DMAC34

Brushless digital axis

midi ingénierie

NEXEYA Products Division

Description

DMAC34 is a smart DSP motion controller including a NEMA 34 high torque brushless motor, a microstepping driver and encoder. It comes in two different sizes DMAC34-1 (7Nm) and DMAC34-2 (10Nm).

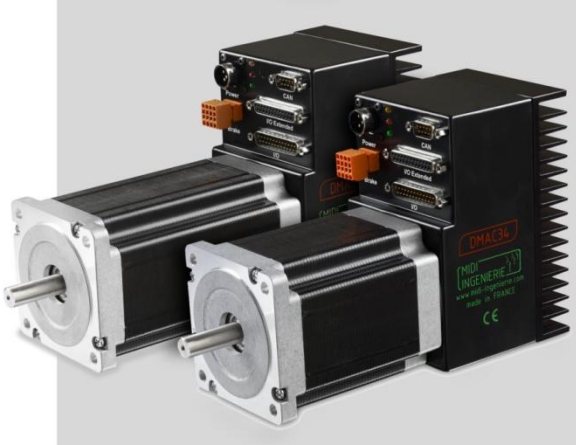
Simplified DMAC Language is used to send commands from the host to the module and to write programs that can be stored in Sequencer memory so that the module can execute the commands in a stand-alone mode.

The Sequencer can be used together with opto-isolated inputs and outputs, giving DMAC34 true PLC like capabilities.

The advanced current control technique used in DMAC34 allows position, torque or speed control over a wide speed range (up to 4000rpm). The controller prevents motor stall and eliminates the need for closed-loop control.

Great smoothness and performance can be achieved with DMAC34 thanks to sinusoidal motor current generator, S-curve speed ramps and optimized current mode. Resonance is significantly dampened over the entire speed range and audible noise is reduced. DMAC34 is a compact, powerful and low cost solution for a wide range of brushless motor applications

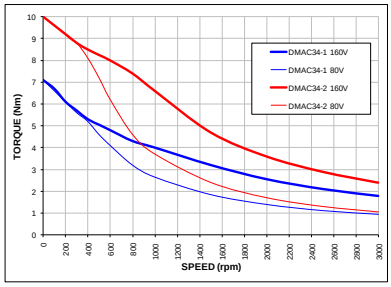
Specific serial protocol, based on RS485 or RS232 standard, allows communication up to 115200 bauds with multi-axis features for 2D and 3D application. USB is also available using the TD-DMAC connector.

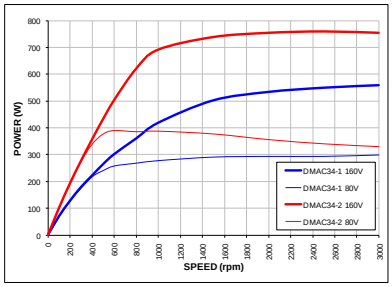


Technical data

	DMAC34-1	DMAC34-2
Supply voltage	24 Vdc min to 160 Vdc max	
Holding torque	7 Nm	10 Nm
Max mechanical power	300 W at 80 Vdc 500 W at 160 Vdc	400 W at 80 Vdc 750 W at 160 Vdc
Max speed	4000 rpm	
Resolution	10.000 positions per revolution	
Logical inputs	8 opto-isolated + 2 end stop inputs	
Analog inputs	2 differential	
Logical outputs	8 opto-isolated	
Analog outputs	2 outputs 0-10V	
Encoder copy	incremental 2 phases 500pt/rev differential RS422 (A,/A,B,/B,0V)	
Communication	RS232C / RS485, opto-isolated, 9600 to 115 200 bauds Multi axis configuration possible, Option CanOpen, USB	
Sequencer	500 commands memory	
Fastener	NEMA 34 flange, 12 mm axis (see assembling plan)	
Rotor inertia	2,7 Kg.cm²	4,05 Kg.cm²
Dimensions	239x86x150mm	275x86x150mm
Weight	4,8 Kg	6,1 Kg
Protection	IP30	
Certifications	CE Marked	PCB are UL certified

Motor characteristics





Main Features

> S-curve speed ramps for smooth resonance-free movements'.

> Optimized current mode to minimize thermal heating.

> Interpolation mode for multi-axis 2D and 3D applications.

> RS485 CanOpen and USB communication.

> User-configurable hardware and software ends.

> Enhanced movement functionalities.

> Integrated commands sequencer.

> High holding torque. Direct Drive applications.

> DSP controller.

> Optional failsafe brake motor.

> Optional ballast to enable breaking of important inertial loads.

References

DMAC34-1 (DMAC34 7Nm RS485 / RS232C)
DMAC34-2 (DMAC34 10Nm RS485 / RS232C)
DMAC34-1-C (DMAC34 7Nm CANOpen DSP402)
DMAC34-2-C (DMAC34 10Nm CANOpen DSP402)
DMAC34-1-P (DMAC34 7Nm Clock & Dir)
DMAC34-2-P (DMAC34 10Nm Clock & Dir)
TD-DMAC (connector block DMAC)
DRVMI (Dll communication library)
WINSIM2 (Interface for PC user)
SPxxx-48 (Power supply xxx Watts)
MIB9010 (Ballast)
MACF34-5 (Brake Nema34 5Nm)

Connectors pin-out

DSUB25 male : I/Os to terminal block			
1	TXD RS232	14	–IANA1
2	/Z RS485	15	+IANA1
3	Z RS485	16	0V IO
4	RXD RS232	17	+V IO
5	0V RS232_485	18	OUT1
6	IN1	19	OUT2
7	IN2	20	OUT3
8	IN3	21	OUT4
9	IN4	22	Res.
10	IN5	23	Res.
11	IN6	24	0Vaux
12	Res.	25	+24Vaux
13	Res.		

