

HENGSTLER

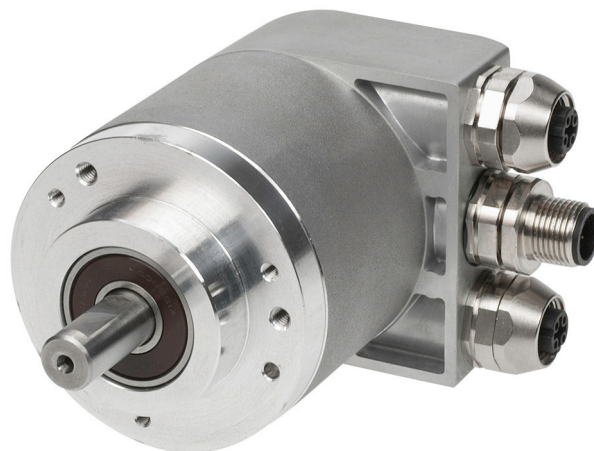
SERIES AI25 EtherCAT®



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 μ 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**



EN 61326-1



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 μ 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): ± 1.5 mm, ± 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. 3.8×10^{-6} kgm²

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/s² (2 ms) (half-sine)

Vibration: 30g, 300 m/s² (5 - 500 Hz)

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

Enclosure Rating:

Housing: IP65 and IP67

Shaft: IP64 or IP67

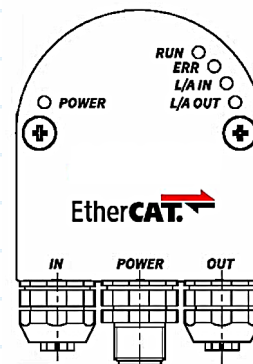
General Design: As per DIN EN 61010-1, protection class III, contamination level 2, overvoltage class II

