

# S-DIAS DC Motor Output Stage SR 011-1



- with 1 DC motor output stage +50 V/5 A
- 1 brake chopper
- 1 incremental encoder input RS422/TTL
- 2 enable inputs +24 V/3 mA/0.5 ms with STO function (not EG type tested)
- 1 digital output +24 V/0.5 A/short-circuit prot.

The S-DIAS motor output stage module SR 011-1 allows the connection of DC brush motors with a phase current up to 5 A. The integrated brake chopper provides the connection for an external regen resistor. The incremental encoder input, which supports RS422 as well as TTL encoders, is provided for position feedback. Furthermore, the SR 011-1 has a short-circuit-proof digital output (+24 V/0.5 A).

## DC Motor Output Specifications

Number	1
Supported motor type	DC brush motor
Operating modes	PWM control
Supply voltage	+18-55 V
PWM frequency	2 kHz
Current controller frequency	2 kHz
Maximum PWM switching ratio	95 % (limited by hardware)
Maximum continuous current	5 A
Output current over the environmental temperature	maximum 5 A continuous current at 45 °C maximum 3.5 A continuous current at 50 °C maximum 2 A continuous current at 55 °C
Maximum peak current (1 s)	15 A
DC-link capacitance	2,8 µF
Motor current measurement	0-15 A
Voltage measurement	0-65 V

Temperature measurement	0-125 °C with temperature warning at 103 °C with temperature warning at 108 °C
Safety functions	Short circuit cutoff Temperature cut-off I <sup>2</sup> t monitor Over and under voltage monitor

## Brake Chopper Specifications

Number	1
Output	GND switching
Maximum current	6 A
Short-circuit protection	yes
Regen resistor	External power resistor
Article number	20-014-061-Z1
Regen resistor switching threshold on/off	+60 V/+55 V

## Incremental Encoder Input Specifications

Number	1	
Input signals	Incremental encoder signals RS422 (A, /A, B, /B, R, /R)	Incremental encoder signal TTL (A, B, R)
	RS422 signal (120 Ω termination, integrated in module)	TTL level (1200 Ω Pull-Up, integrated in module)
Input frequency	maximum 125 kHz	maximum 1.25 kHz
Counter frequency	maximum 500 kHz	maximum 5 kHz
Signal analysis	4x	
Counter resolution	16 bits	
Encoder power supply	+5 V/0.2 A short-circuit proof	

## Enable Input Specifications

Number	2	
Input voltage	+24 V DC	
Input voltage range	minimum +18 V	maximum +30 V
Signal level	low: ≤ +5 V	high: ≥ +15 V
Switch hysteresis	typically +11 V	
Input current	3 mA at +24 V	
Input delay	typically 0.5 ms	

### Digital Output Specifications

Number	1
Short-circuit proof	yes
Maximum continuous current load allowed	0.5 A
Maximum braking energy of the output (inductive load)	maximum 0.5 Joules
Residual current output (off)	≤ 10 µA
Turn-on delay	< 200 µs
Turn-off delay	< 200 µs

### Electrical Requirements

Supply voltage +24 V	+18-30 V	
Current consumption of the +24 V supply	load-dependent (digital output + digital output supply) maximum 0.6 A	
Motor supply voltage	+18-55 V	
Current consumption of motor supply	maximum 5 A (load-dependent)	
Voltage supply from S-DIAS bus	+24 V	
Current consumption on the S-DIAS bus (+24 V supply)	typically 60 mA	maximum 85 mA
Voltage supply from S-DIAS bus	+5 V	
Current consumption on the S-DIAS bus (+5 V supply)	-	-

### Article Number and Miscellaneous

Article number	20-029-011
Dimensions	12.5 x 104.2 x 72 mm (W x H x D)
Standard	designed according to UL
Approvals	CE

### Environmental Conditions

Storage temperature	-20 ... +85 °C	
Environmental temperature	0 ... +55 °C	
Humidity	0-95 %, non-condensing	
Installation altitude above sea level	0-2000 m without derating, > 2000 m with derating of the maximum environment temperature by 0.5 °C per 100 m	
Operating conditions	pollution degree 2	
EMC resistance	EN 61000-6-2 (industrial area)	
EMC noise generation	EN 61000-6-4 (industrial area)	
Vibration resistance	EN 60068-2-6	3.5 mm from 5-8.4 Hz 1 g from 8.4-150 Hz
Shock resistance	EN 60068-2-27	15 g (147.15 m/s <sup>2</sup> )
Protection type	EN 60529/NEMA 250	IP20/Type1