Celera MOTION
A Novanta Company

Zettlex
Precision in the Extreme

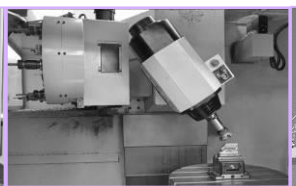

# IncOder™

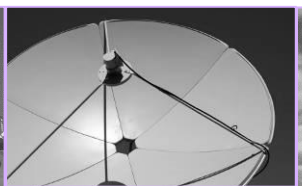
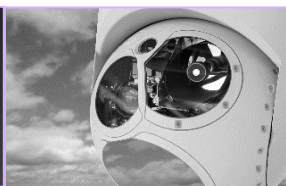
## Precision angle encoders for harsh environments.

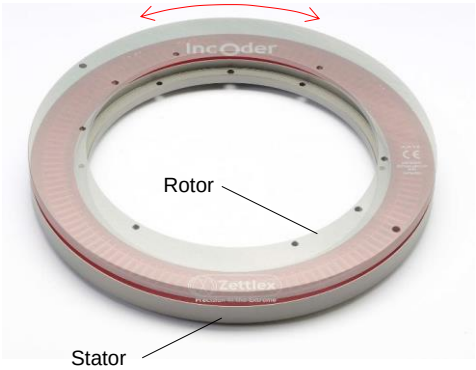
- ☑ No contacts
- ☑ No maintenance
- ☑ Absolute
- ☑ Compact
- ☑ Easy installation
- ☑ Integral electronics
- ☑ Accurate
- ☑ Robust
- ☑ Economical
- ☑ 400 million options
- ☑ Proven track record
- ☑ Global support

……..they tick all the boxes.

Rev 4.11.5 July 2018




Zettlex

Precision in the Extreme

| | |
|---|---|
| **Mechanical** | |
| **Bore Sizes** | Choice of 5, 6, 6.35, 8, 10, 12, 12.7, 25, 35, 50, 60, 85, 110, 136, 160 incrementing in steps to 526.5mm |
| **Outer Diameters** | Choice of 37, 58, 75, 90, 100, 125, 150, 175, 200, 225, 250, 300 incrementing in steps to 595mm |
| **Axial Dimension** | ≥11.25mm |
| **Stator Mounts** | Choice of Screw Mount on I.D., Screw Mount on O.D. or Servo Clamp |
| **Rotor Mounts** | Choice of Plain Rotor, Screw Mount, Set-Screw Mount or Shaft Clamp |
| **Packaged Formats** | Choice of Servo Clamp or Screw Flange with Solid Shaft or Hub Shaft |
| **Packaged Format Sizes** | 58mm O.D. with choice of 3mm incrementing in steps to 10mm Shaft Size |
| **Measurement Performance** | |
| **Measurement** | Absolute over 360°. Note this is true absolute - no motion required at start up. Incremental for A/B pulse output |
| **Resolution** | Options from 9 to 22bits (user selectable pulses per rev for A/B pulse output) |
| **Repeatability** | ≤1LSB |
| **Static Accuracy Over 360°** | ≤38 arc-seconds for larger devices ranging to ≤352 arc-seconds in 37mm device |
| **Internal Position Update Period** | ≤0.1milliseconds |
| **Electrical** | |
| **Data Outputs** | SSI (Serial Synchronous Interface), BiSS-C, asynchronous serial interface (ASI) or SPI.<br>A/B pulses with Z-reference in RS-422, HTL & TTL formats with programmable Z pulse position<br>Analogue voltage (various ranges to 4.5, 5.0, 9.5 & 10.0VDC). User programmable range & direction (without PC) |
| **Redundancy** | Choice of simplex or duplex electrical circuits (same or different outputs) |
| **Power Supply** | 4.5-32VDC |
| **Current Consumption** | <100 (typically <75 and does not change significantly with voltage supply) |
| **Reverse Polarity** | PSU Reverse polarity protected to max. supply voltage |
| **Zero Setting** | Zero Set or Reset to factory value via connector (without PC) |
| **Power Up Time To 1st Measurement** | ≤100millisecond |
| **Environment** | |
| **Operating Temp.** | Minus 45 to +85 (Minus 60 to +105 for Extended Range) |
| **Storage Temp.** | Minus 55 to +125 (Minus 60 to +125 for Extended Range) |
| **IP Rating - Rotor & Stator** | Options available for IP69 |
| **Humidity** | RH 0-99% non-condensing as standard with options available for long term immersion |
| **Bio Hazards** | Complies with DEF-STAN 00-35 Pt. 4 Iss. 4 Section 11 (Hazards) |
| **Induced Dust & Sand** | Complies with DEF STAN 00-35 Part 3 Issue 4, Test CL25 (Turbulent Dust) Cat 1 - options available for abrasive dust |
| **Shock** | IEC 60068-2-27 100g for 11ms - axial & radial - *suitable for most airborne, marine & armoured vehicles*<br>MIL-STD-810G, Method 516.6, Procedure I-Functional Shock - axial and radial - 40g 11ms, sawtooth waveform<br>Extended Range options available for extreme shock & vibration |
| **Vibration** | IEC 60068-2-6 20g for 10-2000Hz - axial and radial - *suitable for most high vibration & airborne environments*<br>MIL-STD-810G, Method 514.6, Procedure I - axial and radial - Category 20, for tracked vehicles |
| **Pressure Range** | Standard is Vacuum to 7Bar. Extended Range is Vacuum to 280Bar. Max. rate of change of ≤1Bar/second |
| **EMC Radiation Susceptibility** | (Installed) Complies with IEC 61000-6-2 - *suitable for fitment in harsh EMC environments* |
| **EMC Radiated Emissions** | (Installed) Complies with IEC 61000-6-4 - *suitable for fitment adjacent to EMI sensitive devices* |
| **Miscellaneous** | |
| **MTBF** | 0.22 failures per 1M hours based on MIL-HBK-217+ method for ground military vehicles at 20Celsius average |
| **MTBF** | 0.35 failures per 1M hours based on MIL-HBK-217+ method for naval sheltered at 35Celsius average |
| **Hazardous Materials** | Standard range - Hazardous materials not used. RoHS compliant. RoHS certificate available. REACH statement available |
| **Outgassing Materials** | Complies with NASA class as low outgassing with TML <1% & CVCM <0.1% at 125C & 24hrs in vacuum to ASTM E-595-90 |
| **ITAR Classification** | Not ITAR controlled & no ITAR components |
| **Approvals** | Flammability Rating UL94V-0. Standard range - RoHS compliant - RoHS certificate available. REACH statement available |
| **Country of Manufacture** | UK in ISO-9001 accredited facility |
| **Export Licence Requirements** | Typically not required for products of <1000mm diameter |

*The above data is summary data only - full and definitive detail in Mini, Midi, Maxi or 58mm Shaft IncOder Product Guide Rev 4.11.5*