



PROTECTION RELAYS

N-DIN-MA

New motor protection relay

Features

The N-DIN relay has been conceived to obtain the most efficient space and performance as well as cost and performance ratio.

The N-DIN relay is surface mounted on standard DIN-EN 50022 rail, and its Front-Face Panel (FFP) including Controls, Signals and Display, is removable and can be flush mounted, apart from the Relay Main Body (RMB), on the front panel of the switch board or in the MCC drawers. When removed, the FFP is connected to the RMB by a dedicated standard serial cable using screw terminals. One FFP can control and supervise up to 31 RMB units. A RS232 port is available on the FFP front for local connection to a PC.

Similarly the RMB, besides the Serial Port connecting the FFP, has a RS485 serial port, with screw terminals, for connection to the DCS serial bus. The Relay main body RMB can be used as stand-alone unit, without the front panel FFP. Communication protocol is MODBUS-RTU for all the Ports, whereas the communication with the Expansion Module EX-I/O is done on CanBus Protocol (dedicated terminals 1,2 and 3).

The technical specifications reported are not binding and they should be agreed in the related contract.



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Technical Characteristics

The Relay Main Body (RMB) Includes:

- 2 Phase input CTs for current measurement from 0.05A to 50A
- 1 Neutral (Earth Fault) input CT for current measurement from 0.01A to 10A
- 2 Self-powered programmable Digital Inputs for remote controls (start, stop, rev. ecc)
- 1 RTD input or User available Digital Input
- 2 Programmable output relay each with one N.O. contact rating 6A
- 1 RS485 port for connection to the communication serial bus
- 1 RS485 port for communication to the Front Face Panel
- 2 Signal Leds, 1 Reset button.

The Front Face Panel (FFP) Includes:

- 2 x 16 characters LCD display
- Four Key buttons for local relay management, Four signal leds
- One RS232 port for connection to a local PC (on front side)
- One RS485 port for interconnection with the RMB (on back side)
- Complete autodiagnostic program

Protective Functions

- F37 : No-Load running
- F46 : Definite time unbalance and single-phasing protection

- F49 : Full thermal image overload protection also computing current unbalance and steady motor cooling
- F51 : Overcurrent (short circuit) protection
- F51LR : Locked Rotor and Rotor Jam protection
- F64/51N : Earth Fault protection
- F66 : Excessive Number of consecutive starts
- Remote motor Start/Stop
- Automatic control of Reduced Voltage starting (Star-Delta, Autotrafo, Impedance...)
- Reversing starter control
- Control of Motor Reacceleration

Measurements

- Real Time Measurements (IA - IB - IC - Io - I2)
- Trip Recording (last 5 trips with date & time)
- Load Profile recoring

Power Supply Ratings

Autoranging multivoltage power supply

- Type 1 : 24V(-20%) / 80V(+15%)a.c. - 24V(-20%) / 90V(+20%)d.c.
- Type 2 : 80V(-20%) / 230V(+15%)a.c. - 90V(-20%) / 250V(+20%)d.c.

Mounting

- DIN46227 (EN50022)
- IP44 protection case

Programmable Input Quantities

In : Rated primary current of phase CTs	(1 ÷ 6500)A	step 1A
On : Rated primary current of earth fault detection CT	(1 ÷ 6500)A	step 1A
Fn : System frequency	(50 ÷ 60)Hz	

F37 (I<): No-Load Running protection

Setting range	I< = (10 ÷ 100)%Im	step 1%Im
Definite trip time delay	tI< = (0.1 ÷ 60)s	step 0.1s

F46 (I2>): Current Unbalance Element

Function enabling	Enable/Disable	
Setting range	I2> = (10 ÷ 99)%Im	step 1%Im
Definite trip time delay	tI2> = (0.1 ÷ 60)s	step 0.1s

F49 (T>): Thermal Image

Function enabling	Enable/Disable	
Thermal prealarm	Tal = (50 ÷ 110)%Tn	step 1%Tn
Rest time after trip	Tst = (10 ÷ 100)%Tn	step 1)%Tn

F51 (I>): Overcurrent Element

Function enabling	Enable/Disable	
Setting range	I> = (100 ÷ 999)%Im	step 1%Im
Definite trip time delay	tI> = (0.05 ÷ 9.99)s	step 0.01s

F51LR (ILR): Locked Rotor Protection

Function enabling	Enable/Disable	
Setting range	$ILR = (50 \div 500)Im$	step 1Im
Definite trip time delay	$tLR = (0.1 \div 60)s$	step 0.1s

F64 (Io>): Earth Fault Element

Function enabling	Enable/Disable	
Setting range	$I> = (20 \div 9999)mAs$	step 1mAs
Definite trip time delay	$tI> = (0.05 \div 9.99)s$	step 0.01s

