ODP – the platform
Open GPRS telecontrol concepts

- Secure data transfer via GPRS
- Use of standard components (PLC and modem)
- Use of standard industrial interfaces and protocols
- Open structure supports all hardware connections
ODP – the platform

For all applications needing to exchange data among distributed stations, the GPRS (General Packet Radio Service) mobile communications service represents an affordable, secure and effective solution. This type of data transfer relies on an always-on connection and billing according to data packets switched.

A data communications platform has been developed based on this kind of data transfer and related services, which adapts to suit this form of communication perfectly, thereby offering the user maximum convenience and security.

With the ODP (Open Data Port) platform the user is able, based on GPRS, DSL and Ethernet technologies, to communicate openly with various PLCs, automation and measuring devices. Data transfer either takes place online or the data is supplied as time-stamped historical values. (New image of GPRS, DSL, Ethernet, dedicated line ...)

ODP provides a new perspective for the open, secure and transparent management of data, guaranteeing full monitoring of costs and connections. Special features include the ability to connect up hardware from different manufacturers – even within hybrid architectures – and user-friendly configuration.

The platform is based on a top-down design, i.e. all central and key functions are managed by the control centre. The aim is to assure optimum monitoring of communications and costs, as well as service optimisation.

As a sector-neutral solution ODP may be applied both in standard telecontrol situations (environmental and power engineering) and in areas such as energy data acquisition, traffic engineering, building services engineering, site surveillance, etc.
Which communication channels does it support?

As far as communication channels are concerned, the platform design is an open one: it accepts not only new and modern, but also conventional lines of communication. In addition to GPRS/DSL/UMTS/EDGE/HSPA, it supports dedicated line solutions – even within the Ethernet network. This allows a control system to be connected to a structurally diverse periphery via a range of different channels.

What’s the GPRS connection like between the substation and the control centre?

The telecontrol substation is equipped with a GPRS/DSL modem. The substation is thus able to connect up with the next available mobile telephone mast of the relevant provider. As of this interconnection point the data leaves the radio network and is passed on into a TCP/IP network.

Via DSL it is then possible to make the authenticated data, along with the integrated and DIN-standardised TSC protocol, available right through to the control level using an OPC or direct connection. Depending on the manufacturer, the connected components may also be parameterised or programmed by the control centre.

Modem communications

Generally GPRS differentiates between serial and TCP/IP communications; these may however both be used in hybrid operations. TSC protocol-based modems are used for serial connections. Modems with an integrated VPN tunnel, or even a VPN without modem support, may be used for TCP/IP communications. You are free to design the concept according to your system requirements. New modem generations enable customised OEM adjustments to be made for hardware and measuring technology, producing scope for a wide range of applications. For DSL the substation uses DSL modems; an Ethernet connection can run directly in the TCP/IP network.

In the case of dedicated lines a modem is installed on each end of the analogue line, one speaking to the ODP and the other to the TCP/IP automation device. In such instances the relevant line length for the type of modem needs to be observed.
ODP offers a range of modes – depending on the preferred system design.

Online mode

Process image data are read cyclically from the PLC and displayed in the control system via the OPC interface. Switching operations may also be carried out from the control centre. Thanks to the ODP the »always-on« GPRS design enables the connection of devices with no local memory capacity.

Historical data

Historical data is retrieved cyclically or at the request of the user. The time-stamped historical data can be chronologically sorted using a certified ACRON interface, for instance. The intermediate storage is intentionally located in the PLC memory area to avoid the use of any additional hardware components. The PLC memory depth depends on the number of variables and the memory cycle in question. When designing a system please refer to our empirical values.

Active transmission of malfunctions, alarms and messages

Malfunctions, alarms and messages are transmitted to the control system by the substations on a (active) event-controlled basis. These may then be saved to the control system in chronological order and subsequently analysed. The ODP may be used to establish communications between the PLCs.
Data transfer security

With the ODP platform you may be sure of not losing any data from your automation device. Should the online connection be interrupted, data is time-stamped and buffered in the PLC for subsequent retrieval. It is therefore essential that the data is cached on the PLC – and not on an external medium.

