Model 25T Thru-Bore, or
Model 25H Hollow Bore (Blind)

ENCODER PRODUCTS COMPANY

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

Introducing the next generation of high performance encoders - the Model 25T. As contemporary as its appearance, the Model 25T features the largest thru-bore available in a 2.5" encoder, mounting directly on shafts as large as 1.125" (28 mm). With resolutions of up to 10,000 CPR, and Frequencies of 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 take the extreme heat of the motion control industry. With sealing available of up to IP66 and many new rugged flexible mounting options, the Model 25T can perform in demanding industrial environments. This revolutionary new 2.5" encoder truly is unlike any other.

Common Applications

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

Model 25T/H Ordering Guide

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

Mechanical | **Electrical** | **Optional Features**

25T	[ ]	-	42	SE	-	0500	N	V1	R	OC	-	SMW	-	[ ]	[ ]	[ ]
MODEL	Housing Option		BORE SIZE[1]	MOUNTING		CYCLES PER REVOLUTION	COMMUTATION	INPUT VOLTAGE	NUMBER OF CHANNELS[1]	OUTPUT TYPE		CONNECTOR TYPE		OPERATING TEMPERATURE	SEALING	CERTIFICATION
														Leave Blank For Standard Options		
														-20° to +85°C Std	IP50 Std	None Std

MODEL
- **25T** Thru-Bore
- **25H** Hollow Bore

Housing Option *(Leave Blank for Standard)*
- Standard
- **C** Corrosion Resistant

BORE SIZE[1]

03	5/16", 0.3125"
01	1/4", 0.250"
02	3/8", 0.375
05	1/2", 0.500"
11	5/8", 0.625"
34	3/4", 0.750"
78	7/8", 0.875"
40	1", 1.000"
42	1-1/8", 1.125"
04	6 mm
14	8 mm
10	10 mm
09	11 mm
12	12 mm
13	14 mm
15	15 mm
16	16 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 5.90" B.C. (4.5" C-face) Tether Arm Kit
- **SJ** 3.50" to 8.10" B.C. (8.5" C-face) Tether Arm Kit
- **SH** 2.72" to 3.42" B.C. (Block & Pin) Tether Arm Kit

CYCLES PER REVOLUTION
See *CPR Options* below
Price Adder For Resolutions Over 2000

COMMUTATION
- **N** None

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

NUMBER OF CHANNELS[1]

Channel A Leads B
- **Q** Quadrature A & B
- **R** Quadrature A & B with Index

Channel B Leads A[11]
- **K** Reverse Quadrature A & B
- **D** Reverse Quadrature A & B with Index

See http://www.encoder.com/literature/index-phasing.pdf for additional options, and waveforms.

OUTPUT TYPE

5 - 28V In/Out[3]
- **OC** Open Collector
- **PP** Push-Pull
- **HV** Line Driver[4]
- **PU** Pull-Up Resistor[5]

5 - 28V In/5V Out[6]
- **H5** Line Driver[4]
- **P5** Push-Pull

CONNECTOR TYPE
- **SMW** 6-pin MS Style
- **SMY** 7-pin MS Style
- **SMX** 10-pin MS Style
- **SMJ** 5-pin M12 (12 mm)
- **SMK** 8-pin M12 (12 mm)
- **SMH** 10-pin Bayonet[10]
- **F00** Gland, 24" Cable[7]
- **9D** 9-pin D-Sub[10]

OPERATING TEMPERATURE
- -20 to 85° C (Std)
- **T4** -20° to +105° C[2]

SEALING
- IP50 (Standard)
- **S3** IP66

CERTIFICATION
- None (Std)
- **CE** CE Marked[8]

For specification assistance call Customer Service at 1-800-366-5412

Model 25T/H CPR Options

0002	0003	0004	0005	0008	0010	0011
0012	0024	0025	0030	0032	0060	0064
0070	0080	0100	0105	0115	0120	0125
0150	0192	0240	0250	0256	0300	0336
0360	0500	0512	0600	1000	1024	1200
2000	2048	2500	4096	5000	10,000	

Contact Customer Service for other disk resolutions.

NOTES:

1. Contact Customer Service for additional options.
2. Contact Customer Service for availability on resolutions < 360 CPR.
3. 24 VDC max for T4 temperature option.
4. 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 non-standard English cable lengths enter 'F' plus cable length expressed in feet. Example: F06 = 6 feet of cable.
8. Please refer to **Technical Bulletin TB100: *When to Choose the CE Option*** at www.encoder.com. Contact Customer Service for availability.
9. Not available with Pull-Up Output Type.
10. Not available with corrosion resistant option.
11. Reverse Quadrature not available with PU output type.

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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.*
- Output Types: Open Collector- 20 mA max per channel
  Pull Up - Open Collector with 2.2K ohm 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.
  361 to 10,000 CPR: Gated to output A
  1 to 360 CPR: Ungated
  See *Waveform Diagram.*
- Max Frequency: 250 kHz for 1 to 2500 CPR
  500 kHz for 2501 to 5000 CPR
  1 MHz for 5001 to 10,000 CPR
- CE Testing: Emissions tested per EN61000-6-3:2001 as applicable. Immunity tested per EN6100-6-2: 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

