

SERIES AI25 SSI

HENGSTLER

Absolute Encoder

Key Features

- Up to 22 Bit True Singleturn Positioning
- Onboard Diagnostics
- SSI Interface
- Available with multiple shaft configurations
- Enclosure ratings of IP64 or IP67



SPECIFICATIONS

STANDARD OPERATING CHARACTERISTICS:

Code: Absolute, Optical

Resolution Single-turn: 12-22 Bit

Resolution Multi-turn: 12 Bit

Linearity: $\pm \frac{1}{2}$ LSB (± 1 LSB for resolution > 13 Bit)

Absolute Accuracy: $\pm 0.01^\circ$ mechanical (36 arc-sec.)

Repeatability: $\pm 0.002^\circ$ mechanical (7.2 arc-sec.)

ELECTRICAL:

Interface: SSI

Output Code: Binary, Gray, Gray Excess, parameterization through AcuroSoft

Parameterization: Resolution code type, sense of rotation, warning, alarm

Input Power: $\pm 10\%$ 5 VDC or 10-30 VDC

Intrinsic Current Consumption:

5V: 100 mA (ST), 150 mA (MT);

10-30V: 100 mA (ST), 150 mA (MT)

Permissible Load: max 30mA

Output Current: 60 mA per bit, short circuit protected

Frequency Response (Baud Rate): 500 kHz

Maximum Cable Length: 400 m

Control Inputs: Direction

Alarm Output: Alarm bit

Status LED: Green = OK, Red = Alarm (IP64 only)

Preset Switch: Sets encoder to zero output at present mechanical position (IP64 only)

Noise Immunity: Tested to EN61326-1

Electrical Immunity: Tested to EN61326-1

Termination: Cable, axial or radial;

M23 connector (Conin), 12 pole, axial or radial;

M12 connector, 8 pole, axial or radial

MECHANICAL:

Shaft Diameter: 6 mm (Servo Mount), 10 mm (Clamping Mount), 3/8" (Square Flange Mount),
Hubshaft: 10mm, 12 mm, 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 ± 0.5 mm; Radial ± 0.05 mm

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)

ENVIRONMENTAL:

Operating Temperature: $-40^\circ\text{C} \dots +100^\circ\text{C}$

Storage Temperature: $-40^\circ\text{C} \dots +100^\circ\text{C}$

Shock: 100G, 1,000 m/s² for 6 msec

Vibration: 10G, 100 m/s² (10 to 2,000 Hz)

Humidity: Up to 75%, (no condensation allowed)

Enclosure Rating: IP64 or IP67



HENGSTLER SERIES AI25

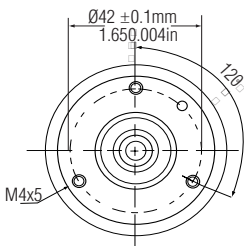
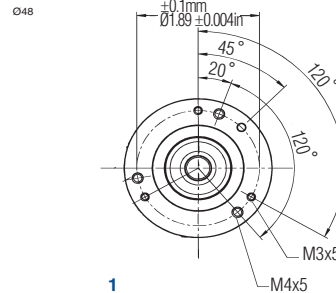
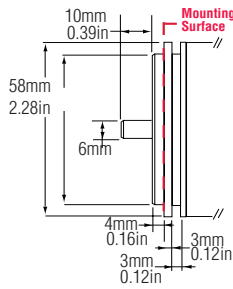
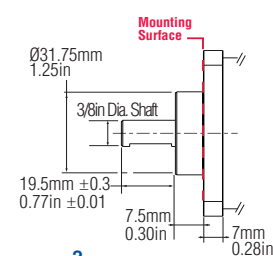
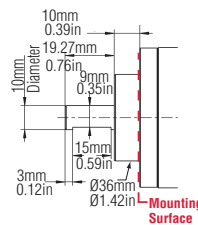
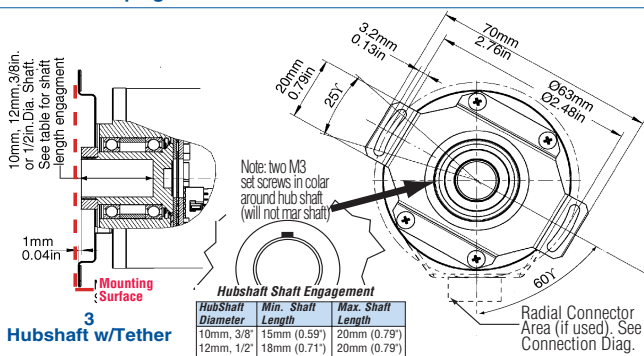
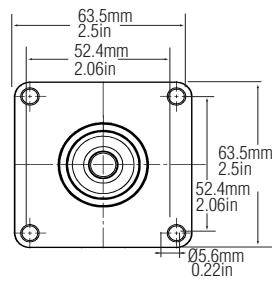
Ordering Information

