



Series AI25™ Absolute Encoder With BiSS Interface

ACURO with BiSS Interface

DESCRIPTION

The Dynapar brand ACURO Absolute Encoder offers a modern full-feature design equipped with BiSS interface. The *Acuro AI25* is available in a single-turn or multi-turn versions. Its multi-turn design is based on a reliable high-speed gear with optical scanning and the latest generation of OptoASIC technology.

Mechanical concept is based on a double ball bearing design, and is available as a solid-shaft or hollow-shaft version in common shaft diameters.

BiSS is a new, fully-digital and bi-directional sensor interface. It defines communication between one master and several slaves (sensors) in industrial control systems. BiSS manifests a new standard in technology and is available license-free. Due to its high performance, it constitutes an efficient alternative to the standard combination of data interface and analog sine/cosine incremental output.

BiSS needs only 6 wires and does not require any hardware for analog signals - and therefore, helps to reduce system costs.

Self-configuration allows "plug+play" and keeps the system in an operable condition even after a power failure. *For detailed information on BiSS and support, please visit www.biss-ic.de*

APPLICATIONS:

Ideal for applications requiring digital feedback to be sent over an industrial bus network

- Elevators
- Machine Tool
- Assembly
- Positioning

INDUSTRIES

Manufacturing, Assembly, Material Handling and any other where precise, repeatable bidirectional position measurement is required.

FEATURES/BENEFITS

- Compact design to save valuable space
- Up to 17 Bit single-turn resolution
- 4096 revolutions of multi-turn resolution
- Short installation depth
- Safety through self-diagnostics
- Solid shaft and hollow shaft versions
- -40°C to +100°C Operating temperature
- Low power consumption
- Fast delivery of any model variant
- Additional field-bus and point-to-point interfaces available

BiSS Benefits

- All digital interface eliminates the costs of interpolation electronics
- Offers transmission reliability through a 4-bit cyclic redundancy check (CRC)
- Represents the only fully digital, open motor feedback interface for real-time applications



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SPECIFICATIONS*

STANDARD OPERATING CHARACTERISTICS	MECHANICAL	ENVIRONMENTAL
<p>Single-turn Resolution: 10, 12, 13, 14, 17 Bit</p> <p>Multi-turn Resolution: 12 bit (only available with 12, 13, 14 or 17 bit ST resolution)</p> <p>Linearity: +/- 1/2 LSB</p> <p>Absolute Accuracy: ± 0.01° mechanical (36 arc-sec.)</p> <p>Repeatability: ± 0.002° mechanical (7.2 arc-sec.)</p> <p>Code format: Binary, Gray, Gray Excess, parameterization through <i>AculoSoft</i></p> <p>Parameterization: Resolution code type, sense of rotation, warning, alarm</p>	<p>All Types</p> <p>Maximum shaft speed: 10,000 RPM (continuous), 12,000 RPM (peak)</p> <p>Starting torque: < 1.4 in-oz</p> <p>Bearing life: 1 x 10¹⁰ revolutions at 35% full rated shaft load 1 x 10⁹ revolutions at 75% full rated shaft load 1 x 10⁸ revolutions at 100% full rated shaft load</p> <p>Weight (approx.): 350 g ST, 400 g MT</p> <p>Shafted Types</p> <p>Flange configurations: Square, Clamp, Servo</p> <p>Shaft diameter: 6 mm (Servo Mount), 10 mm (Clamping Mount), 3/8" (Square Flange Mount)</p> <p>Maximum shaft load: 6 mm shaft: 13 lb axial, 24 lb radial 10 mm shaft: 24 lb axial, 35 lb radial 3/8" Shaft: 24 lb axial, 35 lb radial</p> <p>Hubshaft Types</p> <p>Flange configuration: Hubshaft with flexible tether</p> <p>Accepted Mating Shaft Diameter (min./max.): 6mm (5.984/5.996); 10mm (9.980/9.995); 12 mm (11.976/11.994); 3/8" (.3742/.3748); 1/2" (.4991/.4997)</p> <p>Allowable Mating Shaft Movement (hubshaft only): +/- 1.5 mm axial, +/- 0.2 mm radial</p>	<p>Operating Temperature: -40 to 100° C</p> <p>Storage Temperature: -40 to 100° C</p> <p>Enclosure Rating: IP64 or IP67</p> <p>Shock: 1,000 m/s² (6 ms)</p> <p>Vibration: 100 m/s² (10 to 2,000 Hz)</p>
<p>ELECTRICAL</p> <p>Connection: Cable, M23 - 12 pole Conin connector, M12 - 8-pole connector</p> <p>Supply voltage: 5 VDC -5%/+10% or 10-30 VDC</p> <p>Intrinsic current consumption: 50 mA (ST), 100 mA (MT) not including output current</p> <p>Output current: 60 mA per bit, short circuit protected</p> <p>Frequency response: 500 kHz</p> <p>Maximum cable length: 400 m</p> <p>Control Inputs: Direction</p> <p>Alarm output: Warning and Alarm bits</p> <p>Status LED: Green = OK, Red = Alarm (IP64 only)</p> <p>Preset Switch: Sets encoder to zero output at present mechanical position (IP64 only)</p>		<p>* Specifications are for base models with standard features only unless otherwise noted. Specifications subject to change without notice in accordance with our DBS policy of continuous improvement. All product and brand names are trademarks of their respective owners. All rights reserved.</p> <p>Dynapar™ brand ACURO™ and AI25™ are trademarks of Danaher Industrial Controls Group. All rights reserved. © 2005 DICG Corp.</p> <p>Dynapar Brand AI25 BiSS Data Sheet (8/05)</p>

