

HENGSTLER

SERIES AI25 PROFINET®



Absolute Encoder

Key Features

- Up to 34 Bit (22 Bit ST + 12 Bit MT)
- Conformance Level C Supports Isochronous Real-Time (IRT)
- 31.25us Cycle Time - High Speed
- High Speed 10,000 RPM Continuous
- Hub Shaft and Shafted Models
- Device Data: Position, Velocity, Acceleration, Diagnostic Data, Alarms
- Configuration Options: Resolution, Total Measuring Range, Preset, Offset Direction, Scaling, Residual Value Function, Velocity Limits, Acceleration Limits

IND
Industrial Duty



SPECIFICATIONS

STANDARD OPERATING CHARACTERISTICS:

Code: Absolute, Optical

Resolution Single-turn: 10 - 22 Bit

Resolution Multi-turn: 12 Bit

Linearity: $\pm 1/2$ LSB up to 14 Bit

Absolute Accuracy (typ.): ± 35 arc-sec or $\pm 0.01^\circ$

Repeatability (typ.): ± 10 arc-sec or $\pm 0.003^\circ$

ELECTRICAL:

Interface: PROFINET IO

Output Code: Binary

Input Voltage: 7 - 30 VDC

Current w/o load (typ.): 24V: 55mA (ST) 65 mA (MT)

Current w/o load (max.): (ST/MT) 225 mA

Device Data: Position, Velocity, Acceleration, Diagnostic Data, Alarms

Configuration Options: Resolution, Total Measuring Range, Preset, Offset Direction, Scaling, Residual Value Function, Velocity Limits, Acceleration Limits

Updating of Values / Cycle Times: 125us / 31.25us

Noise Immunity: Tested to EN61326-1

Electrical Immunity: Tested to EN61326-1

Termination: Bus cover with 3x M12 connectors

MECHANICAL

Shaft Diameter: 6-12mm (solid shafts), 9.52mm – 14mm (hub shafts)

Mounting Flanges: Servo Flange, Clamping Flange, Tether Flange, Square Flange

Shaft Load (axial / radial): 40 N / 80 N

Axial/Radial Endplay of Mating Shaft (Hub Shaft only): ± 1.5 mm, ± 0.2 mm

Maximum Speed: 10,000 RPM (continuous duty), max. 12,000 RPM (short term)

Starting Torque (at 20 °C): typ. ≤ 0.05 Nm (lower values available upon request)

Moment of Inertia: ca. 3.8×10^{-6} kgm²

Housing Material: Aluminum or Stainless Steel

Shaft Material: Stainless Steel

Disc Material: Glass

Weight: (Aluminum) 14.8 oz. (420 g) ST
15.9 oz. (450 g) MT

(Stainless) 2.6 lb (1180 g)

ELECTRICAL CONNECTIONS

Bus cover with 3x M12 connectors

Pin	P1	Supply voltage	P2
1	TxD+	7-30V in	TxD+
2	RxD+	N.C.	RxD+
3	TxD-	0 V in	TxD-
4	RxD-	N.C.	RxD
Shield	Shield ¹	Shield ¹	Shield ¹

¹Shield connected to encoder housing

ENVIRONMENTAL

Operating Temperature: -40 °C ... +85 °C

Storage Temperature: -40 °C ... +85 °C

Shock: 400g, 4000 m/s² (6 ms)

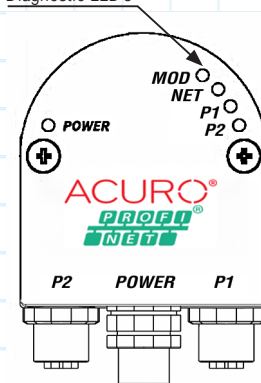
Vibration: 30g, 300 m/s² (10 - 2000 Hz)

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

Enclosure Rating: IP64 or IP67

General Design: As per DIN EN 61010-1, protection class III, contamination level 2, overvoltage class II

