midi ingénierie

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MAC23

BRUSHLESS DIGITAL AXIS

MAC23 is a fully digital intelligent brushless axis. It is a smart motion controller integrated with a brushless motor, a microstep driver and an embedded encoder.

The advanced current control technique used in **MAC23** permits position or speed control over a wide speed range and a high resolution. It is controlled in position or in speed with customizable maximum torque and exempt itself, thanks to its design, from closed-loop control correctors.

Simple and fast to implement, easy to pilot and endowed with the functionalities required in positioning, it considerably reduces development time which is necessary for fine-tuning of single or multi-axis systems.

MAC23 is available in **RS232C, CANopen DS301** or **Clock/Dir** and it is delivered with **MACSIM** for Windows PC.

Technical specifications

Supply voltage	12 to 45 VDC
Holding torque	1,4 Nm
Max speed	4500 RPM @ 45 VDC
Max power	70 W @ 45 VDC
Resolution	2 000 postitions per turn mechanic postion guaranteed
Logical inputs :	•**RS232C/CAN:** End-stop +, End-stop original outlet, Emergency shutdown •**System clock/hand** : End-stop +, End-stop clock, hand
Logical outputs :	Busy (seet-point reached)
Communication :	•**RS232C**, optoisolated 9600, 19200, 38400 bd, multiaxis daisy-chain. •**CANopen**, DS301, SDO Protocol. •**Clock/Dir**
Rotor inertia	0.44 kg.cm^2
Fastener	NEMA 23, axe 6.35cm
Motor weight	1,5 kg

Certifications

- CE mark
- All printed circuit boards equipping midi ingenierie products are UL .

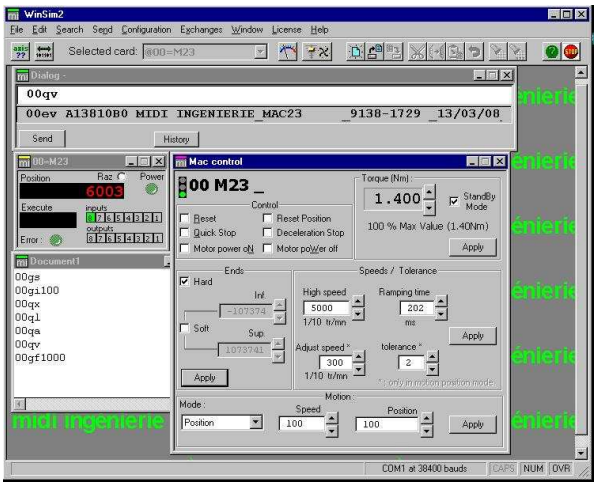
References

MAC23 (MAC23 RS232C)
MAC23-C (MAC23 CAN)
MAC23-P (MAC23 Clock/Dir with RS232C)
MAC23-PC (MAC23 Clock/Dir with CAN)

Options

TD-MAC23 (Terminal Strip MAC23)
RA MAC23-L (extension cord run=2, 5, 10m)
PLE60-i (Precision planetary gear reducer ratio i)
SPxxx-48 (Power supply xxx W)
WINSIM2 (Programming Software SIMPA and MAC families)
DRVMI Windows communication library

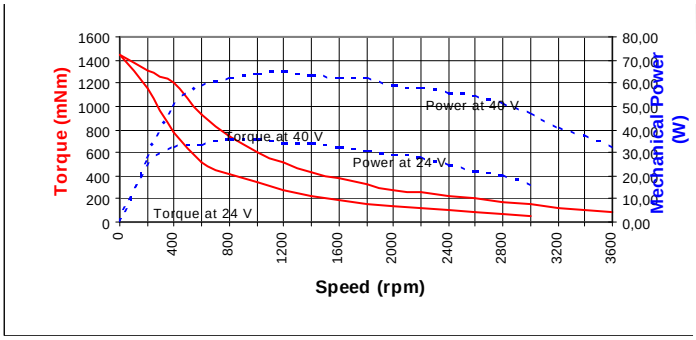
WINSIM2 Software (option)



WINSIM2 is a software-based Human Machine Interface allowing easy communication with one or several modules (SIMPA, MAC and DMAC family) from a Windows PC.

WINSIM2 features visual parameters adjusting for every axis, programming of sequences and execution of movements. It greatly facilitates the application development.

Torque / Speed characteristics



The above statements are given for a 100% value of the set-point torque and for two supply voltage values (24 and 40 VDC).

