

ES25

Environmentally Sealed Incremental Encoder



Introduction

The ES25 is a rugged incremental encoder that is environmentally sealed through the use of a magnetic shaft coupling connection. This connection allows the encoder to be completely enclosed and sealed against water ingress. It is rated to IP67 and can operate while fully immersed in one meter of water for up to 30 minutes. The magnetic coupling also allows the encoder to be isolated from high shock and vibration. It also ensures the encoder is dust tight, and resistant to debris in the environment. Since the ES25 is not physically coupled to external equipment, the problem of shaft misalignment is eliminated, meaning no more broken couplings! The ES25 is ideal for applications with heavy wash-downs, temporary water immersions, and excessive environmental debris. It combines the high accuracy, repeatability and robustness needed for use in harsh environments and can help reduce costly downtime of your system.

MECHANICAL SPECIFICATIONS

| | |
|--------------------------------|--|
| Mating Shaft Diameter | 1/4" and metric versions |
| Magnetic Coupling Cover | Engineered plastic |
| Starting Torque | 0.5 oz-in max |
| Enclosure | Aluminum (sealed aluminum castings) |
| Maximum RPM | 5000 RPM |
| Moment of Inertia | 60.2 X 10 ⁻⁴ oz-in-sec ² |
| Maximum Acceleration | 24,000 rad/s/s |
| Torsional Flexibility | 0.37 deg/oz-in |
| Kinematic Error | 3 arc-min _{RMS} |
| Weight | 18 oz |

ELECTRICAL SPECIFICATIONS

| | |
|------------------------------|--|
| Supply Voltage | 5 to 28 VDC available |
| Voltage/ Output | 28V/V: Line Driver, 5-28 VDC in, Vout = Vin 28V/5: Line Drive, 5-28 VDC in, Vout = 5 VDC 28V/OC: Open Collector, 5-28 VDC in, OC out |
| Current Requirements | 100 mA typical + output load, 250 mA (max) |
| Protection Level | reverse, overvoltage and output short circuit |
| Code | Incremental |
| Output Format | 2 Channels in quadrature, with 1/2 cycle index gated with negative B channel |
| Cycles per Shaft Turn | 1 to 2,048 (See Table 1) |
| Frequency Response | 100 KHz |
| Output Terminations | (See Table 2) |

ENVIRONMENTAL SPECIFICATIONS

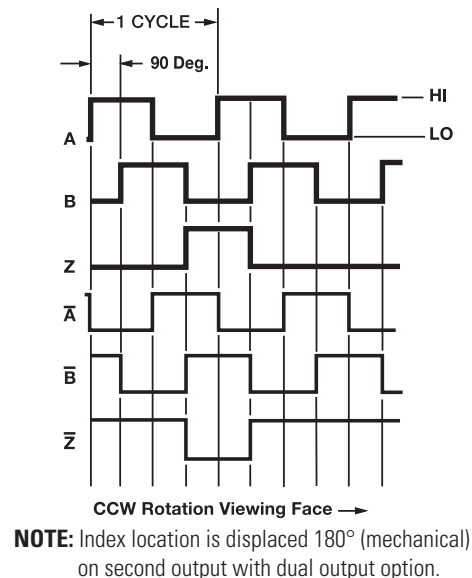
| | |
|-------------------------|---|
| Temperature | Operating, 0° to 70°C; storage (non-operating), -25° to 90°C. Consult factory for extended temperature ratings. |
| Shock | 25 g's for 11 msec duration |
| Vibration | 5 to 2000 Hz @ 10 g's |
| Humidity | 100% RH with condensation |
| Enclosure Rating | IP67 / IP68 (Consult factory for IP68 applications) |

