IM23x Intelligent Motor Family size 23

Brushless Motor with integrated Intelligent Drive for OEM Applications

The IM23x is a new family of the Digital intelligent brushless motors combining motor, motion controller and drive in a single package operated from a 12 to 48V single power supply.

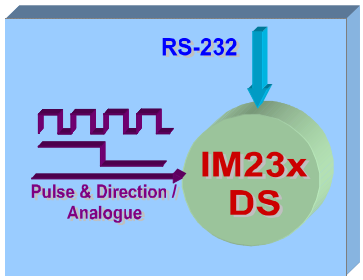
The IM23x represent a cost effective and compact solution, particularly adapted for integrated intelligence or distributed motion control applications.

Targeted for medium to high volume applications, the IM23x are based on a cost optimised design embedding all the basic motion control functions inside the motor itself, together with basic local digital and analog I/O signals.

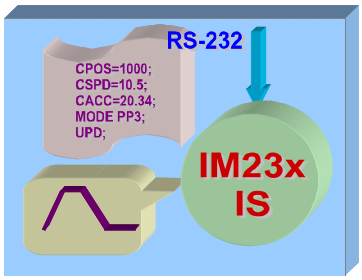
Typical Applications

- **Systems with distributed motor control intelligence**
- **Packaging**
- **Printing**
- **Textile**
- **Medical**
- **Pick and place**
- **Factory automation**

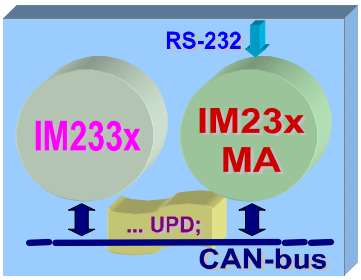
PULSE & DIRECTION / ANALOGUE



INTELLIGENT MOTION



DISTRIBUTED CONTROL



General Features

- **Fully digital intelligent brushless motor with embedded power and motion control operated from a 12-48V supply**
- **Low system cost due to compacteness and reduced wiring**
- **Available in 3 motor lengths, offering from 0.11 to 0.32 Nm of continuous torque (models IM231, IM232, IM233)**
- **RS232 interface, up to 115kbps communication speed**
- **128kbits internal EEROM for data and program storage**
- **Integrated 2'000 bits/revolution quadrature encoder**
- **Integrated Protections for over current, over temperature, i^2t, control error**

IM23x-DS The Digital Servo Motor

- Pulse and Direction inputs for speed / position reference *or*
- 0-5 V analogue input for speed / position reference
- Ideal replacement / substitution of stepper axes, without hardware or software changes of the indexing system
- Simple to use EasySetUp Windows setup program, including control loops tuning, via the RS-232 communication line

IM23x-IS The Intelligent Servo Motor

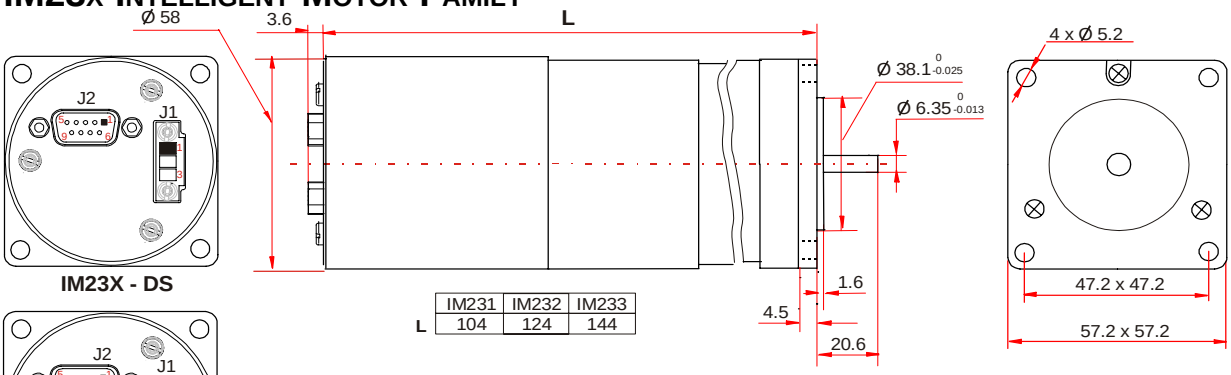
- Embedded Intelligence with trajectories generation
- Execution of on-line TML motion commands via RS-232
- Stand-alone operation capability with local sequential high level TML motion language programs execution
- Internal reference for profiles and contouring modes
- Position, speed or torque control
- 5 programmable digital I/Os, 3 analog inputs, 0-5 V or +/- 10V
- High-level PC programming tools, including TML code generator for motion sequences programming

IM23x-MA The Multi-axis Motor

- Ideal for distributed control (multiple-axis configurations)
- CAN-Bus 2.0B up to 1Mbit/s
- On-line motion programming through TML commands
- Electronic gearing and cam, profiling and contouring
- Position, speed or torque control
- 5 programmable digital I/Os, 3 analog inputs, 0-5 V or +/- 10V
- High-level PC programming tools, including TML code generator for motion sequences programming

