

SIEB & MEYER



# Drive Controllers SD4S and SD4B

High Speed and High Dynamics



# Better Performance and New Control Functions

Compared to SD2S/SD2B plus, the SD4S and SD4B variants come with significantly improved processor performance: The new 32-bit processor is up to five times faster and therefore allows a higher resolution, more precise calculations and faster completion of complex tasks. For customers, this translates into a considerable performance increase. Higher switching frequencies and an enhanced control performance at even higher speeds lead to an optimized overall process.

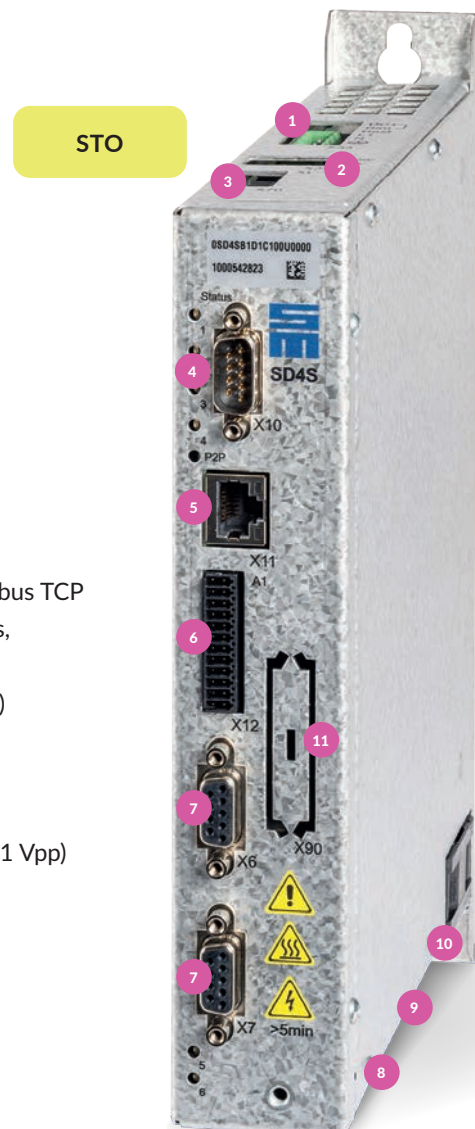
Thanks to an integrated position controller, SD4S/SD4B devices are able to perform high-precision positioning tasks on their own. In addition, the new devices support higher PWM switching frequencies of 24 and 32 kHz. For an even finer modulation of the sine-wave signal, a commutation angle control

for 32, 48 and 64 kHz is integrated. As a result, the motor current has an optimal sinusoidal waveform, almost without disturbing harmonics. This reduces the power loss caused by the PWM in the temperature-sensitive motor or rotor to a minimum.

In addition, the available processor performance is used for new control functions. The SD4S device variants feature, for example, optimal operation of synchronous motors with magnets embedded in the rotor, so-called interior permanent magnet motors (IPM). The reluctance torque generated by these motors is optimized in real-time depending on the operating point – state of the art in other systems is static optimization to a fixed operating point.

## The Interfaces of the Drive Controller SD4S

- 1 Power supply / External ballast resistor
- 2 24 VDC logic supply
- 3 **Integrated safety „STO“:** restart lock to attain the category 4/PL e acc. to EN 13849 1:2015 and EN 61508:2010 SIL3
- 4 RS232/485, CAN, CANopen, Modbus RTU
- 5 Ethernet 100 Mbit, parameterization, diagnosis and operation, Modbus TCP
- 6 I/O interface: 1 digital relay output, 4 digital outputs, 8 digital inputs, 1 analog input +/-10V, 1 analog output +/- 10V
- 7 Digital motor encoder interface (BiSS-C, EnDat 2.2, TTL, Hall sensor)
- 8 Optional: PROFINET IO, EtherCAT, POWERLINK
- 9 Galvanically isolated thermal contact
- 10 Motor connection
- 11 Optional: analog motor encoder (resolver, linear Hall sensor, SinCos 1 Vpp)



# Features

## PWM frequencies up to 32 kHz

**Feature:**

SD4S provides PWM frequencies up to 32 kHz and commutation frequencies up to 64 kHz

