

ABSOLUTE ROTARY ENCODER MULTI-TURN BIT PARALLEL



Main Features

- Compact and heavy-duty industrial model
- Interface: Bit-parallel, push pull
- Short circuit proof
- Housing: 58 mm Ø
- Shaft: 6 or 10 mm Ø
- Resolution: Max. 25 Bit = 33,554,432 steps over 4,096 revolutions
- Code: Gray
- EMC: EN 50 081-2, EN 61000-6-2, CE

Applications

- Sensing of
- Angles
- Distances
- Tracks
- Inclinations
- Differences between two or more axes

Mechanical Structure

- Flange and housing of Aluminum
- Shaft of stainless steel
- Precision ball bearings with sealing or cover rings
- Code disc made of unbreakable and durable plastic

Electrical Features

- Temperature insensitive IR-Opto-receiver-array
- Only one IR-Transmitter-diode per Opto-array
- Highly integrated circuit in SMD-Technology
- Polarity inversion protection
- Over-voltage-peak protection

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Technical Data

Electrical Data

Outputs	Bit-parallel, push pull
Output current	Max. 20 mA each channel
Step frequency LSB	Max. 100 kHz (valid code)
Accuracy of division	$\pm \frac{1}{2}$ LSB
EMC	Certified according to EN 50 081-2, EN 61000-6-2
Supply voltage	10-30 V DC (absolute limits)
Current consumption	~150 mA
Electrical lifetime	$> 10^5$ h
Connection	Connector or cable, 1 meter long

Mechanical Data

Housing	Aluminum	
Lifetime	$> 10^5$ h at 1,000 rpm	
Inertia of rotor	$\approx 50 \text{ gcm}^2$	
RPM	Max. 6,000 (continuously)	
Shock (EN 60068-2-27)	$\leq 30 \text{ g}$ (halfsine, 11 ms)	
Permanent shock (EN 60028-2-29)	$\leq 10 \text{ g}$ (halfsine, 16 ms)	
Vibration (EN 60068-2-6)	$\leq 10 \text{ g}$ (10 Hz ... 1,000 Hz)	
Weight, multi-turn	$\approx 380 \text{ g}$	
Shaft loading	Axial 20 N, radial 110 N	
Friction torque	$\leq 5 \text{ Ncm}$	
Flange	Synchro (Y)	Clamp (F), synchro (Z)
Shaft diameter	6 mm	10 mm
Shaft length	10 mm	20 mm

Environmental Conditions

Operating temperature	- 30 ... + 70 °C
Storage temperature	- 40 ... + 85 °C
Humidity	98 % (without liquid state)
Protection class (EN 60529)	
Casing side	IP 65
Shaft side	IP 65 up to 0.5 bar

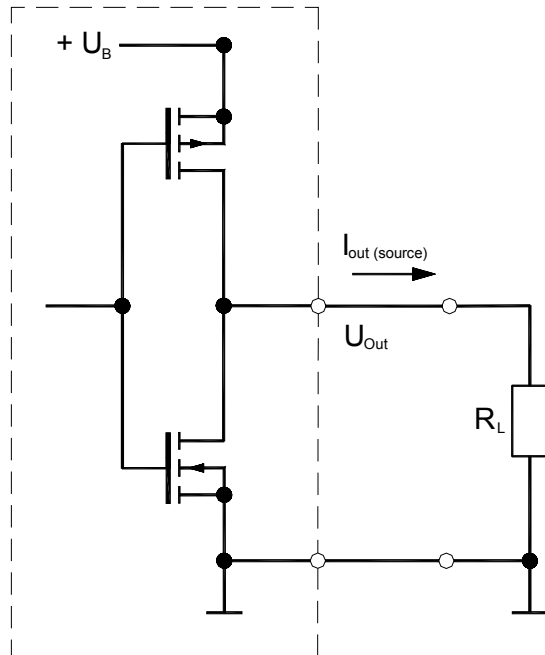
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Interface

Bit-Parallel Interface (Push Pull)

