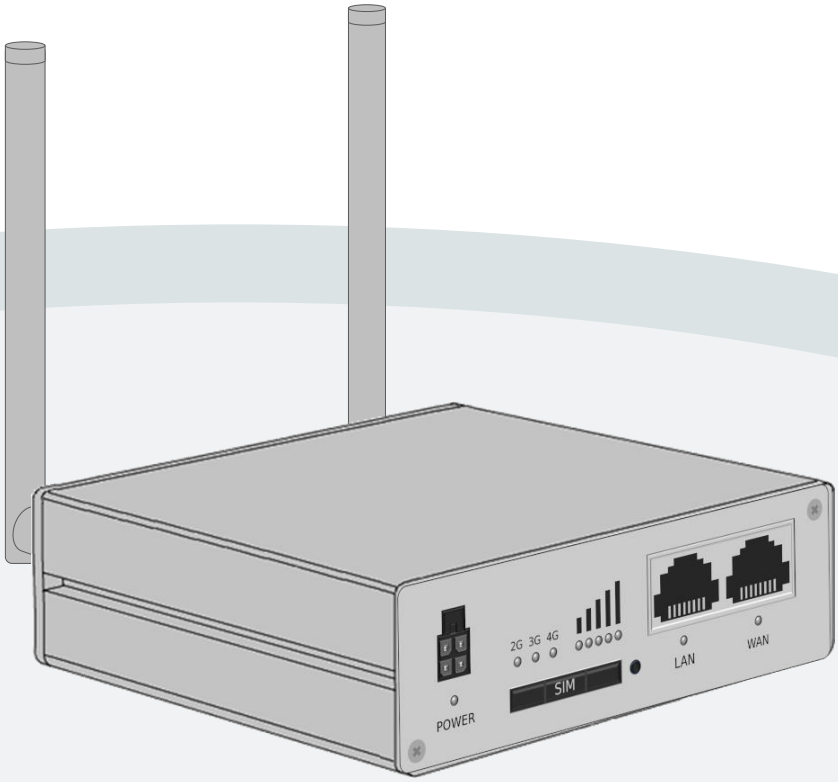
Quick Guide



MX560 Anleitungen

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MX560 Manuals

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mdex Router

MX560

Release: May 06, 2021 (v.1.0)

This Quick Guide describes the connections, specifications and quick commissioning of the router.

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MX560 Anleitungen

Die MX560 Einrichtungsanleitung sowie weitere Anleitungen des MX560 Routers stehen als PDF-Datei unter nachfolgendem Link oder QR-Code zum Download bereit:

www.mdex.de/MX560-Anleitungen

MX560 Manuals

The English MX560 Setup Guide and other available MX560 manuals can be downloaded as PDF file from the following link or QR code:

www.mdex.de/MX560-Manuals

All functions and settings described are only available if the software valid at the time of creation of this document is used.
All data without any guarantee.
The information and data contained in this document are subject to change without notice.

1 Specifications & Interfaces

1.1 Technical specifications

Hardware:

Dimensions (L x W x H):	74 mm x 84 mm x 25 mm (without DIN rail bracket)
Weight:	approx. 160g (without DIN rail bracket)
CPU / RAM:	400 MHz MIPS CPU, 64 MB RAM
Input voltage:	9 - 30 VDC, max. 5W
2-port switch (configurable):	WAN/LAN: 10/100 Mbit/s BASE-T, Auto MDI/MDIX

Environmental conditions:

Temperature range (operation):	-40° to +70° C
Humidity (operation):	10% to 90%, non-condensing
Temperature range (storage):	-40° to +80° C
Humidity (storage):	5% to 95%, non-condensing

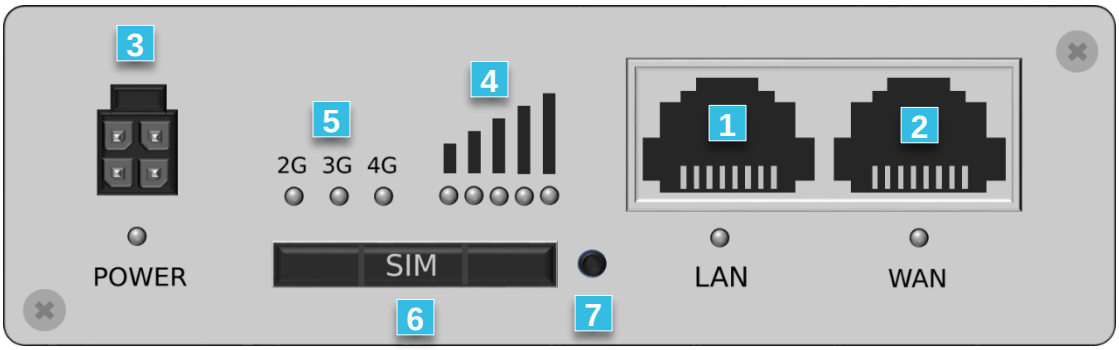
Mobile radio & WIFI:

