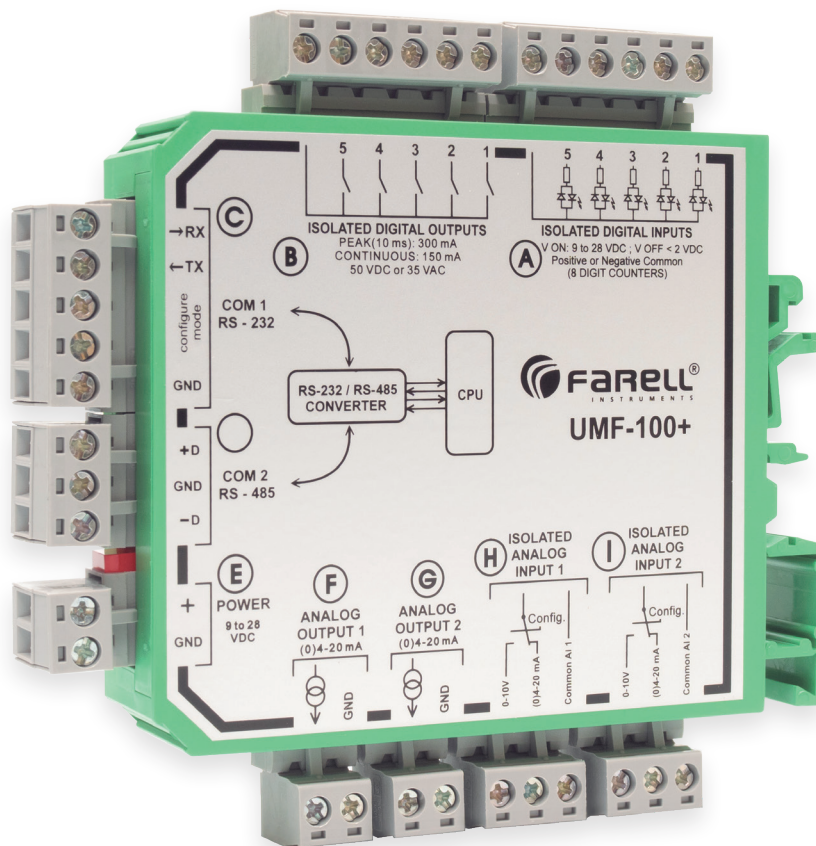


UMF-100

Universal multifunction I/O module / Remote control



The UMF-100 offers a studied combination of analog and digital inputs and outputs. This, together with its multiple operating modes, allows its use as a universal module in a wide variety of applications.

The basic operating modes are:

- Autonomous remote control.
- Signal replicator, multiplier and isolator.
- ModBus Slave.
- Front End.
- Smart RS-232/RS-485 converter.

KEY CONCEPTS

Compatibility

The UMF-100 is compatible with PLCs (PLCS) and SCADAS from any manufacturer with ModBus RTU protocol. Other protocols available.

Communication via radio and/or cable channel

Extremely flexible, it adapts to short, medium and long distance radio and cable modems.

Maximum reliability in demanding environments

Robust box, isolated, filtered and equalized I/O. Manufactured under ISO 9001 standards and with FARELL INSTRUMENTS quality.

Low consumption and wide power range

Consumption is independent of the power supply used, whose range is from 10.5 Vdc to 28 Vdc.

Ease of installation

It only requires parameterization using intuitive UMF Suite graphic software, which incorporates Test functions. DIN rail mounting.

Additional Features

It incorporates ambient temperature measurement, supply voltage measurement, intelligent RS-232/RS485 converter and pulse counter function with 8-digit totalizer and integrated flow measurement.

APPLICATIONS

- Transmission and replication of signals.
- Duplication of signals.
- Machinery control.
- Process control.
- Electrical distribution.
- Water distribution.
- Environment.
- Hydrocarbons.

