

## Safety Instructions

### **WARNING**

Follow carefully this safety and installation instructions. Improper work may lead to serious harmful for your health and also may damage seriously the IntesisBox and/or any other equipment connected to it.

- IntesisBox must be installed by accredited electrician or similar technical personnel, following all the safety instructions given here, and in accordance always with the country legislation for installation of electric equipment.
- IntesisBox can not be installed outdoors or exposed to direct solar radiation, water, high relative humidity or dust.
- IntesisBox must only be installed in a restricted access location
- In case of wall mount, fix firmly IntesisBox on a not vibrating surface following the instructions below.
- In case of DIN rail mount fix IntesisBox properly to the DIN rail following the instructions below.
- Mounting on DIN rail inside a metallic cabinet properly connected to earth is recommended.
- Disconnect always power of any wires before manipulating and connecting them to IntesisBox.
- A power supply with a NEC Class 2 or Limited Power Source (LPS) and SELV rated is to be used.
- Respect always the expected polarity of power and communication cables when connecting them to IntesisBox.
- Supply always a correct voltage to power IntesisBox, see details of voltage range admitted by the device in the technical characteristics below.
- This device was designed for installation in an enclosure. To avoid electrostatic discharge to the unit in environments with static levels above 4 kV precautions should be taken when the device is mounted outside an enclosure. When working in an enclosure (ex. making adjustments, setting switches etc.) typical anti-static precautions should be observed before touching the unit.

## Installation instructions

- Disconnect from mains the power supply before connecting it to IntesisBox.
- Disconnect power of any bus or communication cable before connecting it to IntesisBox.
- Mount IntesisBox on the wall or DIN rail following the instruction given below, respecting the safety instructions given above.
- Connect a NEC Class 2 or Limited Power Source (LPS) and SELV rated power supply to IntesisBox, respect the polarity if DC power or Line and Neutral if AC power. Apply always a voltage within the range admitted by IntesisBox and of enough power (see technical characteristics).
- Circuit-breaker must be used before the power supply. Rating 250V-6A
- Connect the communication cables to IntesisBox, see details on the user's manual.
- Power IntesisBox and the rest of devices connected to it.

## Configuration and setup

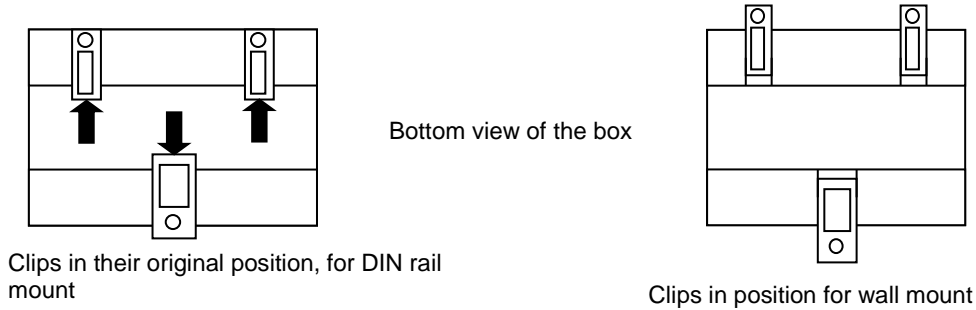
Use the software LinkBoxMB to configure IntesisBox, follow the instructions of the user's manual for more details.

**See instructions to download and install the latest version of LinkBoxMB and the user's manual at**

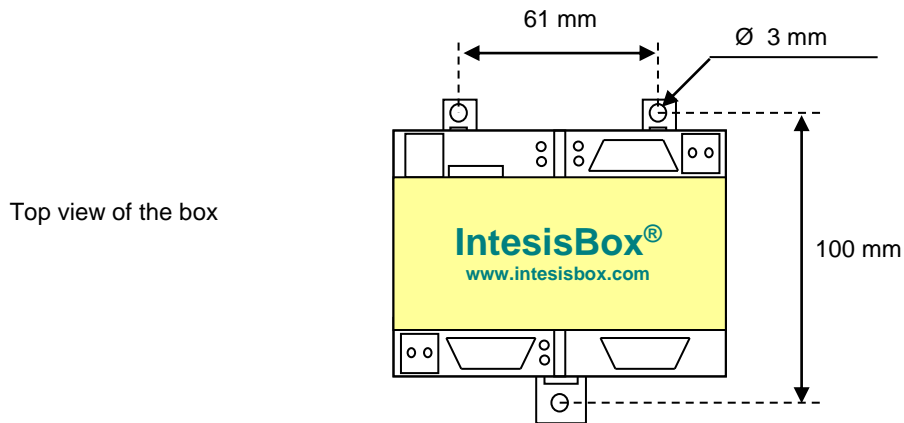
<http://www.intesis.com/down/mb/linkboxmb.html>

## Wall mount

1. Separate the fixing clips in the bottom of the box, pushing them to the outside until hear the "click" which indicates that now the clips are in position for wall mount, see in the figure below.

