Series E14 Integral Coupling

- **Standard Mounting on NEMA Size 23 and 34 Motors**
- **Direct Replacements for Compumotor –E Option for Stepper Motors/Drives**

**APPLICATION/INDUSTRY**
The E14 with Integral Shaft Coupling is designed for convenient motor installation. It mounts on industry standard bolt circle patterns and is available to accommodate a choice of shaft sizes.

Typical Applications:
- Motor-mounted feedback
- Industrial equipment
- Assembly machinery
- Robotics

**DESCRIPTION**
The Series E14 includes precision bearings and an O-ring seal and accommodates a 1/4" or 3/8" diameter stainless steel shaft.

Series E14 incorporates the latest in microelectronic packaging, LED light sources, and matched sensors. Outputs are designed to be compatible with most 5V TTL circuits with options for higher voltage 12 and 15 VDC. Shielded cable is standard. Line drivers with complementary outputs are available for longer cable runs and/or higher ambient electrical noise immunity.

**FEATURES AND BENEFITS**

**Mechanical and Environmental Features**
- Durable metal housing
- O-ring housing seal
- Accomodates rugged 1/4" or 3/8" diameter stainless steel shafts
- Up to 5000 RPM

**Electrical Features**
- Up to 2540 pulses per revolution including an optional marker pulse
- Higher electronic operating speed up to 100 kHz
- LED light source and matched sensors
- Choice of 5, 12, or 15 VDC units
- Shielded cable and line driver available for higher electrical noise immunity

**SPECIFICATIONS**

**STANDARD OPERATING CHARACTERISTICS**

| Code: Incremental |
| Resolution: 100 to 2540 PPR (pulses/revolution) |
| Format: Two channel quadrature (AB) with optional Index (Z) outputs |
| Phase Sense: A leads B for CW shaft rotation as viewed from the shaft end of the encoder; Reverse phasing available, see Ordering Information |
| Accuracy: ±3 x (360° ÷ PPR) or ±2.5 arc-min worst case pulse to any other pulse, whichever is less |
| Quadrature Phasing: 90° ± 36° electrical |
| Symmetry: 180° ± 18° electrical |
| Index: 90° ± 25° (gated with A and B high) |
| Waveforms: Squarewave with rise and fall times less than 1 microsecond into a load capacitance of 1000 pf |

**ELECTRICAL**

- **Input Power:**
  - 5 VDC ± 5% at 80 mA max.;
  - 12 or 15 VDC ± 10% at 80 mA max.; not including output loads

- **Outputs:**
  - 7272 line driver (or equivalent), 40 mA sink and source

- **Frequency Response:** 100 kHz min.

**MECHANICAL**

- **Bearing Life:** (16 x 10^6 ÷ RPM) hours min.
- **Shaft Speed:** 5,000 RPM max.
- **Starting Torque:** 0.1 oz-in max. at 25 °C
- **Running Torque:** 0.08 oz-in max. at 25 °C
- **Moment of Inertia:** 3.8 x 10^-5 oz-in-sec^2
- **Weight:** 7.0 oz. max.

**ENVIRONMENTAL**

- **Operating Temperature:** 0 to +70 °C
- **Storage Temperature:** -25 to +70 °C
- **Humidity:** to 98% without condensation
- **Enclosure Rating:** NEMA12/IP54 (dirt tight, splashproof) Optional:NEMA 3/IP64 rating available (consult factory)

**Compumotor Equivalent Models:**

- For Size 23 Stepper Motor: E14-1000-A863
- For Size 34 Stepper Motor: E14-1000-C863
### Series E14 Integral Coupling

#### Approximate Dimensions (inches/mm)

**E14 for NEMA Size 23 Motors**

**E14 for NEMA Size 34 Motors**

#### Electrical Connections

<table>
<thead>
<tr>
<th>Wire Color Code</th>
<th>Single Ended Outputs</th>
<th>Differential Outputs</th>
<th>Function</th>
<th>DB 25 Connector Pin Number</th>
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<tbody>
<tr>
<td></td>
<td>Unidirectional</td>
<td>Bidirectional</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red</td>
<td>Power Source</td>
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<td>23</td>
</tr>
<tr>
<td>Black</td>
<td>Common</td>
<td>Common</td>
<td>Common</td>
<td>14</td>
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<tr>
<td>White</td>
<td>Signal A</td>
<td>Signal A</td>
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<td>Green</td>
<td>Signal B (if used)</td>
<td>Signal A</td>
<td>Signal B</td>
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<td>Orange</td>
<td>Signal Z (if used)</td>
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<td>Signal B</td>
<td>4</td>
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<tr>
<td>Blue</td>
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<td>No Connection</td>
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<td>Floating</td>
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<tr>
<td>White/Black</td>
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<td>---</td>
<td>Signal Z (if used)</td>
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<tr>
<td>Red/Black</td>
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<td>---</td>
<td>Signal Z (if used)</td>
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#### Flange Adapter Ordering Codes

<table>
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<tr>
<th>Factory Option Code</th>
<th>Motor Frame Size</th>
<th>Motor Shaft Diameter</th>
<th>Model No. of Coupling Only</th>
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<tbody>
<tr>
<td>A</td>
<td>23</td>
<td>1/4&quot;</td>
<td>605106-1</td>
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<tr>
<td>B</td>
<td>23</td>
<td>3/8&quot;</td>
<td>605106-3</td>
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<td>C</td>
<td>34</td>
<td>3/8&quot;</td>
<td>605106-3</td>
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</table>

Other couplings available; consult factory.

**Field Installed Kit:**

Field installed kits are available by ordering either Model No. E14-N1 (integral housing and mounting hardware for NEMA size 23 motors) or Model No. E14-N2 (integral housing & mounting hardware for NEMA size 34 motors), and the appropriate coupling listed in the table above.

#### Ordering Information

To order, complete the model number with code numbers from the table below:

<table>
<thead>
<tr>
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</table>

**E14 Size 14, with Integral Shaft Coupling**

- **A** NEMA Size 23 Flange Mount with 1/4" Motor Shaft Coupling
- **B** NEMA Size 23 Flange Mount with 3/8" Motor Shaft Coupling
- **C** NEMA Size 34 Flange Mount with 3/8" Motor Shaft Coupling

**E14 Size 14**

- 0 Size E14
- 0 Single Ended, Unidirectional
- 1 Single Ended, Bidirectional, no Index
- 2 Single Ended, Bidirectional, with Index
- 3 Differential, Unidirectional
- 4 Differential, Bidirectional, no Index
- 5 Differential, Bidirectional, with Index
- 6 Differential, Bidirectional, with Index, Reversed Phasing

**E14 Size 14, with Integral Shaft Coupling**

- 0 5 VDC
- 1 12 VDC
- 2 15 VDC
- 0 18" Cable
- 1 3' Cable
- 2 6' Cable
- 3 10' Cable
- 4 15' Cable
- 5 10' Cable, DB25 Connector
- 7 25' Cable, DB25 Connector