

ABSOLUTE ROTARY ENCODER INTERBUS LOOP2



Main Features

- Compact and heavy duty industrial model
- Interface: INTERBUS Loop2 (Local-Bus)
- ENCOM-Profile: K3 (programmable)
- Housing: 58 mm Ø
- Resolution: max. 25 Bit = 33,554,432 steps over 4,096 revolutions
- Connector: Data and voltage supply over 2 wired cable (QUICKON cut-clamp technology)

Mechanical Structure

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

Programmable Parameters

- Direction of rotation (complement)
- Total resolution
- Preset value
- Zero point displacement
- Read-out of parameter values
- Output of velocity
- Optional: Output of cam functions

Electrical Features

- Temperature insensitive IR-Opto-Receiver-Array
- Highly integrated circuit in SMD technology
- Only one IR-transmitter-diode per opto-array
- Polarity inversion protection
- Over voltage peak protection

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Technical Data

Electrical Data

Supply voltage	20 - 30 V DC (via the INTERBUS connection)
Current consumption	Single Turn = 90 mA, Multi Turn = 100 mA
EMC	EN 50081-2, EN 61000-6-2
Interface	Data signal modulated on the power supply (3 state Manchester Code)
Transmission rate	500 kBaud
Accuracy of division	$\pm \frac{1}{2}$ LSB
Step frequency LSB	Max. 100 kHz (valid code)
Electrical lifetime	$> 10^5$ h
Connector	QUICKON clamp-cut technology

Mechanical Data

Housing	Brass	
Lifetime	$> 10^5$ h at 1,000 rpm	
Inertia of rotor	≈ 50 gcm ²	
RPM	Max. 6,000 (continuously)	
Shock (EN 60068-2-27)	≤ 30 g (halfsine, 11 ms)	
Permanent shock (EN 60028-2-29)	≤ 10 g (halfsine, 16 ms)	
Vibration (EN 60068-2-6)	≤ 10 g (10 Hz ... 1,000 Hz)	
Weight, single-turn	≈ 500 g	
Weight, multi-turn	≈ 560 g	
Shaft loading	Axial 20 N, radial 110 N	
Friction torque	≤ 5 Ncm	
Flange	Synchro (Y)	Clamp (F), synchro (Z)
Shaft diameter	6 mm	10 mm
Shaft length	10 mm	20 mm

Environmental Conditions

Operating temperature	0 ... + 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

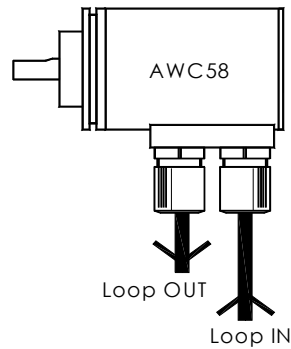
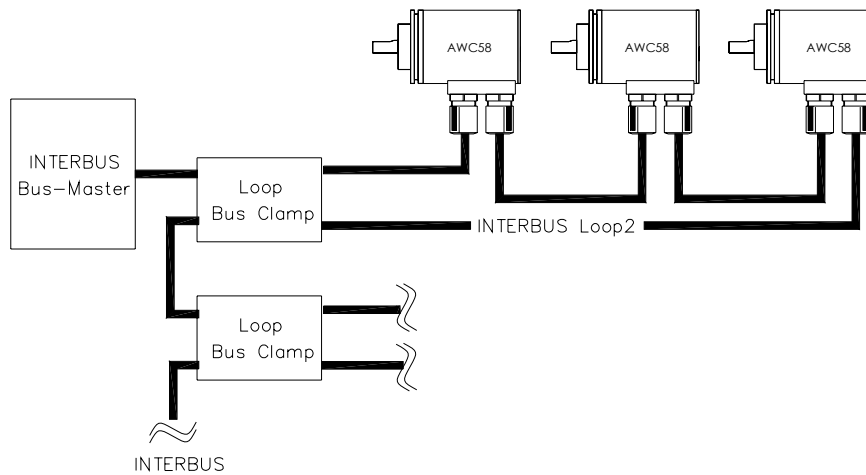
Installation

The rotary encoder is connected by two cables, one for input and one for output. Each of them acts both as data bus and power supply line. The cables are clamped to special Quick-On cutting connectors. To ensure the correct wiring, the input and output Quick-On connectors differ in shape. The address of the encoder is derived from its physical position in the network. The AWC 58 is

designed for a remote bus with up to 32 bits of I/O data. In the master (controller) the actual process values occupy two word addresses for profile K3. The allowed maximum distance between two bus participants is 20 m. The length of the whole cable loop must not exceed 200 m, while the current has to be kept at 1.8 A. One LED indicates the bus status.

