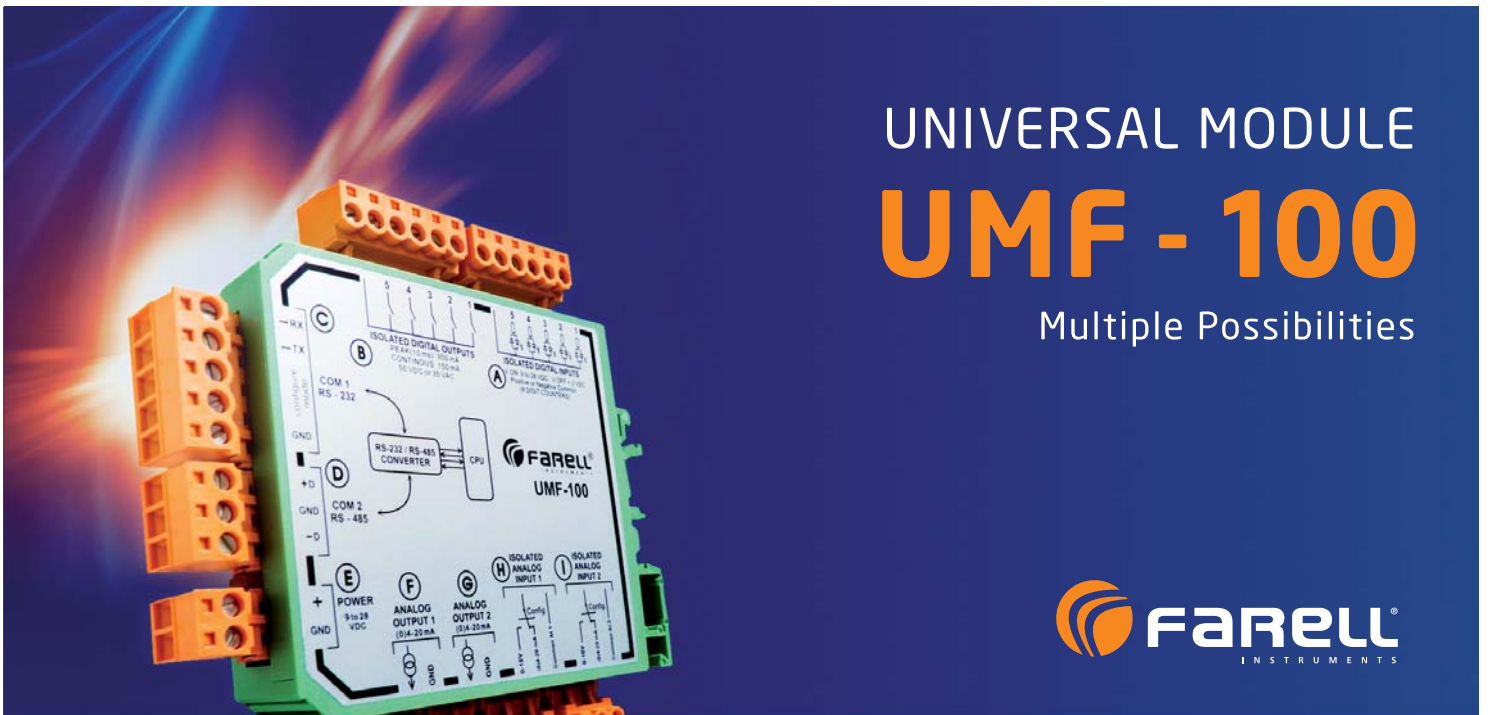


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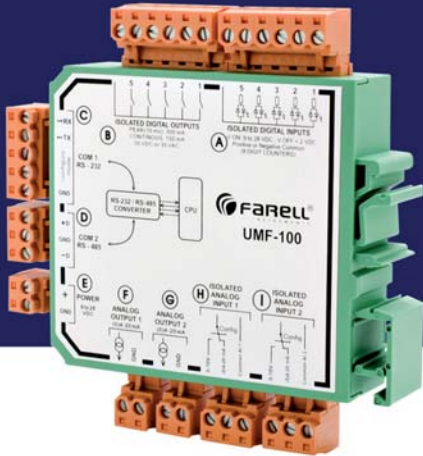


