Digital indexer and microstep amplifier

BMAC

midi ingénierie 🂥

NEXEYA Products Division

Description

BMAC module is a digitial indexer and microstep amplifier with integrated DSP controller. It can drive any bipolar stepper motor (4, 6 or 8 wires). Thanks to its smart processing unit, BMAC is suitable for both simple mono-axis applications and complex mutil-axis systems.

Its $45V/2.5A_{RMS}$ amplifier stage makes it ideal to drive NEMA17 and NEMA23 stepper motors. Sinusoidal current generation provides good resonance immunity.

The motor can be driven in open-loop mode or in self-switched closedloop mode thanks to an external encoder. Autocom® provides motor stall protection, extended speed range and torque control without external PID controller.

BMAC implements an internal sequencer, 8 optoisolated digital I/Os and 1 analog input. The module can work in standalone mode with up to 500 commands stored in non-volatile memory.

Simple communication protocol is based on ASCII USB or RS232/485 standard. CANopen (DSP402 Motion Control profile) protocol can be implemented for multi-axis applications.

Installation and maintenance is fast and easy with plug-in connectors (module) or DIN41612 (rack) connector.

Technical Specification

	BMAC				
Supply voltage	12 Vdc to 45 Vdc				
Nominal current	2.5A _{RMS}				
Max speed	4000RPM				
Resolution	50µstep/step 10 000 positions per rev. for a 200steps per rev. motor				
Digital IOs	8 IO optoisolated				
Analog input	1 differential (0-10V)				
Encoder input	biphase incremental encoder. differential RS422 (A, /A, B, /B, Z, /Z, 0V) on-board 5V 100mA supply. programmable resolution				
Communication	RS485 optoisolated, 9600 to 115 200 bauds with USB or CANopen DSP402				
Sequencer	500 commands memory				
Protections	Overvoltage, overcurrent, short-circuit (mot. phase or supply), temperature. 5AT fuse.				
Fixation	Screw slots or DIN rail mounting kit				
Dimensions	module 130x110x40mm (DIN option 105x110x44mm) rack 100x110x20mm				
Weight	470 g				
Protection	IP30				
Certifications	RoHs, CE marking, UL PCBs.				



Features

> 2.5A stepper motor driver. open loop or closed loop control.

- > "S curve" velocity profile for smooth motion without resonance.
- > Optimized current management to minimize thermal losses.
- > Smart move functions.
- > Interpolation mode for multiaxes (2D and 3D) applications.
- > UBS/485 or CANopen protocol.
- > Hardware and Software end-stops. User configurable.
- > Integrated sequencer. PLC-like functions.
- > DSP controller.
- > Brake driver (option).
- > 2 analog outputs (option)
- > Ballast for energy dissipation (option)
- > DIN rail mounting kit (option).

References

BMAC (BMAC USB RS485 module)
BMAC-C (BMAC CAN version module)
BMAC-D (BMAC USB RS485 rack)
BMAC-CD (BMAC CAN rack)
DRVMI (communication dll library)
WINSIM2 (PC software with GUI)
SPxxx-48 (xxx watts AC/DC power suply)
MIB9010 (Ballast)



Pinout

Plug-in connector or DIN41612								
2A	+Vpower	2C	Motor A +	18A	I/O2	18C	+5V COD	
4A	0Vpower	4C	Motor A -	20A	1/03	20C	COD A	
6A	411	6C	Motor B +	22A	I/O4	22C	COD /A	
8A	0V 485 CAN	8C	Motor B -	24A	1/05	24C	COD B	
10A	Z CANH	10C	uµu	26A	1/06	26C	COD /B	
12A	/Z CANL	12C	+IANA	28A	I/O7	28C	CODI	
14A	+V_IO	14C	-IANA	30A	1/08	30C	COD /I	
16A	I/O1	16C	0Vana	32A	0V_IO	32C	0V COD	

DSub9 Male : RS485 or CAN bus								
1	Reserved	4	Reserved	7	Z CANH			
2	/Z CANL	5	utur	8	Reserved			
3	0V485 CAN	6	Reserved	9	Reserved			

Sequencer

The integrated sequencer can be used to develop short PLC-like automation, allowing standalone operation.

Up to 500 commands can be stored.

Sample sequence:

- :1 #HIGH_SPEED := 3000 :2 MOVE TO 12000
- :3 WAIT 4000
- :4 #V3 := #POSITION * 32000 :5 #OUTPUT.1 = 0
- :6 IF #STATUS.5 = 1 JUMP 2
- :7 MOVE SPEED 4000
- :8 IF #INPUT ANALOG > 67 CALL 120

Dimension

WinSim2



WINSIM2 is a PC software with a GUI to sommunicate easily with one or more module(s) among Midi Ingenierie's product line.

It provides direct access to all modules parameters, execution of movements, sequence programming and download.

It will greatly facilitate the development and control of your application.



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