Diagnostic LED's





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: Protocol	Code 6: Electrical	Code 7: Connector	Code 8: Housing
AI25	☐ ☐ ☐ ☐	☐	☐	☒ W	☒ 2	☒ R	☐ ☐
AI25 Size25 Absolute Encoder	0010 10 Bit ST 0012 12 Bit ST 0013 13 Bit ST 0014 14 Bit ST 0016 16 Bit ST 0017 17 Bit ST 0018 18 Bit ST 0019 19 Bit ST 0020 20 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 1216 12 Bit MT, 16 Bit ST 1217 12 Bit MT, 17 Bit ST 1218 12 Bit MT, 18 Bit ST 1219 12 Bit MT, 19 Bit ST 1220 12 Bit MT, 20 Bit ST	Available when Code 4 is 0 or A 0 Servo* Available when Code 4 is 1, 2, 8, 9 or B, C, H and J 1 Clamping* Available when Code 4 is 1,2 or B, C 2 Square Flange** Available when Code 4 is 3, 4, 5, 6, 7 or E 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 10 mm Hubshaft 7 14 mm Hubshaft†† 8 12 mm†† 9 8 mm†† w/ Shaft Seal (IP67) A 6 mm B 3/8" C 10 mm E 12 mm Hubshaft H 12 mm†† J 8 mm†† †† Available only upon request	Y PROFINET	2 7-30 VDC	R Bus Cover with 3 M12 Connectors (1x Male + 2x Female)	Available when Code 3 is 2 and Code 4 is B or C BLANK Aluminum SS Stainless Steel

M12 CABLE ASSEMBLIES

Part Number	Application	Description	Standard Lengths (m)
608555-XXXX	Encoder Communication w/ RJ45 Termination	M12 Male to RJ45	1, 2,5 ,10,20,30,50,100
608556-XXXX	Encoder Power Input	M12 Female to Flying Leads	1, 2,5 ,10,20,30,50,100
608557-XXXX	Encoder Daisy Chaining/Networking	M12 Male to M12 Male	1,2,5,10,20,30,50,100
608600-XXXX	Encoder Communication w/ Flying Lead Termination	M12 Male to Flying Leads	1,2,5,10,20,30,50,100

Note:

10 meter cable will be -0010

Lengths in **bold** are preferred lengths with shortest lead times.

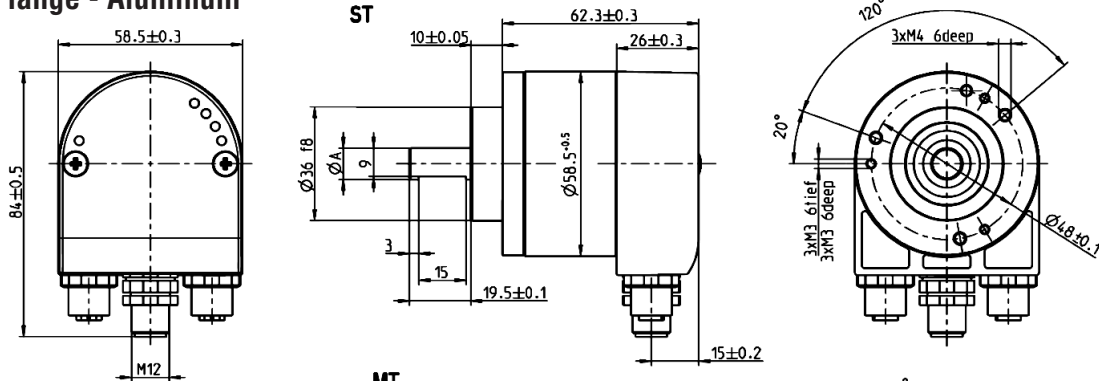
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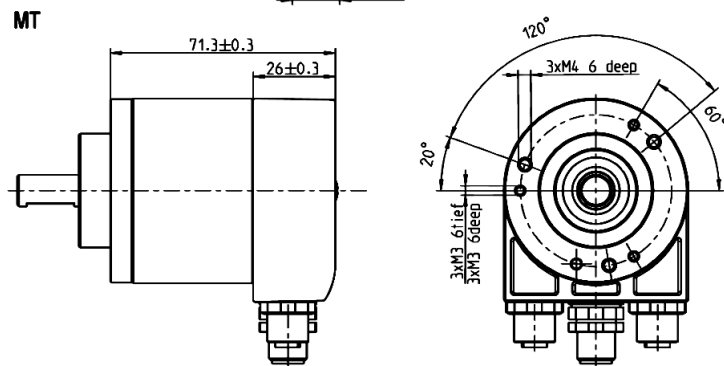