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 ¹	Shield ¹	Shield ¹

¹Shield connected to encoder housing



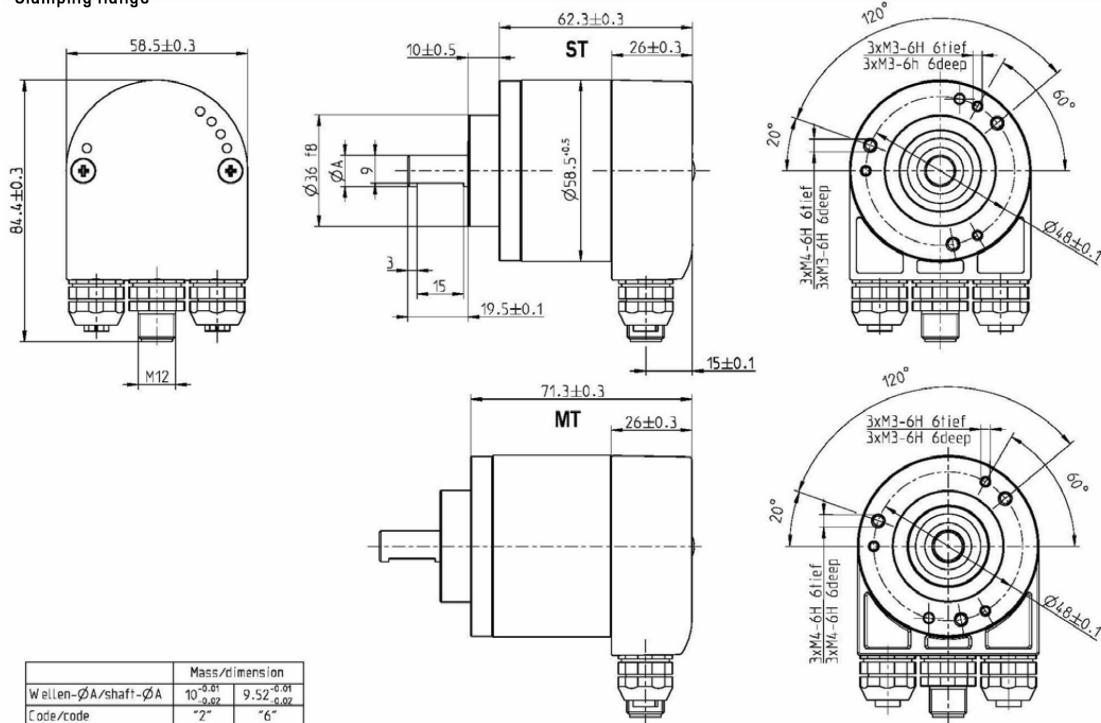
Ordering Information

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				
AI25	□ □ □ □	□	□	T	2	R				
AI25 Size25 Absolute Encoder	0010 10 Bit ST	Available when Code 4 is 0 or A 0 Servo*	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	T EtherCAT (EC)	2 7-30 VDC	R Bus Cover with 3 M12 Connectors				
	0012 12 Bit ST									
	0013 13 Bit ST	Available when Code 4 is 1, 2, 8, 9 or B, C, H and J 1 Clamping*								
	0014 14 Bit ST									
	0016 16 Bit ST									
	0017 17 Bit ST									
	0018 18 Bit ST	Available when Code 4 is 1,2 or B, C 2 Square Flange**								
	0019 19 Bit ST									
	0020 20 Bit ST	Available when Code 4 is 3, 4, 5, 6, 7 or E 3 Hubshaft w/ Tether† * 58mm Dia. ** 2.5" Square † 63mm BC	w/ Shaft Seal (IP67) A 6 mm B 3/8" C 10 mm E 12 mm Hubshaft H 12 mm J 8 mm							
	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									

DIMENSIONS

Clamping flange



Dimensions in mm

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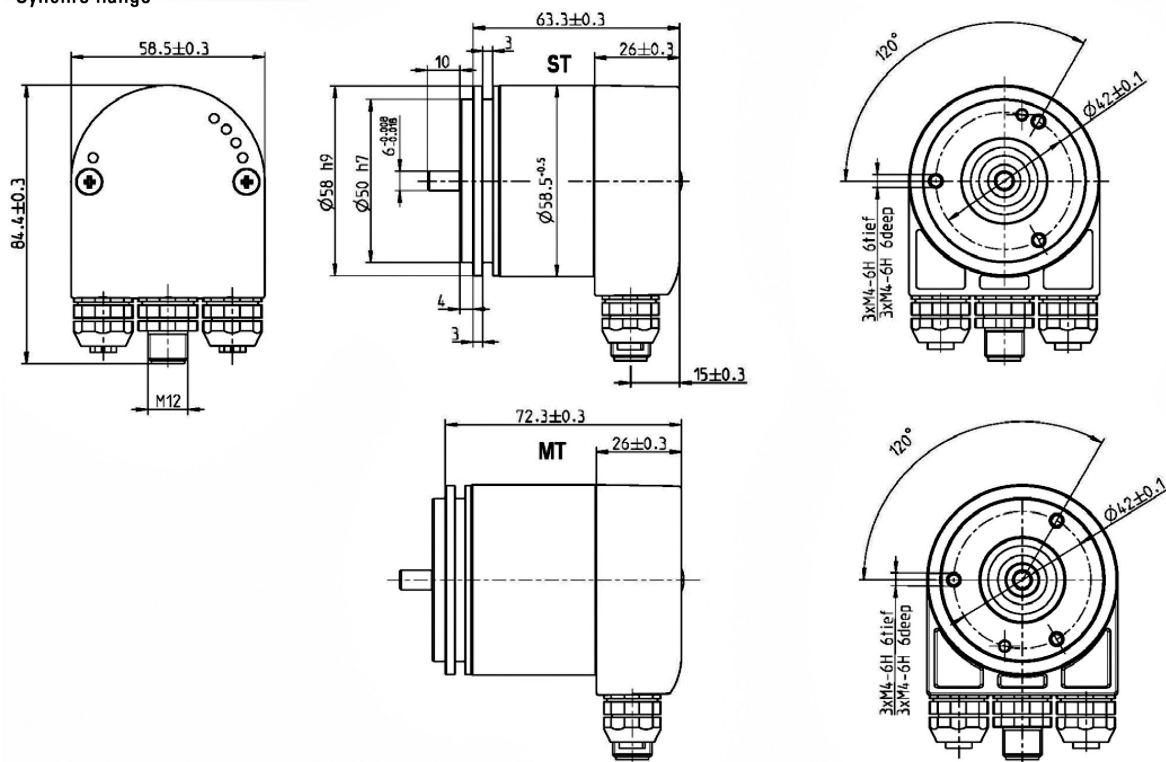
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INDUSTRIAL DUTY