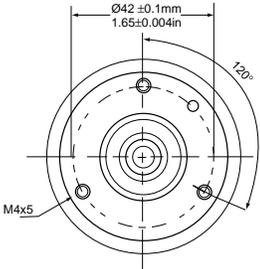
Code 1: Model	Code 2: Bits	Code 3: Mounting	Code 4: Shaft Size	Code 5: Protocol	Code 6: Electrical	Code 7: Connector
AI25	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AI25 Size25 Acuro Absolute Encoder	Single-Turn 0010 10 Bit 0012 12 Bit 0013 13 Bit 0014 14 Bit 0017 17 Bit	Available when Code 4 is 0 or A 0 Servo* Available when Code 4 is 2 or C 1 Clamping*	w/o shaft seal (IP64) 0 6 mm 1 3/8" 2 10 mm 3 3/8" Hub Shaft 4 12 mm Hubshaft 5 1/2" Hubshaft 6 10 mm Hub Shaft	A BiSS	0 5 VDC 2 10-30 VDC	0 1.5m axial cable 1 1.5m radial cable 2 M23 Conin 12 pin axial CW 3 M23 Conin 12 pin radial CW C M12 , 8-pole connector axial D M12 , 8-pole connector radial
	Multi-Turn 1212 12 Bit Multi-Turn, 12 Bit Single-Turn 1213 12 Bit Multi-Turn, 13 Bit Single-Turn 1214 12 Bit Multi-Turn, 14 Bit Single-Turn 1217 12 Bit Multi-Turn, 17 Bit Single-Turn	Available when Code 4 is 1 or B 2 Square flange** Available when Code 4 is 3, 4, 5 or 6 3 Hubshaft w/tether† * 58mm Dia. ** 2.5" Square † 63mm BC	w/ shaft seal (IP67) A 6 mm B 3/8" C 10 mm			



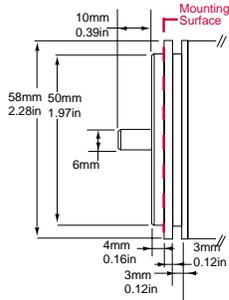
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 www.feedbackdevices.com • www.danaherindustrialcontrols.com

Absolute Encoder With BiSS Interface

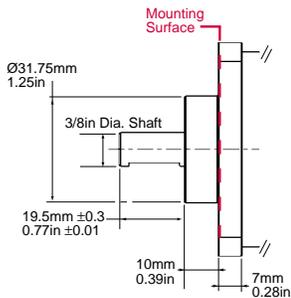
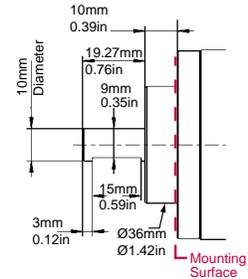
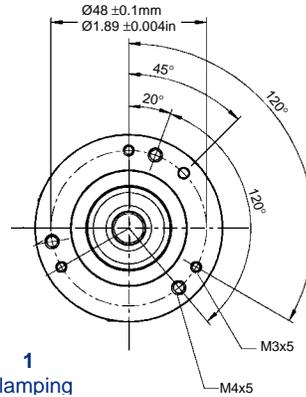
Code 3: Mounting