Connectors Pinout

SubD 9 pins male : Communication

	MAC23/-P	MAC23-C/-PC
1	SHIELD	SHIELD
2	RD V24	CAN_L
3	TD V24	0V CAN
4	RD-	Reserved
5	0 V24, TD-	Reserved
6	Reserved	Reserved
7	Reserved	CAN_H
8	RD+	Reserved
9	TD+	Reserved

SubD 9 pins female : I/O + Power Supply

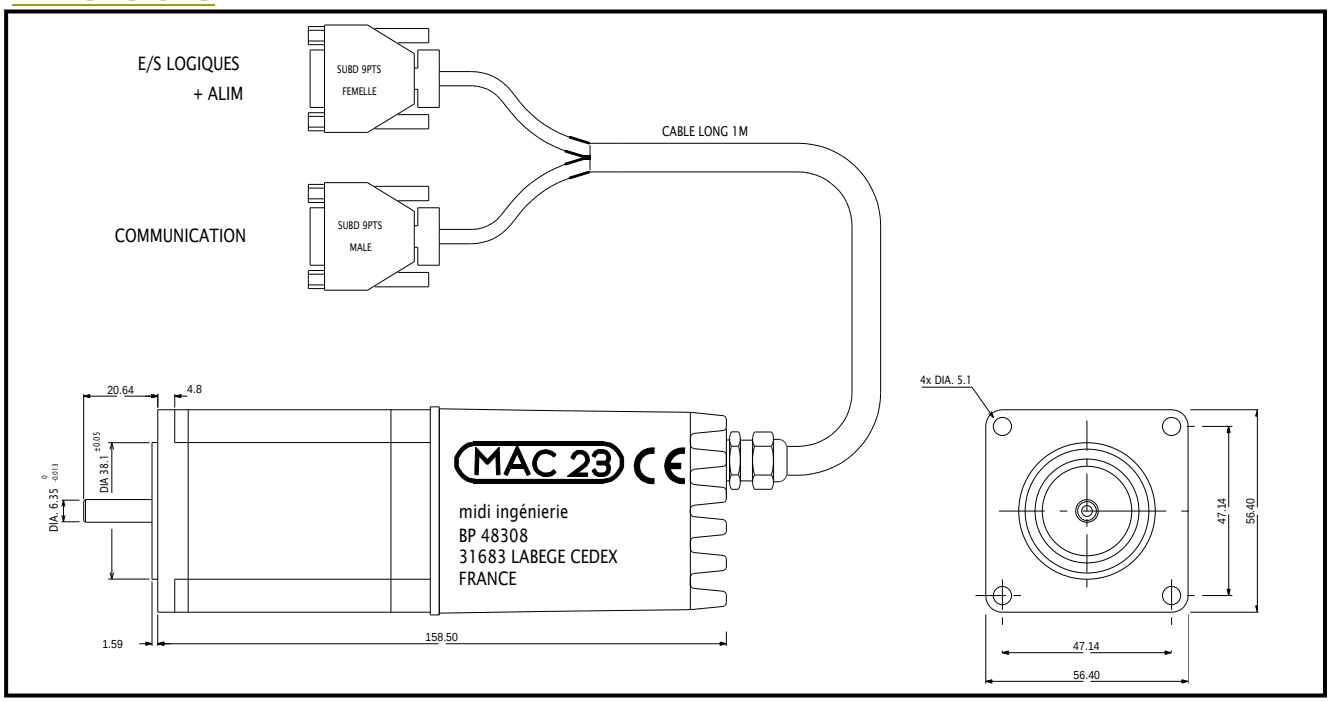
	MAC23/-C	MAC23-P/-PC
1	Reserved	Reserved
2	End Sensor -	End Sensor -
3	Unlock	Unlock
4	End Sensor +	ENd Sensor +
5	+V Power	+V Power
6	Init	Direction
7	Reference	Clock
8	GND E/S	GND E/S
9	0V Power	0V Power

Commands

Speed commands uses a 0.1 RPM unity
Position commands uses a 1/2000 turn
In a multiaxis system, the command) is preceded by the address of the module.

am06	Programs the module address to 06
bn-56400	Software inferior stop definition to -56400
bp+8000	Software superior stop definition to +8000
Di	Absolute postition counter is reset
Dg10	Active Busy +/-10 increments from the set point
ga+5000	Motion until absolute position +5000 is reached
Ge	Stop with a deceleration
gf+3200	Infinite motion at 320 RPM
Gh	Go back to original position
gi 68	Holding torque = 68% of max torque
Gm	Motor power on
Gr	Motor power off
Gs	Immediate stop of all motions
Gt 1200 900	Segment +1200 increments at 90 RPM
Mb	Hardware and software end-stops enabled
Mbr	Software end-stops disabled, Hardware end-stops enabled
Mbs	Software end-stops enabled, Hardware end-stops disabled
Mn	Hardware and software end-stops disabled
Mr	Reset of the module
Mrz	Go back to default configuration
Msn	Rated current forced
Mss	Stand alone management of "standby/nominal" current
Mza	Reference position enabled
Mzi	Reference position disabled
Wl 40	Enforce an unstall speed of 4 RPM
Wx 2500 30	Definition of velocity profile (speed 250 RPM, Ramp 30ms)
ws	Wait synchronization
sy	Synchronization signal
qa	Secondary settings query
Qb	Software end-stops query
Ql	Main settings query
Ap	Position query
Qv	Version and index number of the software query
Qx	Status of the module query

Dimensions



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