

# 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:** ±½ LSB up to 14 Bit  
**Absolute Accuracy (typ.):** ±35 arc-sec or ±0.01°  
**Repeatability (typ.):** ±10 arc-sec or ±0.003°

### 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 x 10<sup>-6</sup> kgm<sup>2</sup>  
**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

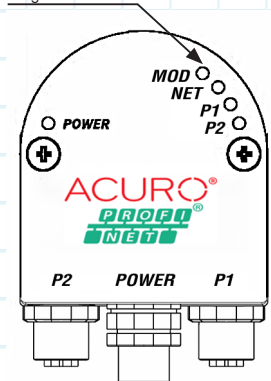
Pin	P1	Supply voltage	P2
1	TxD+	7-30V in	TxD+
2	RxD+	N.C.	RxD+
3	TxD-	0 V in	TxD-
4	RxD-	N.C.	RxD
Shield	Shield <sup>1</sup>	Shield <sup>1</sup>	Shield <sup>1</sup>

<sup>1</sup>Shield connected to encoder housing

### ENVIRONMENTAL

**Operating Temperature:** -40 °C ... +85 °C  
**Storage Temperature:** -40 °C ... +85 °C  
**Shock:** 400g, 4000 m/s<sup>2</sup> (6 ms)  
**Vibration:** 30g, 300 m/s<sup>2</sup> (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
<b>AI25</b>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>W</b>	<b>2</b>	<b>R</b>	<input type="checkbox"/> <input type="checkbox"/>
<b>AI25</b> Size25 Absolute Encoder	<b>0010</b> 10 Bit ST <b>0012</b> 12 Bit ST <b>0013</b> 13 Bit ST <b>0014</b> 14 Bit ST <b>0016</b> 16 Bit ST <b>0017</b> 17 Bit ST <b>0018</b> 18 Bit ST <b>0019</b> 19 Bit ST <b>0020</b> 20 Bit ST <b>0022</b> 22 Bit ST  <b>1212</b> 12 Bit MT, 12 Bit ST <b>1213</b> 12 Bit MT, 13 Bit ST <b>1214</b> 12 Bit MT, 14 Bit ST <b>1216</b> 12 Bit MT, 16 Bit ST <b>1217</b> 12 Bit MT, 17 Bit ST <b>1218</b> 12 Bit MT, 18 Bit ST <b>1219</b> 12 Bit MT, 19 Bit ST <b>1220</b> 12 Bit MT 20 Bit ST	Available when Code 4 is 0 or A  <b>0</b> Servo*  Available when Code 4 is 1, 2, 8, 9 or B, C, H and J  <b>1</b> Clamping*  Available when Code 4 is 1,2 or B, C  <b>2</b> Square Flange**  Available when Code 4 is 3, 4, 5, 6, 7 or E  <b>3</b> Hubshaft w/ Tether†  * 58mm Dia. ** 2.5" Square † 63mm BC	<b>w/o Shaft Seal (IP64)</b> <b>0</b> 6 mm <b>1</b> 3/8" <b>2</b> 10 mm <b>3</b> 3/8" Hubshaft <b>4</b> 12 mm Hubshaft <b>5</b> 1/2" Hubshaft <b>6</b> 10 mm Hubshaft <b>7</b> 14 mm Hubshaft†† <b>8</b> 12 mm†† <b>9</b> 8 mm††  <b>w/ Shaft Seal (IP67)</b> <b>A</b> 6 mm <b>B</b> 3/8" <b>C</b> 10 mm <b>E</b> 12 mm Hubshaft <b>H</b> 12 mm†† <b>J</b> 8 mm††  †† Available only upon request	<b>Y</b> PROFINET	<b>2</b> 7-30 VDC	<b>R</b> Bus Cover with 3 M12 Connectors (1x Male + 2x Female)	Available when Code 3 is 2 and Code 4 is B or C  <b>BLANK</b> Aluminum  <b>SS</b> 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, <b>10</b> ,20,30,50,100
608556-XXXX	Encoder Power Input	M12 Female to Flying Leads	1,2,5, <b>10</b> ,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

