



PROTECTION RELAYS

N-DIN-M G11-R7 New motor protection relay

Features

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

The N-DIN relay is surface mounted on standard DIN-EN 50022 rail, but 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 of the MCC drawers. When removed, the FFP is connected to the RMB via a dedicated serial link by a normal wire and screw terminals. One FFP only can control and supervise

up to 31 RMB units. Another 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 another RS485 serial port, with screw terminals, for connection to the serial bus of the DCS.

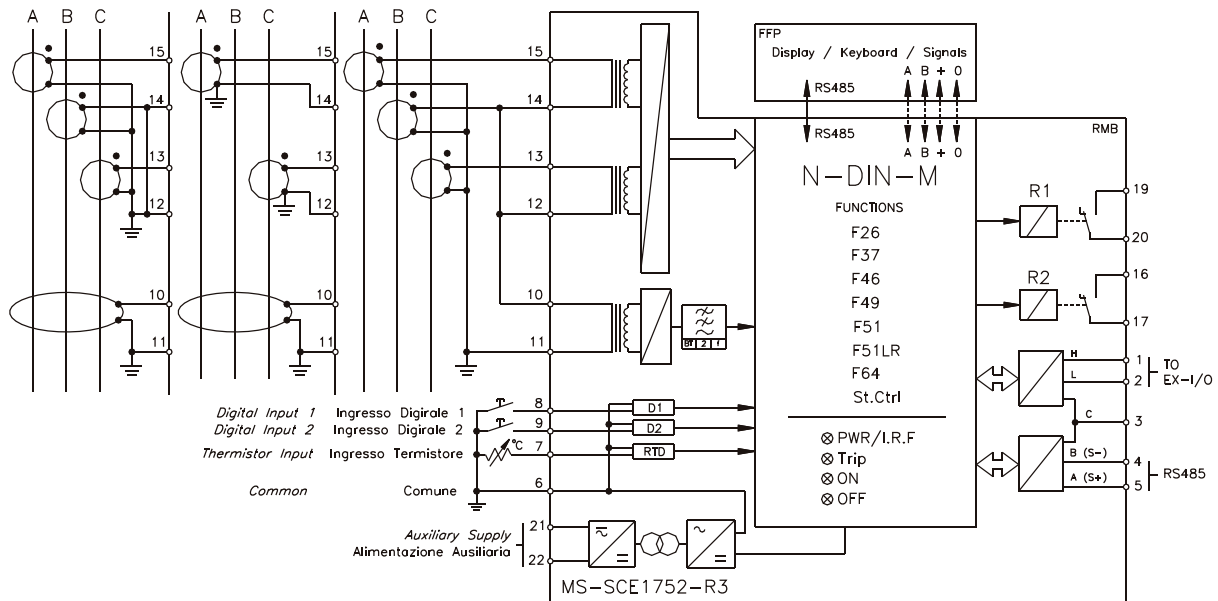
The relay main body RMB can be used as a stand-alone unit, without the front panel FFP.

Communication protocol is MODBUS-RTU for all the Ports.



MICROELETTRICA

Connection Diagram



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
- Isolated multivoltage autoranging Power Supply input: two options available



- 2 Self powered programmable Digital Inputs for remote controls (start, stop, reverse, ecc)
- 1 RTD input
- 2 Programmable output relays each with one N.O. contact rating 6A
- 1 RS485 Serial 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 for real time measurements of input quantities, programming and reading-out of relay settings, event discrimination ect....
- 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)

Measuring protection and control functions

- Measurement of true r.m.s. of input currents (IA, IB, IC, IO)
- Measurement of the Negative Sequence Current (I2)
- Display of programmed parameter settings.
- Load Profile recording.
- N° of starts and starting current recording.
- Event recording with value of the parameters at the moment of tripping and time tagging.
- F49 full thermal image overload protection also computing current unbalance and steady motor cooling

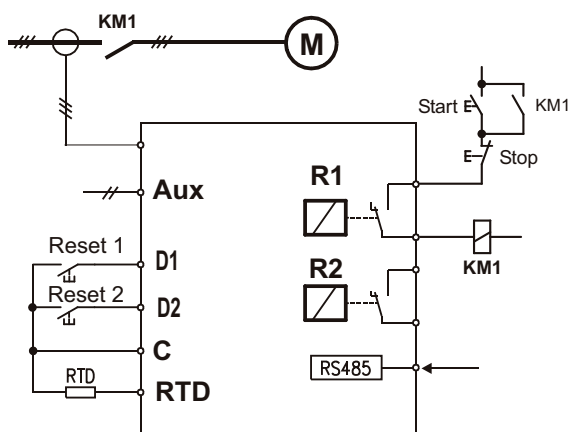
Measuring protection and control functions

F46 Definite time unbalance and single-phasing protection
F37 No-Load running
F51LR Locked Rotor and Rotor Jam protection
F66 Excessive Number of consecutive starts
F64/51N Earth Fault protection
F51 Overcurrent (short circuit) protection
Remote motor Start/Stop
Automatic control of Reduced Voltage starting (Star-Delta, Autotrafo, Impedance...)
Reversing starter control