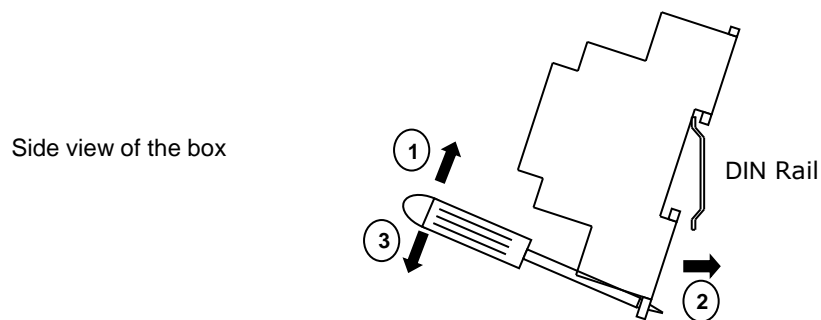


2. Use the holes of the clips to fix the box in the wall using screws. Use the template below for the wall holes.

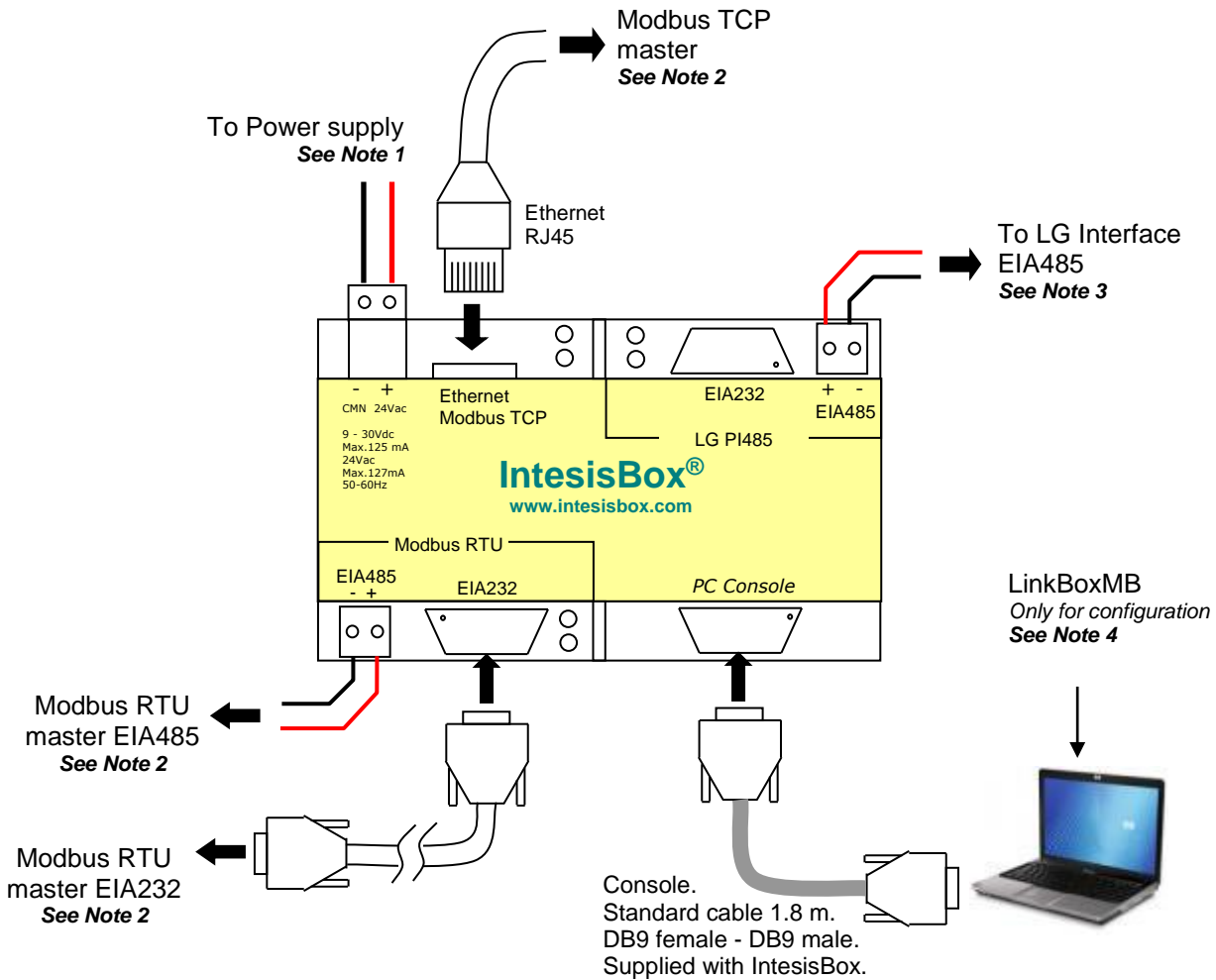


## DIN rail mount

With the clips of the box in their original position, insert first the box in the upper edge of the DIN rail and later insert the box in the down part of the rail using a small screwdriver and following the steps in the figure below.



Connections



Notes:

1. Must use NEC Class 2 or Limited Power Source (LPS) and SELV rated power supply.  
 If using DC power supply:
  - Respect polarity applied of terminals (+) and (-). Be sure the voltage applied is within the range admitted (9 to 30 Vdc). The power supply can be connected to earth but only through the negative terminal, never through the positive terminal.
 If using AC power supply:
  - Make sure the voltage applied is of the value admitted (24 Vac). Do not connect any of the terminals of the AC power supply to earth, and make sure the same power supply is not supplying any other device.
2. Modbus connection. Only one Modbus connection type can be used simultaneously, Modbus TCP, Modbus RTU EIA485, or Modbus RTU EIA232, this must be configured within LinkBoxMB software.
  - Modbus TCP: Connect the cable coming from the Modbus TCP master device to the connector ETH of IntesisBox, use a crossover Ethernet CAT5 cable if connecting directly to the Modbus TCP master device, or a straight Ethernet CAT5 cable if connecting to a switch or hub of the LAN of the building. If connecting using the LAN of the building contact the network administrator and make sure that TCP/IP traffic and the TCP port used (502 by default) are allowed through all the LAN path.
