SMART
IN OVATION

SMARTcontrol FOOD

The modern control solution for the food industry

www.sio-gmbh.de

SMARTcontrol FOOD

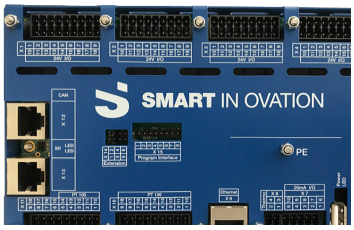
The modern control solution for smoke houses, cooking, autoclaves, air conditioning and process plants.

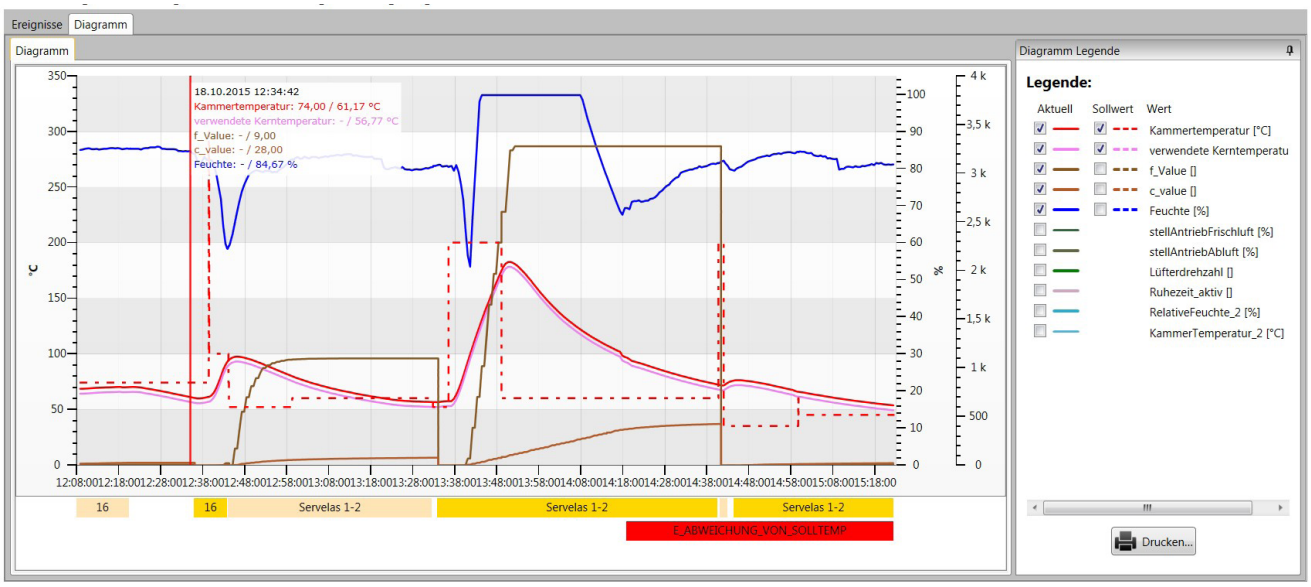
SMARTcontrol Touch Panel
7 or 10 inch screens with stainless steel glass fronts (IP69 protection)

SMARTcontrol FOOD Software
Control software with state-of-the-art web user interfaces

SMARTcontrol Log
Leading process data acquisition for quality records without gaps

SMARTcontrol IO-Modules
Compact in- / output modules





SMARTcontrol Log - Quality reports, program management, machines overview and dashboards

Advantages

- State-of-the-art industry solution for an individual customer appearance
- One control solution for all system variants
- Web user interfaces (HTML5)
- Complete recording of process- and quality data with SMARTcontrol Log (PC / Cloud)
- Stainless steel glass touch panels and controls made for harsh environments

SMARTcontrol Touch

SMARTcontrol touch panels are designed for use in the rough environment of the food industry. They are characterized by a robust stainless steel housing, laminated safety glass, a protection class up to IP69K and are equipped with state-of-the-art projective-capacitive touch sensors.

Applications

SMARTcontrol touch panels can be used as control panel or with the SMARTcontrol FOOD software as a Touch Control solution.
The panels are designed for use in the harshest environments in the food, chemical, pharmaceutical and process industries. They meet the high requirements of protection class IP69 (front) and are used worldwide together with our SMARTcontrol IO modules. The high quality stainless steel glass fronts not only look good, but also withstand attacks of aggressive cleaning agents. SMARTcontrol Touch panels have all important communication interfaces such as Ethernet, CAN and USB on board.

