MICROCOM

Simply More

HERMES TCR210

GSM remote control module

Installation manual

Rev 1

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

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.

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Version control:

Revision	Date	Author	Description
1	24102019	RGH	Document creation

1 Introduction

The Hermes TCR210 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 220 volts and incorporates a lithium battery. Regarding wired interfaces, of its 4 digital outputs, 3 are opto-triacs, recommended technology for the activation of relays and contactors thanks to its ability to control zero-cross switching. In addition, it has 8 digital inputs and Modbus RTU connectivity over RS-485.

Like our other remote control devices and data loggers, it is compatible with ZEUS 5, Microcom's free data display and exploitation platform. Register with the platform and enjoy the convenience of monitoring your station through a web browser or Android or iOS mobile application.

This manual provides basic information about device installation and operation. The accompanying CD contains the software configuration manual and commands manual. Detailed reading is recommended to get the most out of your Hermes TCR210.

2 Product presentation

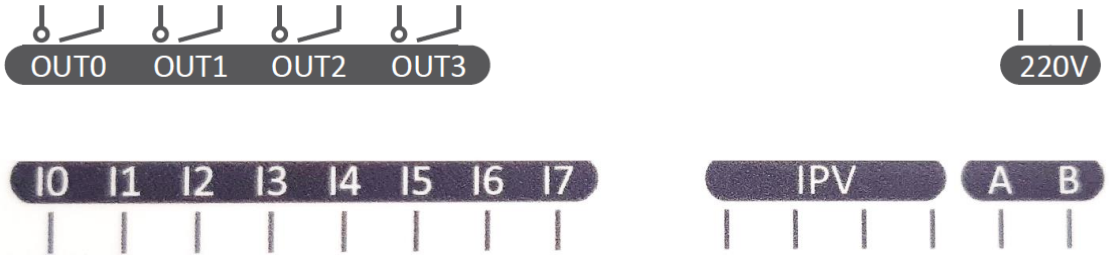
Status LEDs

INPUTS	Digital inputs status. On: Activated / Off: Deactivated
OUTPUTS	Digital outputs status. On: Activated / Off: Deactivated
STATUS	**GSM**: GSM signal quality (see following section) **ERR**: operating errors (see following section) : main power failure (220V)
MODBUS	Data TX (transmit) and RX (receive) status

2.1 Interpretation of GSM and ERR status LEDs

GSM LED blinking red	GSM LED blinking green	ERR LED blinking	Meaning
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.

2.2 Terminal designation



Terminal	Description
OUT0	Open contact of opto-triac digital output 0. Maximum value 250VAC/300mA
OUT0	
OUT1	Open contact of opto-triac digital output 1. Maximum value 250VAC/300mA
OUT1	
OUT2	Open contact of opto-triac digital output 2. Maximum value 250VAC/300mA
OUT2	
OUT3	Open contact of relay digital output 3. Maximum value 250VAC/3A
OUT3	
220V	Supply voltage input. 220VAC / 50Hz
220V	
I0	Digital input 0. Activation by contact to IPV terminal
I1	Digital input 1. Activation by contact to IPV terminal
I2	Digital input 2. Activation by contact to IPV terminal
I3	Digital input 3. Activation by contact to IPV terminal
I4	Digital input 4. Activation by contact to IPV terminal
I5	Digital input 5. Activation by contact to IPV terminal
I6	Digital input 6. Activation by contact to IPV terminal
I7	Digital input 7. Activation by contact to IPV terminal
IPV	Input polarisation voltage. 4 terminals to activate digital inputs
IPV	
IPV	
IPV	
A	Modbus A: RS-485 (+)
B	Modbus B: RS-485 (-)

3 Operation

The Hermes TCR210 incorporates an internal lithium polymer battery that offers excellent characteristics in terms of energy density and charge/discharge cycles. By respecting these conditions, a useful battery life of up to 5 years can be achieved.

- The Hermes TCR210 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, see section '4.3 Connecting the internal battery'.
- If the module is going to be without power for a prolonged period (more than one week), the battery should be disconnected to prevent damage from over-discharge.
- The device must not be exposed to temperatures above 50°C as this would significantly limit the battery life.

