

# PLCs

Overview of our PLCs with CODESYS V3

# Sontheim Overview

We are your close partner with our innovative portfolio of standardized and customer-specific products and comprehensive support capabilities.



We are working closely together with universities and educational institutions of the region and realise important R&D projects.

Make your decision a one-stop issue. Every part of our systems is developed, engineered and manufactured in our in-house production and development facilities.

We are reinvesting into new technologies, doing pioneers' work in the hardware and software development.

Our driven team of motivated and qualified specialists creates specifically tailored solutions for you.

We are happy to support you in every step of your project – especially our project teams and product manager.



We are certified according to international standards like ISO 9001:2008. In addition to that we are an active member in different industry-related organisations. Our products comply to various standards - you will benefit from normised high quality standards.



# Overview of Services



Engineering

We support you from the development phase to integration and support. From the idea, through documentation and production and up to test setups, training courses and seminars you get everything from one source.



Fieldbus

We can use our extensive fieldbus expertise in various branches of the automation and automotive industry. Our focus is particularly on CAN, EtherCAT, Profibus and the protocols used in the automotive sector.



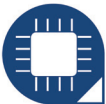
Automotive

With our tools and systems in the automotive sector we offer standard-based solutions in the field of diagnostics, measurement and testing. Our modular systems are future-proof and highly performant.



Automation

Whether you need IO modules, Industrial PCs, PLCs, interfaces or the matching software, with Sontheim you get standardized and customized products in highest quality based on current fieldbus technologies.



Hardware-Development

With us you get everything from one source. We develop modular hardware systems - standard or customized - its your choice.



Software-Development

Our software development provides beside diagnostic and analysis tools, protocol stacks, programming interfaces and software for control, operation and configuration of machines.



Diagnostics

MDT - the innovative and comfortable diagnostic tool chain based on ODX for the flexible creation of individual and complex diagnostic and service applications leaves no wish unfulfilled.



## Product Development

As an expert in different fieldbus applications, we can provide you with custom-tailored solutions. We are passionate about all aspects of electronics including hardware, software, firmware and the design of complete systems that meet your specific needs. You benefit from our comprehensive know-how as a system provider and the perfect combination of functional hardware, suitable firmware and modular software.



## Electronics Manufacturing Services (EMS)

On our two modern production lines, we manufacture electronic components and systems according to your needs and to the highest standards in quality while maintaining your schedule and optimizing for costs. We stand out for our flexibility; we are capable of producing batches from prototype to series and up to nearly 240,000 units per year.

# PLCs

The Sontheim programmable logic controllers (PLC) with CODESYS

## PLCs with CODESYS

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### eControl nano



### eControl micro





### Did you know ...

The eControl family currently contains a 3.5" and 7" touch screen variant. There are numerous interfaces and equipment options available. Control and visualization is realized with the runtime system CODESYS according to IEC 61131-3 or in C.

You need more I/Os - the ideal supplement to eControl family is the eControl IO module with 16 digital and 2 analog I/Os as well as 6 additional expansion modules.



# eControl nano



The minimum-sized eControl nano with 3.5" touch display, front-side IP67 and numerous communication interfaces provides multiple applications in industrial environments and supports you targeted and economically at your control tasks.

## Key Features

- 3,5" Touch Display
- IP67 at the front side
- Microcontroller Cortex M4 and M0
- 2x CAN interfaces acc. to DIN ISO 11898
- Programming in C (HAL is available) or CODESYS V3
- Modular expansion options
- Integrated micro-SD slot for up to 32GB

## Possible Usecases

- Machinery control
- Central control unit (optional with CANopen master functionality)

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## eControl nano - modular, flexible and robust

The smallest unit of the eControl product family is equipped with a powerful microcontroller with 204MHz for signal processing and a co-processor which handles the I/O's and control processes. eControl nano can be performed conveniently over a 3.5" touch display. The screwable front-installation frame with integrated recirculating seal ensures easy mounting and front-side IP67 protection the necessary protection in harsh environments. On memory side there are 1MByte Flash memory, a remanent memory with 32kbit and a micro-SD slot for up to 32GB of additional storage volume integrated.

