

Model 745 Heavy Duty 90mm Encoder



Principle Engineering



Features

- European 90/80/40mm Configuration
- Up to 30,000 PPR
- Hohner 3000/4000 Direct Replacement
- IP64 Sealing Available

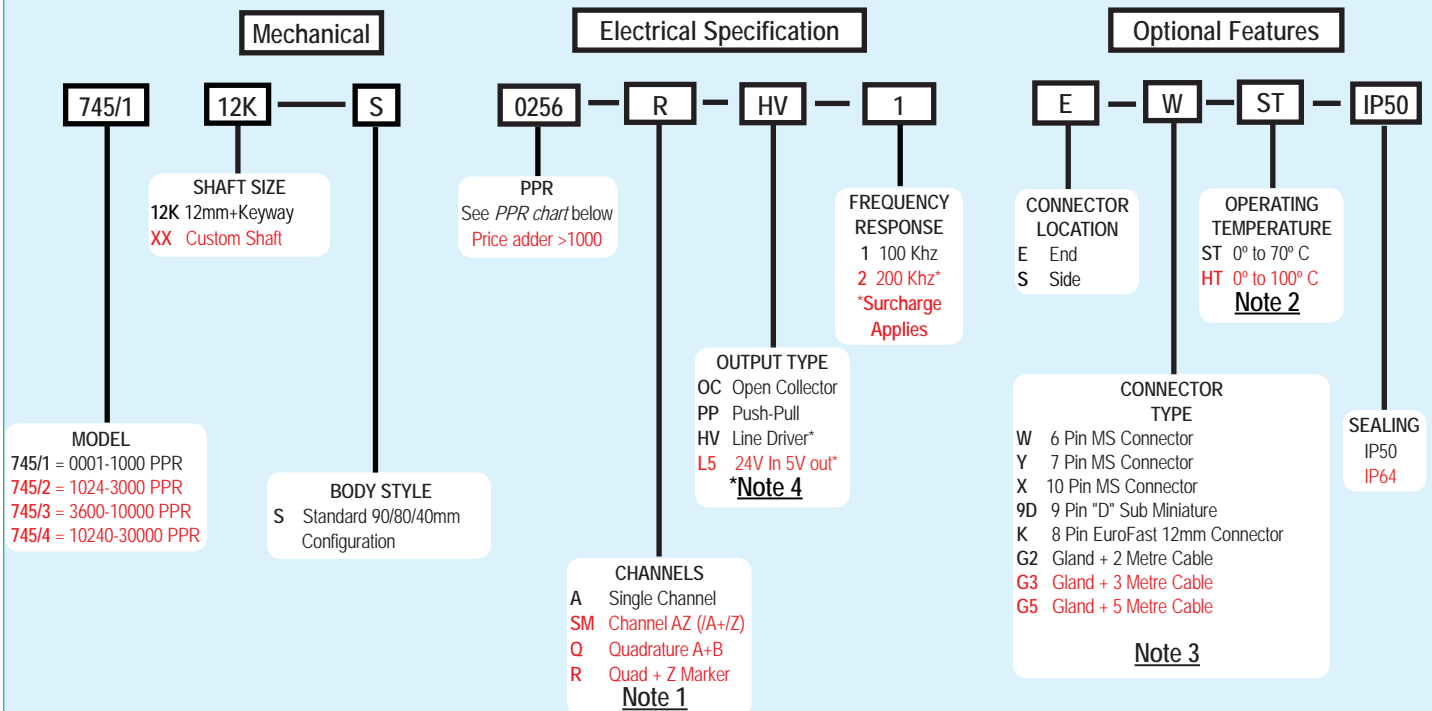
Due to some major technology enhancements, the 745 encoder is now available from 0001 PPR thru to 30000 PPR. This encoder is a direct replacement for the popular 90/80/40 spigot style encoder and may be ordered with a variety of output circuits, shaft sizes, and connector styles. Using the same Opto-Asic technology as most of our encoder range, you have the advantage of high tech signal generation, and a rugged mechanical assembly.

