SIGMATEK

S-DIAS Control System

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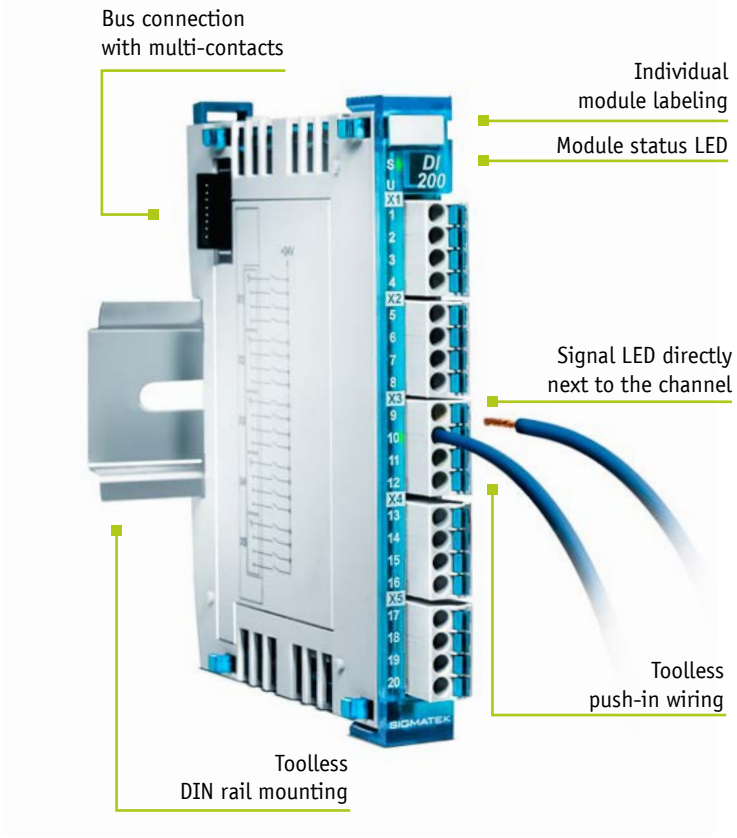
Control and I/O system in pocket format

S-DIAS

The modular, super compact S-DIAS series unifies fast signal processing with comfortable handling and a robust, vibration-proof construction. Safety is fully integrated into the new control and I/O series.



At a Glance

- **Super compact:** up to 20 I/Os with a module size of only 12.5 x 103.5 x 72 mm
- **Smart:** complete module solution, signal LEDs directly next to the channels, Push-in wiring, toolless mounting
- **Speedy:** 100 Mbit/s bus speed
- **Stable:** high mechanical reliability and vibration resistance
- **Safe:** Safety fully integrated

Saves Space in Control Cabinet

With up to 20 I/Os per module and a packaging density of only 63 mm² per channel, S-DIAS sets new standards. On an 80 cm control cabinet width, up to 1,280 I/Os can be housed - an important aspect, since machines should be increasingly more compact and control cabinet space is always linked to costs.

Space-saving design

Robust and Vibration Proof

S-DIAS is designed as a smart complete solution and combines electronics, bus and DIN rail mounting in one stable housing. The module supply and bus connection are provided over a robust multi-contact plug. A unique feature is the mechanical interlocking - it creates a form-fitting, vibration resistant connection of the modules.

► **High suitability for industrial applications**

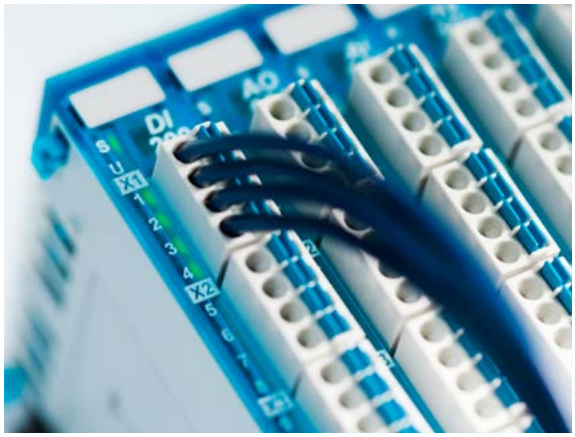
► **Minimal wiring/installation**

Operation Ready

The modules are delivered ready to use - including standard connectors with push-in spring terminals. They can therefore be wired quickly and without tools, preassembled into blocks and mounted on the DIN rail. The complete module solution also simplifies ordering and logistics. Engineering is reduced as well, since for S-DIAS modules, EPLAN macros for easy schematic integration are available. S-DIAS provides the option for 1, 2 or 3 wire connection technology up to a conductor cross-section of 1.5 mm².