UNIVERSAL MODULE **UMF - 100**

Multiple Possibilities



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UNIVERSAL MODULE

UMF - 100

Great variety of usage and configurations

The UMF-100 offers a well studied combination of digital and analog inputs and outputs. This fact allows, together with its multiple working modes, to use this equipment as a universal module in a great variety of applications.

The basic working modes of the UMF-100 are:

- ModBus Clave.
- Intelligent RS-232 / RS - 485 converter.
- Autonomous Mode (cable or radio based configuration) .
- Signal replicator, multiplier and isolator.
- Front-End.

Compatibility

The UMF-100 module is fully compatible with any automation (PLC) and SCADA system that supports the ModBus RTU protocol. Other specific protocols are available on demand.

RS-485 and RS-232 based communications

This module has a double communications port (RS - 232 and RS - 485) that gives it a great connection flexibility.

Radio based communications

This module is highly flexible and it can be used with radio modems of short, medium and long distance ranges. It also allows the usage of "Store & Forward" and "Back to Back" repeaters.

Extreme reliability in demanding environments

Robust case and isolated, protected, filtered and equalized 110 connections. Manufactured following ISO 9001 standards with FARELL Instruments quality levels.

Low power consumption and wide power supply range

Power consumption is independent on the power supply voltage. Power supply range is from 10,5 to 28 VDC.

Easy installation procedure

Only configuration of some parameters is needed, using a graphical intuitive software interface (UMF Suite) that also incorporates Test functions. DIN rail mounting.

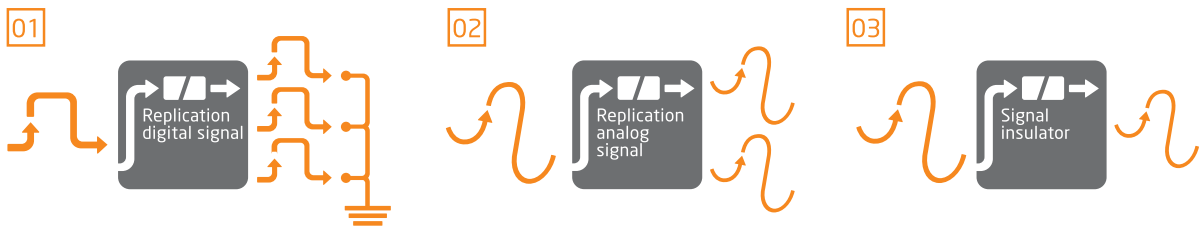
Additional functions

The UMF-100 has 8 digit counters associated to the digital inputs. In addition to the 2 analog inputs, it also provides measurements of the ambient temperature and the feeding voltage values.



