THREE-PHASE VOLTAGE, FREQUENCY, and ZERO SEQUENCE VOLTAGE with VECTOR SHIFT DETECTION

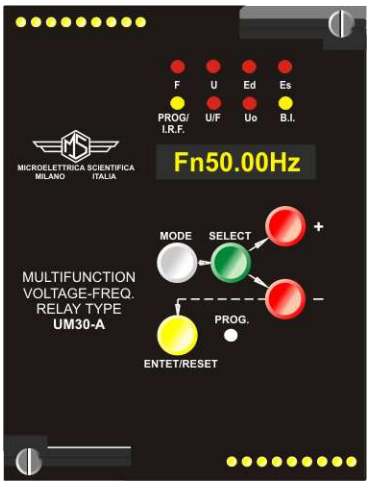
UM30-A

N3-R1

LINE M

24, 27d/59d, 47, 59, 59Uo, 78, 81

Two V/Hz levels
Two Over / Under voltage elements
Two Over / Under frequency elements
Two Zero Sequence voltage levels with Discrimination of faulty phase
Two positive / negative sequence voltage elements
Vector shift Detection on Generator Islanding
Event recording
Modbus Communication Protocol
UL / CSA listed



Three-phase plus zero sequence voltage and frequency control relay, suitable for protection of HV, MV, LV power transmission and distribution systems.

The relay UM30-A measures the true R.M.S. value of the 3 phase to neutral voltages fed to three high-impedance inputs; the zero sequence voltage is calculated internally via a built in open delta

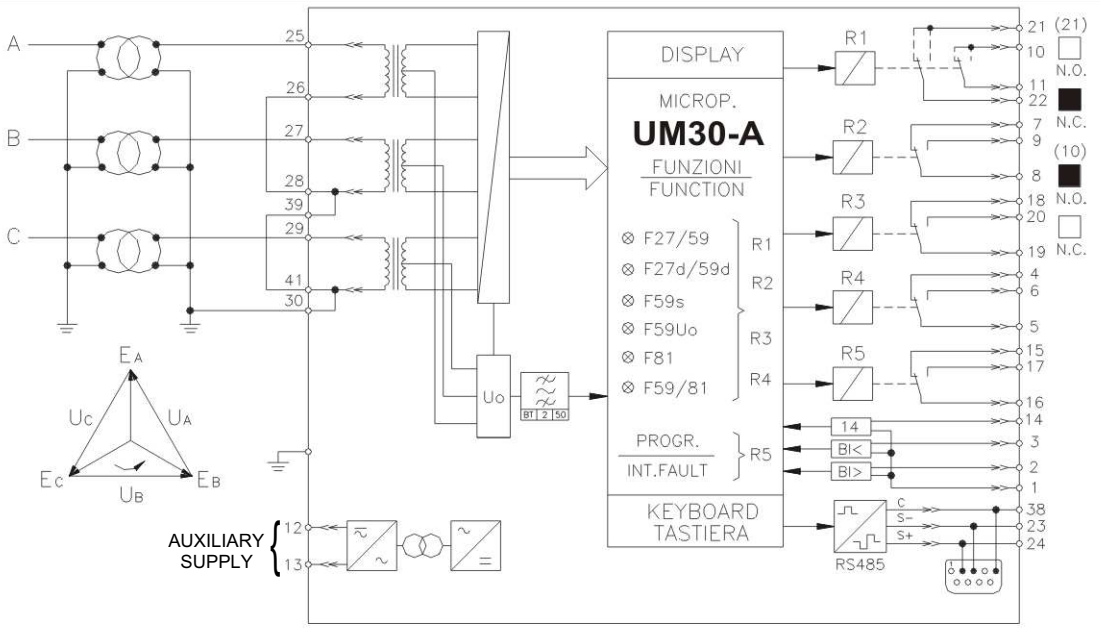
The zero sequence voltage input circuit includes a 3rd harmonic active filter.