Channel-Specific Diagnosis

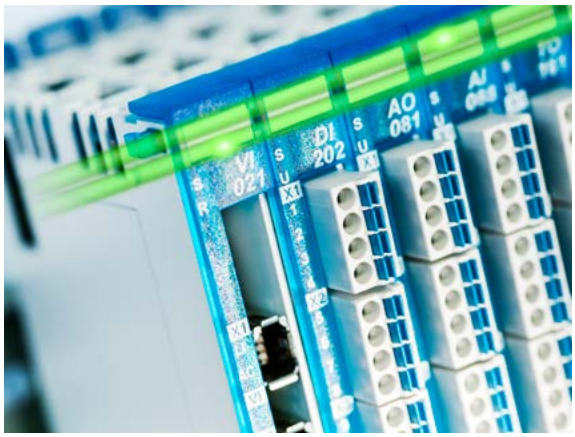
In addition to the module status LEDs, a signal LED is located next to each individual channel that provides information on the status of the contact point. Fast and above all, clear identification and diagnosis are therefore achieved and service simplified. Module tags, which can be individually labeled, increase the clarity in the control cabinet.



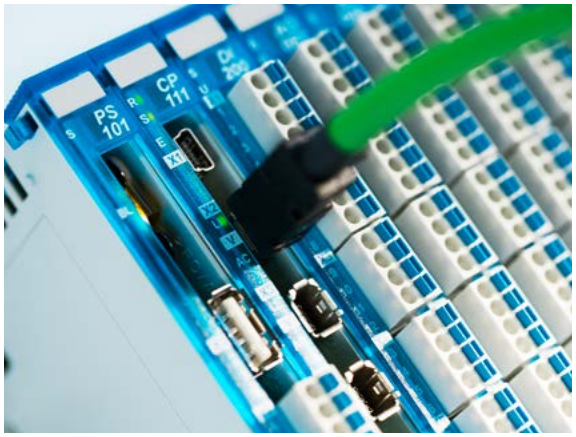
► **Clear: status LEDs directly next to each channel**

Fast Communication

The S-DIAS series communicates over the hard real-time Ethernet bus VARAN with a speed of 100 Mbit/s and is therefore perfectly suited for fast, dynamic applications. Individual I/O modules can be accessed within 1.12 µs. Per CPU module or VARAN bus interface, 64 participants with up to 1,280 I/Os can be connected; the update time is under 60 µs.



▶ **High speed - short reaction times**



▶ **CPUs also available in S-DIAS format**

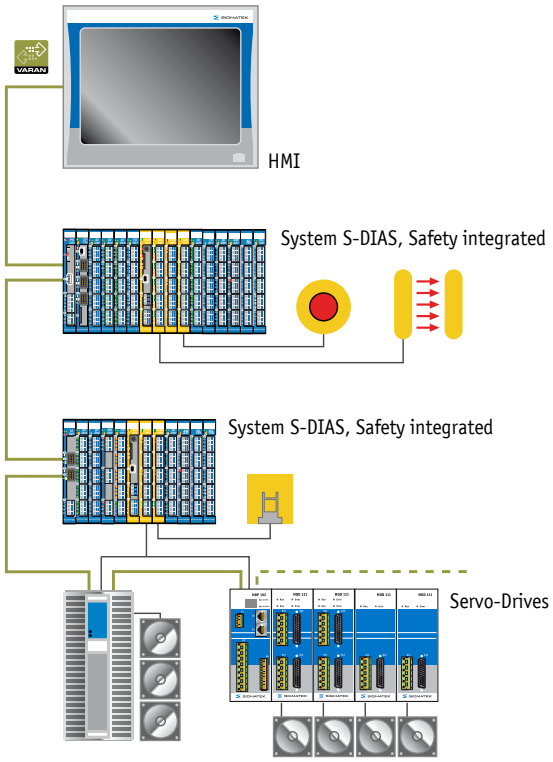
CPU in Pocket Format

Equipped with high-performance, low loss EDGE2 Technology processors, the S-DIAS CPUs are the right choice for all control and motion tasks. The connection to the VARAN network is made with "Industrial Mini I/O Type I" connector plugs from TE Connectivity. With their 2-point contact principle, these standard connectors provide an exact, vibration resistant connection - also in mini format.