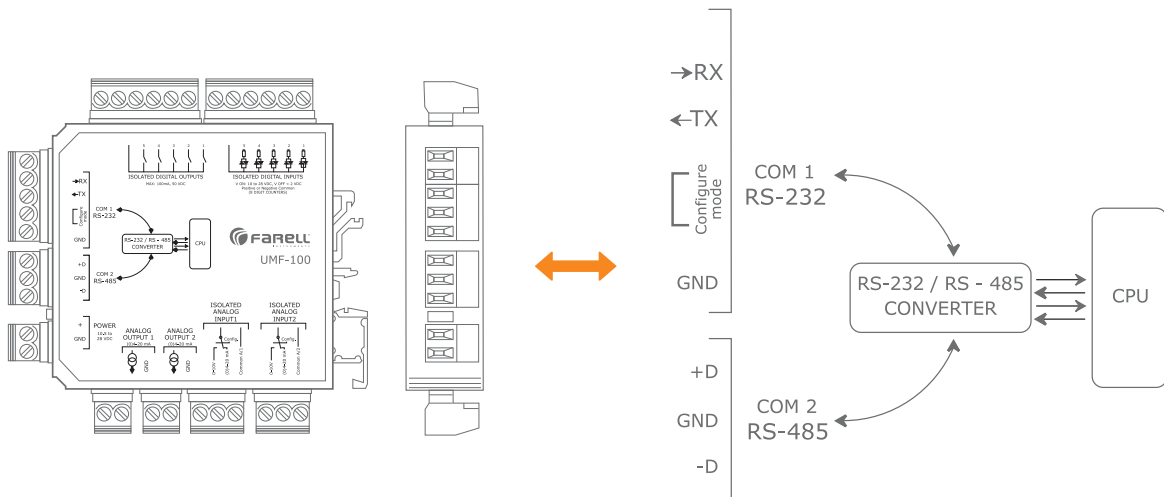
Signal Isolator, Replicator And Multiplier

- _ A UMF module can be used autonomously to replicate and isolate both analog and digital input signals:
 - from 1 ED to 5 SD
 - from 1 EA to 2 SA



RS - 232 A RS - 485 Converter

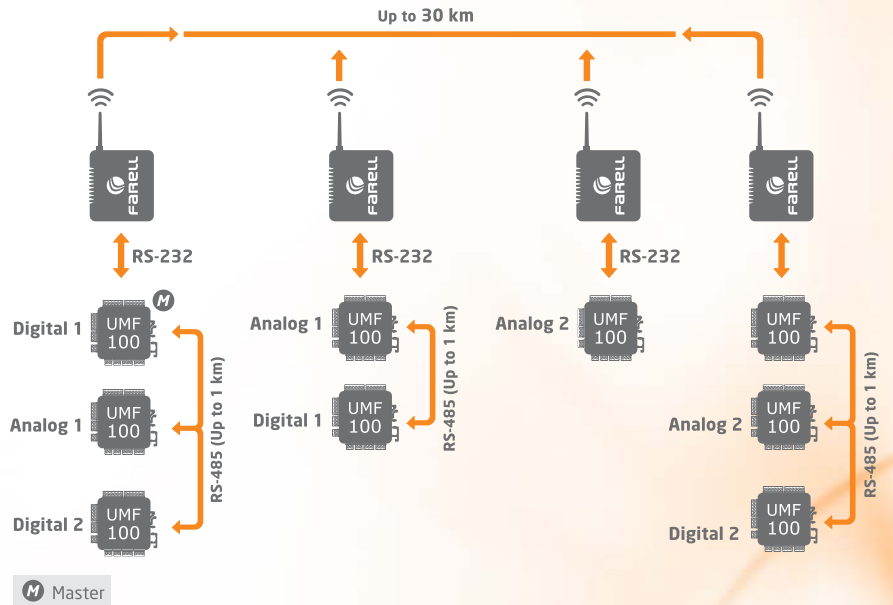
- _ Integrated in every module.
- _ Can be used as an intelligent RS - 232 / RS - 485 converter.
- _ No flow control signals are required.
- _ Converter can be used also in any module inside a network except for the ones acting as ModBus master or Front - End.



