Brushless DC-Servomotor

with integrated Motion Controller

Not RoHS compliant

FAULHABER

50 mNm

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

Series 3564 ... BC

Product on phase-out

		3564 K	024 BC	
Nominal voltage	U_N		24	Volt
Output power	$P_{2\ max.}$		70	W
Efficiency	$\eta_{max.}$		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	gcm²
Angular acceleration	$\alpha_{max.}$		109	$\cdot 10^3$rad/s²
Thermal resistance	$R_{th\,1}$ / $R_{th\,2}$	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 3 000 rpm (7,4 mm from mounting flange)		108		N
– axial at 3 000 rpm (push-on only)		50		N
– axial at standstill (push-on only)		131		N
Shaft play:				
– radial	≤	0,015		mm
– axial	=	0		mm
Housing material		aluminium, black anodized		
Weight with eletronics		440		g
Direction of rotation		electronically reversible		

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

[1] Power rating of 44 Watt at 8 400 rpm and 50 mNm
[2] thermal resistance $R_{th\,2}$ by 55% reduced
[3] This is a preset value and can be changed over the RS232 interface

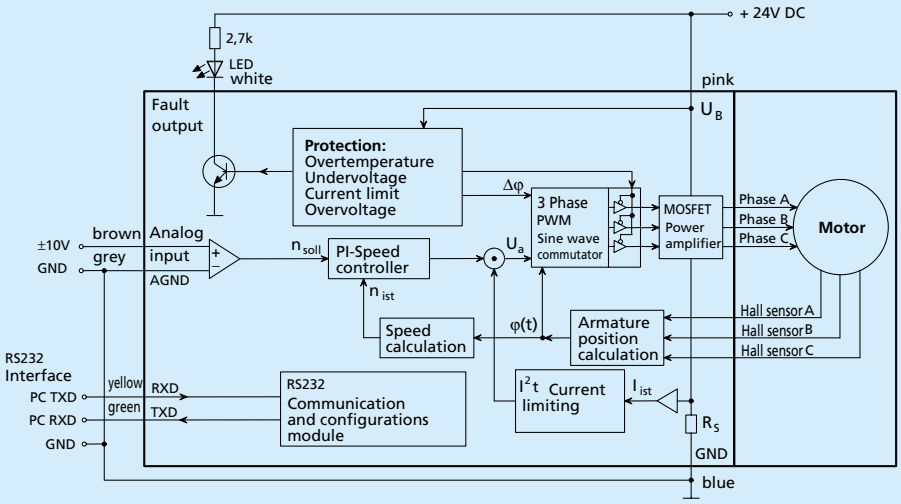
Electronic				
Supply voltage	U_B		12 ... 28	V DC
Peak current	$I_{max.}$		8 [4]	A
Input Nr. 1 [5]		input resistance	18	kΩ
Set speed value, analog		voltage range	±10	V
		slope of the working curve	1 000 [4]	rpm/V
Nominal velocity digital		PWM signal	low 0 ... 0,5 / high 4 ... 30	V
		frequency range	100 ... 2 000	Hz
		pulse duty factor 50%	0	rpm
		pulse duty factor < 50%	ccw direction of rotation	
		pulse duty factor > 50%	cw direction of rotation	
External encoder / step frequency	$f_{max.}$		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	V
Serial port		RS232	9 600 (1 200, 2 400, 4 800, 19 200)	Baud
Program memory		Serial EEPROM	7 936	Bytes

[4] Preset value. Can be changed over the RS232 interface.
[5] Can be changed over the RS232 interface (factory setting: nominal velocity is analog).

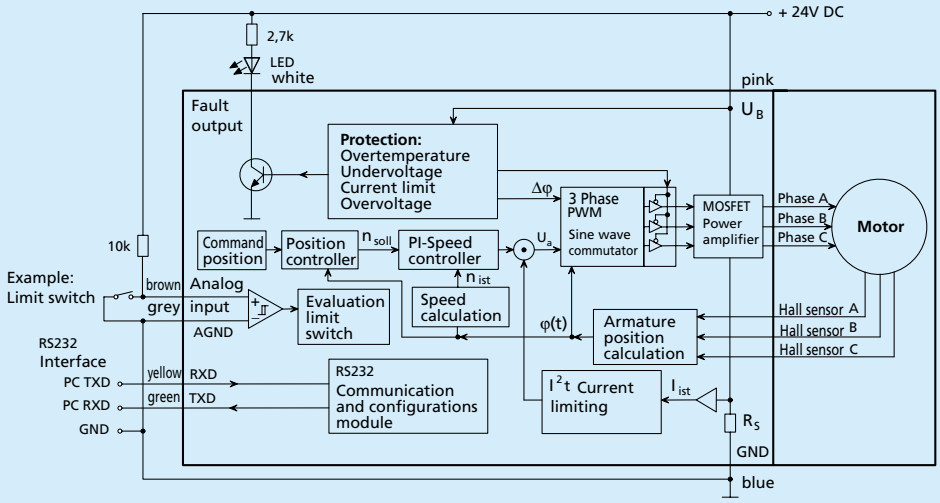
For notes on technical data and lifetime performance refer to "Technical Information".

Specifications subject to change without notice.