DIMENSIONS in mm

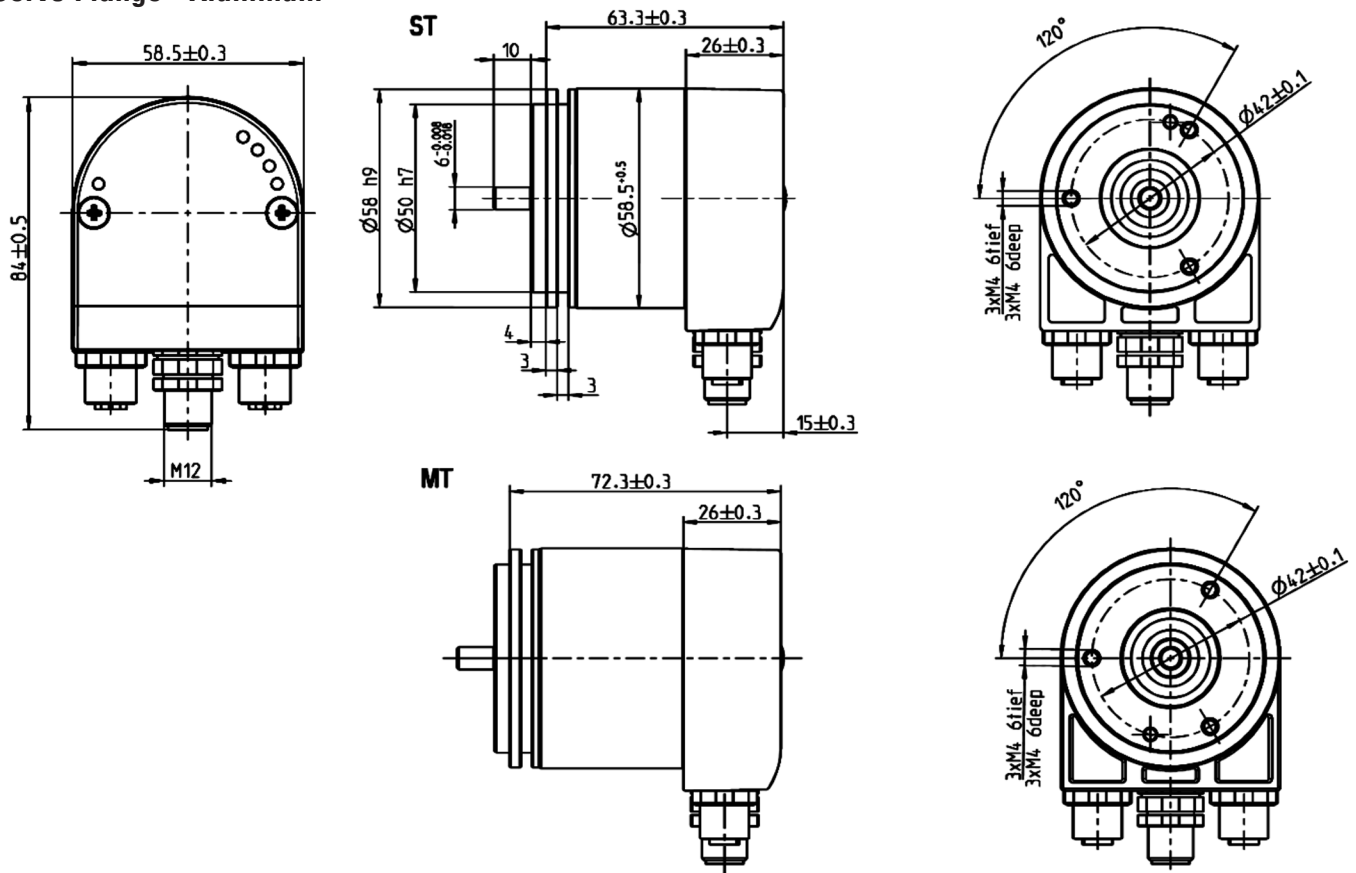
Clamping Flange - Aluminum



	Dimension (mm)	
Shaft - $\varnothing A$	10 $-0.01/-0.02$	9.52 $-0.01/-0.02$
Shaft Code	2 or C	1 or B



