# MRX3
# MRX5

## Modular industrial router

**INSYS icom**



## Flexible. Powerful. Future-proof.

MRX 3 DSL             MRX 5 LTE

# MRX - the flexible power
## High-performance and convertible for individual solutions

The smart MRX routers combine IT security at KRITIS level, state-of-the-art technology, high computing power, elaborate administration and programmability.

### Freedom of arrangement

Changing requirements demand flexible solutions. The modularity of the MRX router series allows you to assemble a custom router for each individual application.

### Extension options

The basic variants DSL, LTE and LAN are each available in two housing widths and have two digital inputs. Modular plug-in cards (MRcards) with additional interfaces can be added as required. In addition to the standard models, customer-specific MRcards can also be developed.

### Future-proof

With the plug-in cards for the MRX router you will be on the safe side in the future as well. We are constantly expanding our product range in line with the latest developments and customer requirements. In the case of technology upgrades, e.g. to 5G, you can therefore expand your router efficiently and at low costs.

## Highlights:

**This VPN router offers the following impressive highlights:**
- High performance and high VPN data rate
- Modular expandability through plug-in cards (MRcards)
- Connection redundancy also in hardware (4G, DSL, LAN)
- 5 Ethernet ports (expandable to 17)
- 2 digital inputs (basic versions, expandable)

**On board thanks to the operating system icom OS:**
- Comprehensive IT security functions
- Connection redundancy incl. multiple VPNs
- Comprehensive network functionality with multiple IP networks
- Integrated edge computing and IoT functions

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# MRX (Basic Variants)
## Technical Data

| Mobile communication (only MRX LTE) | |
|---|---|
| Frequency bands | 4G/LTE*: 800, 900, 1.800, 2.100, 2.600 MHz (bands 1, 3, 7, 8, 20); LTE Cat. 3 (DL: 100 Mbps, UL: 50 Mbps) |
| | 3G/UMTS/HSPA: 900, 1.800, 2.100 MHz (Bänder 1, 3, 8 ); UMTS, HSPA+ (DL Cat. 24, UL Cat. 6) |
| | 2G/GPRS/EDGE: 900, 1.800 MHz; GPRS/EDGE Class 12 |
| Antenna connection | 2x SMA female (2G/3G/4G: Main, 3G: Rx Diversity, LTE: MIMO) |
| SIM | Slot for 1 Mini-SIM card (2FF), locked |
| Dual APN | Splitting of mobile data traffic over 2 APNs, e.g. separation of user and management data |
| Mobile phone status | Signal field strength, RSSI, RSCP / Ec/No, RSRP / RSRQ, Cell-ID, Location-ID |

| VDSL/ADSL (only MRX DSL) | |
|---|---|
| DSL standards | MRX DSL-A (Annex A): |
| | - VDSL2 G.993.2 Profile 8b, 8c, 8d, 12a, 12b, 17a. 30a, VDSL2 Vectoring G.993.5 |
| | - ADSL/ADSL2/ADSL2+ G.992.1 Annex A, G.992.3. Annex A/L/M, G.992.5 Annex A and M, T1.413 |
| | MRX DSL-B (Annex B): |
| | - VDSL2 G.993.2 Profile 8a, 8b, 8c, 8d, 12a, 12b, 17a. 30a, VDSL2 Vectoring G.993.5 |
| | - ADSL/ADSL2/ADSL2+ G.992.1 Annex B, G.992.3. Annex B, G.992.5 Annex B and J |
| DSL connection | RJ45 connector |

| Hardware interfaces | |
|---|---|
| Ports | 5 x RJ45, 10/100 MBit/s, Full/half duplex, Auto MDI-X, 1.5 kV isolation voltage |
| Function | Assignment to IP network freely configurable per port, link up/down detection, configuration port |
| Inputs | 2 digital inputs (available in all basic variants), status can be monitored: |
| | 1x low active, connection to GND, 1x high active, connection to 10...24 VDC, as per EN 61131-2, type 1 |
| Displays (LEDs) | Power, WAN (Internet connection), Info (configurable), Signal (for mobile radio), DSL (for DSL) |
| Further interfaces | Optional addition of MRcards (modular design) |