Dimensions, Specification, Ordering Information

IM23x Intelligent Motor Family



IM23x-DS

J1 - Supply
Pin 1 +V MOTOR
Pin 2 +V LOGIC
Pin 3 GND

J2 - Communication
Pin 1 REFERENCE
Pin 2 RS-232 TxD
Pin 3 RS-232 RxD
Pin 4 ENABLE
Pin 5 GND
Pin 6 PULSE
Pin 7 DIRECTION
Pin 8 READY
Pin 9 +5 V out

IM23x-IS

J1 - Supply
Pin 1 +V MOTOR
Pin 2 +V LOGIC
Pin 3 GND

J2 - Communication
Pin 1 REFERENCE1
Pin 2 RS-232 TxD
Pin 3 RS-232 RxD
Pin 4 ENABLE
Pin 5 GND
Pin 6 PULSE
Pin 7 DIRECTION
Pin 8 READY
Pin 9 +5 V out

J3 - Input / Output
Pin 1 ENCA
Pin 2 Limit switch P
Pin 3 REFERENCE2
Pin 4 GPIN1
Pin 5 GND
Pin 6 ENCB
Pin 7 Limit switch N
Pin 8 GPO
Pin 9 GPIN2

IM23x-MA

J1 - Supply
Pin 1 +V MOTOR
Pin 2 +V LOGIC
Pin 3 GND

J2 - Communication
Pin 1 REFERENCE
Pin 2 RS-232 TxD
Pin 3 RS-232 RxD
Pin 4 GND CAN
Pin 5 GND
Pin 6 CAN-HI
Pin 7 CAN-LO
Pin 8 +V CAN
Pin 9 +5 V out

J3 - Input / Output
Pin 1 +V I/O
Pin 2 ENABLE
Pin 3 READY
Pin 4 GPO
Pin 5 GND I/O
Pin 6 Limit switch P
Pin 7 Limit switch N
Pin 8 GPIN1
Pin 9 GPIN2
Pin10 ENC DIRECTION
Pin11 ENCA+
Pin12 ENCA-
Pin13 ENCB+
Pin14 ENCB-
Pin15 GND

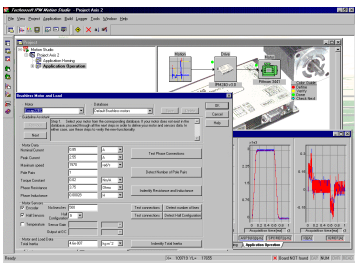
Please consult the IM23x user manuals for details

Motion Studio

The IPM Motion Studio is a high level graphical development environment for configuration parameterization and

- Build-in motion system set-up wizard
- Tuning assistance with capture functions
- Definition, programming and testing of motion sequences
- Automatic TML code generation capability
- Advanced data logging and customizable control panels for specific application requiements
- Multiple-axis structures handling, through RS-232 or CAN communication interfaces

Motion control of IM23x motors, from a PC computer, can easily be implemented by the user in C, Basic or Delphi applications, with the high-level TML_LIB library.



Application notes with ready to run Motion Language program examples are available at

IM23x Intelligent Motor Family Specifications

Electrical Specifications	**IM231**	**IM232**	**IM233**
Motor supply voltage (V)		12-48	
Nominal continuous torque*(Nm)	0.11	0.22	0.32
Peak torque* (Nm)	0.3	0.6	0.9
Rotor Inertia (g.cm2)	75	119	173
Nominal continuous current (A)	1	2	3
Peak current (1 sec. max.) (A)	3	6	9
Encoder resolution (Bits/rev)		2'000 *	
Nominal speed at 48 V* (rpm)		4000	
Isolation rating		IP42	
Operating ambient temperature		0°C-40°C	

*Other characteristics upon request

Mechanical Specifications **			
Size diameter (mm)		58	
Length (mm)	104	124	144
Weight (kg)	0.6	0.85	1.1

**Other mechanical configurations, with adapted gearboxes, are available upon request

Connectors
J1 - Power supply connector
J2 - Communication connector
J3 - Input / Output connector

Ordering Information / part numbers

	231 motor 0.11 Nm	**232 motor 0.22 Nm**	**233 motor 0.32 Nm**
Digital Servo	**IM231- DS P042.001.E101**	**IM232- DS P042.001.E201**	**IM233- DS P042.001.E301**
Intelligent Motor	**IM231- IS P042.001.E102**	**IM232- IS P042.001.E202**	**IM233- IS P042.001.E302**
Multi-axis motor	**IM231- MA P042.001.E103**	**IM232- MA P042.001.E203**	**IM233 - MA P042.001.E303**

P088.001	IPM Motion Studio (MA and IS motors)
P034.001.E001	EasySetUp (DS motors)
P040.001.E101	TML_LIB for Visual C, Visual Basic or Delphi (MA and IS motors)
P040.001.E201	TML_LIB for LabVIEW (MA and IS motors)

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