

HENGSTLER SERIES AI25 BiSS



Absolute Encoder

Key Features

- Up to 34 Bit (22 Bit ST + 12 Bit MT)
- BiSS-B and BiSS-C Interface
- Additional Sin/Cos Outputs Available
- Onboard Diagnostics
- Available with Multiple Shaft Configurations
- Enclosure Ratings of IP64 or IP67

IND
Industrial Duty



SPECIFICATIONS

STANDARD OPERATING CHARACTERISTICS:

Code: Absolute, Optical
Resolution Single-turn: 10-22 Bit
Resolution Multi-turn: 12 Bit
Linearity: ± 1/2 LSB
Absolute Accuracy: ± 0.01° mechanical (36 arc-sec.)
Repeatability: ± 0.002° mechanical (7.2 arc-sec.)

ELECTRICAL:

Interface: BiSS
Output Code: Binary, Gray, Gray Excess, parameterization through AcuroSoft
Parameterization: Resolution code type, sense of rotation, warning, alarm
Input Power: 5 VDC ± 10% or 10-30 VDC
Intrinsic Current Consumption: 5V: 100 mA (ST), 150 mA (MT); 10-30V: 100 mA (ST), 150 mA (MT)
Output Current: 60 mA per bit, short circuit protected
Frequency Response (Baud Rate): 500 kHz
Maximum Cable Length: 400 m
Control Inputs: Direction
Alarm and Warning Outputs:
 Alarm Bit = LED Current
 Warning Bit = Temperature
Status LED (IP64 only): Green = OK, Red = Alarm
Preset Switch (IP64 only): Sets encoder to zero output at present mechanical position
Number of Sin/Cos Pulses: 2048
Noise Immunity: Tested to EN61326-1
Electrical Immunity: Tested to EN61326-1

MECHANICAL:

Shafted Diameters: 6mm, 10mm, 3/8"
Hubshaft Diameters: 10mm, 12mm, 3/8", 1/2"
Shaft Load (Axial/Radial): 40N (9lb.) / 60N (13lb.)
Shaft Tolerance (Hubshaft only):
 ± 1.5 mm axial
 ± 0.2 mm radial
Shaft Load (hub shaft): Spring Tether Tolerance:
 Axial ±0.5mm
 Radial ±0.05mm
Maximum Shaft Speed: 10,000 RPM (continuous), 12,000 RPM (peak)
Starting Torque: < 1.4 in-oz
Housing Material: Aluminum
Shaft Material: Stainless Steel
Disc Material: Glass
Weight:
 Single-Turn: approx. 9.2 oz (260 g)
 Multi-Turn: approx. 11 oz. (310 g)
Termination:
 Cable, axial or radial;
 M23 connector (Conin), 12 pole, axial or radial
 M12 connector, 8 pole, axial or radial

ENVIRONMENTAL:

Operating Temperature: -40 °C ... +100 °C
Storage Temperature: -40 °C ... +100 °C
Shock: 300G, 3,000 m/s² for 6 msec
Vibration: 20G, 200 m/s² (10 to 2,000 Hz)
Humidity: Up to 75%, (no condensation allowed)
Enclosure Rating: IP64 or IP67

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ORDERING INFORMATION

To order, complete the model number with code numbers from the table below:

