The E25 has been designed as a light duty encoder for applications such as robotics, precision computer peripherals and OEM motors and controls. It is designed with an integrated mounting ring and shaft coupling. The integrated mounting ring and shaft coupling allow for simplified installing and a low overall profile when the unit is mounted on a motor. These self-contained mounting and coupling features can result in reduced interface cost.

### Mechanical Specifications
- **Coupling Bore**: 1/4" and 3/8" nominal, standard
- **Starting Torque at 25° C**: 0.07 in-oz typical shielded; 2.0 in-oz typical SB
- **Bearings**: Class ABEC 5
- **Cover**: Drawn aluminum, 0.060" wall, protective finish standard. Die cast aluminum with protective finish for EM, SM, ECS and SCS terminations
- **Bearing Life**: 1 X 10⁹ revs (6,700 hrs at 2500 RPM) at rated load
- **Maximum RPM**: 10,000
- **Weight**: 13 oz., typical
- **Enclosure Rating**: NEMA 2 (IP43)

### Electrical Specifications
- **Code**: Incremental
- **Output Format**: 2 channels in quadrature, 1/2 cycle index gated with negative B channel
- **Cycles Per Shaft Turn**: 1 to 28,800 (see table 2)
- **For resolutions above 3,600 see BEI for interpolation options
- **Supply Voltage**: 5 to 28 VDC available
- **Current Requirements**: 100 mA typical + output load, 250 mA (max)
- **Voltage/Output**: (see note 5)
  - 28V/V: Line Driver, 5–28 VDC in, Vout = Vin
  - 28V/5: Line Driver, 5–28 VDC in, Vout = 5 VDC
  - 28V/OC: Open Collector, 5–28 VDC in, OCout
- **Protection Level**: Reverse, overvoltage and output short circuit (see note 5)
- **Frequency Response**: 100 kHz, up to 800 KHz with interpolation option (see note 7)
- **Output Terminations**: (See table 1, back)

### Environmental Specifications
- **Temperature**: Operating, 0º to 70º C; extended temperature testing available (see note 8); Storage, -25º to 90º C unless extended temperature option called out.
- **Shock**: 50 g’s for 11 msec duration
- **Vibration**: 5 to 2000 Hz @ 20 g’s
- **Humidity**: 98% RH without condensation

**NOTES & TABLES**: All notes and tables referred to in the text can be found on the back of this page.

### E25 Incremental Ordering Options
For assistance call 800-350-2727

Use this diagram, working from left to right to construct your model number (example: E25BB-4H-500-ABZC-28V/V-SM18).

**E25**

- **TYPE**: E = Heavy Duty 25 = 2.500" Dia.
- **Housing Config. Letter**: BA, BB, or BC
- **Optional Face Mounts**: 4H = 0.250 I.D., Std 4R = 0.250 I.D., High Performance 6R = 0.375 I.D., High Performance See note 1
- **Shaft Seal Configuration**: SB = Seal Integral with Bearing Blank = Shielded Bearing See note 2
- **Cycles Per Turn**: (Enter Cycles) See Table 2
- **Complements**: C = Complementary Outputs Blank = None See note 4
- **No. Of Channels**: A = Single Channel AB = Dual Quad. Ch. ABZ = Dual with Index AZ = Single with Index See note 3
- **Output Termination**: E = End S = Side See note 6
- **Special Features**: S= Special features specified on purchase order (consult factory) See note 6

The E25 Incremental Encoder is available with the following certifications:

- EN 55011 and EN 61000-6-2

The E25 has been designed as a light duty encoder for applications such as robotics, precision computer peripherals and OEM motors and controls. It is designed with an integrated mounting ring and shaft coupling. The integrated mounting ring and shaft coupling allow for simplified installing and a low overall profile when the unit is mounted on a motor. These self-contained mounting and coupling features can result in reduced interface cost.
Dimensions

E25BA

E25BC (NEMA 34/42 Compatible)