APPLICATION EXAMPLE

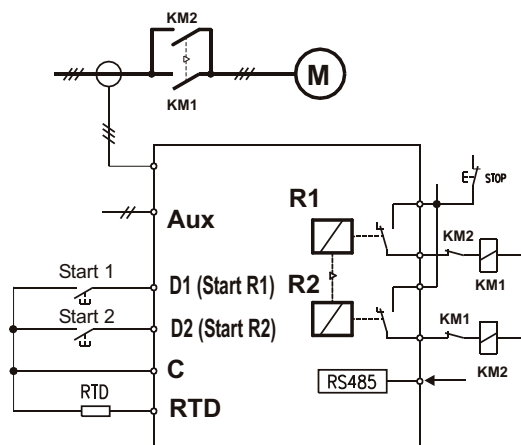
Direct On Line Starter (Mode D)



A) LOCAL RESET CONTROL VIA DIGITAL INPUTS

B) REMOTE RESET CONTROL VIA RS485

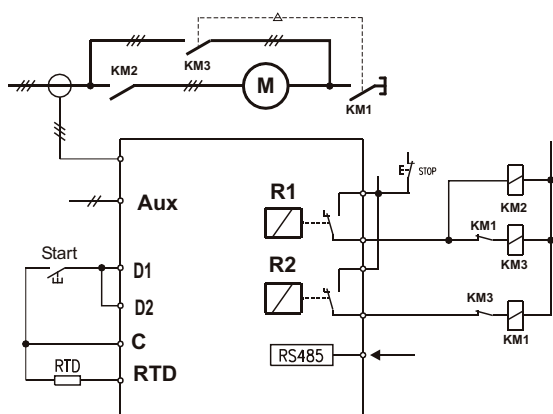
Reversing Starter (Mode Revers.)



A) CONTROLLO LOCALE TRAMITE INGRESSI DIGITALI

B) CONTROLLO REMOTO TRAMITE RS485

Star-Delta Starter (Mode Two-step)



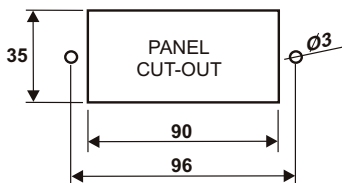
A) LOCAL CONTROL VIA DIGITAL INPUTS

B) REMOTE CONTROL VIA RS485

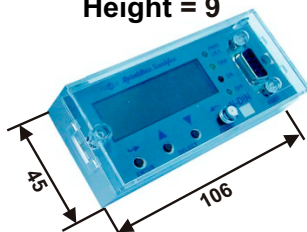
START: $\uparrow R2 \dots 0.1s \dots \uparrow R1 \dots I < [I_{Tr}] \dots \downarrow R2$

Overall Dimensions (mm)

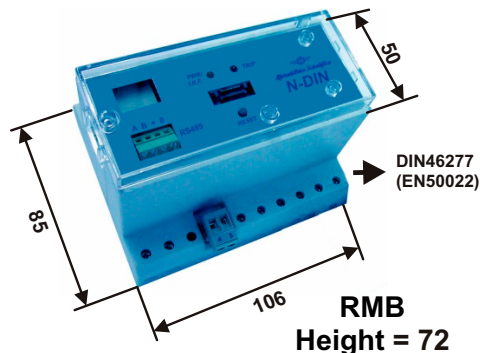
REMOVABLE FRONT FACE (FFP)



