

## Description

Topydic series shaft incremental encoder EV50A, with double-bearing and casting housing, has excellent performance to resist mechanical shocks and can be used in various industrial environments; being compatible with standard flange types-50 mm and 58 mm, it can meet different application requirements; its wide voltage range, reverse connection and short circuit protection can effectively avoid mis-wiring.

## Features

- Resolution up to 5000 ppr; pulse frequency up to 300 kHz
- Hollow shaft diameter,  $\varnothing 6 - \varnothing 12$  mm
- Compatible with standard flange types-50 mm and 58 mm
- $\varnothing 50$  mm metal casting housing for limited installation space
- Operating temperature,  $-40 \dots +85$  °C; IP67 protection class for outdoors application
- Multi signal output interfaces to meet different types of data acquisition of upper computer
- Optional output types-with cable, M12 connector and M23 connector
- Reverse connection and short circuit protection to ensure the safety<sup>1)</sup>

## Mechanical Parameters

Shaft diameter	$\varnothing 6, \varnothing 8, \varnothing 10, \varnothing 12, \varnothing 1/4", \varnothing 3/8"$
Protection class	IP65 (without oil seal), IP67 (withoil seal)
Speed	12000 rpm (without oil seal), 6000 rpm (with oil seal)
Max. load capacity of the shaft	40 N axial, 80 N radial
Shock resistance	50 G/ 11 ms
Vibration resistance	10 G 10 ... 2000 HZ
Bearing life	$10^9$ revolution
Moment of inertia	$1.9 \times 10^{-6}$ kgm <sup>2</sup>
Starting torque	< 0.01 Nm (IP65), < 0.05 Nm (IP67)
Body material	Al-alloy
Housing material	Al-alloy
Operating temperature	$-40 \dots +85$ °C
Storage temperature	$-45 \dots +90$ °C
Relative humidity / condensation	90%, condensation not permitted
Weight	Approx. 400 g

Resolution: 100, 200, 300, 360, 400, 500, 512, 600, 800, 1000, 1024, 1200, 1250, 2000, 2048, 2500, 3600, 4096, 5000

Attention: the products with above resolutions are available from stock, others on request.

## Electrical Parameters

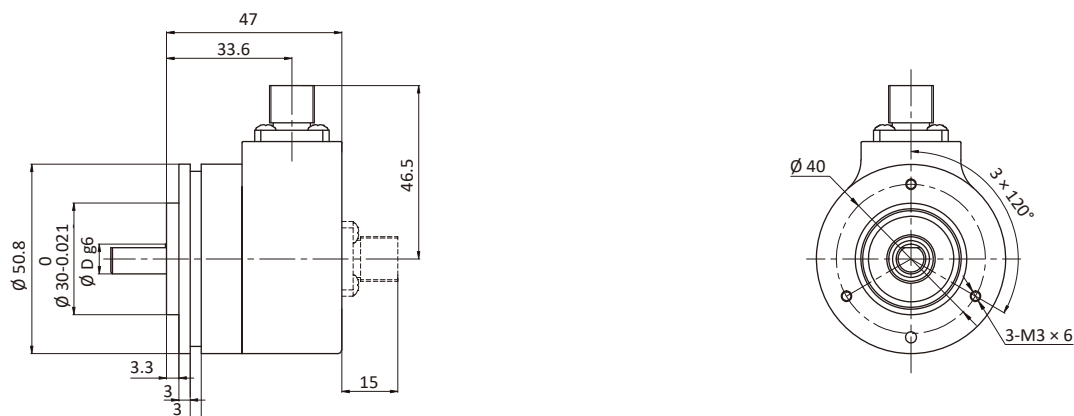
Output circuit	RS422	Push-pull
Supply voltage	5±0.25 or 10 ... 30 V DC	10 ... 30 V DC
Power consumption (no load)	typ. 40 mA	typ. 50 mA
	max. 90 mA	max. 100 mA
Permissible load (channel)	max. ±20 mA	max. ±30 mA
Pulse frequency	max. 300 kHz	max. 300 kHz
Signal level high	min. 2.5 V	min. $U_b - 1$ V
Signal level low	max. 0.5 V	max. 0.5 V
Rise time $T_r$	max. 200 ns	max. 1 $\mu$ s
Fall time $T_f$	max. 200 ns	max. 1 $\mu$ s

