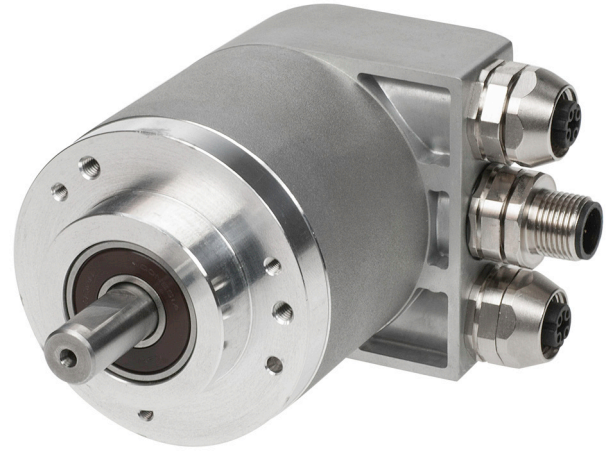


# SERIES AI25 EtherCAT® HENGSTLER

## Absolute Encoder

### Key Features

- **Best Shock and Vibration Resistance In Its Class** (400G shock, 30G vibration)
- **High Speed 10,000 RPM Continuous Operation** (12,000 RPM Short Term)
- **Extremely Fast Cycle Times** (62.5  $\mu$ s)
- **Extended Temperature Range** ( -40°C... +85°C)
- **Customizable Resolution and Mounting Style**
- **Device Data: Position, Speed, Temperature, Diagnostic Data, Alarms**
- **Device Configuration: Resolution, Total Measuring Range, Preset, Offset, Direction, Position, Limits, Scaling, Residual Value Function, Speed Limits, Temperature Limits**



## 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.):**  $\pm 35''$   
**Repeatability (typ.):**  $\pm 10''$

### ELECTRICAL:

**Interface:** EtherCAT CoE, FoE  
**Output Code:** Binary  
**Input Power:** 7 - 30 VDC  
**Current w/o load:** (typ.) 24V: 85 mA (ST) max; 200 mA (MT)  
**Device Data:** position, speed, temperature, diagnostic data, alarms  
**Device Configuration:** resolution, total measuring range, preset, offset, direction, position limits, scaling, residual value function, speed limits, temperature limits  
**Updating of values / Cycle Time:** 62.5 $\mu$ s min.  
**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:** Synchro Flange, Clamping Flange, Tether Flange, Square Flange  
**Shaft Load (axial / radial):** 40 N / 80 N  
**Axial/Radial Endplay of Mating Shaft (Hub Shaft only):**  $\pm 1.5$  mm,  $\pm 0.2$  mm  
**Maximum Speed:** 10.000 U/min (continuous duty), max. 12.000 U/min (short term)  
**Starting Torque (at 20 °C):** typ.  $\leq 0,05$  Nm (lower values available upon request)  
**Moment of Inertia:** ca.  $3.8 \times 10^{-6}$  kgm<sup>2</sup>  
**Housing Material:** Aluminum  
**Shaft Material:** Stainless Steel  
**Disc Material:** Glass  
**Weight:** 4.8 oz. (420 g) ST/ 15.9 oz. (450 g) MT

### ENVIRONMENTAL

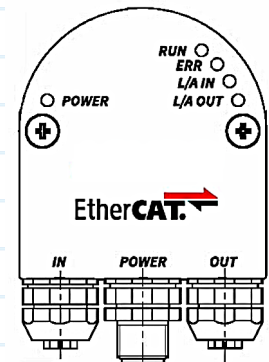
**Operating Temperature:** -40 °C ... +85 °C  
**Storage Temperature:** -40 °C ... +85 °C  
**Shock:** 400g, 4000 m/s<sup>2</sup> (2 ms) (half-sine)  
**Vibration:** 30g, 300 m/s<sup>2</sup> (5 - 500 Hz)  
**Humidity:** Up to 75%, (no condensation allowed)  
**Enclosure Rating:**  
**Housing:** IP65 and IP67  
**Shaft:** IP64 or IP67  
**General Design:** As per DIN EN 61010-1, protection class III, contamination level 2, overvoltage class II

### ELECTRICAL CONNECTIONS

Bus cover with 3x M12 connectors

Pin	BusPort IN	Supply voltage	Bus Port OUT
1	TxD+	UB 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