Common Applications

Motion Control Feedback, Conveyors, Elevator Controls, Machine Control, Food Processing, Process Control, Robotics, Material Handling, Textile Machines

Model 745 Ordering Guide

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



Model 745 PPR Options

0001*	0002*	0004*	0005*	0006*	0007*	0008*	0010*	0011*
0012*	0014*	0020	0021*	0024*	0025*	0028*	0030*	0032*
0033*	0034*	0035*	0038*	0040*	0042*	0045*	0050*	0060
0064*	0100	0120	0125	0128*	0144*	0150*	0160*	0200
0240*	0250	0254*	0256*	0300	0333*	0360	0400	0500
0512	0600	0625*	0635	0665*	0720	0768*	0800	0889
0900*	1000	1024	1200 ^a	1201 ^{a*}	1203 ^{a*}	1204 ^{a*}	1250 ^a	1270 ^a
1440	1500	1800	2000	2048	2400 ^a	2500	2540 ^a	2880 ^a
3000 ^a	3600 ^a	4000 ^a	4096 ^a	5000 ^a	6000 ^a	7200 ^a	7500 ^a	9000 ^a
10,000 ^a	10,240 ^a	12,500 ^a	14,400 ^a	15,000 ^a	18,000 ^a	20,000 ^a	20,480 ^a	25,000 ^a
30,000 ^a								

* Contact Customer Service for High Temperature Option.

^a High Temperature Option (H) limited to 85° C maximum for these PPR options.

New PPR values are periodically added to those listed. Contact Customer Service to determine all currently available PPR values. Special disk resolutions are available upon request.

A one-time NRE fee may apply.

For specification
assistance call
Customer Service

NOTES:

- 1 Contact Customer Service for index gating options.
- 2 24 VCC max for high temperature option.
- 3 For Non-Standard Cable Lengths Contact the sales office.
- 4 Marker not available with 6-pin or 7-pin MS connector & HV output.

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Model 745 Specifications

Electrical

Input Voltage.....4.75 to 24 VCC max for temperatures up to 70° 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 encoder mounting face. See *Waveform Diagrams* below.
 Output Types.....Open Collector- 50 mA max per channel
 Push-Pull- 20 mA max per channel
 Line Driver- 20 mA max per channel (Meets RS 422 at 5 VCC supply)
 Index.....Occurs once per revolution. The index for units >3000 PPR is 90° gated to Outputs A and B. See *Waveform Diagrams* below.
 Freq Response.....Up to 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.....1 to 6000 PPR: 180° (±18°) electrical at 100 kHz output
 6001 to 20,480 PPR: 180° (±36°) electrical
 Quad Phasing.....1 to 6000 PPR: 90° (±22.5°) electrical at 100 kHz output
 6001 to 20,480 PPR: 90° (±36°) electrical
 Min Edge Sep.....1 to 6000 PPR: 67.5° electrical at 100 kHz output
 6001 to 20,480 PPR: 54° electrical
 >20,480 PPR: 50° electrical
 Rise Time.....Less than 1 microsecond
 Accuracy.....Instrument and Quadrature Error: For 200 to 1999 PPR, 0.017° mechanical (1.0 arc minutes) from one cycle to any other cycle. For 2000 to 3000 PPR, 0.01° mechanical (0.6 arc minutes) from one cycle to any other cycle. Interpolation error (units > 3000 PPR only) within 0.005° mechanical. (Total Optical Encoder Error = Instrument + Quadrature + Interpolation)

