



## REMOTE CONTROL PRODUCT OVERVIEW



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# 1 | REMOTE CONTROL

High-performance FlowChief remote control technology monitors and controls globally situated structures and machines from a central location securely and cost-efficiently.

The use of mobile data services, DSL and network connections make cost-effective permanently lasting connections between the slave stations and the control center feasible. This enables secure bidirectional data exchange between market-related programmable logic controllers and a higher-level application in the control center.

FlowChief remote control technology allows open-ended selection of the equipment for the transmission path and in the choice of the parent application. Investment protection and market-related hardware prices are key benefits of this independence.

Another special feature is transfer in quasi-real time, as well as the historically correct buffering of archive data in the PLC in connection interruptions and the subsequent transmission of such data, including timestamp.

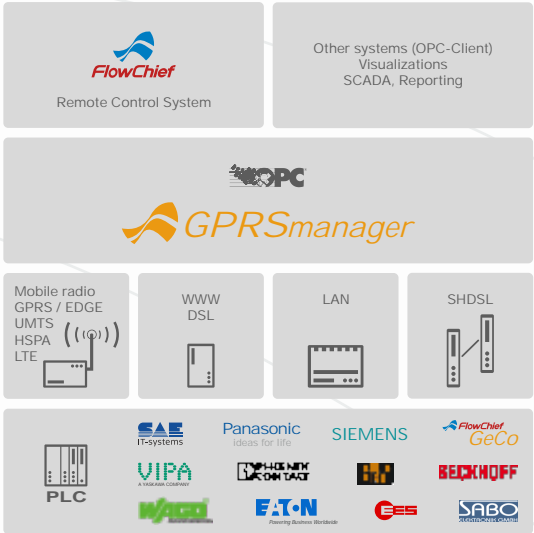
Additional features are full cost control, mixed structures in any scope and a unique, easy configuration of user data from the parent application.

Thanks to the option that allows designing both communication channels and server connections to be redundant, remote control networks can be created with maximum availability.

The industry-neutral FlowChief remote control technology can be used flexibly.

Extensive projects are executed in diverse fields such as water and waste water technology, energy data collection, facility management, the energy sector, renewable energy generators or remote service solutions for equipment manufacturers.

- Connection of any number of remote terminal units (RTUs)
- Secure bidirectional data transfer
- No vendor lock-in
- Use of standard components such as PLC, modem and router
- Online transfer in "real time" and historical archive data
- Open structures in terms of hardware, communications and control center
- Cost effective operation and during engineering
- Maximum availability through redundancy concepts
- All industries by using standard industrial





Control center -

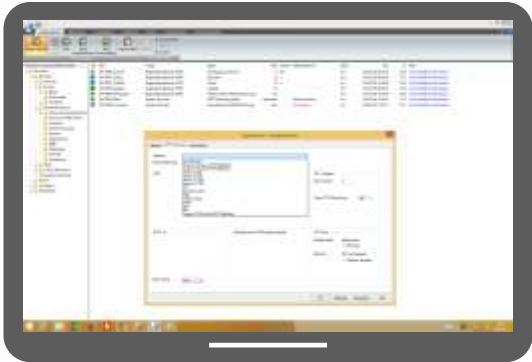
FlowChief GPRSmanager

The connection of FlowChief remote control technology to higher-level process control systems and applications via a pure software OPC server, the FlowChief GPRSmanager.

The GPRSmanager is the link between the RTUs and the central parent applications. Data is tapped via a standardized OPC interface.

The configuration of the software couldn't be easier. Only the login credentials and the station type need to be specified per type of station. Additional parameterization of the process data is not required. With this, all process variables can be accessed straight from the parent application.

Every OPC-enabled application can be coupled with this high-performance remote control technology. Parameterization of the entire remote control network directly from the control system is also possible in conjunction with the FlowChief process control system. Remote control technology becomes a "plug and play" experience.



The GPRSmanager provides a number of different system parameters and variables. This way, data transmission can be controlled and adjusted from the control center. By status signals such as the connection status, network quality or the volume of data, the system connections can be continuously monitored and alarm given or extensive communication analysis for troubleshooting can be conducted.

- Standardized encrypted OPC interface
- Secure authentication
- Direct communication with the slave stations
- Simple configuration
- Direct access to data from the control center
- Stand-alone application or integrated in the process FlowChief process control system
- Comprehensive system analyses
- Cost control through data volume monitoring

Connection level - IP communication

For the open transmission principle to have its full effect, communications may be run via all common IP-based paths. Mobile data services such as GPRS / EDGE / UMTS / HSPA and LTE, as well as any Ethernet connections such as DSL/internet, dedicated lines or in-house networks (intranet), are equally suitable here.

The type of transmission technology is completely transparent both to the slave station and the GPRSmanager. The only thing that needs to be done is to select the router suitable for the network. This allows any number of systems and machines to be transmitted via different networks, without having to make adjustments to the configuration of the PLC and at the control center.

This makes it possible to cost-effectively switch to other current signal transmission technologies.