# HENGSTLER SERIES AI25 EtherCAT®

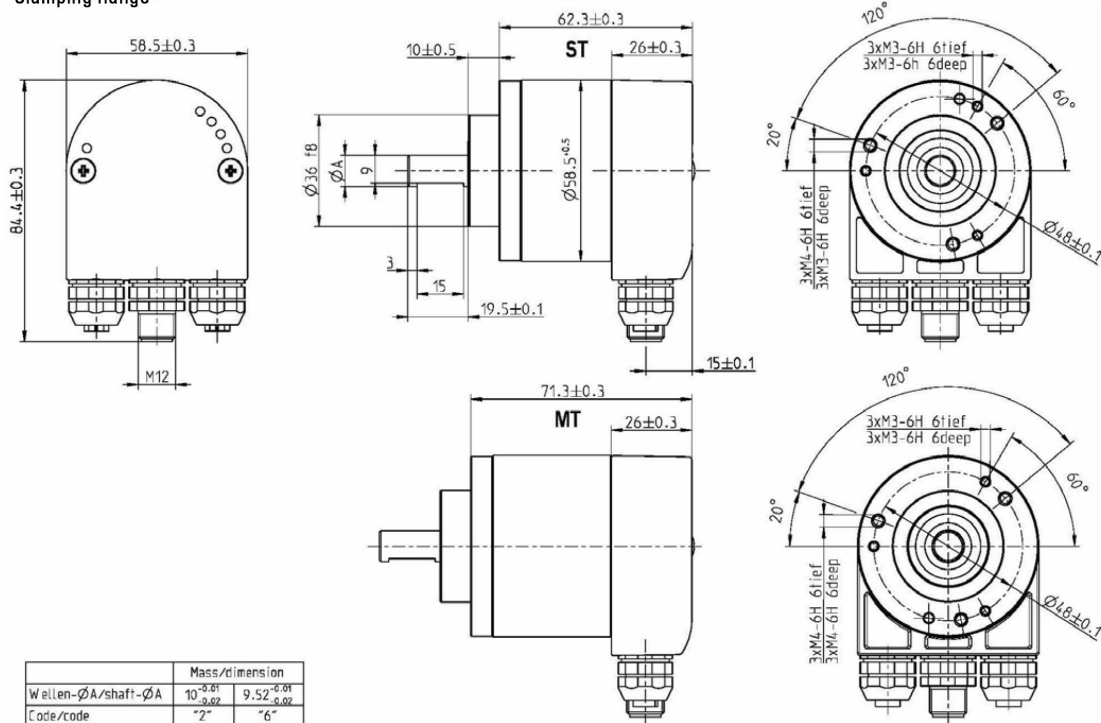
## Ordering Information

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
<b>AI25</b>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>T</b>	<b>3</b>	<b>R</b>
<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 or B, C  <b>1</b> Clamping* <b>2</b> Square Flange**  Available when Code 4 is 3, 4, 5 or 6  <b>3</b> Hubshaft w/ Tether†	<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	<b>T</b> EtherCAT (EC)	<b>3</b> 7-30 VDC	<b>R</b> Bus Cover with 3 M12 Connectors

