MICROCOM

Simply More

Installation Manual

Rev 0

"Perfection is achieved, not when there is nothing more to add,
but when there is nothing left to take away."
-Antoine de Saint Exupery

Warning

1.- This system has been developed to be installed by professionals, not end users. If in doubt about any technical aspect, please consult with our experts.

2.- Our innovation effort in both software and hardware is constant. However, despite paying great attention to properly documenting our products, discrepancies between the product and some of its specifications might be found by mistake. Therefore, if you have any doubts or comments, we kindly ask you to contact us at the following email address: microcom@microcom.es.

3.- Communications based on the GSM network are extraordinarily reliable. However, we advise against using our equipment in critical systems if some kind of redundancy relative to the communications network has not been planned, as it may exceptionally be out of service.

4.- "Life Support": This unit is not designed for use in systems on which human life depends. That is, devices whose malfunction puts human life at risk.

5.- Our responsibility in relation to the equipment will be limited to its repair or replacement under the terms set out in the warranty.

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1 Introduction

The Hermes M103 is a master module from the Hermes M100 series with Ethernet, Wifi, and 4G connectivity. Versions with NB-IoT/LTE-M and without LAN interface are also optionally offered.

It has eight digital inputs, four analog inputs for 4/20mA loop, two digital outputs, MODBUS RTU interface over RS485, and MODBUS-TCP. With the available expansion modules, a solution with more than 128 inputs/outputs can be configured.

Its compact size and pluggable connection terminals allow for easy DIN rail mounting, making the Hermes M103 the perfect equipment for electrical panels and cabinets.

Upon purchasing your Hermes system, you get free access to the ZEUSweb online SCADA. Register your device and enjoy the convenience of monitoring your station from the internet and with Android and iOS applications.

This equipment is user-programmable. The programming is done using the universal configuration software MICROCONF. This software, the user manual, and video tutorials with programming examples are available for download at the following web link:

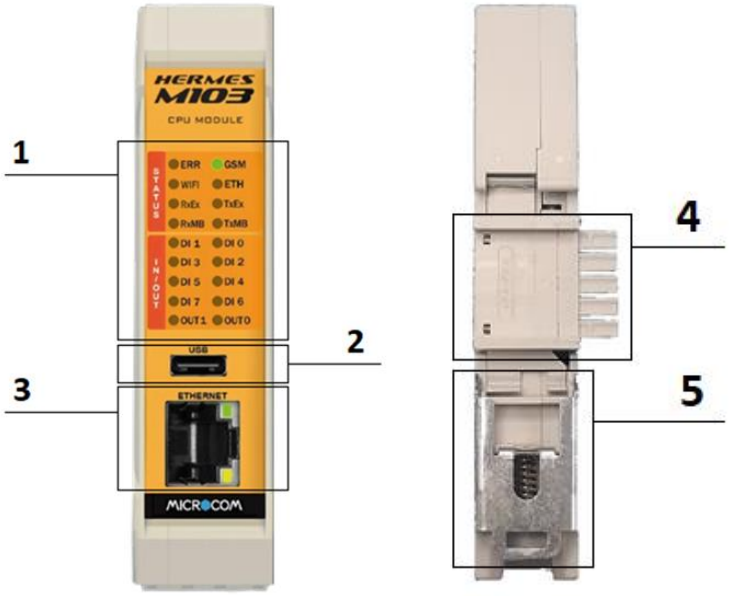
https://www.microcom.es/start

HERMES M100 Series

The following expansion modules, purchased separately, are available for the Hermes M103.

AVAILABLE M100 SERIES MODULES	
Hermes M110	Eight digital input expansion module.
Hermes M120	Four analog input expansion module for 4/20 mA or 0-10 V loop
Hermes M121	Four input expansion module for PT100 temperature probes
Hermes M130	Six relay output expansion module
Hermes M140	Four analog output expansion module for 4/20mA loop

2 Product presentation



ID	DESCRIPTION
1	Status LEDs
2	USB-C connector for configuration and diagnostics
3	RJ45 connector for the Ethernet interface
4	Bus connectors for DIN rail with push-in technology. Allows a simple connection between all modules of the M100 series
5	Metal plate for DIN rail mounting

2.1 Description of Status LEDs:

LED	DESCRIPTION
ERR	Indicates detected error conditions
GSM	Registration status of the GSM modem and coverage
WIFI	Hermes M103 is connected to a Wifi network
ETH	Hermes M103 is connected to an Ethernet network
RxEx	Reception via the communication channel with expansion modules
TxEx	Transmission via the communication channel with expansion modules
RxMB	Reception via the MODBUS RTU RS485 channel
TxMB	Transmission via the MODBUS RTU RS485 channel
DI0	Digital input 0 status
DI1	Digital input 1 status
DI2	Digital input 2 status
DI3	Digital input 3 status
DI4	Digital input 4 status
DI5	Digital input 5 status
DI6	Digital input 6 status
DI7	Digital input 7 status
OUT0	Digital output 0 status
OUT1	Digital output 1 status