TRASPARENT COVER
Dimension 45x108
Height = 9

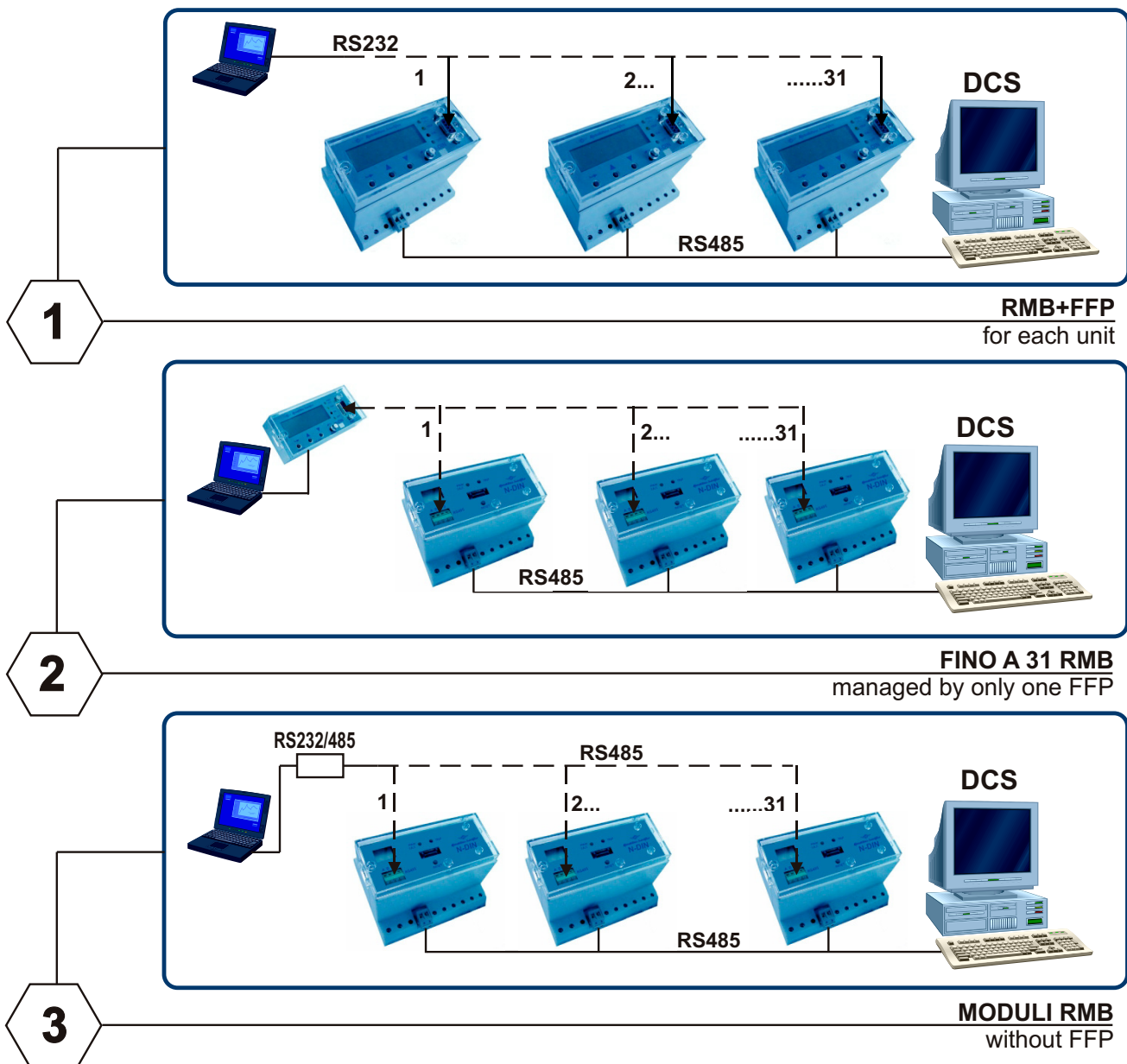


FFP
Height = 16



RMB
Height = 72

Configuration and Communication options



ANY COMBINATION 1 - 2 - 3 IS POSSIBLE

ELECTRICAL CHARACTERISTICS

Approval : CE Reference Standards IEC 60255 - EN50263 - CE Directive - EN/IEC61000 - IEEE C37				
Dielectric test voltage	IEC 60255-5			2kV, 50/60Hz, 1 min.
Impulse test voltage	IEC 60255-5			5kV (c.m.), 2 kV (d.m.) - 1,2/50µs
Insulation resistance	>100 M			
Environmental Std. Ref. (IEC 68-2-1 - 68-2-2 - 68-2-33)				
Operation ambient temperature				-10 C / +55 C
Storage temperature				-25 C / +70°C
Humidity				IEC68-2-3 RH 93% Without Condensing at 40°C
CE EMC Compatibility (EN50081-2 - EN50082-2 - EN50263)				
Electromagnetic radiated and conducted emission	EN55022 industrial environment			10V/m
Radiated electromagnetic field immunity test	IEC61000-4-3 ENV50204	level 3	80-1000MHz 900MHz/200Hz	10V/m
Conducted disturbances immunity test	IEC61000-4-6	level 3	0.15-80MHz	10V
Electrostatic discharge test	IEC61000-4-2	level 4	6kV contact / 8kV air	
Power frequency magnetic test	IEC61000-4-8		1000A/m, 50/60Hz	
Pulse magnetic field	IEC61000-4-9		1000A/m, 8/20ms	
Damped oscillatory magnetic field	IEC61000-4-10		100A/m, 0.1-1MHz	
Electrical fast transient/burst	IEC61000-4-4	level 3	2kV, 5kHz	
HF disturbance test with damped oscillatory wave (1MHz burst test)	IEC60255-22-1	class 3	400pps, 2,5kV (m.c.), 1kV (d.m.)	
Oscillatory waves (Ring waves)	IEC61000-4-12		4kV(c.m.), 2kV(d.m.)	
Surge immunity test	IEC61000-4-5	level 4	2kV(c.m.), 1kV(d.m.)	
Voltage interruptions	IEC60255-4-11	level 4	50ms	
Resistance to vibration and shocks	IEC60255-21-1 - IEC60255-21-2 10-500Hz 1g			
Typical Characteristics				
Rated Current	In = 1/5A Programmable - On = 1/5A Programmable			
Metering range	(0.01 - 50)A			
Current overload	200 A for 1 sec; 10A continuous			
Burden on current inputs	Zf = 3mW/phase for 5A (0.075VA @ 5A) Zo = 10mW/phase for 1A (0.01VA @ 1A)			
Auxiliary power supply	Type 1 - Type 2			
Average power supply consumption	≤3 VA			
Output relays	rating 6 A; Vn = 250 V			

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

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

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