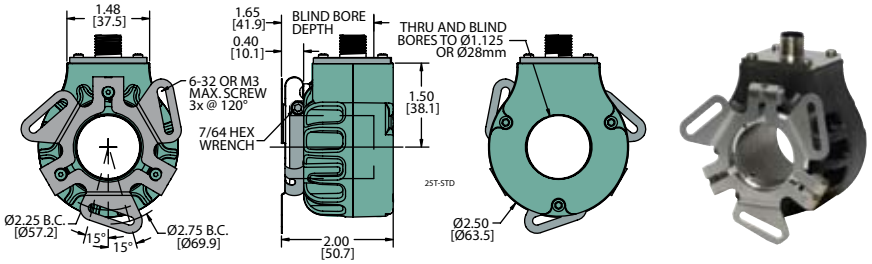
- Max Shaft Speed: 6000 RPM, 8000 RPM intermittent
  4000 RPM for IP66 seal option
- Bore Size: 0.250" through 1.125"
  6 mm through 28 mm
- Bore Tolerance: -0.0000"/+0.0008"
- User Shaft Tolerances
  - Radial Runout: 0.005" max
  - Axial Endplay: ±0.050" max
- Starting Torque: IP50 sealing: 1.0 oz-in 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-sec^2
- Max Acceleration: 1x10^5 rad/sec^2
- Electrical Conn: 6-, 7-, or 10-pin MS Style, 5- or 8-pin M12 (12 mm), 10-pin Bayonet or gland with 24 inches of cable (foil and braid shield, 24 AWG conductors), 9-pin D-Sub
- Housing: Proprietary nylon composite
- Mounting: 2.25" to 2.75" B.C. 3-point flex mount
  3.50" to 5.90" B.C. (4.5" C-face) tether arm kit, 3.50" to 8.10" B.C. (8.5" C-face) tether arm kit and 2.72" to 3.42" B.C. (Block & Pin) tether arm kit. See mechanical drawing for dimensions
- Weight: 8 oz typical

Environmental

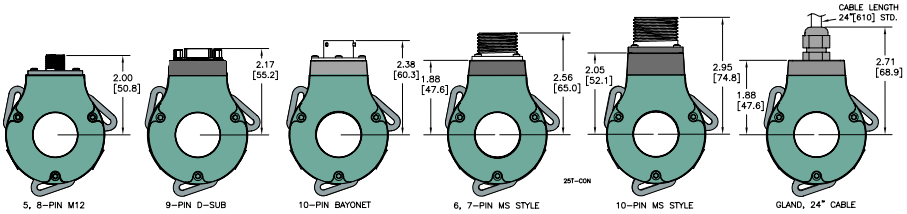
- Operating Temp: -20° to 85° C for standard models
  -20° to 105° C for high temperature option
- Storage Temp: -20° to +85° C
- Humidity: 98% RH non-condensing
- Vibration: 20 g @ 5 to 2000 Hz
- Shock: 80 g @ 11 ms duration
- Sealing: IP50, IP66 with shaft seals at both ends

Protect your encoder with the 56C Cover.

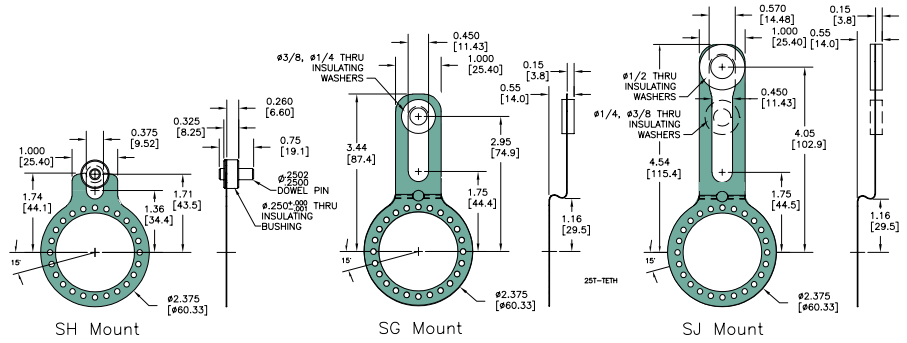
Model 25T/H



Model 25T/H Connector Options

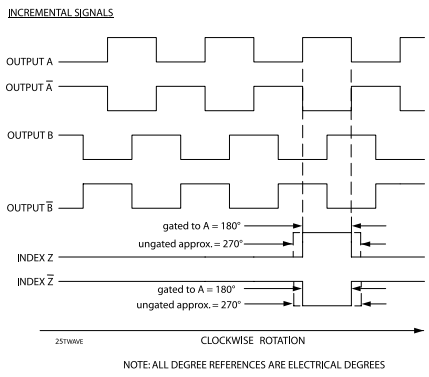


Model 25T/H Mounting Options



All dimensions are in inches with a tolerance of ±0.005" or ±0.01" unless otherwise specified

Waveform Diagram



Wiring Table

Function	Gland Cable Wire Color	5-pin M12[2]	8-pin M12[2]	10-pin MS	7-pin MS HV, H5	7-pin MS PU, PP, OC, P5	6-pin MS PU, PP, OC, P5	9-pin D-sub	10-pin Bayonet HV, H5, OD PU, PP, OC, P5
Com	Black	3	7	F	F	F	A, F	9	F
+VDC	White	1	2	D	D	D	B	1	D
A	Brown	4	1	A	A	A	D	2	A
A'	Yellow	---	3	H	C	----	----	3	H
B	Red	2	4	B	B	B	E	4	B
B'	Green	----	5	I	E	----	----	5	J
Z	Orange	5	6	C	----	C	C	6	C
Z'	Blue	----	8	J	----	----	----	7	K
Case	----	----	----	G	G	G	----	8	G
Shield	Bare[1]	----	----	----	----	----	----	----	----

[1] CE Option: Cable shield (bare wire) is connected to internal case
[2] CE Option: Read Technical Bulletin TB111