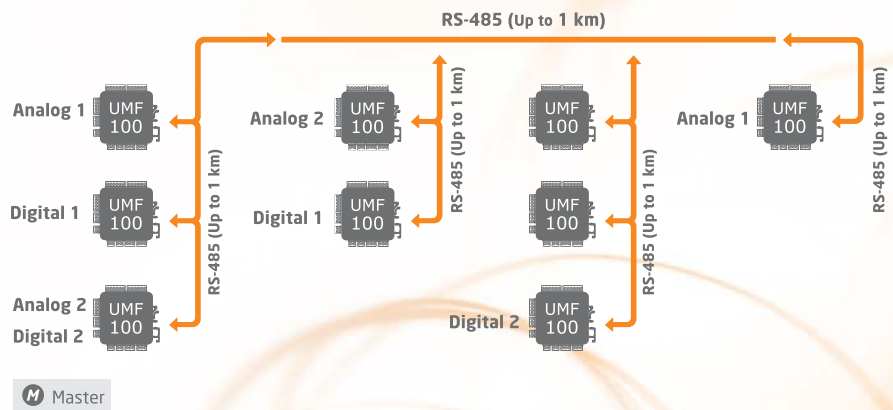
Autonomous mode distributed I/O

- _ Up to 32 UMF modules on a single autonomous network.
- _ Cable, radio or cable and radio network.
- _ One module acts as the network master.
- _ Signal transport (input => output) between different modules.
- _ Single point or multipoint signal replication.
- _ "Store & Forward" or "Back to Back" radio repeaters allowed.
- _ Can be used with short, medium and large distance radio modems.

