

These short operating instructions apply for the following devices of INSYS icom:

- MRO-L200
- MRO-L210



www.insys-icom.com/manual →



It is intended for a quick commissioning by the operator. Refer to the associated manual for further information. This and other associated manuals can be found on our website in the menu Support and Downloads > Documentation. Scan the QR code above or enter the URL into your web browser.

Technical Data

The product is only intended for the use within the permissible technical limits specified in the data sheets. These limits must be observed.

Operating voltage	12 V ... 24 V DC (±20%)	LTE frequencies (4G)	800, 900, 1800, 2100, 2600 MHz (L-200) 700, 850, 1700/2100 (AWS), 1900 MHz (L-210)
Power consumption	typ. 2.5 W, max. 8 W	UMTS/HSPA frequencies (3G)	900, 1800, 2100 MHz (L-200) 850, 1700/2100 (AWS), 1900 MHz (L-210)
Level input IN1	HIGH level = 2 ... 24 V LOW level = 0 ... 1 V Contact open condition: HIGH	GSM/GPRS frequencies (2G)	900, 1800 MHz (L-200) 850, 900, 1800, 1900 MHz (L-210)
Current consumption input IN1 at LOW potential	typ. 0.1 mA when connecting to GND	Real-time clock (RTC) buffer time	typ. 2 days
Level input IN2	HIGH level = 10 ... 24 V LOW level = 0 ... 5 V Contact open condition: LOW	Temperature range	-30 °C ... 70 °C (75 °C extended)
Power consumption input IN2 at HIGH potential	max. 3 mA at 24 V DC	Maximum permissible humidity	95% non-condensing
Digital output (open collector), max. load	24 V (DC), 100 mA	IP rating	Housing IP40
Max. voltage drop of output in state ON	< 1 V (DC) at 100 mA load		

Technical Boundaries

Max. line length for antennas, power supplies, serial interfaces, inputs and outputs as well as other signals: 30 m
Cable cross-section: 0.25 ... 1.5 (2.5) mm² (depending on terminal size), flexible lines require end sleeves

Support

If you need further support, please contact your sales partner or INSYS icom support. You can contact our support department via e-mail under support@insys-tec.de.

Defects liability terms

A use other than the intended use, an ignorance of the safety instructions and the documentation, the use of insufficiently qualified personnel as well as unauthorised modifications exclude the liability of the manufacturer for damages resulting from this. The liability of the manufacturer ceases to exist.

Intended Use

The product may only be used for the purposes specified in the function overview of the manual. In addition, it may be used for the following purposes:

- Usage and mounting in an industrial cabinet.
- Switching and data transmission functions in machines according to the machine directive 2006/42/EC.
- Usage as data transmission device, e.g. for a PLC.

The product may **not** be used for the following purposes and used or operated under the following conditions:

- Use, control, switching and data transmission in machines or systems in explosive atmospheres.
- Controlling, switching and data transmission of machines, which may involve risks to life and limb due to their functions or when a breakdown occurs.

A

Router connection

1. Remove SIM card cover from top of the device using a flat screwdriver at the center bar, insert SIM card (Mini-SIM, 2FF) and attach SIM card cover again
2. Connect antenna with connector LTE/4G 1 (SMA (f))
The screen of the antenna system must be connected to the protective conductor when using an outside mounted antenna!
3. Connect supply voltage (12 V ... 24 V DC ($\pm 20\%$)) to the terminals VIN and GND
4. Connect router (ETH 1) to the configuration PC
5. Connect router (ETH 2) to the network in which your system is located

B

LAN settings of configurations PC (Windows 7)

- ① If a DHCP client is active on the PC, proceed with step C. Otherwise, either enable the DHCP client or configure a static IP address.
6. Open Network and Sharing Center (e.g. key and search for "sharing")
7. Select LAN connection and Properties
8. Select Internet Protocol Version 4 (TCP/IP) and Properties

<p>Enable DHCP client</p> <ol style="list-style-type: none"> 9. Obtain an IP address automatically ① It is recommended to unplug the network cable briefly and plug it again upon activation of the DHCP client. 	<p>Configure a static IP address</p> <p>Use the following IP address (example):</p> <p>IP address: 192 . 168 . 1 . 2</p> <p>Subnet mask: 255 . 255 . 255 . 0</p> <p>Standard gateway 192 . 168 . 1 . 1</p> <p>Preferred DNS server: 192 . 168 . 1 . 1</p> ① Please note the previous values before changing the TCP/IP settings to be able to restore them later.
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C