4G LTE:	max. 150 Mbit/s Download / 50 Mbit/s Upload
3G HSPA+:	max. 42.2 Mbit/s Download / 5.76 Mbit/s Upload
3G HSPA:	max. 14.4 Mbit/s Download / 5.76 Mbit/s Upload
3G UMTS:	max. 384 kbit/s Download / 384 kbit/s Upload
2G GPRS/EDGE:	max. 236.8 kbit/s Download / 236.8 kbit/s Upload
WIFI:	IEEE 802.11 b/g/n (2.4 GHz), WEP/WPA/WPA2 encryption, 1T1R (150 Mbps max.)

1.2 Connectors and Interfaces

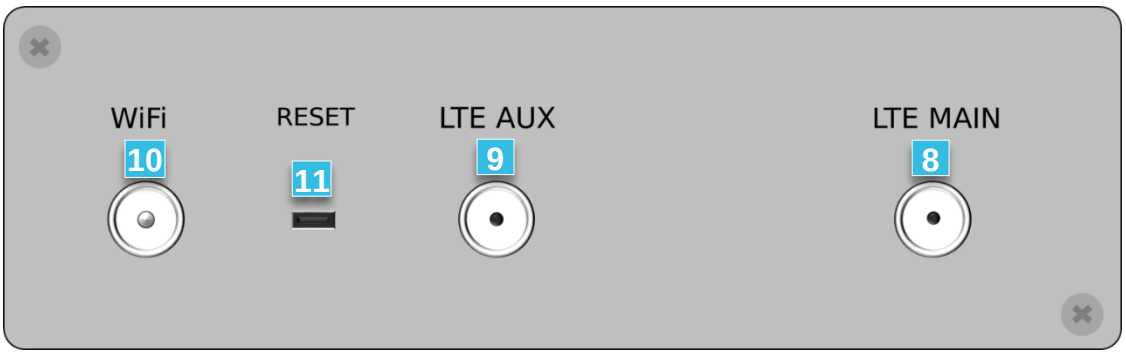
⚠ **<u>No</u> PoE** (Power over Ethernet) powered network cable may be connected to the LAN/WAN sockets! The PoE voltage would destroy the MX560!

Front panel



1	LAN Ethernet socket with status LED for connection of a PC or terminal device.
2	WAN Ethernet socket with status LED for special functions to connect the MX560 to external networks or routers. This port can be optionally reconfigured as LAN.
3	Connection for power supply (9-30V DC, 5W) with Power LED.
4	Display the current signal strength oft he mobile connection.
5	Display of the current mobile network (2G, 3G, 4G).
6	SIM holder for SIM cards with form factor 2FF (25 mm × 15 mm).
7	Button to pull out the SIM holder (with the SIM slot needle).

