Communicate cheaply but securely
Modern infrastructures require permanent data connections for prompt analysis and fast correction in supply networks. Mobile radio with its M2M services offers cost-effective options for fast integration.

The GPRS-1 is a modern and inexpensive quadband modem for building intelligent communication infrastructures using GPRS/EDGE. It can also be used as a GSM dial-up modem with SMS remote alerts from the substation. It is connected to any mobile radio network with a standard SIM card. The modem uses the intelligence of the station for connection management and data security.

Data transmission with GPRS-1 allows access to all the values of the substation and diagnostics via the integrated web server. Remote downloading of firmware is likewise possible.

Typical fields of use
- Intelligent secondary unit substation
- Renewable energy plants
- Media and infrastructure systems in pipelines

GPRS-1 overview
Data radio modem for the integration of telecontrol and station control technology via mobile radio with GPRS/EDGE or as GSM dial-up modem with optional SMS remote alerts via the substation.


Wide range power supply 24 to 60 V DC ±20%. Dimensions 22.5×105×115 mm (W×H×D).
Secure and flexible data networks
The simplest way to connect is by linking GPRS modems to a DSL router via the Internet. This connection is however open without additional security measures and is not recommended by BSI. The use of a service from some providers protects mobile radio within a private address space. Access to this private APN or Internet must be encrypted by means of OpenVPN or IPsec. Alternatively, a mobile radio modem (3G/4G) at the router bypasses the Internet and connects the control centre directly. The BDEW white paper specifies end-to-end encryption. This can be set up by using a VPN client in a series5+ substation and corresponding VPN routers at the control centre. Certificates must be created and managed for the encryption. The tunnel allows a transparent but secure TCP/IP channel.

Technical data: GPRS-1

| Construction | Data radio modem for integration in GSM/GPRS infrastructure for telecontrol and station control technology, automation and telemetry, in a micro housing |
| Communication | 1 EIA/RS-232/V.24 interface to ETSI EN 300 392-5 DCE
1 GPRS antenna connection, SMA connector max. 1 W |
| Protocols | Hayes AT commands 3GPP TS 27007, TS 27005, Cinterion IEC 60870-5-101 for dial-up connections IEC 60870-5-104 · GPRS/EDGE with PPP protocol (TCP/IP) |
| Mobile radio | Quadband wireless module 850/900/1800/1900 MHz
SIM cards with 3 V and 1.8 V, data activation
multi-slot class 12, full PBCCH support, class B, coding scheme 1-4
multi-slot class 12, class B, modulation and coding scheme MCS 1-9
V.110, RLP, 2.4/4.8/6.6/7.4 kbit/s, USSD
Point-to-point MT and MO, text and PDU mode
Transmitter power 1 W with GSM 1800/1900
Transmitter power 2 W with EGSM 850/900 |
| GPRS | |
| EGPRS/EDGE | |
| CSD | |
| SMS | |
| Antenna | GPRS antenna 50 Ω, SMA connector (f) |
| Status displays | LED in front panel for connection and system status |
| Interface | EIA/RS-232/V.24, serial asynchronous up to 115 kbit/s, autobauding 1.2 to 115 kbit/s
Handshake via RTS/CTS, RJ45 socket to ETSI EN 300 392-5 DCE |
| Power supply | 24 to 60 V DC ±20% max. 12 W, max. 0.5 A @ 24 V/0.3 A @ 60 V
110/220 V DC and 230 V AC via external module |
| Dielectric strength | 5 kV surge supply & process I/O to PE, to class VW3
2.5 kV surge supply for measurands, EIA/RS-232, USB |
| Standards | EMC: EN61000-6-2, EN55022,
Insulation: DIN EN 60870-2-1, IEC 60255-5
RBTE: ETSI EN 300328, EN 301489, NSRL: DIN EN 60950 |
| Housing | Micro housing, polyamide V0, IP20, dimensions 45×105×115 mm (W×H×D)
DIN rail, DIN-EN 60715 TH35
MSTB screw-type terminal, Combicon spring-type terminal, 0.2 to 2.5 mm² |
| Ambient temperature | -20° ... +60°, when supply > 48 V DC max +55° C |
| Relative humidity | < 80%, without condensation |

Product accessories

Indoor rod antenna, dualband 2 dB, SMA indoor, cable 1.5 m

Outdoor rod antenna, triband 2 dB with mounting bracket, SMA indoor/outdoor, cable 5 m

GSM-2 interface
Identical functions for installation in net-line FW-50 or FW-5000