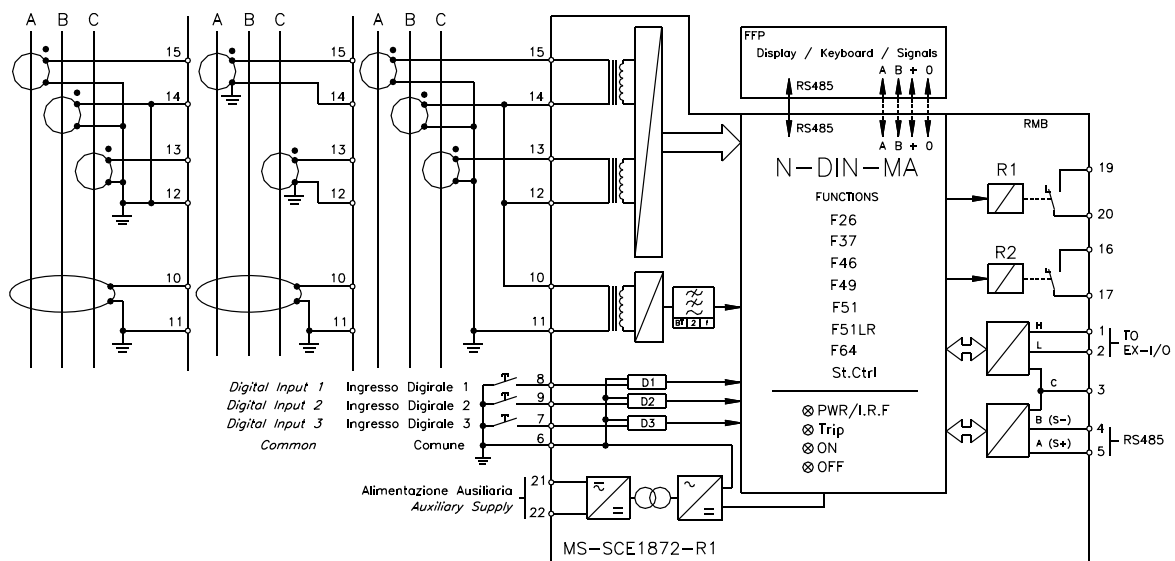
F66 (StNo): Limitation of N° of Startings

Function enabling	Enable/Disable	
Numbers of starting	$StNo = (1 \div 60)$	step 1
Time interval for counting of StNo	$tStNo = (1 \div 60)min$	step 1min
If during the set interval the StNo is attained, a new start is inhibited for the time tBst		
Reset time after trip	$tBst = (1 \div 60)min$	step 1min

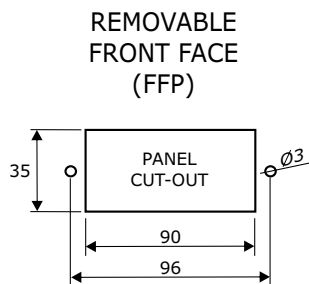
Too long starting protection and Starting Sequence Control

Function enabling	Enable/Disable	
Switch-over (transition) current	$I_{Tr} = (10 \div 999)\%Im$	step 0.1%Im
Maximum switch-over (transition) time delay	$t_{Tr} = (0.1 \div 60)s$	step 0.1s

Connection Diagram



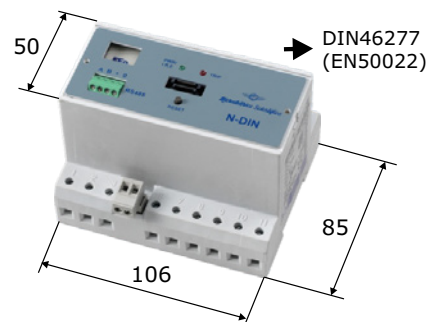
Overall Dimensions (mm)



FFP - Height = 16



RMB - Height = 72



Typical Characteristics		
Rated Current	In = 1/5A Programmable - On = 1/5A Programmable	
Metering range	(0.01 ÷ 50)A	
Current overload	200A for 1 sec; 10A continuous	
Burden on current inputs	Zf = 3mW/phase for 5A (0.075VA @ 5A) Zo = 10mW/phase for 1A (0.01VA @ 5A)	
Auxiliary power supply	Type 1 - Type 2	
Average power supply consumption	< 3 VA	
Output relay	rating 6A; Vn = 250V	
Order Code - Example		
N-DIN-MA	1	2
	Power Supply	Relay
	1 = Type 1	1 = Standard (RMB+FFP)
	2 = Type 2	2 = Only RMB
		3 = Only FFP

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For further technical information on our products visit www.microelettrica.com

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