

## Digital indexer and microstep amplifier

### Description:

**BMAC** module is a digital 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 multi-axis systems.

Its 45V/2.5ARMS 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 closed-loop 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 multiaxis applications.

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

### Technical specifications:

	BMAC (case)
Supply voltage	12 Vdc to 45 Vdc
Nominal current	2.5ARMS
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.
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	Version boîtier 130x110x40mm
Weight	470g
Protection	IP30
Certifications	RoHs, marking  ,  PCBs





### Main 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 multi-axis (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 supply)
- MIBC9010 (Ballast)

## Pinout:

Plug-in connector or DIN41612							
2A	+Vpower	2C	Motor A +	18A	I/O2	18C	+5V COD
4A	0Vpower	4C	Motor A -	20A	I/O3	20C	COD A
6A		6C	Motor B +	22A	I/O4	22C	COD /A
8A	0V 485 CAN	8C	Motor B -	24A	I/O5	24C	COD B
10A	Z CANH	10C		26A	I/O6	26C	COD /B
12A	/Z CANL	12C	+IANA	28A	I/O7	28C	COD I
14A	+V_IO	14C	-IANA	30A	I/O8	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		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.

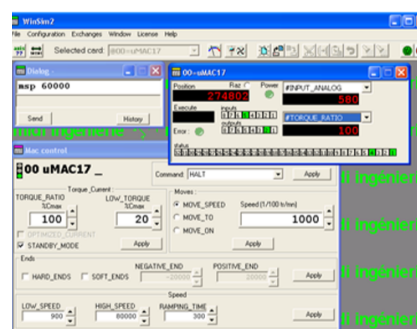
Sample sequence:

```

: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

```

## Winsim:



**WINSIM2** is a PC software with a GUI to communicate 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.

## Dimensions:

