

ABSOLUTE ROTARY ENCODER SINGLE-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. 13 Bit = 8,192 steps per revolution
- 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	~120 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, single-turn	$\approx 200 \text{ g}$	
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

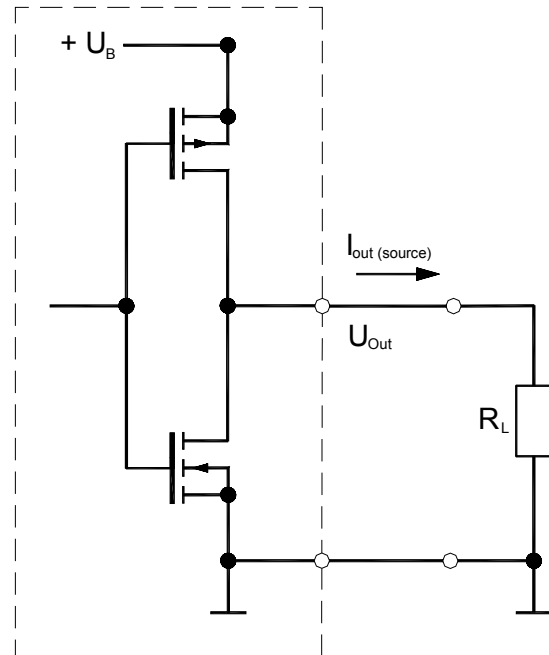
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Interface

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
Optional	Binary code transmission with integrated latch function

Output Circuit



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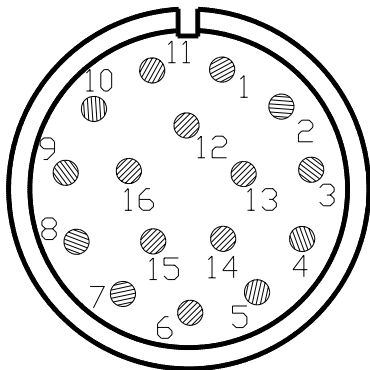
Electrical Interface

Signals	16 pin circular plug 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

Signals	16 pin circular plug Pin
Bit 9	9
Bit 10	10
Bit 11	11
Bit 12	12
Complement or Bit 13 *	13
Complement*/Latch**	14
+U _b = 10-30 V	15
GND	16

* for AWC 5813-1-... / ** only Binary

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 or ≥ 8 V)	Down

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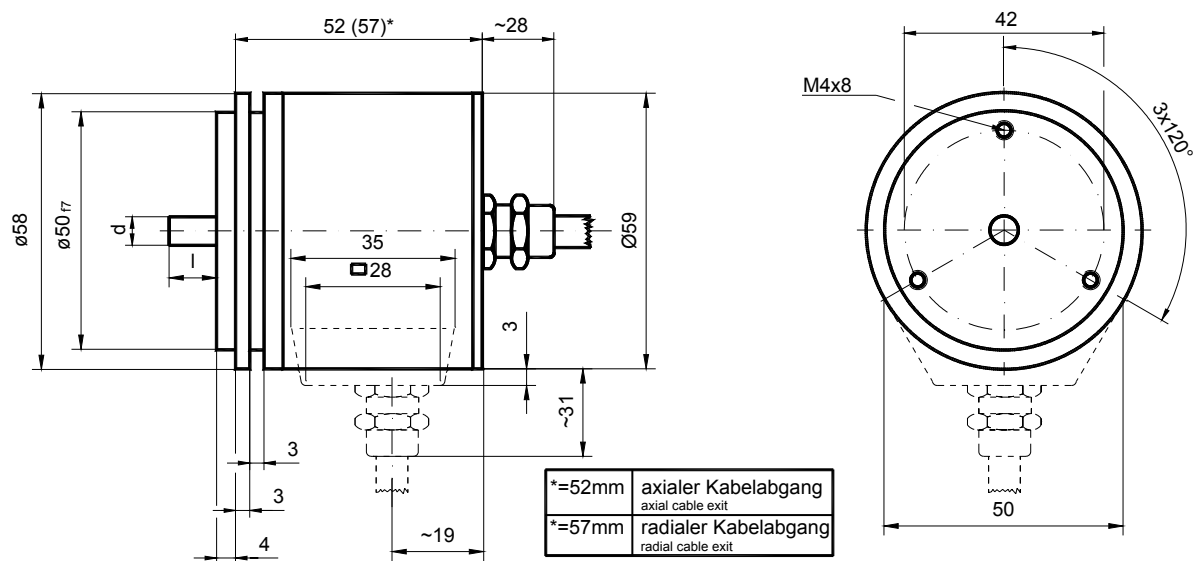
Mechanical Drawings

