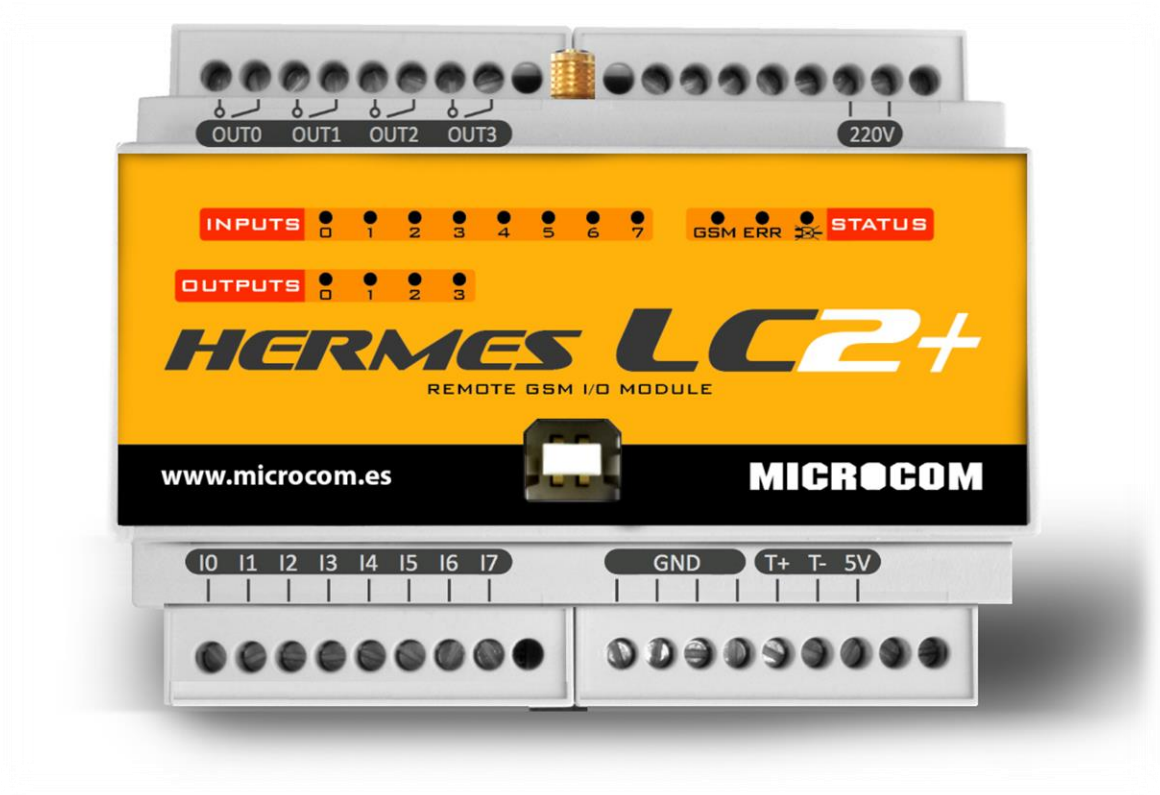
MICROCOM

Simply More



HERMES LC2+

Remote GSM module

Product Manual

Rev 2

"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 qualified personnel, not final users. If you have any queries regarding technical aspects, please contact our experts.

2. Our efforts to innovate in the development of software and hardware are continuous. Despite paying close attention to documenting our products properly, discrepancies may occur between a product and some of its specifications. If you have any queries or comments in this regard, please contact us by email at microcom@microcom.es.

3. GSM network based communications are extraordinarily reliable. We do, however, advise against using our devices in critical systems that have no form of redundancy in relation to their communication networks, since, under exceptional circumstances, the service may become unavailable.

4. Life-support systems: This unit is not designed to be used in systems on which human life depends. That is, in devices whose malfunction could endanger human life.

5. Our liability in connection with the device shall be limited to its repair or replacement in accordance with the terms of the warranty.