| Network | |
|---|---|
| Network functions | 5 local IP networks, IP static/DHCP,TCP, UDP, IPv4, IPv6, NTP, DHCP, DNS, HTTP/S, ARP, SSH, 802.1Q VLAN incl. tags and trunk ports |
| Service | DHCP Server v4/v6 per IP network, DHCP relay, NTP server, DNS, DynDNS, IPv6 Router Advertiser |
| Routing | Static routing, routing priority, RSTP, dynamic routing (OSPF, BGP, RIPv1, RIPv2, RIPng) |
| WAN redundancy/failover | Several WAN connections configurable also in parallel operation, fallback level for connection breakdown (failover), event-based WAN changeover (see events) |
| Connection check | Periodic, ping/icmp, DNS request, link up/down |
| DSL | PPPoA (MRX3/5 DSL und MRcard PD-A/B); PPPoE/PPPoA für externes DSL-Modem |
| NAT/PAT | SNAT/DNAT (masquerade, netmapping, port forwarding, IP forwarding) |

| VPN | |
|---|---|
| icom Connectivity Suite | Supports VPN service for remote maintenance, remote access and M2M-communication |
| OpenVPN | Client/server, several parallel tunnels, server with up to 20 clients, tls-auth/tls-crypt, dead peer detection (DPD) |
| OpenVPN encryption | Blowfish 128 Bit, DESX 192 Bit, DES 64 Bit, DES EDE 128 Bit, DES EDE3 192 Bit, AES 128-256 Bit, RC2 40-128 Bit, IDEA 128, CAST5 128 Bit, SHA1, SHA 224-512 |
| IPsec | IKEv1, IKEv2 (automatic, fix), several parallel tunnels, pre-shared keys, certificates, tunnel mode, transport mode, dead peer detection (DPD) |
| IPsec encryption | DES EDE3 192 Bit, AES 128-256 CBC/GCM, SHA1, MD5, SHA 256-512, DH-Group 1-31 (Diffie-Hellman 768 - 25519), ChaCha20-Poly1305 |
| GRE | GRE via IPsec, point-to-point, multipoint |
| PPTP | PPTP client/server; PAP/CHAP/MS CHAP/MS CHAP V2; MPPE 40-128 |
| Dynamic VPN | Dynamic multipoint VPN (GRE, IPsec, NHRP, EIGRP, OSPF, RIPv1/v2, BGP) |

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# MRX (Basic Variants)
## Technical Data

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| IT security | |
|---|---|
| Authentication | Pre-shared key, X.509 certificates, RADIUS, access rights (read, write, status) |
| Firewall / netfilter | IP filters (stateful firewall) also in VPN tunnel; packet filter: TCP, UDP, ICMP, ESP, AP, GRE; MAC filter; pre-defined firewall rules can be activated |
| Security | Booting signed firmware, HTTP/HTTPS attack prevention; response upon events: configuration change, link up/down, restart, login attempt, netfilter violation, password hashing |

| IoT and Cloud (icom Data Suite, license required) | |
|---|---|
| Function icom Data Suite | Machine connection and data processing; connection to cloud and SCADA Systems; arithmetic & logic functions; data logger; dashboard |
| Data acquisition | CODESYS, Modbus TCP/RTU, MQTT, Siemens S7, OPC UA Client, IEC 60870-5-101, digital input, analogue input (if present) |
| Data transmission | MQTT, OPC UA Server, IEC 60870-5-104, Modbus TCP/RTU, e-mail, SMS, SFTP, digital input, analogue input (if present) |
| IoT platforms | MQTT compatibility: Thingsboard, Cumulocity, AnyViz, Azure IoT Hub, Bosch IoT Suite, AWS IoT Core |

| Events & Actions | |
|---|---|
| Event & Action Handler | Notification, alarming, diagnosis, attack detection, fault handling, operation and commissioning logic |
| Events / alarms (selection) | Change: digital input, Ethernet port, WAN chain, profile status, supply input (with MRX/MRO), cellular field strength; timer expired, firewall violation, login attempt detection, pulse sequence on digital input, counter, netfilter rule |
| Event-triggered actions (selection) | Messages via e-mail, SMS (only cellular variant), SNMP traps, MCIP; switch profile, switch connection, change modem state, start timer, switch output or pulse sequence, activate firmware, reset, restart container |