Code 1: Model	Code 2: Resolution	Code 3: Mounting	Code 4: Shaft Size	Code 5: Interface	Code 6: Input Voltage	Code 7: Termination	Code 8: Cable Length Option
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"/>	<input type="checkbox"/>
AI25 Size25 Absolute Encoder	0010 10 Bit ST 0012 12 Bit ST 0013 13 Bit ST 0014 14 Bit ST 0017 17 Bit ST 0019 19 Bit ST 0022 22 Bit ST 1212 12 Bit MT 12 Bit ST 1213 12 Bit MT 13 Bit ST 1214 12 Bit MT 14 Bit ST 1217 12 Bit MT 17 Bit ST 1219 12 Bit MT 19 Bit ST 1222 12 Bit MT 22 Bit ST	Available when Code 4 is 0 or A 0 Servo* Available when Code 4 is 1, 2 or B, C 1 Clamping [†] 2 Square Flange [™] Available when Code 4 is 3, 4, 5 or 6 3 Hubshaft w/Tether [†] * 58mm Diameter ** 2.5" Square † 63mm BC	w/o shaft seal (IP64) 0 6 mm 1 3/8" 2 10 mm 3 3/8" Hubshaft 4 12 mm Hubshaft 5 1/2" Hubshaft 6 10mm Hubshaft w/shaft seal (IP67) A 6 mm B 3/8" C 10mm Available only when Code 2 is MT (Multi-Turn, 12XX) K 1/4" Hubshaft	A BiSS-B L BiSS-B + Sin/Cos 1Vp-p M BiSS-C N BiSS-C + Sin/Cos 1Vp-p	0 5 VDC 2 10-30 VDC	Available only when code 5 is A,L,M or N 0 Cable, axial 1 Cable, radial 2 M23 Conin 12 pin axial, CW 3 M23 Conin 12 pin radial, CW 4 M23 Conin 12 pin axial, CCW 5 M23 Conin 12 Pin radial, CCW Available only when code 5 is A or M C M12, 8-pole connector axial D M12, 8-pole connector radial	Available only when code 7 is 0 or 1 BLANK 1.5m D 3m F 5m K 10m P 15m U 20m V 25m

NOTES:

¹ Sin/Cos Models supplied with 12 leads, Non-Sin/Cos supplied with 8 leads. See Electrical Connections for appropriate lead connection references.

² CW and CCW references wiring direction of M23 Connector. If CW wiring is selected for encoder, correct interface cable assembly for this would be CW (ref code 7 and accessory cables below).

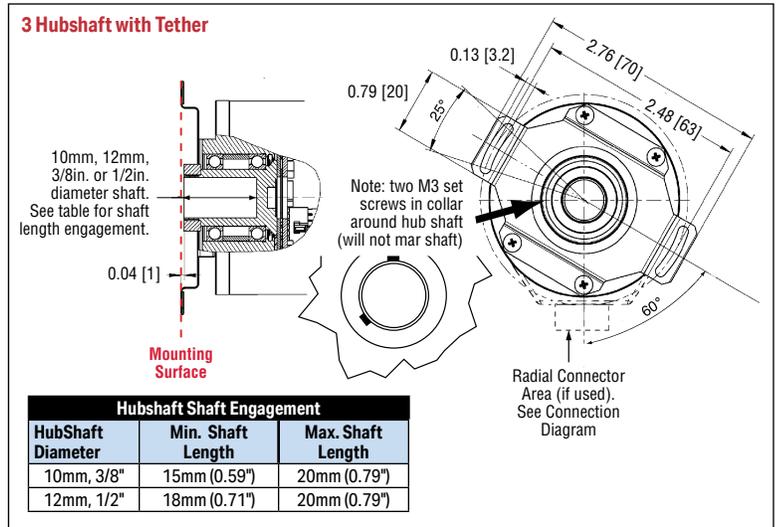
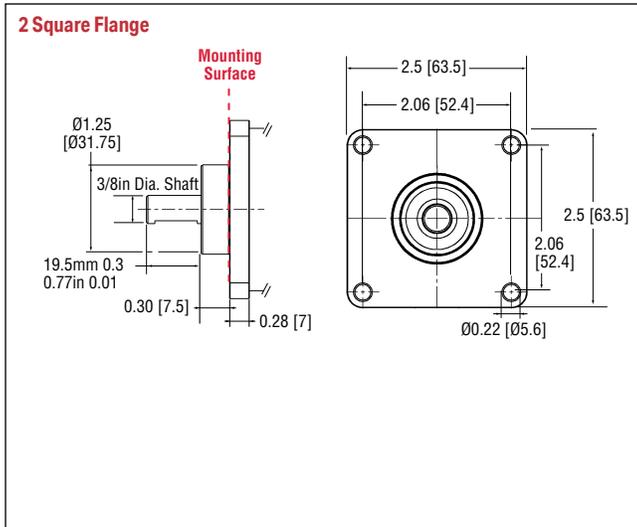
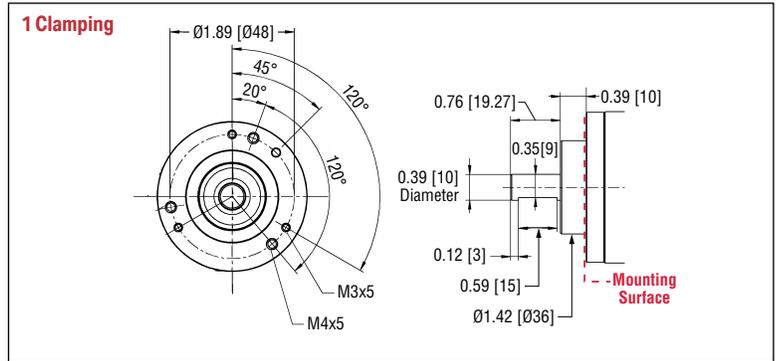
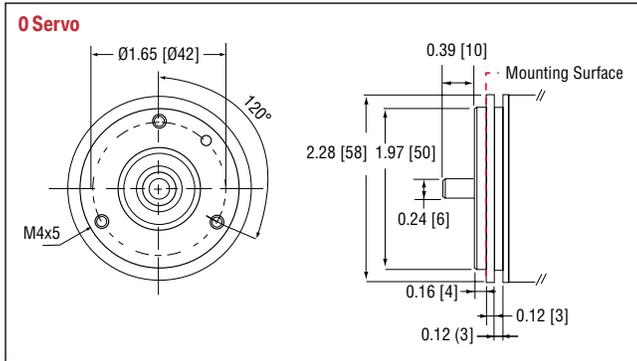
HENGSTLER SERIES AI25 BiSS