Microcom Sistemas Modulares, S.L.
C/Gorostiaga 53, 20305, Irún, GUIPÚZCOA (SPAIN)
Teléfono: 902 82 06 84 / 943 63 97 24
Fax: 943 017 800
www.microcom.es

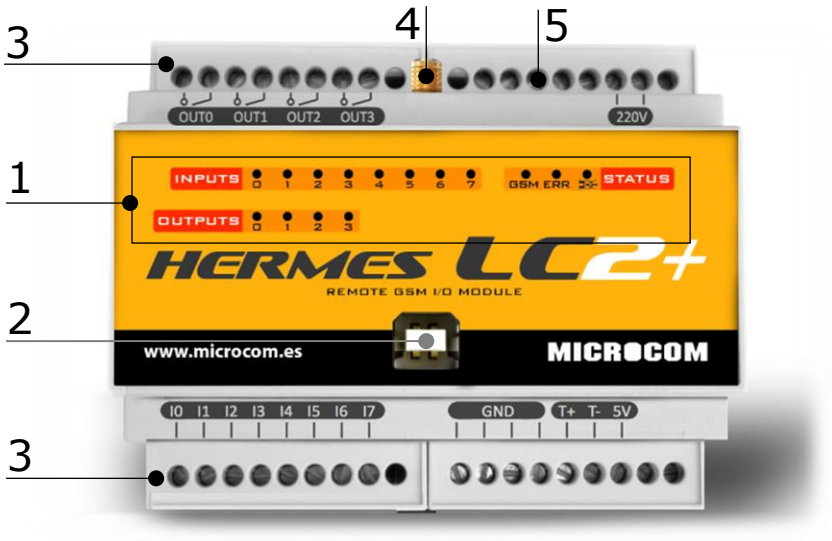
1 Introducción

The Hermes LC2+ is a remote control device with wireless connectivity via mobile networks (GSM/GPRS/3G/NB-IoT), digital outputs specially designed to remotely control industrial stations and the ability to continue recording and transmitting data and/or alarms for several hours in order to warn of mains power failures.

The device comes in a robust industrial box to be installed on a DIN rail, is directly powered at 230 volts, and incorporates a lithium battery. This device has 8 digital inputs, 4 digital outputs and bus connection compatible with Microcom digital probes.

This manual provides basic information about device installation and operation. This unit is user programmable and requires additional configuration. Use MICROCONF universal configuration software for programming the unit. For more information, refer to the configuration software manual. The configuration software manual and the commands manual are available for download on the MicroCom website (www.microcom.es). Detailed reading is recommended to get the most out of your Hermes unit.

2 Product overview



ID	ELEMENT
1	STATUS LEDs indicators. Give information about the status of the modem and inputs/output.
2	USB type-B female connector for configuration and diagnostics
3	Connection terminals
4	Female SMA antenna connector
5	Protection Fuse (1 Ampere)

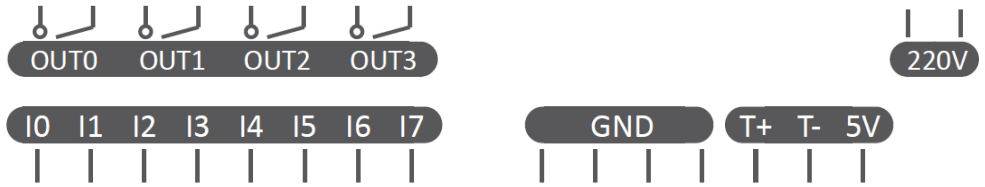
2.1 Status LEDs indicators:

LEDs	MEANING
INPUTS 0/1/2/3/4/5/6/7	Digital inputs status. On: Activated / Off: Deactivated
STATUS	**GSM**: GSM signal strength (see following section) **ERR**: operating errors (see following section) : mains power failure (220V)
OUTPUTS 0/1/2/3	Digital outputs status. On: Activated / Off: Deactivated

2.2 GSM LED and ERR LED blinking codes meaning

LED GSM blinks		LED ERR	Meaning
Red	Green	blinks	
1	0	0	GSM MODEM not registered.
1	1	0	GSM MODEM registered, insufficient field strength.
1	2	0	GSM MODEM registered, sufficient field strength.
1	3	0	GSM MODEM registered, good field strength.
1	4	0	GSM MODEM registered, excellent field strength.
1	5	0	GSM MODEM registered, excellent field strength.
1	0	1	Hardware failure.
1	0	2	SIM card not present.
1	0	3	SIM card locked by PIN or PUK.