Safety Seamlessly Integrated

With the S-DIAS Safety system, Safety technology can be flexibly and seamlessly integrated into the standard system. Through complete integration, the shortest reaction times are achieved for signal processing - which are in the range of a few milliseconds. The slim, cost-optimized Safety system is TÜV-certified in accordance with SIL 3 or SIL CL 3 according to IEC 62061 and EN ISO 13849-1, Category 4, PL e. S-DIAS Safety can also be used as a stand-alone solution, which enables systems to be expanded with Safety functions step-by-step.

▶ **Safety fully integrated or stand-alone**

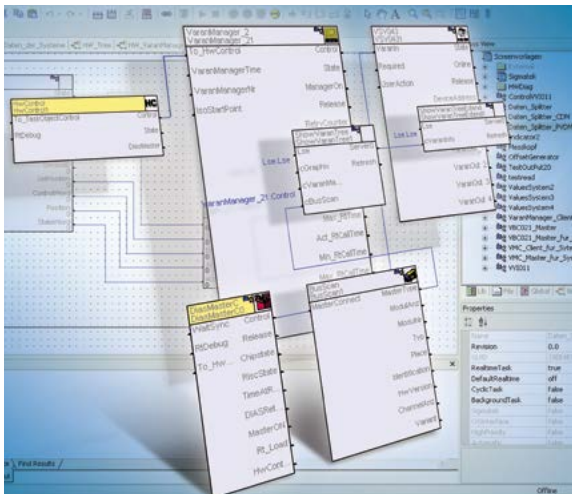


Freedom in Topology

Like all SIGMATEK control systems, S-DIAS is modularly designed and an ideal system solution for central and decentralized automation concepts. The user can combine standard modules and Safety systems as desired and is therefore free to configure the system topology as needed. With modular machine concepts, seamless and flexible networking from the control to the field level plays a deciding role. The real-time Ethernet bus VARAN scores with a high payload data rate, guaranteed data security and Hot-Plug capability.

Efficient Engineering

The engineering is user-friendly. As with all SIGMATEK control systems, S-DIAS can also be designed and programmed with the object-oriented engineering suite LASAL: control, visualization, Motion Control, Safety, service and remote maintenance are combined in an integrated platform. The graphic representation provides clarity. With object orientation, the highest modularity and reusability are achieved. This contributes to a significant reduction in the development times and costs.

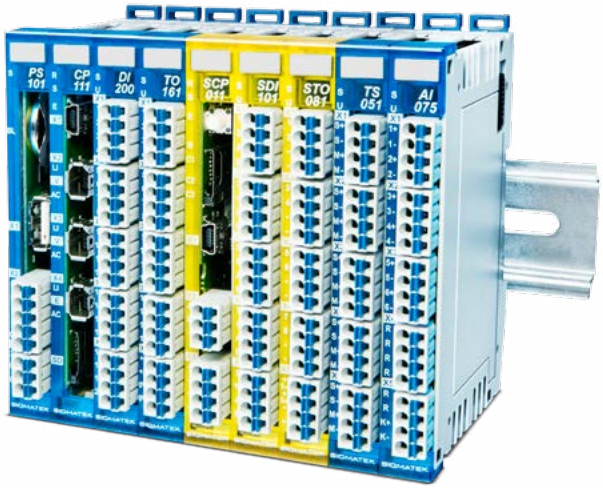


LASAL provides all the advantages of object-oriented programming without the user being confronted with the syntax in the practical application. When creating the actual program code, you can rely on familiar languages despite object orientation: structured text, ladder logic, sequential function chart, instruction list (all in accordance with the IEC 61131-3 Norm) and C.