The security of the systems and data is top priority in FlowChief remote control technology. Integrated identification with name and password allows only authorized access. Encrypted data transfer ensures the confidentiality and integrity of the data. With the possibility to link the slave stations via VPN, a logical private network can be created in a public infrastructure.

- Support for all IP-based transmission technologies
- Transparent transmission path
- Security of investment
- The highest standards in terms of safety
- Encrypted data transmission
- Optional setting up of a Virtual Private Network (VPN)

Field level – standard PLC

The independence of FlowChief remote control technology pays off particularly in the remote terminal unit. The process data acquisition and data transfer take place independently of the manufacturer via standard devices. FlowChief GmbH makes a GPRS library available to numerous PLC and equipment manufacturers that is installed either as a stand-alone or in combination with the control program in the PLC. The customer is therefore not dependent on a particular hardware manufacturer and does not require two intelligent components in the system. A reduced probability of failure, unnecessary couplings, or hardware jumpering and a familiar programming environment not only increase operational safety, but reduce the engineering and operating costs in particular.

One of the special features of FlowChief remote control technology is the type of communication. The slave station, both in connection setup and data transfer, is the active partner. This means a fixed IP address or a host name is needed only for the control center, the remote stations, however, get the dynamic addresses of the respective provider. On the one hand this eliminates the need for cost and configuration-intensive IP management and on the other systems remain hidden behind the private provider address field preventing unauthorized access.

Since the data communication is not controlled by polling from the control center, but actively from the slave station, transfers can be event-driven and/or cyclical. This allows the transmission volume and hence the monthly costs to be reduced to a minimum and at the same time the accuracy of the data collection to be increased to a maximum.

The remote terminal units independently maintain a permanent online connection to the server. Through intelligent connection management, connection costs are monitored and bidirectional data exchange enabled. Lengthy selection times are a thing of the past. In addition, all current process information is virtually available in real time in the control center.

In an ideal case, all data is transferred online. In addition, seamless data buffering in the slave station is essential for data security. If, for example, not confirmed data logs from the server due to communication disorders, there is intermediate storage including a timestamp in the PLC. Once the connection to the control central is established again, the data is automatically transmitted with the original timestamp, being also historically accurate.

Through internal UTC timestamping, system data can be evaluated on the server in the respective local time across diverse countries and time zone boundaries.

The system operator is alerted via SMS directly from the slave station as additional monitoring. This way, he can be certain that, for example, no undetected plant shutdowns or malfunctions occur due to the failure of the control center.



- Standard PLC with FlowChief GPRS library
- Support for numerous device manufacturers, e.g. Siemens, Panasonic, VIPA, Wago, B&R,
- Phoenix Contact, Beckhoff, Eaton, Sabo, ...
- System control and remote control functionality in one device
- Reduced engineering outlay (PLC basic knowledge)
- No fixed IP addresses needed
- Full connection and cost control
- Sending transfer method (no polling from the control center)
- Cyclic and event-driven transfer
- Data volume-optimized
- “Always-on” – bidirectional online transmission in real time
- Data buffering with timestamp on remote terminal unit (UTC timestamp)
- Processing of historical data without data loss
- Emergency alerting via SMS



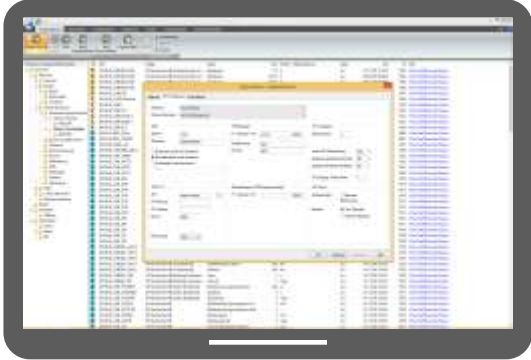


## 2 | FLOWCHIEF GECO

The FlowChief GeCo (GPRS-embedded controller) is a complete package consisting of a commercially available PLC, a GPRS modem and an antenna based on the functionality of the FlowChief process control system.

These devices can be mounted directly on the system and connected as a remote terminal unit. PLC programming is not necessary. Configuration is completely conducted from the FlowChief process control system and actively transmitted at runtime to the remote terminal unit. In addition to the simple initial installation, any program modification and extension can be implemented quickly. The continuous parameterization of the entire remote control network saves valuable configuration and commissioning time!

The possibility to extend the GeCo through the full PLC functionality to any application program free of charge ensures that the system operator is prepared for all future extensions.



- Plug and Play
- Complete pre-configured remote control package
- Consistent configuration from the FlowChief process control system
- Maximum time saving – minimal engineering costs
- No programmer required on site
- Subsequent application assignment
- Free integrated PLC functionality
- Cost-effective standard components with long product cycles



## 3 | DATALOGGER

The FlowChief data loggers are used in all applications where data needs to be recorded, but where no power supply is available. Using battery or solar power, measurement and meter readings, messages and limit value violations can be recorded, archived and transmitted to a control center by GPRS. In addition to the self-supply of energy, the data logger can supply external sensors and measurement technology with power. With protection classes up to IP68 the devices are best suited for use in harsh environments. The data is transmitted with a timestamp to the FlowChief process control system or other systems (SCADA, reports, databases) via the standardized OPC interface.



