

# MODEL 865T – STAINLESS STEEL ENCODER



## FEATURES

**A 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**

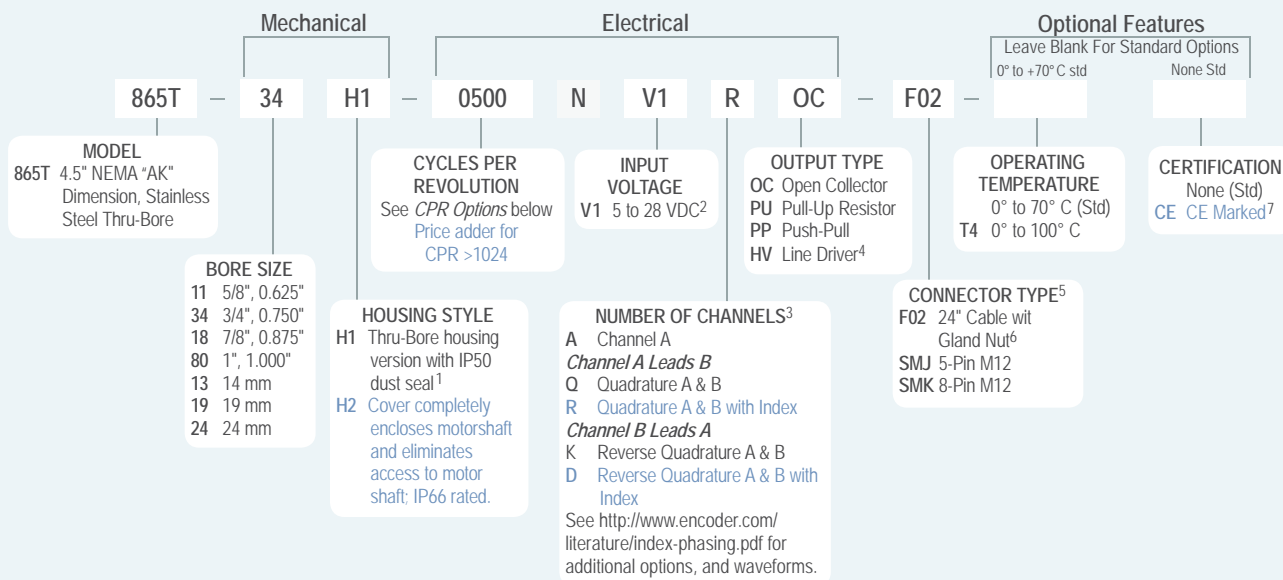
The Model 865T C-Face encoder is a rugged, high resolution encoder designed to mount directly on NEMA C-Face motors. Both sides of the encoder are C-Face mounts, allowing additional C-Face devices to be mounted to this encoder. Unlike many C-Face kit type encoders, the Model 865T contains precision bearings 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 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 Machines**

## MODEL 865T ORDERING GUIDE

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



### MODEL 865T CPR OPTIONS

0060 0100 0120 0240 0250 0256 0500  
 0512 0600 1000 1024 2048 2500 4096

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

### NOTES:

- Housing style H1 Thru-Bore version equipped with IP50 dust seal. Unit must be mounted between two C-Face devices with supplied gasket kit to be IP66 sealed.
- 5 to 24 VDC max for high temperature option.
- Contact Customer Service for index gating options.
- Not available with 5-Pin M12 connector.
- For mating connectors, cables, and cordsets see Encoder Accessories on page 102 or visit [www.encoder.com](http://www.encoder.com). For Pin Configuration Diagrams, see page 107 or visit [www.encoder.com](http://www.encoder.com).
- For non-standard cable lengths enter 'F' plus cable length expressed in feet. Example: F06 = 6 feet of cable.
- Please refer to Technical Bulletin TB100: *When to Choose the CE Option* at [www.encoder.com](http://www.encoder.com).

## 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 to 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- 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 0474 CPR: Ungated  
0475 to 4096 CPR: Gated to output A  
See *Waveform Diagrams*.

Max Frequency ..... 200 kHz

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<sup>-3</sup> oz-in-sec<sup>2</sup> typical

Housing ..... Type 316 Stainless Steel

Weight..... 6 lb typical

### Environmental

Storage Temp ..... -25° to 100°C

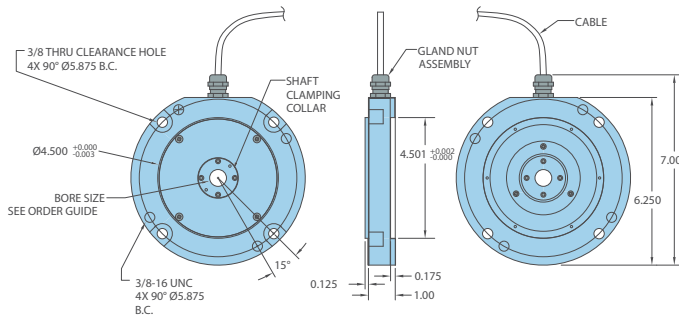
Humidity..... 98% RH non-condensing

Vibration..... 10 g @ 58 to 500 Hz

Shock..... 50 g @ 11 ms duration

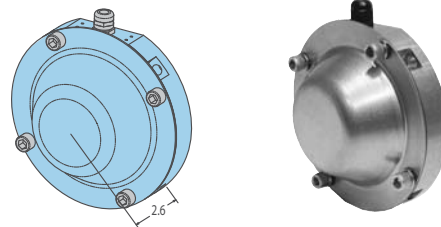
Sealing..... IP66 when mounted between two C-Face devices with supplied gasket kit, or with H1 cover. IP50 if not installed in either manner.

## MODEL 865T CONNECTOR OPTIONS



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

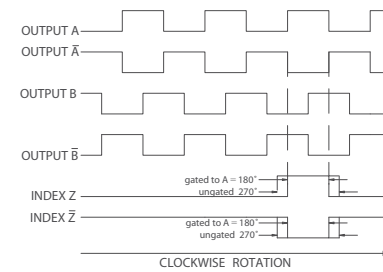
## MODEL 865T OPTIONAL HOUSING COVER (H2)



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

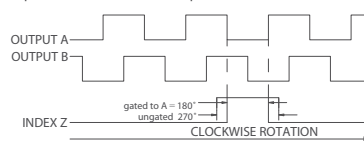
## WAVEFORM DIAGRAMS

Line Driver and Push-Pull



NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES. WAVEFORM SHOWN WITH OPTIONAL COMPLEMENTARY SIGNALS  $\bar{A}$ ,  $\bar{B}$ ,  $\bar{Z}$  FOR HV OUTPUT ONLY.

Open Collector and Pull-Up



NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES. INDEX IS POSITIVE GOINGS

## WIRING TABLE

Function	Gland Cable† Wire Color	5-pin M12* PU, PP, OC	8-pin M12*
Com	Black	3	7
+VDC	Red	1	2
A	White	4	1
A'	Brown	--	3
B	Blue	2	4
B'	Violet	--	5
Z	Orange	5	6
Z'	Yellow	--	8
Shield	Bare	--	--

\*CE Option: Read Technical Bulletin: TB111 which can be found at [www.encoder.com](http://www.encoder.com).

†Standard cable is 24 AWG conductors with foil and braid shield.