2.3 Description of terminals



TERMINAL	DESCRIPTION
OUT0	Open contact of relay digital output 0. Maximum value 250 VAC / 3 A
OUT0	
OUT1	Open contact of relay digital output 1. Maximum value 250 VAC / 3 A
OUT1	
OUT2	Open contact of relay digital output 2. Maximum value 250 VAC / 3 A
OUT2	
OUT3	Open contact of relay digital output 3. Maximum value 250 VAC / 3 A
OUT3	
220V	Supply voltage input. 220 VAC / 50 Hz
220V	
I0	Digital input 0. Activation by contact to GND terminal
I1	Digital input 1. Activation by contact to GND terminal
I2	Digital input 2. Activation by contact to GND terminal
I3	Digital input 3. Activation by contact to GND terminal
I4	Digital input 4. Activation by contact to GND terminal
I5	Digital input 5. Activation by contact to GND terminal
I6	Digital input 6. Activation by contact to GND terminal
I7	Digital input 7. Activation by contact to GND terminal
GND	Ground. 4 terminals to activate digital inputs
T+	Bus 1-Wire positive terminal. Microcom probes red wire
T-	Bus 1-Wire negative terminal. Microcom probes black wire
5V	5 volts power supply for Y100 probe

3 Operation

The Hermes LC2+ internal lithium polymer battery that offers excellent performance in terms of energy density and charge/discharge cycles. Up to 5 years of battery life spam can be achieved respecting these conditions:

- To avoid damage due to over discharge, if you foresee that the equipment will be without power for a period greater than a week, keep the battery disconnected.
- The device must not be exposed to temperatures above 50 °C as would significantly reduce the battery life spam time.

The Hermes LC2+ is delivered from the factory with the battery disconnected, ready to be connected when the device is about to enter service. Connection and disconnection of the internal battery is easily done using the jumper installed for this purpose. For more information, refer to section '4.3 Connecting the internal battery'.

The acquisition of your Hermes LC2+ system entitles you to free use of the ZeusWeb monitoring website. Register your device in Zeus and enjoy the convenience of monitoring your station through the Internet or Android or iOS application.

4 Installation

4.1 Removing and replacing the front panel

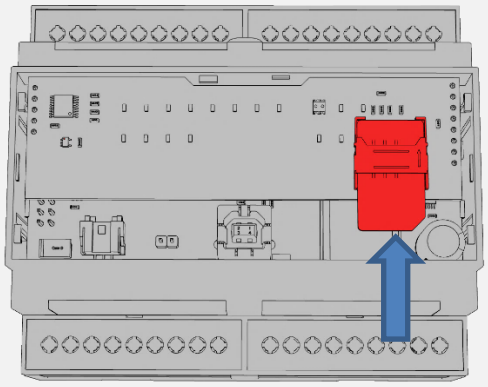
SIM card holder and jumper to connect the internal battery are behind the front panel.

Remove the front panel using a small flathead screwdriver.

Insert the tip of the screwdriver into the four slots indicated in the image and pry off.

To replace the cover, place it over the opening and press with your fingers until it clicks into place.

4.2 Instalar tarjeta SIM



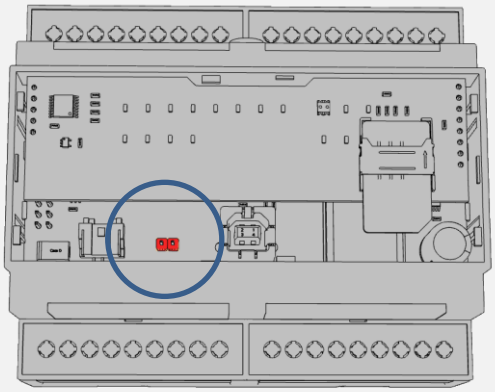
1. Remove the front panel as shown in section '4.1 Removing and replacing the front panel'.
2. Insert the SIM card as shown in the image.

WARNING: THE SIM CARD'S PIN CODE REQUEST MUST BE DISABLED.

3. Replace the front panel.

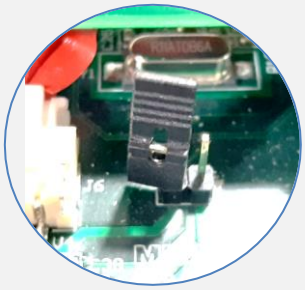
4.3 Connecting the internal battery

The Hermes LC2+ incorporates an internal lithium polymer battery. The battery is delivered from the factory disconnected. Follow the steps described below to connect it:

