

TeleMatic goes GPRS

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Today, the transmission of data from decentralised data-collecting stations generally takes place via the public telephone network (ISDN or analog) using permanent connections or radio-telephone networks. Due to the increasingly widespread network of GSM networks, this method of communication is also becoming more important in the field of remote data transmission.

What is GPRS?

GPRS means "general-packet radio service" and is an extension of the GSM mobile telephone standard (GSM = "global system for mobile communication") for remote data transmission. Unlike the circuit-switched data service HSCSD, GPRS is package based. This means that the data are converted into individual packages by the transmitter. They are then transmitted in this form and re-assembled by the receiver. The GPRS technology makes economical online communication possible between a central control point and widely distributed data-collecting stations.

Requirements for Data Transmission by GPRS

GPRS data transmission is based on GSM mobile telecommunication. An existing GSM network is therefore an essential requirement for the use of GPRS technology. A GSM modem which is suitable for GPRS is also required at the data-collecting station (e.g. the HST TeleMatic Station). A permanent internet connection is also required at the central control point (e.g. HydroDat® V8) for communication with all the other GPRS stations. An OPC server (DA 2.0) must also be available for connection of the GPRS stations. Through the use of the OPC standard (openness, productivity, collaboration) it is possible for any process-control system to communicate with GPRS stations. It is here that the considerable differences between the GPRS solutions currently available on the market become apparent. For example, with the solution based on the HST TeleMatic System, no additional hardware or software such as a switching centre or a VPN router from a conventional system supplier or third-party manufacturer is necessary.

Another essential requirement is a data-transmission contract with a provider. In contrast to other solutions, the GPRS package offered by HST allows free choice of provider.

Advantages of a GPRS Solution

One of the most obvious benefits of the GPRS solution is the savings in cost. These refer both to the purchasing costs and the monthly running costs. The monthly costs are based on the volume of data actually transmitted. Here, the software in use at the collecting station is the decisive element. By means of algorithms and settings, this ensures a maximum of information quality for a minimum volume of data actually transmitted to the central control station.





TeleMatic - GPRS Communication

A further advantage is the fact that the communication link is more or less permanently online, as with a DSL broadband flat rate. Unlike the conventional dial-in connections (ISDN, analog, GSM) no dialling operation is necessary. The data are transmitted on the basis of the TCP/IP protocol. The use of this standard protocol has the advantage that other services can also take place via the GPRS connection as well as the actual transmission of process information. For example, GPRS can be used for remote maintenance, web-based visualisation as well as remote programming of the control system. Unlike other system suppliers, the HST TeleMatic package, the TCP/IP protocol remains transparent down to the terminal unit (control system). Other types of solution where the TCP/IP protocol ends in an intelligent GPRS modem and does not continue to the control system, are more limited in function. They do not permit use of other characteristics such as remote maintenance and visualisation and are not suitable for future functions and services.

With the HST TeleMatic System it is also possible to carry out direct visual monitoring of the object or process concerned.

Disruption of Connection

In principle, a GPRS communications system is a direct online link between external stations and a central process-control system. However, as with standard broadband, this connection may also occasionally be disrupted. In such cases, the connection is automatically re-initialised and re-established. In addition to these short-term disruptions, other more serious problems may occur such as failure of a modem. To prevent the loss of data or a fault message being transmitted to the control system, the HST TeleMatic System has an optional saving function. The save algorithm ensures that all changes in the process are stored and transmitted automatically to the control system when the connection is re-established.

Summary of the Advantages of the HST TeleMatic GPRS Solution

- Fast data service in the GSM network (D network) up to 38.4 kBaud
- Communication based on the TCP/IP protocol
- All GPRS stations permanently online
- Invoicing based on actual volume of data
- Low running costs
- Low purchasing costs
- Integrated SPC, programmable to IEC 61131-3
- Connection to existing control technology with:
 - E/A terminals
 - Profibus DP
 - Ethernet
 - MPI (in preparation)
 - Modbus
- High reliability through VPN and data encoding
- Secure remote maintenance and programming based on VPN
- Supports HST TeleCam
- No switching centre necessary
- No additional server hardware necessary
- Independent of provider
- Independent of manufacturer through OPC interface (OPC server)
- TCP /IP protocol down to control system