

ULTRA

MICROPROCESSOR
PROTECTION RELAYS
THE "ULTRA" LINE

NUMERICAL MULTIFUNCTION
INTELLIGENT DEVICE FOR PROTECTION,
SUPERVISION, METERING AND CONTROL



Microelettrica Scientifica

MICROELETTRICA SCIENTIFICA MANUFACTURES A COMPLETE RANGE OF DIGITAL PROTECTION RELAYS DIVIDED IN DIFFERENT LINES FOR SPECIFIC APPLICATIONS.

Among these lines the ULTRA-M is the top one designed to meet the most demanding specifications for any application in Transmission, Distribution and Electric Machinery protection

The **ULTRA** is a very powerful hardware platform on which different firmware programs can be downloaded to accomplish the combination of a number of functions needed for different applications (in protection and management).

- Conformance to all IEC 60255, IEC 61000, ANSI-IEEE C37, CE Directive.
- Modular fully draw-out execution in individual flush mounting enclosure IP44 (on request IP54) or in 19"-3U chassis for standard Rack panel.
- Large graphical LCD display with mimic indication of the C/B status.
- User friendly four-buttons keyboard for complete local management.
- On-Off Breaker Control push buttons on front face.
- RS232 port for local P.C. interface with Modbus-protocol (communication speed: 9600 to 57600bps).
- RS485 communication port for connection to Supervision System with Double Communication Protocol Modbus RTU and IEC870-5-103 (communication speed: 9600 to 38400bps).

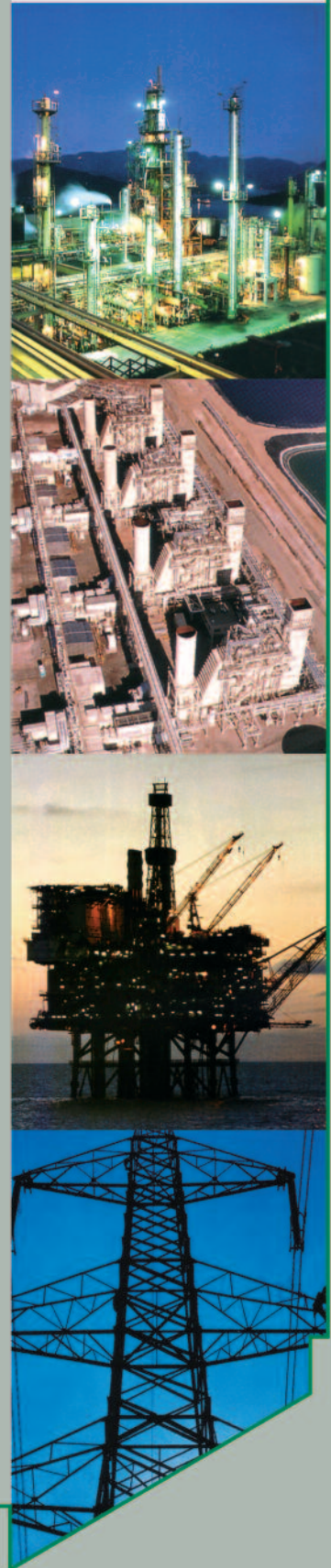


- Optional ethernet communication protocol.
- Field-bus (CANBUS) port for control of additional periferic units.
- Multivoltage autoranging fully insulated power supply.
- Four transformer insulated current inputs (selectable 1-5A).
- Four transformer insulated voltage inputs (programmable 50 ÷ 150V).
- Fully programmable settings and Time Current Curves.
- Six internal output relays, expandable by additional Output Modules, all user programmable.
- Four internal, self powered, optoisolated digital Inputs expandable by additional digital Inputs Modules, all user programmable.
- Self-contained Trip Circuit Supervision (F74).
- Real time and recorded measurement of all electrical system quantities.
- Time tagging with synchronization from serial communication.
- Trip and event recording with time tag and input values.
- Programmable oscillography wave forms of all inputs.
- Comprehensive continuous self-diagnostic.

**NUMERICAL
MULTIFUNCTION IN-
TELLIGENT
DEVICE
FOR PROTECTION,
SUPERVISION,
METERING
AND CONTROL**



ULTRA
line



SERIAL COMMUNICATION

The ULTRA line is supported by an advanced communication software with very comprehensive functionalities and yet remaining extraordinarily user friendly and versatile.