**Advantage:**

Higher rotating field frequencies up to 6,000 Hz and lower harmonic frequency components

**Benefit:**

Realization of motor designs with more motor poles and lower motor losses

## Motor Analyzer

**Feature:**

Simulation of operating points and FFT analysis with THDi and THDv calculation

**Advantage:**

Analysis of system performance at the beginning of the development

**Benefit:**

Reduction of development time, costs and risk in addition to optimization of the complete system

## Load Indicator

**Feature:**

Configurable, highly accurate, and dynamic monitoring of the torque-generating part of the motor current. Even the slightest load changes, e. g., due to grinding operations in the  $\mu\text{m}$  range, can be detected.

**Advantage:**

Functions such as monitoring tool breakage or tool wear, gap elimination, or flexible machining feed rates can be implemented without additional external measuring sensors

**Benefit:**

Reduced system costs and less space required in the control cabinet thanks to the elimination of additional external components

# The Ideal Drive Function for Every Application

**Sensorless vector control (SVC):** for synchronous, asynchronous and IPM motors.

Users benefit from best motor performance and low motor heating.

**Servo mode with encoder feedback (servo):** high-dynamic and accurate speed mode for synchronous, asynchronous and IPM motors

**HS-Block:** block control with Hall elements for high-speed synchronous motors

**V/f-PWM:** for asynchronous motors – additional motor chokes and LC filters are not required



Milling and Grinding Spindles



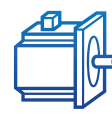
Turbo Blowers/Compressors



Turbines



Tightening and Press Systems



Servo/Positioning



Wafer Dicing

# Technical Specifications SD4B

## Voltage Class 48 VDC Input Voltage Range 20..50 VDC

| Device type    | Mains voltage | Output power [kW] | Apparent output power [kVA] | Output current [A] | Peak output current | H x W x D (mm) | Weight | Cooling |
|----------------|---------------|-------------------|-----------------------------|--------------------|---------------------|----------------|--------|---------|
| OSD4BB1E1Nxxxx | 48 VDC        | 0.76 kW           | 0.76 kVA@16 kHz             | 13 A@16 kHz        | 17.5 A              | 165 x 120 x 25 | 0.6 kg | Air     |

## Voltage Class 80 VDC Input Voltage Range 20..90 VDC

| Device type    | Mains voltage | Output power [kW] | Apparent output power [kVA] | Output current [A] | Peak output current | H x W x D (mm) | Weight | Cooling |
|----------------|---------------|-------------------|-----------------------------|--------------------|---------------------|----------------|--------|---------|
| OSD4BB1D1Pxxxx | 80 VDC        | 0.98 kW           | 0.98 kVA@16 kHz             | 10 A@16 kHz        | 14 A                | 165 x 120 x 25 | 0.6 kg | Air     |

# Technical Specifications SD4S

## Voltage Class 50 VAC Input Voltage Range 45..80 VAC

| Device type    | Mains voltage | Output power [kW] | Apparent output power [kVA] | Output current [A] | Peak output current | H x W x D (mm) | Weight | Cooling |
|----------------|---------------|-------------------|-----------------------------|--------------------|---------------------|----------------|--------|---------|
| OSD4SB1D1Axxxx | 1 x 50 VAC    | 0.3 kW            | 0.7 kVA@16 kHz              | 8 A@16 kHz         | 14 A                | 247 x 43 x 186 | 1.2 kg | Air     |
| OSD4SC1E1Axxxx | 1 x 50 VAC    | 0.6 kW            | 1.2 kVA@16 kHz              | 14 A@16 kHz        | 28 A                | 247 x 63 x 186 | 2.2 kg | Air     |

