

MSG

LINE N-DIN

**PERMANENT INSULATION
SUPERVISION OF UNEARTHED
D.C. SYSTEMS**

DIGITAL RELAYS FOR PROTECTION,
SUPERVISION AND CONTROL

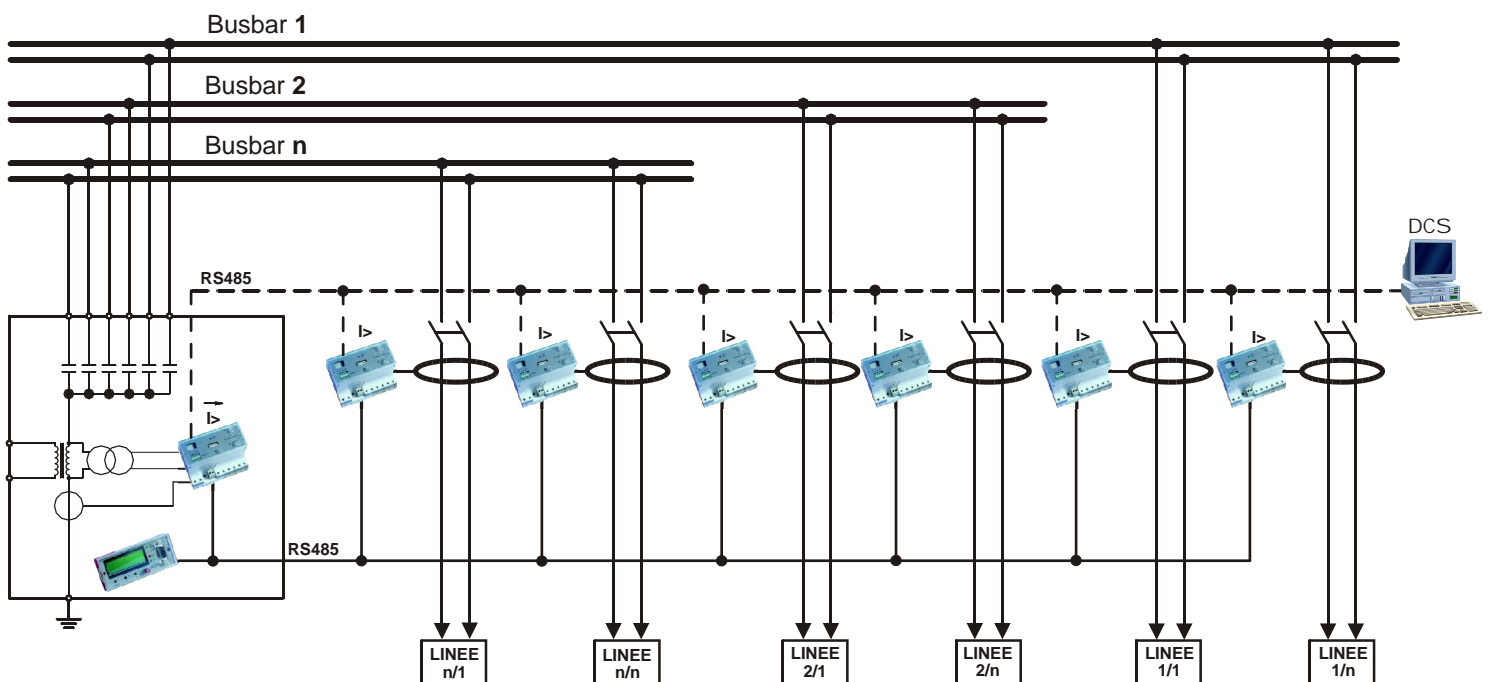




MAIN FEATURES

- Modular components with digital microprocessor based technology.
- Total compliance whit the standards IEC 60255 - EN50263 - CE Directive - EN/IEC61000 - IEEE C37.
- Permanent continuous supervision of the insulation with measurement of fault current and fault resistance of up to 31 feeders.
- Power frequency low voltage injection with capacitors coupling.
- Automatic selective detection of the faulty feeder with local and remote signalization.
- High sensitivity for detection of high resistance faults up to 5KW.
- Measurement of the resistive component of the fault current with capacitive component rejection.
- Wide setting range of the Alarm level and of the trip time delay.
- Continuous metering of the capacitive leakage current and of the fault current of the system and of each individual feeder.
- Time tagged event recording with measurement of the fault current.
- Serial communication RS485 among the Master Unit and the feeder peripheral units.
- Serial port RS485 for communication with a D.C.S. systems.
- Serial port RS232 for local communication
- General Display of the measurements of all the units connected.
- Setting and control of any feeder unit from the master unit or via D.C.S..
- Continuous selfdiagnostic of each individual unit.
- Configurable system expandable up to 31 feeders by simply connecting the peripheral units to the RS485 control bus.
- Supervision voltage supplied by internal transform with single-phase 240Vac input (consumption £15VA).
- Multivoltage AC or DC power supply of the main unit and of the peripheral units (the peripheral units can be directly powered by the controlled D.C. feeder).

Connection Diagram





The MSG apparatus continuously monitors the insulation of low voltage or high voltage ungrounded D.C. systems and allows for univocal detection of the faulty feeder among those controlled. One system can control up to 31 feeders even departing from busbars at different voltage.

The apparatus, via capacitive coupling, applies a low power frequency voltage between the D.C. system and ground; thanks to its metering method, it is not affected by the system capacitance or by possible distortions or ripple of the D.C. voltage. The fault sensitivity is not affected by the position of the fault.