IB-Coupling	Class	Max. Bits	Progr.	No. of words	ID-Code	
					Binary	
Local Bus	K3	32	yes	2 IN + 2 OUT	0000 0010 0011 0111	0237

Connection on the 2-wired Installation Remote Bus



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Programmable Parameters

The Interbus Loop encoder supports the programmable encoder profile K3 of the ENCOM*. The following parameters can be programmed directly via the INTERBUS network without any extra devices:

Code sequence	As an operating parameter the code sequence (complement) can be programmed. This parameter determines whether the output code increases or decreases when the axis is turned clockwise.
Output steps over number of revolutions	This parameter defines the number of measuring steps over the number of revolutions described below.
Number of revolutions	This parameter determines the number of revolutions used to calculate the steps per revolution. For example: Total resolution = 8, Revolutions = 2, then the Steps per revolution will be equal to 4. This value must always be less than the total allowed revolutions (for a multi-turn, 4,096).
Preset value	The preset value is the desired output value for the actual position of the axis. The actual output value will be set to this preset value.
Zero point displacement	This parameter sets the zero point of the output in relation to the physical zero point position of the encoder (same functionality as preset value).
Velocity	Optionally, the current rotational velocity of the axis can be output in revolutions per minute.
Read-out parameter values	All parameter values and certain other information (specified in the manual) can be read out via the bus.
Cam functions	Cam functions which are entirely programmable via the bus are integrated in the encoder.

* ENCOM: User group of encoder manufacturers in the INTERBUS club.

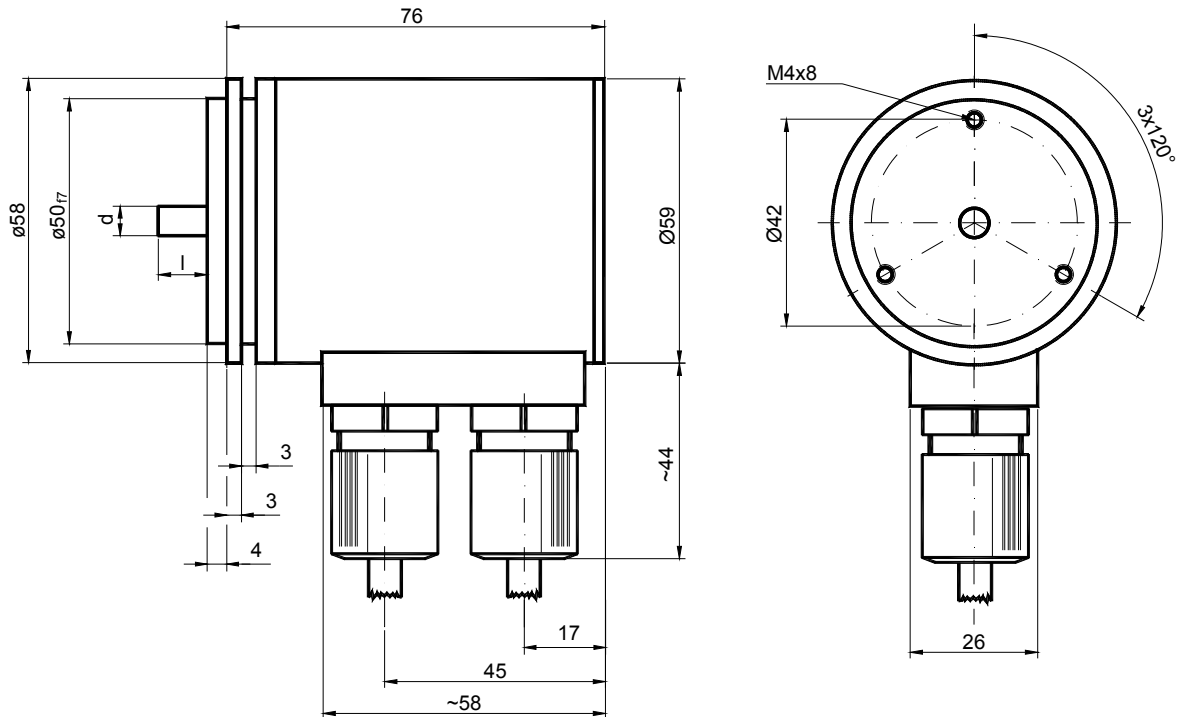
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Mechanical Drawings