2.2 GSM and ERR LEDs interpretation

GSM LED blink		ERR LED	Meaning
Red	Green	Yellow	
1	0	0	GSM MODEM not registered
1	1	0	GSM MODEM registered, poor field strength
1	2	0	GSM MODEM registered, fair field strength
1	3	0	GSM MODEM registered, good field strength
1	4	0	GSM MODEM registered, excelent field strength
1	5	0	GSM MODEM registered, excelent field strength
1	0	1	Internal GSM modem failure
1	0	2	SIM card not detected
1	0	3	SIM card locked by PIN or PUK

2.3 Pinout

	Interfaz	Descripción
DI0	Digital input 0	Activation by voltage between 5 and 30 VDC
DI1	Digital input 1	Activation by voltage between 5 and 30 VDC
DI2	Digital input 2	Activation by voltage between 5 and 30 VDC
DI3	Digital input 3	Activation by voltage between 5 and 30 VDC
DI4	Digital input 4	Activation by voltage between 5 and 30 VDC
DI5	Digital input 5	Activation by voltage between 5 and 30 VDC
DI6	Digital input 6	Activation by voltage between 5 and 30 VDC
DI7	Digital input 7	Activation by voltage between 5 and 30 VDC
AI0	Analog input 0	4/20mA current loop
AI1	Analog input 1	4/20mA current loop
AI2	Analog input 2	4/20mA current loop
AI3	Analog input 3	4/20mA current loop
+	Power	9 – 30 VDC
-	Ground	0 VDC
1W	1-Wire bus	Input for Microcom temperature/humidity sensors
OUT0	Digital output 0	Transistor digital output. Max 300mA
OUT1	Digital output 1	Transistor digital output. Max 300mA

3 Installation and Handling

3.1 SIM Card Installation

To access the SIM card port, it is required to remove the front panel. This can be done with the help of a small flathead screwdriver, as illustrated in the following figure:

After removing the front panel, insert the SIM card in the shown position until you hear a click. This sound indicates that the SIM card has been correctly placed and is locked in its position.

To remove the SIM card, gently push it until you hear a click. This sound indicates that the card has been unlocked and is ready to be removed.

3.2 Antenna

Connect the antenna to the device and verify the signal strength through the GSM green LED flashes (refer to section 2.3 to interpret the GSM and ERR status LEDs). If needed, relocate the antenna to a more favorable position, such as near windows or doors. Avoid placing the antenna within metal cabinets, as these can significantly attenuate radiofrequency signals.

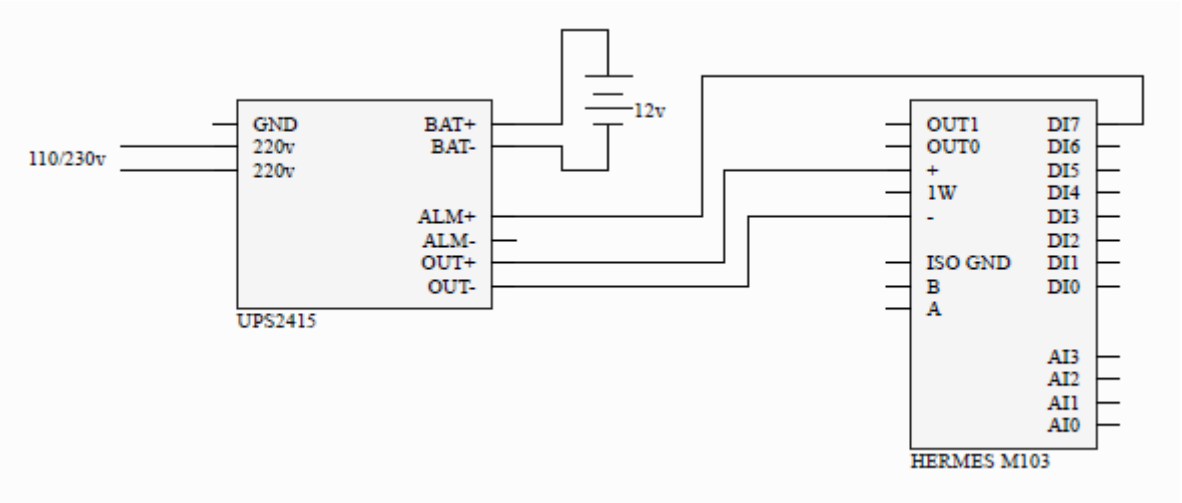
If the GSM signal at the installation location is insufficient, at Microcom we offer several models of high-gain antennas that, in most cases, satisfactorily resolve communication problems.