| Programming environment/scripting | |
|---|---|
| Container environment | Installation of several application containers, container with own IP end point, assignment to IP networks - full firewall and routing transparency; access control, SDK available |
| Lua scripting | Lua interpreter for own scripts |

| Monitoring and Management | |
|---|---|
| Monitoring | SNMP traps and agent, configurable system logs, remote syslog, link up/down detection, netfilter violation |
| Certificate management | SCEP, CRL |
| icom Router Management | Supports central router management for FW updates, configuration management, connection monitoring, container updates, mass rollout, certificate management, available as public/private cloud (server) installation or onPremises |

| Administration | |
|---|---|
| Configuration | Web Interface HTTP(S) with session management, command line interface (CLI), Telnet, SSH, configuration profiles as ASCII and binary file, apple configuration profiles event-triggered, REST API |
| Diagnosis tools | Ping/icmp, tcpdump, traceroute, DNS lookup, AT commands, port mirroring |
| FW update | Incremental, failsafe, update server (HTTP, FTP, HTTPS, FTPS), icom Router Management (WebSocket) |
| System time | NTP client and server, buffered real time clock |
| Help | Web interface: inline help, online help; example profiles, plausibility check, Configuration Guides |

| Supply | | | |
|---|---|---|---|
| Voltage | 12 ... 24 V DC (± 20%), 2 supply connections with changeover detection | | |
| Terminals | 5-pin push-in terminal connectors (maintenance free), rigid/flexible conductors up to 2.5 mm² | | |
| Power consumption (basic variants without further MRcards) | MRX DSL: | typical approx. 6.5 W, max. 8.0 W | |
| | MRX LAN: | typical approx. 2.0 W, max. 3.5 W | (depending on data throughput amongst others) |
| | MRX LTE: | typical approx. 2.5 W, max. 8.0 W | |

# MRX (Basic Variants)

## Technical Data

| Ambient conditions | | |
|---|---|---|
| Dimensions | MRX3: | 88 x 81 x 117 mm    (WxDxH) |
| | MRX5: | 88 x 136 x 117 mm  (WxDxH) |
| weight | max. 280 g | |
| Mounting | DIN rail mounting | |
| Operating temperature | -30….+75°C [2]     MRX LAN,MRX LTE | |
| | -25….+60°C [3]     MRX DSL | |
| Humidity | 0...95% (non-condensing) | |
| IP rating | Housing: IP40 | |
| **Approvals & Standards** | | |
| Certifications | CE, MRX LAN additionally: FCC Part 15 Class B, IC | |
| EMC | Emission: EN 55032 Class B, EN 61000-6-2; Immunity: EN 55024 | |
| Safety | IEC/EN 60950, 62368 | |
| Environmental | Vibration/shock as per PLC standard EN 61131-2 and EN 60068-2-6, EN 60068-2-27; | |
| conditions | Temperature tests as per EN 60068-2-1, EN 60068-2-2, EN 60068-2-14, EN 60068-30 | |

\* 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.


[2] +70°C … +75 °C:  extended temperature range (refer to www.insys-icom.com/en-extended/)

[3] -25°C …. 0°C:     extended temperature range (refer to www.insys-icom.com/en-extended/)

   +55°C … +60°C:   without further MRcards PD or PL and extended temperature range (refer to www.insys-icom.com/en-extended/)

# MRcards

## Modular plug-in cards for MRX series routers

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## Individual functionality

Combine MRcards with different functions, exactly fitting for your application!

## Fail-safe internet connection

Combine any combination of DSL, mobile telephony and fiber optics and thus realize all necessary fallback options.

## All in one device

By bundling several functions, you save costs and space in the control cabinet. The administration of your systems also becomes more efficient, uniform and secure.

## Efficient upgrades

If changes are required, you can add desired MRcards directly in your application. You keep the MRX device with the known configuration. Even future technology upgrades remain efficient: e.g. a switch to 5G mobile radio.