Real Time Measurements = F - UA - UB - UC - Uo - EA - EB - EC - E1 - E2

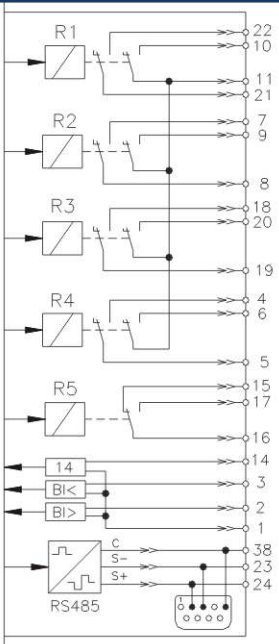
Programmable Input Quantities

Fn	= System frequency	: (50 - 60)Hz
Unp	= Rated primary phase to phase voltage of system's Pts	: (0.1 - 655)kV, step 10V, 100V, 1kV.
Uns	= Rated secondary phase to phase voltage of system's Pts	: (100 - 125)V, step 1V.

Connection Diagram



MS-SCE1342-R4
Standard Output



MS-SCE1451-R1
Double Output

1 - F24 : First level V/Hz Element

- Setting range	: **1 > = (1 - 2)**pU of Un/Fn,	step 0.1pU
- Instantaneous output	: **0.03s**	
- Time multiplier	: **K = (0.5 - 5),**	step 0.1

2 - F24 : Second level V/Hz Element

- Setting range	: **2 > = (1 - 2)**pU of Un/Fn,	step 0.1pU
- Instantaneous output	: **0.03s**	
- Trip time delay	: **t2> = (0.1 - 60)s,**	step 0.1s

1 - F81<, 81>, 81<+81> : First Frequency Element

- Operation mode	: **(Fn-f')=81<; (Fn+f')=81>; (Fn-/+f') = 81< + 81>**	
- Operation level	: **f' = (0.05 - 9.99)Hz**,	step 0.01Hz
- Instantaneous output	: **0.03s**	
- Trip time delay	: **tf' = (0.1 - 60)s**,	step 0.1s

2 - F81<, 81>, 81<+81> : Second Frequency Element

- Operation mode	: **(Fn-f")=81<; (Fn+f")=81>; (Fn-/+f") = 81< + 81>**	
- Operation level	: **f" = (0.05 - 9.99)Hz**,	step 0.01Hz
- Instantaneous output	: **0.03s**	
- Trip time delay	: **tf" = (0.1 - 60)s**,	step 0.1s

1 - F27, 59, 27+59 : First Voltage Element

- Operation mode	: **(Un-u')=27; (Un+u')=59; (Un-/+u')=27+59**	
- Operation level	: **u' = (5 - 90)%Un**,	step 1%Un
- Instantaneous output	: **0.03s**	
- Trip time delay	: **tu' = (0.1 - 60)s**,	step 0.1s

2 - F27, 59, 27+59 : Second Voltage Element

- Operation mode	: **(Un-u")=27; (Un+u")=59; (Un-/+u")=27+59**	
- Operation level	: **u" = (5 - 90)%Un**,	step 1%Un
- Instantaneous output	: **0.03s**	
- Trip time delay	: **tu" = (0.1 - 60)s**,	step 0.1s

F27d, 59d, 27d+59d : Positive Sequence (Balanced) Voltage Control Element

- Operation mode	: **(Edn-Ed)=27d; (Edn+Ed)=59d; (Edn-/+Ed)=27d + 59d**	
- Operation level	: **Ed = (5 - 90)%En**,	step 1%En
- Instantaneous output	: **0.03s**	
- Trip time delay	: **tEd = (0.1 - 60)s**,	step 0.1s

F47 : Negative Sequence (Unbalanced) Overvoltage Element

- Setting range	: **Es> = (1 - 99)%En**,	step 1%En
- Instantaneous output	: **0.03s**	
- Trip time delay	: **tEs> = (0.1 - 60)s**,	step 0.1s

1 - F59 (Uo>) : Low-Set Zero Sequence Voltage Control Element

- Setting range	: **Uo> = (1 - 99)V"**,	step 1V (secondary)
- Instantaneous output	: **0.03s**	
- Trip time delay	: **tUo> = (0.05 - 60)s**,	step 0.05s (1 above 10s)

2 - F59 (Uo>>) : High-Set Zero Sequence Voltage Control Element

- Setting range	: **Uo>> = (1 - 99)V"**,	step 1V (secondary)
- Instantaneous output	: **0.03s**	
- Trip time delay	: **tUo>> = (0.05 - 9.9)s**,	step 0.05 s

Vector Shift Detection Element

- Angle setting range	: **D > = (2 - 30)°**,	step 1°
- Operation mode	: **D = (1 - 3 - Dis)°,**	Single / Three-Phase detection
- Undervoltage blocking level	: **Ub = (10 - 100)%Ub**,	step 1%Ub