

## MRO-L200/-L210

MRO - the compact 4G power

# Power pack for cellular applications



Latest technology and high performance combined in a compact housing characterise the professional routers of the new MRO series. The first devices of the series is the LTE router MRO-L200 that is also available as USA/Canada version (MRO-L210).

Besides its 4-port switch, an RS232 interface as well as digital inputs and outputs are available. With the integrated icom SmartBox, a Linux environment based on LXC technology, the router provides an operating system-independent platform, for example for local storage and processing of data or executing further programs and scripts (edge computing).

Like all routers of INSYS icom, the devices of the MRO series are also characterised by high system stability, longevity and consistent user guidance. VPN, a stateful firewall and many other security features like event-based messages provide for security.

### Highlights

- High performance and high VPN data rate
- 5 Ethernet ports
- RS232
- 2 digital inputs, 1 digital output
- Comprehensive IT security functions
- Connection redundancy incl. multiple VPNs
- Comprehensive network functionality with multiple IP networks
- Integrated edge computing and IoT functions

## Technical data

Mobile communication	
Frequency bands MRO-L200	4G/LTE*: 800, 900, 1.800, 2.100, 2.600 MHz; LTE Cat. 3 (DL: max. 100 Mbps, UL: max. 50 Mbps) 3G/UMTS/HSPA: 900, 1.800, 2.100 MHz; UMTS, HSPA+ (DL: max. 42 Mbps, UL: max. 5,76 Mbps) 2G/GPRS/EDGE: 900, 1.800 MHz; GPRS/EDGE Class 12 (DL: max. 237 kbps, UL: max. 237 kbps)
Frequency bands MRO-L210 (USA/Canada version)	4G/LTE: 700, 850, 1.700/2.100 (AWS), 1.900 MHz; LTE Cat. 3 (DL: max. 100 Mbps, UL: max. 50 Mbps) 3G/UMTS/HSPA: 850, 1700/2100 (AWS), 1.900 MHz; UMTS, HSPA+ (DL: max. 42 Mbps, UL: max. 5,76 Mbps) 2G/GPRS/EDGE: 850, 900, 1.800, 1.900 MHz; GPRS/EDGE Class 12 (DL: max. 237 kbps, UL: max. 237 kbps)
Antenna connection	2x SMA female (2G/3G/4G: Main, 3G: Rx Diversity, LTE: MIMO)
SIM	Slot for 1 Mini-SIM card (2FF), locked
Router	
Function	Up to 5 IP local networks (LAN) or as WAN with both, DHCPv4 and DHCPv6 clients, with static IP addresses, VLAN incl. tags and trunk ports; SLAAC, router advertiser, own DHCPv4 and DHCPv6 server per IP network; Static routing, configurable routing priority; dynamic routing OSPF, BGP, RIP, RIPv2, RIPng; Net filters: D-NAT, S-NAT, IP/port forwarding, netmapping, DNS relay, dynDNS support; PPPoE for external DSL modem; Dual APN: cellular traffic division across 2 APNs - e.g. for separating payload and management data
Security	OpenVPN (client and server), IP filters (stateful firewall) also in VPN tunnel, several VPN tunnels in parallel possible, IPsec, GRE (incl. multi-port), DMVPN, PPTP server
Redundancy	WAN chains: several WAN accesses configurable (prioritised and event-controlled), WAN groups: parallel operation of WAN interfaces or VPNs, several OpenVPN servers; Provider redundancy when using a multi roaming SIM card (see chapter "suitable accessories")
Ethernet switch, interfaces	
Ports	5x RJ45, 10/100 MBit/s, full/half-duplex, auto MDI-X, 1.5 kV isolation voltage
Function	Each port can be freely assigned to the IP networks, Link up/down detection, configuration port
Digital inputs	2 digital inputs, 1x low-active, 1x high-active (as per EN 61131-2, Type 1)
Digital outputs	1 open collector output
Events (selection)	Change: input, Ethernet port, WAN chain, profile, supply input, cellular field strength; timer expiry, firewall violation, login attempt detection, pulse sequence at digital input, counter
Event-controlled actions (selection)	E-mail messages, SMS, SNMP traps, MCIP, start timer, profile switching, connection switching, reset, log out/turn off modem, activate firmware, pulse sequence
Serial interface	
RS232 (Serial1)	1 x RS232 / D-Sub-9 (m)
Functions	Serial-Ethernet gateway (incoming and outgoing connections, Modbus TCP/RTU gateway, modem emulation, editable AT answer list, phone number conversion to IP addresses)
Operation	
Wizards	Configuration of connection incl. VPN, adding LAN networks, quick start of icom Connectivity Suite – VPN
Help	Web interface with inline help texts, online help, FAQ, exemplary profiles, plausibility check
Configuration	Local and remote web interface (http, https; with session management), command line interface (CLI), Telnet, SSH, ASCII and binary file (also for backup), configuration management with switchable profiles (event-controlled)
Indications (LEDs)	Power, WAN (Internet connection), 1x configurable, 1x Signal (for cellular radio)
Authentication	Several users, different user roles and rights, RADIUS
Diagnosis	Comprehensive log files, support package, integrated help functions, diagnosis tools: ping, tcpdump, traceroute, DNS lookup, AT commands
Firmware updates	Incremental, fail-safe, automated via update server (http, ftp, https, ftps)
Edge Computing	
icom SmartBox	Linux programming environment: creation of LXC containers for programs and scripts (apps), ARMv7 CPU, 448 MB RAM, 7 GB flash memory
Additional features	NTP client and server, buffered real-time clock

