

1

Protection functions	ANSI code	M20	M40	M41	M61	M81	M87	M88
Phase overcurrent ⁽¹⁾	50/51	4	4	4	4	8	8	8
Earth fault / Sensitive earth fault ⁽¹⁾	50N/51N 50G/51G	4	4	4	4	8	8	8
Breaker failure	50BF		1	1	1	1	1	1
Negative sequence / unbalance	46	1	2	2	2	2	2	2
Thermal overload for machines ⁽¹⁾	49RMS	2	2	2	2	2	2	2
Two-winding transformer differential	87T							1
Machine differential	87M						1	
Directional earth fault ⁽¹⁾	67N/67NC			2	2	2	2	2
Directional active overpower	32P			1	2	2	2	2
Directional reactive overpower	32Q/40			1	1	1	1	1
Field loss (underimpedance)	40				1	1	1	1
Phase undercurrent	37	1	1	1	1	1	1	1
Excessive starting time, locked rotor	48/51LR/14	1	1	1	1	1	1	1
Starts per hour	66	1	1	1	1	1	1	1
Loss of synchronization	78PS					1	1	1
Overspeed (2 set points) ⁽²⁾	12				□	□	□	□
Underspeed (2 set points) ⁽²⁾	14				□	□	□	□
Positive sequence undervoltage	27D		2	2	2	2	2	2
Remanent undervoltage	27R		1	1	2	2	2	2
Undervoltage (L-L or L-N)	27		2	2	2	4	4	4
Overvoltage (L-L or L-N)	59		2	2	2	4	4	4
Neutral voltage displacement	59N			2	2	2	2	2
Negative sequence overvoltage	47			1	2	2	2	2
Overfrequency	81H			2	2	2	2	2
Underfrequency	81L			4	4	4	4	4
Thermostat / Buchholz	26/63				□	□		□
Temperature monitoring (8/16 RTDs) ⁽³⁾	38/49T	□ 8	□ 8/16	□ 8/16	□ 8/16	□ 8/16	□ 8/16	□ 8/16

The figures indicate the number of units available for each protection function

■ standard, □ options.

(1) Protection functions with 2 groups of settings.

(2) According to parameter setting and optional input/output modules.

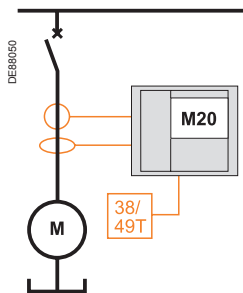
(3) With optional MET148-2 temperature input modules.

Motor protection

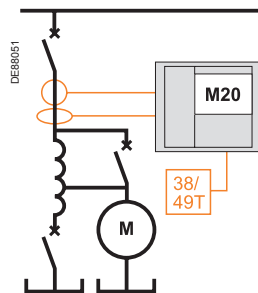
- internal motor fault protection
- power supply fault protection
- driven load fault protection
- RTD temperature monitoring (ANSI 38/49T).

Motor protection without voltage monitoring: Sepam M20

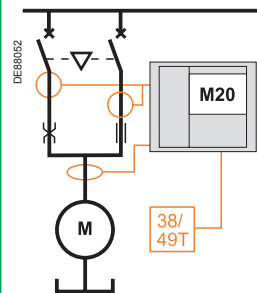
- direct starting.



- auto-transformer starting.

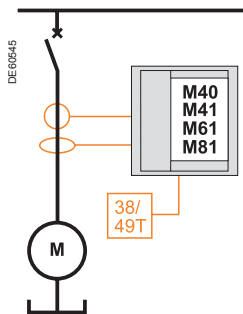


- two-way.