Transmission	Data transmission via two transistors in push-pull circuit
Transfer	Transfer distance up to 50 m
Shielded lines	Shielded lines are essential to attain extremely high noise immunity
Connectable	Connectable to all usual PLC concepts with digital I/Os

Output circuit



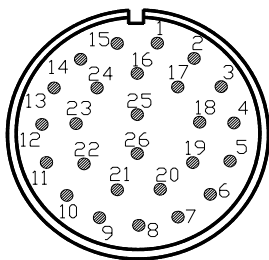
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Electrical Interface

Signals	26 Pin Connector Pin
Bit 1	1
Bit 2	2
Bit 3	3
Bit 4	4
Bit 5	5
Bit 6	6
Bit 7	7
Bit 8	8
Bit 9	9
Bit 10	10
Bit 11	11
Bit 12	12
Bit 13	13

Signals	26 Pin Connector Pin
Bit 14	14
Bit 15	15
Bit 16	16
Bit 17	17
Bit 18	18
Bit 19	19
Bit 20	20
Bit 21	21
Bit 22	22
Bit 23	23
Complement	24
+U _b = 9-28 V	25
GND	26

Pinning connector (Male)



COMPLEMENT-Input		Encoder counting direction at clockwise rotation (as seen on shaft)
Function	Level	
Direction of rotation	0 (Input to GND)	Up
	1 (Input to + U _b oder ≥ 8 V)	Down

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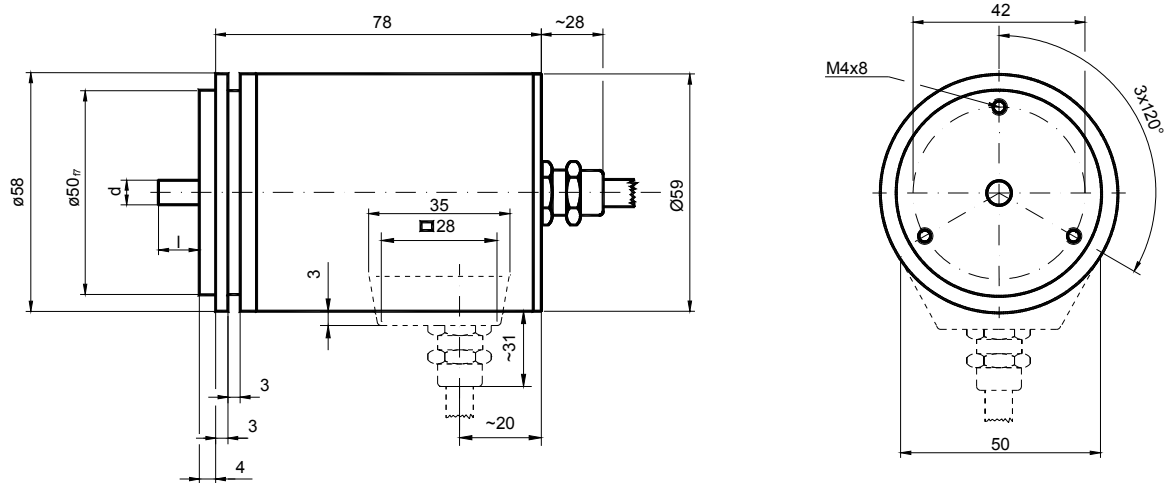
Mechanical Drawings

Synchro Flange (Y,Z)

