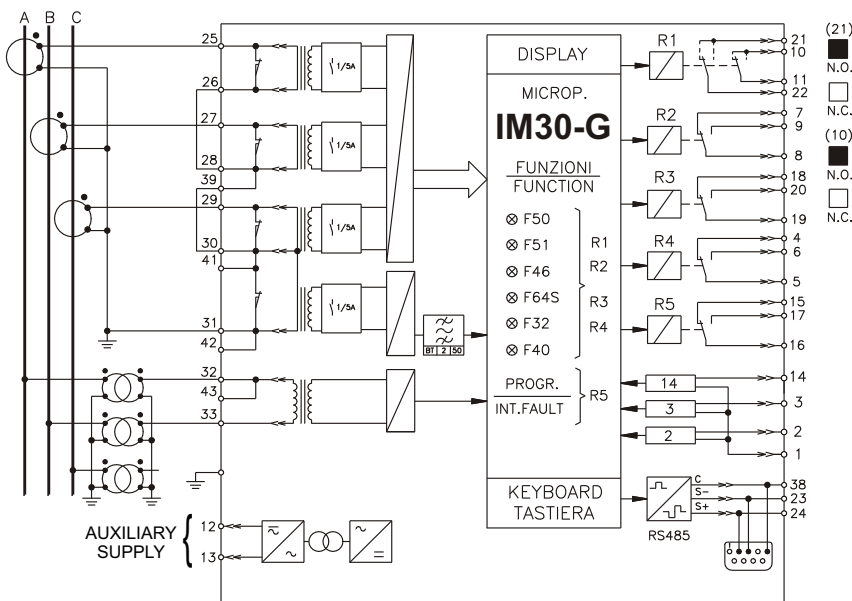
Programmable Input Quantities

- | | | |
|-------|---|-----------------------------|
| ○ Fn | = System frequency | : (50 - 60)Hz |
| ○ In | = Rated primary current of phase Cts | : (1 - 9999)A, step 1A |
| ○ On | = Rated primary current of earth fault detection CT | : (1 - 9999) A, step 1A |
| ○ Vns | = PTs rated secondary voltage | : (100 - 125)V, step 1V |
| ○ Ib | = Generator rated current | : (0.5 - 1.1)In, step 0.1In |

Connection Diagram



In = ☐ 1A ☐ 5A
Ion = ☐ 1A ☐ 5A
Un = ☐ 100V



1 - F50/51 (I>): First Overcurrent Element

- ⊙ Current setting range : $I> = (1 - 2.5)I_b$, step 0.01Ib
- ⊙ Instantaneous element : 0.03s
- ⊙ Independent time delay : $F(I>) = D: tI> = (0.05 - 30)s$, step 0.01s
- ⊙ Dependent time delay (Standard Inverse) : $F(I>) = SI$; $tI> = \text{time delay @ } 5x[I>]$

2 - F50/51 (I>>): Second Overcurrent Element

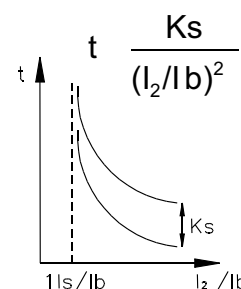
- ⊙ Current setting range : $I>> = (1 - 12)I_b$, step 0.1Ib
- ⊙ Instantaneous element : 0.03s
- ⊙ Independent time delay : $tI>> = (0.05 - 3)s$, step 0.01s

F64S : Stator Earth Fault

- ⊙ Trip level : $O> = (0.02 - 0.4)O_n$, step 0.01O_n
- ⊙ Instantaneous element : 0.04s
- ⊙ Independent time delay : $tO> = (0.05 - 30)s$, step 0.01s

F46 : Current Unbalance (Negative Sequence)

- ⊙ Continuous negative sequence current level : $1I_s = (0.05 - 0.5)I_b$, step 0.01Ib
- ⊙ Time multiplier : $K_s = (5 - 80)s$, step 1s
- ⊙ Cooling time : $t_c = (10 - 1800)s$, step 1s
- ⊙ Negative Sequence current Alarm level : $2I_s = (0.03 - 1)I_b$, step 0.01Ib
- ⊙ Independent time delay : $t2I_s = (1 - 100)s$, step 1s

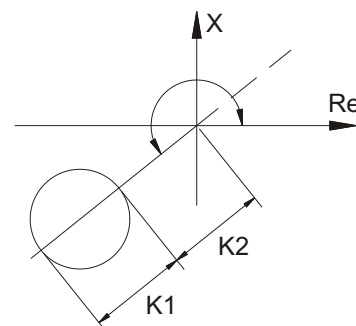


F32 (Ir>): Reverse Active Power

- ⊙ Trip level : $I_r> = (0.02 - 0.2)I_n$, step 0.01I_n
- ⊙ Independent time delay : $tI_r> = (0.1 - 60)s$, step 0.01s

F40 : Loss of Field or Underimpedance

- ⊙ Impedance characteristic angle : $z = (0 - 330)^\circ$, step 30°
- ⊙ Circle offset : $K2 = (5 - 50)\%Z_b$, step 1%
- ⊙ Circle diameter : $K1 = (50 - 300)\%Z_b$, step 1%
- ⊙ Independent trip time delay : $t_z = (0.2 - 60)s$, step 0.1s
- ⊙ Integration time : $t_i = (0 - 10)s$, step 0.1s
- ⊙ Undervoltage : $V < 0.3V_n$
- ⊙ Undercurrent : $I < 0.2I_n$



Breaker Failure Element

- ⊙ Trip time delay : $tBF = (0.05 - 0.5)s$, step 0.01s