Synchro Flange (Y,Z)

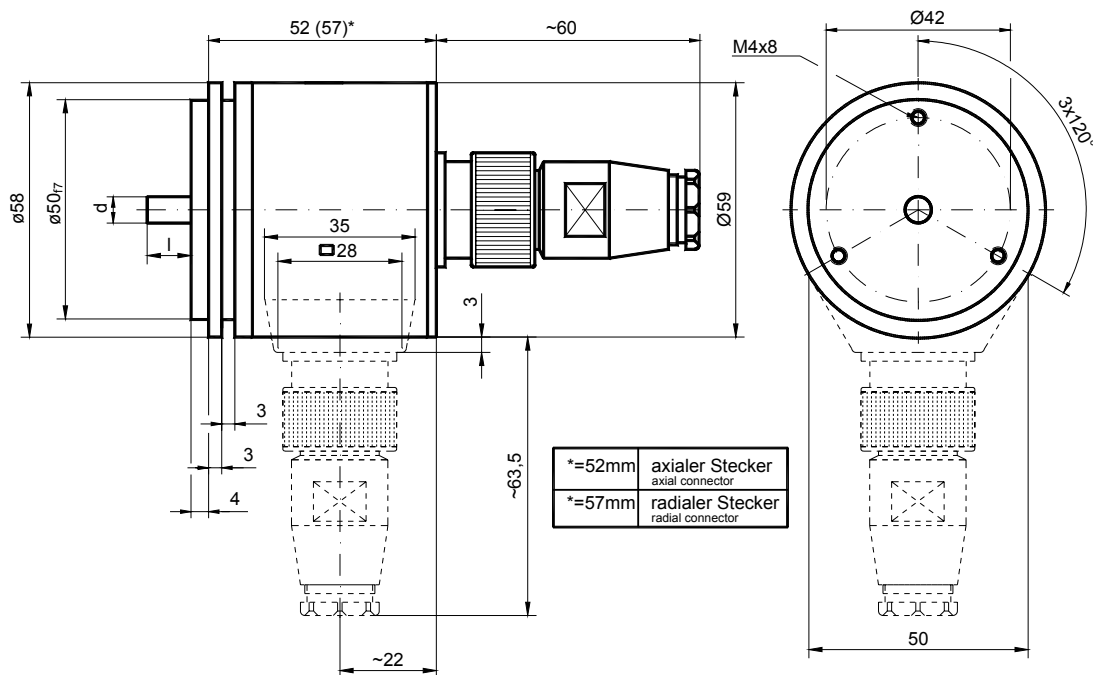
The only difference between the Y- and Z-Flange is the shaft size (refer to the table besides).

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

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



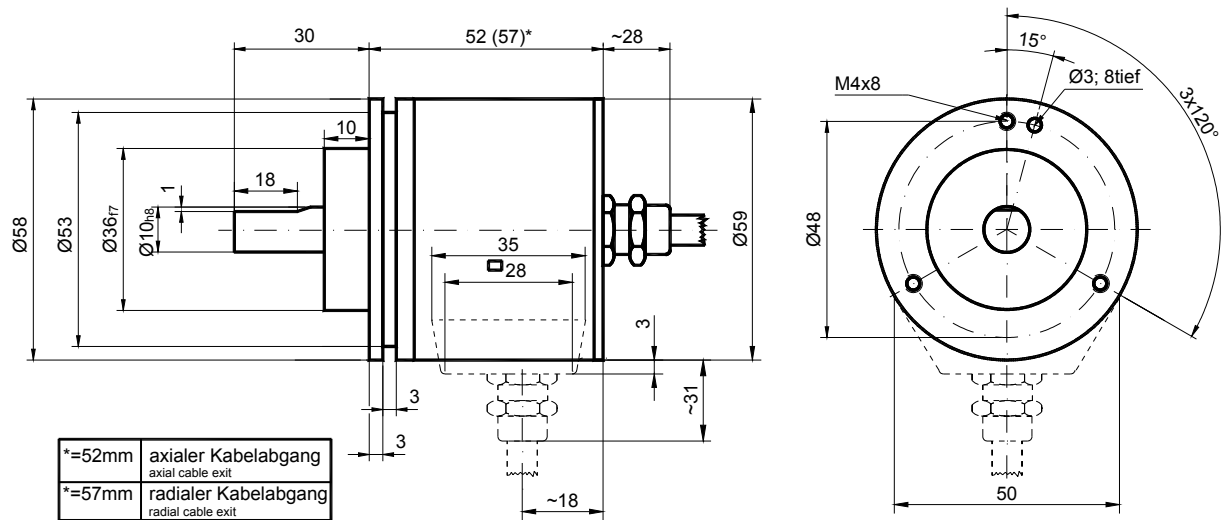
16 pin circular connector (cable outlet: 6mm = 0.236")