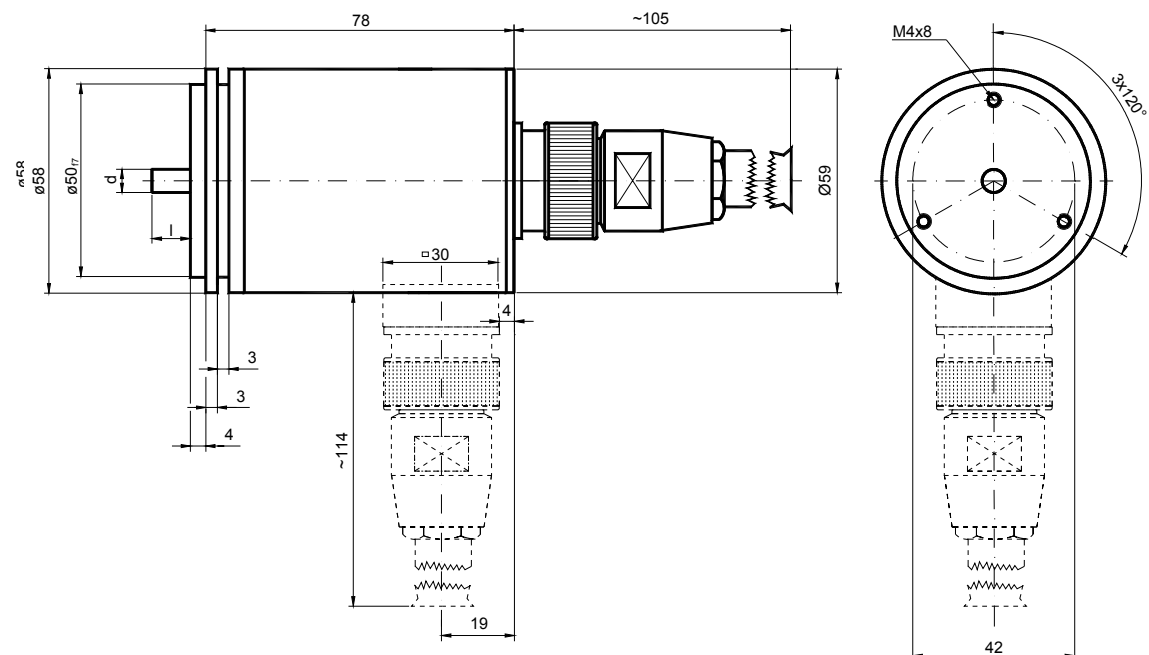
The only difference between the Y- and Z-Flange is the shaft size (refer to the table besides).

	d [mm]	l [mm]
Y-Flange	6 _{f6}	10
Z-Flange	10 _{h8}	20

Cable Exit (cable diameter = 8mm or 0.315")



26 pin circular connector (cable outlet: 13.5-15mm = 0.531-0.59")