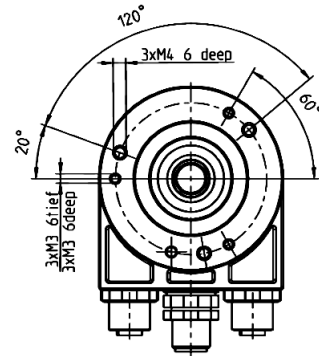
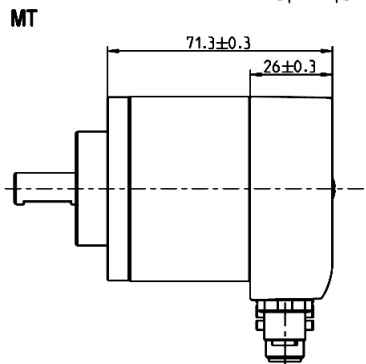
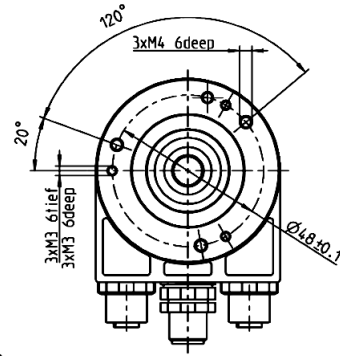
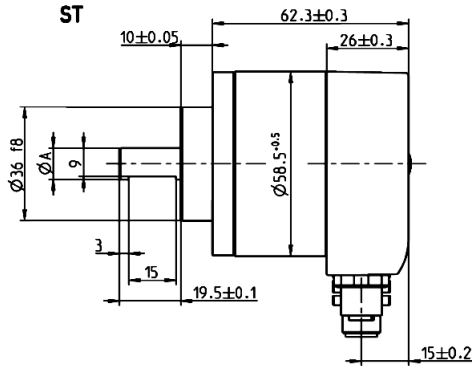
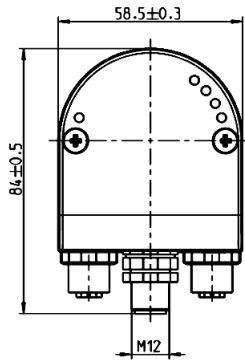
Lengths in **bold** are preferred lengths with shortest lead times.

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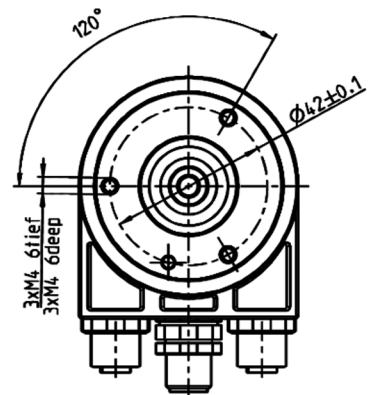
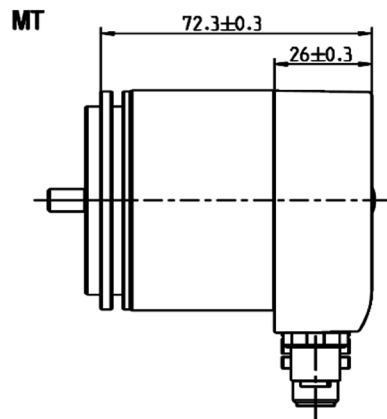
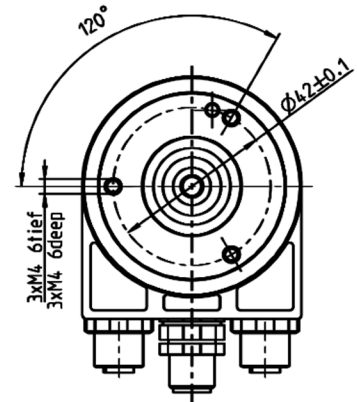
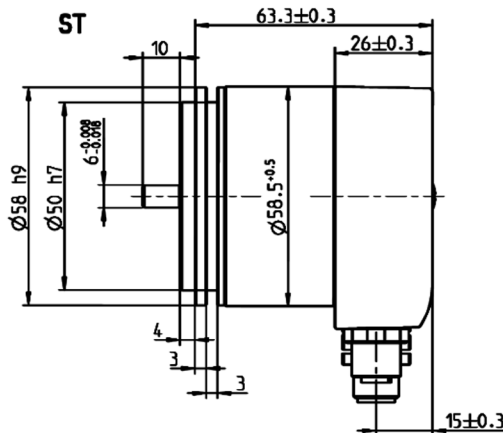
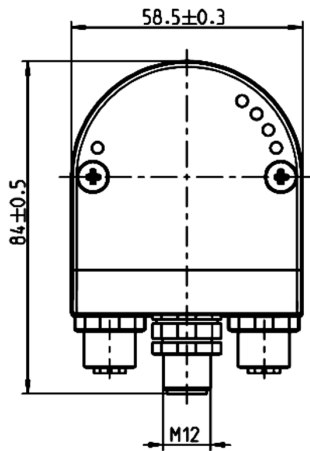
DIMENSIONS in mm

