



Ethernet

### ► The ReSy function block library

- For creating expansive networks
- Realization of distributed external stations (substations) and remote control centers with standard automation components
- Data transmission between substation and central station as well as through wired systems such as leased lines, analog or digital modems or wireless transmission systems such as GSM, local communication, time-slot wireless communication etc.
- Standardized data transmission in acc. with IEC 60870
- Open interfaces such as INTERBUS, Profibus, CANopen and DeviceNet allow connection to existing systems
- Free programming of the remote control stations in acc. with IEC 61131
- Connection to a wide variety of control systems using OPC technology

### Fax

- I would like information on control and remote control.
- Please send me further information on:

\_\_\_\_\_

\_\_\_\_\_

- Please send your newsletter to the e-mail address below.

- I would like a personal consultation without obligation.

Name \_\_\_\_\_

Company \_\_\_\_\_

Department \_\_\_\_\_

Address \_\_\_\_\_

Zip code/city \_\_\_\_\_

Phone \_\_\_\_\_

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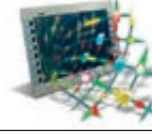
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INSPIRING INNOVATIONS

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### ► Treatment plants



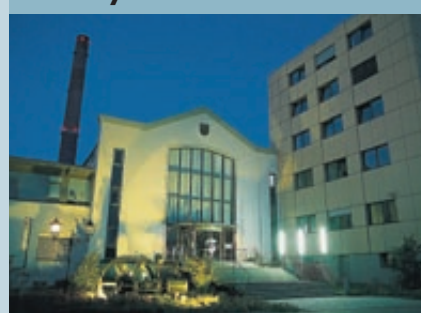
**Porta Westfalica**  
The fully biological sewage treatment plant Möllbergen in North Rhine-Westphalia treats the waste water of the four southern districts of Porta Westfalica. In the course of modernization, the electrical and automation technology have been upgraded to the state of the art. Control, monitoring and protection of not only the entire treatment plant, but also the distributed pumping stations and storm-water reservoirs is fully automatic.

### ► Production



**Wesergold Rinteln**  
Around 500 different products are produced at Wesergold in Rinteln. In order to conserve resources, the returnable glass sector has been successively expanded in the past years. The filling, cleaning and water treatment plants are correspondingly modern and highly productive. Wesergold has its own wells; the flow rates, meter readings etc. are transmitted to the control room with ReSy in a wireless time-slot procedure.

### ► City works



**Bielefeld city works**  
Comprehensive supply services from a single source – The Bielefeld city works ensures safe and reliable supply to its customers of electricity, natural or liquid gas, district heating and drinking water around the clock. The special feature: Communication between the remote control center and the control system takes place via an OPC server and standard Ethernet, in line with standards.



## AUTOMATIONWORX for Remote Systems (ReSy)

### One system for control and remote control! ReSy – AUTOMATIONWORX for Remote Systems

You want to keep a good eye on all parts of your system, be able to intervene in and control the process and be accurately informed about faults and failures? Then convince yourself of AUTOMATIONWORX for Remote Systems.

This function block library and the proven control and I/O components of the AUTOMATIONWORX system kit allow you to implement numerous modern remote control tasks quickly and easily. Intelligent solutions from our company bring you nearer to your goals!

#### Applications:

- Application examples:
- Water/waste water management
    - Wells
    - Pumping stations
    - Pipeline monitoring
    - Reservoirs
  - Power supply companies
    - Transformer stations
    - Electric power transformation substations
    - District heating stations
    - Block-type power plants
  - Building automation
    - Property monitoring
    - Building control technology
  - General industrial applications
    - Remote maintenance
    - Remote diagnostics
    - Traffic engineering
  - Railway applications
  - And much more...

### ► City works



**City works Lemgo**  
Sun, wind, water and biomass – The Lemgo city works is backing ecologically generated power. In the networking of reservoir towers, wells and block-type power plants, data is transmitted via leased lines. 1600 satisfied district heating customers profit in Lemgo from the expansive district heating network – based on automation technology from Phoenix Contact.