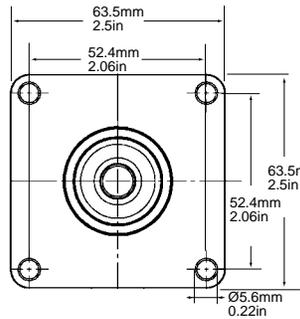
0 Servo



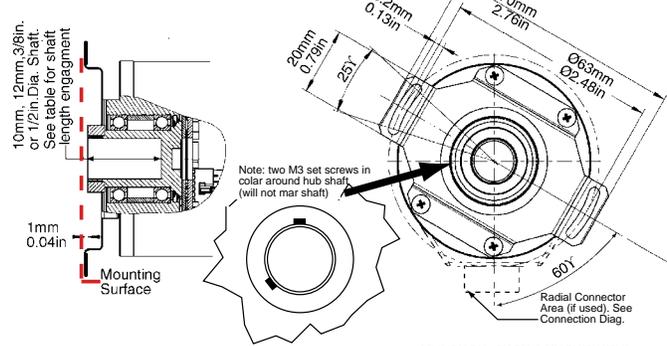
1 Clamping



2 Square Flange



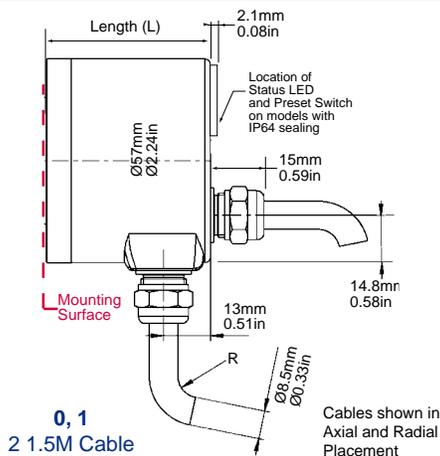
3 Hubshaft w/Tether



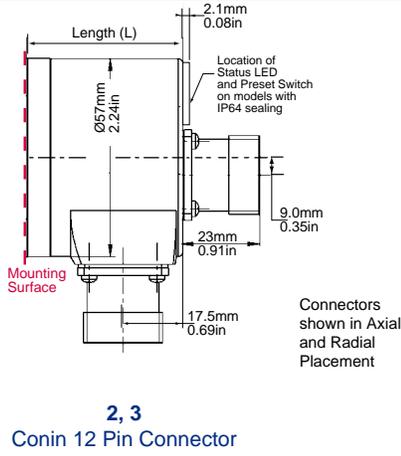
HUBSHAFT SHAFT ENGAGEMENT

HubShaft Diameter	Min. Shaft Length	Max. Shaft Length
10mm, 3/8"	15mm (0.59")	20mm (0.79")
12mm, 1/2"	18mm (0.71")	20mm (0.79")

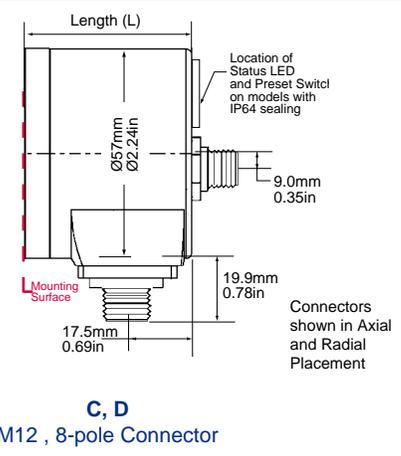
Code 7: Connector



0, 1 2.1.5M Cable



2, 3 Conin 12 Pin Connector



C, D M12, 8-pole Connector

Length (L) Mounting Surface to Rear

Mount (Code 3)	Single-Turn	Multi-Turn
(0) Servo	46.5/1.83	46.5/1.83
(1) Clamping	45.5/1.79	45.5/1.79
(2) Square Flng	45.5/1.79	45.5/1.79
(3) Hubshaft	53.4/2.1	53.4/2.1

Length (L) Mounting Surface to Rear

Mount (Code 3)	Single-Turn	Multi-Turn
(0) Servo	46.5/1.83	46.5/1.83
(1) Clamping	45.5/1.79	45.5/1.79
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(2) Square Flng	45.5/1.79	45.5/1.79
(3) Hubshaft	53.4/2.1	53.4/2.1

Worldwide Brands:

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Eagle Signal™

Harowe™

Hengstler™

NorthStar™

Veeder-Root™



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For additional information or a full-line catalog, contact DICG Customer Service or visit our web site.

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Dynapar Brand AI25 BiSS Data Sheet (8/05)

Satellite Locations:
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