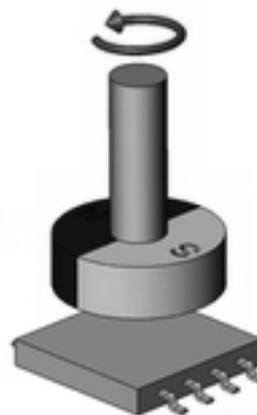


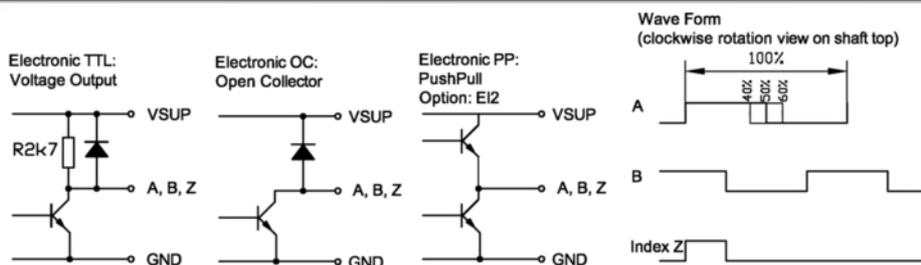
Series ENI28 - EcoTurn® - Contactless, programmable angle sensors with incremental output, housing Ø28mm

- Contactless sensor technology (hall effect)
- 360° output range
- Low-priced rugged plastic housing Ø28mm
- 3 housing types: bushing, flange and kit-version
- Encapsulated electronic
- Revolution 1...128, 256, 512, 1024
- With several actuating torques (bushing version)
- Long life time due to polymer sleeve bearing or sinter bronze bearing
- Supply voltage 5 VDC, 9-30 VDC
- Signal characteristics programmable from factory
- Numerous mechanical and electrical options



ENI28B - Bushing-Version	ENI28F - Flange-Version	ENI28K - Kit-Version
		

Output and Flanks



Electrical Data

Pulses per revolution	1-128, 256, 412, 1024 ppr
Output channels	A, B, Z
Frequency response	500 kHz
Supply voltage / output signal	4,5-5,5 VDC / 9-30 VDC
Supply current (without load)	30 mA
Source and sink current	± 30 mA

Series ENI28 - EcoTurn® - Contactless, programmable angle sensors with incremental output, housing Ø28mm

Options and Order Description Bushing Version

Description	Basic Type				Options							
	ENI28B											
EcoTurn with incremental output, 28mm housing, bushing version	ENI28B											
Bushing M10 / Shaft Ø 6mm Bushing 3/8" / Shaft Ø 6,35mm		1 3										
Pulses per rotation (further pls. see option EA1)			1024									
Supply voltage / Output signal: 5V ±10% / TTL 5V / Open Collector 9-30V / Open Collector 24V / Push Pull					05 BZ TTL 05 BZ OC 24 BZ OC 24 BZ PP							
Zero point orientation (index) * Shaft flattening adjusted at anti rotation pin						N						
Polymer sleeve bearing (not with option D) * (only with bushing M10 /shaft Ø 6mm = mounting B1)							P					
Torque: LT - smooth running grease (standard) MT - special grease (basic type with stop)								LT MT				
Sealing ring IP65 (not with option P) *									D			
Shaft length [mm] (Standard 22 mm)										Axx		
Cable length [m] (Standard 0,15m)											CVxx	
Example Basic Type	EN28B	2	1024	05 BZ TTL				LT				
EcoTurn with incremental output, 28mm housing, 9mm bushing and 6mm shaft, 1024 pulses, supply voltage 5V, TTL-output, low torque.												
Example with Options	ENI28B	2	512	05 BZ TTL	N	P	LT	-	A30	CV0,1		
EcoTurn with incremental output, 28mm housing, 9mm bushing and 6mm shaft, 512 pulses, supply voltage 5V, TTL-output, zero point, polymer sleeve bearing, low torque, shaft length 30mm, cable length 0,1m												
*) Please note the explanation concerning the order options on the next page.												