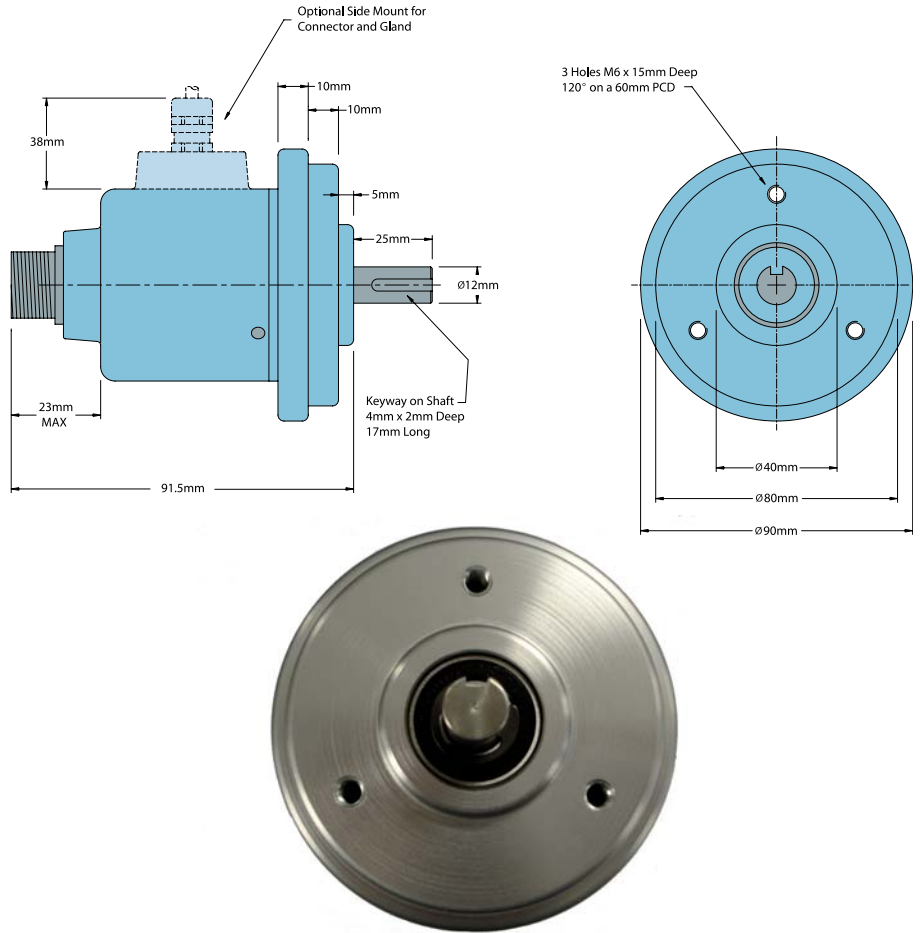
Mechanical

Max Shaft Speed.....6000 RPM. Higher shaft speeds may be achievable, contact Customer Service.
 Shaft Size.....See order code
 Shaft Material.....303 stainless steel
 Shaft Rotation.....Bi-directional
 Radial Shaft Load.....120N Operating
 Axial Shaft Load.....120N Operating
 Starting Torque.....7.0615 x 10⁻³ Nm typical with no seal
 2.118 x 10⁻² Nm typical with IP64 shaft seal
 Max Acceleration.....1 x 10⁵ rad/sec²
 Electrical Conn.....6-, 7-, or 10-pin MS Style, 8-pin M12 (12 mm), 9-pin D-subminiature, or gland with 2M of cable (foil and braid shield, 24 AWG conductors)
 Housing.....Black non-corrosive finish
 Bearings.....Precision ABEC ball bearings
 Mounting.....90/80/40mm, 3 x M6 @ 60mm PCD
 Weight.....800 gms typical

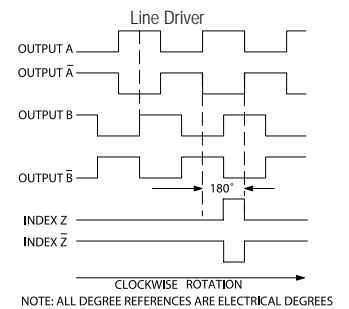
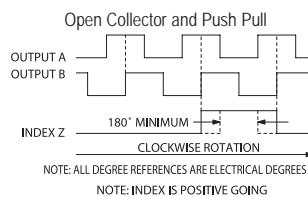
Environmental

Operating Temp.....0° to 70° C for standard models
 0° to 100° C for high temperature option (0° to 85° C for certain resolutions, see PPR Options.)
 Storage Temp.....-25° to +85° C
 Humidity.....95% RH non-condensing
 Vibration.....10 g @ 58 to 500 Hz
 Shock.....50 g @ 11 ms duration
 Sealing.....IP50 standard, IP64 optional

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Waveform Diagrams



Wiring Table

Function	Gland Cable Wire Color	8-pin M12 ²	10-pin MS	7-pin MS HV,L5	7-pin MS PP,OC	6-pin MS PP,OC	9-pin D-sub
Com	Black	7	F	F	F	F	9
+VDC	White	2	D	D	D	D	1
A	Brown	1	A	A	A	A	2
A'	Yellow	3	H	C	---	---	3
B	Red	4	B	B	B	B	4
B'	Green	5	I	E	---	---	5
Z	Orange	6	C	---	C	C	6
Z'	Blue	8	J	---	---	---	7
Case	---	---	G	G	G	---	8
Shield	Screen	---	---	---	---	---	---

CAUTION - Always check wiring colour code against Encoder Label due to changes in specification since September 2006