## Voltage Class 230 VAC Input Voltage Range 99..253 VAC

| Device type    | Mains voltage | Output power [kW] | Apparent output power [kVA] | Output current [A] | Peak output current | H x W x D (mm) | Weight | Cooling |
|----------------|---------------|-------------------|-----------------------------|--------------------|---------------------|----------------|--------|---------|
| OSD4SB1D1Cxxxx | 1 x 230 VAC   | 0.8 kW            | 1.6 kVA@16 kHz              | 4 A@16 kHz         | 14 A                | 247 x 43 x 186 | 1.2 kg | Air     |
| OSD4SC1E1Cxxxx | 1 x 230 VAC   | 1.6 kW            | 3.2 kVA@16 kHz              | 8 A@16 kHz         | 28 A                | 247 x 63 x 186 | 2.2 kg | Air     |
| OSD4SD1E1Cxxxx | 1 x 230 VAC   | 2.4 kW            | 6.4 kVA@16 kHz              | 16 A@16 kHz        | 28 A                | 247 x 83 x 186 | 2.4 kg | Air     |

## Voltage Class 400 VAC Input Voltage Range 180..528 VAC

| Device type    | Mains voltage | Output power [kW] | Apparent output power [kVA] | Output current [A] | Peak output current | H x W x D (mm)  | Weight  | Cooling |
|----------------|---------------|-------------------|-----------------------------|--------------------|---------------------|-----------------|---------|---------|
| OSD4SD1B1Fxxxx | 3 x 400 VAC   | 4 kW              | 5.5 kVA@16 kHz              | 8 A@16 kHz         | 20 A                | 247 x 83 x 186  | 2.5 kg  | Air     |
| OSD4SD1F1Fxxxx | 3 x 400 VAC   | 6 kW              | 8.3 kVA@16 kHz              | 12 A@16 kHz        | 24 A                | 247 x 83 x 186  | 2.5 kg  | Air     |
| OSD4SE1I1Fxxxx | 3 x 400 VAC   | 10 kW             | 13.9 kVA@16 kHz             | 20 A@16 kHz        | 56 A                | 278 x 93 x 225  | 4.8 kg  | Air     |
| OSD4SF1I1Fxxxx | 3 x 400 VAC   | 15 kW             | 20.8 kVA@16 kHz             | 30 A@16 kHz        | 56 A                | 278 x 118 x 225 | 5.6 kg  | Air     |
| OSD4SH1M1Fxxxx | 3 x 400 VAC   | 24 kW             | 33 kVA@16 kHz               | 48 A@16 kHz        | 96 A                | 400 x 131 x 225 | 10 kg   | Air     |
| OSD4SH1N1Fxxxx | 3 x 400 VAC   | 32 kW             | 44 kVA@16 kHz               | 64 A@16 kHz        | 96 A                | 400 x 131 x 225 | 10.5 kg | Air     |
| OSD4SK1N1Fxxxx | 3 x 400 VAC   | 48 kW             | 66 kVA@16 kHz               | 96 A@16 kHz        | 120 A               | 440 x 176 x 225 | 15 kg   | Air     |

All data subject to change

# Facts & Figures

SIEB & MEYER was founded in 1962 and is a successful company in the field of industrial electronics. With about 300 employees worldwide today, we develop and manufacture a broad spectrum of CNC and drive technology products. Our core technologies include controllers for mechanical engineering and automation technology, servo drives for a wide variety of drive systems and frequency converters for high-speed motors and generators.

The consistent concentration on our core competences resulted in our worldwide leading position in the field of CNC controls for PCB drilling and routing machines. Close cooperation with our customers from the development to a trouble-free operation of our products is the basis of our philosophy of quality.



## SIEB & MEYER AG at a glance

- » Founded in 1962
- » approx. 300 employees
- » Production site: Lueneburg (Germany)
- » Subsidiaries in Shenzhen (China) and Taoyuan/Taipeh (Taiwan)

# SIEB & MEYER Worldwide

## SIEB & MEYER AG

Auf dem Schmaarkamp 21  
21339 Lüneburg  
Germany  
Phone: +49 4131 203 0  
info@sieb-meyer.de  
www.sieb-meyer.com

## SIEB & MEYER Asia Co. Ltd.

5 Fl, No. 578, Sec. 1  
Min-Sheng N. Road  
Kwei-Shan Hsiang  
Guishan Dist., Taoyuan City 33393  
TAIWAN  
Phone: +886 3 311 5560  
info@sieb-meyer.tw