The acquisition of your Hermes TCR210 system entitles you to free use of the ZeusWeb monitoring website. Request the registration of your device and enjoy the convenience of monitoring your station through the Internet or Android or iOS application.

4 Device installation

4.1 Removing and replacing the front panel

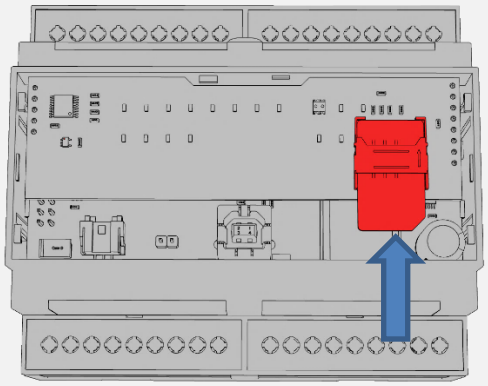
The SIM card holder and jumper to connect the internal battery are behind the front panel.

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 Installing the SIM card



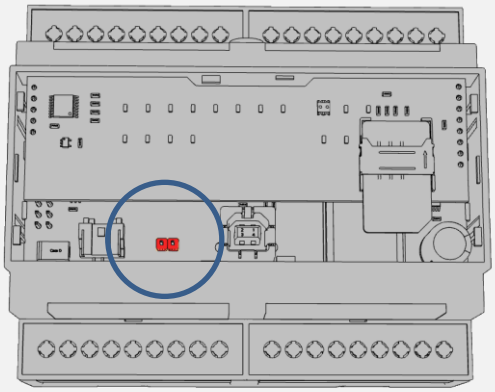
1. Remove the front panel as shown in section '4.1 Removing and replacing the front panel'.
2. Insert the SIM card as shown in the image.

> ⚠ **NOTE:** THE SIM CARD'S PIN CODE REQUEST MUST BE DISABLED.

3. Replace the front panel.

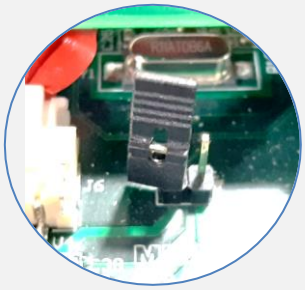
4.3 Connecting the internal battery

The Hermes TCR210 incorporates an internal lithium polymer battery. The battery is delivered from the factory disconnected. Follow the steps described below to connect it:

