MODEL 25T/H - INCREMENTAL ENCODER

FEATURES
2.5" Opto-ASIC Encoder with a Low Profile (2.0")
Standard Bore Sizes Ranging from 0.625" to 1.125"
Metric Bore Sizes Ranging from 6 mm to 28 mm
Single Replacement Solution for 2.0" to 3.5" Encoders
Resolutions to 10,000 CPR; Frequencies to 1 MHz
Versatile Flexible Mounting Options
RoHS Compliant

Representing the next generation of high performance encoders, the Model 25T Accu-Coder™ features the largest thru-bore available in a 2.5" encoder, able to mount directly on shafts as large as 1.125" (28 mm). With resolutions up to 10,000 CPR and frequencies up to 1MHz, this industrial strength encoder is perfect for fast revving motors. The 25T features the next generation of EPC’s proprietary Opto-ASIC sensor, which provides superior accuracy and precision counts. The injection molded housing, made from EPC’s custom blend of nylon composites, is grooved with “cooling fins” and can tolerate the extreme heat of the motion-control industry. With sealing available up to IP66 and many new rugged flexible mounting options, the Model 25T can perform in demanding industrial environments.

COMMON APPLICATIONS

Ø2.5"

MODEL 25T/H ORDERING GUIDE
Blue type indicates price adder options. Not all configuration combinations may be available. Contact Customer Service for details.

<table>
<thead>
<tr>
<th>Mechanical</th>
<th>Electrical</th>
<th>Optional Features</th>
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<tbody>
<tr>
<td>25T</td>
<td>0500</td>
<td>SMW</td>
</tr>
<tr>
<td>42 SE</td>
<td>V1 N</td>
<td>R</td>
</tr>
<tr>
<td>25T</td>
<td></td>
<td></td>
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<tr>
<td>25H</td>
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HOUING OPTION
(Leave Blank for Standard)
Standard
Corrosion Resistant

BORE SIZE
01 1/4", 0.256" 04 6 mm
03 5/16", 0.3125" 14 8 mm
02 3/8", 0.375" 10 10 mm
05 1/2", 0.500" 09 11 mm
11 5/8", 0.625" 12 12 mm
34 3/4", 0.750" 13 14 mm
78 7/8", 0.875" 15 15 mm
40 1", 1.000" 16 16 mm
42 1-1/8", 1.125" 17 17 mm
18 18 mm
19 19 mm
20 20 mm
24 24 mm
25 25 mm
28 28 mm

MOUNTING
SE 2.25" to 2.75" B.C.
3-point Flex Mount
SG 3.50" to 5.00" B.C.
(4.5" C-face) Tether Arm Kit
SJ 3.50" to 8.10" B.C.
(6.5" C-face) Tether Arm Kit
SH 2.75" to 3.42" B.C.
(Block & Pin) Tether Arm Kit

NUMBER OF CHANNELS
Channel A Leads B
Q Quadrature A & B
R Quadrature A & B with Index
Channel B Leads A
K Reverse Quadrature A & B
D Reverse Quadrature A & B with Index


NOTES:
1. Contact Customer Service for additional options.
2. Reverse Quadrature not available with PU output type.
3. 24 VDC max for T4 temperature option.
4. Line Driver not available with 5-pin M12 or 8-pin MS style connectors. Available with 7-pin MS style connector without index Z.
5. With Input Voltage above 16 VDC, operating temperature is limited to 85° C max.
6. Standard operating temperature only.
7. For mating connectors, cables, and cordsets see Accessories at encoder.com. For Connector Pin Configuration Diagrams, see Technical Information or see Connector Pin Configuration Diagrams at encoder.com.
8. Not available with CE option.
9. Not available with corrosion resistant option.
10. For non-standard English cable lengths, enter “F” plus cable length expressed in feet.
    Example: F06 = 6 feet of cable.
11. Contact Customer Service for availability on resolutions < 360 CPR.

Standard Bore Sizes Ranging from 0.625" to 1.125"
Metric Bore Sizes Ranging from 6 mm to 28 mm

Common Applications
Web Process Control, Paper and Printing, High Power Motors

Motor-Mounted Feedback and Vector Control, Specialty Machines, Robotics,
industrial environments.

