Dynamic Next-Generation Controller

- Features robust PC architecture. Provides system-level control for robotic workcells.
- Patented multiple robot control (up to 8 robots/72 axes), as well as I/O devices and communication protocols. Dynamic interference zones protect robot arm and provide advanced collision avoidance.
- Fast processing speed provides smooth interpolation.
- Advanced Robot Motion (ARM) control provides high performance. Best-in-class path planning dramatically reduces teaching time.
- Small, lightweight Windows® CE programming pendant features color touch screen with multiple window display capability. Unique cross-shaped navigation cursor reduces teaching time. All operator controls are located on pendant. Program file names can be up to 32 characters long.
- Convenient compact flash slot and USB port facilitate memory backups.
- Conserves power during robot idle time, providing up to 25% energy savings.
- Highly flexible fieldbus support. Easy connection to information infrastructure through standard network options.
- Often eliminates need for separate PLC and human machine interface (HMI). Delivers significant cost savings at system level, while decreasing workcell complexity and improving overall reliability.
- Connections to controller cabinet are made through the back of the unit, optimizing floorspace.
- DX100 control cabinet allows for up to three external axes and can be remote-mounted. DXM100 supports up to two external axes. Top- or side-mount expansion options available for DX100 controller only.
- Easy maintenance with reducer status check function, enhanced troubleshooting and alarm recovery, and 20% improvement in MTTR.
### DX100 ROBOT CONTROLLER SPECIFICATIONS

<table>
<thead>
<tr>
<th>Feature</th>
<th>DX100: 800 (w) x 1000 (h) x 650 (d) (31.5&quot; x 39.4&quot; x 25.6&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimensions</strong></td>
<td>DXM100: 800 (w) x 600 (h) x 650 (d) (31.5&quot; x 23.6&quot; x 25.6&quot;)</td>
</tr>
<tr>
<td><strong>Approximate Mass</strong></td>
<td>150-250 kg (330.8-551.3 lbs.)</td>
</tr>
<tr>
<td><strong>Cooling System</strong></td>
<td>Indirect cooling</td>
</tr>
<tr>
<td><strong>Ambient Temperature</strong></td>
<td>During operation: 0° to 45° C (32° to 113° F)</td>
</tr>
<tr>
<td><strong>Temperature</strong></td>
<td>During transport and storage: -10° to 60° C (14° to 140° F)</td>
</tr>
<tr>
<td><strong>Relative Humidity</strong></td>
<td>90% max. non-condensing</td>
</tr>
<tr>
<td><strong>Primary Power Requirements</strong></td>
<td>3-phase, 240/480/575 VAC at 50/60 Hz</td>
</tr>
<tr>
<td><strong>Digital I/O</strong></td>
<td>NPN - Standard, PNP - Optional</td>
</tr>
<tr>
<td><strong>NPN - Standard</strong></td>
<td>Standard I/O: 40 inputs/40 outputs consisting of 16 system</td>
</tr>
<tr>
<td></td>
<td>inputs/16 system outputs, 24 user inputs/24 user outputs</td>
</tr>
<tr>
<td><strong>PNP - Optional</strong></td>
<td>32 Transistor Outputs, 8 Relay Outputs</td>
</tr>
<tr>
<td><strong>Expanded</strong></td>
<td>Max. I/O (optional): 2,048 inputs and 2,048 outputs</td>
</tr>
<tr>
<td><strong>Position Feedback</strong></td>
<td>Absolute encoder</td>
</tr>
</tbody>
</table>

#### DX100 ROBOT CONTROLLER FEATURES

**Program Memory**
- JOB: 200,000 steps, 10,000 instructions
- CIO Ladder Standard: 15,000 steps
- Expanded: 20,000 steps

**Interface**
- Ethernet, RS-232C

**Multiple Robot Control**
- Ability to control up to 8 robots/72 axes

**Safety Spec**
- Controller Dual-Channel Emergency Stop & Safety Gate user interface.

**Collision Avoidance**
- Collision avoidance zones and radial interference zones

**Collision Detection**
- Protects robot by monitoring torque levels on manipulator

**Machine Lock**
- Permits testing of peripheral devices without robot operation

**Safety Interlock**
- Prevents robot operation while safety circuit is open

**Pendant Dimensions**
- 169 (w) x 314.5 (h) x 50 (d) (6.6" x 12.4" x 2")

**Pendant Display**
- 5.7-inch full-color touch screen, 640 x 480 (VGA)

**Pendant Languages**
- English, German, Japanese, Spanish, Chinese

**Pendant Weight**
- .998 kg (2.2 lbs)

**Coordinate System**
- Joint, rectangular, cylindrical, tool, 24 user-coordinate frames

**Windows® Menu-Driven**
- User-selectable touch-screen menu, Multiple windows supported

**Interface**
- One Compact Flash slot; One USB port (1.1)

**Pendant O/S**
- Windows® CE

**Protection Rating**
- IP65

**Programming**

**Robot Motion Control**
- Joint motion, linear, circular, spline interpolation

**Speed Adjustment**
- Percentage of maximum for joint motion; mm/sec, cm/min, in/min for displacement; °/sec for orientation

**Device Instructions**
- Application-specific (ARCON, ARCOFF, LASERON, LASEROFF, HANDON, HANDOFF)

**I/O Instructions**
- Discrete I/O, 4-bit and 8-bit manipulation, analog output, analog input, analog scaling, sloping

**Operation**
- Up to 5 levels of undo/redo

**Maintenance Functions**
- System monitor, internal maintenance clocks

**Self-Diagnostics**
- Classifies errors and major/minor alarms and displays data

**User Alert Display**
- Displays alarm messages for peripheral devices

**Alarm Display**
- Alarm messages and alarm history

**I/O Diagnosis**
- Permits simulated enabled/disabled input/output

**TCP Calibration**
- Automatically calibrates parameters for end-effectors, optional TCP recovery function

**Tool Weight Calibration**
- Automatically calibrates total weight of tool, center of gravity and inertia for peak performance

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**Standard I/O - NPN**
Forty optically isolated inputs, 32 transistor outputs, 8 relay contact outputs (configured to optimize each application), and four break-out cards are provided as standard. For arc welding applications, one YEW01 welder interface board is installed in the DX100 cabinet as standard (not available in DXM100).

### I/O Expansion - DX100

The DX100 supports I/O expansion via:
- EtherNet/IP
- DeviceNet
- Profinet-DP
- Analog I/O
- Mechatrolink II
- Other networks available
- CC-Link

### I/O Expansion - DXM100

The DXM100 supports I/O expansion via:
- EtherNet/IP
- DeviceNet
- CC-Link

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**www.motoman.com**

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