Cellular modem 500MDD03
EDS500 series

- GSM/ GPRS/ EDGE/ UMTS/ HSDPA/ HSPA+
- Ethernet communication via serial interface with point-to-point protocol (PPP)
- Optional control via AT commands (Hayes 3GPP TS 27.007 and 27.005) and sending SMS via AT commands
- Plastic housing for DIN rail and wall mounting
- Robust industrial design (-40 to +85 °C extended operating temperature)
- Power supply input: 6... 36 V DC

Application
The ABB industrial cellular modem 500MDD03 is a compact design cellular modem based on GSM/ GPRS/ EDGE/ UMTS/ HSDPA/ HSUPA/ HSPA+ networks. It offers 2G/ 3G/ 3.5G connectivity for machine to machine (M2M) applications, providing users with reliable data transmission. It provides wireless TCP/IP communication via serial interface with the point-to-point protocol (PPP). The modem is a standalone module for DIN rail or wall mounting and usable with RTU500 series CMU modules.

Characteristics
The device 500MDD03 is a cellular modem which provides a radio interface. For communication additional equipment and information from a telecommunication provider is necessary:
- a pluggable mini SIM-Card according to ISO/IEC 7810 ID-000, form factor 2FF
- mobile phone contract for data communication
- Access Point Name (APN)
- Username and password (if required)

An antenna or an antenna cable can be connected via SMA connector (female).

The serial communication interface is designed for RS-232C standard with PPP communication.

Figure 1: Block diagram 500MDD03
Due to different handling of the connection startup with different telecommunication providers we recommend a test installation before a rollout of modem devices.
### Technical data

#### Modem data

**Frequency bands 2G**
- GSM 850 MHz
- E-GSM 900 MHz
- DCS 1800 MHz
- PCS 1900 MHz

**Frequency bands 3G**
- B1, 2, 5, 8, 19

**Network standards**
- GSM/ GPRS/ EDGE/ UMTS/ HSPDA/ HSUPA/
- HSPA+

**SIM card**
- Mini-SIM: ISO/IEC 7810 ID-000, form factor 2FF

**Antenna interfaces**
- 50 Ω SMA-RF connector (female)

#### Download/ upload rates

- **GSM**
  - max. 9.6/2.7 Kbps (DL/UL)
- **GPRS**
  - max. 86 Kbps (DL=UL)
- **EDGE**
  - max. 236.8 Kbps (DL=UL)
- **UMTS**
  - max. 384/128 Kbps (DL/UL)
- **HSDPA**
  - max. 14.4 Mbps/384 Kbps (DL/UL)
- **HSUPA**
  - max. 14.4/5.7 Mbps (DL/UL)
- **HSPA+**
  - max. 42/22 Mbps (DL/UL)

#### Serial interface

- **Connector**
  - DB9 female
- **Type**
  - RS-232C
- **Bit rate**
  - 1200 to 115200 bps
- **Signal lines**
  - RxD, TxD, RTS, CTS, GND
- **Interface protocol**
  - AT-commands (Hayes 3GPP 27.007 and 27.005)
  - PPP according to RFC 1661 (IETF STD51)

#### Power supply input

- **Operating voltage**
  - 6 - 36 VDC
- **Power consumption**
  - idle: 50 - 60 mA @ 12 V
  - data link: 100 - 200 mA (peak) @ 12 V
- **Plug type**
  - 2 pin 3.5 mm, female socket

#### Signaling by LEDs

- **POWER (green)**
  - Supply voltage available
- **STATUS (green)**
  - Link status ON: registered by the network

### Mechanical layout

**Enclosure protection**
- IP30

**Mounting**
- DIN rail mounting (EN 50022 TS35: 35 mm x 15 mm or 35 mm x 7.5 mm)

**Wall mounting**

**Weight**
- 90 g

### Immunity test

- **Electrostatic discharge**
  - IEC 61000-4-2
  - 8 kV air (level 3) / 4 kV contact (level 2)

- **Radiated Radio-Frequency Electromagnetic Field**
  - IEC 61000-4-3
  - 3 V/m (level 2)

### Environmental conditions

- **Nominal operating temperature range**
  - EN 60068-2-1, EN 60068-2-14
  - -40 °C... 80 °C

- **Relative humidity**
  - EN 60068-2-30
  - 5... 95 % (non condensing)

#### Antenna data 560ANA01

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

#### Antenna data 500ANA03

- **Type**: Antenna for wall mounting, incl. cable
- **Gain**: 5.1 dBi
- **Size**: 275 mm x 16 mm (L x Ø)
- **Ingress protection**: IP66
- **Weight**: 355 g
- **Cable type**: RG58 coaxial cable
- **Cable length**: 5 m
- **Connector**: SMA male

### Ordering information

- **500MDD03 R0001**: 1KGT039400R0001

### Accessories ordering information

- **560ANA01 Bar antenna**: 1KGT023600R0001

- 10 pcs per package
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