Current Module Overview

CPU	
CP 101	EDGE2 Technology processor, microSD card, 1x USB device, 1x Ethernet, 1x CAN
CP 111	EDGE2 Technology processor, microSD card, 1x USB device, 1x Ethernet, 1x VARAN In, 1x VARAN In/Out
PS 101	Buffer battery, 1x USB host, 1x CAN
Bus Coupling	
VI 021	1x VARAN In, 1x VARAN Out, +24 V DC supply
Interface	
ICA 011*	1x CAN
ISE 021*	1x RS232, 1x RS485
ISE 031*	1x RS232, 1x RS485, 1x TTY
Digital Input	
DI 080	8 inputs +24 V, 5 ms
DI 160	16 inputs +24 V, 5 ms
DI 200	20 inputs +24 V, 5 ms
DI 202	4 inputs +24 V, 10 µs (counter function), 16 inputs + 24 V, 0.5 ms
DI 203	20 inputs +24 V, 0.5 ms
DI 204	2 ABR counters, TTL signal, 10 µs, 14 inputs +24 V, 0.5 ms
Digital Output	
TO 081	8 outputs +24 V, 0.5 A short-circuit proof
TO 127	12 outputs +24 V, 1.7 A short-circuit proof
TO 161	16 outputs +24 V, 0.5 A short-circuit proof
Digital Mix	
DM 081	4 inputs +24 V, 5 ms, 4 outputs +24 V, 0.5 A, short-circuit proof
DM 161*	8 inputs +24 V, 5 ms, 8 outputs +24 V, 0.5 A, short-circuit proof
DM 162*	4 inputs +24 V, 3.5 mA, 5 ms, 4 inputs with counter func./time measuring, 8 outputs +24 V, 0.5 ms, short-circuit proof
Analog Input	
AI 043	4 inputs PT100/PT1000/KTY
AI 075	6 inputs +/- 10 V (16 bits), 1 KTY/PT1000 temperature input
AI 084	8 inputs, 0-20 mA (16 bits)
AI 088	8 thermo element inputs (0-40 mV)
Analog Output	
AO 081	8 outputs +/- 10 V (12 bits)

* Planned availability: 3rd/4th quarter 2014



Analog Mix	
AM 221	2 inputs +/- 10 V (16 bits), 2 outputs +/- 10 V (12 bits), 1 reference output + 10 V, max. 10 mA
AM 441	4 inputs +/- 10 V (16 bits), 4 outputs +/- 10 V (12 bits), 1 reference output + 10 V, max. 10 mA
Counting and Positioning	
NC 100	Incremental interface, 1 ABR counter, encoder supply 5 V, 4 dig. inputs +24 V, 10 µs, 4 dig. outputs +24 V, 2 A
TS 041	Transsonar module for 4 distance measurement systems, DI/IP protocol
TS 051	Transsonar module for 5 distance measurement systems, DI/IP protocol
Motion	
SR 020	Current controller module for DC motor stages, 0-3.5 A
Measuring Technology	
AI 022	DMS module, 2 load cells, 1 mV/V or 2 mV/V (24 bits)
Splitter	
SV 141*	1x VARAN In, 4x VARAN Out
SE 051*	5x Ethernet
Potential Distribution	
KL 090	Potential distribution 9x 0 V (ground), 9x +24 V (supply)
KL 180	Potential distribution 18x 0 V (ground)
KL 181	Potential distribution 18x +24 V (supply)

The Safety solution is modular and each system consists of a Safety CPU as well as the corresponding two-channel Safety I/O or counter and positioning modules.

Safety CPU	
SCP 011	Safety controller, 1x USB device, microSD slot
Digital Safety Input	
SDI 101	10 inputs +24 V, 0.5 ms
Digital Safety Output	
STO 081	8 outputs +24 V, max. 2 A, short-circuit proof
Safety Relay Output	
SRO 021	2 outputs max. +30 V DC, max. 6 A
Digital Safety Mix	
SDM 081*	6 inputs +24 V, 0.5 ms, 2 outputs +24 V, 2 A
Counting and Positioning	
SSI 021	2 SSI counters (up to 32 bits)

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