

MOTOMAN DX200

Industrial robot controller



YASKAWA's new next-generation DX200 controller features robust PC architecture and system-level control for robotic work cells. Using patented multiple robot control technology, as well as I/O devices and communication protocols furthermore it provides built-in ladder logic processing including 4,096 I/O addresses, a variety of fieldbus network connections, a high-speed E-server connection and I/F panels (10) which shows the HMI on the pendant.

It often eliminates the need for separate PLC and human machine interface (HMI) and delivers significant cost savings at system level, while decreasing work cell complexity and improving overall reliability. Dynamic interference zones protect the robot arm and provide advanced collision avoidance.

The Advanced Robot Motion (ARM) control provides high performance, best-in-class path planning and dramatically reduces teaching time. It supports coordinated motion with multiple robots or other devices.

A small, lightweight Windows® CE programming pendant features colour touch screen with multiple window display capability. Programming features are designed to use minimum number of keystrokes and are facilitated by new function packages and more than 120 functions. Furthermore it conserves the power consumption from 38 % – 70 % depending on application and robot size.

It is available with the optional Category 3 Functional Safety Unit (FSU) and allows an establishment of 32 safety units and up to 16 tools.

KEY BENEFITS

- Application specific function packages including more than 120 functions
- Optional category 3 Functional Safety Unit (FSU)
- High productivity
- Low integration costs
- Integrated cell control capabilities
- High reliability and energy efficiency
- Easy maintenance
- Simple programming
- Convenient compact flash slot and USB port facilitate memory backups

High performance controller DX200 for MOTOMAN-Roboter

Multi-Robot-Synchronisation function

Real time synchronisation of up to eight robots and external axes (max. 72 axes)

- Jigless working possible
- Enables high density robot layouts
- Reduced cycle time

Advanced Robot Motion Function (ARM)

Dynamic calculation of torque and loads on the robot axes

- Extremely high path accuracy
- Optimal robot motion and velocity
- Vibration control
- Highly sensitive collision detection

Functional Safety Unit (FSU) Category 3

- Multiple zones with inside and outside position monitoring
- Speed limiting and stand-still monitoring
- Multiple tool interference and angle checking

Communication

Ethernet, Web (ftp, opc) Server options and all common fieldbus systems

- Easy integration into existing networks
- Remote monitoring and diagnosis of robot systems

Programming pendant	
Dimensions	169 (W) x 314.5 (H) x 50 (D)
Touchscreen display	5.7" colour LCD (640 x 480 pixels)
Weight	0.990 kg
Coordinate system	Joint, Rectangular/cylindrical, Tool, User-coordinates
Speed adjustment	Fine adjustment possible during operation or teach mode
Shortcuts	Direct access keys and user selectable screen keys possible
Language	Mostly spoken languages available (worldwide)
Interface	Compact Flash card slot, USB port
Operating system	Windows CE

Programming	
Programming language	INFORM III
Robot motion control	Joint motion, linear, circular, spline interpolation
Speed adjustment	Joint motion (% of maximum) Interpolation (mm/sec; cm/min; inch/min) Angular velocity (°/sec)

Additional benefits

- Multitasking
- Integrated PLC
- Highest performance due to industrial PC
- Boot time: max. 50 sec.
- MTTR (Mean Time To Repair): < 10 min.
- Automatic zero calibration
- Special function packages including more than 120 functions for a wide variety of applications

Programming pendant (PHG) – ergonomical, light and easy

5.7" LCD colourdisplay
Touch screen
Windows operating system

Operation keys
start/stop
emergency off

CF-card slot

Cursor key

USB-Connection (reverse side)

Main axes keys

Additional axes keys

3 position dead man switch (rear side – not visible)