Integrated FOOD & PLC Software?

Our SMARTcontrol FOOD software can be operated on **SMARTcontrol Touch** panels or on the **SMARTcontrol Dinrail** in combination with one or more control panels. SMARTcontrol FOOD uses the standard PLC CODESYS by 3S.

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SMARTcontrol Dinrail

SMARTcontrol Cabinet

Inexpensive, innovative and reliable

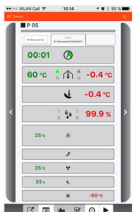
Based on our SMARTcontrol touch modular system, we can design cost-effective **individual** solutions for your systems. The kit consists of innovative mechanical, hardware and software components as well as an optional cloud connection.

Benefit

- Stainless steel safety glass touch made for harsh environments
- Top stainless-steel glas design
- Display sizes 7- ,10.1-, 2-, 15- and 17-Inches
- Robust design, easy to clean
- Installation portrait or landscape
- Future-proof cloud connection (option)

Basic data

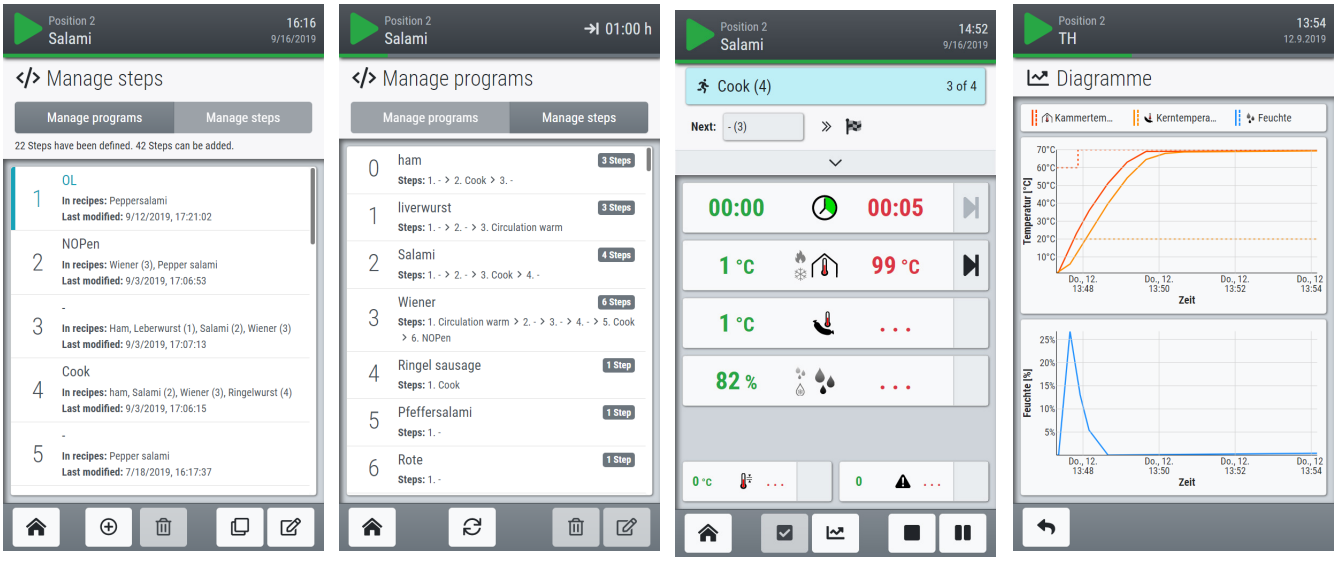
- V2A stainless steel housing, laminated safety glass
- Protection class IP69 (front), IP20 - optinonal IP65 (rear)
- Industrial-grade TFT with PCT sensor
- 4-core ARM Linux CPU with eMMC memory
- Ambient temperature 0 ° C to 50 ° C, 24 \