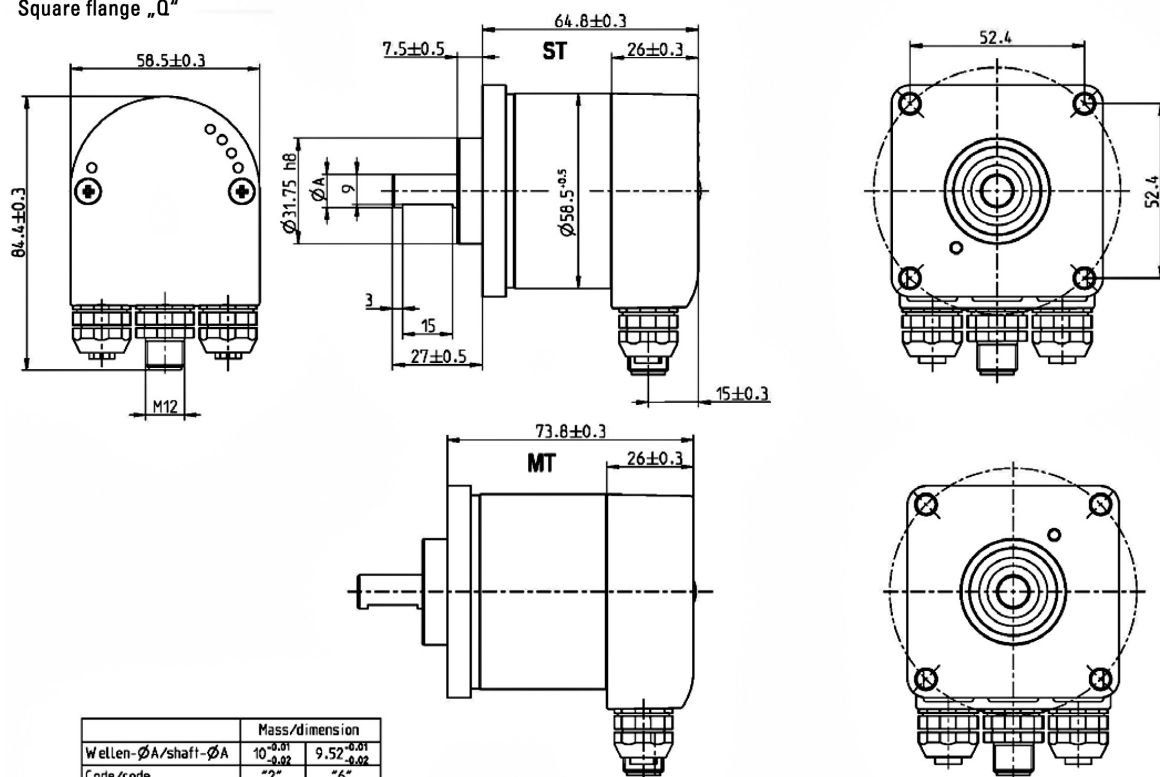
DIMENSIONS

Synchro flange



Dimensions in mm

Square flange „Q“



Dimensions in mm

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

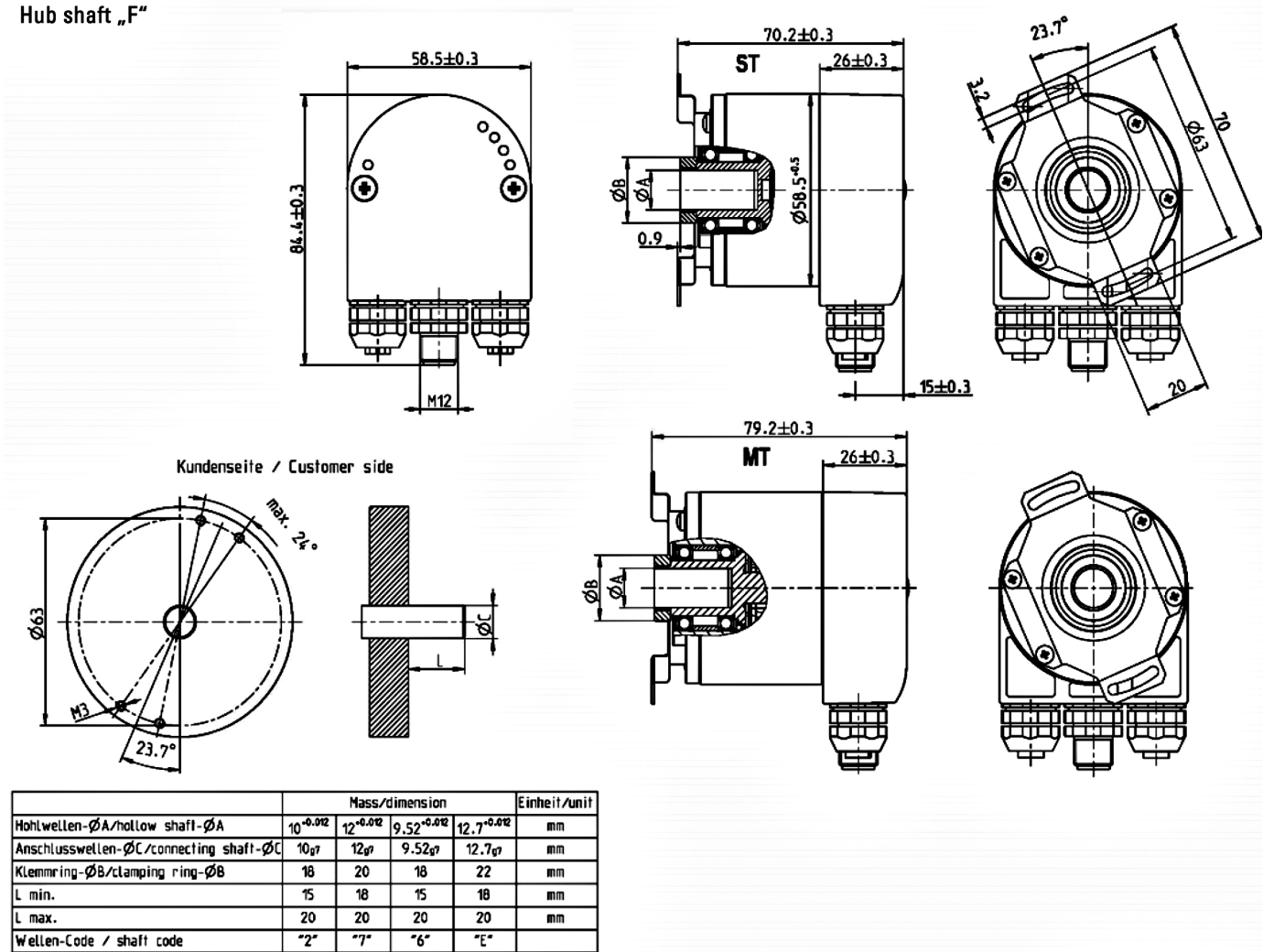
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DIMENSIONS

Hub shaft „F“



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

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