### MRcard **PL**

- Cellular radio
- 2 digital inputs



### MRcard **PD**

- VDSL2
- ADSL/2/2+
- 2 digital inputs
- 2 variants (-A, -B)



### MRcard **ES**

- 4-port switch (10/100 MBit)



### MRcard **SI**

- RS232
- RS485
- 2 digital inputs
- 2 switch outputs



### MRcard **PLS**

- Cellular radio
- incl. US variant
- RS232
- 2 digital Inputs
- 1 digital output



### MRcard **IO**

- 3 analogue inputs
- 1 analogue output
- 4 digital inputs
- 4 digital outputs



### MRcard **Fiber**

- 2x Gigabit SFP
- 2 digital inputs

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# MRcards
## Technical Data

## MRcard PL (Cellular radio)

| Mobile communication | |
|---|---|
| Frequency bands | 4G/LTE*: 800, 900, 1.800, 2.100, 2.600 MHz (bands 1, 3, 7, 8, 20); LTE Cat.3 (DL: 100Mbps, UL: 50Mbps) |
| | 3G/UMTS/HSPA: 900, 1.800, 2.100 MHz (bands 1, 3, 8); UMTS, HSPA+ (DL Cat.24, UL Cat.6) |
| | 2G/GPRS/EDGE  900/1.800 MHz; GPRS/EDGE Class 12 |
| Antenna connection | 2x SMA female (2G/3G/4G: Main, 3G: Rx Diversity, LTE: MIMO) |
| SIM | Slot for 1 Mini-SIM card (2FF), locked |
| Indications (LEDs) | Power, WAN (Internet connection), Signal (cellular radio), Info (configurable) |
| **Inputs** | |
| Inputs | 2 digital inputs for configurable actions, 1x low-active, 1x high-active (as per EN 61131-2, Type 1) |
| **Supply / environmental conditions** | |
| Voltage | Supplied via MRX, 2 further supply connections optional (redundancy) 12 ... 24 V DC (± 20%) |
| Power consumption | Typical approx. 1.0 W, max. 5.0 W |
| Operating temperature | -30 ... +75 °C² |
| Weight | 80 g |
| Certifications | CE |

## MRcard PD (VDSL/ADSL)

| Wire-bound VDSL/ADSL communication | |
|---|---|
| DSL standards | MRcard PD-A (Annex A): |
| | - VDSL2 G.993.2 Profile 8a, 8b, 8c, 8d, 12a, 12b, 17a. 30a, VDSL2 Vectoring G.993.5 |
| | - ADSL/ADSL2/ADSL2+ G.992.1 Annex A, G.992.3. Annex A/L/M, G.992.5 Annex A und M, T1.413 |
| | MRcard PD-B (Annex B): |
| | - VDSL2 G.993.2 Profile 8a, 8b, B13 8d, 12a, 12b, 17a. 30a, VDSL2 Vectoring G.993.5 |
| | - ADSL/ADSL2/ADSL2+ G.992.1 Annex B, G.992.3. Annex B, G.992.5 Annex B und J |
| DSL connection | RJ45 socket |
| DSL Function | PPPoE, PPPoA |
| Indications (LEDs) | Power, WAN (Internet connection), Info (configurable), DSL |
| **Inputs** | |
| Inputs | 2 digital inputs for configurable actions, 1x low-active, 1x high-active (as per EN 61131-2, Type 1) |
| **Supply / environmental conditions** | |
| Voltage | Supplied via MRX, 2 further supply connections optional (redundancy) 12 ... 24 V DC (± 20%) |
| Power consumption | Approx. 5.0 W |
| Operating temperature | -25 ... +60 °C³ |
| Weight | 80 g |
| Certifications | CE |

## MRcard ES (Ethernet Switch)

| Ethernet switch | |
|---|---|
| Ports | 4 x 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 |
| **Supply / environmental conditions** | |
| Voltage | Supplied via MRX |

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# MRcards

## Technical Data

| | |
|---|---|
| Power consumption | Typical approx. 1.0 W, max. 1.5 W |
| Operating temperature | -30 ... +75 °C |
| Weight | 70 g |
| Certifications | CE, FCC Part 15 Class B, IC |

