

HighPROTEC | PROTECTION TECHNOLOGY MADE SIMPLE

MRM4 | MOTOR PROTECTION DEVICE

FUNCTIONS

The MRM4 is a protection relay which uses the latest Dual-Core-Processor Technology to provide precise and reliable protective functions and is very easy to operate. The MRM4 provides all necessary functions to protect low and medium voltage motor at all power levels. The protection functions based on current measurement and supervise all thermal conditions, motor start sequence, stall and locked rotor, undercurrent and incomplete sequence. Overcurrent functions and earth fault functions are also available. The motor operation can be monitored by statistic and trending recorders. Start, event, fault and disturbance recorders are tracking all important actions.



ALL INCLUSIVE:

- All protection features without extra charge
- Para. setting and evaluation software
- Disturbance record analysis software

APPLICABLE FOR:

- Low and high voltage asynchronous motors

MOTOR PROTECTION FUNCTIONS

- Thermal overload protection 49M
- Locked rotor Protection 51LRS
- JAM or Stall protection 51LR
- Underload protection 37
- Motor start 48
- Starts per Hour 66
- Negative phase sequence (current unbalance) 46
- Overcurrent/short circuit prot. 50P/51P
- Earth overcurrent- and short circuit protection 50N/51N
- Reclosing lockout 86
- RTD supervision via external temperature box (Type MRM4-B, on request)

SYSTEM SUPERVISION FUNCTIONS

- CBF, circuit breaker failure 50BF
- TCS, trip circuit supervision via digital inputs 74TC
- CTS, current transformer supervision 60

DISTURBANCE RECORDER

- 120 s non volatile,
- 32 samples per cycles

HISTORY COUNTER

- Motor starts values, Numbers of alarms and trips of all important protection functions like I, IG, Thermal supervision, JAM, undercurrent and Negative phase sequence

TOTAL COUNTER

- Breaker wear values
- Motor run time
- Motor operation counter
- Histoty

TRENDING RECORDER

- Up to 10 selectable values with a selectable time windows like IL1RMS, IL2RMS, IL3RMS, Thermal capacity...

MOTOR START RECORDER

- Max. RMS values of phase currents
- Negative phase sequence currents
- Start duration
- Used thermal capacity
- Successful starts
- Temperature profile (optional)

STATISTIC RECORDER

- Number of successful starts
- Average I2T values
- Average max. start current

FAULT RECORDER

- Records up to 20 faults, failsafe

ADDITIONAL HIGHLIGHTS

- 20 mA output (Type MRM4-B)
- Long starting time for reduced voltage starts
- Emergency Start
- Incomplete sequence
- Anti-backspin time delay
- Permitted number of cold starts
- Supervision of starts per hour
- Mechanical load shedding
- Zero speed indication via input
- Motor stop inputs
- External alarm and trip inputs
- Multiple setting groups.