The apparatus is constituted of the following component units:

Main Supervision Unit - MSG

The MSG unit is powered by a single-phase A.C. voltage (120 or 220Vac) and includes:

- Input transformer.
 - Capacitive coupling circuits and limitation resistors
 - Main directional fault detector "D" measuring the resistive components of the fault current.
 - Control panel for monitoring of the main and the peripheral fault detectors, complete with retroilluminated LC Display controls and signals.
- The control unit is removable and can be mounted on the switchboard front face.

The MSG unit is connected via a dedicated RS485 serial bus with the main fault detector and with all the feeder fault detectors (up to 31 units).

Another RS485 serial port is provided for connection to a central supervision system (D.C.S.); the communication protocol is Modbus RTU.

On the front of the Control Panel a RS232 port is also provided for connection to a local Laptop PC.

The main unit MSG operates independently even without any peripheral slave unit.

In this case it detects any fault in the D.C. system without discriminating the faulty feeder.

The MSG unit is normally provided with coupling capacitors for one busbar system only with voltage up to 450Vdc.

By simply adding external coupling capacitors it can monitor other busbar systems even powered at different voltage.

Peripheral Unit - N-DIN-P

Each peripheral unit is constituted of:

- High sensitivity toroidal current transformer to be mounted around the D.C. feeder cables. Tore CTs are available in different sizes (standard 35mm hole) all with plastic enclosure, screw terminals and mounting accessories.
- Fault detection relay type N-DIN-P with programmable alarm level and time delay.

The N-DIN-P unit provided:

- 2 programmable output relay.
- 3 programmable digital inputs (Remote Reset/Trip, Lock-out, ecc.).
- Signalization Leds.
- Local Reset.
- 2 RS485 serial ports for connection to the main unit MSG and to the D.C.S. communication bus.
- Multivoltage autoranging power supply AC-DC.

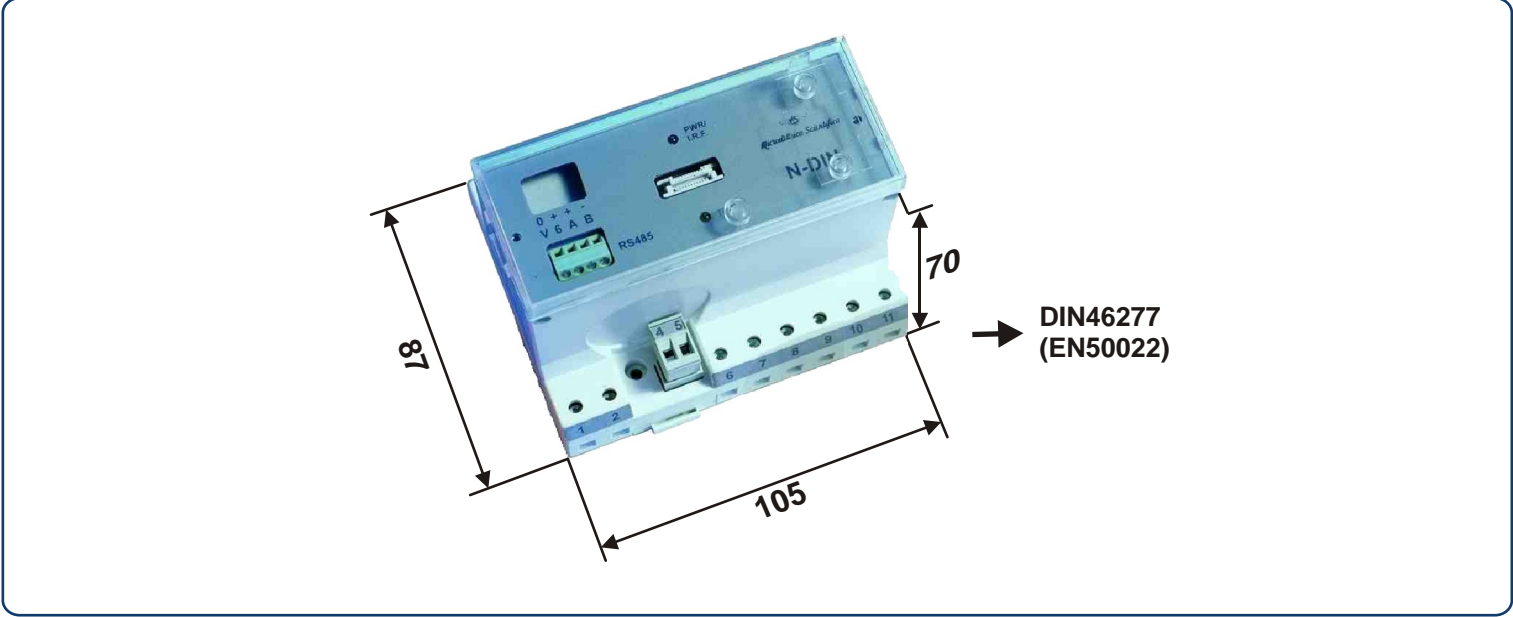
As already mentioned the main unit MSG can supervise up to 31 peripheral units N-DIN-P.

Each peripheral unit is connected (Multi Drop) to the MSG unit via a dedicated RS485 serial bus.

The main unit MSG as well as the peripheral units N-DIN-P have a continuous selfdiagnostic features that in case of any internal fault or power supply failure operate local and remote signalization.



Overall Dimensions (mm) - Peripheral Unit - N-DIN-P



Overall dimensions (mm) - Main Supervision Unit - MSG