## Clamping Flange - Aluminum



	Dimension (mm)	
Shaft - øA	10 <sup>-0.01/-0.02</sup>	9.52 <sup>-0.01/-0.02</sup>
Shaft Code	2 or C	1 or B

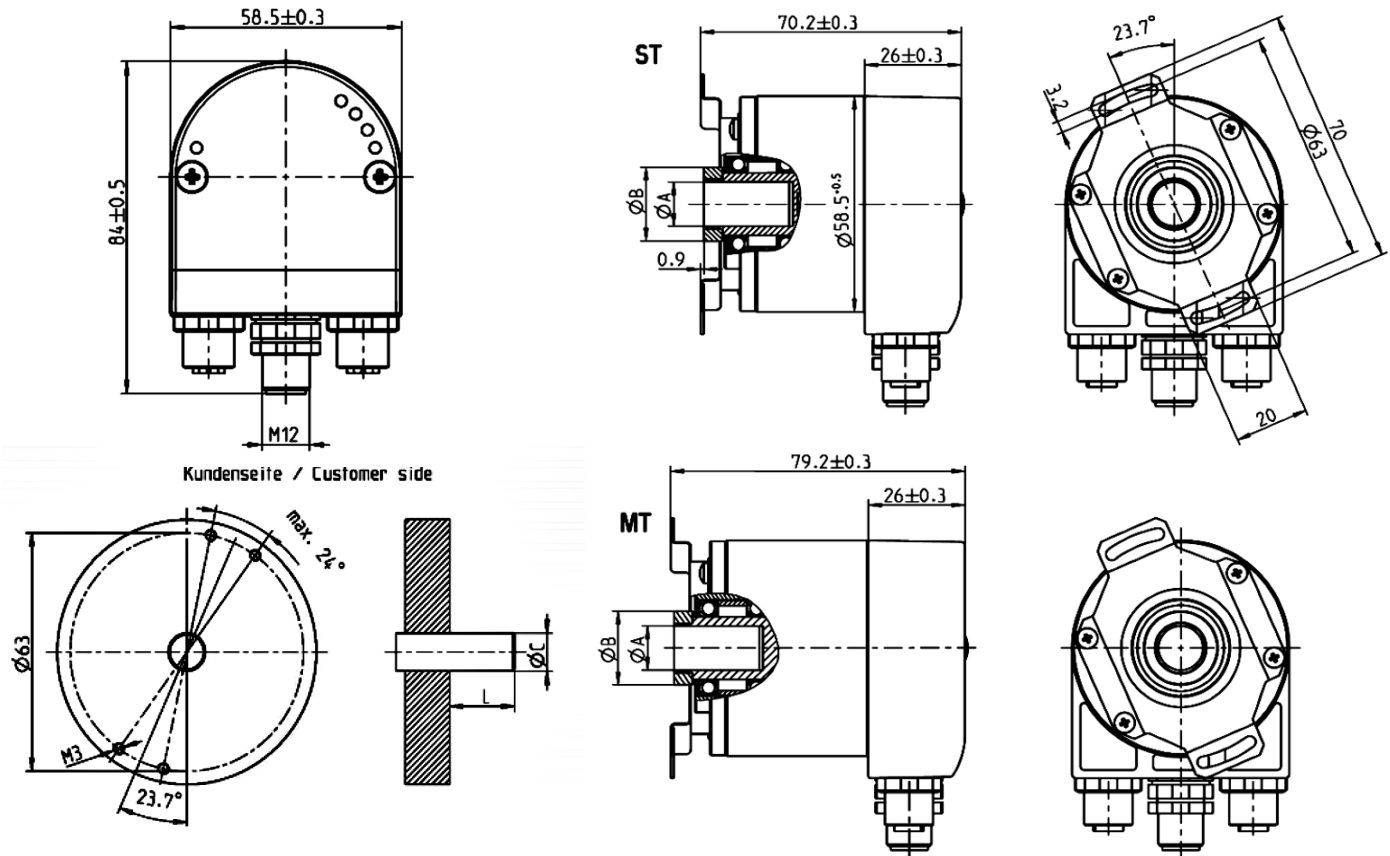
## Servo Flange - Aluminum



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**DIMENSIONS in mm**  
Hub Shaft - Aluminum