Please note before order

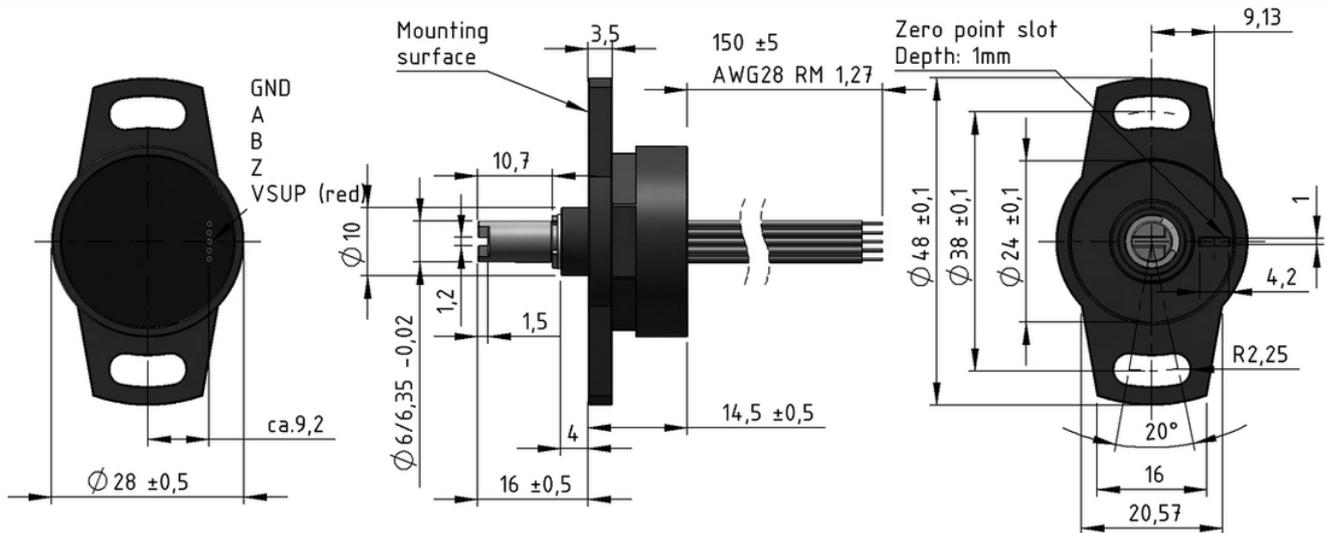
The mechanical zero point is adjusted when the shaft flattening is in direction of the anti rotation pin (bushing version) or with the zero score (flange version).

At the base type without stop there is no alignment between electrical and mechanical angle. The option "N" assigns the electrical zero position (minimum signal level) to the mechanical zero position. You also can specify an offset value (please refer to the standard option E2).

The option D (sealing ring) AND the polymer sleeve bearing are available only on special request.

Series ENI28 - EcoTurn® - Contactless, programmable angle sensors
with incremental output, housing $\varnothing 28\text{mm}$

ENI28F Flange Version



ENI28F	Mechanical Data	
	Maximum rotational speed	4000 rpm
	Life time with polymer sleeve bearing	25 Mio. turns (dependent on application) tested at room temperature, with radial load 1N
	Operating torque	0,2 - 0,6 Ncm

ENI28F	Other Data	
	Protection class electronic	IP65 (electronic and cable generally encapsulated)
	Operating temperature	-40 ... +85 °C fixed cable (please ask for other temperature)
	Storage temperature	-40 ... +90 °C
	Bearing	Sinter bronze bearing
	Housing material	fiberglass reinforced polyamid (Nylon 66/30% GF)
	Shaft material	stainless steel
	Weight	ca. 20 g

