Application

The 500MDD01 is a GSM/GPRS/Edge modem (2.75G) that provides wireless TCP/IP communication via serial interface with point-to-point protocol (PPP). The modem is a standalone module for DIN rail mounting usable with RTU500 series CMU modules.

Characteristics

The essential hardware part of the board 500MDD01 is an integrated Quad-Band GSM/GPRS/Edge modem which provides a radio interface. For communication via GPRS/Edge modem 500MDD01 additional equipment and information from a telecommunication provider is necessary:

- a pluggable mini SIM-Card according to ISO/IEC7810 (ID-000 format)
- mobile phone contract for data communication
- Access Point Name (APN)
- Username and password (if required)

At the housing an antenna or antenna cable can be connected via connector RF.

The serial communication interface is designed for RS232C standard with PPP communication.
Figure 2: Overview GPRS communication

**ADVICE**

Due to different handling of the connection startup with different GPRS providers we recommend a test installation before a rollout of modem devices.
Technical data

In addition to the RTU500 series general technical data, the following applies:

### GSM/GPRS/Edge modem

**Frequency:**
- GSM 850 MHz max. 2 Watt transmitting power
- E-GSM 900 MHz max. 2 Watt transmitting power
- DCS 1800 MHz max. 1 Watt transmitting power
- PCS 1900 MHz max. 1 Watt transmitting power

**GPRS Class:** 10

**SIM card:** ID-000 format

**Interfaces:** 50 Ω SMA-RF connector (female)

### Serial interface COM

**Connector:** RJ45

**Type:** RS232C

**Bit rate:** 115 200 bit/s

**Signal lines:**
- GND E2/102
- TxD D1/103
- RxD D2/104
- RTS S2/105
- CTS M2/106
- DTR S1.2/108
- DCD M5/109

**Cable type to CMU:** 1 to 1 patch cable (RJ45)

**Interface protocol:**
- AT-commands
- PPP according to RFC 1661 (IETF STD51)

### Supply voltage input 24 V DC (Ue)

**Input voltage range:** 24 V DC (+/- 20%)

**Current consumption:** 200 mA

### Current consumption for power supplied via WRB bus

<table>
<thead>
<tr>
<th>Voltage (V)</th>
<th>Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>--</td>
</tr>
<tr>
<td>15</td>
<td>--</td>
</tr>
<tr>
<td>18</td>
<td>--</td>
</tr>
<tr>
<td>24</td>
<td>--</td>
</tr>
</tbody>
</table>

### Signaling by LEDs

- **PWR (green):** Supply voltage available
- **L (green):** Link status ON; registered by the network

### Mechanical layout

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>35 mm x 98 mm x 117 mm (Width x Height x Depth)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing type</td>
<td>Plastic housing (V-0), IP20, RAL 7035 light gray</td>
</tr>
<tr>
<td>Mounting</td>
<td>DIN rail mounting EN 50022 TS35: 35 mm x 15 mm or 35 mm x 7.5 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>0.13 kg</td>
</tr>
</tbody>
</table>

### Connector types

**Power supply (X4):** 3 pole pluggable screw terminals, grid 5.08 mm

**Serial interface COM (X5):** RJ45 jack, 8 pole

**Antenna interface (X2):** SMA-RF connector (female)

**SIM-Card:** Housing with push-pull

### Immunity test

- **Electrostatic discharge (IEC 61000-4-2):** 8 kV air / 6 kV contact (level 3) Performance criteria A
- **Radiated Radio-Frequency Electromagnetic Field (IEC 61000-4-3):** 10 V/m (level 3) Performance criteria A
- **Electrical Fast Transient / Burst (IEC 61000-4-4):** 4 kV (level X) Performance criteria A
- **Surge (IEC 61000-4-5):** 2 kV (level 3) Performance criteria A
- **Conducted Disturbances, induced by Radio-Frequency Fields (IEC 61000-4-6):** 10 V (level 3) Performance criteria A
- **Damped oscillatory wave (IEC 61000-4-18):** 2.5 / 1 kV (level 3) Performance criteria A

### Environmental conditions

- **Nominal operating temperature range:**
  - Start up: -25 °C...70 °C
  - Max. operating temperature, max. 96h: -40 °C +85 °C
- **Relative humidity:**
  - EN 60068-2-1, -2-2, -2-14
  - 5...95 % (non condensing)

### Antenna data 560ANA01

- **Type:** Bar antenna
- **Gain:** 2.2 dBi
- **Size:** 54mm x 6.7mm x 9.65mm
- **Connector:** SMA male
Antenna data 560ANA02

<table>
<thead>
<tr>
<th>Type:</th>
<th>Antenna for wall mounting, incl. cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gain:</td>
<td>2.2 dBi</td>
</tr>
<tr>
<td>Size:</td>
<td>370mm x 155mm x 96mm x 16mm (H x L x W x Ø)</td>
</tr>
<tr>
<td>Protection class:</td>
<td>IP66</td>
</tr>
<tr>
<td>Weight:</td>
<td>0.42 kg</td>
</tr>
<tr>
<td>Cable type:</td>
<td>RG58 coaxial cable</td>
</tr>
<tr>
<td>Cable Length:</td>
<td>5 m</td>
</tr>
</tbody>
</table>

Ordering information

| 500MDD01 R0001                  | 1KGT034200R0001                         |

Accessories ordering information

560ANA01 Bar antenna

| 560ANA01 R0001                  | 1KGT023600R0001                         |
| 10 pcs per package              |                                        |

Accessories ordering information

560ANA02 Wall-mount antenna

| 560ANA02 R0005                  | 1KGT023700R0005                         |
| with 5 m coaxial cable          |                                        |

Accessories ordering information

500CAB02 Antenna cable RG58

| 500CAB02 R0015                  | 1KGT033800R0015                         |
| 15 m coaxial cable              |                                        |
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