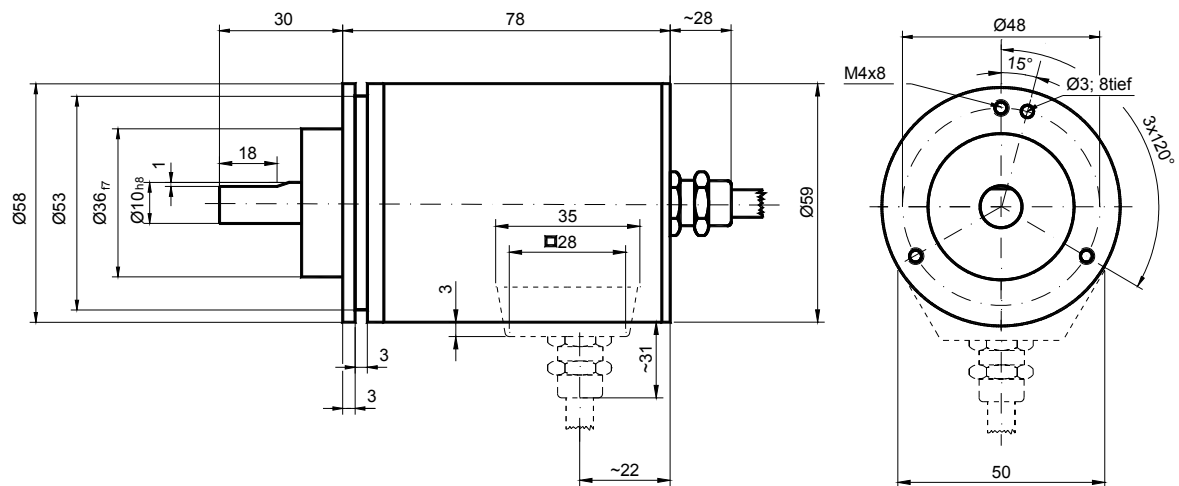


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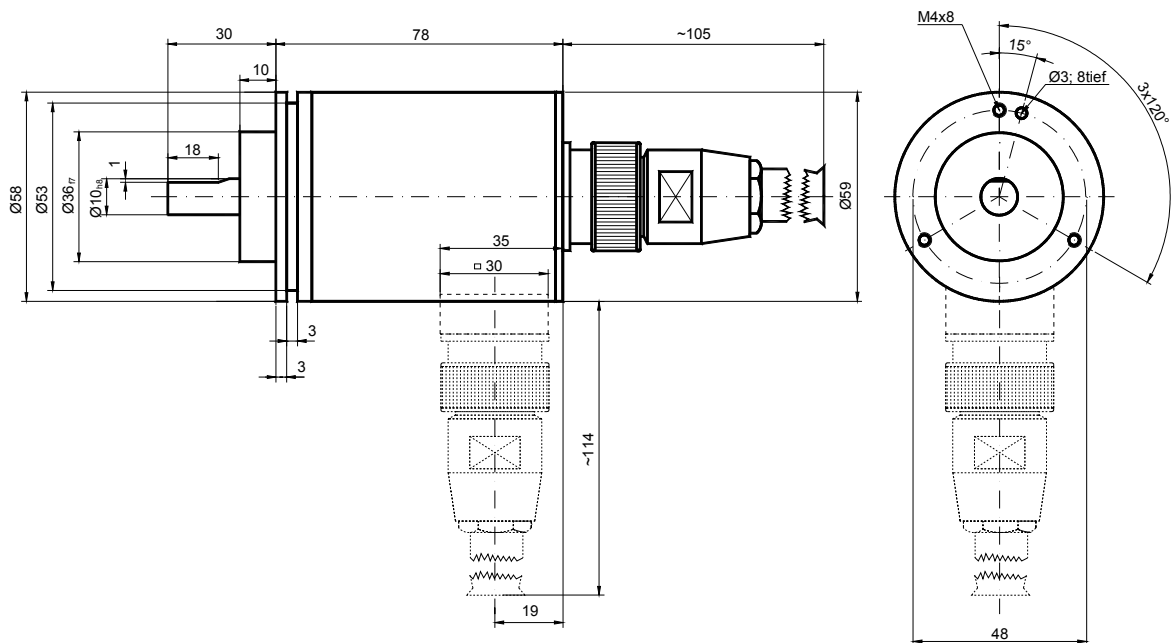
Mechanical Drawings

Clamp Flange (F)

Cable Exit (cable diameter = 8mm or 0.315")



26 pin circular connector (cable outlet: 13.5-15mm = 0.531-0.59")



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Models / Ordering Description

Description	Type Key									
Absolute rotary encoder	AWC	58	...	...	...	...	0	PG	...	
Diameter in mm										
Steps per revolution	1024	10								
	4096	12								
	8192	13								
No. of revolutions	16	16								
	256	256								
	4096	4096								
Flange	Clamp Flange (Shaft = 10 mm Ø)	F								
	Synchro Flange (Welle = 6 mm Ø)	Y								
	Synchro Flange (Welle = 10 mm Ø)	Z								
Code	Gray	G								
Latch-Function	Without	0								
Strobe-Function	Without	0								
Interface	Bit-Parallel push-pull	PG								
Options	Without	0								
	Shaft sealing (not possible for Z-Flange)	W								
	Stainless steel configuration (flange, housing, cap)	Q								
Connection	Connector, axial	2KG								
	Connector, radial *	2KW								
	Cable, axial (1m)	00A								
	Cable, radial (1m) *	00R								

Further models on request, * not available in stainless steel configuration

Accessories

Description		Type
Connector, counterpart	Circular connector, 26 pins	1KG
Shaft coupling	Drilling: 10 mm	GS 10
	Drilling: 6 mm	GS 06
Clamp disc	4 pcs. / AWC	SP 15
Clamp ring	2 pcs. / AWC	SP H

We do not assume responsibility for technical inaccuracies or omissions. Specifications are subject to change without notice.