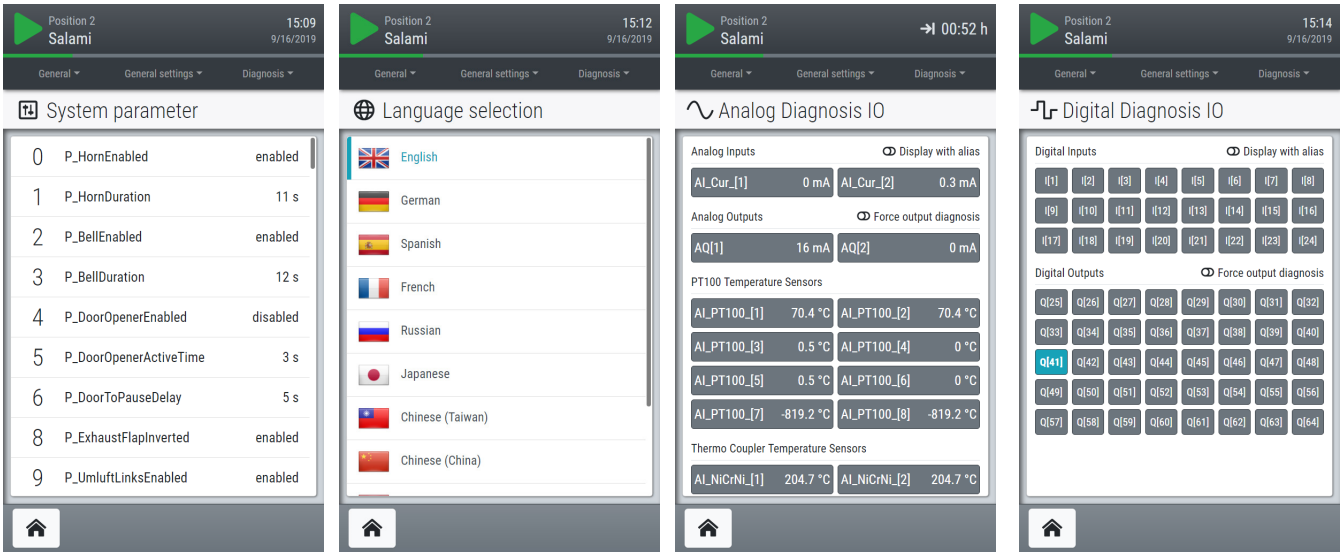
SMARTcontrol FOOD Software

Configuration of control units in the past were mostly at the level of in- and outputs. SMARTcontrol FOOD works with easy to use system functions such as heating and humidifying and „thinks“ in the same terms of the user: program, step and process. Work with clear and modern web user interfaces - also via tablet or smart-phone. Keep your system diversity under control with the aid of the system parameter.