Back panel



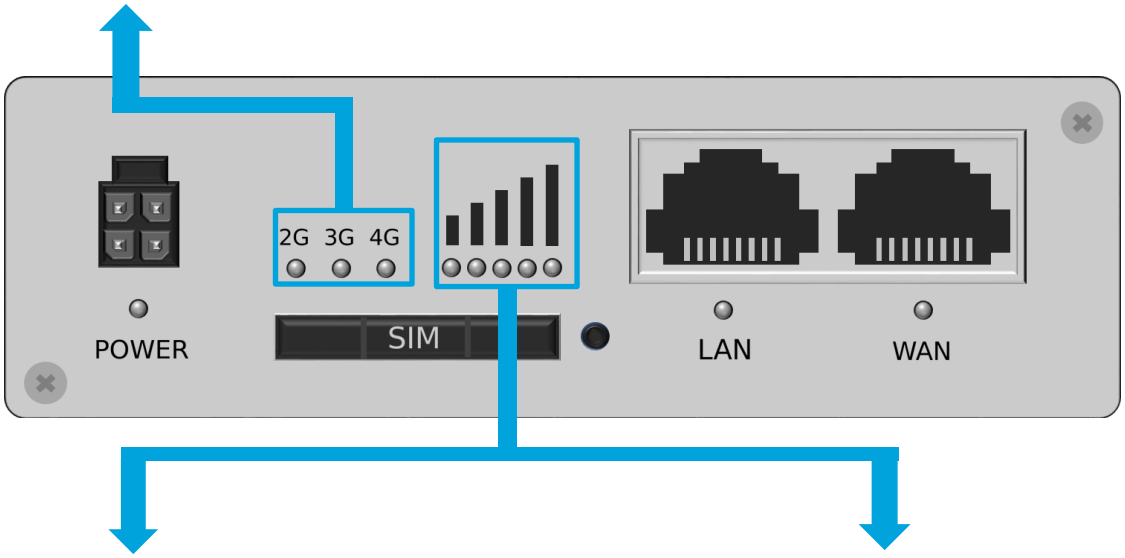
8	SMA connector for main LTE antenna or outdoor antenna (MAIN).
9	SMA connector for additional LTE antenna (AUX) to increase LTE download rate.
10	RP-SMA connector for connecting a WiFi antenna.
11	RESET button for restart and reset to factory default.

1.3 Connection status and signal strength

The mobile connection status and the available signal strength can be read at different locations.

The current mobile signal strength and the used mobile network (2G, 3G, 4G) are displayed on the front of the router.

2G | **3G** | **4G**	Current mobile network (**2G**: GPRS/EDGE | **3G**: UMTS/HSPA | **4G**: LTE). The respective LED flashes when the mobile connection is establishing and lights up permanently as soon as the mobile connection has been established successfully.



LEDs	mobile signal strength
No LED	-111 dBm (no mobile reception)
1 LED	-100 dBm to -97 dmB (very weak signal strength)
2 LEDs	-96 dBm to -82 dBm (weak signal strength)

LEDs	mobile signal strength
3 LEDs	-81 dBm to -67 dBm (acceptable signal strength)
4 LEDs	-66 dBm to -52 dBm (good signal strength)
5 LEDs	-51 dBm (or better) (optimal signal strength)

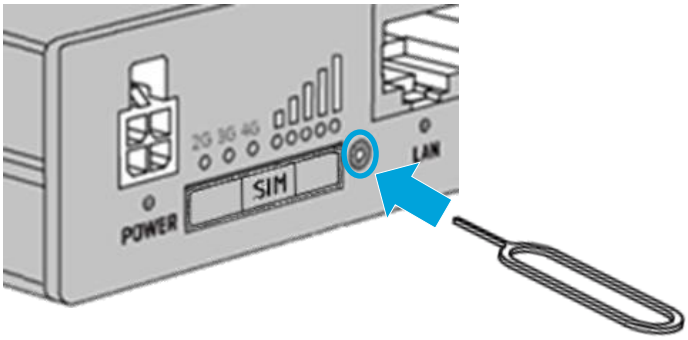
Please note that the mobile reception power is also relevant for good data transmission. More details can be found in the **MX560 Setup Guide** → chapter 4.3.2 “Mobile WAN (WebUI)”.

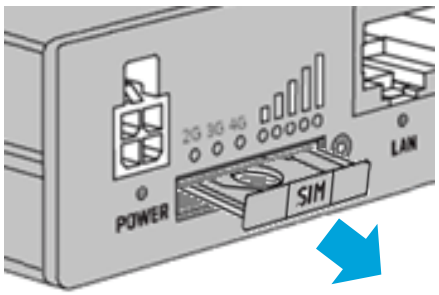
2 Installation

2.1 Insert SIM card

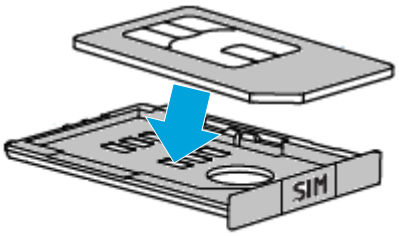
To insert a SIM card into the router, follow the steps below.

1. Press the button on the right side of the SIM slot with the SIM slot needle (or another pointed object) and pull out the SIM holder.