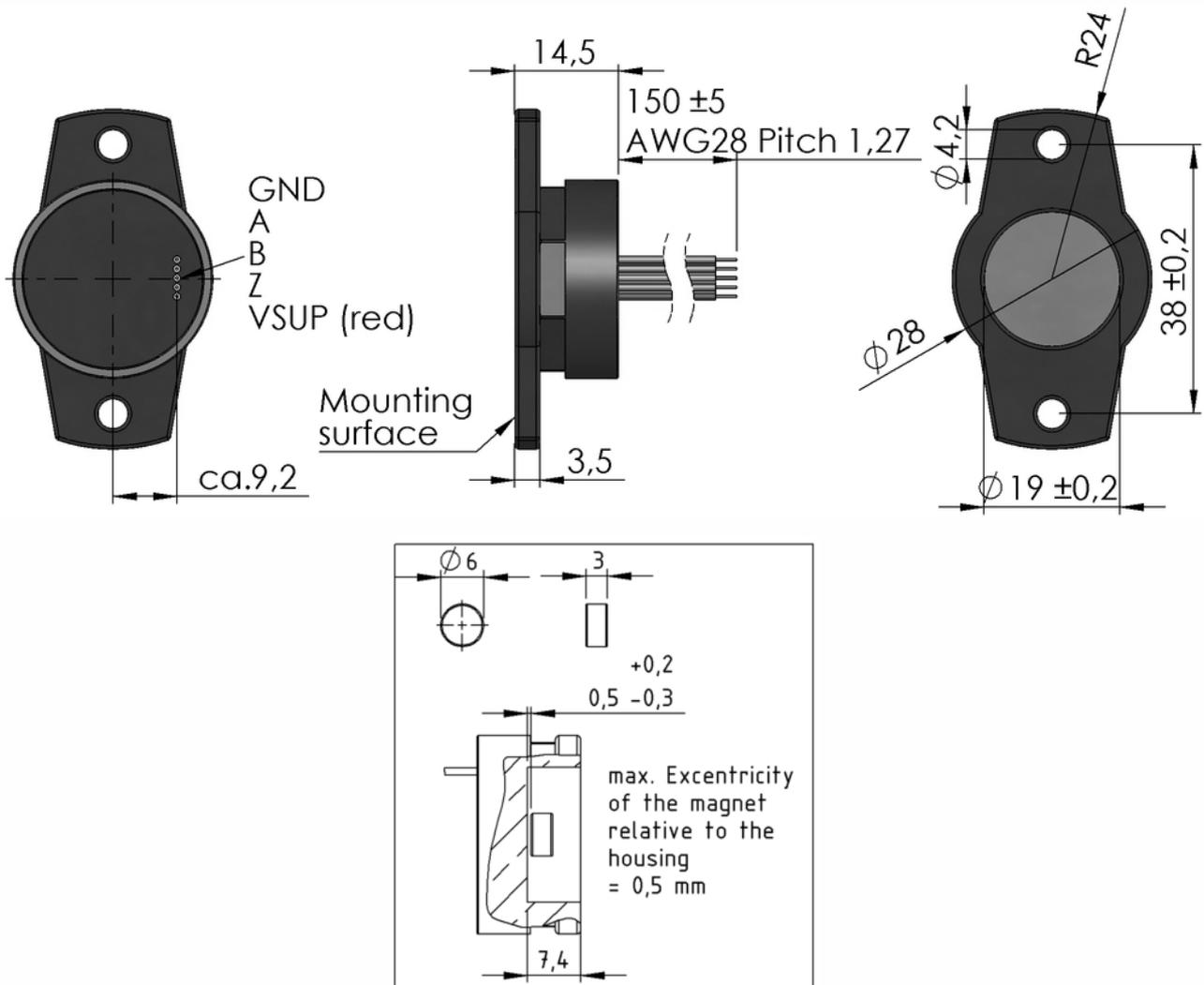
Series ENI28 - EcoTurn® - Contactless, programmable angle sensors with incremental output, housing Ø28mm