TABLE 1: RESOLUTIONS

| | | | | | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1 | 2 | 3 | 5 | 6 | 8 | 10 | 11 | 13 | 16 | 20 | 24 | 25 | 26 | 30 | 32 | 33 |
| 34 | 36 | 37 | 40 | 45 | 48 | 50 | 51 | 60 | 64 | 66 | 72 | 75 | 80 | 86 | 88 | 90 |
| 100 | 102 | 120 | 122 | 125 | 127 | 128 | 132 | 144 | 148 | 150 | 158 | 160 | 175 | 176 | 180 | 187 |
| 192 | 200 | 202 | 217 | 220 | 240 | 250 | 254 | 255 | 256 | 274 | 280 | 283 | 288 | 292 | 300 | 312 |
| 320 | 321 | 325 | 360 | 366 | 372 | 375 | 377 | 380 | 381 | 384 | 385 | 393 | 400 | 430 | 432 | 450 |
| 462 | 480 | 490 | 500 | 502 | 508 | 512 | 522 | 530 | 550 | 576 | 598 | 600 | 604 | 625 | 628 | 635 |
| 638 | 640 | 660 | 687 | 690 | 700 | 720 | 725 | 735 | 740 | 744 | 748 | 750 | 762 | 768 | 780 | 785 |
| 800 | 812 | 825 | 850 | 864 | 878 | 888 | 900 | 912 | 914 | 938 | 942 | 955 | 960 | 1000 | 1016 | 1024 |
| 1030 | 1035 | 1036 | 1040 | 1054 | 1056 | 1074 | 1076 | 1080 | 1088 | 1100 | 1101 | 1125 | 1136 | 1200 | 1237 | 1250 |
| 1257 | 1270 | 1280 | 1300 | 1314 | 1332 | 1333 | 1390 | 1400 | 1414 | 1427 | 1440 | 1484 | 1500 | 1562 | 1570 | 1596 |
| 1600 | 1650 | 1666 | 1718 | 1745 | 1774 | 1800 | 1850 | 1855 | 1875 | 1894 | 1920 | 1952 | 1968 | 1979 | 1995 | 2000 |
| 2048 | | | | | | | | | | | | | | | | |

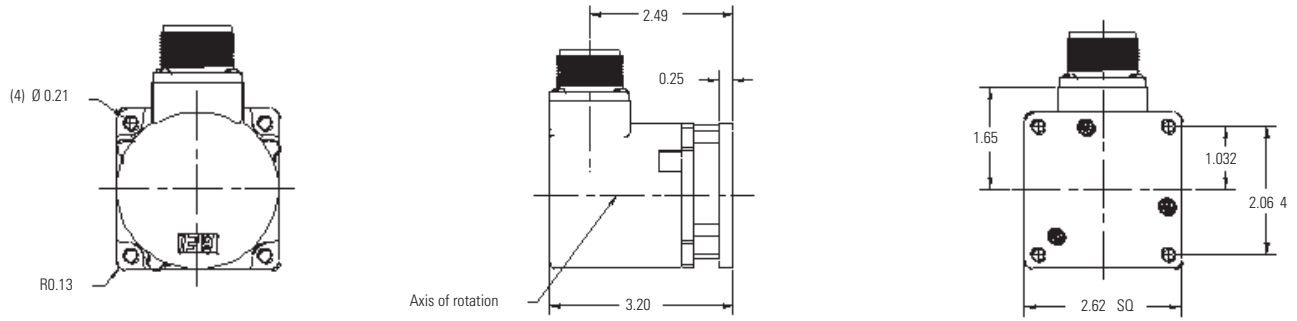
TABLE 2: OUTPUT TERMINATIONS / OUTPUT WAVEFORM

| M18 Connector | |
|---------------|---------|
| PIN | Channel |
| A | A |
| B | B |
| C | Z |
| D | +V |
| E | - |
| F | 0V |
| G | CG |
| H | A/ |
| I | B/ |
| J | Z/ |