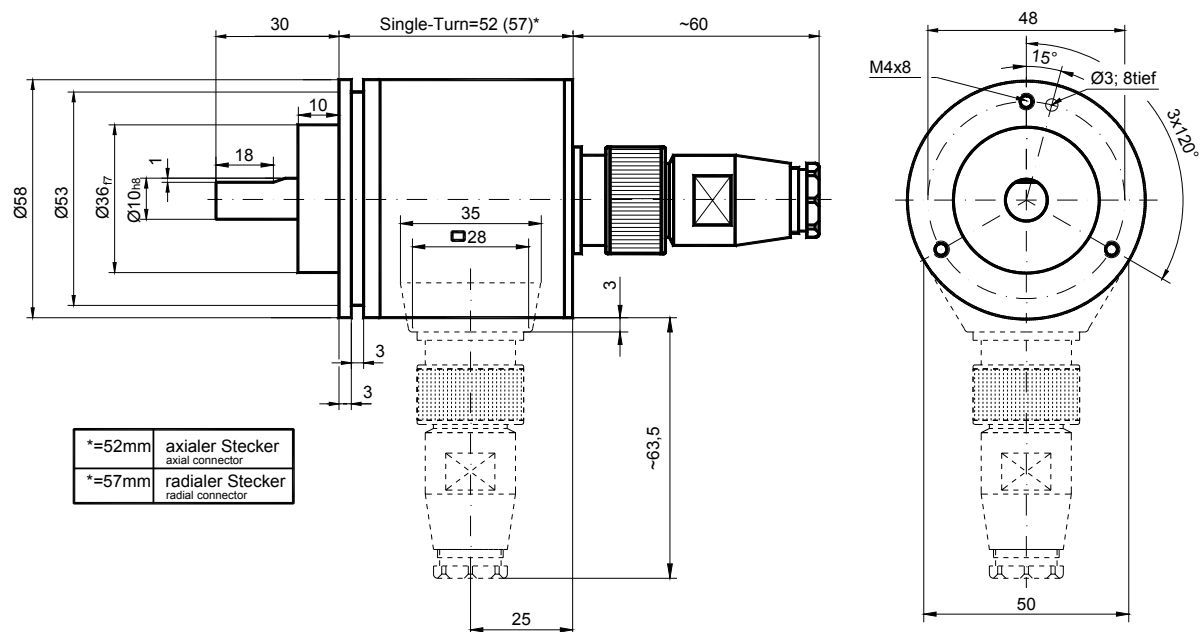
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Mechanical Drawings

Clamp Flange (F)



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



16 pin circular connector (cable outlet: 6mm = 0.236")

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Models / Ordering Description

Description	Type Key									
Absolute rotary encoder	AWC 58	 -	1 -	.	.	.	0	PG	.	...
Diameter in mm										
Steps per revolution	360	36/1								
	3600	36/10								
	1024	10								
	4096	12								
	8192	13								
No. of revolutions	1		1							
Flange	Clamp (shaft=10 mm)			F						
	Synchro (shaft=6 mm)			Y						
	Synchro (shaft=10 mm)			Z						
Code	Gray				G					
	Binary				B					
Latch-function	Without					0				
	With (only for binary)					L				
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									1SG
	Connector, radial									1SW
	Cable, axial (1m)									00A
	Cable, radial (1m)									00R

Further models on request

Accessories

Description		Type
Connector, counterpart	Circular connector, 16 pins	1SG
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.