  - Modbus RTU EIA485: Connect the EIA485 bus to the connector Modbus RTU EIA485 of IntesisBox. Respect the polarity. Remember the characteristics of the standard EIA485 bus: maximum distance of 1200 meters, maximum 32 devices in the bus, and a 120 ohms terminator resistor in each end of the bus. IntesisBox comes with an internal bus biasing circuit which incorporates internal bus terminator resistor, and thus if you connect IntesisBox in one end of the bus then it is not necessary to install additional 120 ohms resistor in that end.
  - Modbus RTU EIA232: Connect the serial EIA232 cable coming from the Modbus RTU master device to the Modbus RTU EIA232 connector of IntesisBox, this is a male DB9 connector (DTE) in which only lines TX, RX and GND are used, see pinout details in the user's manual. Respect the maximum distance of 15 meters for this EIA232 line.
3. LG AC system's connection through (PMNFP14A0, PMNFP14A1 or PHNFP14A0) EIA485 interface board or Outdoor Unit PI485 connection. Connect the EIA485 bus of LG boards to the connector LG PI485 of IntesisBox. Respect the polarity. Remember the characteristics of the standard EIA485 bus: maximum distance of 1200 meters, maximum 32 devices in the bus, and a termination resistor of 120 ohms in each end of the bus. IntesisBox incorporates an internal circuit for bus biasing with termination resistor incorporated, so if IntesisBox is installed in one of the ends of the bus it is not necessary to connect an additional termination resistor in that end.
4. Use the software LinkBoxMB to configure IntesisBox. Consult the user's manual for details.