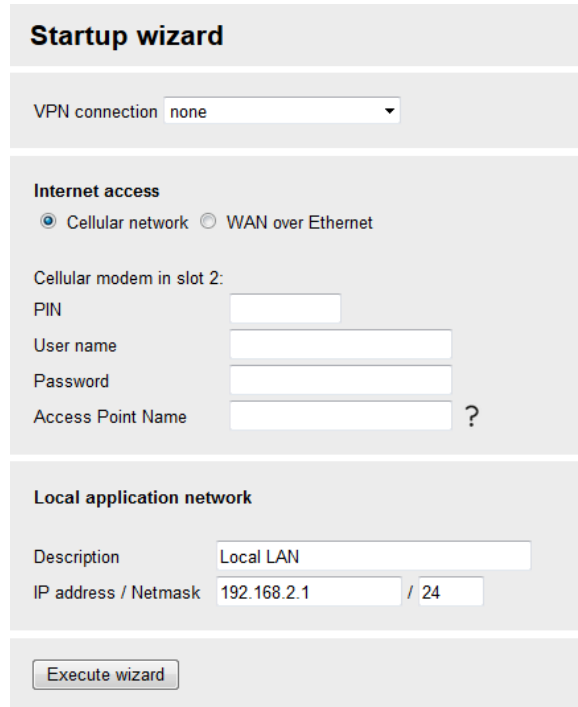
Web interface access

10. Enter IP address of the router in address bar of the browser (default: **192.168.1.1**)
- ① If a proxy server is enabled in your browser, this must be disabled or the IP address of the router must be added as exception.
11. Login with *Name* (default: **insys**) and *Password* (**icom**)
12. Open the Inline Help using the button (Display help text) in the header
- ① The links in the Inline Help lead to the Online Help with further information.
- ① All modified data will only be stored in the opened profile after clicking the *Save settings* button and become effective upon clicking the (Activate profile) button.

Configuration as Internet Router

D


- 13. In Menu Help > Wizards:  Select Startup Wizard
- 14. Select Internet access via Cellular network (refer to inline help for WAN over Ethernet)
- ① The following data can be found in the contract documents of your SIM card or can be requested from the provider. The APNs of popular providers can be displayed by clinging on ? .
- 15. Enter PIN of the SIM card
- 16. Enter User name and Password for authentication with the provider (must not be empty)
- 17. Enter Access Point Name (APN)
- 18. Enter IP address of the local application network
- ① If the router is to be configured for the **icom Connectivity Suite - VPN** (<https://connectivity.insys-icom.de>), select icom Connectivity Suite – VPN under VPN connection and enter Customer name and Device code (from icom Connectivity Suite – VPN, “My VPN Hub” tab). Then, the IP address in the local network will be assigned by the icom Connectivity Suite - VPN.
- 19. Click on *Execute wizard*
- ① The WAN LED flashes **green** during connection establishment; as soon as an Internet connection has been established, it is illuminated **green** and the Signal LED flashes **orange**.
- ① If the web interface of the router does not return upon executing the wizard, click on “Reload” in the browser (or Ctrl+F5).



The screenshot shows the 'Startup wizard' configuration screen. It includes a 'VPN connection' dropdown menu set to 'none'. Under 'Internet access', the 'Cellular network' radio button is selected. Fields for 'Cellular modem in slot 2:', 'PIN', 'User name', 'Password', and 'Access Point Name' are present, with a question mark icon next to the APN field. The 'Local application network' section shows 'Description' as 'Local LAN' and 'IP address / Netmask' as '192.168.2.1 / 24'. An 'Execute wizard' button is at the bottom.

Configuration of access data


E

- ① User name and password for web interface access of the existing user in the default settings must be changed to prevent a manipulation of the configuration by unauthorised persons.
- 20. Menu Administration > Users: Enter or change User name and Password and select User group "Read/Write"
- 21. Store settings in profile with *Save settings* and activate profile with  .
- ① A typo during entering or forgetting the configured access data require a reset to default settings to be able to access the router again.

All essential configuration steps are completed with this. Further configuration depends on your specific application. Other frequently required settings are available on the following page.

IP address in configuration network

① The IP address of the router in the configuration network does only have to be changed, if the IP address is already used or a different address range is required. Then, the web interface is immediately accessible under the new address.

1. Menu Interfaces > IP net 1: Adjust IP address of the router in configuration network
2. Store settings in profile with *Save settings* and activate profile with .
3. Adjust IP settings of the PC for further configuration accordingly, if these are not obtained automatically (see step B)
4. Menu Services > DHCP Server: Adjust address range to the configuration network, if the DHCP server of the router is used

Using the router as icom Smart Gateway

① If the router is to be used as an icom Smart Energy Gateway or icom Smart Machinery Gateway for example, this is the best time now to install the icom Data Suite required for this. A wizard is available for this in the *Help* menu. Refer to the Quick Installation Guide of the icom Data Suite (<https://www.insys-icom.com/manual#deviceapps>) or the respective Configuration Guide (https://docs.insys-icom.de/icom_data_suite.html).

Resetting the router

① If it is necessary to reset the router during configuration, this is possible without losing the settings.

1. Menu Administration > Reset:
 2. Click on *Reboot device now*
- ▶ Alternatively, press reset key on the device front once for a short time (soft reset)

Resetting the router to default settings

① If the router is to be reset to default settings, it can be reset to delivery state.

1. Menu Administration > Reset: check all options
 2. Click on *Reset now*
- ▶ Alternatively, press reset key on the device front three times for a short time within 2 seconds

Resetting and initialising the router

① If the router is not available any more for any reason, it can be reset and initialised (settings do not get lost).

1. Press reset key on the device front for at least 3 seconds (hard reset)



The [Inline Help](#) opens upon selecting the button ? (Display help text) and provides helpful information regarding each individual parameter directly in the web interface.

The [Online Help](#) is opened using the links in the Inline Help or in the Help menu in the web interface and provides further information to the respective topics.

The [Configuration Guides](#) are available under <https://docs.insys-icom.de> and provide helpful information regarding the integration of your product into your application.