## Terminal Configuration

Signal	0 V	+ $U_b$	A	$\bar{A}$	B	$\bar{B}$	Z	$\bar{Z}$	Shield
Color Code	WH	BN	GN	YE	GY	PK	BU	RD	$\perp$
Pin (12-pin)	10	12	5	6	8	1	3	4	PH
Pin (5-pin)	1	2	3	-	4	-	5	-	PH
Pin (8-pin)	1	2	3	4	5	6	7	8	PH

## Dimensions (mm)

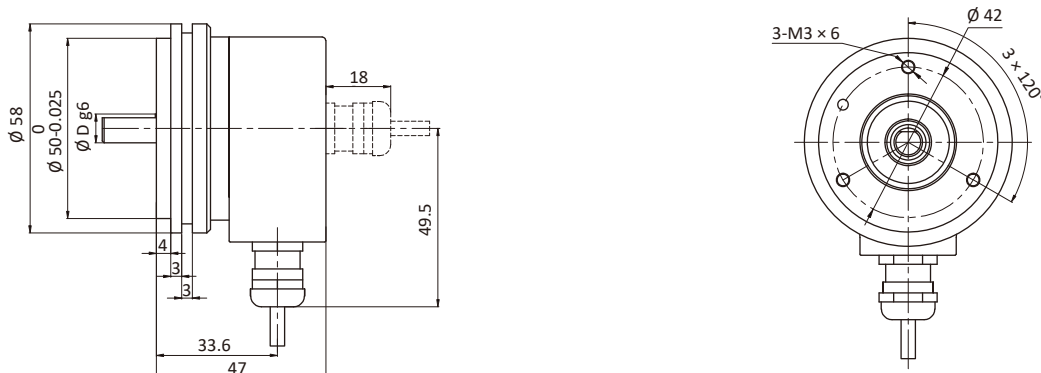
EV50A



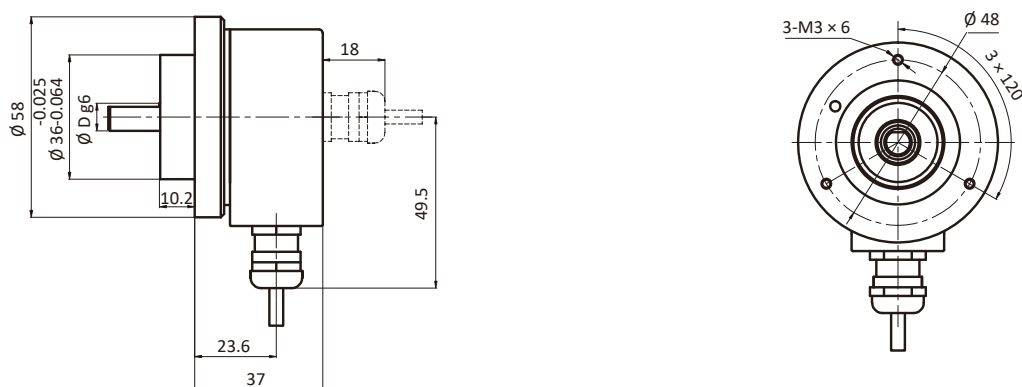
# Topydic Series Shaft Incremental EV50A