01 Radio Means

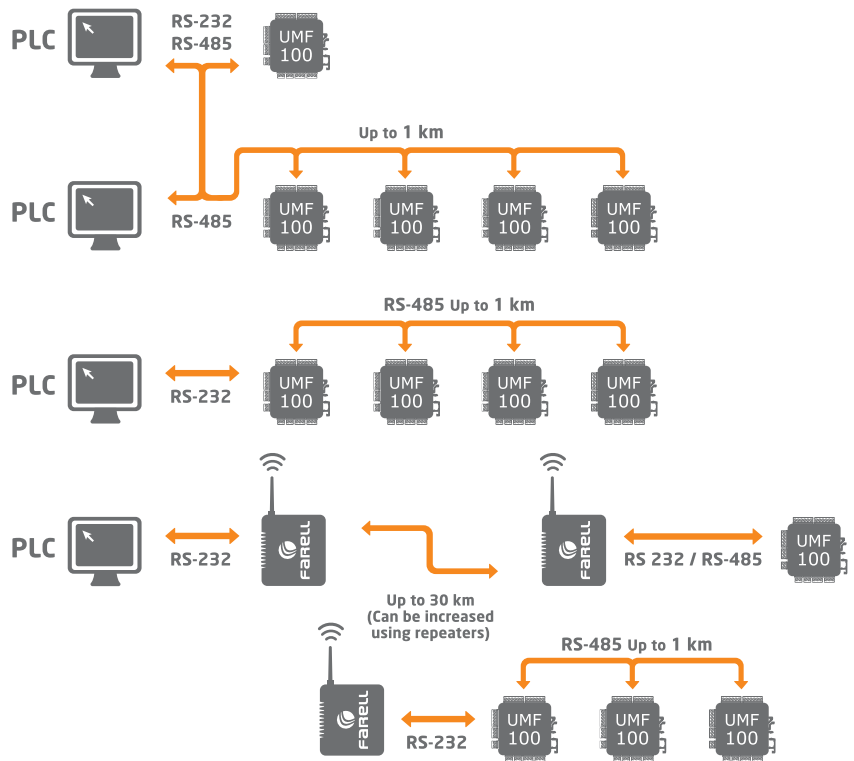


02 Cable Means



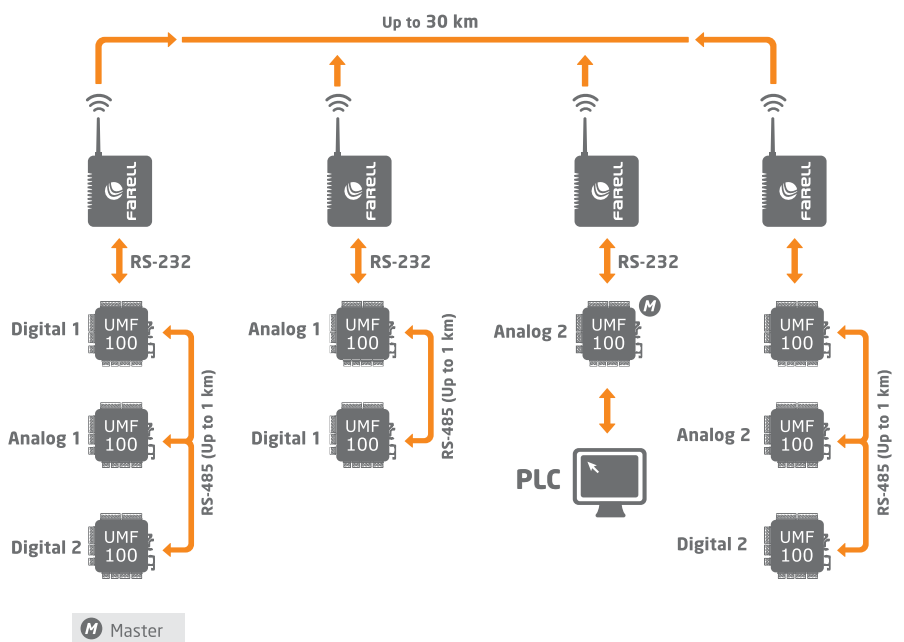
Eslave Mode Distributed I/O

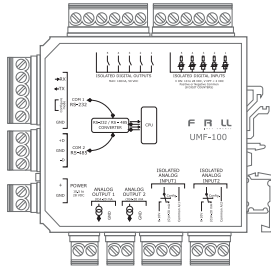
- Slave I/O module in a network with a ModBus (PLC, PC, other) master.
- RS - 232 or RS - 485 connection.
- Wide power supply range: from 10.5 to 28 VDC
- High port data rate: from 1200 to 115200 bps.
- Incorporates input/output filters and protections.
- DIN rail mounting.
- Digital and analog inputs and outputs in a single module.
- Isolated inputs and outputs.
- Temperature and power supply voltage measurement function.
- Low power consumption.



Front End Distributed I/O

- Up to 32 UMF modules on a single autonomous network.
- One of the modules in the network is simultaneously:
 - Front - End of the autonomous cable or radio network
 - Slave of a ModBus master
- Direct reading and writing of the input and output signals on the Front - End module.
- Automatic management of signal transmission between the Front - End and the rest of the modules on the network.
- Cable and radio networks are supported.
- “Store & Forward” or “Back to Back” radio repeaters allowed.





KEY FEATURES:

- _5 isolated digital inputs.
- _5 isolated dry contact digital outputs.
- _2 isolated 12 bit analog inputs.
- _2 12 bit analog outputs.
- _Distributed 110 by cable or radio means.
- _RS - 232 and RS - 485 ports.
- _High port data rate (up to 115200 bps).
- _Intuitive setup using configuration software.
- _Wide working temperature range (-30°C to 65°C) (-22 OF to + 149 °F)

APPLICATIONS:

- _Signal transmission.
- _Machine control.
- _Process control.
- _Electrical power distribution.
- _Water distribution.
- _Environmental control.
- _Gas and oil related processes.

DIRECT TECHNICAL SUPPORT:

Phone: (+34) 935 725 250
E-mail: tech@farell-i.com



ISO 9001
Certification EC-1218/03

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5 DIGITAL INPUTS (5 DI)

Type	Voltage operated. Positive or negative common. Group isolated (3750 V)
State definition	Input voltage for OFF state: < 2 VDC Input voltage for ON state: from 10 VDC to 28 VDC Input current: 1.5 mA for 12 VDC, 3.0 mA for 24 VDC
Filter	Three possible options available: no filter, 50 Hz and 60 Hz
Minimum state length	5 ms (no filter), 20 ms (50 Hz filter), 16.6 ms (60 Hz filter)
Overvoltage protection	By fast protecting diodes