E25BB

Tables

### Table 1: Incremental Output Terminations

<table>
<thead>
<tr>
<th>M19 CONNECTOR</th>
<th>M15 CONNECTOR</th>
<th>CHANNELS DESIGNATED IN MODEL NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIN</td>
<td>PIN</td>
<td>ABZ</td>
</tr>
<tr>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>B</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>C</td>
<td>C</td>
<td>Z</td>
</tr>
<tr>
<td>D</td>
<td>D</td>
<td>Y</td>
</tr>
<tr>
<td>E</td>
<td>E</td>
<td>X</td>
</tr>
<tr>
<td>F</td>
<td>F</td>
<td>v (SUPPLY VOLTAGE)</td>
</tr>
<tr>
<td>G</td>
<td>G</td>
<td>G (case ground (CG))</td>
</tr>
</tbody>
</table>

### Table 2: Disc Resolutions for Incremental Encoder Model E25

<table>
<thead>
<tr>
<th>Model</th>
<th>Resolutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>H25</td>
<td>1, 2, 3, 4, 5, 6, 7, 8, 10, 13, 16, 20, 24, 25, 26, 30, 32, 33, 34, 36, 37, 40, 45, 48, 50, 51, 56*</td>
</tr>
<tr>
<td>H38</td>
<td>60, 64, 66, 67, 75, 80, 86, 88, 90, 92, 100, 102, 122, 125, 127, 132, 134, 148, 150, 158, 160</td>
</tr>
<tr>
<td>H75</td>
<td>2200, 2250, 2356, 2400, 2485, 2500, 2514, 2519, 2540, 3000, 3125, 3600, 4000, 4006, 5000</td>
</tr>
</tbody>
</table>

Notes

1. Mounting is usually done either using the D-style square flange mount, E- or G-style serve mounts, or one of the standard face mounts, F1 for example. Consult factory for additional face mount options.
2. Oil seal is recommended in virtually all installations. The most common exceptions are applications requiring a very low start-up time. Consult factory for additional face mount options.
3. Non-standard index widths and multiple indices are available by special order. Consult factory.
4. Complementary outputs are recommended for use with line driver outputs directly to the encoder. Do not connect any line driver outputs directly to the encoder.
5. Outperforms NPN Open Collector (3904*, 7273*). Current sink of 80 mA typical. This replaces prior IC’s with designations of 3904, 3904R, 4469, 5V/V, 5V/OC, 5V/OCR, 9V/OC. Please consult the factory to discuss your specific requirements.
6. Special –S at the end of the model number is used to define a special internal pull-up resistor. These drivers are specific to intrinsically safe encoders, and are installed per the appropriate control drawings listed in Table 2.1 on page 48 of the specifying guide.
7. Higher frequency response may be available. Please consult with the factory.
8. Temperature ranges are available in the following ranges:
   - 40° to 70°C
   - 40° to 85°C
   - 40° to 105°C
   - 40° to 105°C depending on the particular model. Some models can operate down to -55°C. Extended temperature ranges can affect other performance factors. Consult with factory for more specific information.
9. Mating straight plug receptacles may be ordered from the factory:
   - For M12 use MS3116F12S-1S, For M14 use MS3106F14S-1S, For M14/19 use MS3116F14S-1S, For M16 use MS3106F16S-1S, For M18 use MS3106F18S-1S, For M20 use MS3106F20S-1S

* Products manufactured prior to April 2015 used the line driver C number instead of voltage output in relais. matter.

Tel: 805-968-0782 / 800-350-2727  |  Fax: 805-968-2670 / 800-960-2726  |  7230 Hollister Ave., Goleta, CA  93117-2807

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*AB or ABC output only.  NOTE:  Resolutions up to 72,000 are available.

For M14 use MS3116F12S-1S, For M14 use MS3106F14S-1S
For M14/19 use MS3116F14S-1S, For M16 use MS3106F16S-1S
For M18 use MS3106F18S-1S, For M20 use MS3106F20S-29S