## MRcard SI (serial)

| Serial interface | |
|---|---|
| RS232 (Serial1) | 1 x RS232 / D-Sub-9 (m) |
| RS485 (Serial2) | Terminal connector (D+, D-, GND), termination and bias via DIP switch |
| Functions | Serial-Ethernet gateway (incoming and outgoing connections, Modbus TCP/RTU gateway, modem emulation, editable AT answer list, phone number conversion to IP addresses) |
| USB 2.0 | Prepared, USB 2.0 host, socket type A, output current max. 200 mA |
| **Inputs / Outputs** | |
| Digital inputs | 2 digital inputs, monitorable status, high active, as per EN 61131-2, type 1, push-in terminal connectors |
| Digital outputs | 2x via terminals, potential-free change-over relay, switchable via action |
| Indications (LEDs) | Condition of digital inputs and outputs |
| **Supply / environmental conditions** | |
| Voltage | Supplied via MRX |
| Power consumption | Typical approx. 1.0 W, max. 2.5 W |
| Operating temperature | -30 ... +75 °C |
| Terminals | Push-in terminal connectors (maintenance free), rigid/flexible conductors up to 2.5 mm2 Inputs/outputs: 2x 5-pin, RS485: 3-pin |
| Weight | 75 g |
| Certifications | CE, FCC Part 15 Class B, IC |

## MRcard PLS (Cellular radio / serial)

| Mobile communication | |
|---|---|
| Frequency bands | 4G/LTE*: 800, 900, 1.800, 2.100, 2.600 MHz (bands 1, 3, 7, 8, 20); LTE Cat. 3 (DL: max. 100 Mbps, UL: max. 50 Mbps) |
| (MRcard PLS) | 3G/UMTS/HSPA: 900, 1.800, 2.100 MHz (bands 1, 3, 8); UMTS, HSPA+ (DL Cat. 24, UL Cat.6) 2G/GPRS/EDGE: 900/1.800 MHz; GPRS/EDGE Class 12 |
| Frequency bands (MRcard PLS-US) | 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: Cat. 24, UL: Cat. 6) 2G/GPRS/EDGE: 850, 900, 1.800, 1.900 MHz; GPRS/EDGE Class 12 |
| Antenna connection | 2x SMA female (2G/3G/4G: Main, 3G: Rx Diversity, LTE: MIMO) |
| SIM | Slot for 1 Mini-SIM card (2FF), locked |
| Indications (LEDs) | Power, WAN (Internet connection), Signal (cellular radio), Info (configurable) |
| **Serial interface** | |
| RS232 | 1 x RS232 / D-Sub-9 (m) |
| Functions serial interfaces | Serial-Ethernet gateway (incoming and outgoing connections, Modbus TCP/RTU gateway, modem emulation, editable AT answer list, translation of phone numbers to IP addresses) |
| **Inputs / Outputs** | |
| Digital inputs | 2 digital inputs, 1x contact input (active), 1x voltage-sensitive (passive, as per EN 61131-2, Type 1) |
| Digital outputs | 1 open collector output |

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# MRcards

## Technical Data

| Supply / environmental conditions | |
|---|---|
| Voltage | Supplied via MRX, 2 further supply connections optional (redundancy) 12 … 24 V DC (± 20%) |
| Power consumption | Typ. 2,5 W, max. 5 W |
| Operating temperature | -30 … +75 °C² |
| Weight | 95 g |
| Certifications | CE (MRcard PLS), FCC part 15 class B, IC (MRcard PLS-US) |