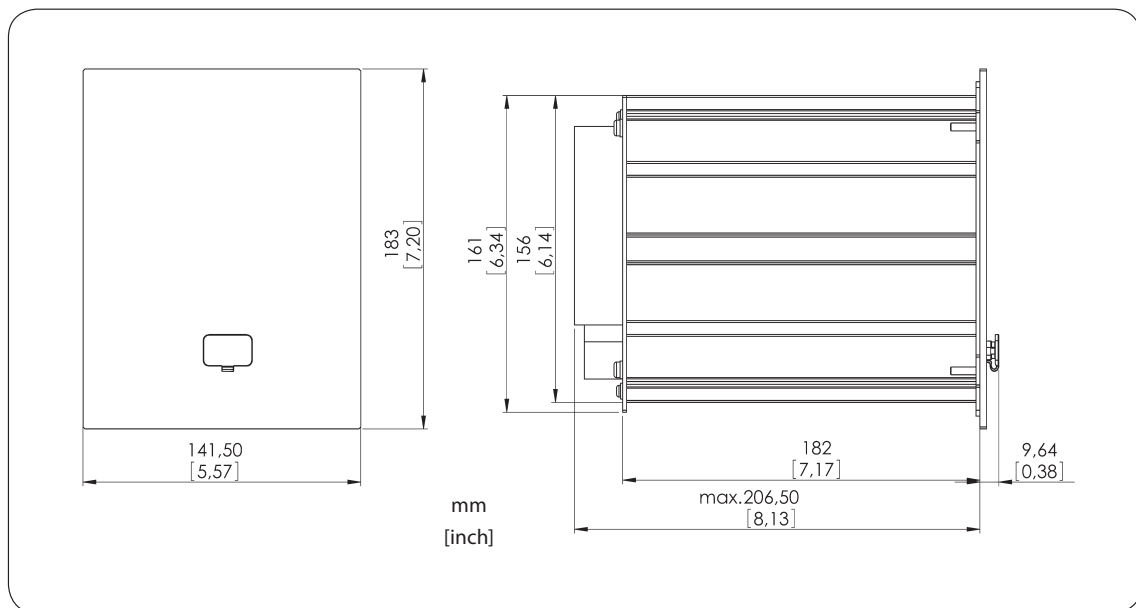
PARAMETER SETTING SUPPORT BY SOFTWARE

- Copy parameter sets
- Compare parameter sets
- Setting files are up and down convertible (across versions)

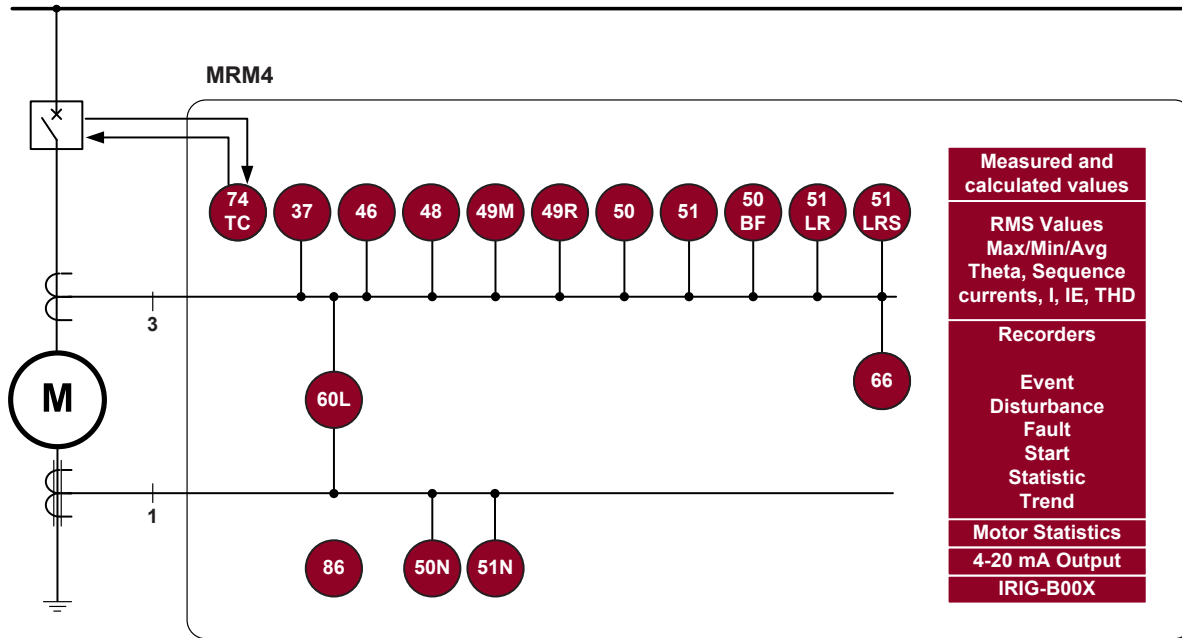
FUNCTIONAL OVERVIEW

	Elements	ANSI
Protective Functions		
IB, thermal overload protection		49M
I, time overcurrent and short circuit protection (non direction) (instantaneous, definite time, characteristics according to IEC60255, ANSI)	6	50P, 51P
I2, unbalanced load protection with evaluation of the negative phase sequence current	2	46
IG, earth time overcurrent and short circuit protection (non direction) (instantaneous, definite time, characteristics according to IEC60255, ANSI)	4	50N, 51N
I< underload protection	2	37
Reclosing lockout		49R
Incomplete sequence		
JAM protection		51LR
Locked rotor Protection		51LRS
Motor start		48
Starts per Hour		66
Start control input		
Reversing mode		
Emergency start		
CBF, circuit breaker failure	1	50BF
TCS, trip circuit supervision via digital inputs	1	74TC
CTS, current transformer supervision	1	60L