Programs consist of steps and steps of processes



System parameter, language selection and diagnosis



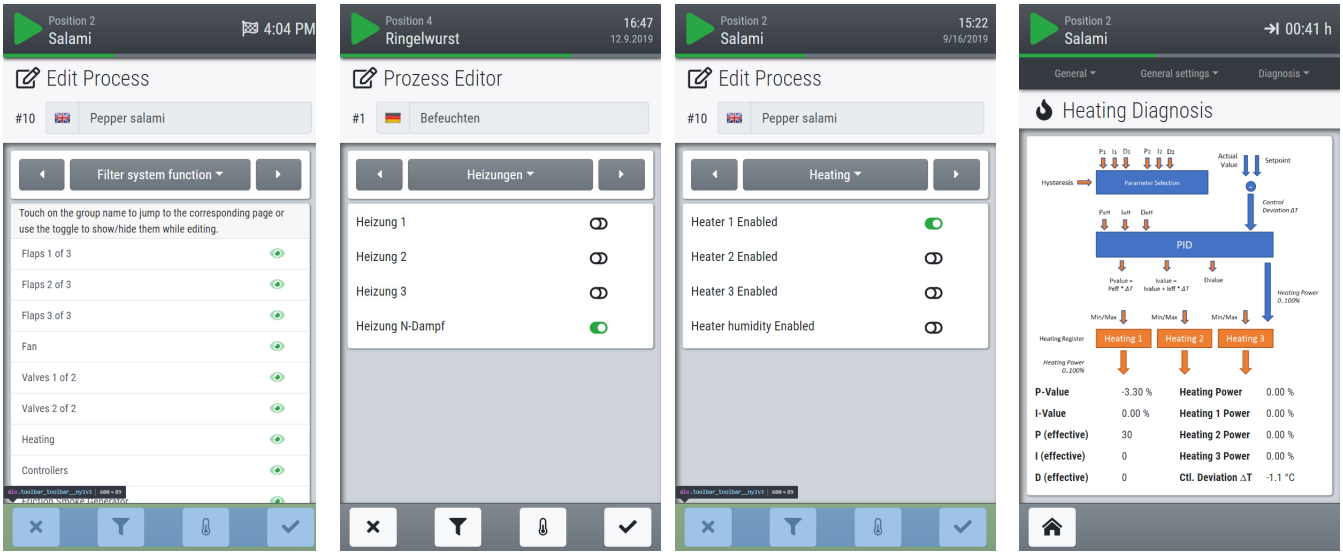
SMARTcontrol FOOD Software

Set up new processes with SmartProcessControl© in the process editor

- New processes, e.g. for a new plant type are named and edited in the process editor.
- The process editor activates necessary system functions such as heating or cooling.
- For these system functions, e.g. the controller types are selected.
- Which Set-point values are displayed in each step can be selected in the process editor.
- The real process is optimized in the diagnostics area until the process goal is achieved.

Programs consist of a sequence of steps, each step realized by selecting a process, its set-points and conditions.

Activate, edit and optimize system functions for a process



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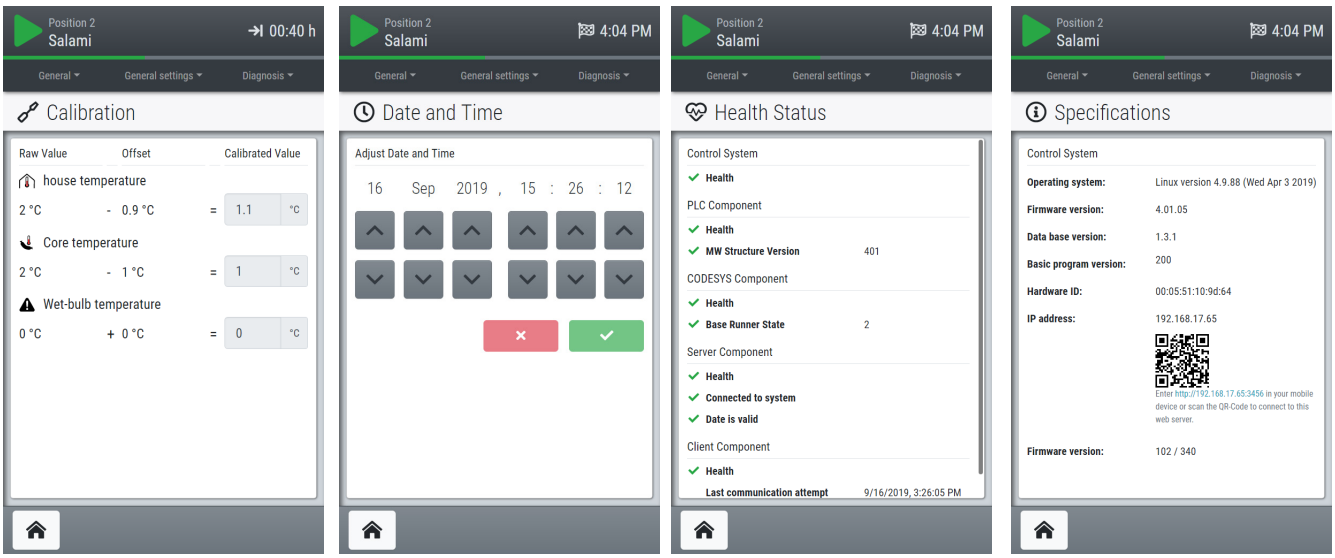
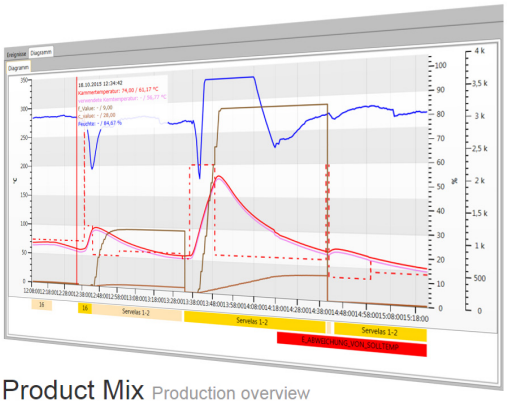
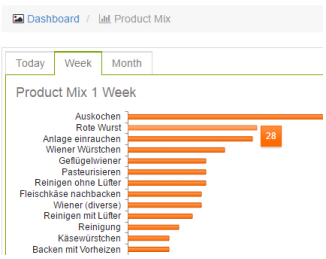


SMARTcontrol Log

SMARTcontrol Log eables you to create and manage your product programs, quality reports and their history. In addition, SMARTcontrol Log offers you an overview over all connected systems and their current status.