## SIEB & MEYER (Shenzhen) Trading Co. Ltd

Haixiang Plaza, Room 316,  
No. 1048 Nanhai Avenue,  
Shekou - Zhaoshang Subdistrict,  
Nanshan District,  
Shenzhen 518067  
CHINA  
Phone: +86 755 26811417 or  
+86 755 26812487  
info@sieb-meyer.cn  
www.sieb-meyer.cn

## Our sales partners for drive electronics

### Germany, regional

Kissing GmbH  
August-Bebel-Straße 15  
45525 Hattingen  
Phone: +49 2324 902030 0  
post@kissing.gmbh  
www.kissing.gmbh

Regions: West Lower Saxony, Hesse,  
Saarland, Rhineland-Palatinate, North  
Rhine-Westphalia

### Benelux

VHE Industrial Automation B.V.  
Luchthavenweg 10  
5657 EB Eindhoven  
NETHERLANDS  
Phone: +31 40 250 8500  
www.vhe.nl

### France

Team Spindle Services  
10 All, de la Font des Tournelles  
77230 Saint Mard  
FRANCE  
Phone: +33 1 78 90 24 08  
www.teamspindleservices.com

### Poland

ISOTEK Spółka z o.o.  
ul. Św. Szczepana 57  
61-465 Poznań  
POLAND  
Phone: +48 61 8350850  
isotek@isotek.com.pl  
www.isotek.com.pl

### Switzerland

Amptec Automations-, Mess- und  
Prüfsysteme GmbH  
Feldstrasse 37  
3360 Herzogenbuchsee  
SWITZERLAND  
Phone: +41 62 530 0868  
info@amptec.ch  
www.amptec.ch

### Spain, Portugal

Castel Omega S.L.  
Torrente Estadella, 19  
08030 Barcelona  
SPAIN  
Phone: +34 933 452 611  
custom@castelomega.com  
www.castelomega.com

### Turkey

Servo Kontrol Makine Otomasyon Ve Dis  
Tic. LTD. STI.  
Perpa Ticaret Merkezi Kat 11  
Blok No: 1609  
80270 Okmeydani / Istanbul  
TURKEY  
Phone: +90 212 320 3080  
info@servokontrol.com  
www.servokontrol.com

### UK

Principle Engineering Ltd.  
Tan Llan Farm,  
Ffordd Llanfynydd  
Treuddyn  
Flintshire, CH74LQ  
UK  
Phone: +44 333 888 0360  
info@principle-eng.co.uk  
www.principle-eng.co.uk/

### India

Mactrol Motion Control PVT.Ltd.  
B-16/2, Meerut Road, Industrial Area  
Ghaziabad, 201 103  
Uttar Pradesh  
INDIA  
Phone: +91 120 4557 924  
sales@mactrol.org  
www.mactrol.org

### Japan

Fukuda Corporation  
11-2, Akashicho, Chukuo-ku  
104-0044, Tokyo  
JAPAN  
Phone: +81 3 5565 6826  
purchasing@fukudaco.co.jp  
fukudaco.co.jp

### South Korea

Sambo Corporation  
A-704 Twintech Tower 345-9,  
119 Gasandigital 1-ro, Geumcheon-Gu  
Seoul 08589  
SOUTH KOREA  
Phone: +82 2 863 2313  
E-Mail: sambo@sambokorea.com  
www.sambocorporation.com

### Taiwan

WINDIRS Technology Co., Ltd  
6F, No. 66-10, Sec. 2 Nankan Rd.,  
Luzhu Dist.,  
Taoyuan City 338  
TAIWAN  
Phone: +886 3 3525806  
E-Mail: sales@windirs.com.tw  
www.windirs.com.tw

### USA, Canada

SIEB & MEYER USA  
11090 Southland Road  
Cincinnati, OH 45240  
USA  
Phone: +1 513 563 0860  
info@sieb-meyersusa.com  
www.sieb-meyersusa.com

Official SIEB & MEYER representative  
for servo drives and motion controllers in  
USA/Canada

### USA, Canada, Mexico

SPINDEL Electronics  
4517 Broadmoor Ave. S.E.  
Grand Rapids, MI 49512  
USA  
Phone: +1 616 554 2200  
info@spindel.com  
www.spindel.com

Official SIEB & MEYER representative for  
high-speed frequency converters in USA,  
Canada and Mexico