## MRcard IO

| Inputs / Outputs | |
|---|---|
| Analogue inputs | 3x on push-in terminal (3-pin), measuring range individually selectable: voltage 0 … 10 V / current 0 / 4 … 20 mA, accuracy: ± 0.3 % to range value ± 100 ppm/K, galvanic isolation, also between the inputs |
| Analogue outputs | 1x o push-in terminal (2-pin), mode selectable: voltage 0 … 10 V / current 0 / 4 … 20 mA, accuracy: ± 0.3% to range ±100 ppm/K, resolution 12 bits |
| Digital inputs | 4x on push-in terminal (5-pin), can be switched together: contact input (active) or voltage-sensitive (passive, level as per EN 61131, Type 1), galvanic isolation |
| Digital outputs | 4x on push-in terminal (5-pin), relay normally open, load capacity max.3 A per output, altogether max.5 A |
| Indications (LEDs) | 4x LEDs change of digital inputs, states of analogue inputs, change of digital outputs |
| **Supply / environmental conditions** | |
| Voltage | Supplied via MRX |
| Power consumption | Typ./max. 1,5 W |
| Operating temperature | -30 … +70 °C |
| Weight | 95 g |
| Certifications | CE, FCC part 15 class B, IC |

## MRcard Fiber

| SFP ports | |
|---|---|
| SFP-Ports | 2x SFP cages for SFP transceiver modules as per SFP-MSA, 1000BASE-X, 100BASE-X |
| Indications (LEDs) | Power, WAN (internet connection), SFP1, SFP2 (SFP status and activity) |
| **Inputs** | |
| Inputs | 2 digital inputs for configurable actions, 1x low-active, 1x high-active (as per EN 61131-2, Type 1) |
| **Supply / environmental conditions** | |
| Voltage | Supplied via MRX, 2 further supply connections optional (redundancy) 12 … 24 V DC (± 20%) |
| Power consumption | Typ./max. 4W (thereof 3 W MRcard Fiber + approx. 0.5W for each SFP module) |
| Operating temperature | -30 … +65 °C; in combination with MRX DSL or MRcard PD: -30 … +55 °C |
| Weight | 85 g |
| Certifications | CE, FCC part 15 class B, IC |

\*  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.


²  +70°C … +75 °C:  extended temperature range (refer to www.insys-icom.com/en-extended/)

³  -25°C …. 0°C:      extended temperature range (refer to www.insys-icom.com/en-extended/)

   +55°C … +60°C:    without further MRcards PD or PL and extended temperature range (refer to www.insys-icom.com/en-extended/)

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# MRX | MRcards
## Order Numbers and Accessories

### Available MRX Variants

| Product description | Features | Art. nr. |
| --- | --- | --- |
| MRX3 LAN | Modular LAN-to-LAN router, 5 Ethernet ports, 2 inputs, 1 free MRcard slot | 10016582 |
| MRX5 LAN | Modular LAN-to-LAN router, 5 Ethernet ports, 2 inputs, 3 free MRcard slots | 10017036 |
| MRX3 LTE | Modular 4G mobile router, Cellular radio (LTE/HSPA/UMTS/EDGE/GPRS), 5 Ethernet ports, 2 inputs, 1 free MRcard slot | 10016583 |
| MRX5 LTE | Modular 4G mobile router, Cellular radio (LTE/HSPA/UMTS/EDGE/GPRS), 5 Ethernet ports, 2 inputs, 3 free MRcard slots | 10017037 |
| MRX3 DSL-A | Modular VDSL/ADSL router, VDSL2, ADSL/2/2+, Annex A, 2 inputs, 5 Ethernet ports, 1 free MRcard slot | 10019436 |
| MRX3 DSL-B | Modular VDSL/ADSL router, VDSL2, ADSL/2/2+, Annex J/B, 2 inputs, 5 Ethernet ports, 1 free MRcard slot | 10019437 |
| MRX5 DSL-A | Modular VDSL/ADSL router, VDSL2, ADSL/2/2+, Annex A, 2 inputs, 5 Ethernet ports, 3 free MRcard slots | 10019786 |
| MRX5 DSL-B | Modular VDSL/ADSL router, VDSL2, ADSL/2/2+, Annex J/B, 2 inputs, 5 Ethernet ports, 3 free MRcard slots | 10019787 |