Product Mix Production overview



Production control centre

SMARTcontrol Log enables continous management of your production facilities:

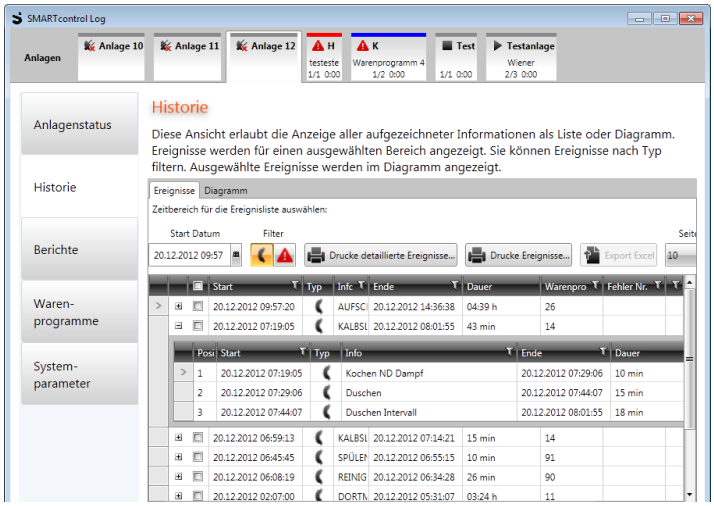
- Monitors the consistent quality of your production processes
- Manage and download your recipes of all networked systems
- Creation and management of your programs for all plant types
- Recording of all process data
- Control and monitoring of running processes in real time
- Clear presentation of your production and quality data in tabular or graphical form

Industry solution

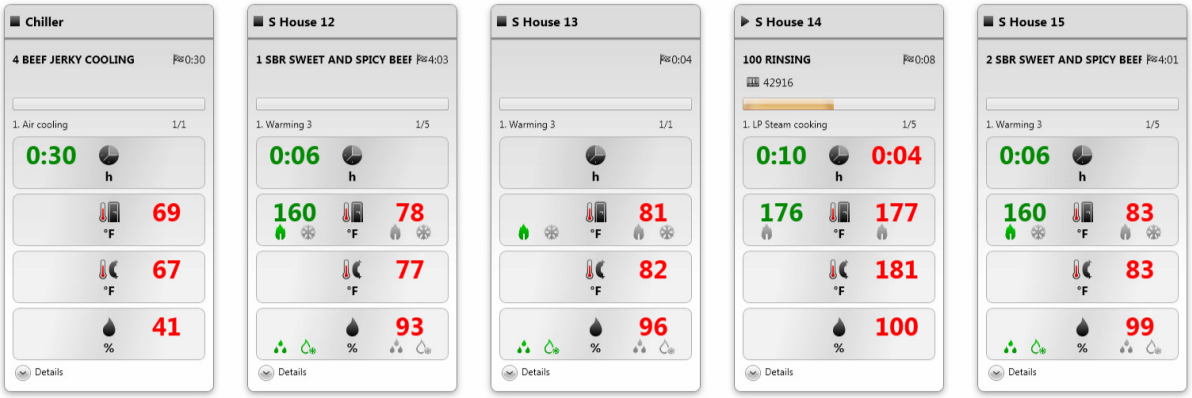
- Our industry solution was developed specifically for the food industry.
- Multi-language support
- Suitable for every company size
- Can be used throughout the corporate network (central and decentralized).
- Quality certificates according to HACCP / IFS
- Integration into existing Systems such as “CSB”
- Linkable to all networked food processing equipment
- **SMARTcontrol Log professional** PC-SW or Cloud
- **SMARTcontrol Log enterprise** Client- Server solution