## DIMENSIONS

Clamping flange



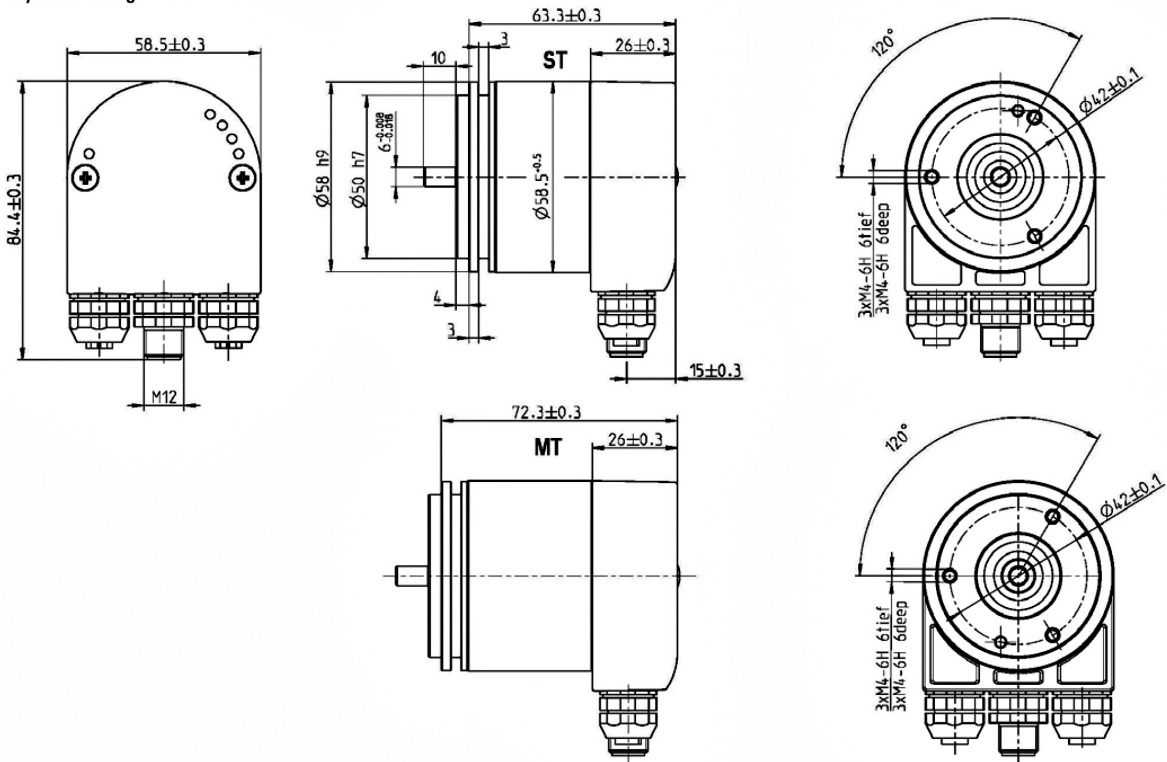
Dimensions in mm

# SERIES AI25 EtherCAT®



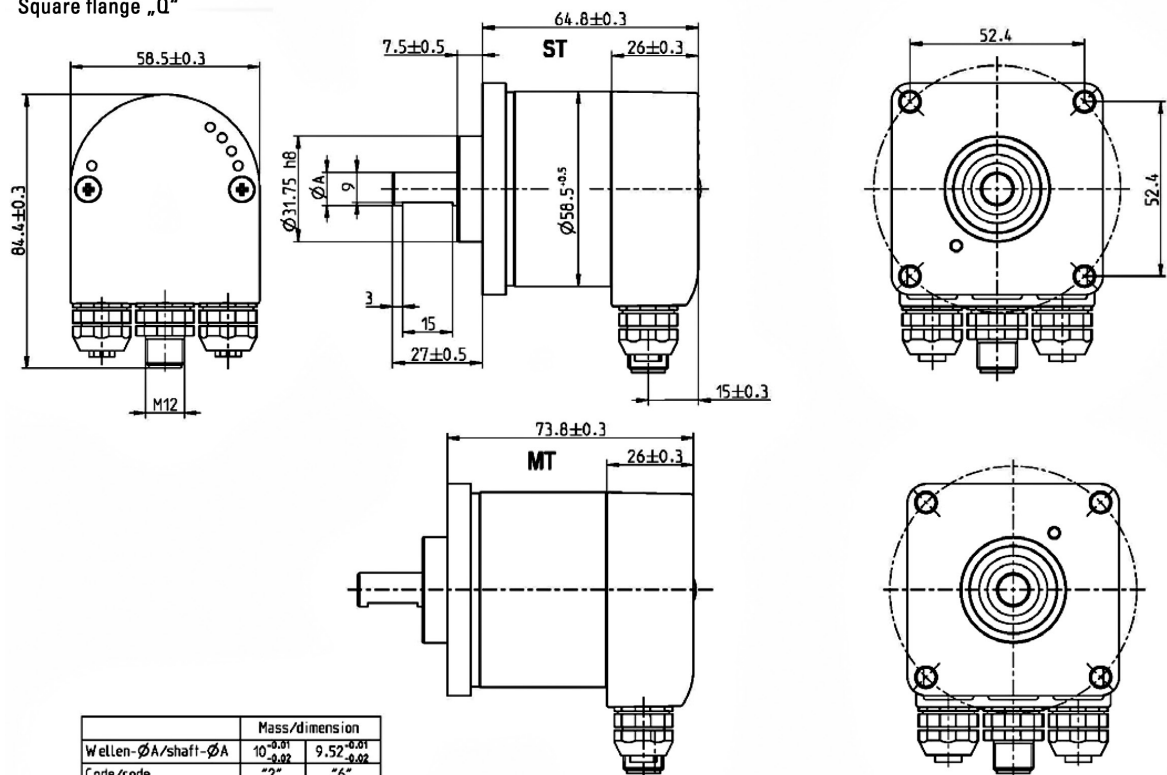
## DIMENSIONS

### Synchro flange



Dimensions in mm

### Square flange „Q“



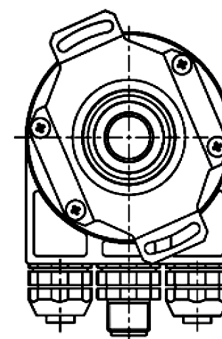
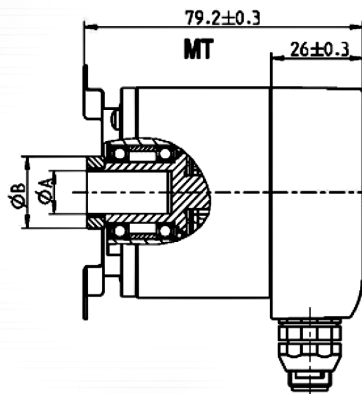
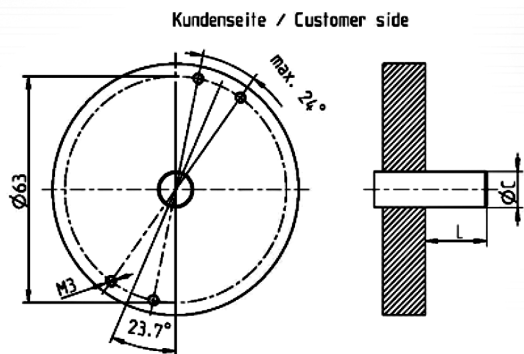
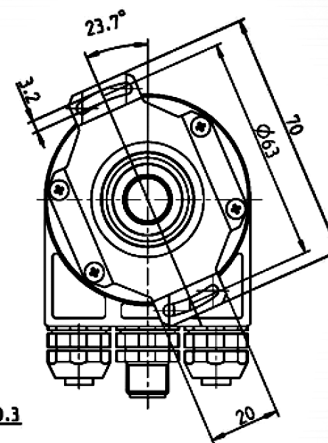
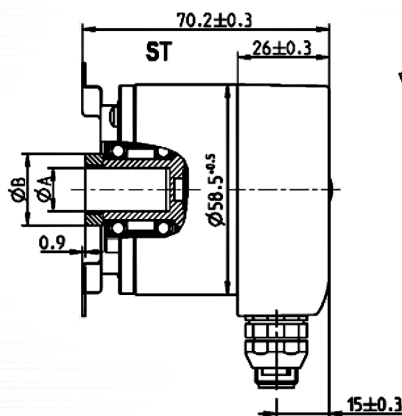
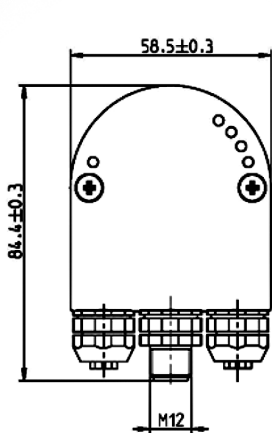
Dimensions in mm

	Mass/dimension	
Wellen-ØA/shaft-ØA	$10^{+0.01}_{-0.02}$	$9.52^{+0.01}_{-0.02}$
Code/code	"2"	"6"

# HENGSTLER

## DIMENSIONS

Hub shaft „F“



	Mass/dimension				Einheit/unit
	10 <sup>+0.012</sup>	12 <sup>+0.012</sup>	9.52 <sup>+0.012</sup>	12.7 <sup>+0.012</sup>	
Hohlwellen-ØA/hollow shaft-ØA	10 <sup>+0.012</sup>	12 <sup>+0.012</sup>	9.52 <sup>+0.012</sup>	12.7 <sup>+0.012</sup>	mm
Anschlusswellen-ØC/connecting shaft-ØC	10 <sup>+0.012</sup>	12 <sup>+0.012</sup>	9.52 <sup>+0.012</sup>	12.7 <sup>+0.012</sup>	mm
Klemmring-ØB/clamping ring-ØB	18	20	18	22	mm
L min.	15	18	15	18	mm
L max.	20	20	20	20	mm
Wellen-Code / shaft code	"2"	"7"	"6"	"E"	

L = Eintauchtiefe der Anschlusswelle in den Geber  
L = Length of customers shaft inside of encoder

Dimensions in mm



WWW.DYNAPAR.COM

Headquarters: 1675 Delany Road • Gurnee, IL 60031-1282 • USA

Worldwide Brands: NorthStar™ • Dynapar™ • Hengstler™ • Harowe™

**Customer Service:**  
Tel.: +1.800.873.8731  
Fax: +1.847.662.4150  
custserv@dynapar.com

**Technical Support**  
Tel.: +1.800.234.8731  
Fax: +1.847.662.4150  
dynapar.techsupport@dynapar.com

**European Sales Representative**  
Hengstler GmbH  
Uhlandstrasse 49, 78554 Aldingen  
Germany  
www.hengstler.com