



EtherCAT

Model Number

ES*58-EC

Features

- EtherCAT interface
- Industrial standard housing Ø58 mm
- 30 Bit multiturn
- Two Ethernet connectors with built in hub
- Recessed hollow shaft
- Mechanical compatibility with all major encoders with fieldbus interface
- Status LEDs
- Stainless steel desktop housing available

Description

The ES*58-EC series are high precision rotary encoders with interal optical sampling.

Technical data

General specifications

Detection type	photoelectric sampling
Device type	Multiturn absolute encoder

Electrical specifications

Operating voltage U_B	10 ... 30 V DC , safe galvanic isolation per EN 50178
Power consumption P_0	max. 2.5 W
Linearity	± 0.5 LSB (up to 12 Bit) ± 2 LSB (up to 16 Bit)
Output code	binary code
Code course (counting direction)	programmable, cw ascending (clockwise rotation, code course ascending) cw descending (clockwise rotation, code course descending)

Interface

Interface type	EtherCAT CoE (CANopen over EtherCAT, according to CiA DS-301 and DS-406 device profile CiA)
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Resolution

Single turn	up to 16 Bit
Multiturn	up to 14 Bit
Overall resolution	up to 30 Bit

Physical

Transfer rate	10 MBit/s / 100 MBit/s
Cycle time	$\geq 65 \mu\text{s}$

Connection

Connector	Ethernet: 2 sockets M12 x 1, 4-pin, D-coded Supply: 1 plug M12 x 1, 4-pin, A-coded
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Standard conformity

Degree of protection	DIN EN 60529, shaft side: IP65 (without shaft seal)/ IP66/67 (with shaft seal) housing side: IP66/67 Stainless steel version (INOX): completely IP66/67
Climatic testing	DIN EN 60068-2-3, no moisture condensation
Emitted interference	EN 61000-6-4:2007
Noise immunity	EN 61000-6-2:2005
Shock resistance	DIN EN 60068-2-27, 100 g, 6 ms
Vibration resistance	DIN EN 60068-2-6, 10 g, 10 ... 1000 Hz

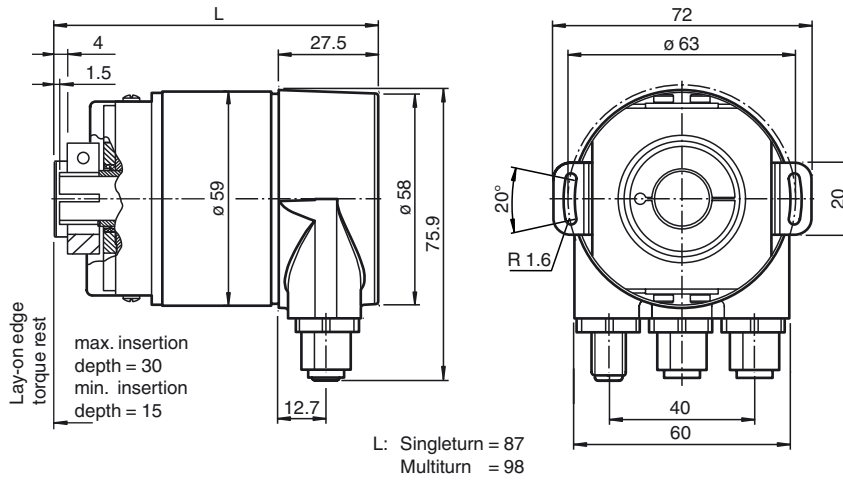
Ambient conditions

Operating temperature	-40 ... 85 °C (-40 ... 185 °F)
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)
Relative humidity	98 % , no moisture condensation

Mechanical specifications

Material	
Combination 1	housing: powder coated aluminum flange: aluminum shaft: stainless steel
Combination 2 (Inox)	housing: stainless steel 1.4305 / AISI 303 flange: stainless steel 1.4301 / AISI 304 shaft: stainless steel 1.4305 / AISI 303
Mass	approx. 370 g (combination 1) approx. 840 g (combination 2)
Rotational speed	max. 12000 min ⁻¹
Moment of inertia	30 gcm ²
Starting torque	≤ 3 Ncm (version without shaft seal)
Shaft load	
Angle offset	$\pm 0.9^\circ$
Axial offset	static: ± 0.3 mm, dynamic: ± 0.1 mm
Radial offset	static: ± 0.5 mm, dynamic: ± 0.2 mm

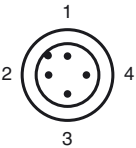
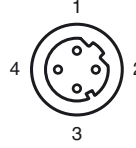
Dimensions



Release date: 2015-12-15 16:32 Date of issue: 2016-01-26 t179021_eng.xml

Electrical connection

Pin	Male connector M12 x 1, 4-pin, A-coded	Female connector M12 x 1, 4-pin, D-coded
1	Supply voltage +U _B	Tx +
2	-	Rx +
3	0 V	Tx -
4	-	Rx -

	
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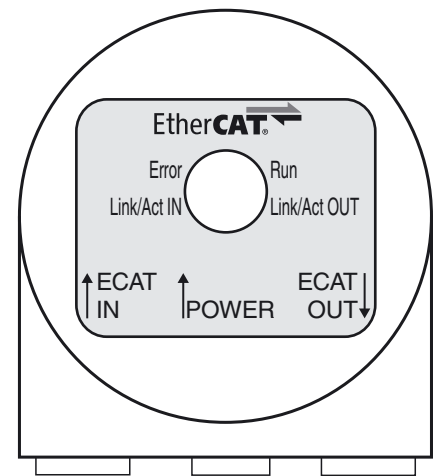
Indicators

Port LEDs

LED	Color	Status	Description
Link/Act IN	green	on	LINK active for HUB port 1
		blinking	Activity on HUB port 1
Link/Act OUT	green	on	LINK active for HUB port 2
		blinking	Activity on HUB port 2

EtherCAT LEDs

LED	Color	Status	Description
Error	red	off	no error
		blinking	invalid configuration
		single flash	local error
		double flash	process data watchdog timeout/ EtherCAT watchdog timeout
		flickering	booting error
		on	application failure
Run	green	off	initialization
		blinking	Pre-Operational
		single flash	Safe-Operational
		flickering	initialization or bootstrap
		on	Operational



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Order code

E S 5 8 - - - E C R 0 B N - - -

Number of bits singleturn

13 8192 (standard)

16 65536

Number of bits multiturn

00 Singleturn devices

12 4096 (standard)

14 16384

Temp.

N normal

Output code

B binary

Option

0 none

Exit position

R radial

Connection type / protocol

EC CoE (CANopen over EtherCAT), 2 female connectors/
1 male connector, M12 x 1

Shaft dimensions

F1A Recessed hollow shaft Ø10 mm x 30 mm

F2A Recessed hollow shaft Ø12 mm x 30 mm

F3A Recessed hollow shaft Ø15 mm x 30 mm

Housing material

N Aluminium, powder coated

W Aluminium, powder coated with shaft seal

I Stainless steel

Function principle

M Multiturn

S Singleturn

Shaft version

S Recessed hollow shaft

Data format

E Ethernet