## Interfaces and further functions

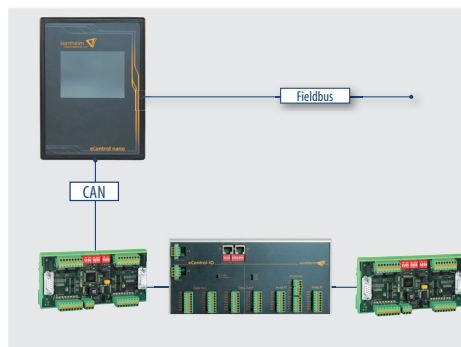
The fanless system is equipped with two CAN interfaces according to DIN 11898, one CAN channel is galvanically isolated. Moreover the control unit has an Ethernet, RS232 (TTL) and USB interface, as well as four electrically isolated digital inputs and relay outputs. An integrated temperature sensor, real-time clock and power fail detection are also implemented. The modular principle enables optional adjustments and quick reactions to custom requirements.

## Programming in C or CODESYS V3 - including HAL and finished graphic libraries

The programming of the controller is done in C (a HAL is available), you benefit from free configuration, parameterization and programming possibilities. With emWin from Seeger, libraries for a graphical user interface (GUI) are already available. Optionally eControl nano can also be programmed with the run-time system CODESYS V3 according to IEC 31131-3.

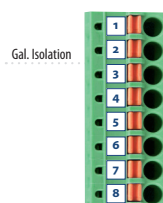
## Usecase automation

Controlling, operating and monitoring - eControl nano as a link between control and sensor-/actuator level



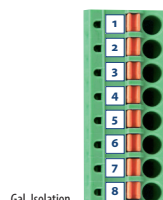
PLC	eControl nano
Microcontroller	Cortex M4 with 204 MHz and Cortex Mo
RAM	up to 16MByte
Flash	1MByte
FRAM/EEPROM	32kBit memory for remanent data
Expandable memory	Micro SD card up to 32GB
Power supply	24V ± 20 %
TFT-Display	3,5"
Resolution	320x240
Touch	resistiv
Ethernet	10/100MBit
USB	1x USB 2.0
CAN 1	galvanically isolated; CAN acc. to DIN ISO 11898 up to 1MBit/s (without 20kBit and 800kBit)
CAN 2	not galvanically isolated; CAN acc. to DIN ISO 11898 up to 1MBit/s (without 20kBit and 800kBit)
Serial interface (debug)	1x RS232 (TTL)
Real-time clock	integrated (buffered)
Temperature sensor	integrated
IP-class front	IP67
Power Fail Detection	Measuring of supply voltage (threshold at 18,6V)
Digital inputs	4 DI, 24V DC/max. 29V DC; max. input current 2,1 - 2,6 mA
Relay outputs	4 RO, 230V AC/ 1A; max. switching capacity 250VA
Storage temperature	-20 to 65 °C
Operating temperature	0 to 50 °C
Humidity	5 % to 95 %, non-condensing
Dimensions	163,5mm x 117,5mm x 50mm

#### Clamp block DI Pin Pin assignment



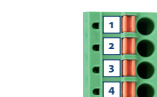
1	+ 24V DC
2	0V DC
3	0V digital 1+2
4	Digital input 1
5	Digital input 2
6	0V digital 3+4
7	Digital input 3
8	Digital input 4

#### Clamp block RO Pin Pin assignment



1	Relay 1 maker
2	Relay 1 common contact
3	Relay 2 maker
4	Relay 2 common contact
5	Relay 3 maker
6	Relay 3 common contact
7	Relay 4 maker
8	Relay 4 common contact

#### 4pol. Phoenix (CAN) Pin Pin assignment



1	CAN L (low)
2	CAN H (high)
3	CAN shield
4	CAN GND

#### Ordering information

Art.-No.	Description
V966370200	eControl nano

# eControl micro



eControl micro is a high-performance PLC with integrated CAN interface according to CiA Draft Standard DS301 and DS401. The robust and compact design in combination with CODESYS V.3 as a development environment opens up a variety of applications in industrial environments.

## Key Features

- CODESYS V3 programming according to IEC 61131-3
- Integrated micro SD card
- 7" touch display
- CANopen interface acc. to CiA Draft standard DS301 and DS401
- Expansion options for individual customization

## Possible Usecase

- Machinery control
- Central control unit with CAN master functionality

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## eControl micro

The control unit has a powerful CPU with 400 MHz which has been specially optimized for the CODESYS target- and web- visualization. The operation can be performed conveniently with a 7" TFT touch display.

The extremely compact and robust metal housing allows an use in harsh industrial environments. An integrated Ethernet interface can be used for debugging, for remote maintenance, software updates or parent visualizations. A USB port ensures rapid data exchange with external data media such as a USB stick and so the PLC firmware or application can be updated, as well as machine parameters and records can easily be exchanged (custom scripts automatically executed).