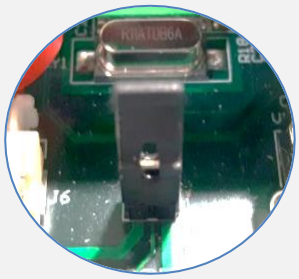


1. Remove the front panel as shown in section '4.1 Removing and replacing the front panel'.

2. Join the two terminals to connect the battery.



INT. BATTERY DISCONNECTED

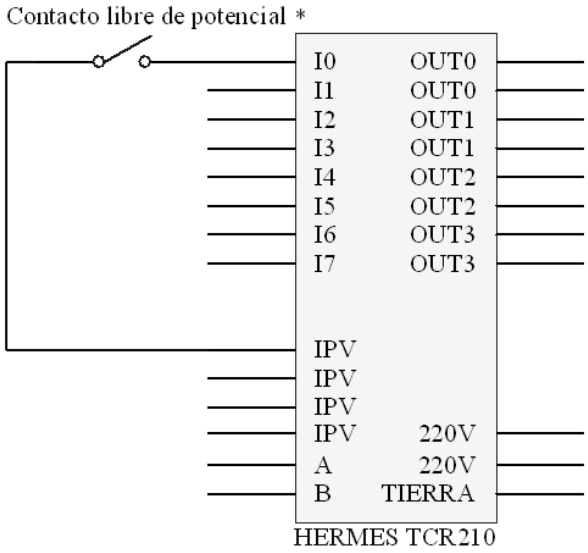


INT. BATTERY CONNECTED

3. Replace the front panel.

4.4 Connection of the digital inputs

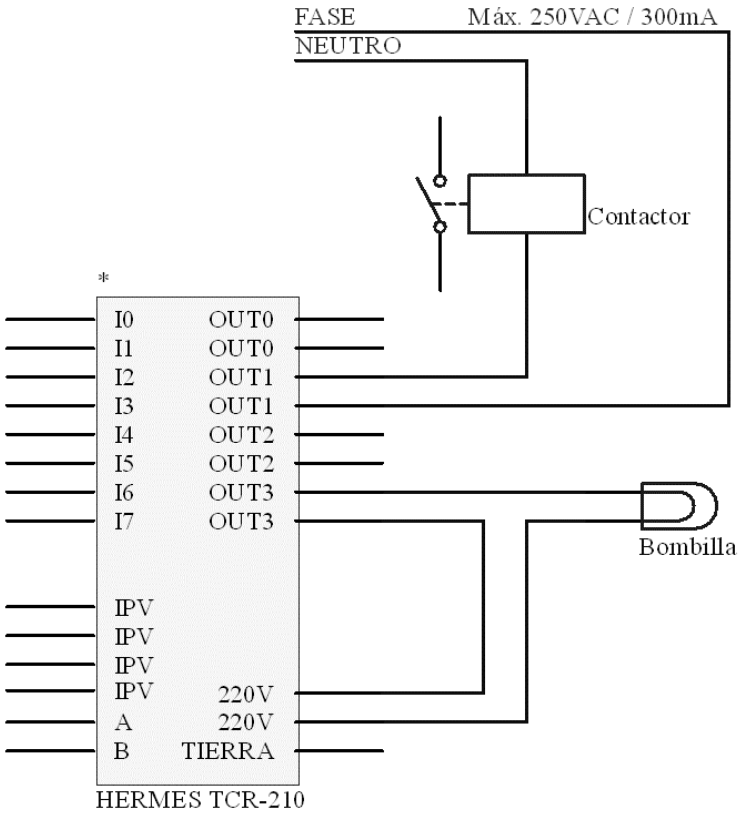
The Hermes TCR210 has 8 digital inputs (I0-I7) that are activated by closing the circuit to any of the IPV terminals. The sampling frequency is 100Hz. Therefore, the smallest pulse that the module can guarantee to detect is 10 milliseconds. The inputs can be used as alarm signals, pulse counters/totalisers and flow meters.



4.5 Connection of the digital outputs

The Hermes TCR210 has 3 opto-triac digital outputs (OUT0, OUT1 and OUT2) and 1 relay output (OUT3). All of the outputs are normally open. The opto-triac digital outputs support maximum voltages and currents of 250VAC and 300mA. The relay digital output supports maximum voltages and currents of 250VAC and 3A.

The following figure shows an example of the connection of a contactor to digital output 1 and a lamp to digital output 3.



5 Start-up

This device is packed with **the battery disconnected**. The first step to start using the device is to connect the battery as specified in section '4.3 Connecting the internal battery'.

The device **is user programmable** and **requires additional configuration for its use**. Programming is done using the universal configuration software. For more information, see the configuration software manual that you will find on the accompanying CD, our website and our YouTube channel.

6 Technical specifications

GENERAL	
Power supply	230VAC ±7% / 50Hz
Internal battery	Li-Po 3.7V 400mAh - Estimated backup > 2h
Operating temperature	0°C to +50°C
GSM modem	u-blox. Available for networks: GPRS, 3G and NB-IoT
Real-time clock	High accuracy ±2ppm with automatic NTP synchronisation
Consumption	5W
Historical memory	90,000 records
Connectivity	USB
Communication bus	MODBUS RTU RS-485
Dimensions	105 x 90 x 70mm
Weight	250 grams
Mounting type	Mounting on 35mm DIN rail
Exterior materials	Polycarbonate: UL94-V0

DIGITAL INPUTS	
Number	8. Activation by contact to IPV terminal
Sampling frequency	100Hz

RELAY OUTPUTS	
Number	1
Type	Normally open
Maximum values	250VAC / 3A

OPTO-COUPLED OUTPUTS	
Number	3
Type	Normally open
Maximum values	250VAC / 300 mA

COMMUNICATION BUS	
Protocol	MODBUS RTU
Wiring	RS-485

7 Warranty

1. MICROCOM guarantees that this product is free from defects in materials and workmanship for five 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 five 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.