

OmniCore™ V250XT controller

Versatile controller for faster, scalable and more energy efficient manufacturing.



OmniCore V250XT is a versatile all-round controller that delivers a range of benefits including best-in-class motion control, 20 percent energy saving, and future-proofing through built-in digital connectivity and 1000+ scalable functions in the automotive, logistics, and general manufacturing.

The V in V250XT stands for “Versatile”, that supports a wide range of robots and applications. The V250XT OmniCore controller was developed to support the growing demand for automation across multiple industries. V250XT is ideal for use in material handling, machine tending, and assembly applications.

The V250XT helps manufacturers stay one step ahead of changing market demands, enabling them to accelerate automation and providing the flexibility to meet changing demands, including productivity, energy efficiency, scalability, digitalization, and minimum downtime.

Empowering robots

With the same, full, motion control performance as all OmniCore controllers including built in I/O, the V250XT is designed to power articulated robots with a payload up to 300kg such as IRB 6700. V250XT controller makes our robots even stronger and more powerful. Robots profit from the full potential and strength of V250XT controller.

Precise motion control

Combining our TrueMove and QuickMove motion control technologies, OmniCore controller offers best-in-class motion control, delivering high speed and path accuracy.

1000+ scalable functions

The OmniCore controller is designed to be scalable and adaptable to your needs. With more than 1000+ software and hardware functions, and applications,

it can be easily scaled to meet a variety of demands. The functions include Externally Guided Motion, stop position simulation, integrated vision, wizard easy programming, robot control mate, and conveyor tracking.

Easier access to digitalization

With out-of-the-box connectivity to ABB Ability™ digital platform and Connected Services, OmniCore controller offers actionable intelligence and predictive maintenance services. The OmniCore controller provides an IoT gateway supporting both OPC UA and MQTT data transmission, easy to configure by using the ABB dedicated configuration tool. IoT gateway enables seamless transmission of data from the factory floor, and robots to other machines. These digital solutions enable manufacturers to get more out of their equipment through better uptime and higher productivity.

20 percent energy savings

Featuring energy-saving power re-generation technology and brake energy recovery, the OmniCore V250XT controller consumes less power by up to 20 percent compared with our previous generation of IRC5 controllers. The result is a powerful controller that saves your energy.

Full life cycle

Full integration into ABB’s robotic ecosystem also ensures full support at all stages of a project, from ideas and simulation through to commissioning and operation.

Safe integration

OmniCore controller comes fully prepared for safe integration and collaboration. Enjoy the potential of SafeMove and the safe I/O for flexible, scalable solutions with the benefit of true collaboration between people and robots, reducing space and saving extensive cost in production.

V250XT key benefits

- Versatile, powerful, and supporting a wide range of robots and applications.
- Up to 20% lower power consumption, compared with IRC5 .
- Best-in-class motion control, cycle times, and path accuracy.
- Built-in connectivity to the ABB Ability™ digital platform and Connected Services.
- Scalable, with 1000+ functions with hardware and software options.
- IoT Gateway: easy configurable data transmission using OPC UA or MQTT standards

FlexPendant

- Modern, intuitive and powerful.
- Large multi-touch display with standard gestures such as pinch, swipe and tap.
- Hot swappable. Unplug during operation and share among several robots.
- Extensive customization possibilities.

Main applications

- Material handling, machine tending, and assembly.
- Supports high precision material handling/ assembly processes using integrated vision and EGM.

Power supply	
Voltage IRB 4600	3 phase 380-480VAC, 50-60Hz
Voltage IRB 6700	3 phase 380-480VAC, 50-60Hz
Environment	
Ambient temperature	5-45°C
Relative humidity	Max. 95% non condensing
Level of protection	IP54
Physical	
Dimensions (WxDxH) (mm)	650 x 480 x 960
Weight (kg)	80 (may vary depending on configuration)
Connections	
I/O (Option)	<ul style="list-style-type: none">• standard I/O; 16Digital IN/16 Digital Out• Safe I/O; 6Digital IN/2 Digital Out (dual channel)• Relay I/O; 8Digital IN/8 Digital Out• Analog I/O; 4 Analog IN/4 Analog OUT
Safety	General Stop/Auto Stop, Emergency stop input, Emergency stop status output, Motors On
24VDC:	4A supply for customer equipment.
24VDC (option)	4A supply for customer equipment.
24VDC (option)	Devicenet, ODVA certified, 4 A supply for customer equipment.
Ethernet switch (option)	5 port Ethernet Switch.
Process support (option)	
Conveyor tracking	Tracking board for conveyor applications.
Vision	Large support for integrated vision with medium- and high-resolution camera and different lenses.
Absolute Accuracy	Support for Absolute Accurate calibrated robots design for offline programming, arc-welding, dispensing and vision integration among others.
Connected services	
Support the usage of out-of-the-box connectivity using Mobile connectivity or WiFi or wired solutions. (All HardWare included as standard)	
Industrial Ethernet:	
PROFINET;	Available
PROFIsafe	
EtherNet/IP;	Available
CIPsafety	Later release
CC-Link IE basic;	Later release
Safety	
EtherCAT;	Later release
F50E	

FlexPendant

Functions
Graphical multi-touch 8"color screen
Joystick Hot-swappable – add/remove during operation
Membrane keyboard with 12 buttons
USB 3.0 support
Safety functions
Emergency stop
3-position enabling switch (dual circuit)
Hold-to-run 100% manual speed button