DSUB25 female : I/Os, extensions			
1	OUTA1	14	–IANA2
2	OUTA2	15	+IANA2
3	0Vana	16	0V IO
4	0Vana	17	+V IO
5	Res.	18	OUT5
6	IN7	19	OUT6
7	IN8	20	OUT7
8	Res.	21	OUT8
9	Res.	22	COD A
10	COD /A	23	COD B
11	COD /B	24	0Vaux
12	0V_COD	25	+24Vaux
13	Res.		

Bornier débrochable 8 points : butées et frein			
1	24Vaux	2	BUT+ (IN9)
3	0Vaux	4	24Vaux
5	BUT- (IN10)	6	0Vaux
7	+BRAKE	8	-FREIN

DSUB9 Mâle : bus CAN					
1	Res.	4	Res.	7	CANH
2	CANL	5	Mechanical GND	8	Res.
3	0V CAN	6	Res.	9	Res.

Prise circulaire 4 pts : alimentation de puissance			
A	+Valim	C	Mechanical GND
B	0Valim	D	Res.

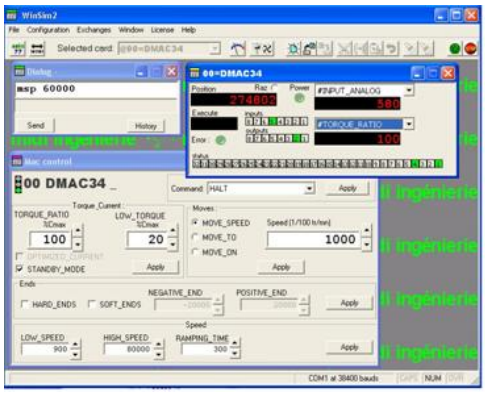
Sequencer

Integrated command sequencer allows movements and automation in stand-alone mode.
Up to 500 commands can be stored in non-volatile memory.

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
:9 #OUTPUT.1 = 1
```

WinSim2



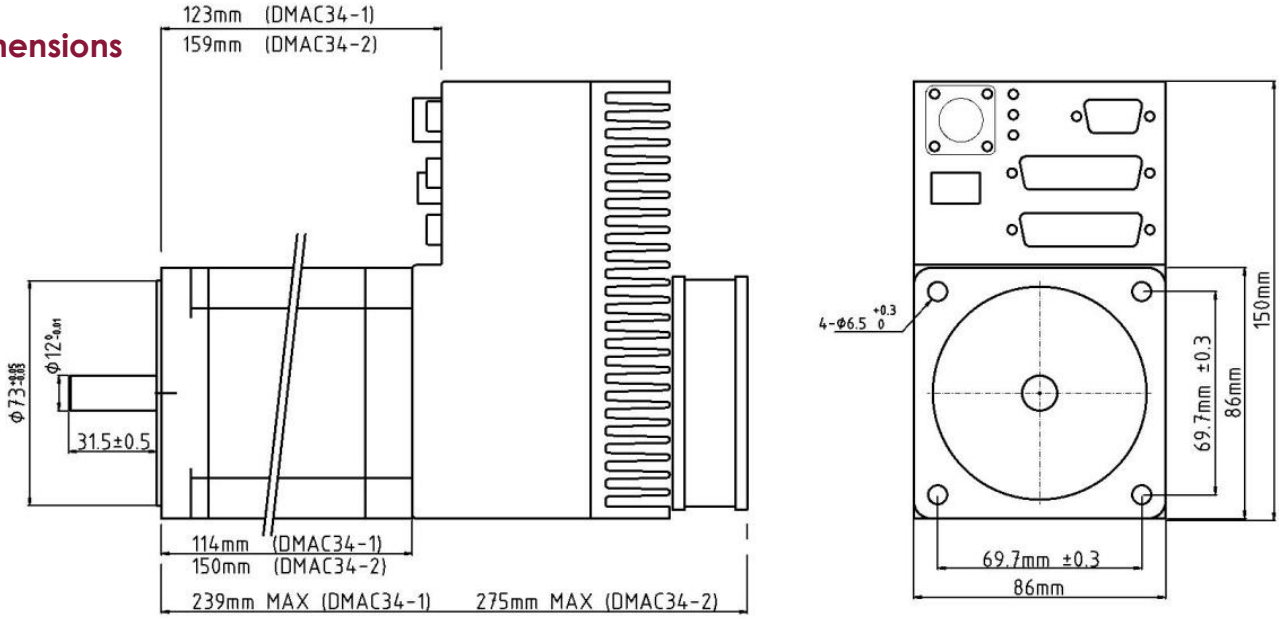
WinSim2 is a user interface for mono-axis or multiple axis application.

SIMPA, SIMPA µstep, MAC, DMAC and µMAC modules are supported.

WinSim2 is a clever solution to program, setup and control all the axis.

With WinSim2, you can download sequences, program limit switches and make interactive execution to simplify the development of your application.

Dimensions



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NEXEYA Products Division

une société du GROUPE NEXEYA

3509 route de Baziège
31670 Labège
France

Tel: +33.(0)5.61.39.96.18
Fax: +33.(0)5.61.39.17.58
mail@midi-ingenierie.com
www.midi-ingenierie.com