Model 865T
Stainless Steel Thru-Bore

BRITISH ENCODER PRODUCTS COMPANY

Features
- A C-Face Thru-Bore Encoder With Stainless Steel Housing
- Fits NEMA Size 56C Thru 184 C Motor Faces (4.5" AK)
- Slim Profile - Only 1.00" (25.4mm) Deep
- Incorporates Opto-ASIC Technology
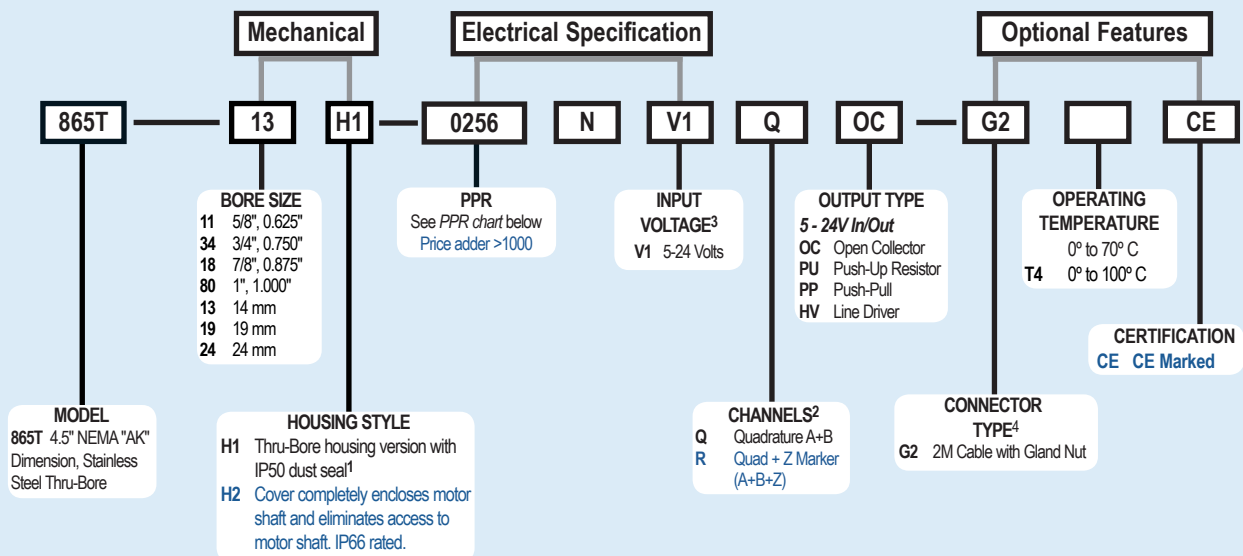- Resolutions to 4096 PPR

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 Model 865T provides speed and position information for drive feedback in a slim profile - only 25.4mm thick. 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 & Speciality Machines

Ø165.1mm

Stainless Steel Encoders

Model 865T Ordering Guide

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

Mechanical		Electrical Specification					Optional Features		
865T	**13**	**H1**	**0256**	**N**	**V1**	**Q**	**OC**	**G2**	**CE**

BORE SIZE
- 11 5/8", 0.625"
- 34 3/4", 0.750"
- 18 7/8", 0.875"
- 80 1", 1.000"
- 13 14 mm
- 19 19 mm
- 24 24 mm

PPR
See *PPR chart below*
Price adder >1000

INPUT VOLTAGE[3]
- V1 5-24 Volts

OUTPUT TYPE
5 - 24V In/Out
- OC Open Collector
- PU Push-Up Resistor
- PP Push-Pull
- HV Line Driver

OPERATING TEMPERATURE
- 0° to 70° C
- T4 0° to 100° C

MODEL
865T 4.5" NEMA "AK" Dimension, Stainless Steel Thru-Bore

HOUSING STYLE
- H1 Thru-Bore housing version with IP50 dust seal[1]
- H2 Cover completely encloses motor shaft and eliminates access to motor shaft. IP66 rated.

CHANNELS[2]
- Q Quadrature A+B
- R Quad + Z Marker (A+B+Z)

CONNECTOR TYPE[4]
- G2 2M Cable with Gland Nut

CERTIFICATION
- CE CE Marked

For specification assistance call Customer Service at +44 (0)1978 262100

Model 865T PPR 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:
1. 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.
2. Contact Customer Service for Marker gating options.
3. 5 to 24 Vcc max for high temperature option.
4. For non-standard cable lengths please contact the sales office.

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Model 865T Specifications

Electrical

Input Voltage............4.75 to 28 Vcc max for temperatures up to 70° C
4.75 to 24 Vcc 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* below.

