### Features
- The Original Industry-Standard Cube
- Wide Choice of PPR’s
- Enhanced Technology Using Opto-ASIC circuitry

The Model 711/716 is ideally suited for applications requiring a quadrature output. Designed for compatibility with most programmable controllers, electronic counters, motion controllers, and motor drives, it is ideally suited for industrial applications where it is important that the direction of rotation be known.

The new Opto-ASIC version increases critical performance specifications for the most popular resolutions. This version features advanced Opto-ASIC circuitry, a single chip design that eliminates many board level components. This increases the reliability of an already dependable and durable encoder. With new options continually being added, the 711/716 just keeps getting better, and better!

### Common Applications
Feedback for counters, PLC’s & Motors, Cut To Length, Labelling, Measuring For Packaging, Filling & Materials Handling Machines, Wire Winding, Film Extrusion

### Model 711/716 Ordering Guide
Red type indicates price adder options. Not all configuration combinations may be available. Contact Customer Service for details.

#### Model 711/716 PPR Options

**Standard Cube:** All resolutions from 1 to 900 except where Opto-ASIC resolutions are available

| Resolution | 0001 thor 0189 | 0193 | 0200 | 0205 | 0210 | 0240 | 0250 | 0256 | 0276 | 0296 | 0300 | 0305 | 0330 | 0350 | 0360 | 0400 | 0480 | 0500 | 0512 | 0580 | 0597 | 0600 | 0670 | 0720 | 0800 | 0840 | 0960 | 1000 | 1024 | 1200 | 1270 | 1500 | 1800 | 2000 | 2048 | 2500 | 3000 | 4096 | 5000 | 6000 | 8192 | 10000 |
|------------|----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| PPR        | See PPR chart below | Price adder >1000 |

Contact Customer Service for other disk resolutions; not all disk resolutions available with all output types.

### Optional Features

#### Mechanical
- SHAFT TYPE
  - S: Single Ended
  - D: Double Ended

#### Electrical Specification
- OUTPUT TYPE
  - OC: Open Collector
  - PP: Push-Pull
  - HV: Line Driver

- MARKER
  - Not Fitted
  - P: Positive Marker
  - N: Negative Marker

#### Connector Type
- SW: 6 Pin MS Connector
- G2: Gland + 2M Cable
- SK: 8 Pin EuroFast M12
- G5: Gland + 5M Cable

**Note 1:**
- For non standard cable lengths, call the sales office.
- For mating connectors - see accessories page.
- Call sales office for marker availability and configuration options.
Model 711/716 Specifications

**Electrical**
- **Input Voltage**: 4.75 to 24 Vcc max to temperatures up to 70°C
- **Input Current**: 100 mA max (65 mA typical) with no output load
- **Input Ripple**: 100 mV peak to peak at 0 to 100 kHz
- **Output Format**: 711. Square wave with single channel
  - 716. Quadrature: two square waves, channel A leading B for clockwise shaft rotation, as viewed from the encoder mounting face. See Waveform Diagrams below.
- **Output Types**: Open Collector: 20 mA max per channel
  - Push-Pull: 20 mA max per channel
  - Line Driver: 20 mA max per channel (Meets RS 422 at 5 Vcc supply)
- **Index**: Once per revolution.
- **Freq. Response**: 20 kHz standard
- **Noise Immunity**: Tested to BS EN61000-6-2; BS EN50081-2; BS EN61000-4-2; BS EN61000-4-3; BS EN61000-4-6; BS EN50081-1
- **Symmetry**: 180º (±18º) electrical
- **Quad. Phasing**: 90º (±22.5º) electrical
- **Min. Edge Sep**: 67.5º electrical
- **Accuracy**: Within 0.10º mechanical or 6 arc-minutes from true position
- **Electrical Conn.**: Refer to ordering guide notes

**Mechanical**
- **Shaft Size**: 0.250" or 0.375"
- **Shaft Type**: Single or double-ended (specify choice)
- **Shaft Material**: 303 stainless steel
- **Radial Loading**: 7 Kg maximum (0.250" diameter shaft)
- **Axial Loading**: 18 Kg maximum (0.375" diameter shaft)
- **Starting Torque**: 9.18 x 10^-4 Nm typical for 0.250" shaft
- **Housing**: Black non-corrosive finished 6063-T6 aluminum
- **Bearings**: Precision ABEC Ball Bearings
- **Mounting**: Tapped mounting holes on three sides for base or face mounting
- **Weight**: 300 gms typical

**Environmental**
- **Operating Temp**: 0° to +70° C standard models
- **Storage Temp**: -25° to +85° C
- **Humidity**: 98% RH non-condensing
- **Vibration**: 10 g @ 58 to 500 Hz
- **Shock**: 80 g @ 11 ms duration
- **Sealing**: IP50 standard

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**Wiring Table**

<table>
<thead>
<tr>
<th>Function</th>
<th>Gland Cable Wire Color</th>
<th>6-pin MS A,B,Z</th>
<th>6-pin MS A+Z</th>
<th>6-pin MS D,C,PP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Com</td>
<td>Black</td>
<td>7</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>+VDC</td>
<td>Red</td>
<td>2</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>A'</td>
<td>Brown</td>
<td>1</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>A</td>
<td>White</td>
<td>3</td>
<td>D</td>
<td>D</td>
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<tr>
<td>B</td>
<td>Blue</td>
<td>4</td>
<td>E</td>
<td>E</td>
</tr>
<tr>
<td>B'</td>
<td>Violet</td>
<td>5</td>
<td>F</td>
<td>F</td>
</tr>
<tr>
<td>Z</td>
<td>Orange</td>
<td>6</td>
<td>E</td>
<td>C</td>
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<tr>
<td>Z'</td>
<td>Yellow</td>
<td>8</td>
<td>F</td>
<td>F</td>
</tr>
<tr>
<td>Shield</td>
<td>Screen</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CAUTION** - Always check wiring colour code against Encoder Label due to changes in specification since September 2006