- RTUs with autonomous power supply
- Battery supply up to 10 years
- Solar power supply, battery and charge controller included
- GPRS data transfer cyclic and event-driven
- Digital, counter and analog inputs
- Integrated high-performance or external antenna
- Power supply of measuring equipment (e.g. pressure, fill level, ultrasound)
- Individual archiving and transmission intervals
- Data transfer with a timestamp per OPC Server
- Diagnostic information (battery status, temperature, GPRS signal strength)
- Protection class IP68 (waterproof in case of flooding)
- Configuration and diagnostics via web browser or Bluetooth

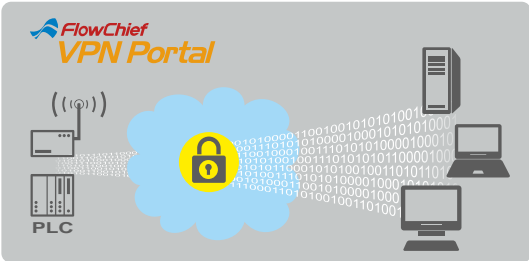
- Examples of different applications:
- Water supply (meter logging, network pressure, pipe breakage monitoring, well and elevated tank fill levels)
  - Wastewater technology (RSB logging of stormwater overflow levels, quantities and overflow events)
  - Flood protection (level measurement)
  - Mobile measuring systems
  - and more



# 4 | REMOTE SERVICING

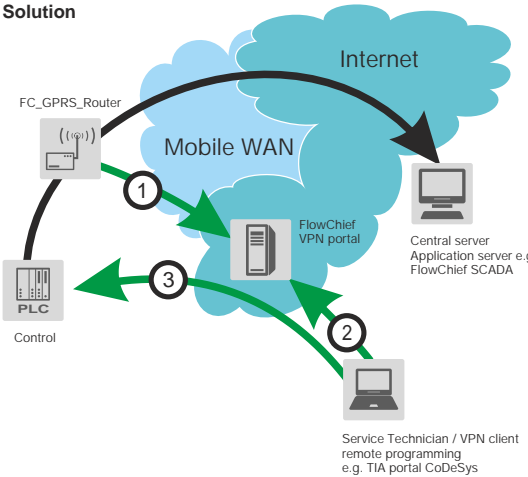
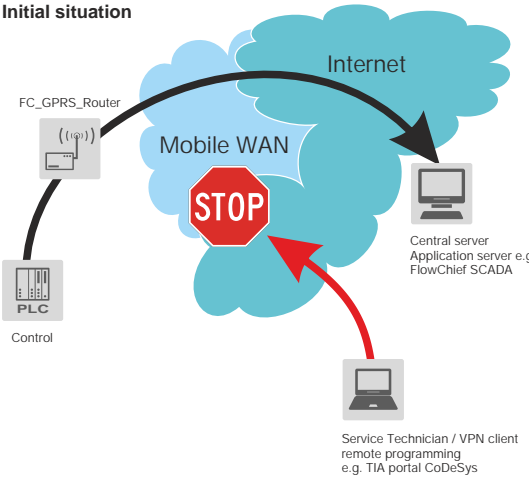
## FlowChief VPN portal

With the increasing spread of m2m communication via GPRS, the FlowChief VPN portal provides a product with impressive usability. The technician connects the respective remote station and its engineering environment with OpenVPN to a portal managed by FlowChief GmbH "per mouse click".



Mobile, stationary and device-independent access to the controller is thus always possible. No complex VPN configuration is necessary on the router side – in this connection request this is automatically obtained from the portal.

- Cost saving by avoiding time-consuming site visits
- Easy operation – network connection at the touch of a button
- No firewall – no provider IP issue, through outgoing connections on both sides
- Limiting the volume of data by automatically disabling the VPN connection
- No additional costs per connection to the hardware
- Most secure connection variant through OpenVPN and outgoing connections



# 5 | INDUSTRIES AND SOLUTIONS

## Totally free

The multiple purpose FlowChief remote control technology can be flexibly used in various sectors.

## Wastewater

- Pumping stations
- Stormwater overflow (CSO)
- Channel management
- Small wastewater treatment plants



## Water supply

- Elevated tanks
- Drinking water storage
- Wells
- Counter shafts
- Flood protection



## Energy

- Solar parks
- Wind farms
- Biogas
- Combined heat and power plants (CHP)
- Public utilities
- Gas distribution



## Building and facility management

- Swimming pools
- Real estate
- City halls and gyms
- School buildings
- Heating systems
- Self-sufficient energy supplies
- Smart metering



## Remote service

- Centralized machinery and plant monitoring
- Integration of existing systems
- Condition monitoring
- Logging of process data
- Transparent maintenance access
- Extensive evaluations
- Proactive servicing
- Optional control interventions