### ► Drainage



**Munich municipal drainage system**  
Health, hygiene and environmental protection are priorities in the municipal drainage system in Munich. The waste water from the municipal area and surroundings is collected, cleaned and treated in two large water treatment plants. The remote control system "ReSy" provides seamless data transmission, from data acquisition in the external control cabinets in the municipal area to the transfer of the processed data to the control system of the Gut Großlappen water treatment plant.

### ► Water works



**Berliner Wasserbetriebe (BWB) water works**  
The Berlin water works, which is one of the largest water supply and waste water disposal companies in Germany, supplies 3.7 million people. Components from Phoenix Contact operate reliably in the compact pumping stations. The control technology is distributed in external control cabinets and even works there over an extended temperature range. All data is transmitted to the control room via the GSM mobile phone network.

## Our components for control and remote control

Our goal is to enable any communication structures to be realized with standard automation components – on the basis of the "AUTOMATIONWORX for Remote Systems" function block library. Adapted to your application, proven standard components, e.g. from the Inline automation kit, as well as controllers, modems and remote control software, are used to construct distributed external stations and modular remote control stations. All major components come from a single source, ensuring a great degree of continuity in hardware and software. Our solution is highly modular and can always be adapted to the changing requirements of your application.

### Controllers



**All-in-one controller S-MAX**  
S-MAX is a high-end controller for use in remote control stations. The combination of touch display, PLC and data transmission via Ethernet or modem boasts cost advantages, compact installation dimensions and good operability via the 6, 12, 15 or 17-inch displays.



**Compact controller ILC 350 ETH**  
High control performance and finely modular expandability with digital and analog inputs and outputs as well as an integrated Ethernet interface are the distinguishing features of the ILC 350 ETH as the head of a remote control substation or as a remote control center. Expansion with different modems is possible without any problem. When used as a remote control center, it can be directly connected to the control system via Ethernet.



**Compact controller ILC 200 IB**  
The ILC 200 IB performs small to medium-scale control tasks in remote control station. As with the ILC 350, it can be expanded with the Inline system kit directly using digital and analog inputs and outputs or via a fieldbus. Various modems can be connected to transmit data depending on the application.



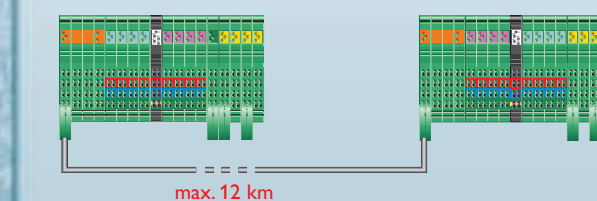
**I/O systems**  
**For the control cabinet and the field**  
As an I/O expansion for remote control substations or remote control centers, the different modules can be put together individually and scaled in IP20 or IP67. In this way, the remote control application can be expanded in modules and even supplemented with distributed fieldbus modules.



**Network infrastructure**  
**Industrial for control cabinet installation**  
Remote control networks are increasingly set up on the basis of Ethernet structures. Secure data transmission, e.g. following IEC 60870-5-104, is supported by the managed switches of the Factory Line system with variable redundancy functions in acc. with Rapid Spanning Tree. The integrated web servers make configuration of the devices unbelievably simple.

