MODEL 865T - STAINLESS STEEL ENCODER

FEATURES
C-Face thru-bore encoder with stainless steel housing
Fits NEMA Size 56C thru 184C motor faces (4.5” AK)
Slim profile – only 1.00” deep
Incorporates Opto-ASIC technology
Resolutions to 4096 CPR

The Model 865T C-Face encoder is a rugged, high resolution encoder designed to mount directly on NEMA C-Face motors. Both sides of the encoder are C-Face mounts, allowing additional C-Face devices to be mounted to this encoder. Unlike many C-Face kit type encoders, the Model 865T contains precision bearings and an internal flex mount, virtually eliminating encoder failures and inaccuracies induced by motor shaft runout or axial endplay. The advanced Opto-ASIC design provides advanced noise immunity necessary for many industrial applications. This encoder is ideal for applications using induction motors and flux vector control. The 1.00” thick model 865T provides speed and position information for drive feedback in a slim profile. The thru-bore design allows fast and simple mounting of the encoder directly to the accessory shaft or to the drive shaft of the motor, using the standard motor face (NEMA sizes 56C - 184C). The tough Type 316 Stainless Steel housing resists the corrosion and hazards of a caustic industrial environment.

COMMON APPLICATIONS
Motor Feedback, Velocity & Position Control, Conveyors, Variable Speed Drives, Mixing & Blending Motors, Assembly & Specialty Machine

MODEL 865T ORDERING GUIDE
Blue type indicates price adder options. Not all configuration combinations may be available. Contact Customer Service for details.

<table>
<thead>
<tr>
<th>MODEL 865T ORDERING GUIDE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MECHANICAL</strong></td>
</tr>
<tr>
<td>865T</td>
</tr>
<tr>
<td><strong>BORE SIZE</strong></td>
</tr>
<tr>
<td>11</td>
</tr>
<tr>
<td>34</td>
</tr>
<tr>
<td>18</td>
</tr>
<tr>
<td>80</td>
</tr>
<tr>
<td>13</td>
</tr>
<tr>
<td>19</td>
</tr>
<tr>
<td>24</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CYCLES PER REVOLUTION</th>
<th>NUMBER OF CHANNELS</th>
</tr>
</thead>
<tbody>
<tr>
<td>See CPR Options below for available resolutions</td>
<td>Price adder for CPR &gt; 1024</td>
</tr>
<tr>
<td>Channel A leads B</td>
<td>Channel B leads A</td>
</tr>
<tr>
<td>Q</td>
<td>Quadrature A &amp; B</td>
</tr>
<tr>
<td>K</td>
<td>Reverse quadrature A &amp; B</td>
</tr>
<tr>
<td>See Quadrature Phasing &amp; Index Gating Options at encoder.com for additional options and waveforms</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BORE SIZE</th>
<th>CYCLES PER REVOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>0060</td>
<td>0100</td>
</tr>
<tr>
<td>0250</td>
<td>0256</td>
</tr>
<tr>
<td>0500</td>
<td>0512</td>
</tr>
<tr>
<td>1000</td>
<td>1024</td>
</tr>
<tr>
<td>2048</td>
<td>2500</td>
</tr>
<tr>
<td>4096</td>
<td></td>
</tr>
</tbody>
</table>

NOTES:
1. Housing style H1 Thru-bore version equipped with IP50 dust seal. Unit must be mounted between two C-Face devices with supplied gasket to be IP66 sealed.
2. 5 to 24 VDC max for high temperature option.
3. Contact Customer Service for index gating options.
4. Line Driver Output not available with 5-pin M12 connector.
5. For mating connectors, cables, and cordsets see Accessories at encoder.com. See Connector Pin Configuration Diagrams at encoder.com.
6. For non-standard cable lengths enter ‘F’ plus cable length expressed in feet. Example: F06 = 6 feet of cable.