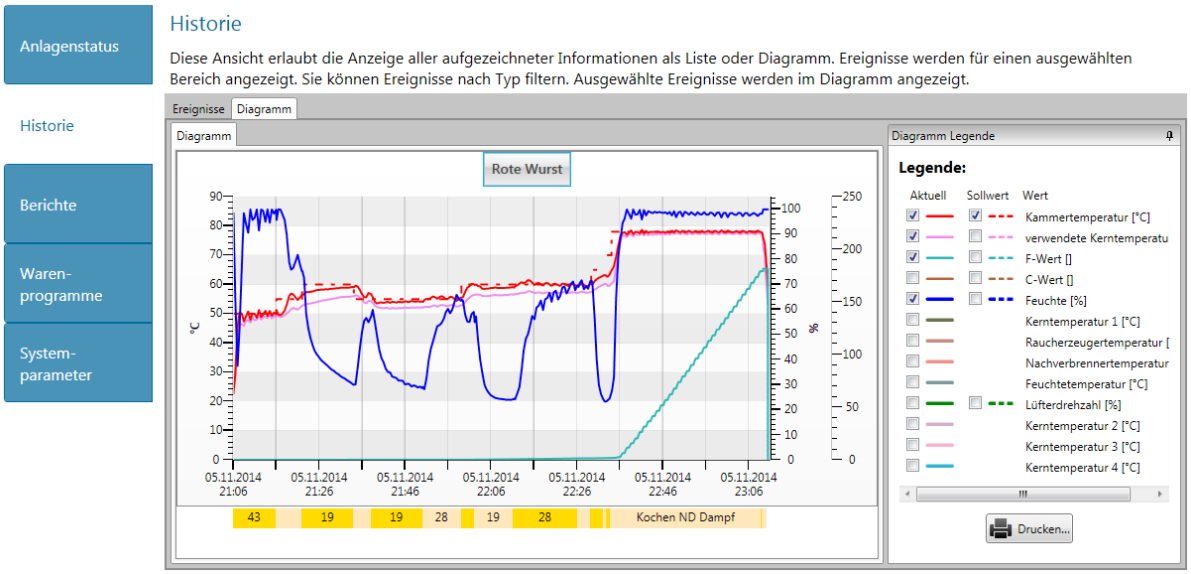
Benefits

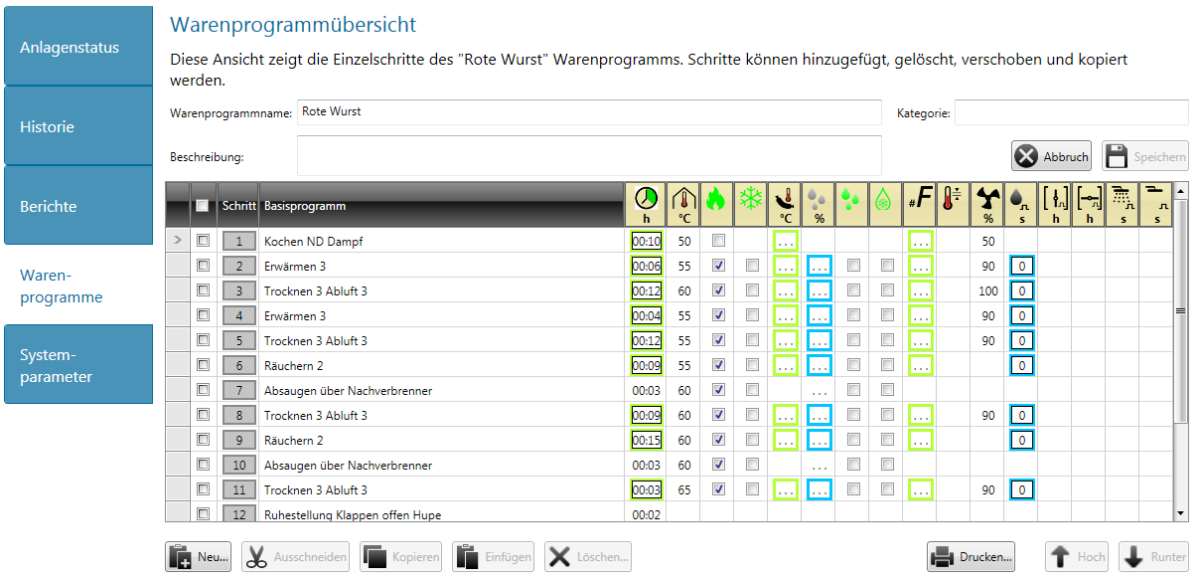
- Easy creation and maintenance of programs
- Complete history of all programs includes displaying of differences between changed versions
- Clear presentation of the quality reports and export (PDF)
- Export of all process data to Excel
- Software- and Data Interface to merchandise management systems
- Production control center for all machines
- Management Dashboards