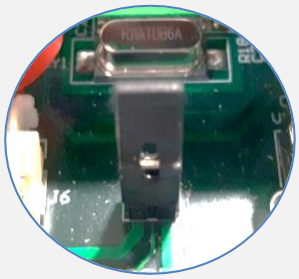


1. Remove the front panel as shown in section '4.1 Removing and replacing the front panel'.

2. Join the two terminals to connect the battery.



INT. BATTERY DISCONNECTED



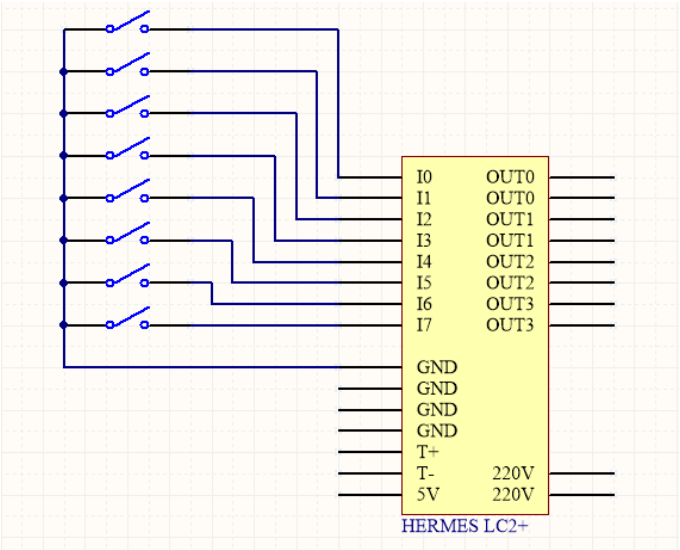
INT. BATTERY CONNECTED

3. Replace the front panel.

4.4 Digital inputs connection diagram

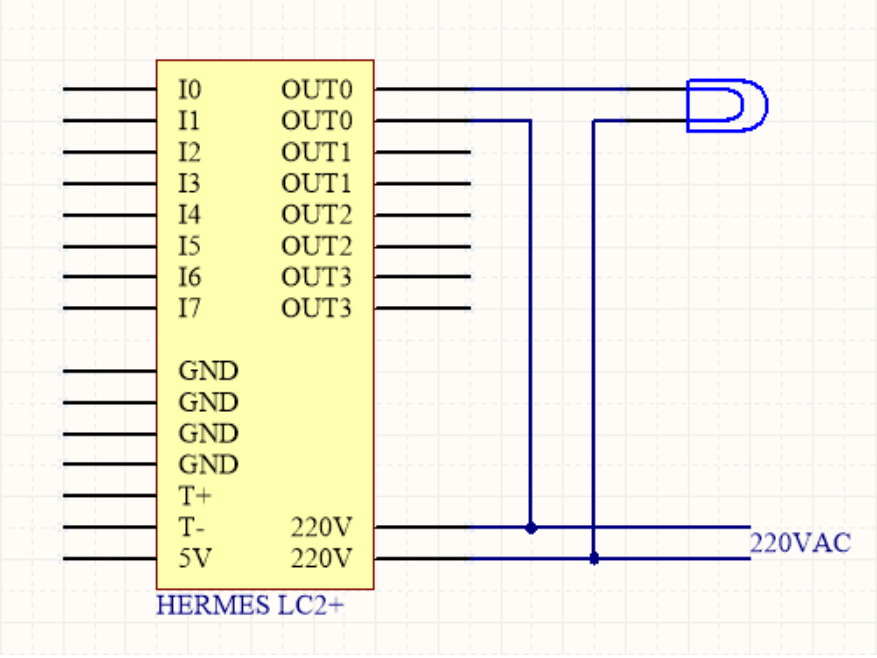
Hermes LC2+ has 8 digital inputs (I0-I7) that are activated by closing the circuit to any of the GND terminals. The sampling frequency is 100 Hz, therefore, the smallest pulse that the module guarantees to be detected is 10 milliseconds. These inputs can be used as general-purpose alarms and read output pulses from digital flowmeters.

Potential free contacts



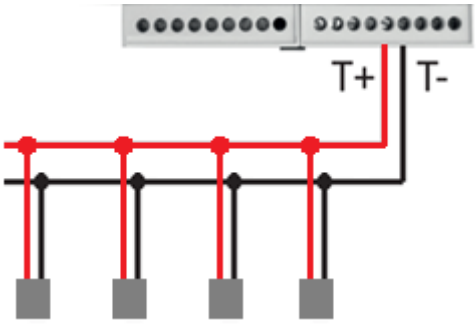
4.5 Digital outputs connection diagram

Hermes LC2+ unit has 4 normally opened potential free contacts. Maximum operating conditions are 3 amperes and 250 volts. The following figure shows an example of the connection of a lamp.