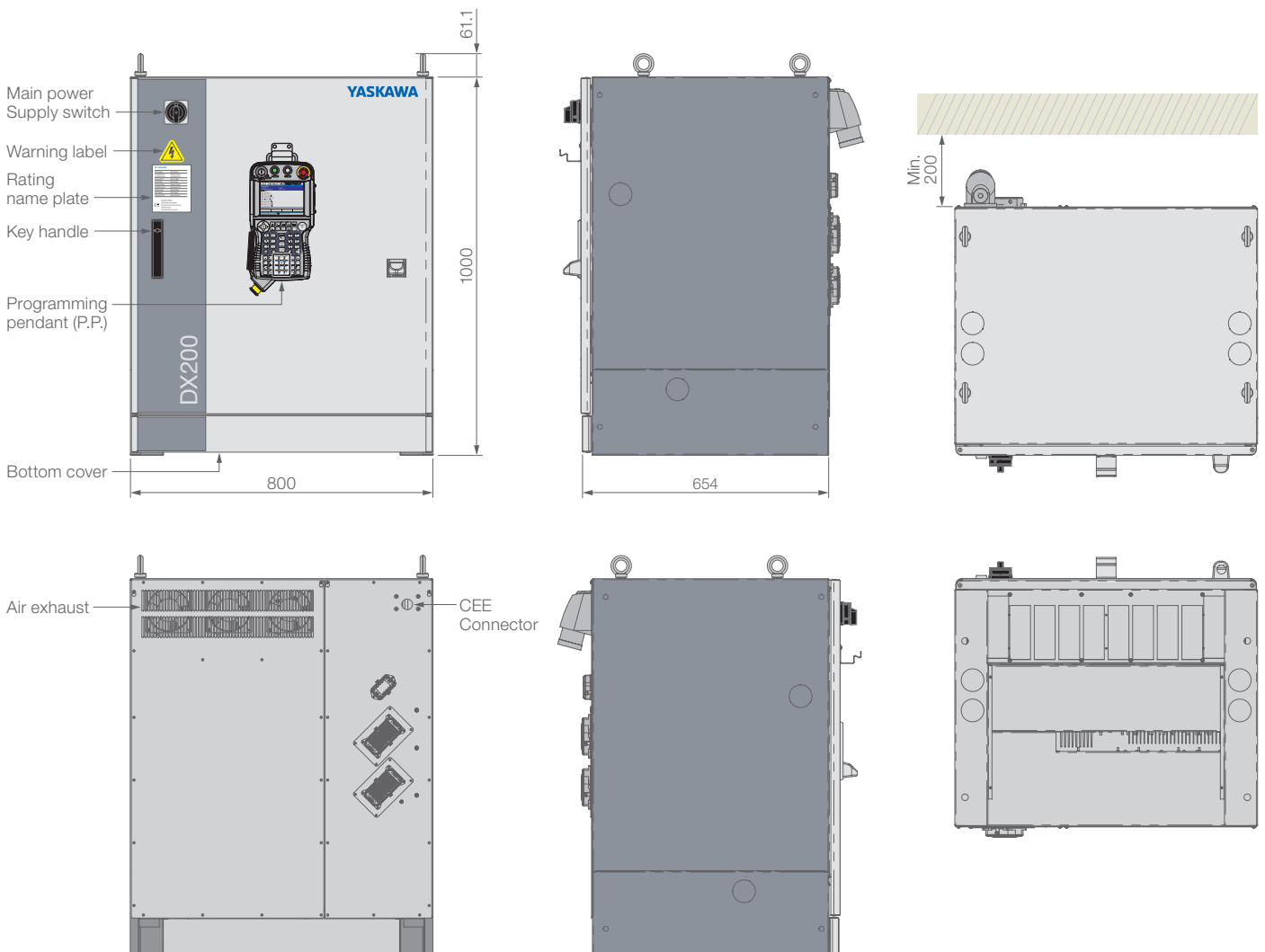
Display can be individually set for applications:
– Handling
– Shielded Arc Welding
– Spot Welding or General Applications

- Easy and fast programming
- Several user levels – from operator to safety mode
- Help function

Maintenance	
Functions	System monitor, internal maintenance clocks (e.g. Servo power-on time)
Self-diagnosis	Classifies errors and major/minor alarms and displays the data
User alarm display	Alarm messages for peripheral devices
Alarm display	Alarm messages and alarm history
I/O diagnosis	Simulated enable/disable outputs
TCP calibration	Automatic calibration of TCP (Tool Center Point)

Safety features	
Specifications	Dual-channel safety system (Emergency stop, safety interlock), 3-position Dead-man's switch, European safety standard (ISO10218)
Collision avoidance	Collision avoidance zones and radial interference zones
Collision detection	Monitors robot axes' torque levels
Machine lock	Test-run peripheral device without robot motion possible

Control cabinet	
Dimensions	800 (W) x 1000 (H) x 650 (D)
Weight	Approx. 180 kg
Protection class	IP54
Cooling system	Indirect cooling
Ambient temperature	0° to +45°C (operation) -10° to +60°C (transport and storage)
Relative humidity	Max. 90 % non-condensating
Power supply	3-phase 400/415/440 VAC at 50/60 Hz
Digital I/O	40 inputs/40 outputs (standard) (expandable to 4096 inputs/4096 outputs)
Analogue in/outputs	40 channels (optional)
Positioning system	Absolute encoder / serial interface
Program memory	200.000 steps, 10.000 instructions and 15.000 PLC steps
Interface	Ethernet
Color	Graphit gray: RAL 7024 Light grey: RAL 7035



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