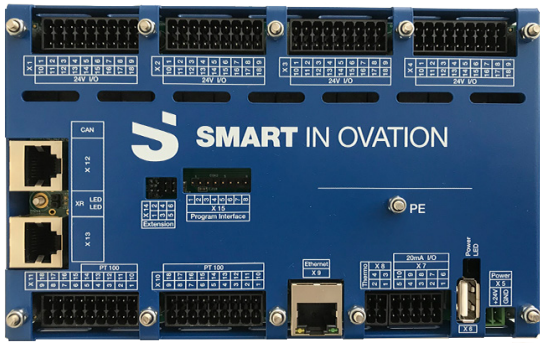
SMARTcontrol Log







SMARTcontrol IO-Module



Our IO-Modules are designed for the needs of the food industry. The compact design makes it possible to use even in confined spaces. All digital Inputs or outputs have diagnostic functions and can be freely configured as inputs or outputs.

Field of application and technology

SMARTcontrol IO modules are „CANopen modules", developed according to CIA 401 for the food industry.

Digital inputs and outputs

- Our IO-Modules has 64 digital channels. Each channel can be freely configured as an input or an output channel.
- **Maximum 64 x 24 VDC Digital Out**
  0.7A max. per output , not galvanically isolated.
- **Maximum 64 x 24 VDC Digital In,** not galvanically isolated

Inputs for temperature sensors

- **12 x PT100 3-wire,** measuring range PT100 -50 °C to 250 °C, 0.25° K resolution, not galvanically isolated
- **2 x NiCrNi thermocouple type K,** measuring range type K: -200 °C to 1350 °C, 1K resolution, no potential separation

Analogue inputs and outputs

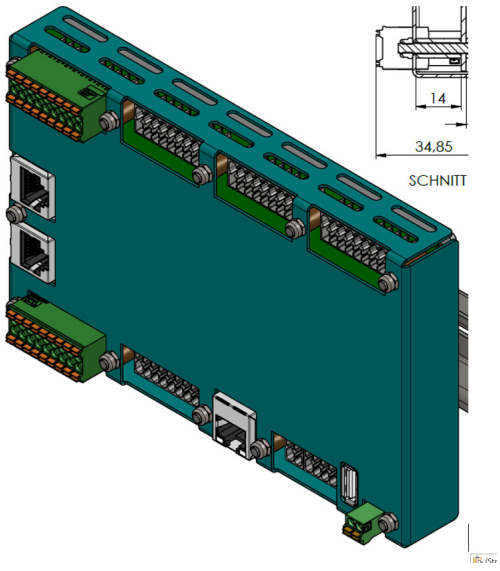
- **2 x Analogue Out**
  Range 0 to 20 mA, 0.01 mA resolution, galvanically isolated, separate 24 VDC supply
- **2 x Analogue In**
  Range 0 to 20 mA, 0.01 mA resolution, galvanically isolated, separate 24 VDC supply

Communication interfaces and protocols

- **2 x RJ45 CAN bus,** galvanically isolated
- **CANopen Communication** supports the LSS protocol according to CiA 305 for setting the CANopen Node ID / CAN baud rate
- Optional cloud connection as IoT device via Ethernet

Software Update

- Integrated **ADLATUS Flash Bootloader** for software updates via CAN interface



SMARTcontrol 880 IoT

64 x digital channels can be used as inputs or ...

Parameter	Min.	Typ.	Max.
Supply voltage range		$24V_{DC}$	
Input current			3 mA
Isolation voltage			500 V
Optical display		Diagnose	

...outputs (freely configurable and galvanically isolated**).**

Parameter	Min.	Typ.	Max.
Output voltage		$24V_{DC}$	
Current (24 VDC)			0.5 A
Isolation voltage S/K			500 V
Optical display		Diagnose	

12 x PT100 Temperature sensor, 3-wire technology

Parameter	Min.	Typ.	Max.
Measuring range	-30 °C		+350 °C
Resolution		0,1 °C	
Accuracy +/-		0,5 °C	
Measuring rate		10 Hz	
Measuring resistance		PT100	
External voltage resistance +/-			30 V_{DC}
Galvanically isolated		no	