Microelettrica Scientifica has developed and realized **MSCOM II**, a communication software for Windows systems available in two versions:

PROFESSIONAL (MSCOM II PRO)

it is the full version software which allows to:

- Simultaneously communicate on serial ports with up to 250 Microelettrica Scientifica relays.
- On-line Firmware updating.
- Save on disk data coming from relays.
- Program or modify settings and configurations.
- Prepare off-line relay settings files and directly upload relay's memory.
- Print data tables and oscillographic wave form recordings.
- Periodically poll the relays and save any data directly in the hard disk or send data to a printer.
- Access the relays over TCP/IP protocol modem.
- Access the relays through modem.

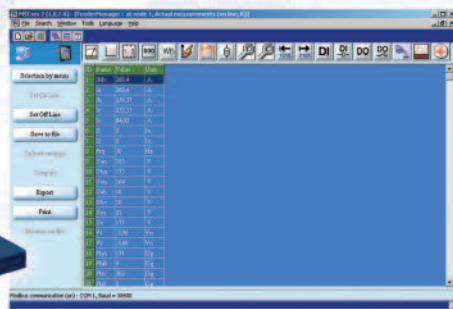
LITE (MSCOM II LITE)

this version is freeware and supports all the microprocessor relays manufactured by Microelettrica Scientifica. It allows to:

- Communicate only with one relay at a time.
- On-line Firmware updating.
- Save on disk data coming from relay.
- Print data tables and oscillographic wave form recordings.

MS-TD PRO 32

is the customer designed multi-protocol software used by Microelettrica Scientifica to implement SCADA (Supervision Control and Data Acquisition) systems based on data and measurements coming from the Protection, Metering and Control devices.



MAIN MODELS OF THE LINE



FMR	Feeder Manager Relay
MMR	Motor Manager Relay
GMR	Generator Manager Relay
DTMR	Transformer Differential Relay
DTMR-G	Generator Differential Relay
U-MLEs	DC Feeder Protection Relay

For more detailed information about the characteristics of the relays, please refer to each single catalogue.

ELECTRICAL CHARACTERISTICS

Rated Current:

$I_n = 1$ or $5A$; $I_n = 1$ or $5A$

Current Overload:

$80I_n \times 1\text{sec}$;

$4I_n$ continuous

Burden on current inputs:

phase: $0.01VA@1A$, $-0.2VA@5A$,

earth: $0.01VA@1A$, $-0.2VA@5A$

Rated Voltage

$U_n = 100-125Vac$

Voltage overload:

$2 U_n$ continuous

Burden on voltage inputs:

$0.1VA$ phase@ U_n

Average power supply consumption:

$<10VA$

Output Relays:

Rating $5A - 250V$

A.C. resistive switching $1100W$, $380 Vac$

Make= $30A$ peak ≤ 0.5 sec

Break: $0.3A$, $110Vdc$. $L/R = 40msec$

Operation ambient temperature:

$-10^\circ C / +55^\circ C$

Storage temperature:

$-25^\circ C / +70^\circ C$

Reference standards:

IEC60255, IEC61000, IEEE C37

CE: EN50081-2, EN50082-2

EN50263, ENV50204

Dielectric test voltage:

IEC60255-5 $2kV$, 1 min.

Impulse test voltage:

IEC60255-5

$5kV(cm)$, $2kV(dm)$ - $1.2/50$ us

HF disturbance test (1 MHz burst test):

IEC60255-22-1 class 3

Electrostatic discharge test:

IEC61000-4-2 level 4

Conducted disturbance immunity test:

IEC61000-4-6 level 3

Radiated electromagnetic

field immunity test:

IEC61000-4-3 level 3

Electrical fast transient/burst:

IEC61000-4-4 level 4

Surge immunity test

IEC61000-4-5 level 4

Oscillatory waves (ring waves):

IEC61000-4-12 level 4

Power frequency magnetic test:

IEC61000-4-8 level 5

Pulse magnetic field:

IEC61000-4-9 level 5

Damped oscillatory magnetic field:

IEC61000-4-10 level 5

Voltage interruptions:

IEC61000-4-11 200ms

HF induced voltage:

IEC61000-4-1-A.2.6 level 4

Resistance to vibrations and shocks:

IEC60255-21-1 and 21-2

DCS



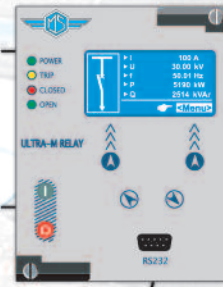
RS485

CANBUS



EX/IO EXPANSION MODULES

ULTRA-M



6 Output Relays

4 Digital Inputs



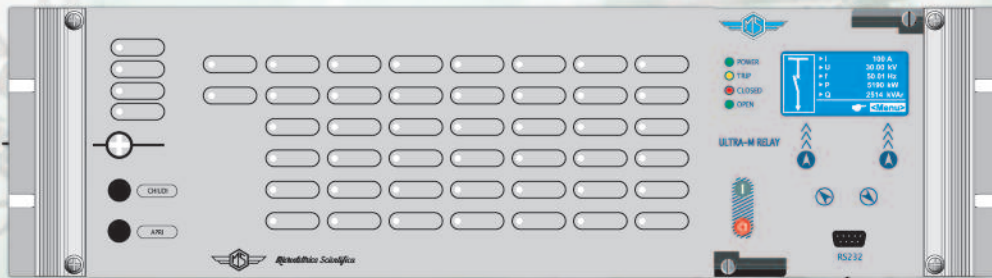
RS485

ULTRA-S



ULTRA 19"

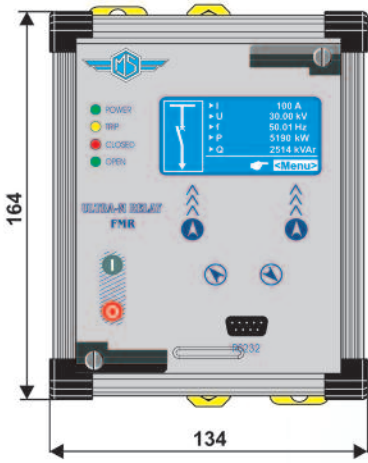
RS485



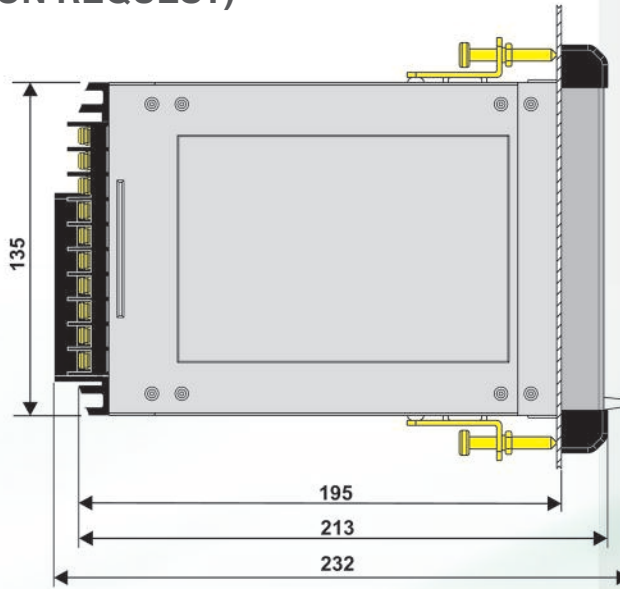
Variable composition up to 100 I/O + 3 Analogue Outputs



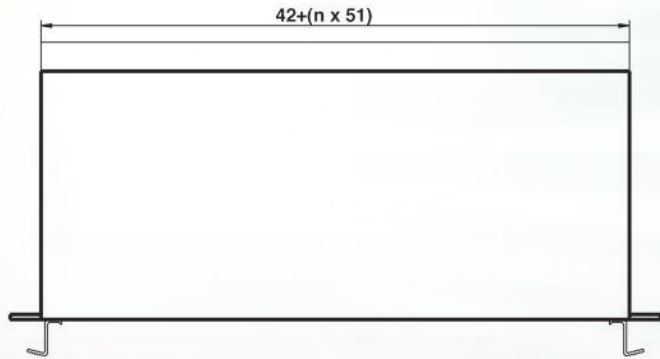
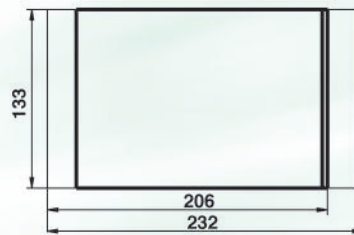
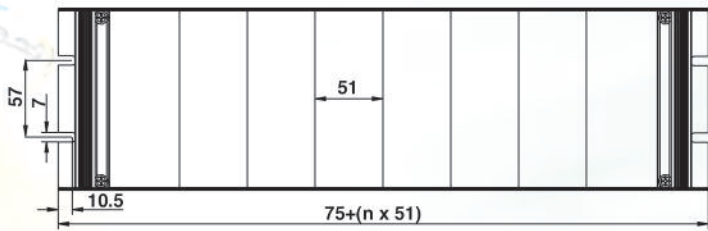
PROTECTION DEGREE IP44 (IP54 ON REQUEST)