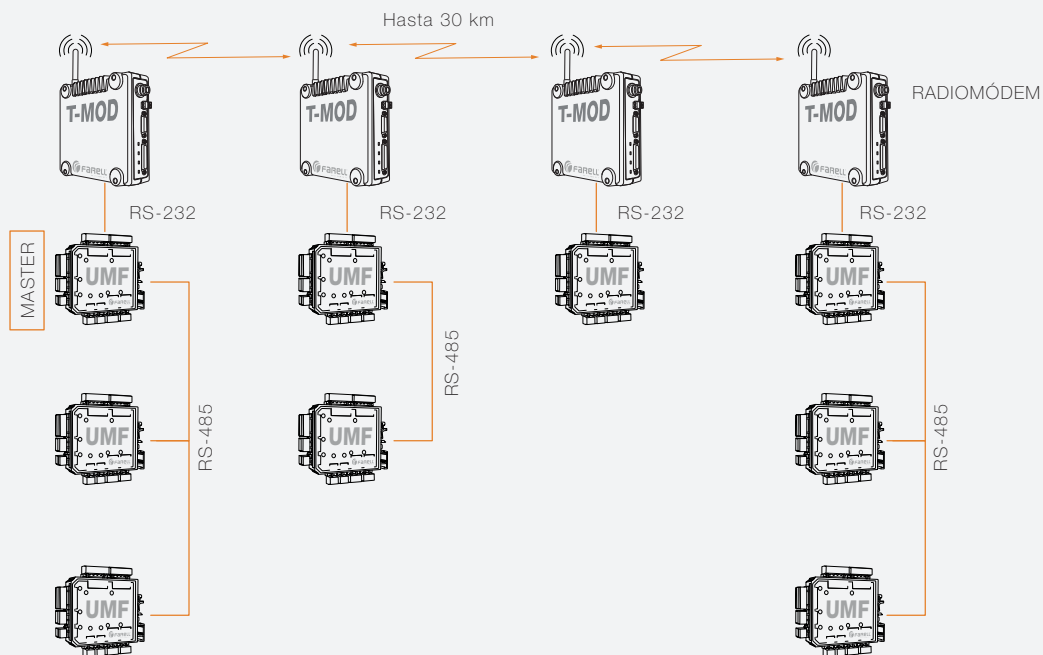
CHARACTERISTICS

- 5 isolated digital inputs.
- 5 isolated digital contact outputs.
- 2 isolated 12-bit analog inputs.
- 2 12-bit analog outputs.
- RS-485 and RS-232 ports.
- I/O distributed via radio or cable.
- High port speed.
- Optimized size.
- Intuitive software configuration.
- Wide temperature range.

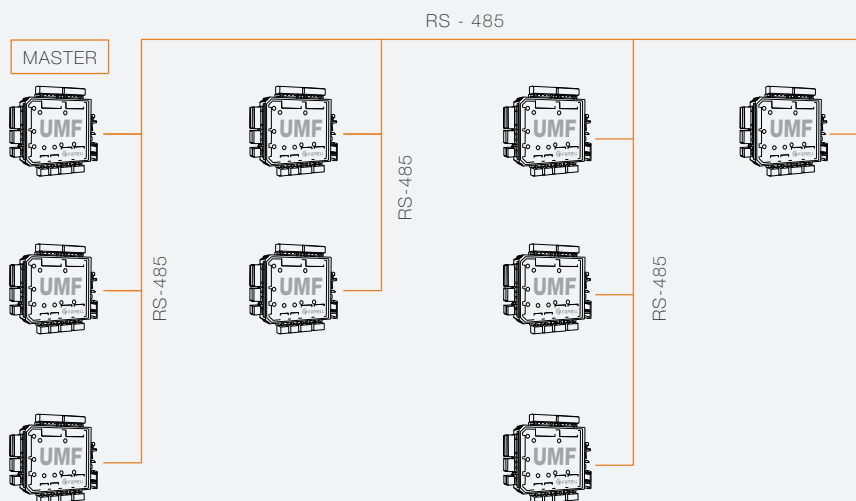
AUTONOMOUS REMOTE CONTROL MODE WITH DISTRIBUTED I/O

- Up to 32 UMF modules on the same autonomous network (cable, radio or hybrid).
- 1 network module simultaneously acts as network master.
- Any digital/analog input signal of a module can be associated with any output of a module on the network.
- Standalone mode with I/O association via table in the master module.
- Allows you to configure digital outputs for operation control and alarm.

Vía radio



Vía cable

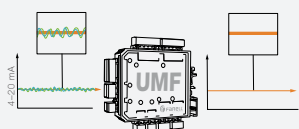


ISOLATOR, REPLICATOR AND SIGNAL MULTIPLIER MODE

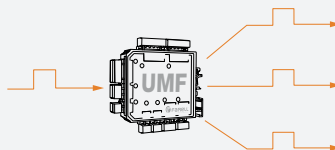
It can be used autonomously to replicate, isolate and filter input signals, both digital and analogue:

- From 1 ED to 5 SD.
- From 1 EA to 2 SA.

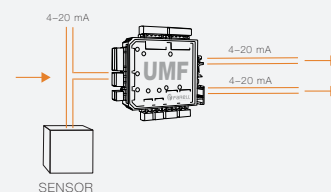
Analog signal **isolator**, own high quality filter.



Digital/pulse signal **replicator and multiplier**.



