

spindrive | MAGMA[®]
X100 Magnetic Bearing Controller



The **Magma X100** is a magnetic bearing controller family for the next generation of high-speed electrical machines and machines for various demanding applications. It is engineered for the 20 to 150 kW power range and rotational speeds from a few RPMs to 100 000 RPMs and beyond. Magma X100 is scaling from compact electronics module to a heavy-duty unit for demanding applications.



X100 Standard

Standard workhorse of the X100 platform

Magma X100 Standard is the standard X100 AMB controller configuration, purpose-built for OEMs developing high-speed industrial machines such as compressors, blowers, ORC units and microturbines.



X100 Mini

Smallest footprint for high-volume OEM production

Magma X100 Mini is the most compact option in the X100 range, engineered for direct integration into machines where space is at a premium and every millimeter matters.



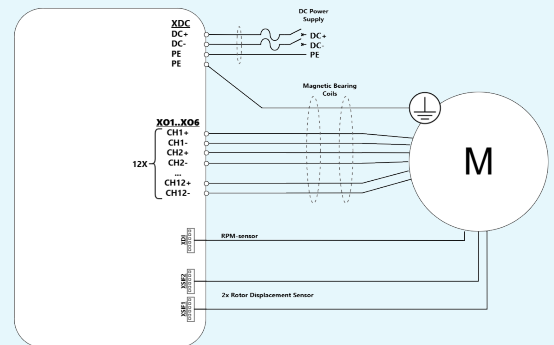
X100 Pro

Engineered for high-speed industrial machines in demanding environments

Magma X100 Harsh is the most robust controller option in the X100 family, designed for reliability under heat, vibration, dust, chemical exposure and continuous heavy-duty operation.

Magma X100 Key Features

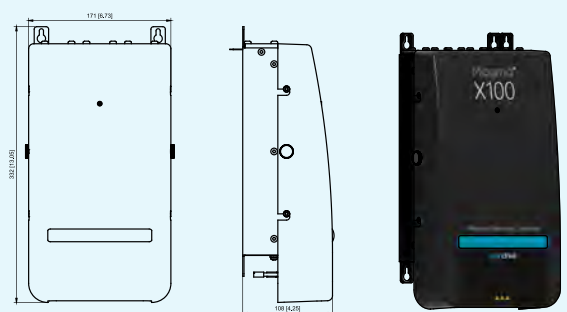
- The same controller core and software platform across all models
- 5 axial differential position measurements
- Optional communication and uninterruptible power supply (UPS) modules
- Online condition monitoring and cloud connectivity for fleet-wide support
- Optional Ethernet/OPC UA interface for industrial automation and real-time monitoring
- Low power consumption (~10 W in active mode)



→ POWER & CONTROL CONNECTIONS

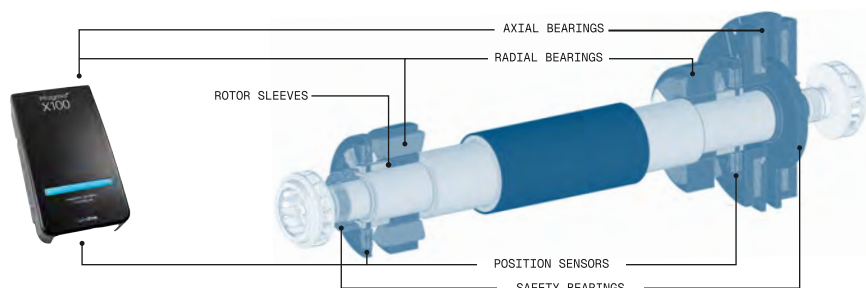
Magma X100 Key Benefits

- Reduced AMB system cost and complexity
- Ultra-compact design for easy integration
- Flexible platform that fits a wide range of applications
- Remote control and monitoring capability



→ DIMENSIONS

Active Magnetic Bearing System Layout Example



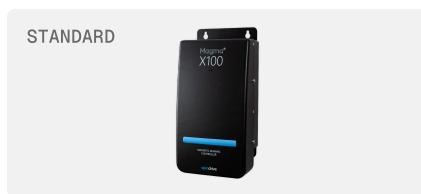
Magma X100

Cost-efficient AMB controller for industrial machines in the 20–150 kW range

Same software platform • Same controller core • Same electronics architecture



For machine integration



For stand-alone surface mounting
Air cooled



For harsh environment

<p>+</p> <p>Add options for your needs</p>	<p>1</p> <p>Communication module</p> <ul style="list-style-type: none"> → Additional IOs → Ethernet connection → USB for data recording → Remote monitoring & control → Condition monitoring & cloud services 	<p>2</p> <p>Power Supply</p> <ul style="list-style-type: none"> → DC/DC → AC/DC → UPS
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Key Technical Data

12-channel magnetic bearing controller	510 VA per channel (continuous)
Input voltage range	24 V DC ... 120 V DC
Amplifier output voltage range	0V ... 85V (rms)
Amplifier continuous output current	0A ... 6A (rms)
Maximum amplifier output current	±9A (peak, < 10s), ±14A (trip fault limited)
Amplifier voltage modulation	3-level PWM, 32kHz voltage modulation rate
Dimensions (L/W/H)	W 171 mm / L 332 mm / H 108 mm
Mass	6,2 kg
IP classification	IP20
Digital Communication Interface	Optional
Inputs	2 digital 5...30 VDC, 3 digital 24 VDC high-speed
Outputs	1 relay
Ambient temperature	0°C ... 40°C (up to 55°C with derating)
Approvals	CE, RoHS, REACH

Communication Interfaces

XDI		Digital Inputs (DI1 & DI2: 5..30VDC, DI3..5: 24VDC, fully isolated / floating) DI3..5 high speed inputs for RPM-sensor
1	DI1	Digital Input #1: Emergency stop, active low (digital interlock)
2	DI1GND	Isolated/floating digital ground for digital input DI1
3	DI2	Digital Input #2: Run enable (enable levitation)
4	DI2GND	Isolated/floating digital ground for digital input DI2
5	DI3	Digital Input #3: Fault reset (latched faults cleared on rising edge)
6	DI3GND	Isolated/floating digital ground for digital input DI3
7	DI4	Digital Input #4: RPM pulse sensor input
8	DI4GND	Isolated/floating digital ground for digital input DI4
9	DI5	Digital Input #5: RPM pulse sensor input
10	DI5GND	Isolated/floating digital ground for digital input DI5

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