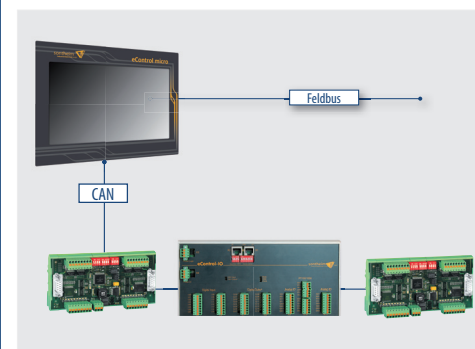
Further communication interfaces of the PLC are three serial and one CAN port which is specified according to CANopen. The controller has a CANopen master functionality, which is quite simply configured from the CODESYS control configuration, guaranteeing optimal control of CANopen I/Os and drives. All data from the control unit is stored on an integrated Micro SD card up to 32GB.

## CODESYS programming according to IEC 61131-3

Based on a 32-bit microcontroller with integrated target visualization on the PLC, eControl micro is programmed with the runtime system CODESYS V3.x according to IEC 61131-3. For demanding visualizations there are ready-made visualization elements, such as trend graphics, alarm tables or pointer instruments which allows a quick and easy work.

## Usecase automation

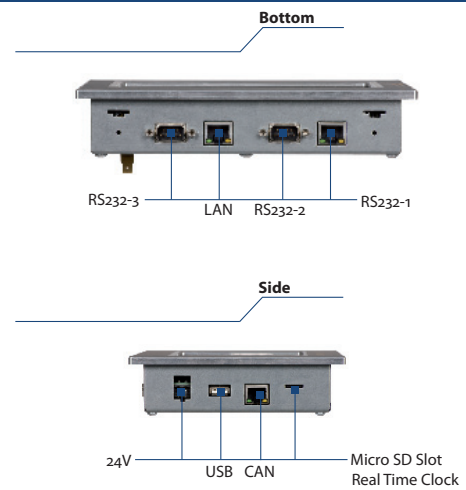
Controlling, operating and monitoring - eControl micro as a master and link between control and sensor-/actuator level





PLC	eControl micro
CPU	Freescape 400MHz
RAM	128MByte DDR2
Flash	64MByte
FRAM/EEPROM	Memory for retentive data
Expandable memory	micro SD card up to 32GB
Power supply	24V ± 10 %
TFT-Display	7" (optional other sizes available)
Resolution	800x480
Touch	resistiv
Ethernet	10/100MBit
USB	1.1
CAN	up to 1MBit/s
Serial interface (data)	2x
Serial interface (debug)	1x optional
DIP Switch	8-pin version for setting
Temperature sensor	integrated
IP-class front	IP50
IP-class side/ back	IP20
Storage temperature	-20 up to 70 °C
Operating temperature	0 up to 50 °C (optional extended temperature)
Humidity	20 % bis 90 % , non-condensing
Dimensions	200mm x 150mm x 36mm

## Pin assignment



## Ordering information

Art.-No.	Description
V966371200	eControl micro

# Legal information

## Contact:

DE

### Sontheim Industrie Elektronik GmbH

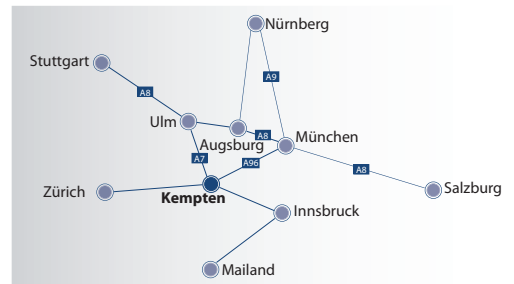
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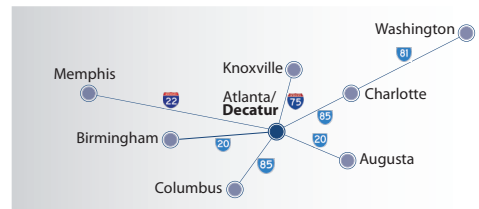
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Wir leben Elektronik!  
We live electronics!

Sontheim Overview and Portfolio:



Engineering



Fieldbus



Hardware-  
Development



Software-  
Development



Diagnostics



Automation



Automotive



Production



Service

We are looking forward to your enquiry. For a personal advice and detailed information please refer to our specialists:

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