\* Please check the availability of the LTE frequencies in the planned operating area. Above specified frequencies are currently used in Europe, Middle East, Africa and, to some extent, in the Asia-Pacific region and South America.

# MRO-L200/-L210

## All-in-one Cellular 4G Router

Supply	
Voltage	12 ... 24 V DC (± 20%)
Terminals	5-pin push-in terminal connectors (maintenance free), rigid/flexible conductors up to 2.5 mm <sup>2</sup>
Power consumption	MRO-L200/-L210: typical approx. 2.5 W, max. 8.0 W
Ambient conditions	
Dimensions (WxDxH)	54 x 88 x 117 mm
Operating temperature	-30...75 °C <sup>3</sup>
Humidity	0...95% (non-condensing)
Mounting / protection class	DIN rail mounting / housing: IP40
Approvals & Standards	
Certifications	MRO-L200: CE MRO-L210: FCC Part 15 Class B, IC
EMC	Emission: EN 55032 Class B; Immunity: EN 61000-6-2, EN 55024
Safety	IEC/EN 60950, IEC/EN 62368-1
Environmental conditions	Vibration/shock as per PLC standard EN 61131-2 and EN 60068-2-6, EN 60068-2-27; Temperature tests as per EN 60068-2-1, EN 60068-2-2, EN 60068-2-14, EN 60068-30

### Available Variants

Product description	Features	Order number
MRO-L200	4G router, international frequencies, 2 inputs, 1 output, 1x RS232	10019400
MRO-L210	4G router, USA/Canada frequencies, 2 inputs, 1 output, 1x RS232	10019403

### Appropriate Accessories

Product description	Description	Order number/Information
Magnetic Antenna 4G/3G/2G SMA	Height 72 mm, 3 m cable, SMA (m), protection class IP65	10019504
Outdoor Wall Antenna 4G/3G/2G SMA	Height 22 cm, mounting angle, 5m cable, SMA (m), protection class IP65	10020596
Panel Antenna 4G/3G/2G MIMO SMA	MIMO antenna, height 84 mm, width 184 mm, protection class IP67	10020565
Magnetic/screw/adhesive antenna GSM/UMTS/LTE SMA (only MRO-L200)	Height 38 mm, 5m cable, SMA (m)	10017462
Antenna extension cable 5 m SMA	Device connector: SMA (f), antenna connection: SMA (m)	10015193
Antenna extension cable 10 m SMA	Device connector: SMA (f), antenna connection: SMA (m)	10018607
Antenna extension cable 15 m SMA	Device connector: SMA (f), antenna connection: SMA (m)	10000735
Power supply unit	TDK Lambda DSP 10-24 AC/DC power supply unit for DIN rail	10014249
icom Connectivity Suite – VPN	VPN Service for M2M Applications	insys-icom.com/en/VPN
icom Connectivity Suite – M2M SIM	Industrial SIM cards, multi-roaming, pooling, management portal	insys-icom.com/en/SIM
icom Router Management	Central management of devices, configurations, certificates and update packages	insys-icom.com/en/iRM

<sup>3</sup> Range -30 ... 75°C under restricted conditions (refer to: [www.insys-icom.com/restricted](http://www.insys-icom.com/restricted))

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