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.
0475 to 4096 PPR: Gated to output A
0001 to 0474 PPR: Ungated
See *Waveform Diagrams* below.

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

Symmetry ....180°(±18°) electrical

Quad. Phasing..........90°(±22.5°) electrical

Min. Edge Sep..........67.5° electrical

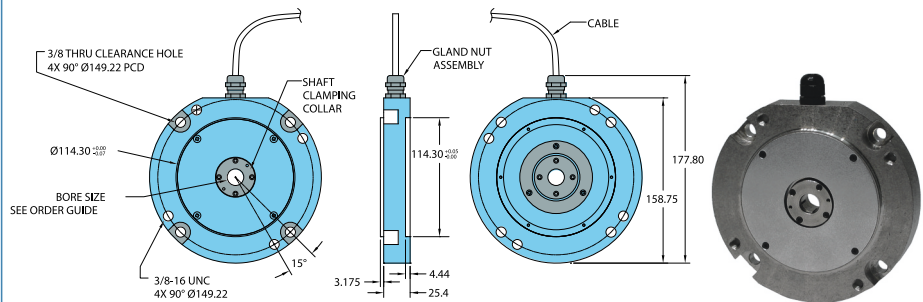Rise Time..................Less than 1 microsecond

Mechanical

Max Shaft Speed......6000 RPM. Higher shaft speeds may be achievable, contact Customer Service.

Bore Size ....0.625", 0.750", 0.875", 1.000", 14 mm, 19 mm, and 24 mm

Bore Tolerance .... +0.03/0.00 mm

User Shaft Tolerances
Radial Runout ....0.12 mm
Axial Endplay ....±1.27 mm
Electrical Conn......Gland nut with 2M cable (foil and braid shield, 24 AWG conductors)

Housing....................Type 316 Stainless Steel

Mounting ....NEMA 56C to 184C
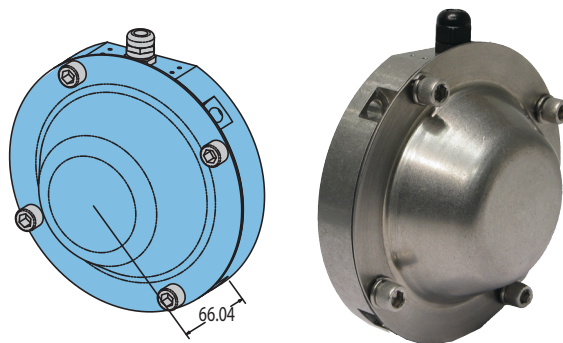
Weight.......................2.72 kg

Environmental

Operating Temp........0° to 70° C for standard models
0° to 100° C for high temperature option

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 H2 cover. IP50 if not installed in either manner.
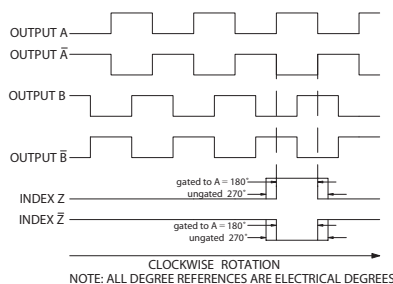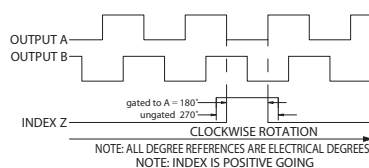
Model 865T with Gland Nut (P)

3/8 THRU CLEARANCE HOLE 4X 90° Ø149.22 PCD
Ø114.30
BORE SIZE SEE ORDER GUIDE
3/8-16 UNC 4X 90° Ø149.22 PCD
15°
SHAFT CLAMPING COLLAR
GLAND NUT ASSEMBLY
CABLE
114.30
3.175
4.44
25.4
177.80
158.75

Model 865T Optional Housing Cover (H2)

66.04

Waveform Diagrams

Line Driver

OUTPUT A
OUTPUT Ā
OUTPUT B
OUTPUT B̄
INDEX Z — gated to A = 180° ungated 270°
INDEX Z̄ — gated to A = 180° ungated 270°
CLOCKWISE ROTATION
NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES

Open Collector + Push Pull

OUTPUT A
OUTPUT B
INDEX Z — gated to A = 180° ungated 270°
CLOCKWISE ROTATION
NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES
NOTE: INDEX IS POSITIVE GOING

Wiring Table

Function	Gland Cable Wire Color
0 Volts	Black
+Vcc	Red
A	White
A'	Brown
B	Blue
B'	Violet
Z	Orange
Z'	Yellow
Shield	Bare*

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