2 x NiCrNi Thermocouple inputs

Parameter	Min.	Typ.	Max.
Measuring range Typ K	T_{UMGEB}		800 °C
resolution		0,25 °C	
Accuracy +/-		5 °C	
Measuring rate		10 Hz	
Thermoelementtyp		K	
External voltage resistance +/-			30 V_{DC}
Galvanically isolated		no	

2 x analog inputs 0-20mA

Parameter	Min.	Typ.	Max.
Input current range	0 mA		25 mA
Int. load resistance		25 Ω	
Accuracy +/-		0,1 mA	
External voltage resistance+/-			30 V_{DC}
Galvanically isolated		no	

2 x analog outputs 0-20mA

Parameter	Min.	Typ.	Max.
Output current range	0 mA		800 °C
Ext. load resistance	0 Ω	100 Ω	350 Ω
Accuracy +/-		0,1 mA	
External voltage resistance +/-			30 V_{DC}
Galvanically isolated		yes	

Communication interfaces

Schnittstelle	Anzahl	Typ.	Einheit
Ethernet / IoT	1	100	MBit/s
USB2.0 (HosWt)- Buchse Typ A	1	480	MBit/s
CAN 2.0 B mit Status-Anzeige	1	125	kBit/s

power supply

Parameter	Min.	Typ.	Max.
Supply voltage range	18 V_{DC}	24 V_{DC}	30V_{DC}
Reverse polarity protection		Ja	
Overvoltage protection		Ja	

SMARTcontrol Touch Panels

Case, glass, TFT and touch sensor

- V2A stainless steel case, safety glass, IP69 (front), IP20 (Rear)
- ARM-Linux 4-Core CPU with temperature monitoring. Alternatively: Intel-CPU
- Brilliant TFT colour screens
- Projective-capacitive touch sensor
- Format 16:10
- Supply: 24 VDC, 11 W power consumption
- Ambient temperature range 0 ° C to 50 ° C

Ethernet interface

- SMARTcontrol Log (Process Data Acquisition)
- HMI device, remote maintenance and cloud connection
- Interface for CODESYS programming
- Connection type: RJ45, 1x 10/100 Mbps, IEEE802.3

USB Device

- Full-speed USB2.0, Connector Typ B, max. 480 MB/s
- Service interface CODESYS IDE

Mechanics and connection

- Edgewise or transverse construction or individual design
- 24 VDC Supply
- L x B x H depends on screen sizes 7“ bis 17“ TFT

SMARTcontrol FOOD Software

Control software for food plants

- CODESYS V3.X PLC
- Web interfaces (NodeJS, Web-Server, HTML5)
- CANopen Master
- 1 x CAN 2.0B, galvanically isolated
- 1 x Ethernet, 1 x USB
- Data retention in case of power failure
- Software SMARTcontrol FOOD runs on SMARTcontrol Touch Panel or SMARTcontrol Dinrail

Diagnosis and remote maintenance

- Online diagnostics of inputs and outputs
- Remote diagnostics option worldwide
- Software update via USB and Ethernet
- Cloud connectivity (Option)

SMARTcontrol LOG

- Complete recording of process data.
- Clear presentation of your production and quality data in tabular or graphic form.
- Quality certificates according to HACCP / IFS
- Automatic printing after the end of the process.
- Export to Excel and PDF.
- Controling and monitoring of running plants.
- Administration and download of programs for all plant types.
- Manufacturer-independent integration with all networked production plants.
- Can be used centrally or remotely in company-wide networked systems.
- Management overviews accessible over Web: Asset utilization dashboards, product mix, Disturbances and much more.
- Responsive GUI design for optimal presentation different screen sizes for smart-phones, tablets, televisions, web terminals, PCs

SMARTcontrol IO-Module

- 64 digital inputs or outputs (24 VDC)
- Analogue inputs and outputs 0 to 20 mA
- Short-circuit proof outputs with self-diagnostic capability
- Connection of temperature sensors like PT100 (3-L) and NiCrNi
- CANopen / Ethernet interfaces
- DIN rail mounting
- Ambient temperature range 0 ° C to 70 ° C
- Power supply 24 VDC
- ADLATUS Software Update Solution

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