PANEL CUT-OUT
113x142 (LxH)



FLUSH MOUNTING
OVERALL DIMENSION

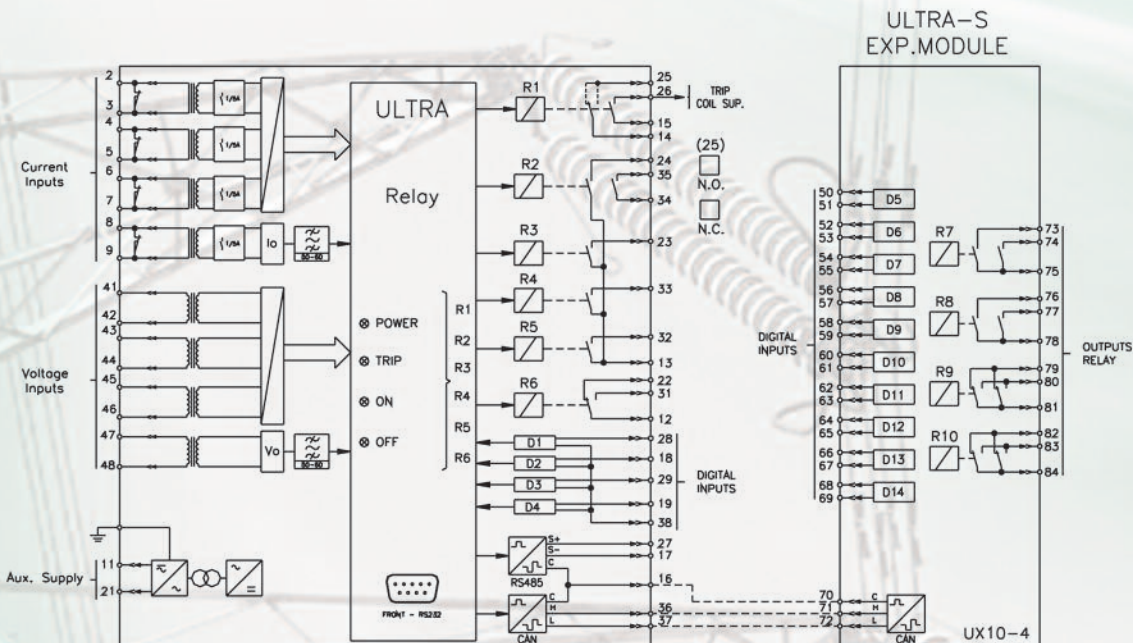


19" Panel can house up to 8 modules 51 mm wide.
Each **ULTRA** relay is 2 module wide (102 mm)

ULTRA - S EXECUTION

has the dimensions corresponding to 3 modules (n=3)

MODULAR 3U PANEL
OVERALL DIMENSION



ULTRA RELAY
WIRING DIAGRAM

Founded in 1953,
Microelettrica Scientifica
 has developed a wide range of products,
 divided into **three main lines:**

Electronic Relays:

For Transmission, Distribution and Machinery protection.

"A-Line" Electronic analogic.

"M-Line" Digital Draw-out LED Display.

"N-DIN-Line" Digital DinRail mounting for MCC/PCC.

"MC-Line" Digital Compact Draw-out LCD Display.

"ULTRA-Line" Digital Draw-out Graphical LCD Display.



Contactors

A.C./D.C. low and medium voltage Contactors and Disconnecting Switches.

N-Series:

Bar Contactors ranging up to 6000A - 1000V A.C./D.C.

LTH-Series:

Specially designed for traction up to 1250A - 1500V D.C.

LTHH-Series:

Specially designed for traction up to 1750A - 4000V D.C.

LTHH-Series:

Disconnecting Switches electromagnetic, pneumatic or motor driven ranging up to 1750A - 4000V D.C.

Resistors:

For any voltage and power rating, neutral or forced air cooled.

For "Industrial" application: load, regulation, earthing, filter.

For "Railway" application: braking, filter.



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The performances and the characteristics reported in this catalogue are not binding and can be modified at any moment without notice.