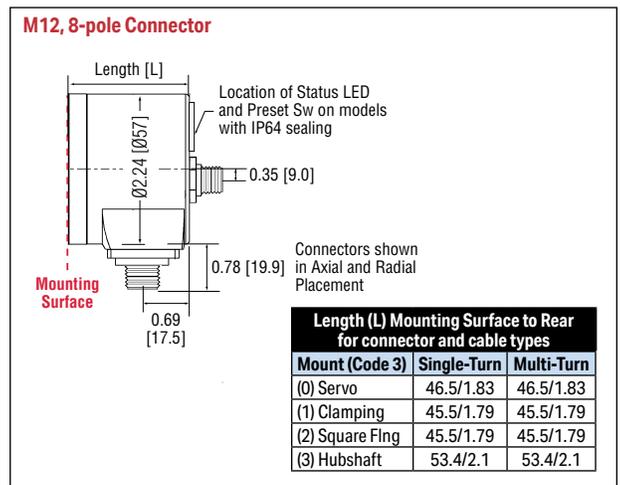
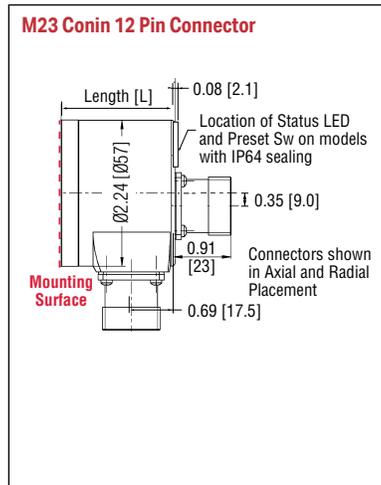
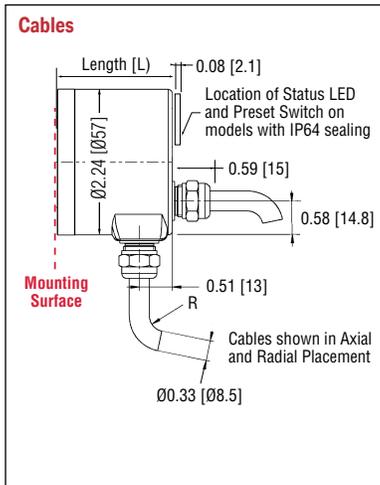
ELECTRICAL CONNECTIONS

Dimensions: inch [mm]

Code 3: Mounting



Code 7: Connector



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ELECTRICAL CONNECTIONS

M23 Connector (Conin), 12 Pole Interfaces: BiSS-B and BiSS-C

Cable	M23 Pin	Signal
brown ³	1	0 V (supply voltage)
pink	2	Data
yellow	3	Clock
	4	N.C.
blue	5	Direction ¹
	6	N.C.
brown/green	7	N.C.
white ³	8	DC 5/10 - 30 V
	9	N.C.
grey	10	Data
green	11	Clock
black	12	0 V-signal output ²