© 2021 Encoder Products Company, REV 05/20/2021

1-800-366-5412 | encoder.com | sales@encoder.com
MODEL 865T - STAINLESS STEEL ENCODER

MODEL 865T SPECIFICATIONS

Electrical
Input Voltage ....................... 4.75 to 28 VDC max for temperatures up to 70° C
............................................ 4.75 to 24 VDC for temperatures between 70° C and 100° C
Input Current ....................... 100 mA max with no output load
Input Ripple ........................ 100 mV peak-to-peak at 0 to 100 kHz
Output Format ..................... Incremental – Two square waves in quadrature with channel A leading B for clockwise shaft rotation, as viewed from the mounting face. See Waveform Diagrams.
Output Types ....................... Open Collector – 100 mA max per channel
............................................ Pull-Up – Open Collector with 2.2K ohm internal resistor, 100 mA max per channel
............................................ Push-Pull – 20 mA max per channel
............................................ Line Driver – 20 mA max per channel (Meets RS 422 at 5 VDC supply)
Index ................................... Once per revolution.
............................................ 0001 to 0512 CPR: Ungated
............................................ 0513 to 4096 CPR: Gated to output A
............................................ See Waveform Diagrams.
Max Frequency .................... 200 kHz
Electrical Protection ............. Reverse voltage and output short circuit protected. NOTE: Sustained reverse voltage may result in permanent damage.
Noise Immunity ................... Tested to BS EN61000-4-2; IEC801-3;
............................................ BS EN61000-4-4; DDENV 50141; DDENV 50204; BS EN55022 (with European compliance option);
............................................ BS EN61000-6-2;
............................................ BS EN50081-2
Quadrature .......................... 67.5° electrical or better is typical,
Edge Separation .................. 54° electrical minimum at temperatures > 99° C
Rise Time ...................... Less than 1 microsecond

Mechanical
Max Shaft Speed .................. 6000 RPM. Higher shaft speeds may be achievable, contact Customer Service.
Bore Tolerance ................... +0.0015"/-0.000"
User Shaft Tolerances
Radial Runout .......................... 0.005"
Axial Endplay .......................... ±0.050"
Moment of Inertia ............... 3.3 x 10^-3 oz-in-sec^2 typical
Housing ......................... Type 316 Stainless Steel
Weight .......................... 6 lb typical

Environmental
Storage Temp ....................... -25° to 100° C
Humidity ..................... 98% RH non-condensing
Vibration .......................... 10 g @ 58 to 500 Hz
Shock .......................... 50 g @ 11 ms duration
Sealing .......................... IP66 when mounted between two C-Face devices with supplied gasket kit, or with H1 cover. IP50 if not installed in either manner.
MODEL 865T CONNECTOR OPTIONS

Model 865T shown with M12 connector option. Specify 5-pin or 8-pin using Ordering Guide.

MODEL 865T OPTIONAL HOUSING COVER (H2)

All dimensions are in inches with a tolerance of ±0.005" or ±0.01" unless otherwise specified.
WIRING TABLE
For EPC-supplied mating cables, refer to wiring table provided with cable. Trim back and insulate unused wires.

<table>
<thead>
<tr>
<th>Function</th>
<th>Gland Cable Wire Color</th>
<th>5-pin M12* PU, PP, OC</th>
<th>8-pin M12*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Com</td>
<td>Black</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>+VDC</td>
<td>Red</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>A</td>
<td>White</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>A'</td>
<td>Brown</td>
<td>--</td>
<td>3</td>
</tr>
<tr>
<td>B</td>
<td>Blue</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>B'</td>
<td>Violet</td>
<td>--</td>
<td>5</td>
</tr>
<tr>
<td>Z</td>
<td>Orange</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Z'</td>
<td>Yellow</td>
<td>--</td>
<td>8</td>
</tr>
<tr>
<td>Shield</td>
<td>Bare</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

*CE Option: Use cable cordset with shield connected to M12 connector coupling nut.
*Standard cable is 24 AWG conductors with foil and braid shield.

WAVEFORM DIAGRAMS

Line Driver and Push-Pull

Output A

Output A

Output B

Output B

Index Z

Index Z

gated to A = 180° ungated 270°
gated to A = 180° ungated 270°

Clockwise rotation as viewed from the mounting face.
NOTE: All degree references are electrical degrees.
Waveform shown with optional complementary signals.
A, B, Z for HV output only.

Open Collector and Pull-Up

Output A

Output B

Index Z

INDEX Z

gated to A = 180° ungated 270°

Clockwise rotation as viewed from the mounting face.
NOTE: All degree references are electrical degrees. Index is positive going.