Servo Flange - Aluminum

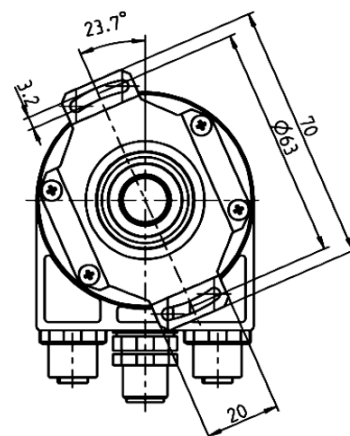
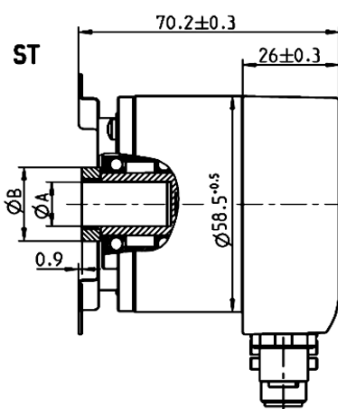
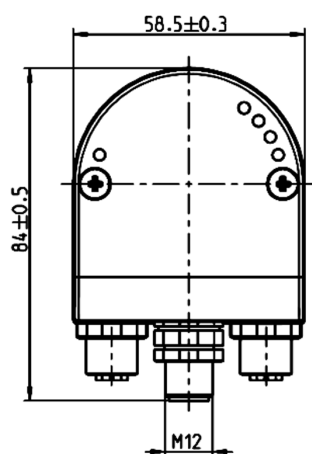


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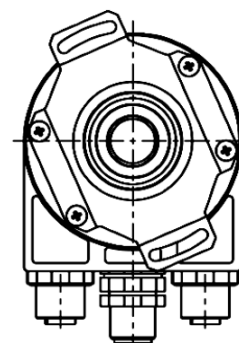
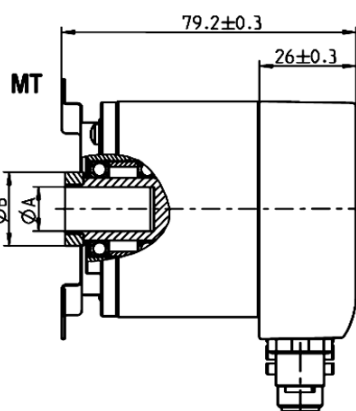
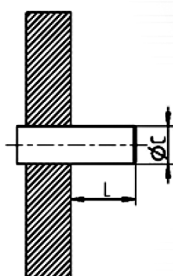
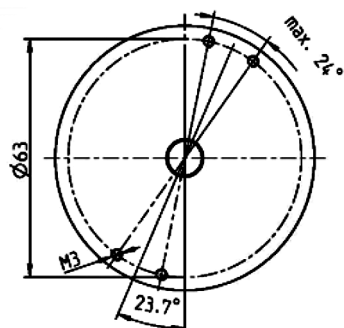
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DIMENSIONS in mm
Hub Shaft - Aluminum