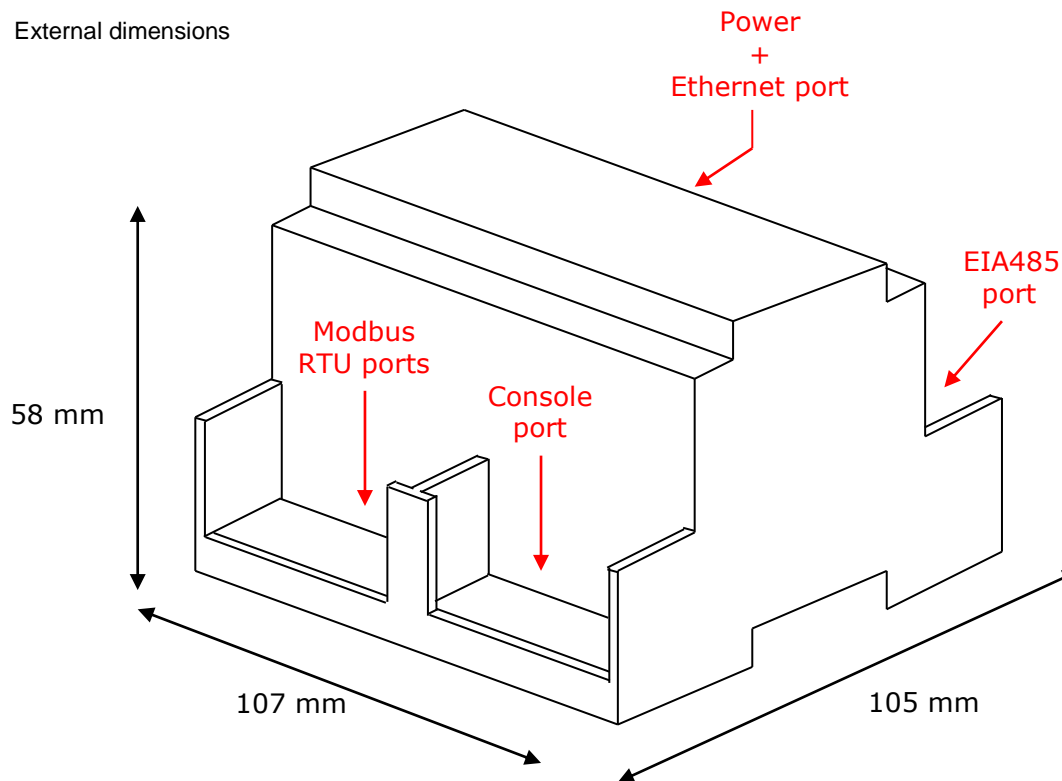
## Technical characteristics

Enclosure	Plastic, type PC (UL 94 V-0). Dimensions: 107mm x 105mm x 58mm.
Color	Light Grey. RAL 7035.
Power	9 to 30Vdc +/-10%, Max.: 125mA. 24Vac +/-10% 50-60Hz, Max.: 127mA Must use a NEC Class 2 or Limited Power Source (LPS) and SELV rated power supply. Plug-in terminal block for power connection (2 poles).
Terminal wiring (for power supply and low-voltage signals)	Per terminal: solid wires or stranded wires (twisted or with ferrule) 1 core: 0.5mm <sup>2</sup> ... 2.5mm <sup>2</sup> 2 cores: 0.5mm <sup>2</sup> ... 1.5mm <sup>2</sup> 3 cores: not permitted
Mounting	Wall. DIN rail EN60715 TH35.
Modbus TCP port	1 x Ethernet 100Base-T (RJ45).
Modbus RTU ports	1 x Serial EIA232 (DB9 male DTE). SELV 1 x Serial EIA485 (Plug-in screw terminal block 2 poles). SELV
LG AC port	1 x EIA485. Plug-in screw terminal block (2 poles). SELV
LED indicators	1 x Power. 2 x Serial port Modbus RTU activity (Tx, Rx). 2 x Serial port LG AC activity (Tx, Rx). 2 x Ethernet port Modbus TCP link and activity (LNK, ACT).
Console port	EIA232. DB9 female connector (DCE). SELV
Configuration	Via console port. <sup>1</sup>
Firmware	Allows upgrades via console port.
Operational temperature	0°C to +70°C
Operational humidity	5% to 95%, non-condensing
Protection	IP20 (IEC60529).

<sup>1</sup> Standard cable DB9male-DB9female 1,8 meters long is supplied with the device for connection to a PC COM port for configuring and monitoring the device. The configuration software, compatible with Windows® operating systems, is also supplied.

Dimensions

External dimensions



Free space recommended for device installation, with spacing enough for external connections.