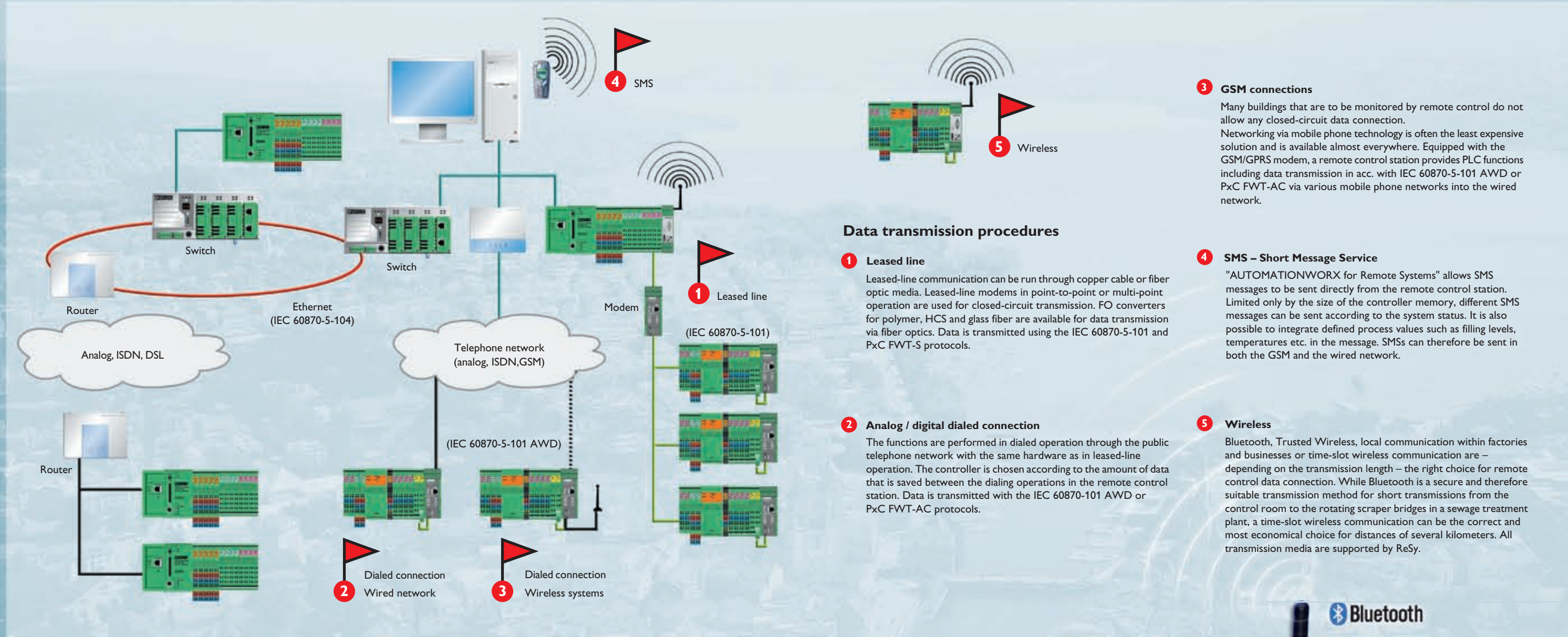
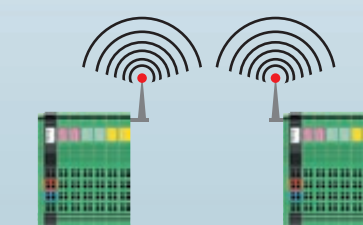
### Inline field multiplexer

**Remote control without software configuration**  
Wiring costs can be reduced using point-to-point data transmission of digital and analog signals up to 12 km with only a single two-wire cable (depending on the cable type and the ambient EMC conditions). It is also possible to use cables that have already been laid, but are not being used. Software-assisted configuration is not necessary.



### Wireless Mux

**Remote control without software configuration**  
Wireless MUX is used whenever it is problematic to route a signal cable or when moving signal cables wear too quickly. Digital and analog signals are no longer transmitted in a cable as before, but via wireless link. Depending on the application conditions, distances of up to several hundred meters can be bridged in this way.



### Data transmission procedures

#### 1 Leased line

Leased-line communication can be run through copper cable or fiber optic media. Leased-line modems in point-to-point or multi-point operation are used for closed-circuit transmission. FO converters for polymer, HCS and glass fiber are available for data transmission via fiber optics. Data is transmitted using the IEC 60870-5-101 and PxC FWT-S protocols.

#### 2 Analog / digital dialed connection

The functions are performed in dialed operation through the public telephone network with the same hardware as in leased-line operation. The controller is chosen according to the amount of data that is saved between the dialing operations in the remote control station. Data is transmitted with the IEC 60870-101 AWD or PxC FWT-AC protocols.

