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# SPRECON<sup>®</sup>-I SERIES

AUTOMATION PLATFORM FOR  
MACHINE AND PROCESS CONTROL





# SPRECON®-I SERIES

## Concept

With the SPRECON®-I series Sprecher Automation offers a technologically and commercially optimised platform for various automation solutions. As a specific feature, far-ranging areas of application from simple machine control to sophisticated process control systems based upon an integrated hardware and software platform are covered. The system certainly provides a well thought-out and user-friendly programming tool based on IEC 61131.

Thus, all advantages of open programming standards of a PLC are combined with the robustness and real-time processing characteristics of an embedded solution. All necessary system functionalities such as motion management or field bus communication (function blocks) are available through an object-oriented and integrated development tool (SPRECON®-I-Designer).

The consequent implementation results in both standardisation and simplification of programming and software maintenance which further brings about shorter "time-to-market" intervals as well as minimised initial costs.

## Multiple areas of application

The application areas range from specific small control systems for stand-alone operation to interconnected process control turnkey solutions:

Control systems:

- general machine control
- engineering for special machines
- building system automation
- drive engineering
- environmental technologies
- robotics and handling

Process control systems:

- power generation and distribution
- municipal utilities
- chemical industries
- steel industries
- food industries
- packaging industries
- textile and paper industries
- cement industries
- wood processing industries
- etc.

## Hardware

Components of the approved SPRECON® series serve as hardware platform. They are supplemented by PLC-specific components. Together they form an extensive panoply of modules:

- digital inputs and outputs
- analog inputs and outputs
- power output modules
- intelligent counter modules
- communication modules
- power supply

The far-ranging scalability allows achievement of simple control with 16 or less I/Os as well as the realisation of extensive process control up to 20,000 I/O connections.

## Software Development (acc. to IEC 61131-3)

SPRECON®-I-Designer is a user-friendly and individually operable and integrated development tool, which covers all necessary steps for software engineering:

- project management
- development
- simulations, tests and integration
- documentation

The following programming languages are applied:

- FBD: function block diagram
- ST: structured text
- SFC: sequential function chart

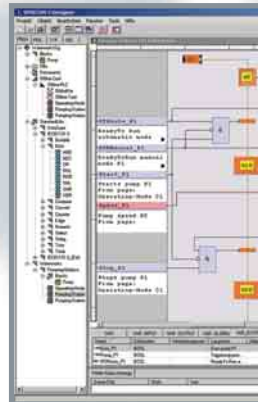
Different languages within one project are possible. The standardised and transparent programming of SPRECON®-I and more than tens of years of experiences in the areas of machine and process automation, have turned Sprecher Automation into a professional partner for system development.

## Function libraries

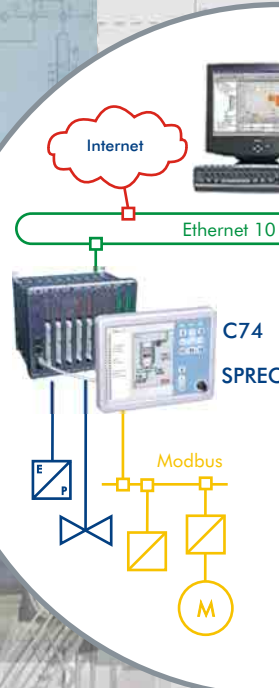
Extensive function libraries allow creation and implementation of application-specific function blocks.

## Download and start

On-line test functions with logic analysis and oscilloscope function facilitate a quick start-up. The function "on-line test" allows viewing and changing of variable values. Also single-step testing of software programmes is provided.



SPRECON®-I-Designer



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## Project documentation

SPRECON®-I offers complete document management, versioning, maintenance service and project-related printouts. This tool facilitates organised and clear project management. The system records changes in function charts until the user sets up a new software release.

## I/O connections

I/O connections, either digital or analog, can be achieved through programme variables. Data exchange with the real I/Os is processed transparently. Configuration information and I/O lists can be stored into a signal data base, which stores certain pre-configured I/O points for re-use in subsequent projects.

## Communication

Extensive data exchange is essential in distributed automation systems. Pre-developed communication modules can be recalled from extensive libraries and easily included into programmes. Connection to all available field bus systems is supported.

## Operating and monitoring

An OPC server is offered for the connection to HMI/SCADA systems, which allows interfacing SPRECON®-V or other process visualisation systems of all complexity levels. Through integration of a web server or via SPRECON®-I-Designer, real-time data of SPRECON®-I programmes can be accessed either via LAN or modem. The system can be therefore remote-controlled independent of the location.

## TECHNICAL DATA (excerpt)

### SPRECON®-I cases (W x H x D):

- 24 HP: 131 x 176 x 170 mm
- 40 HP: 212 x 176 x 170 mm
- 84 HP: 436 x 176 x 170 mm  
flush or surface-mounted, individually connectable

### Performance characteristics:

- cycle time from 1 ms, adjustable per task
- max. number of inputs/outputs per slot
  - up to 32 digital inputs and outputs 24 V, 48 V and 60 V DC
  - up to 20 power outputs up to 250 V / 8 A AC, 0,5 A DC
  - up to 20 digital inputs: 24 V DC to 250 V AC/DC
  - up to 8 analog input and outputs 0/4 to  $\pm 20$  mA / 0 to 10 V
- power supply
  - 24 to 60 V DC or 110 to 250 V DC / 110 to 230 V AC

### Control panel:

- full-graphical display (QVGA, high resolution)
- detachable, mountable in a max. distance of 15 m (up to 300 m on request)
- touch screen (on request)
- colour display (on request)
- 25 freely configurable LEDs
- alarm panel with 100 LEDs (on request)

### Functions:

- full-graphical editor for
  - function blocks
  - block creating
  - variables, signals
  - SFC or sequencers
- extensive function library IEC 61131-3, Namur NA50, VGBR170C
- separate user-specific libraries
- import of signal names from EXCEL tables
- client-server architecture for multi-user operation

### Programming languages:

- FBD: function block diagram
- ST: structured text
- SFC: sequential function chart

### Testing tools:

- single-step mode (debugging)
- breakpoints
- logic analyser
- oscilloscope

### Communication interfaces (per module):

- 1 x RS232 / 1 x RS485 extendable to: 16 x RS232 / 422 / 485 / optical fibre synch. / asynch.
- 2 x Ethernet 10 / 100 Mbit/s

### Communication protocols:

- IEC60870-5-101 / -103 / -104
- Profibus
- Modbus
- Devicenet
- proprietary protocols

### Tests:

- acc. to IEC60068-2, IEC60255-5, IEC60255-21, IEC60870-2-1, IEC61000-4, EN61131-2, EN55022, CE designation

### Environmental conditions:

- operation at -5 to +55°C
- max. -25 to +70°C

