Servo Amplifier

2-Quadrant PWM

For combination with:
Brushless DC-Servomotors

Series BLD 2401

	BLD 2401-SH2P	
Power supply	3 ÷ 24	V DC
Switching frequency	19	kHz
Continuous output current @ TA = 22°C	1	A
Current limit (pulse-by-pulse current limiting)	2,5	A
Analog speed command: [1]		
– Voltage range	0 ÷ 5	V DC
– Input resistance	5,1	kΩ
Logic input (internal pull-up)	TTL	
Supply voltage for Hall sensors (max. load 50 mA)	5,5	V DC
Speed monitor, digital output (max. load 5 mA) [2]	5	V DC
Total standby current at 3V ÷ 24V (Hall sensors supply included)	260 ÷ 40	mA
Maximum controllable speed [3]	100 000	rpm
Minimum controllable speed [4]	1 000	rpm
Temperature range:		
– Operating temperature	0 ... + 70	°C
– Storage temperature	–20 ... + 80	°C
Dimension and Weight:		
– Dimension (L x W x H)	45 x 40 x 16	mm
– Weight	14	g

[1] Analog speed command may be set by an internal potentiometer or an external voltage.
[2] Velocity (rpm) = f (Hz) x 60.
[3] The maximum controllable speed depends on the gain of the Servo Amplifier, the power supply, the motor type and the load.
[4] The minimum controllable speed depends on the motor type and the load.

General description

The BLD 2401-SH2P is a 2-Quadrant PWM (Pulse-Width Modulation) Servo Amplifier suitable for speed control of three-phase brushless DC-Servomotor, type 0620. The phase commutation sequence of the brushless DC-Servomotor is automatically made by the Servo Amplifier.

A specially designed frequency-to-voltage converter allows precise speed regulation (regulator type P, proportional).

Three amplifier configurations between a jumper for speed control:

- 30 000 rpm
- 75 000 rpm
- 100 000 rpm

The analog speed command is a unipolar external signal, from 0 to +5 V, or an internal potentiometer, producing a fixed speed proportional to the input voltage.

Three logic inputs activate the following functions:

- **Enable,** a high logic signal at this input causes the motor run. If not connected (internal pull-up resistance) the Servo Amplifier is enabled.
- **Brake,** a logic low state (connect to GND) at this input allows the motor to run. If not connected (internal pull-up resistance) the motor is breaked.
- **Direction,** the direction of rotation is reversed using either a logic high or low input signal. If not connected (internal pull-up resistance) or a high input signal is applied, the motor runs in CW direction. If a low input signal is applied, the motor runs in CCW direction.

The maximum output power without additional heat sink is 24 W.

Features:

- Operation from a single supply source
- 2-Quadrant PWM
- Adjustable gain
- Efficiency 90%
- Excellent linearity
- Speed regulator, type P
- On board trimmer for speed and continuous current regulation
- Compact size with SMD-Technology

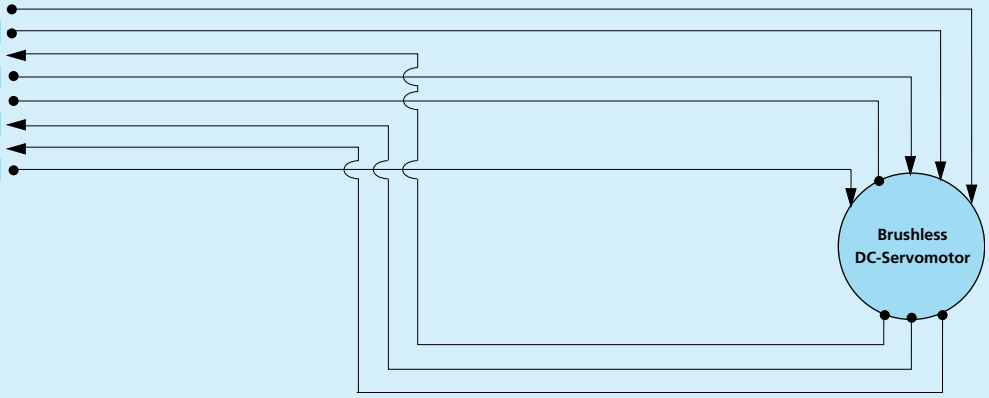
Ordering information

Servo Amplifier	Brushless DC-Servomotor
BLD 2401-SH2P	0620 K ... B

Specifications subject to change without notice

Block diagram of the Servo Amplifier BLD 2401-SH2P for speed control with Hall sensor feedback

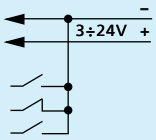
Pin	Connection X1 - X4
1	Phase C
2	Phase B
3	Hall Sensor C
4	+ 5V
5	GND
6	Hall Sensor A
7	Hall Sensor B
8	Phase A

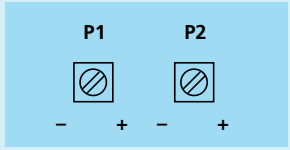


Connection diagram

Internal potentiometer

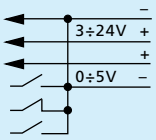
Pin	Connection X2
1	GND
2	Vm power supply
3	Analog speed command
4	Enable
5	Brake
6	Direction (cw)
7	Speed monitor

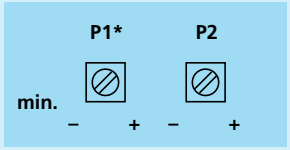




External voltage

Pin	Connection X2
1	GND
2	Vm power supply
3	Analog speed command (0 ÷ 5V)
4	Enable
5	Brake
6	Direction (cw)
7	Speed monitor



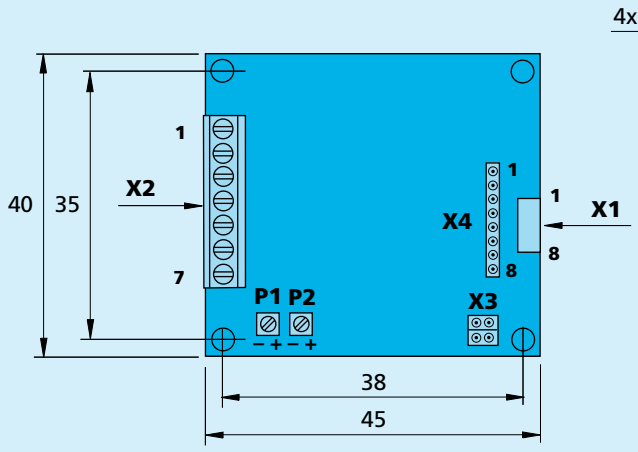


Max. speed

X3 Jumpers configuration	
	max. speed 30 000 rpm
	max. speed 75 000 rpm
	max. speed 100 000 rpm

* P1 must be set at minimum for external voltage

Dimensional drawing and connection information



Connection

Nr.	Function
X1	Motor
X2	Power supply - signal command
X3	Jumpers to adjust gain
X4	Supplementary contacts for motor connection or PIN test (grid 2,54 mm)
P1	Potentiometer for speed control
P2	Potentiometer for $I_{max.}$

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