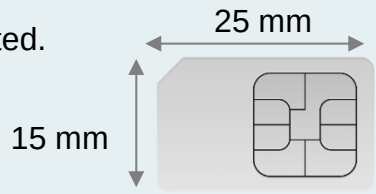


2. Insert the SIM card as marked in the SIM holder.



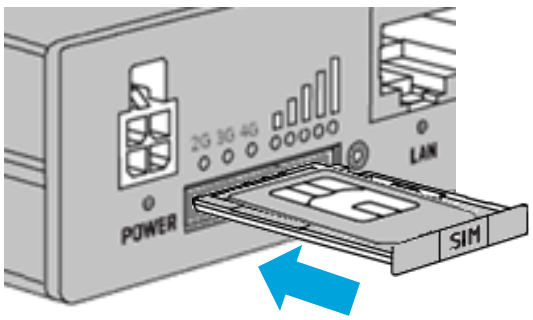
SIM cards with the Shape size 2FF supported.

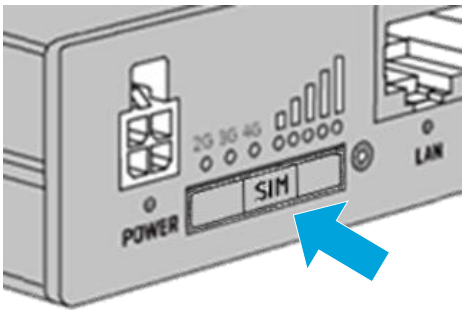
Length: 25 mm
width: 15 mm
thickness: 0,76 mm



A commercially available SIM adapter is required for the use of a Nano/Micro SIM card.