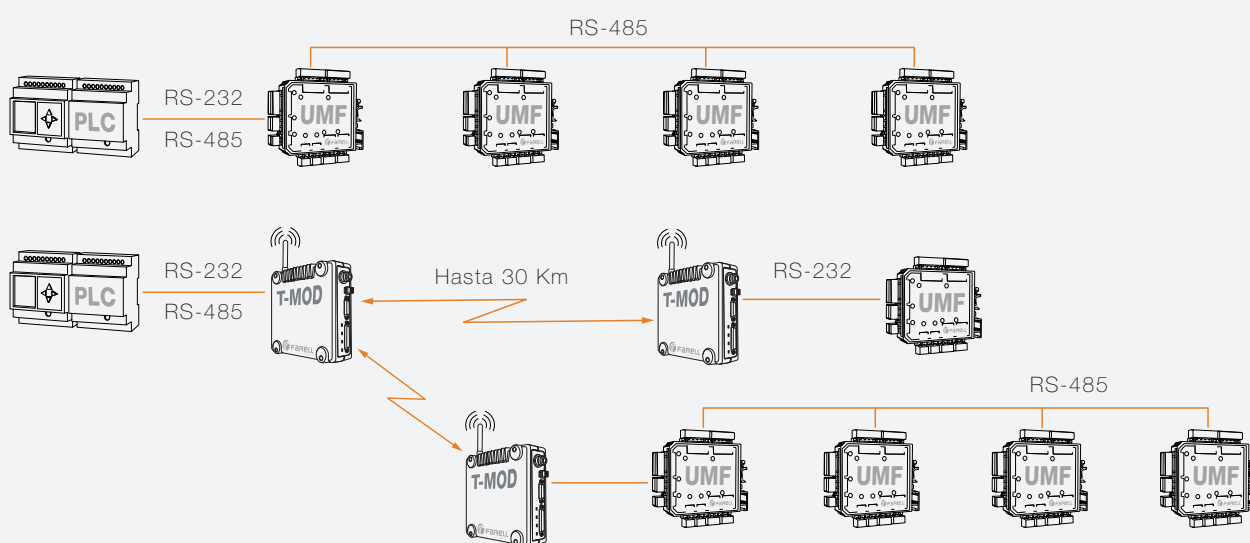
Analog signals **replicator and multiplier**.



MODBUS SLAVE MODE

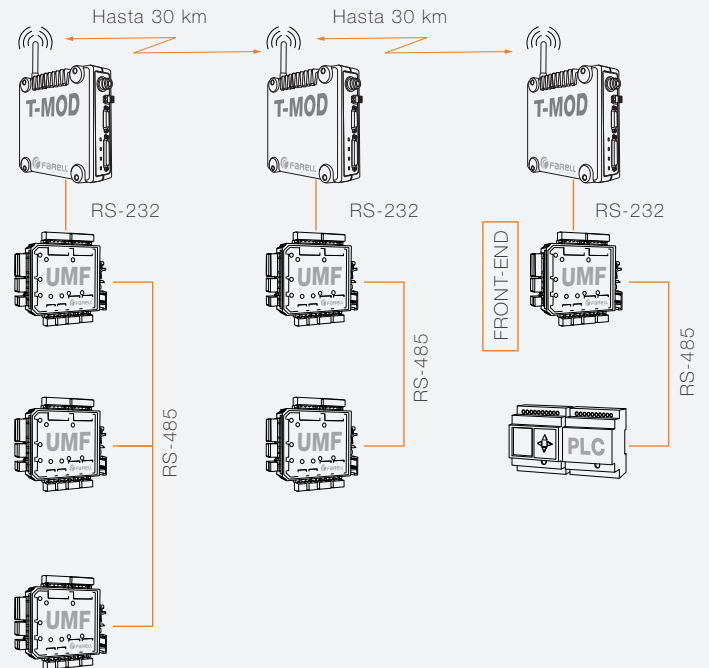
Hasta 32 módulos por red o bus

- Slave I/O module in a network with master Modbus (PLC, PC, others) from any manufacturer.
- Connection via RS-232 or RS-485.
- Wide supply voltage range: 10.5 to 28 V.
- High port speed: 1200 to 115200 bps.
- Incorporates filters and input/output protections.
- Combines digital and analog inputs and outputs in a single module.



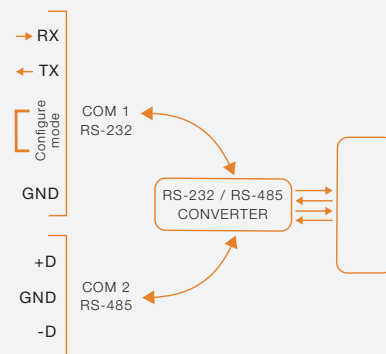
DISTRIBUTED I/O MODE WITH FRONT-END

- Up to 32 UMF modules on the same autonomous network.
- 1 network module acts simultaneously as:
 - Front-end of the autonomous network (cable or radio).
 - Slave of a Modbus Master from any manufacturer.
- Reading and writing of all network signals directly on the front-end module.
- Autonomous management of signal transmission between the front-end and the rest of the modules on the network.
- Networks of any type: cable (RS-485), radio.