Analog velocity control

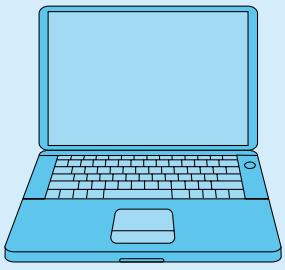


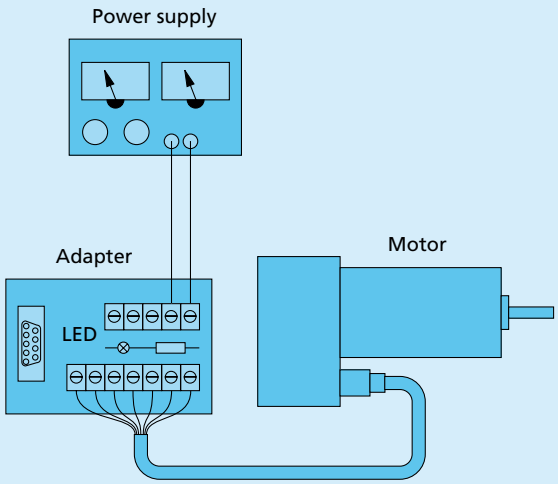
Position control



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.

General description

The 3564K024B C intergrates an electronically commutated servomotor, a high resolution encoder, and a programmable motion controller, based on a powerful 16-Bit microcontroller, in one complete package.

This intelligent brushless DC-Servomotor performs the following tasks:

- **Velocity Control:** Anywhere from 10 to 10 000 rpm with high performance speed synchronization and the lowest possible degree of torque variance.
- **Velocity Profiles:** For example, ramping, triangular, and trapezoidal velocity profiles for soft acceleration and braking.
- **Positioning Mode:** Arrival at predefined positions with a resolution of 1/1000th of a revolution, zero reference and limit switch.
- Stepper Motor and Gearing Modes or operation with an external encoder.
- **Torque Controlling:** Achieved through current regulation.
- **Protection:** Including dynamic current limiting, protection from overtemperature, from overvoltage in generator mode, and undervoltage in the electronics.
- **On-Board Memory:** Save programs, configurations and sequences.
- Positioning and velocity control tasks can be performed independent of the host PC once a **program** is stored in the on-board memory.

Inputs and Outputs

- **Command Value Input:** For velocity commands. It can be controlled by an analog or PWM signal. The input can also accept reference/ limit switch signals depending on the mode. A frequency or an incremental encoder signal can also be interfaced.
- **Fault Output** (open collector): The output can also be programmed as a direction of rotation or a reference/limit switch input.
- **RS232 Interface** for communication with a host PC. Program information can be stored and recalled from the onboard memory (EEPROM). In addition, operations and parameter information can be called up online.

The drive is programmable with the factory provided ASCII command set. It can be programmed from the PC with a terminal program, for example the 'hyperterminal' provided with the Windows operating system, or with any other programmable host PC.
The Faulhaber Motion Manager software can be provided for users of Windows 95/98/ME/NT/2000 and XP. It is a fully functional configurations and operations manager with on line graphic performance analysis.

Area of Application and Options

Area of Application

Ease of installation, integrates technology, compatibility, size, and stand-alone capability allow this brushless DC-Servomotor to perform to the highest standards in a wide range of applications, for example, in decentralized automated production systems like handling or tooling machines.

Options

In order to immediately integrate the 3564 K 024 BC into a system, an optional adapter board and a serial zero- modem cable is available on request.

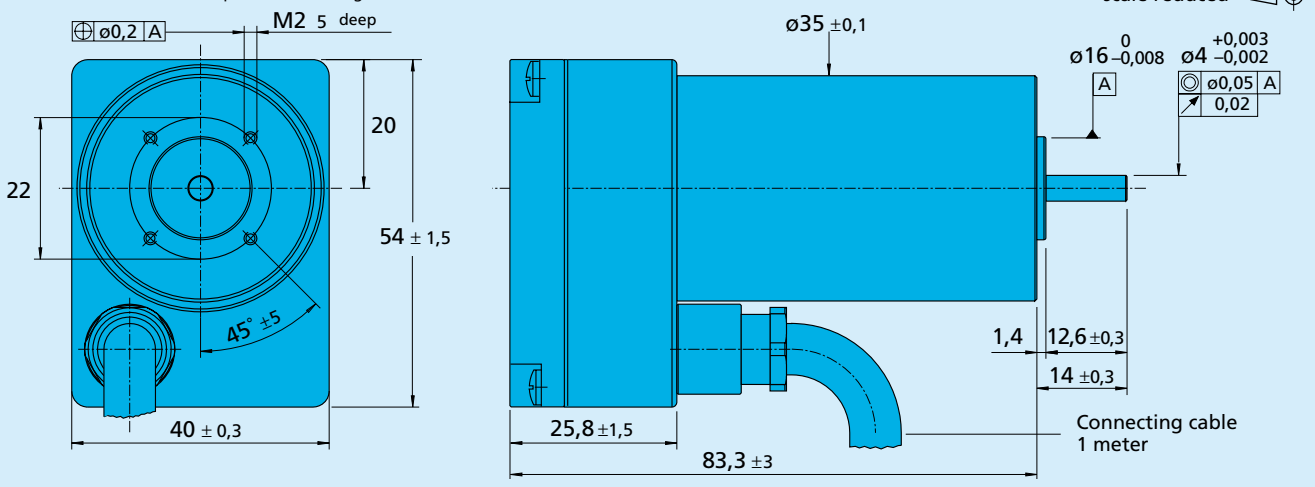
To operate multiple motors under one host PC a RS232 Multiplexer Board is offered.

To accomadate customers specialized needs we offer factory preconfiguring of modes and parameters to fit the application.

3564 K 024 BC

Orientation with respect to connecting cable 45° ±5°

scale reduced



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