Using patented multiple robot control technology, MOTOMAN's next-generation DX100 controller easily handles multiple tasks including control of up to eight robots (72 axes), as well as I/O devices and communication protocols.

The energy-saving DX100 features faster processing speeds, advanced robot arm control for smoother interpolation, built-in collision avoidance, and quicker I/O response. These advanced control functions take advantage of Yaskawa’s Sigma V motor technology to optimize acceleration characteristics and reduce cycle time.

Connections to the controller cabinet are made through the back of the unit, optimizing floor space. The DX100 conserves power during robot idle time, providing up to 25% energy savings.

Featuring a robust PC architecture, the DX100 uses a Windows® CE, lightweight programming pendant with colour touch screen. Multiple window display capability and a unique cross-shaped navigation cursor considerably reduce teaching time.

A convenient compact flash slot and USB port facilitate memory back-ups. All operator controls are located on the pendant, allowing the control cabinet to be mounted remotely.

**Key benefits**

- Patented multiple robot control (up to 8 robots/72 axes)
- Controller connections through back of unit optimize floorspace
- Dynamic interference zones protect robot arm and provide advanced collision avoidance
- Faster processing, high performance
- Reduces teaching time
- Provides up to 25% energy savings
### High performance controller DX100 for MOTOMAN-Robots

- **Programming pendant (PHG)**
  - Ergonomical, light and easy
  - 5.7” LCD color display
  - Touch screen
  - Windows operating system
  - Operation keys:
    - start/stop
    - emergency off
  - Cursor key
  - Flash card slot
  - USB-Connection (reverse side)
  - Main axes keys
  - Additional axes keys
  - Display can be individually set for each application
  - 3 position dead man switch (rear side not visible)

- **Multi-Robot-Synchronization function**
  - Real time synchronization 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 robot axis torque and load
  - High performance path accuracy
  - Optimized robot motion and speed
  - Vibration control
  - Highly sensitive collision detection

- **Communication features**
  - Built-in Ethernet, Web (ftp, opc) server options and fieldbus support of the 15 most common brands on the market
  - Easy to connect to existing networks
  - Remote monitoring and diagnosis of robot systems

- **Further features**
  - Multitasking
  - Internal SPS
  - High performance by industrial PC
  - Boot time max. 50 sec
  - MTTR (Mean Time To Repair): < 5 min.
  - Automatic zero calibration

### Control cabinet

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>800 (W) x 1000 (H) x 650 (D)</td>
</tr>
<tr>
<td>Weight</td>
<td>Approx. 250 kg</td>
</tr>
<tr>
<td>Protection class</td>
<td>IP54</td>
</tr>
<tr>
<td>Cooling system</td>
<td>Indirect cooling</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>0° to +45°C (operation)</td>
</tr>
<tr>
<td></td>
<td>-10° to +60°C (transport and storage)</td>
</tr>
<tr>
<td>Relative humidity</td>
<td>Max. 90% non-condensing</td>
</tr>
<tr>
<td>Power supply</td>
<td>3-phase 400/415/440 VAC at 50/60 Hz</td>
</tr>
<tr>
<td>Digital I/O</td>
<td>40 inputs/40 outputs (standard)</td>
</tr>
<tr>
<td></td>
<td>(Expandable to 2048 inputs/2048 outputs)</td>
</tr>
<tr>
<td>Analogue in/outputs</td>
<td>40 channels (optional)</td>
</tr>
<tr>
<td>Positioning system</td>
<td>Absolute encoder / serial interface</td>
</tr>
<tr>
<td>Program memory</td>
<td>200,000 steps, 10,000 instructions and 15,000 PLC steps</td>
</tr>
<tr>
<td>Interface</td>
<td>RS-232C, Ethernet</td>
</tr>
</tbody>
</table>
**Maintenance**

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

**Programming pendant**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>169 (W) x 314.5 (H) x 50 (D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Touchscreen display</td>
<td>5.7&quot; colour LCD (640 x 480 pixels)</td>
</tr>
<tr>
<td>Weight</td>
<td>0.986 kg</td>
</tr>
<tr>
<td>Coordinate system</td>
<td>Joint, Rectangular/cylindrical, Tool, User-coordinates</td>
</tr>
<tr>
<td>Speed adjustment</td>
<td>Fine adjustment possible during operation or teach mode</td>
</tr>
<tr>
<td>Shortcuts</td>
<td>Direct access keys and user selectable screen keys possible</td>
</tr>
<tr>
<td>Language</td>
<td>Mostly spoken languages available (worldwide)</td>
</tr>
<tr>
<td>Interface</td>
<td>Compact Flash card slot, USB port</td>
</tr>
<tr>
<td>Operating system</td>
<td>Windows CE</td>
</tr>
</tbody>
</table>

**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                |

**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) | Interpolation (mm/sec; cm/min; inch/min) |
| Angular velocity (°/sec)   | Angular velocity (°/sec)                                                 |

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**Diagram**

- Main Power Supply Switch
- Rating Name Plate
- Warning Label
- Key Handle
- Programming Pendant (PF)
- Bottom Cover
- Mass Label
- Air Inlet
- CEE Connector 432BD
- Blind Panel
- Air In
- Cable Entrance (a)
- Air Out
- 4-M16 Eye-Bolts

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**MOTOMAN-DX100 Technical Data**

- 169 (W) x 314.5 (H) x 50 (D)
- 5.7" colour LCD (640 x 480 pixels)
- 0.986 kg
- Compact Flash card slot, USB port
- Windows CE
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