3. Push the SIM holder back into the router and press it firmly.

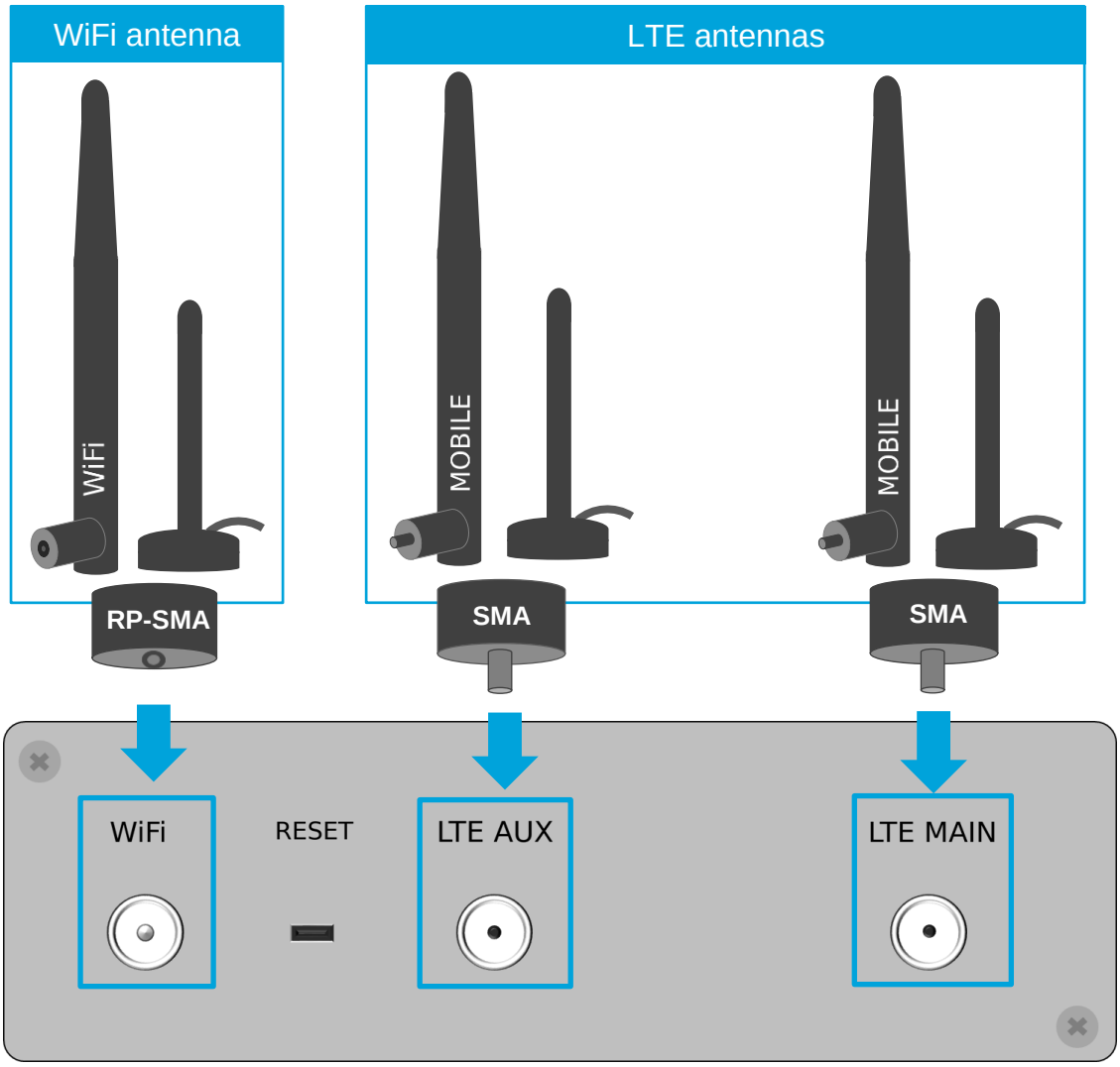




The mobile settings for the installed SIM card must be adjusted at “**Network → Mobile**”. More details can be found in the **MX560 Setup Guide** → chapter 3.5 “Mobile Settings”.

2.2 Connecting antennas

To operate the router, the appropriate antennas must be connected.
Please note that the scope of delivery does not include any antennas.



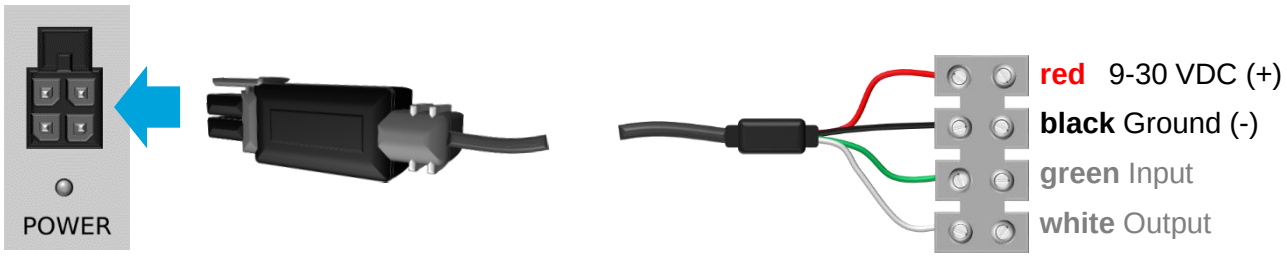
LTE (MOBILE)	To use the MX560 as LTE router, compatible LTE antennas with SMA connectors must be connected. To establish a mobile connection, primarily an LTE antenna must be connected to the right socket **LTE MAIN**. If a second LTE antenna is connected to the left **LTE AUX** socket, the LTE download rate can be increased.
WiFi	Only when using the WIFI access point of MX560, a WiFi antenna with RP-SMA plug must be connected to the **WiFi** socket.

Antennas with magnetic base have the best possible reception strength when mounted on a metal surface.

Optional available **outdoor antennas** can also be used to further improve mobile reception. The outdoor antenna must be connected to the right socket **LTE MAIN**.

2.3 Powering of router

The maximum power consumption of the MX560 is 5 watts.
The MX560 is powered with 9-30 VDC either with the optional power supply unit or with a separate power supply (e.g. a DIN rail power supply unit) by using the enclosed power cable.

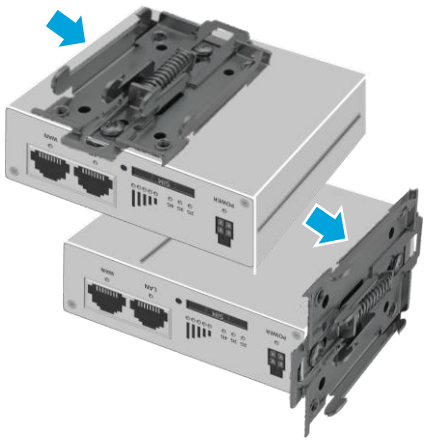


The 9-30 VDC power source must be connected to the red wire (+) and black wire (-).
(The green wire (input) and the white wire (output) are not required to power the MX560.)