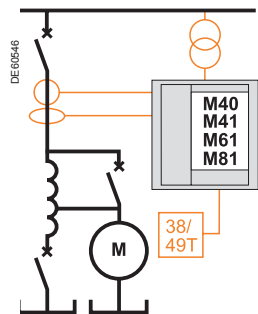


Motor protection with voltage monitoring: Sepam M40, M41, M61 or M81

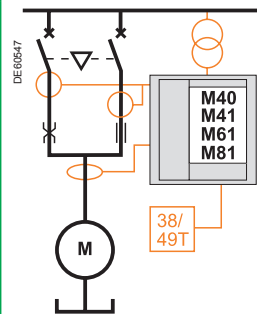
- direct starting.



- auto-transformer starting.



- two-way.

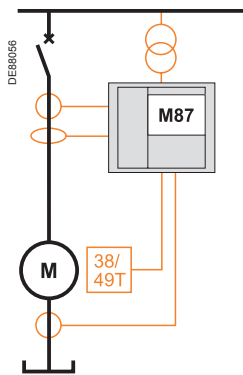


Motor differential protection: Sepam M87

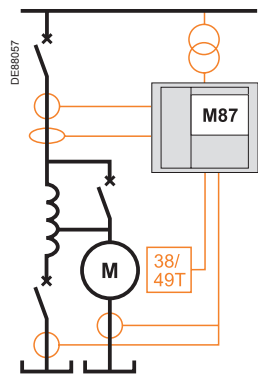
Motor differential protection: 87M.

Phase protection by self-balancing-differential scheme: 50/51.

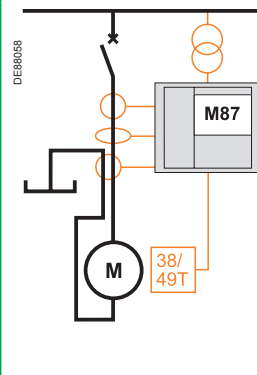
- direct starting.



- auto-transformer starting.



- direct starting.





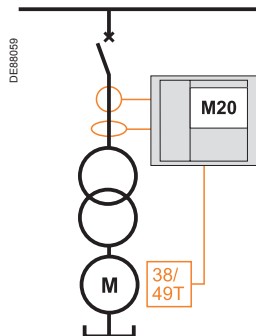
Motor-transformer unit protection

- motor and transformer protection against internal faults
- power supply fault protection
- driven load fault protection
- internal transformer protection: Thermostat / Buchholz (ANSI 26/63)
- RTD temperature monitoring (ANSI 38/49T).

Motor-transformer unit protection without voltage monitoring: Sepam M20

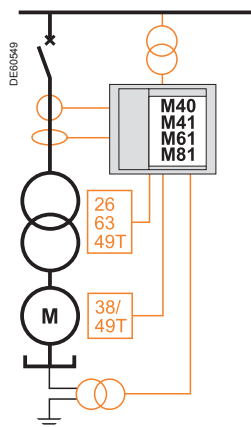
- transformer primary earth fault protection: 50G/51G.

Note: monitoring of motor insulation must be ensured by another device.



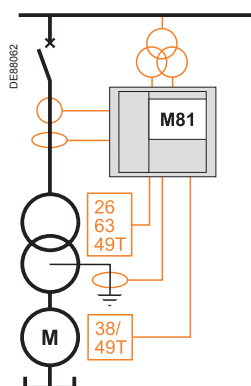
Motor-transformer unit protection with voltage and transformer monitoring: Sepam M40, M41, M61 or M81

- motor earth fault protection: 59N
- transformer primary earth fault protection: 50G/51G.
- transformer monitoring: Buchholz, thermostat, temperature measurement.



Motor-transformer unit protection with voltage and transformer monitoring: Sepam M81

- motor earth fault protection: 50G/51G
- transformer primary earth fault protection: 50G/51G
- transformer monitoring: Buchholz, thermostat, temperature measurement.



Motor-transformer unit differential protection: Sepam M88

Motor-transformer unit differential protection: 87T.

- motor earth fault protection: 50G/51G
- transformer primary earth fault protection: 50G/51G.

- motor earth fault protection: 59N
- transformer primary earth fault protection: 50G/51G.