4.6 Microcom digital probes connection diagram

The Hermes LC2+ is equipped with a two-wire digital communication bus that allows the reading of Microcom digital probes. The communication between the Hermes and the Microcom probes forms a "multi-drop" bus in which each probe has a unique identifier. Therefore, all probes are connected in parallel at terminals T+ and T-.



For reliable Bus operation, take into consideration the following recommendations:

- Maximum cable length: 300 meters.
- Type of cable: Category 5 network cable without mesh.
- Avoid parallel installation with power cables or mains voltage.

Recommended wiring for network cable:

- Blue/white twisted pair: Blue T+ / White T-.
- Orange/white twisted pair: Orange 5V. White T-. (Only if probe requires 5 volts).

AVAILABLE MICROCOM DIGITAL PROBES

REFERENCE	MEASUREMENT
STDV01	Temperature probe with IP66 environmental protection.
STDV02	Environmental temperature/humidity probe.
Y100	Ultrasonic level probe.

5 Technical specifications

GENERAL

Power supply	230 VAC ±7% / 50 Hz
Internal battery	Li-Po 3.7 V 400 mAh - Estimated backup > 2h
Operating temperature	0 °C to +50 °C
Gsm radio modem	

Version	Chipset	FCC ID	Bands (MHz)
2G	U-blox SARA-G350	XPYSARAG350	GSM / (E)GPRS: 850/900/1800/1900
2G/3G	U-blox SARA-U201	XPY1CGM5NNN	UMTS/HSPA: 800/850/900/1900/2100 GSM /(E)GPRS: 850/900/1800/1900
2G/NB-IoT	U-blox SARA-R412	XPYUBX18Z001	GSM / (E)GPRS: 850/900/1800/1900 Cat.M1 / Cat.NB1: Bands 2, 3, 4, 5, 8, 12, 13, 20, 26, 28

Real-time clock	High accuracy ±2 ppm with automatic NTP synchronisation
Consumption	5 W
Historical memory	90,000 records
Connectivity	USB
Communication BUS	1-Wire
Dimensions	105 x 90 x 70 mm
Weight	250 grams
Mounting type	Mounting on 35 mm DIN rail
Outer materials	Polycarbonate: UL94-V0

DIGITAL INPUTS

Number	8. Activation by contact to GND terminal
Sampling frequency	100 Hz

DIGITAL OUTPUTS

Number	4
Type	Normally opened. Potential free contacts
Maximum rates	250 vac / 3 a

BUS 1-WIRE

Voltage	3,3 V
Maximum wiring distance	300 m

6 Warranty

1. MICROCOM guarantees that this product is free from defects in materials and workmanship for three (3) years. MICROCOM's sole obligation under this warranty is to repair or replace without charge any device part whose materials or workmanship are deemed to be faulty after an examination has been performed by MICROCOM, and only under the conditions listed below.

a) MICROCOM has been informed of the fault in writing within three (3) years of the date of purchase of the device.

b) The device has not been maintained, repaired or altered by any person who has not been previously approved or authorised by MICROCOM.

c) The device has been used properly and normally, and has not been altered or misused, broken by accident or damaged by an act of God or other similar catastrophic incident.

d) The purchaser, either the DISTRIBUTOR or the DISTRIBUTOR's customer, packs and sends, or delivers, the device to MICROCOM's factory in Irún, Spain, within a maximum of 30 days after MICROCOM receives written notification of the fault. The cost of sending the device to MICROCOM shall be borne by MICROCOM if sent from within Spanish territory.

e) MICROCOM's liability is limited to repairing or replacing any of the device's parts without charge, provided that the examination performed by MICROCOM reveals that the part is faulty due to a defect in materials or workmanship.

1.1. The DISTRIBUTOR or the DISTRIBUTOR's customers may send the device directly to MICROCOM if the DISTRIBUTOR is unable to repair the device, even if it has been approved to do so, and the DISTRIBUTOR has agreed with the customer to have the repairs performed as covered by this limited warranty.

1.2. In the event that a product needs to be returned to MICROCOM for repair under the warranty, the DISTRIBUTOR must contact MICROCOM prior to sending in order to receive a Return Materials Authorisation number (RMA).

Disposal of waste electrical and electronic equipment (applicable in the European Union and other countries with separate collection). This symbol on the product or on its packaging indicates that this product must not be disposed of with other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. The recycling of materials will help to conserve natural resources. For more detailed information about recycling of this product, please contact your local Civic Office, your household waste disposal service or the shop where you purchased the product.