Options and Order Description Flange Version

Description	Basic Type				Options		
EcoTurn with incremental output, 28mm housing, flange version	ENI28F						
Mounting Flange, shaft Ø 6mm		1					
Mounting Flange, shaft Ø 6,35mm with sinter bronze bearing		2					
Pulses per rotation (further pls. see option EA1)			1024				
Supply voltage / Output signal: 5V ± 10% / TTL 5V / Open Collector 9-30V / Open Collector 24V / Push Pull				05 BZ TTL 05 BZ OC 24 BZ OC 24 BZ PP			
Zero point orientation (index) * Shaft flattening adjusted at zero-point groove signal 0					N		
Shaft length [mm] (Standard 16 mm)						Axx	
Cable length [m] (Standard 0,15m)							CVxx
Example Basic Type	ENI28F	1	1024	05 BZ OC			
EcoTurn with incremental output, 28mm housing, with flange and 6mm shaft diameter, 1024 ppr, supply voltage 5V, output open collector.							
Example with Options	ENI28F	1	512	05 BZ OC	N	A18	CV0,2
EcoTurn with incremental output, 28mm housing, flange mounting, 6mm shaft diameter, 512 ppr, supply voltage 5V, output open collector, zero point orientation, shaft length 18mm, cable length 0,2m							
*) Please note the explanation concerning the order options on page 4.							

Series ENI28 - EcoTurn® - Contactless, programmable angle sensors with incremental output, housing $\varnothing 28\text{mm}$

ENI28K Kit-Version



If the shaft is magnetical, the distance between magnet and shaft should be ≥ 1 mm

ENI28K	Other Data	
	Protection class	IP65 (electronic and cable generally encapsulated)
	Operating temperature	-40 ... +85 °C fixed cable (please ask for other temperature)
	Storage temperature	-40 ... +105 °C
	Housing material	fiberglass reinforced polyamid (Nylon66/30% GF)
	Weight	approx. 20 g

Series ENI28 - EcoTurn® - Contactless, programmable angle sensors with incremental output, housing Ø28mm

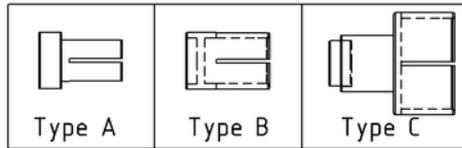
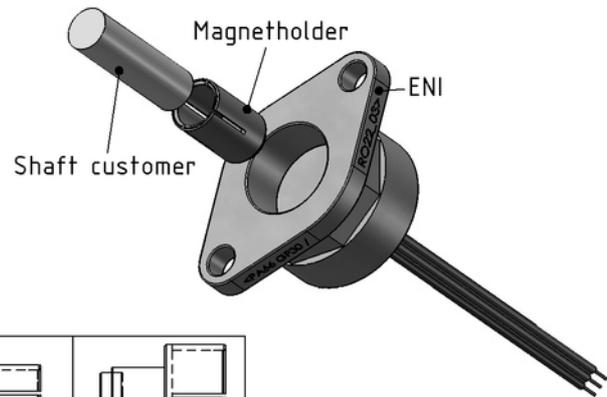
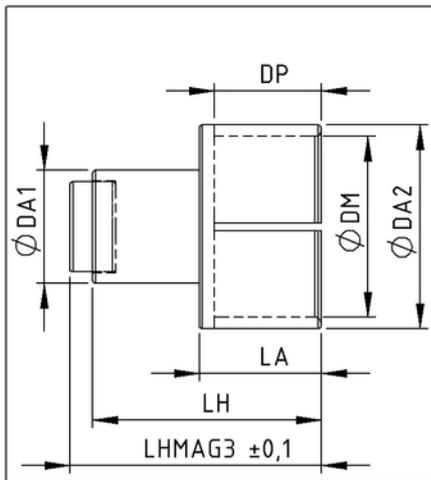
Options and Order Description Kit Version

Description	Basic Type			Options
EcoTurn with incremental output, 28mm housing, kit-version	ENI28K			
Pulses per rotation (further pls. see option EA1)		1024		
Supply voltage / Output signal: 5V ± 10% / TTL 5V / Open Collector 9-30V / Open Collector 24V / Push Pull			05 BZ TTL 05 BZ OC 24 BZ OC 24 BZ PP	
Cable length [m] (Standard 0,15m)				CVxx
Example Basic Type	ENI28K	1024	05 BZ OC	
EcoTurn with incremental output, 28mm housing, kit-mounting, 1024 ppr, supply voltage 5V, output open collector.				
Example with Options	ENI28K	60	05 BZ OC	CV0,2
EcoTurn with incremental output, 28mm housing, kit-mounting, 60 ppr, supply voltage 5V, output open collector, cable length 0,2m				
*) Please note the explanation concerning the order options on page 4.				

