

PSI-GPRS/GSM-MODEM/RS232-QB...

GPRS/GSM modems for the United States and Canada

INTERFACE

Data Sheet
2534_en_B



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1 Description

The PSI-GPRS/GSM-MODEM/RS232-QB... rail-mountable modem is specifically designed to meet industrial requirements for remote monitoring and alarm generation. It provides global access to machines and systems via GSM connections. A wide range of security functions, such as adjustable, selective call acceptance, connection establishment with password protection, and call-back function, protect the system against unauthorized access. The integrated TCP/IP stack even allows the implementation of simple control systems into the GPRS network.

One particularly useful feature for remote system monitoring is the configurable warning or alarm inputs. If these inputs are activated, the modem calls user-defined numbers and sends stored text messages by fax and/or SMS. Using the switching output, additional functions can be controlled via SMS messages. To ensure error-free operation in harsh EMC conditions, the device has high-quality, 3-way isolation and integrated surge protection.

The modem also features an integrated automatic "Sleep" function to increase battery life, and a wide supply voltage range of 10 to 30 V DC, making it suitable for universal use. Modem startup is very easy using plug and play and user-friendly configuration software.

The modem is approved for use in both the North American (850 and 1900 MHz) and European (900 and 1800 MHz) frequency bands. Each modem is shipped with a country-specific, pre-installed SIM card, and must be registered for use through the registration portal before operation. The registration portal can be accessed at <http://phoenix.diversenet.net>

2 Features

- GSM (Global System for Mobile communication) and GPRS (General Packet Radio Service)
- Quad band (850 MHz/900 MHz/1800 MHz/1900 MHz)
- Password-protected access/call-back function/selective call acceptance
- Integrated TCP/IP stack
- Virtual permanent line via GPRS
- 2 digital inputs and 1 digital output
- Alarm sent directly by SMS, e-mail or fax via the integrated switching input (or via AT commands)
- Sends, receives, and evaluates SMS messages
- Wide supply voltage range from 10 to 30 V DC
- Temperature range of -25 to 60°C



The PSI-GPRS/GSM-MODEM/RS232-QB is designed exclusively for SELV operation according to IEC 60950/EN 60950/VDE 0805.

The modem may only be connected to devices which meet the requirements of EN 60950 ("Safety of Information Technology Devices").



Make sure you always use the latest documentation.
It can be downloaded at www.download.phoenixcontact.com.
A conversion table is available on the Internet at www.download.phoenixcontact.com/general/7000_en_00.pdf.



This data sheet is valid for all products listed on the following page:

3 Ordering Data

Products

| Description | Type | Order No. | Pcs./Pkt |
|---|---------------------------------|-----------|----------|
| GPRS modem , rail-mountable, GSM - GPRS, 850/900 MHz and 1800/1900 MHz, V.24 (RS-232) interface, alarm input and output, supply voltage 10-30 V DC, with unactivated SIM card for USA | PSI-GPRS/GSM-MODEM/RS232-QB-USA | 2900059 | 1 |
| GPRS modem , rail-mountable, GSM - GPRS, 850/900 MHz and 1800/1900 MHz, V.24 (RS-232) interface, alarm input and output, supply voltage 10 - 30 V DC, with unactivated SIM card for Canada | PSI-GPRS/GSM-MODEM/RS232-QB-CA | 2900060 | 1 |

Scope of supply: Modem with SIM card, CD with configuration software, and user manual

Accessories

| Description | Type | Order No. | Pcs./Pkt |
|---|--------------------------------|-----------|----------|
| T-Bus rail connector , for bridging the supply voltage Use with modem | ME 22,5 TBUS 1,5/5-ST-3,81 GN | 2707437 | 10 |
| Quad band antenna with omni-directional characteristics Antenna cable with SMA circular connector 2 m Degree of protection IP65 Dimensions 76 x 20 mm | PSI-GSM/UMTS-QB-ANT | 2313371 | 1 |
| System power supply Primary switched 45 - 65 Hz Input voltage range 85 - 264 V AC Nominal output voltage 24 V DC ±1% Nominal output current 1.5 A | MINI-SYS-PS-100-240AC/24DC/1.5 | 2866983 | 1 |
| T-Bus rail connector for bridging the supply voltage 2 required for 2866983 power supply | ME 17,5 TBUS 1,5/5-ST-3,81 GN | 2709561 | 10 |
| V.24 (RS-232) cable , 2 m, to connect modem to a 9-pos. device interface 9-pos. D-SUB/9-pos. D-SUB (male/female) | PSM-KA9SUB9/BB/2METER | 2799474 | 1 |

4 Technical Data

Power Supply

| | |
|---|---|
| Supply voltage | 10 - 30 V DC via COMBICON plug-in screw terminal block 10 - 30 V DC via T-Bus rail connector, ME 22,5... |
| Frequency | DC |
| Current consumption | |
| Nominal operation | < 100 mA @ 24 V |
| Sleep mode (can be configured via software) | < 60 mA @ 24 V |
| LED indicators | VCC (green LED) – Flashing: supply voltage present |