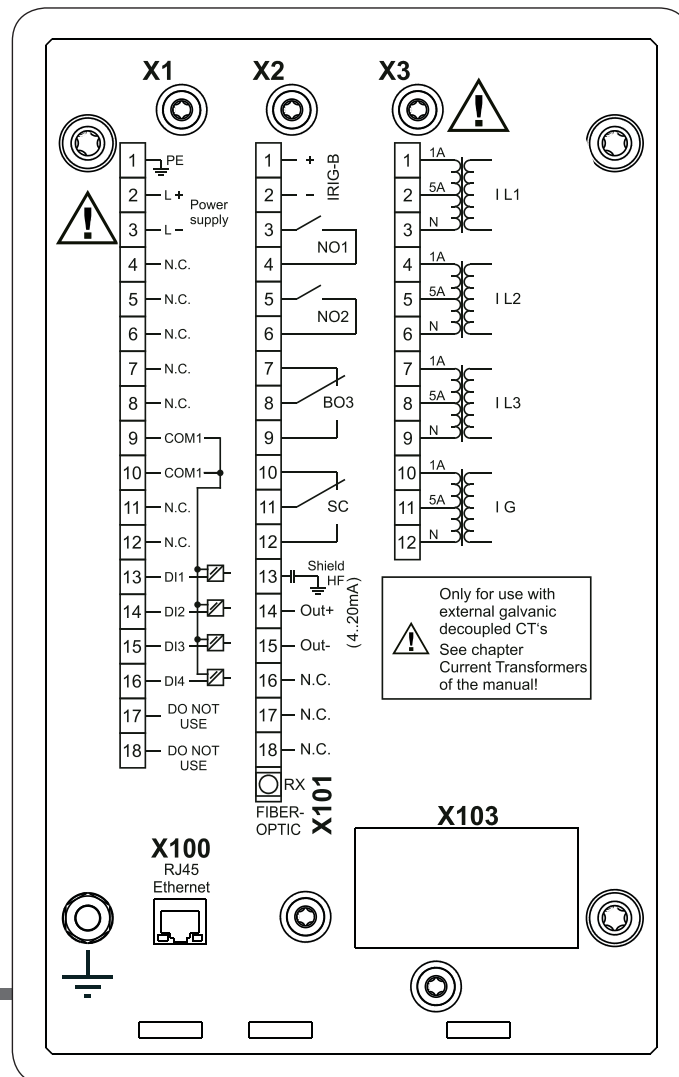
DIMENSIONS



FUNCTIONAL OVERVIEW IN ANSI FORM



CONNECTIONS



ORDER FORM MRM4

Motor Protection					MRM4	
Analog output	RTD remote interface	Digital inputs	Output relays	Housing		
–		8	6	B1	A	
1	X	4	4	B1	B	
Hardware variant 2						
Standard						0
Housing and mounting						
Door mounting						A
Door mounting 19" (flush mounting)						B
Communication protocol						
Connection/protocol						
Without protocol						A
RS485/terminals: Modbus RTU, IEC60870-5-103, IRIG-B (terminals)						B
Ethernet 100MB/RJ45 connector: Modbus TCP, IRIG-B (terminals) *						C
Fibre optic interface: Profibus-DP, IRIG-B (terminals)						D
RS485/D-SUB: Profibus-DP, IRIG-B (terminals)						E
Fibre optic interface: Modbus RTU, IEC 60870-5-103, IRIG-B (terminals)						F
RS485/D-SUB interface: Modbus RTU, IEC 60870-5-103, IRIG-B (terminals)						G
Available menu languages						
Standard English/German						

All devices are equipped with IRIG-B interface.

The parameterizing- and disturbance analyzing software is included in delivery of HighPROTEC devices.

* For information about additional cost for the software update tool IEC61850 per device, please contact our sales team.
The devices can be updated via device front interface (RS232) and PC locally.
Please ask for availability.

- Current inputs** 4 (1 A and 5 A) with automatic short circuiters
- Digital inputs** Switching thresholds adjustable via software
- Power supply** Wide range power supply
- Terminals** All terminals plug type
- Mounting** Door mounting
- Type of enclosure (Front)** IP54
- Dimensions of housing** 141.5 mm x 173 mm x 209 mm (W x H x D)
- Weight (max. components)** approx. 2.9 kg



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