Series ENI28 - EcoTurn® - Contactless, programmable angle sensors with incremental output, housing Ø28mm

Accessories to Kit-Version:

Push on magnet holder



Type	DM	DA1	DA2	LH	LA	DP	LHMAG3 analog standard	Ø Shaft (h9)
A	3	7,5	4,5	11	---	8,5	12,5	3 +0/-0,030
	3,175	7,5	4,5	11	---	8,5	12,5	3,175 +0/-0,030
	4	7,5	5,5	11	---	8,5	12,5	4 +0/-0,030
B	6	7,5	7,5	11	---	8,5	12,5	6 +0/-0,030
	6,35	7,5	7,5	11	---	8,5	12,5	6,35 +0/-0,036
	8	9,5	9,5	11	---	8,5	12,5	8 +0/-0,036
	10	11,5	11,5	11	---	8,5	12,5	10 +0/-0,036
C	12	7,5	13,5	15	8	7	16,5	12 +0/-0,043

If the shaft is magnetical, in case of Type B the distance between magnet and shaft has to be ≥ 1 mm

Order Description Magnet Holder

Push-On Type DM.. * MAG6x3

*) available shaft diameters pls. see table above

Overview of all options (Bushing, Flange and Kit-Version)

Mechanical Standard Options low price, short delivery time

Endstop 90°, 180°, 270° (Bushing-Version only)	SCW
Zero point orientation (offset 0°) (not for Kit-Version)	N
Low torque by smooth-running grease (Bushing-Version only): Low Torque	LT
Increased torque by special grease (Bushing-Version only): Medium Torque	MT
Increased torque by high viscosity grease (Bushing-Version only): High Torque	HT
Sealed shaft IP65 (bushing version only, not with polymer bearing)	D
Shaft length from mounting surface	A..
Extended cable, axial	CV...
Polymer sleeve bearing (only Bushing-Version: M10 / shaft Ø6mm)	P

Series ENI28 - EcoTurn® - Contactless, programmable angle sensors with incremental output, housing Ø28mm

Mechanical Special Options (MS) possible options, additional tooling fee, increased delivery time

Without anti rotation pin (for bushing version only)	MS1
Other stop than 90° / 180° / 270° / 320°	MS2
Special shaft shape	MS3
Special shape of housing and mounting	MS4
Metal cap for magnetic protection	MS5
Special cable: round cable, connector or anything else	MS6
Special bushing: shape, diameter	MS7

Electrical Standad Options (EI) Electrical or programmable options to basic type, low price, short delivery time

Different Number of Pulses (Standard = 1024 ppr) As a unique feature any number of pulses from 1 - 128 pulses per revolution (ppr) can be programmed in a 3 channel configuration. Above 128 ppr the following resolutions are possible as standard option: 256, 512 ppr.	EI1
Push - Pull Function In an open collector mode the driver current is limited by pull up resistor. In push - pull mode the driver current goes up to 300 mA. Longer distances and faster switching is possible.	EI2
Output of the absolute position After switching on of the EcoTurn supply voltage the absolute position is measured and the encoder generates the number of pulses accordingly. Afterwards the behaviour of the encoder is like a standard incremental encoder. That means the absolute position is transmitted instantly after power on and there is no need to drive to the home position. But please take care that the external counter is switched on before the encoder.	EI3
Z - Point Positioning (= Option N) It is possible to position the Z Pulse in line with the marking on the shaft and the bushing. Also any offset to this marking is possible.	EI5
Inverted Signals The channels A and B can be inverted or not inverted independent of each other. The basic type is not inverted.	EI6

All the specifications and information in this data sheet can not consider the special demands that are caused by the application. Because of this, they are no general description of the properties of the product. The lifetime specification was testet under room temperature, without o-ring.

Please find the exact specifications of the output signals in the datasheets of Melexis. (Application note MLX90316): www.melexis.com

2012 February 16. All specifications are subject to change without notice.