4 Wiring

To wire the Hermes M103, use a flathead screwdriver with a 3-millimeter blade width. For terminals, conductors with sections of up to 2.5 millimeters can be used.

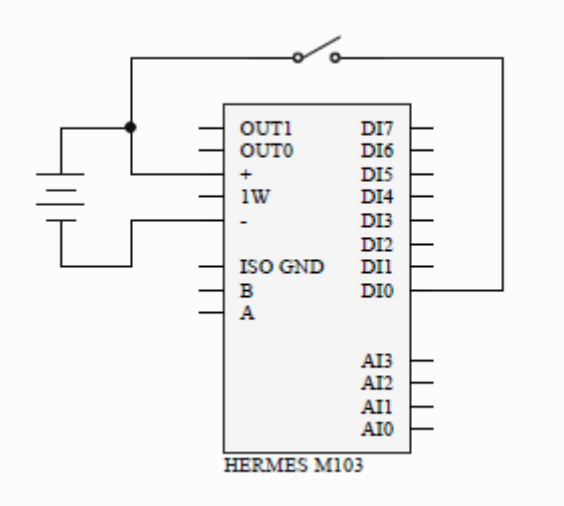
4.1 Power supply

The Hermes M103 needs a power source with a voltage between 9 and 30 volts of direct current that provides at least 10 watts. This device is compatible with the uninterrupted power supplies UPS 1212 and UPS 2415. Below, we present the recommended wiring for powering the device using a UPS2415 source.



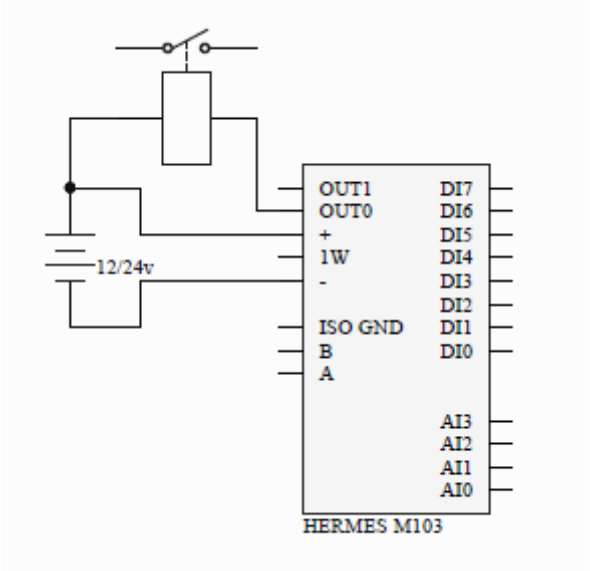
4.2 Wiring example: Digital inputs

The Hermes M103 has 8 digital inputs, which are activated with a voltage in the range of 5 to 30 volts. The sampling frequency is 100 Hz, which means the shortest pulse the equipment can safely detect is 10 milliseconds. These inputs can be used as alarm signals, cumulative pulse counters, or flowmeters.



4.3 Wiring example: Digital outputs

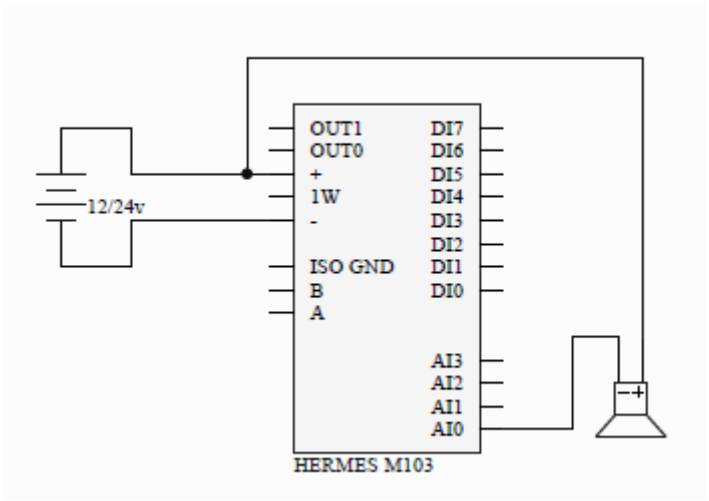
The Hermes M103 is equipped with 2 transistor outputs capable of handling up to 30 volts and 0.5 amperes. Below is an example of how it should be wired to activate an external relay.