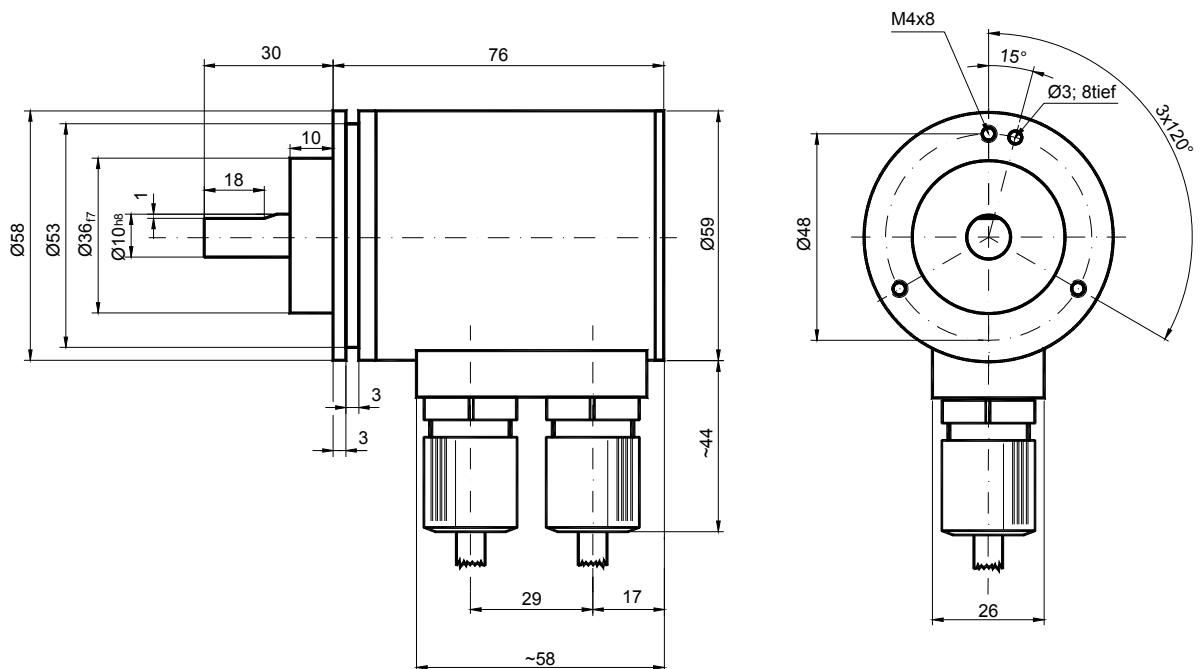
Synchro Flange (Y,Z)

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 f6	20



Clamp Flange (F)



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Models / Ordering Description

Description	Type Key									
Absolute rotary encoder	AWC	58	.. - -	.	B	00	L3	.	0QW
Diameter in mm										
Steps per revolution	4096	12								
	8192	13								
No. of revolutions	1			1						
	4096			4096						
Flange	Clamp Flange (shaft = 10 mm Ø)				F					
	Synchro Flange (shaft = 6 mm Ø)				Y					
	Synchro Flange (shaft = 10 mm Ø)				Z					
Code	Binary				B					
Version							00			
Interface	INTERBUS Loop2		programmable acc. to K3				L3			
Options	without								0	
	Shaft sealing (not possible for Z-Flange)								W	
Connection	Radial Quick-On-connector technology								0QW	

Further models on request

Accessories and Documentation

Description		Type
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
User manual*	Installation and configuration manual, German	UMD-IB
User manual*	Installation and configuration manual, English	UME-IB
Programming software *	Floppy disc with programming software for Windows and the Phoenix PC-ISA Master Card	DK-IB

*) These can be downloaded free of charge from our Homepage www.posita1.de.

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