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: Output	Code 7: Termination
AI25	☐ ☐ ☐ ☐	☐	☐	☐	☐	☐
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 1213 12 Bit MT 1214 12 Bit MT 1217 12 Bit MT 1219 12 Bit MT 1222 12 Bit MT	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 Dia. ** 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 10 mm Available only when Code 2 is ST (Single Turn) K 1/4" Hubshaft	2 SSI Gray (SG) 3 SSI Binary (SB) F SSI Gray (+Sin- Cos 1Vpp) (SC) Q SSI Binary + high active Preset (SR) P SSI Gray + high active Preset (SH) E SSI Binary (+ sin/cos 1Vpp (SD) R SSI Binary Extended (SE)	0 5 VDC 2 10-30 VDC	0 Cable, axial 1 Cable, radial 2 M23 Conin 12 pin axial, CW 3 M23 Conin 12 pin radial, CW 4 M23 12 pin axial, CCW 5 M23 12 pin radial, CCW C M12 , 8-pole connector axial D M12 , 8-pole connector radial

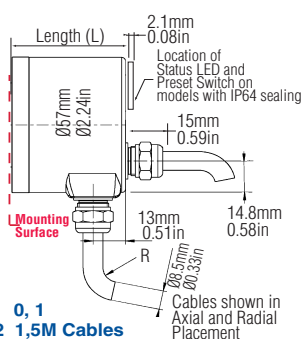
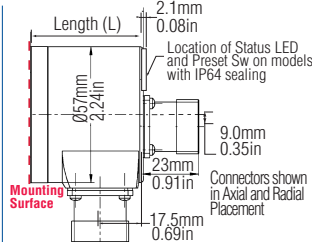
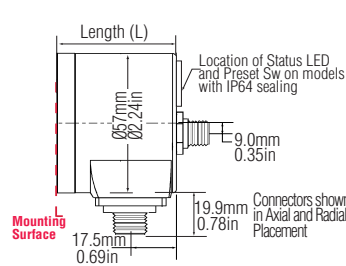
DIMENSIONS

Code 3: Mounting

0
Servo1
Clamping2
Square Flange3
Hubshaft w/Tether

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 Cables2, 3
Conin 12 Pin ConnectorC, D
M12, 8-pole ConnectorLength (L) Mounting Surface to
Rear For connector and cable types

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 Flange	45.5/1.79	45.5/1.79
(3) Hubshaft	53.4/2.1	53.4/2.1

SERIES AI25 SSI

SSI Data Format

Bits	T1 - T10	T11	T12	T13	T14	T15	T16	T17	T18	T19
10	S9 - S0	0	0	0	0	S9	S8	S7	S6	S5
12	S11 - S2	S1	S0	0	0	S11	S10	S9	S8	S7
13	S12 - S3	S2	S1	S0	0	S12	S11	S10	S9	S8
14	S13 - S4	S3	S2	S1	S0	0	S13	S12	S11	S10
17	S16 - S7	S6	S5	S4	S3	S2	S1	S0	0	S16
Bits	T1 - T12	T13 - T21	T22	T23	T24	T25	T26	T27	T28	T29
1212	M11 - M0	S11 - S3	S2	S1	S0	0	0	M11	M10	M9
1213	M11 - M0	S12 - S4	S3	S2	S1	S0	0	M11	M10	M9

S9, S8 Data Bits for resolution per turn.

S9 - S0 Data Bits S9, S8, S7, S6, S5, S4, S3 Etc.

M11, M10 Data Bits for number of turns.

M11- M0 Turn Data Bits M11, M10, M9, M8, Etc.

T1, T2 SSI Clock number

ELECTRICAL CONNECTIONS

M23 connector (Conin), 12 pole / cable
Interface SB and SG

Cable	M23 (Conin)	Signal
brown ³	1	0 V (supply voltage)
pink	2	Data
yellow	3	Clock
	4	N.C.
blue	5	Direction ¹
red	6	N.C.
violet	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
 0 V = descending code values with rotation cw

² Connected with 0 V in the encoder.

Use this output to lay Direction on "0V" if required.

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

M23 connector (Conin), 12 pole / cable
Interface SC

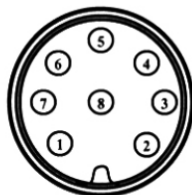
Cable	M23 (Conin)	Signal
brown ²	1	0 V (supply voltage)
pink	2	Data
yellow	3	Clock
white/green	4	A+
blue	5	Direction ¹
red/blue	6	B+
brawn/green	7	A-
white ²	8	DC 5/10 - 30 V
grey/pink	9	B-
grey	10	Data
green	11	Clock
black	12	Sense

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

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

8 pole M12

Colour	Pin	Signal
white	1	DC 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



View on
connector

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

12 pin CONIN Connector	Part Number: G3 539 202
Bulk Cable (sold by the meter)	Part Number: 113101-0001
Cable Assembly (with Connector)	
3 meters	Part Number: G1 542 003
5 meters	Part Number: G1 542 004
10 meters	Part Number: G1 542 005
8 pin M12 Connector	Part Number: G3 539 597
Bulk Cable (sold by the meter)	Part Number: G3 280 220
Cable Assembly (with Connector)	
3 meters	Part Number: G1 565 329
5 meters	Part Number: G1 565 330
10 meters	Part Number: G1 565 331

INDUSTRIAL DUTY

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