¹ Direction: UB or unconnected = ascending code values with rotation cw

² Connected with 0 V in the encoder. Use this to change counting Direction (see note 1)

³ Use only thin wires $\varnothing = 0.14$ mm)

0 V = descending code values with rotation cw

M23 Connector (Conin), 12 Pole / Cable Interfaces: BiSS-B and BiSS-C with Sin/Cos 1V p-p

Cable	M23 Pin	Signal
brown ²	1	0 V (supply voltage)
pink	2	Data
yellow	3	Clock
white/green	4	A+
blue	5	Direction ¹
red/blue	6	B+
brown/green	7	A-
white ²	8	DC 5/10 - 30 V
grey/pink	9	B-
grey	10	Data
green	11	Clock
black	12	Sense

¹ Direction: +UB or unconnected = ascending code values with rotation cw

² use only thin wires ($\varnothing = 0.14$ mm)

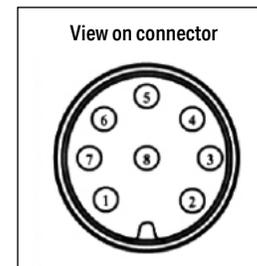
0 V = descending code values with rotation cw

8 Pole M12 / 8 Pole Standard Cable Interfaces: BiSS-B and BiSS-C

Cable	M12 Pin	Signal
white	1	DC 5/10 - 30 V
brown	2	0 V
	3	N.C.
green	4	Clock
pink	5	Data
yellow	6	Clock
blue	7	Direction ¹
grey	8	Data

¹ Direction: +UB or unconnected = ascending code values with rotation cw

0 V = descending code values with rotation cw



HENGSTLER SERIES AI25 BISS

Encoder M23 Mating Cable Assemblies

	Part Number	Description	Length
M23 12 Pole CW Female w/ ScrewLock	G1542003	M23, 12 Pole, TPE Cable, CW, Female Mating connector to Flying leads, 3m	3m
	G1542004	M23, 12 Pole, TPE Cable, CW, Female Mating connector to Flying leads, 5m	5m
	G1542005	M23, 12 Pole, TPE Cable, CW, Female Mating connector to Flying leads, 10m	10m
	G1542006	M23, 12 Pole, TPE Cable, CW, Female Mating connector to Flying leads, 15m	15m
	G1542007	M23, 12 Pole, TPE Cable, CW, Female Mating connector to Flying leads, 20m	20m
	G1542008	M23, 12 Pole, TPE Cable, CW, Female Mating connector to Flying leads, 25m	25m
	G1542009	M23, 12 Pole, TPE Cable, CW, Female Mating connector to Flying leads, 30m	30m
M23 12 Pole CCW Female w/ ScrewLock	G1542010	M23, 12 Pole, TPE Cable, CCW, Female Mating connector to Flying leads, 3m	3m
	G1542011	M23, 12 Pole, TPE Cable, CCW, Female Mating connector to Flying leads, 5m	5m
	G1542012	M23, 12 Pole, TPE Cable, CCW, Female Mating connector to Flying leads, 10m	10m
	G1542013	M23, 12 Pole, TPE Cable, CCW, Female Mating connector to Flying leads, 15m	15m
	G1542014	M23, 12 Pole, TPE Cable, CCW, Female Mating connector to Flying leads, 20m	20m
	G1542015	M23, 12 Pole, TPE Cable, CCW, Female Mating connector to Flying leads, 25m	25m
	G1542016	M23, 12 Pole, TPE Cable, CCW, Female Mating connector to Flying leads, 30m	30m

Encoder M12 Mating Cable Assemblies

	Part Number	Description	Length
M12 8 Pole Cable Assembly	G1567098	M12, 8 Pole, PUR Cable, Female Mating connector to Flying leads, 3m	3m
	G1567097	M12, 8 Pole, PUR Cable, Female Mating connector to Flying leads, 5m	5m
	G1535331	M12, 8 Pole, PUR Cable, Female Mating connector to Flying leads, 10m	10m

Encoder M12 and M23 Female Mating Connectors

	Part Number	Description	Length
M12 and M23 Connectors	G3539597	M12 Connector, Female, 8 Pin, A-Coded	Connector Only
	G3539229	M23 Connector, CCW, Female, 12 Pin	Connector Only
	G3539202	M23 Connector, CW, Female, 12 Pin	Connector Only

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