#### 3 GSM connections

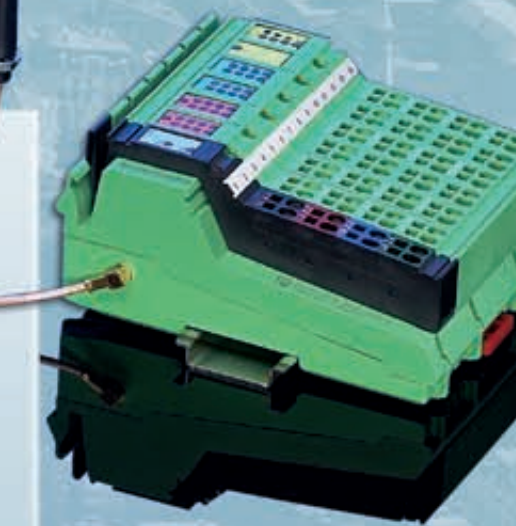
Many buildings that are to be monitored by remote control do not allow any closed-circuit data connection. Networking via mobile phone technology is often the least expensive solution and is available almost everywhere. Equipped with the GSM/GPRS modem, a remote control station provides PLC functions including data transmission in acc. with IEC 60870-5-101 AWD or PxC FWT-AC via various mobile phone networks into the wired network.

#### 4 SMS - Short Message Service

"AUTOMATIONWORX for Remote Systems" allows SMS messages to be sent directly from the remote control station. Limited only by the size of the controller memory, different SMS messages can be sent according to the system status. It is also possible to integrate defined process values such as filling levels, temperatures etc. in the message. SMSs can therefore be sent in both the GSM and the wired network.

#### 5 Wireless

Bluetooth, Trusted Wireless, local communication within factories and businesses or time-slot wireless communication are – depending on the transmission length – the right choice for remote control data connection. While Bluetooth is a secure and therefore suitable transmission method for short transmissions from the control room to the rotating scraper bridges in a sewage treatment plant, a time-slot wireless communication can be the correct and most economical choice for distances of several kilometers. All transmission media are supported by ReSy.



### Software

#### Visualization and operation

**Always with the right version**  
Adjusting setpoints and calling up system statuses – the right version of text, graphic and touch terminals and industrial PCs is always available for visualization and operation on site. In combination with our compact controllers, this creates an endless number of combination possibilities for the remote control station, always precisely tailored to the application.

#### Software

##### PC WORX, OPC Server, Factory Manager

The hardware is configured, the application programmed and the remote control paths configured universally with a single tool in acc. with IEC 61131: PC WORX. Configuration for transmitting data to the control system via OPC is also performed with the software PC WORX. The Factory Manager supports simple and fast configuration, startup and diagnostics of Ethernet networks and their infrastructure and is perfectly suited to the needs of industrial users.

#### AUTOMATIONWORX For Remote Systems

**Function block library**  
Simple and fast configuration of the remote control connections is provided by preassembled function blocks for the IEC 61131 programming environment PC WORX. Example projects for configuring the different data transmission paths as well as for data transmission in acc. with IEC 60870-5-101, IEC 60870-5-104 or even for direct connection to ACRON Connect etc. make startup child's play.

### Operating data acquisition

#### ACRON

**Data archiving and evaluation**  
The production data acquisition system ACRON from Videc allows fully automatic reporting. Regardless of whether you want to process recorded data, transfer it from the current process or compress it, freely parameterize and display alarms and messages and statistical analyses during running time or create graphic analyses during running time – ACRON is the plant usage meter that provides optimum support for waste water technology, water supply, pure water systems, power supply and tunnel technology. The ReSy system offers a direct interface to record data on the remote control system via ACRON Connect.

### Signal transmission

#### INTERFACE Serial

**Interference-free transmission of serial data**  
For reasons of economy, large amounts of data are increasingly transmitted serially. PSM interface modules connect different serial interfaces, isolate them effectively, and, in the fiber optic version, are particularly suitable for increasing the availability of machines and systems.

#### GSM/GPRS modem

**Wireless global communication**  
The DIN rail mountable GSM modem PSI-GSM/GPRS-MODEM/RS232 allows global access to machines and systems via GSM or GPRS connections. Using configurable warning or fault warning inputs, the modem can dial freely definable phone numbers and send saved text messages as a fax, SMS or e-mail. High-quality electrical isolation and integrated surge protection ensure operation even under difficult EMC conditions. The modem can be operated in all 900 and 1800 MHz GSM networks.

#### Analog modem

**For secure plant operation**  
As with the GSM modem, the V.34 modem PSI-DATA/FAX-MODEM/RS232 EMV makes electrical isolation and surge protection top priorities as well. It is also possible to send fax, SMS or e-mail via a switching input. This analog modem is approved for operation in public telephone networks in Europe, USA and Canada.