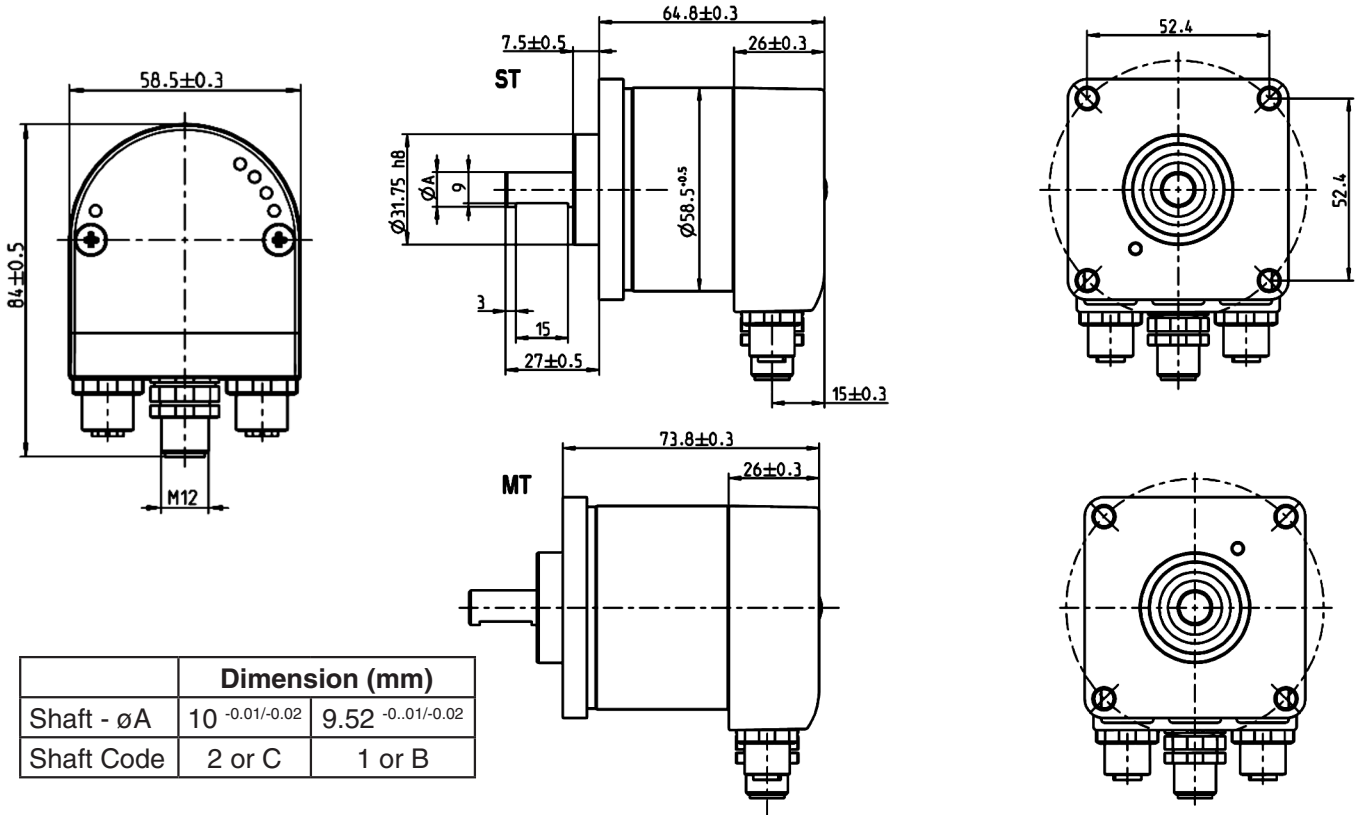


	Dimension (mm)			
Hub Shaft - $\varnothing A$	9.52 $-0.00/+0.02$	10 $-0.00/+0.02$	12 $-0.00/+0.02$	12.7 $-0.00/+0.02$
Connecting Shaft - $\varnothing C$	9.52 g7	10 g7	12 g7	12.7 g7
Clamping Ring - $\varnothing B$	18	18	20	22
Min. Engagement Length	15	15	18	18
