**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**
- Motor-Mounted Feedback and Vector Control
- Specialty Machines, Robotics, Web Process Control
- Paper and Printing, High Power Motors

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**MODEL 25T/H ORDERING GUIDE**

Blue type indicates price adder options. Not all configuration combinations may be available. Contact Customer Service for details.

**25T**
- **HOUING OPTION** (Leave Blank for Standard)
  - Standard
  - C Corrosion Resistant
- **MOdel**
  - 25T Thru-Bore
  - 25H Hollow Bore (Blind)
- **BOre Size**
  - 01 1/4”, 0.250”
  - 02 3/8”, 0.375”
  - 05 1/2”, 0.500”
  - 09 5/8”, 0.625”
  - 11 7/8”, 0.875”
  - 12 1”, 1.000”
  - 13 1”, 1.125”
  - 14 1”, 1.250”
  - 15 1.125”
  - 16 1.188”
  - 17 1.250”
  - 18 1.313”
  - 19 1.375”
  - 20 1.438”
  - 21 1.500”
  - 22 1.563”
  - 23 1.625”
  - 24 1.750”
  - 25 1.875”
  - 26 2.000”
  - 27 2.125”
  - 28 2.250”

**MOUNTING**
- SE 2.25” to 2.75” B.C.
- SG 3.50” to 5.90” B.C.
- SJ 5.00” to 8.10” B.C.
- SH 7.27” to 3.42” B.C.

**INPUT VOLTAGE**
- V1 5 to 28 VDC

**OUTPUT TYPE**
- 5 - 28V In/Out
- 5 - 28V In/Out

**NUMBER OF CHANNELS**
- Channel A Leads B
- D Reverse Quadrature A & B

**CONNECTOR TYPE**
- SMW 6-pin MS 4.8
- SMI 7-pin MS
- SMT 10-pin MS
- SMU 8-pin M12
- SMK 6-pin M12 Standard Wiring
- SMZ 6-pin M12 Optional Wiring
- SMH 10-pin Bayonet
- F00 Gland, 24” Cable
- 9D 5-pin D-Sub

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**NOTES:**
1. Contact Customer Service for additional options.
2. Reverse Quadrature not available with PU output type.
3. 24 VDC max for 74 temperature option.
4. Line Driver not available with 5-pin M12 or 6-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.
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 EN61000-6-2:2001
Immunity tested per EN61000-6-2: 2005 as applicable.
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........ -0.0005”/+0.0008”
User Shaft Tolerances
Radial Runout........... ±0.005” max
Axial Endplay.......... ±0.005”/max
Starting Torque........ IP66 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 2000 Hz
Shock............... 80 g @ 11 ms duration
Sealing................ IP50, IP66 with shaft seals at both ends

MODEL 25T/H CONNECTOR OPTIONS

MODEL 25T/H MOUNTING OPTIONS

WAVEFORM DIAGRAM

CLOCKWISE ROTATION AS VIEWED FROM THE MOUNTING FACE
NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES.
WAVEFORM SHOWN WITH OPTIONAL COMPLEMENTARY SIGNALS X, Z FOR HV AND H5 OUTPUTS ONLY.

WIRING TABLE

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

*CE Option: Cable shield (bare wire) is connected to internal case.
†Standard cable is 24 AWG conductors with foil and braid shield.
**CE Option: Use cable cord set with shield connected to M12 connector coupling nut.