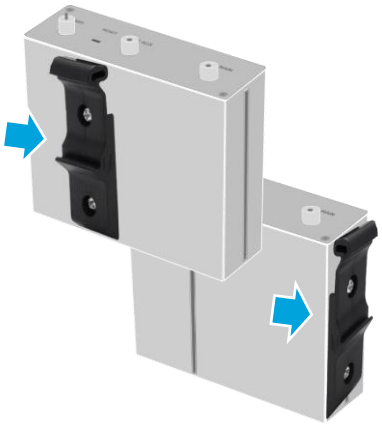
2.4 Wall and DIN rail mounting (optional)

The MX560 can be mounted on a DIN rail or on a wall. The brackets are fastened with the enclosed screws either in the groove on the left side, right side or bottom of the router.
Please note that the scope of delivery does not include any wall brackets or DIN rail brackets.

DIN rail bracket 'Standard'



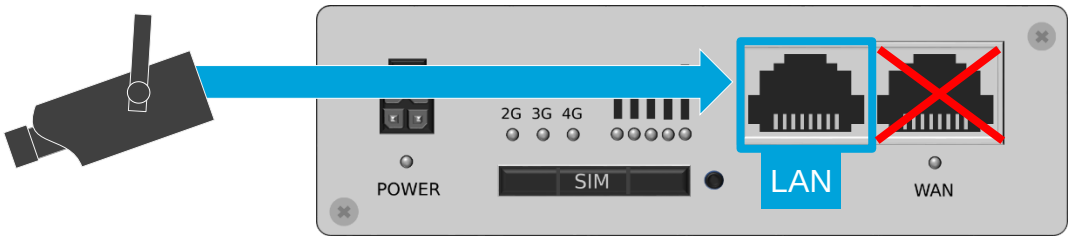
DIN rail bracket ‚Compact'



Wall bracket

2.5 Connection of terminal device

Connect the terminal device with a network cable to the **LAN** socket.
(The WAN socket is not intended for connecting terminal devices in the default setting!)



⚠ **No PoE** (Power over Ethernet) powered network cable may be connected to the LAN/WAN sockets of the MX560! The PoE voltage would destroy the MX560!

3 Important Information

Safety information

This chapter describes the safety instructions to be observed. These apply in the Federal Republic of Germany. When used in other countries, the relevant national regulations must be observed.

Disturbances of other devices

Using the router may cause interference with other equipment. The use of the router should be avoided in the following areas:

- Where there is a risk of disrupting the function of other electronic devices, such as in hospitals, airports, airplanes, etc.
- Where there is a risk of explosion, such as Gas stations, oil refineries, etc.

It is your responsibility to comply with all applicable legal and environmental regulations. Do not disassemble the router. Any indication of tampering will void the warranty. Follow the instructions for correct wiring of the router. All devices should be connected to a stable power supply. The wiring should comply with safety and fire protection requirements.

Use and operation

Always handle the router with care. Avoid direct contact with terminals and pins, as electrostatic discharges can damage the router.
The system integrator is responsible for the functioning of the product; therefore, please pay attention to the external components of the router and any installation problems, as there is a risk of interfering with external devices or system security.

- Do not open or disassemble the router while it is in operation.
- Do not drop the router and prevent shocks to prevent damage to the internal electronics. The router must not be installed in areas where it is exposed to strong shocks and vibrations.
- Do not use any hard chemicals, solvents or cleaning agents to clean the router.
- Do not expose the router to liquids (rain, drinks, etc.). The router is not waterproof.
- Ensure that the router is operated under the specified temperature and humidity conditions.
- The router may not be used on offshore platforms or in water, air or rail vehicles. When used in motor vehicles, the router must be securely stored, easily accessible and removable without tools.
- Persons must maintain a minimum distance of 20 cm to the antennas of the router during operation.
- Do not install or operate the router in dusty, dirty places. Connectors, plugs and other mechanical parts may be damaged.
- Do not install the router in the area of electrical interference fields, such as those generated by fluorescent lamps, machines and televisions. Such sources of interference can affect the operation of the router.
- The router's power cord also serves as the main disconnect device.
- When using the AC adapter, the power outlet must be in the immediate vicinity of the router for safety and should be easily accessible during operation.
- In case of smoke, unusual odor or noticeable noise, unplug the power cord from the wall outlet.