Communication errors are recognised immediately by the control centre and a targeted alert may be issued to facility staff (e.g. emergency alerts are even possible by mobile phone in the case of MELSYS). All communication information is logged, thus allowing the information to be used in the analysis of facilities and communications. Integrated analysis tools for instance enable field intensity monitoring. The control centre can therefore assure the ongoing monitoring of your data transmission quality. You may also choose to operate the ODP redundantly. Should you have any queries concerning the above, please contact one of our employees.

Cost monitoring

The ODP design assigns intelligence to the control centre. NO LONGER do unwanted high communication costs occur as a result of unmonitored substation transmissions. Costs can therefore be set, with ongoing monitoring, for every facility. This option has proved of great value especially during start-ups.
What does manufacturer-neutral mean in the case of the ODP platform?

Thanks to its open architecture and the application of commonly used interfaces, the design is compatible with every manufacturer. Starting with the control system (open OPC interface), every manufacturer that supports this interface can use the ODP platform. A free choice of providers and an open TSC protocol guarantees openness right down to the automation/measuring device.

This lower level can simply be connected using the communication agreements (ODP specification) available. Hardware manufacturers may request a copy of the specification. All ODP data sheets are certified.
**Advantages:**

**Configuration**
- Easy to use
- Extremely swift configuration thanks to interface reduction
- Extremely swift configuration thanks to exporting/reading OPC items
- Serial and Ethernet communications (even in hybrid operations)
- Online editing without shutting down the server
- SPLC configurable from the control centre (depends on manufacturer)
- Comprehensive technology training and support
- Solid analysis options for reducing start-up times

**Business**
- Full cost-monitoring of your entire communications
- Brings different business areas (service) together
- Manufacturer-neutral (e.g. Siemens S7, VIPA, WAGO, Phoenix, Schneider, Panasonic, SAIA, ...)
- Reduced costs thanks to swift configuration
- Up to 10,000 substations (even using mixed peripheral equipment)
- Comprehensive network of trained integrators
- Free support
- Value for money

**Technical**
- Open standard interfaces with control system (OPC server DA + AE)
- Implemented open TSC DIN protocol
- Implemented open Modbus protocol
- Multi-processor capable (new computer generations)
- Certified interface with online mode and time-stamped historical data
- Active transmission from the PLC
- Based on components of Dr. Neuhaus
- Communications analysis with history
- Can run under XP, Vista, Windows 7 2003/2008 Server,
**Functional overview**

The **Dr. Neuhaus** modems form the basis of the GPRS design.

Modems produced by other companies may, however, also be used. Please request a list of compatible makes. For connections using DSL, dedicated lines, or Ethernet, please consult one of our employees.

- **GMOD-S1**
  GPRS dial-up and dedicated line modem with AT command set.
  Based on integrated GPRS/IP, TSC switching centre

- **HMOD-V2-10**
  Intelligent GPRS modem for »IP over PPP« connections with integrated VPN router and firewall.
  Option of signalling VPN tunnel via control output

- **Other modem**
  All serial modems that support the DIN-standardised TSC protocol, as well as all GPRS TCP/IP modems.
  Please ask your local dealer.

Data sheets exist for the following automation devices:

- Siemens S7 200/300/400/1200
- Phoenix Contact
- WAGO
- VIPA
- Panasonic
- Schneider
- SAIA
- ...

You’ll find more information on the latest connection status on our website.

ODP is available in the following languages:
German, English, Italian (other languages on request)

Please contact us if:

- you need special system connections
- you require additional functions
- you need additional languages
- you need our ODP specification

Please request a demo featuring the full range of functions.

VIDEC GmbH
Osterdeich 108 · DE-28205 Bremen · Phone +49(0)421 - 33 950-0 · Fax +49(0)421 - 33 795 61
info@videc.de · www.videc.de
You can find our local subsidiary or international distribution on our website.