Control of stepping motors
PKM02
Control unit of stepping motors

SofCon AUTOMATIZAČNÍ TECHNIKA

9.1

- 2-phase stepping motor
- Up to 10A current
- Up to 160V power supply
- Adjustable current
- PWM current control
- Decreased current when stopped
- Micro-stepping
- Controlled by master PC

Basic characteristic

PKM02 module is a compact unit, which serves for driving of stepping motor. It is assembled from control board and board of switches. The control board receives information about requested direction and spinning speed of a motor from master PC. It generates the sequence of impulses, which connect the current impulses into phase-winding of the motor on the board of switches. The current amplitude of winding can be adjusted, using connectors and can be set up according to load and power of the motor. There can be set also reduced the current when stopped. If there is used a motor with high inductance or a motor for fast spinning, it is necessary to select the highest possible voltage of end level to get the requested current. Power supply must be backed up by declerated fuse.

The module is constructed on two PCB´s, which are interconnected. It is connected through holes on the transistors cooler. If there is used full power, the sufficient cooling must be provided. This will be achieved by using an extra cooler with low heat resistance or by air blowing of high intensity.

For more details and for programming examples see the user manual SCT 081.

Technical data

Vcc supply voltage	15 - 30Vss	Vmot supply voltage	max. 80Vss (160V)*
Supply current		Supply current	By load, max. 4A
Control signals	Binary	Current of one motor phase	Adjustable in 16 grades
Input voltage	24V (12V, 5V)*	Reduced current	1/3, 2/3
$U_{IN\,L}$	0 - 8V (<5V, <1,6V)	Max. output current	5A (10A)*
$U_{IN\,H}$	16 - 30V (>7V, >3,2V)	PWM frequency	ca 25 kHz
Input current	10mA while 24V	Number of micro-steps at one step	8/4 (16/4)* (16/8)*
		Max. step frequency	4000 / s
Ambient operation temperature	0 - +50°C	Number of motor phases	2
Dimensions	max. 124 x 71 x 78 mm	Clips	spring, wire 0,15 - 2,5 mm^2
Weight	0,4 kg	Connectors	Entrelec 5 mm dipole

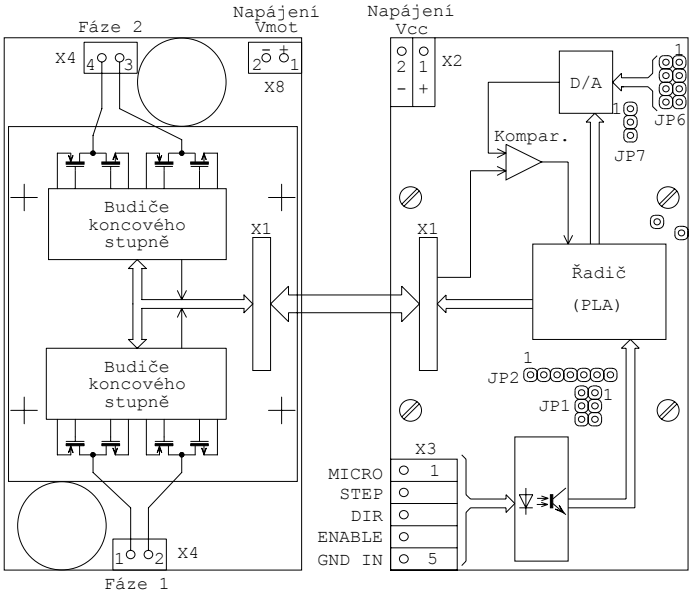
)* Alternative parameters must be specified in the order.

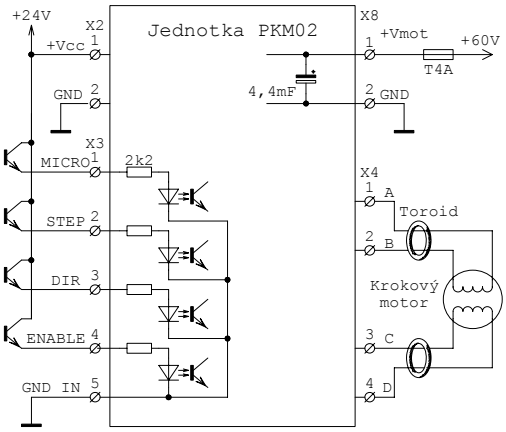
Order data

Alternative parameters must be specified:
- Voltage of control signals (12V), (5V)
- Voltage of power unit Vmot (160V)
- Max. output current (10A)

EMI filter devices can be also ordered: 2 pcs TORJAD32 (ferrite core ∅32 mm).

Clips placement and connection





Example of connection

Configuration

Some parameters are set up by jumpers.
JP1 – Control function, like ENABLE, reduction of current when stopped, number of micro-steps.
JP2 – For service purposes only.
JP6 – Setting of current amplitude by the motor in 16 grades.
JP7 – Rate of current lowering when stopped, to 1/3 or to 2/3.
For more details see the user manual.

EMC

Impulse current in stepping motor winding might cause the high-frequency interference. To avoid it, add the chokes into motor supply, see the picture above. This can be done by winding of 3 or 4 threads by two parallel supply conductors on ferrite core (TORJAD32).

Mounting dimensions