

Brushless DC-Servomotor

with integrated Motion Controller

50 mNm

For combination with
Gearheads:
30/1, 32/3, 38/1, 38/2

Series 3564 ... BC

	3564 K	024 BC	
Nominal voltage	U_N	24	Volt
Output power	$P_{2 \text{ max.}}$	70	W
Efficiency	$\eta_{\text{ max.}}$	80	%
No-load speed	n_o	9 000	rpm
No-load current	I_o	0,38	A
Peak torque for 8 A	M_P	160	mNm
Torque constant	k_M	20,2	mNm/A
Current constant	k_I	0,05	A/mNm
Mechanical time constant	τ_m	11	ms
Rotor inertia	J	34	gcm ²
Angular acceleration	$\alpha_{\text{ max.}}$	109	$\cdot 10^3 \text{ rad/s}^2$
Thermal resistance	$R_{\text{th } 1} / R_{\text{th } 2}$	2,5 / 6,3	K/W
Thermal time constant	τ_{w1} / τ_{w2}	23 / 1 175	s
Operating temperature range		- 5 ... + 85	°C
Protection classification		IP 44	
Shaft bearings		ball bearings, preloaded	
Shaft load max.:			
– radial at 3000 rpm (7,4 mm from mounting flange)		108	N
– axial at 3000 rpm (push-on only)		50	N
– axial at standstill (push-on only)		131	N
Shaft play:			
– radial	\leq	0,015	mm
– axial	$=$	0	mm
Housing material		aluminium, black anodized	
Weight with electronics		440	g
Direction of rotation		electronically reversible	

Recommended values

Speed range ¹⁾	n_e	10 - 10 000	rpm
Torque up to ²⁾	$M_{e \text{ max.}}$	50	mNm
Current up to ²⁾	$I_{e \text{ max.}}$	2,80 ³⁾	A

¹⁾ Power rating of 44 Watt at 8 400 rpm and 50 mNm

³⁾ This is a preset value and can be changed

²⁾ thermal resistance $R_{\text{th } 2}$ by 55% reduced

over the RS232 interface

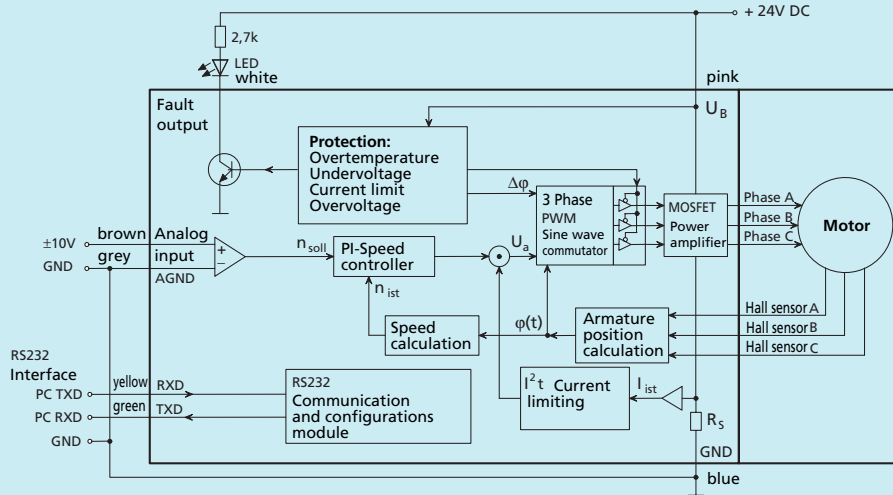
Electronic

Supply voltage	U_B	12 ... 28	V DC
Peak current	$I_{\text{ max.}}$	8 ⁴⁾	A
Input Nr. 1 ⁵⁾		input resistance	18
Set speed value, analog		voltage range	± 10
		slope of the working curve	1 000 ⁴⁾
Nominal velocity digital		PWM signal	low 0 ... 0,5 / high 4 ... 30
		frequency range	100 ... 2 000
		pulse duty factor 50%	0
		pulse duty factor < 50%	ccw direction of rotation
		pulse duty factor > 50%	cw direction of rotation
External encoder / step frequency	$f_{\text{ max.}}$	150	kHz
Fault output (Input Nr. 2)		open collector	max. $U_B / 30$ mA
		no error	switched to GND
		Programmed as input	low 0 ... 0,5 / high 4 ... U_B
Serial port		RS232	9 600 (1 200, 2 400, 4 800, 19 200)
Program memory		Serial EEPROM	7 936

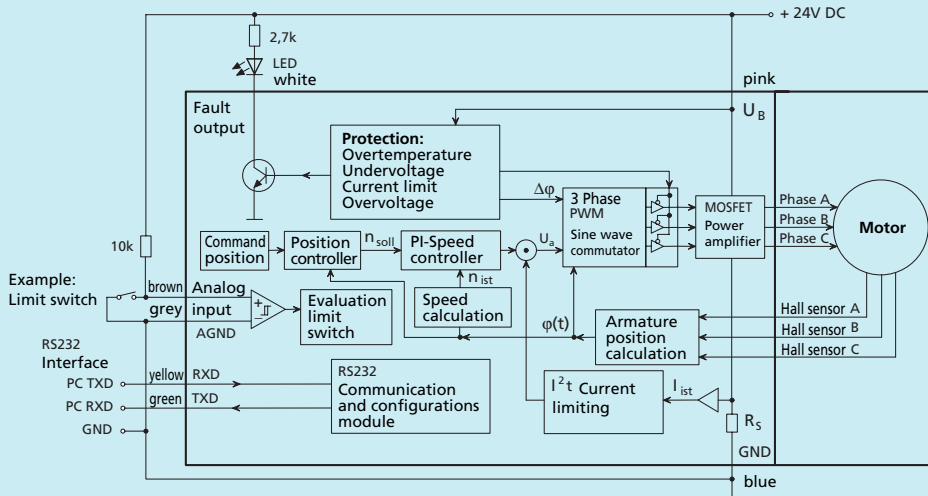
⁴⁾ Preset value. Can be changed over the RS232 interface.

⁵⁾ Can be changed over the RS232 interface (factory setting: nominal velocity is analog).

Analog velocity control

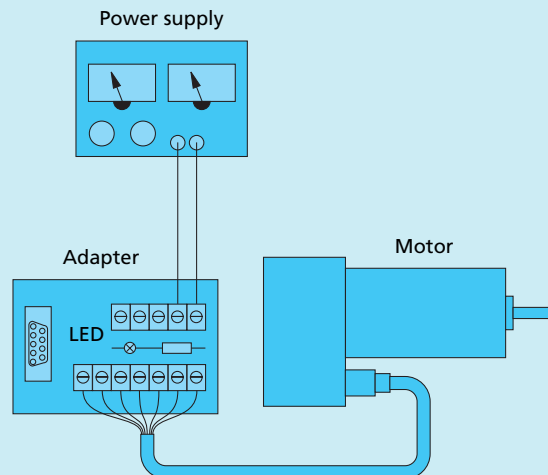


Position control



Connection diagram / Connection information

Connection from computer to adapter with a serial zero modem cable (RS232)



The connections are colored leads which are assigned as follows:

Wires	Function
blue	GND
pink	+ 24 V
brown	Analog input
white	Fault output
grey	Analog GND
yellow	RS232 RXD
green	RS232 TXD

Caution:

be sure to connect motor supply terminals to the correct polarity. Motor electronics are protected against polarity reversal by an internal fuse. In case of damage due to polarity reversal, this internal fuse can only be replaced at the factory.