## Dimensions (mm)

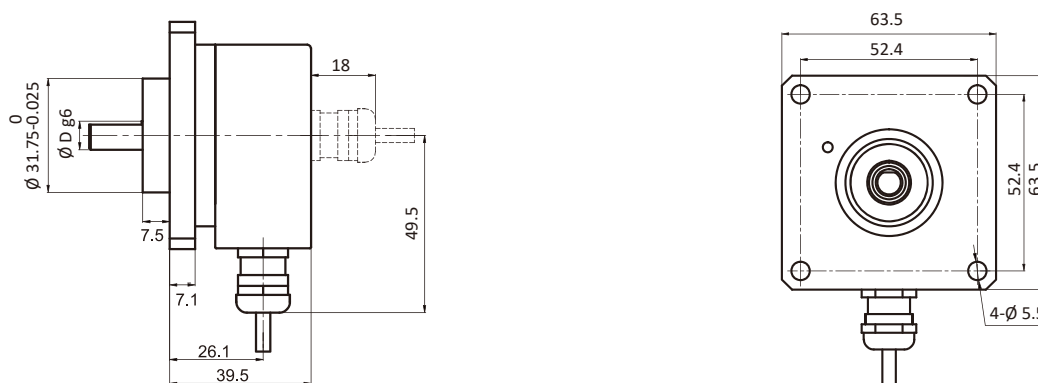
EV50B



EV50C



EV50D



# Topydic Series Shaft Incremental EV50A

## Order Code

<b>EV</b>	<b>50</b>	<b>B</b>	<b>6</b>	<b>-</b>	<b>L5</b>	<b>P</b>	<b>R</b>	<b>-</b>	<b>1024</b>	<b>XX</b>	<b>.XXXX</b>
<b>Special code</b>											
Customized cable length CN00XX = cable length e.g. CN0010 = 1 m CN0020 = 2 m											
<b>Optional functions</b>											
M5 = M12, 5-pin plug without connector M8 = M12, 8-pin plug without connector T = M23, 12-pin plug without connector (for other cable length, it's on request)											
<b>Resolution</b>											
Pulse/r: ≤ 5000											
<b>Shaft diameter</b>											
6 = ∅ 6 mm × 10 mm 7 = ∅ 1/4" × 5/8" 8 = ∅ 8 mm × 15 mm 9 = ∅ 3/8" × 5/8" 10 = ∅ 10 mm × 20 mm 12 = ∅ 12 mm × 20 mm (8R, 9R, 10R, 12R = IP67)											
<b>Flange type</b>											
A = ∅ 50.8 synchro flange B = ∅ 58 synchro flange C = ∅ 58 clamping flange D = ∅ 63.5 synchro flange											
<b>Outlets direction</b>											
R = radial A = axial											
<b>Standard cable length</b>											
P = 1.5 m											
<b>Encoder output &amp; power supply <sup>1)</sup></b>											
<b>Housing diameter</b>											
50 = housing diameter											
<b>Series</b>											
EV = Topydic incremental											
						L5 = RS422 (with inverted signal)			5 V DC		
						L6 = RS422 (with inverted signal)			10 ... 30 V DC		
						H6 = Push-pull HTL (with inverted signal)			10 ... 30 V DC		
						P6 = Push-pull HTL (without inverted signal)			10 ... 30 V DC		

<sup>1)</sup>

When the voltage supply within the limited range and only one signal channel is connected improperly at certain moment:  
if  $U_b = 5\text{ V}$ , it's permitted to connect to signal channels, 0 V or  $U_b$ ;  
if  $U_b > 5\text{ V}$ , it's permitted to connect to signal channels or 0 V.

## Top View of Pin Plug

Connector type	5-pin M12 Connector	8-pin M12 Connector	12-pin M23 Connector	5-pin M12 Connector	8-pin M12 Connector
Pin plug					
Matched connector	M125PSF-0020-W 5-core pre-molded connector with 2m PUR cable	M128PSF-0020-W 8-core pre-molded connector with 2m PUR cable	TMSP1612F Fielsc attachable connector	TMSP125PF Fielsc attachable connector	TMSP128PF Fielsc attachable connector