IP50 (Standard)
IP66

Connector Types
SMW 6-pin MS4,8
SMY 7-pin MS4
SMX 10-pin MS
SMJ 5-pin M12 (12 mm)
SMK 5-pin M12 (12 mm)
SMH 10-pin Bayonet6
FG0 Gland, 24" Cable10
9D 9-pin D-Sub13

Sealing
None (Std)
CE CE Marked12

Voltage
5 - 28V In/Out3
5 - 28V In/Out3

Temperature
-20 to 85° C (Std)
-20 to 85° C
4 -20" to 85° C
-20 to 105° C11

Input Power
5 to 28 VDC
5 to 28 VDC

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Ø2.5"

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**MODEL 25T/H SPECIFICATIONS**

**Electrical**
- Input Voltage: 4.75 to 28 VDC max for temperatures up to 85°C
- 4.75 to 24 VDC max for temperatures between 85° and 105°C
- Input Current: 100 mA max with no output load
- 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 Diagram, below.
- Output Types: Open Collector – 20 mA max per channel Pull Up – Open Collector with 2.2K ohm internal resistor, 20 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. 1 to 360 CPR: Ungated 361 to 10,000 CPR: Gated to output A See Waveform Diagram, below.
- Max Frequency: 250 kHz for 1 to 2500 CPR 500 kHz for 2501 to 5000 CPR 1 MHz for 5001 to 10,000 CPR
- Electrical Protection: Reverse voltage and output short circuit protected. NOTE: Sustained reverse voltage may result in permanent damage.
- CE Testing: Emissions tested per EN61000-6-3:2001 and EN61000-6-2: 2005 as applicable. Immunity tested per EN61000-6-2: 2005 as applicable. Emissions tested per EN61000-6-3:2001
- Min. Edge Sep: 45° electrical min, 63° electrical or better typical
- Rise Time: Less than 1 microsecond
- Accuracy: Within 0.1° mechanical from one cycle to any other cycle, or 6 arc minutes.
- Mechanical
  - Max Shaft Speed: 6000 RPM, 8000 RPM intermittent 4000 RPM for IP66 seal option
  - Bore Tolerance: -0.0000"/+0.0008"
  - User Shaft Tolerances: Radial Runout: 0.005" max Axial Endplay: ±0.005" max
  - Starting Torque: IP50 sealing: 1.0 oz-in typical IP66 sealing: 4.0 oz-in typical Note: Add 1.0 oz-in typical for -20° C operation
  - Moment of Inertia: 7.6 x 10^-4 oz-in-sec²
  - Housing: Proprietary nylon composite
  - Weight: 8 oz typical
- Environmental
  - Storage Temp: -20° to 85° C
  - Humidity: 98% RH non-condensing
  - Vibration: 20 g @ 5 to 3000 Hz
  - Shock: 80 g @ 11 ms duration
  - Sealing: IP50, IP66 with shaft seals at both ends

**MODEL 25T/H 3-POINT FLEX MOUNT (SE)**

**MODEL 25T/H CONNECTOR OPTIONS**

**MODEL 25T/H MOUNTING OPTIONS**

**WAVEFORM DIAGRAM**

<table>
<thead>
<tr>
<th>Function</th>
<th>Gland Cable٢</th>
<th>5-pin M12</th>
<th>8-pin M12</th>
<th>10-pin MS</th>
<th>7-pin MS</th>
<th>7-pin MS PU, PP</th>
<th>6-pin MS PU, PP</th>
<th>9-pin D-sub</th>
</tr>
</thead>
<tbody>
<tr>
<td>Com</td>
<td>Black</td>
<td>3</td>
<td>7</td>
<td>F</td>
<td>F</td>
<td>F</td>
<td>A, F</td>
<td>9</td>
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<tr>
<td>+VDC</td>
<td>White</td>
<td>1</td>
<td>2</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>B</td>
<td>1</td>
</tr>
<tr>
<td>A</td>
<td>Brown</td>
<td>4</td>
<td>1</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>D</td>
<td>2</td>
</tr>
<tr>
<td>A'</td>
<td>Yellow</td>
<td>3</td>
<td>1</td>
<td>H</td>
<td>C</td>
<td>--</td>
<td>--</td>
<td>3</td>
</tr>
<tr>
<td>B</td>
<td>Red</td>
<td>2</td>
<td>4</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>E</td>
<td>4</td>
</tr>
<tr>
<td>B'</td>
<td>Green</td>
<td>5</td>
<td>1</td>
<td>E</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>5</td>
</tr>
<tr>
<td>Z</td>
<td>Orange</td>
<td>5</td>
<td>6</td>
<td>C</td>
<td>C</td>
<td>--</td>
<td>C</td>
<td>6</td>
</tr>
<tr>
<td>Z'</td>
<td>Blue</td>
<td>--</td>
<td>8</td>
<td>J</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>7</td>
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<tr>
<td>Case</td>
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<tr>
<td>Shield</td>
<td>Bare٢</td>
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٢CE Option: Cable shield (bare wire) is connected to internal case.
٢Standard cable is 24 AWG conductors with foil and braid shield.
٢٢CE Option: Use cable cord set with shield connected to M12 connector coupling nut.

**WIRING TABLE**

For EPC-supplied mating cables, refer to wiring table provided with cable. Trim back and insulate unused wires.