Kundenseite / Customer side



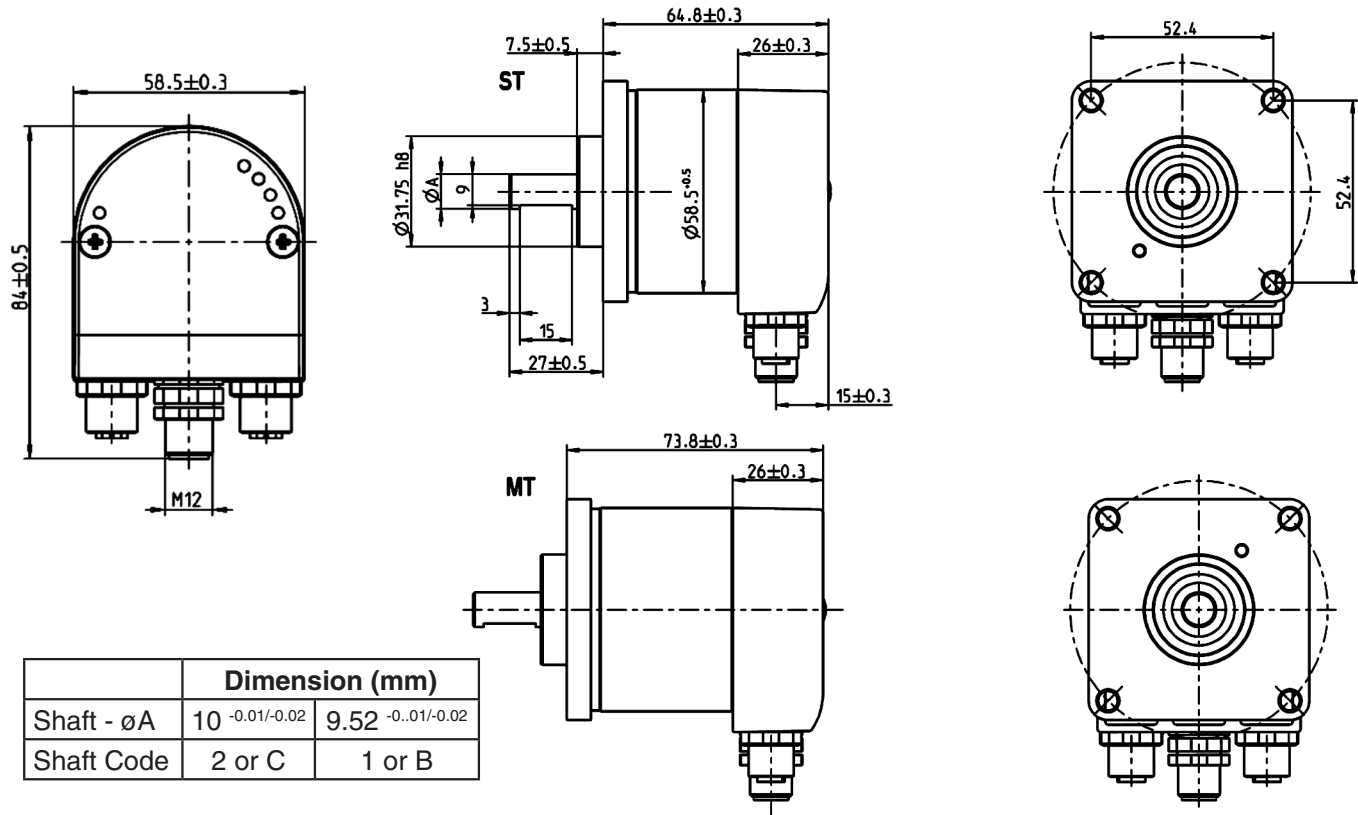
	Dimension (mm)			
Hub Shaft - $\varnothing A$	9.52 $-0.00/+0.02$	10 $-0.00/+0.02$	12 $-0.00/+0.02$	12.7 $-0.00/+0.02$
Connecting Shaft - $\varnothing C$	9.52 g7	10 g7	12 g7	12.7 g7
Clamping Ring - $\varnothing B$	18	18	20	22
Min. Engagement Length	15	15	18	18
Max. Engagement Length	20	20	20	20
Shaft Code	3 or B	2 or C	4 or E	5

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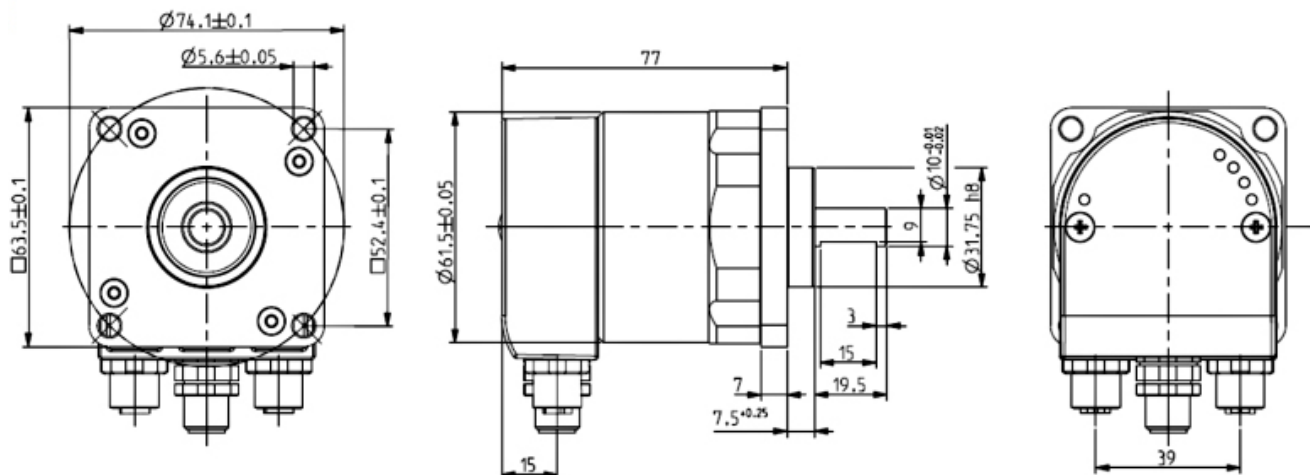
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DIMENSIONS in mm
Square Flange - Aluminum



Square Flange - Stainless Steel



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