- Do not touch the router or AC adapter with wet hands. Failure to do so may result in interference, short circuits, or electric shock.
- **The router includes detachable small parts that can pose a suffocation hazard. Keep the router and its accessories away from children!**
- No PoE (Power over Ethernet) powered network cable may be connected to the LAN/WAN sockets! The PoE voltage would destroy the MX560!

Operating conditions (environment)

Operation of the router is permitted in the following areas:

- Temperature range router: -40° to +70° Celsius
- Temperature range plug-in power supply: 0° to +40° Celsius
- The humidity should be in the range of 10% to 90% (non-condensing).
  Only use the devices in dry environments.

Attention: Operation outside the permissible range can considerably shorten the service life of the router.

Declaration of Conformity

The mdex MX560 router complies with the basic requirements of Directive 2014/53 / EU. The complete EU Declaration of Conformity can be downloaded from **wiki.mdex.de/Support/DoC**.

Frequency bands and max. transmission powers

LTE-FDD:	B1/B3/B7/B8/B20/B28A, 23 dBm
UMTS:	900/2100 MHz, 24 dBm
GSM:	900/1800 MHz, 33/30 dBm
WIFI:	2400 MHz to 2483.5 MHz, 20 dBm

Export notes

This product is subject to European/German and/or US export regulations. Any export or re-export subject to authorisation therefore requires the approval of the competent authorities. According to current regulations, the following export classifications must be observed for this product: ECCN/AL: 5A002.a.1 and 5A991.c.10. The current version of the export list can be found on the website of the Federal Office of Economics and Export Control (BAFA).

Note: *The above export list item has been compiled for information purposes to the best of our knowledge and belief and should be used to classify the export together with the export provisions. Exporters are responsible for compliance with all trade regulations, including export regulations, and rely on this information at their own responsibility and risk.*

Customer Service

If the information in these safety instructions is insufficient or the router does not work properly, please contact the mdex Customer Service:

Address: Wireless Logic mdex GmbH, Bäckerbarg 6, 22889 Tangstedt, Germany
Internet: www.mdex.de
E-mail: support@mdex.de
Phone: +49 (0)4109-555 444

Disposal

The router and all electronic parts included in the scope of delivery must not be disposed of as household waste. You can recognize this by the marking with the symbol of the crossed-out dustbin. At the end of its service life, please dispose of the router and the electronic parts supplied with it for reuse or recycling in accordance with the disposal regulations in force at the place of installation at that time. By doing so, you will avoid harmful effects on the environment and human health. You can also return the router and the electronic parts included in the scope of delivery to mdex at your own expense for proper disposal:
Wireless Logic mdex GmbH, Bäckerbarg 6, 22889 Tangstedt, Germany

Open-Source license notes

The MX router product series also includes so-called open source software, which has been produced by third parties and published for free use by everyone. The open source software is subject to special open source software licenses and the copyright of third parties. The Customer's rights to use the Open Source Software shall be governed in detail by the relevant Open Source Software licenses.

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The open source software can be found by downloading the software in the Zip archive and purchasing the product on the supplied data carrier (USB stick or CD/DVD). In the directory "Licenses" the above mentioned licenses are directly available for you. In the "Source code" directory you will find the corresponding source codes for the open source software, with the applicable licenses for the various software parts.

You may edit software components for your own use and reengineer them to correct errors in such edits, provided that such software components are linked to program libraries under the LGPL. However, it is not permitted to pass on the information obtained during reengineering and the processed software.

If the software is subject to the GPL, LGPL or the Clarified Artistic License or if the license terms otherwise stipulate that the source code must be made available, we will send this at any time on request and make a binding offer in this respect. If the sending on a data carrier should be demanded, the transmission takes place against payment of a cost lump sum in the amount of EUR 10.00. If our costs for the production and the dispatch of the data carrier should be lower, we charge only this lower amount.

Our offer to ship the source code upon request is valid for a period of three years after we distribute the product or at least as long as we provide support and spare parts for the product. Inquiries should be sent to the following address (if possible, stating the serial number of the product purchased):

Wireless Logic mdex GmbH
Bäckerbarg 6
22889 Tangstedt, Germany

Fax: +49 4109 555 55
E-mail: opensource-support@mdex.de