### Available cards

| Product description | Features | Art. nr. |
| --- | --- | --- |
| MRcard PL | Cellular radio (LTE/HSPA/UMTS/EDGE/GRPS), 2 digital inputs | 10017035 |
| MRcard ES | 4-port switch (10/100 Mbit) | 10016584 |
| MRcard PD-A | VDSL2, ADSL/2/2+, Annex A, 2 digital inputs | 10019434 |
| MRcard PD-B | VDSL2, ADSL/2/2+,Annex J/B, 2 digital inputs | 10019435 |
| MRcard SI | RS232, RS485, USB 2.0, 2 digital inputs, 2 switch outputs | 10016585 |
| MRcard PLS | Cellular radio (LTE/HSPA/UMTS/EDGE/GPRS), RS232, 2 digital inputs, 1 digital output | 10022163 |
| MRcard PLS-US | Cellular radio (LTE/HSPA/UMTS/EDGE/GPRS, US-frequencies, RS232, 2 digital inputs, 1 digital output | 10022164 |
| MRcard IO | 3 analog inputs, 1 analog outputs, 4 digital inputs, 4 digital outputs (relay) | 10022272 |
| MRcard Fiber-Prototyp | 2 SFP-Ports | 10022271 |
| MRcard WLAN-Prototyp | WLAN Access Point oder Station (Client), 2,4GHz und 5GHz | 10022273 |

# MRX | MRcards

## Order Numbers and Accessories

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## Suitable accessories

| Product description | Description | Art.-nr |
|---|---|---|
| Magnetic Antenna LTE/UMTS/GSM SMA | Magnet mounting, height 72 mm, 3 m cable, SMA (m), IP rating IP65 | 10019504 |
| Outdoor Wall Antenna LTE/UMTS/GSM | Wall mounting incl. bracket, height 220 mm, 5 m cable, SMA (m), IP rating IP65 | 10020596 |
| Allround Antenna 5G/LTE/UMTS/GSM SMA | Screw or wall mounting, incl. steel angle, height 82 mm, 5 m cable, SMA (m), protection class IP66 | 10022961 |
| Roof mount antenna LTE/UMTS/GSM MIMO SMA | Height 1,5 cm, screw mounting, 3 m cable, SMA (m), IP rating IP67 | 10022309 |
| Magnetic Antenna MIMO 5G/4G/3G/2G SMA | Dual antenna MIMO, magnetic mounting, height 61 mm, width 150 mm, 2x 5 m cable, SMA (m), protection class IP65 | 10022963 |
| Outdoor Panel Antenna MIMO 5G/4G/3G/2G SMA | Dual antenna MIMO, wall- / pole- / desk mounting, heigt/width 155 mm, 2x 5 m cable, SMA (m), protection class IP65 | 10022962 |
| Panel Antenna 4G/3G/2G MIMO SMA | Dual antenna MIMO, Montage mit Saugnäpfen, height 84 mm, width 184 mm, 2x 2 m cable, SMA (m), protection class IP67 | 10020565 |
| 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 |
| Magnetic Antenna WLAN 2,4 GHz rev.SMA | Magnet mounting, height 72 mm, 1.5m cable rev.SMA(m), protection class IP67 | 10019797 |
| Outdoor Wall Antenna WLAN (Wi-Fi) 2.4 GHz rev.SMA | Wall mounting, incl. bracket, height 270 mm, 2.5 m cable rev.SMA (m), protection class IP65 | 10022599 |
| Antenna with hinge Wi-Fi 2.4 GHz rev. SMA | Mointing directly on device socket, length 137 mm, variable angle 0-90° | 10000661 |
| Power supply 24V 15W | Power supply unit for DIN rail, wide-range input voltage ACDC protection against short circuit / overload / over voltage | 10022848 |
| Wall power supply 24V 25W international | Power supply AC/DC with mains plug, suitable for desktop use, wide input, voltage range, protection against short circuit/overload/over voltage | 10022849 |
| icom Connectivity Suite - VPN | Supports VPN service for remote maintenance, remote access and M2M communication www.insys-icom.com/en-VPN/ | various |
| icom Connectivity Suite - M2M SIM | Industrial SIM cards, multi-roaming, pooling, management portal www.insys-icom.com/en-SIM/ | various |
| icom Router Management | Supports central router management for FW updates, configuration management, connection monitoring, container updates, mass rollout, certificate management; available as public/private cloud (server) installation or onPremises www.insys-icom.com/en-iRM/ | various |

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