Max. Engagement Length	20	20	20	20
Shaft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

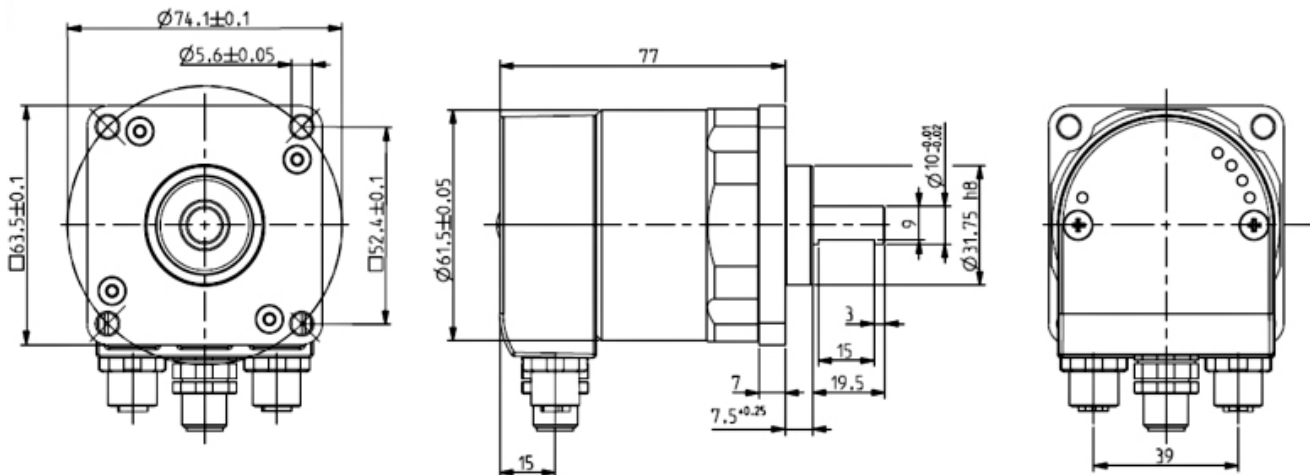
# HENGSTLER SERIES AI25 PROFINET®



**DIMENSIONS in mm**  
Square Flange - Aluminum



**Square Flange - Stainless Steel**



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