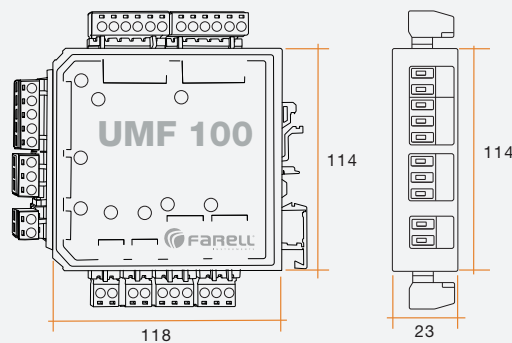


RS-232 / RS-485 CONVERTER

- Integrated in each module.
- Can be used as a Smart RS-232 / RS-485 converter.
- Does not need flow control signals.
- Available in modules not configured as master or front-end.



DIMENSIONS (mm)



5 DIGITAL INPUTS (5 DI)	Type	Through electrical voltage. Common positive or negative. Group isolated (3750 V)
	Status definition	Input voltage for OFF state: < 2 Vdc Input voltage for ON state: 10 Vdc to 28 Vdc Input current: 1.5 mA for 12 Vdc, 3.0 mA for 24 Vdc
	Filter	Selectable to three options: no filter, 50 Hz and 60 Hz
	Minimum status duration	5 ms (no filter), 20 ms (50 Hz filter), 16.6 ms (60 Hz filter)
	Protection	Fast diode overvoltage
5 COUNTERS (5 C)	Type	8 digits, each counter is associated with one of the 5 EDs Increase of one unit for each pulse in the ED
	Range	From 0 to 99,999,999 and back to 0
	Maximum frequency	100 pulses/second (no filter), 25 p/s (filter at 50 Hz), 30 p/s (filter at 60 Hz)
5 DIGITAL OUTPUTS (5 DO)	Type	By static contact. Group isolated (1500 V)
	Maximum voltage	50 Vdc or 35 Vac
	Maximum current	150 mA
	Maximum contact resistance	8Ω
	Overvoltage spike protection	By fast diodes
2 ANALOG INPUTS (2 AI)	Type and range	0-20 mA, 4-20 mA, 0-10 V. Independent terminals for mA and V 12 bit resolution. Individually insulated (>350 V)
	Input impedance	33Ω for mA range; 50KΩ for V range
	Precision	Better than ± 0.05% FS at 25°C
	Typical drift	± 0,003 % FS per °C
	Rejection filter	50 Hz ó 60 Hz (selectable)
	Selectable digital filters	Disabled, Light (83-100 ms), Medium (166-200 ms), strong (660-800ms)
	Conversions per second	14 (without rejection filter), 14 (50 Hz filter), 13 (60 Hz)
	Overvoltage protection	By fast diodes
2 ANALOG OUTPUTS (2 AO)	Type and range	0-20 mA, 4-20 mA. 12 bit de resolution
	Precision	Better than ± 0.05% FS at 25°C
	Typical drift	± 0,003 % FS per °C
	Typical 0 error	0 ± 5 LSB
	Supported charge	<=250Ω a 10,5V; <=350Ω a 12V y <=950Ω a 24V
	Maximum charge inductance	1 mH
	Overvoltage protection	By fast diodes
2 COMMUNICATIONS PORTS	Type	COM1: RS-232 with 2 wires and mass. COM2: RS-485 two wires and mass
	Communication speed	Selectable between 1200 and 115,200 bps
	Protocol	Modbus RTU with an addressing range of 1 to 255 half-duplex Other protocols available on request
	Format	1 start bit, 8 data bits, with or without parity and 1 or 2 configurable Stop bits
	Overvoltage protection	By fast diodes
	Integrated converter	RS-232 / RS-485 without the need for control signals
INTERNAL MEASUREMENTS	Ambient temperature	Range from -30 °C to +65 °C
	Supply voltage	Same range as power supply
POWER SUPPLY AND CONSUMPTION	Power Supply	10.5 Vdc to 28 Vdc, protected against surges by fast diodes Protected against polarity reversal at the input
	Typical consumption	35 mA regardless of supply voltage Increase for each: • Digital output activated: 3.5 mA • Analog output to FS: 21 mA • COM1: 3 mA; COM2: 5mA
PHYSICAL CHARACTERISTICS	Dimensions	114 x 23 x 118mm (H x W x D)
	Weight	< 100 g
	Material	Polyamida PA66 (UL94V-0)
	Subjection	Raíl DIN
ENVIRONMENTAL CHARACTERISTICS	Temperature	-30 °C a +65 °C
	Humidity	95% at 40°C without condensation