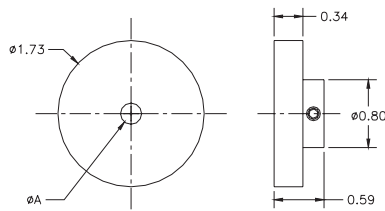


ES25 DIMENSIONS



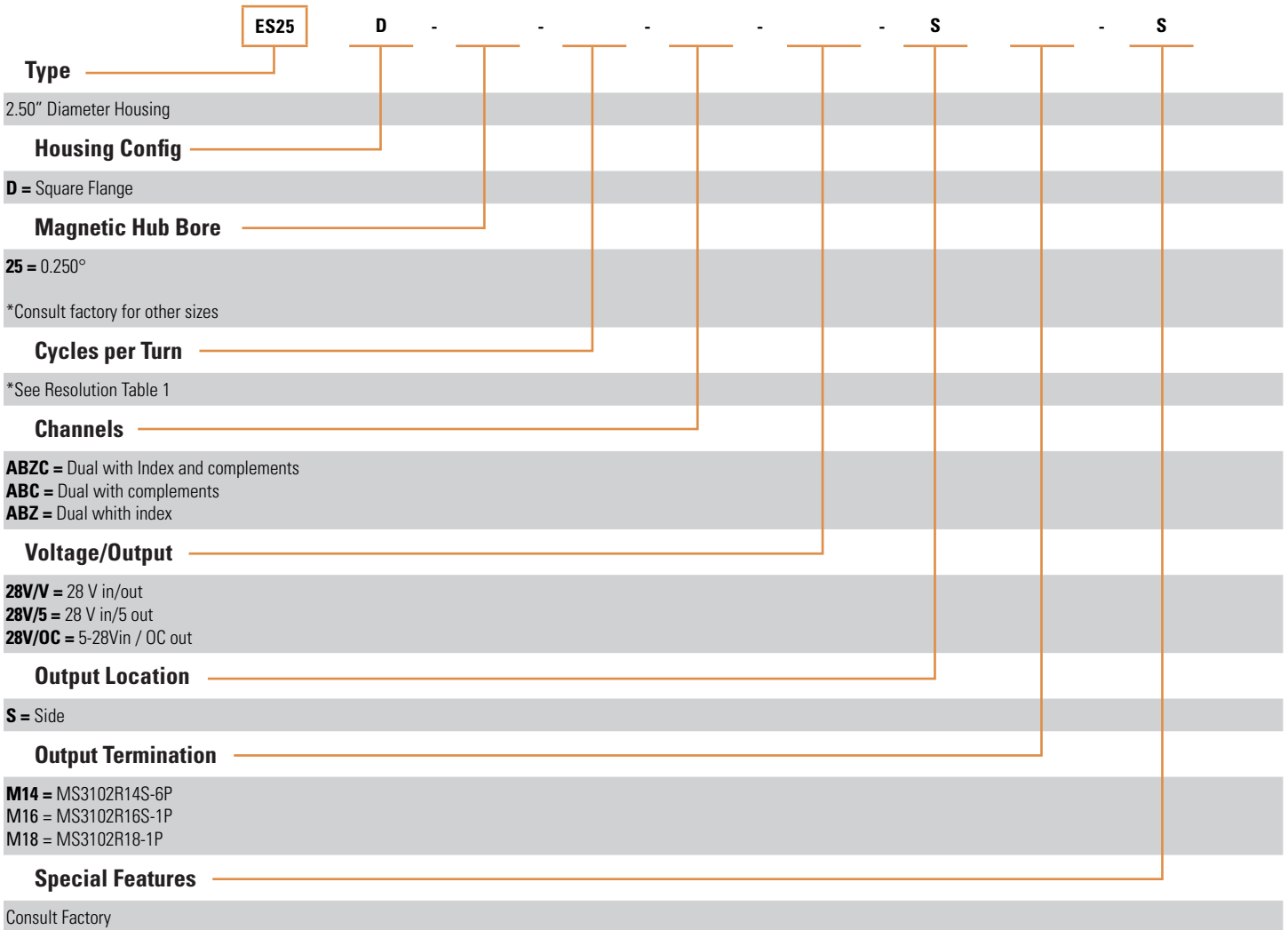
MAGNETIC HUB

Magnetic Hub Bore .250"
 BEI Part No. 924-38540-250
 (supplied with encoder)
 Consult factory for other bore sizes





Use this diagram, working from left to right, to construct your model number.
(-S: special shaft, diameter/ length, output level or termination)



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