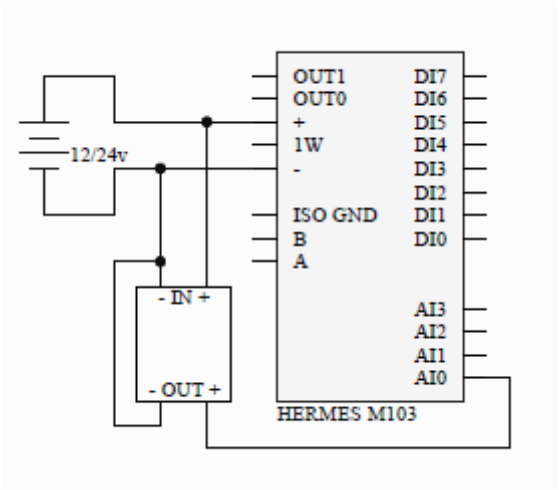
4.4 Wiring example: Analog inputs

The Hermes M103 is equipped with 4 analog inputs for a 4/20mA loop. All analog inputs are referenced to the power ground (GND).

Passive transducer



Active transducer



5 Technicall specifications

GENERAL	
Power voltage	9-30 VDC
Consumption	Nominal: 1,8W Maximum: 7,2W
Operating Temperature	-10 °C to +75 °C
Radio modem	2G / 3G / 4G (Optional: 2G / NB-IoT / LTE-M)
Real time clock	High accuracy, ±2 ppm
Log size	>90.000 records
Size	115 x 22,5 x 115 mm
Weight	185 grams
Mounting	35mm DIN rail
Case material	Polycarbonate: UL94-V0

DIGITAL INPUTS	
Quantity	8
Type	IEC 61131-2 Type 1/3
Activation voltage	5 to 30 VDC
Impedance	2000Ω
Sampling frequency	100 Hz

ANALOG INPUTS	
Quantity	4
Type	4/20 mA current loop
Impedance	125Ω
Resolution	12 bits
Accuracy	0.25%

TRANSISTOR OUTPUTS	
Quantity	2
Type	Open colector
Maximum voltage	30 VDC
Maximum current	0.5 A

FIELD BUS	
Interface	RS 485
Protocol	MODBUS RTU
Channels	128

ETHERNET	
Type	10/100Mbps
Protocols	TCP/IP and MODBUS-TCP
Security	TLS 1.2/1.3

WIFI	
Type	802.11b/g/n (2.4 GHz)

6 Warranty

1- MICROCOM guarantees this product to be free from defects in materials and manufacturing for five (5) years. However, MICROCOM's sole obligation under this warranty shall be to repair or replace at no charge any part of the equipment that MICROCOM deems defective in materials or workmanship upon examination, and only under the conditions listed below:

a) That the defects have been made known to MICROCOM, in writing and within five (5) years after the date of purchase of the equipment.

b) That the equipment has not been maintained, repaired, or altered by any person who has not been previously approved or authorized by MICROCOM.

c) That the equipment has been used in a suitable and normal manner, and that it has not been altered or used incorrectly, nor has it suffered any accident or been damaged by an act of God or other similar catastrophic incident.

d) The buyer, whether the DISTRIBUTOR or a client of the DISTRIBUTOR, will pack and send or deliver the equipment to the MICROCOM factory in Irún, Spain, within a maximum period of 30 days after MICROCOM has received written notification of the defect. Transportation to MICROCOM, within Spanish national territory, will be at the expense of MICROCOM.

e) MICROCOM's liability is limited to the repair or replacement of any part of the equipment at no charge, if MICROCOM's examination reveals that such part has been defective due to failure in material or manufacturing.

1.1.- The DISTRIBUTOR or the DISTRIBUTOR's clients may send the equipment directly to MICROCOM if they are unable to repair the equipment themselves, even if the DISTRIBUTOR has been approved to carry out such repairs and has agreed with the client to carry them out as covered by this limited warranty.

1.2.- In the event that products must be returned to MICROCOM for a repair covered by the warranty, the DISTRIBUTOR should contact MICROCOM prior to shipment to receive a Return Materials Authorization "RMA" number.).

Disposal of Electrical and Electronic Waste (applicable in the European Union and other countries with selective collection). The symbol present on the product or on the packaging indicates that the product should not be treated as household waste. Instead, it should be handed over to the authorized collection center for the recycling of electrical and electronic waste. Ensuring that the product is disposed of properly helps avoid potential negative impacts on the environment and human health, which could be caused by improper disposal of the product. Recycling materials will contribute to the conservation of natural resources. For more detailed information, we invite you to contact the specific office in your city, the waste disposal service, or the supplier from whom you purchased the product.