V.24 (RS-232) Interface

| | |
|---------------------------|---|
| Connection | 9-pos. D-SUB pin strip |
| Device type | Data Communication Equipment (DCE) |
| Data format | Serial asynchronous UART/NRZ |
| Encoding | 7/8 data, 1/2 stop, 1 parity, 10/11-bit character length |
| Serial transmission speed | Automatic transmission speed detection (default) or fixed setting at 300, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bps (software adjustable) |

| V.24 (RS-232) Interface | |
|--|--|
| Data flow control | Software handshake: Xon/Xoff Hardware handshake: RTS/CTS No handshake or 3964R |
| LED indicator/data indicator | TD (yellow LED), data to modem (dynamic) RD (green LED), data from modem (dynamic) |
| LED indicator/control signal indicator | DTR (yellow LED), Data Terminal Ready DCD (yellow LED), Data Carrier Detect |
| GSM | |
| Frequencies | 850, 900, 1800, 1900 MHz (EGSM) |
| Transmission power | 2 W @ 850 and 900 MHz 1 W @ 1800 and 1900 MHz |
| SIM interface | 3 V SIM card |
| Transmission speed | Automatic adjustment |
| DCE/DCE | 300 - 14.4 kbaud |
| Fax | 2400 - 14.4 kbaud |
| GPRS | 300 - 85.6 kbps |
| Compatibility | V.34, V.32, V.22bis, V.110 |
| GPRS compatibility | GPRS Class 10, Class B Encoding scheme: CS1 - CS4 4 time slots for receiving data 2 time slots for transmitting data |
| Command set compatibility | AT standard command set and extended V.250 basic command set |
| Antenna connection | 50 Ω impedance SMA antenna female connector |
| Data indicator | OH (green LED), logged into the GSM network - Flashing: Off the hook SIM (red LED) - Steady light: No SIM card present - Flashing: No PIN code entered - OFF: SIM card present and PIN code entered NET (yellow LED) - Steady light: Very good network reception - Flashing: Good network reception - Flashing quickly: Moderate network reception - OFF: No network reception |
| Startup diagnostics | Self-test, visualization via LEDs (controller, RAM, EPROM, GSM engine, antenna, EEPROM) |
| Network function | The PIN code is saved in the modem. After a voltage interrupt, the modem automatically relogs into the network and logs automatically into the GPRS network. |
| Network check | Network bar graph in the configuration software |

Switching Inputs and Outputs

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|-------------------|---|
| Switching inputs | 2 x UN 24 V DC/5 mA, input voltage range 9 - 48 V DC, floating, activate one or more of the following: <ul style="list-style-type: none"> - Message to the local V-24 (RS-232) interface - SMS - Fax - Output control at the opposite station (via SMS) |
| Switching outputs | Transistor output to the backplane, activated by: <ul style="list-style-type: none"> - Input control at the opposite station - SMS - Local AT command |
| Signaling | ALR (red LED) <ul style="list-style-type: none"> - Flashing: SMS/FAX error message to be sent - Steady light: Alarm has been triggered |

Text and Telephone Number Memory

| | |
|-------------------------|--|
| Text memory | |
| SMS | 160 characters |
| Fax | 160 characters |
| Telephone number memory | 10 telephone numbers with a maximum of 36 digits |

General Data

| | |
|-------------------------------------|--|
| CE conformance | According to R&TTE directive 1999/5/EC |
| Ambient operating temperature range | -25 to 60°C |
| Housing | ME 35 with 5-pos. bus contact and ground contact |
| Material | ABS-V0, green |
| Dimensions (H x W x D) | 99 x 35 x 114.5 mm |
| Weight | 209 g |
| Functional earth ground | Housing contact with mounting rail |
| Vibration resistance | According to EN 60068-2-6 5g, 1.5 h in each x, y, and z direction |
| Shock test | According to EN 60068-2-27 |
| Operation | 15g, 11 ms, half-sine shock pulse |
| Storage | 30g, 11 ms, half-sine shock pulse |
| Free fall | According to IEC 60068-2-32 from a height of 1 m (without packaging) |
| Degree of protection | IP20 |
| Separate ground levels | Power supply // V.24 (RS-232) |
| Test voltage | 1.5 kV AC, 50 Hz, 1 min. between all ground levels according to DIN EN 61010-1/VDE 0411-1 and DIN EN 60950 |

Electromagnetic Compatibility

Noise Immunity According to EN 61000-6-2

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|--|--------------------|---|
| Electrostatic discharge (ESD) | EN 61000-4-2 | Criterion B 8 kV air discharge 6 kV contact discharge |
| Electromagnetic HF field Amplitude modulation Pulse modulation | EN 61000-4-3 | Criterion A 10 V/m 10 V/m |
| Fast transients (burst) Signal Power supply | EN 61000-4-4 | Criterion A 1 kV/5 kHz Criterion A 1 kV/5 kHz Criterion B 2 kV/5 kHz |
| Surge current load Signal Power supply | EN 61000-4-5 | Criterion B 1 kV 2 kV |
| Conducted interference | EN 61000-4-6 | Criterion A 10 V |
| Noise emission | EN 55022 + A1 + A2 | Limiting curve B |

Conformance According to R&TTE Directive 1999/5/EC

| | | |
|--|------------------------|--|
| EMC | | |
| Immunity to interference (electromagnetic compatibility) | EN 61000-6-2 | Generic standard for the industrial sector |
| Safety | | |
| Protection of personnel with regard to electrical safety | EN 60950 | |
| Health | | |
| Limitation of exposure of the population to electromagnetic fields | EC Gazette 1999/519/EC | EC Council recommendation of July 12, 1999 |
| Radio | | |
| Effective use of the frequency spectrum and prevention of radio interference | EN 301511 | |

Conformance/Approvals

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|-----------------------|--|
| CE Conformance | According to R&TTE directive 1999/5/EC |
| PTCRB Certified | |
| AT&T Network Approved | |