5 COUNTERS (5 CI)

Type	8 digits counters, each one associated to one of the 5 DI. One unit is incremented by each pulse on the DI
Range	From 0 to 99,999,999 and back to 0
Maximum frequency	100 pulses/second (no filter), 25 p/s (50 Hz filter), 30 p/s (60 Hz filter)

5 DIGITAL OUTPUTS (5 SD)

Type	Drv contact. Group isolated (1500 V)
Maximum voltage	50 Vcc
Maximum current	100 mA
Maximum contact	
Resistance	8 Ω
Overvoltage peak protection	By fast protecting diodes

2 ANALOG INPUTS (2 AI)

Type and range	0 - 20 mA, 4 - 20 mA, 0 - 10 V. Independent terminals for voltage and current. 12 bit resolution. Individually isolated (> 350 V)
Input impedance	33Ω for current, 50Ω for voltage
Precision	Better than ± 0.05 % FS at 25 OC
Drift	± 0,003 % FS por °C
Rejection filter	50 Hz or 60 Hz (configurable)
Digital filter	Configurable: no filter, light (83 - 100 ms), medium (166 - 200 ms), strong (660 - 800)
Conversion rate (conv/s)	14 (no rejection filter), 14 (50 Hz filter), 13 (60 Hz filter)
Overvoltage protection	By fast protecting diodes
"Auto zero" function	For 1 < 40 μA (range 0 - 20 mA) and for V < 20 mV (range 0 - 10 V)

2 ANALOG OUTPUTS (2 AO)

Type	0-20 mA, 4-20 mA. 12 bits resolution.
Precision	Better than ± 0,05 % FS a 25°C
Drift	± 0,003 % FS por °C
Typical 0 error	0 ± 5 LSB
Supported load	<=250 Ω at 10,5V ; <=350Ω at 12V y <=950Ω at 24V
Maximum load inductance	1 mH
Overvoltage protection	By fast protecting diodes

2 COMMUNICATION PORTS

Type	COM1: RS - 232 two wires and ground. COM2: RS - 485 two wires and ground
Speed	Configurable between 1200 and 15200 bps
Protocol	ModBus RTU with an addressing range from 1 to 255 Other protocols available on demand
Format	1 start bit, 8 data bits, with or without parity and 1 or 2 stop bits (configurable)
Overvoltage protection	By fast protecting diodes
Integrated converter	RS - 232 / RS - 485 without flow control signals

INTERNAL MEASUREMENTS

Environment temperature	From -30°C a +65°C
Power supply voltage	The same range of power supply.

POWER SUPPLY AND CONSUMPTION

Power supply	From 10.5 to 28 VDC, protected against overvoltage by fast diodes. Protected against reverse polarity.
Typical power consumption	35 mA independently of the power supply voltage. T here have to be added for each <ul style="list-style-type: none"> • Activated digital output: 3.5 mA • Analog output FS: 21 mA • Used COM: COM1: 3 mA; COM2: 5 mA

PHYSICAL

Dimensions	114 x 23 x 118 mm (height x width x depth)
Weight	< 100 g
Material	Polyamide PA66 (UL94V-0)
Mounting	DIN rail

ENVIRONMENT

Temperature	-30°C a +65°C
Humidity	95% a 40°C non - condensing



_Services

_Farell Instruments gives priority to engineering services, training and technical support. This is because we want our customers, both installers and end-users, to take the best advantage of the equipment we supply.

_Sales Department

- Budgets estimates and orders.
- Querying delivery times or methods of payment.
- Contacting partners who complement your skills or product requirements.
- Learning about our distribution network.
- Getting local technical and sales support.

_Technical Support Service

- Architecture and project viability evaluation.
- Technical support for integration and development.
- Repairs and post-sales services.
- Getting approvals to specific regulations for your market.

_Legalisation Service

- Management of licensing processes for radio networks.
- Legal information on the use of radio spectrum.

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