R-30iA™ Extended Axis
Linear Track, Servo Gripper, Turntable and Conveyor Drive

Basic Description

FANUC AC servo motors αF, αS and βS are best suited for high-speed and high-precision robotic applications, including Linear Track, Servo Gripper, Turntable or servo drive for part conveyors.

SYSTEM R-30iA Controller is capable of supporting up to 40 axes including four robots and 16 extended axes. Up to nine extended axis motors can be accommodated inside a standard B-size Controller.

General Specifications

- Ambient temperature: 0 to 40°C
- Ambient humidity: 80% RH or less (no dew)
- Installation height: Up to 1,000 meters above sea level
- Vibration: 5G or less
- Insulation class: Class F
- Protection type: IP65 (See FANUC motor manual for application specific details)
- Cooling method: Fully-enclosed, cooled by a natural air flow
- Heat protection: TP211

Features and Benefits

- Excellent acceleration characteristics – High maximum output torque and intermediate rotor inertia result in excellent acceleration characteristics.

- Compact – Use of the latest neodymium ferrite magnet reduces the size and weight of the servo motors. This produces a servo motor that is compact and can be used in most robotic applications.

- Smooth rotation – Unique magnetic pole shape minimizes torque ripple. The result is extremely smooth rotation.

- Excellent waterproofing – Use of waterproof connectors and FANUC's unique stator seal provide excellent waterproofing, ensuring that no liquid, such as machine coolant, can enter the motor.

- Controllability – Use of the advanced servo software maintains controllability even when a disturbance occurs.

- High-performance sensor – High-resolution pulse coders are used in the standard configuration, enabling precise positioning of the motor.

- Extended continuous operation – High-density winding, low iron loss by the optimum core shape, and the use of the latest servo software reduce heat generation during high-speed rotation and allow a wide continuous operating zone.

- Powerful brake – A powerful brake with an increased holding torque is available as an option. The brake uses an asbestos-free design.
Standard Motor Packages

- Standard pre-configured motor packages are available off-the-shelf within a short lead time.
- Standard motor packages include motors, servo amplifiers, motor cables, battery and required interconnection cables.
- Pre-configured motors come with a straight shaft including keyway.
- Selection is available for motors with or without brakes, and cables with lengths of 7, 14, 21 or 30 meters.
- Includes extended axis and multi-group software option at no additional charge.
- Controller transformer upgrade (not included with standard motor package) may be required depending upon the motor sizes and transformer size of the robot controller.

Custom Motor Packages

- FANUC Robotics offers a wide range of motor choices in addition to the standard motors listed here.
- Contact material handling segment for Bill of Materials (BOM) and price.

Reference Documents

- Extended Axis Manual
- Software Installation Manual
- FANUC Servo Motor Manual
- Coordinated Motion Manual

### Standard Motor Packages

<table>
<thead>
<tr>
<th>Motor Type</th>
<th>Max Torque Nm</th>
<th>Rotor Inertia kgf•cm•s² w/o brake</th>
<th>Motor Size W, H, L w/o brake (w/brake)</th>
<th>Shaft Size Dia, Shaft Length “s” Gap “g”</th>
<th>Weight (kg) w/o brake</th>
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</thead>
<tbody>
<tr>
<td>β/β S 0.5/5000</td>
<td>2.5</td>
<td>0.000184</td>
<td>60, 60, 95.5 (90, 90, 159)</td>
<td>9, 22, 3</td>
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<tr>
<td>αF 1/5000</td>
<td>5.3</td>
<td>0.00311 (0.00332)</td>
<td>90, 90, 130 (90, 90, 166)</td>
<td>10, 20, 12</td>
<td>2.8</td>
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<tr>
<td>αF 2/5000</td>
<td>8.3</td>
<td>0.00537 (0.00557)</td>
<td>90, 90, 166 (90, 90, 195)</td>
<td>10, 20, 12</td>
<td>4.3</td>
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<tr>
<td>αF 4/4000</td>
<td>15</td>
<td>0.0138 (0.0145)</td>
<td>130, 130, 166 (130, 130, 191)</td>
<td>19, 40, 15</td>
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<tr>
<td>αF 6/3000</td>
<td>29</td>
<td>0.0262 (0.0269)</td>
<td>130, 130, 222 (130, 130, 247)</td>
<td>19, 40, 15</td>
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<td>αF 12/3000</td>
<td>35</td>
<td>0.0633 (0.0694)</td>
<td>174, 174, 202 (174, 174, 243)</td>
<td>35, 75.8, 3.2</td>
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<td>αF 22/3000</td>
<td>64</td>
<td>0.122 (0.129)</td>
<td>174, 174, 276 (174, 174, 317)</td>
<td>35, 75.8, 3.2</td>
<td>29</td>
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<td>αF 30/3000</td>
<td>83</td>
<td>0.173 (0.18)</td>
<td>174, 174, 350 (174, 174, 391)</td>
<td>35, 75.8, 3.2</td>
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<tr>
<td>αF 40/3000</td>
<td>130</td>
<td>0.224 (0.231)</td>
<td>174, 174, 350 (174, 174, 465)</td>
<td>35, 75.8, 3.2</td>
<td>51</td>
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