

# Industrial-Grade Potentiometers

## AWS360 ZE Series



The transducer delivers a logical signal separately from analog output. This signal can be used to inhibit A/D conversion during the reset period to avoid measuring errors. These features together with the fact that the maximum output voltage is determined by the applied voltage means that the unit may be interchangeable or replaced without the need for electrical adjustment or trimming.

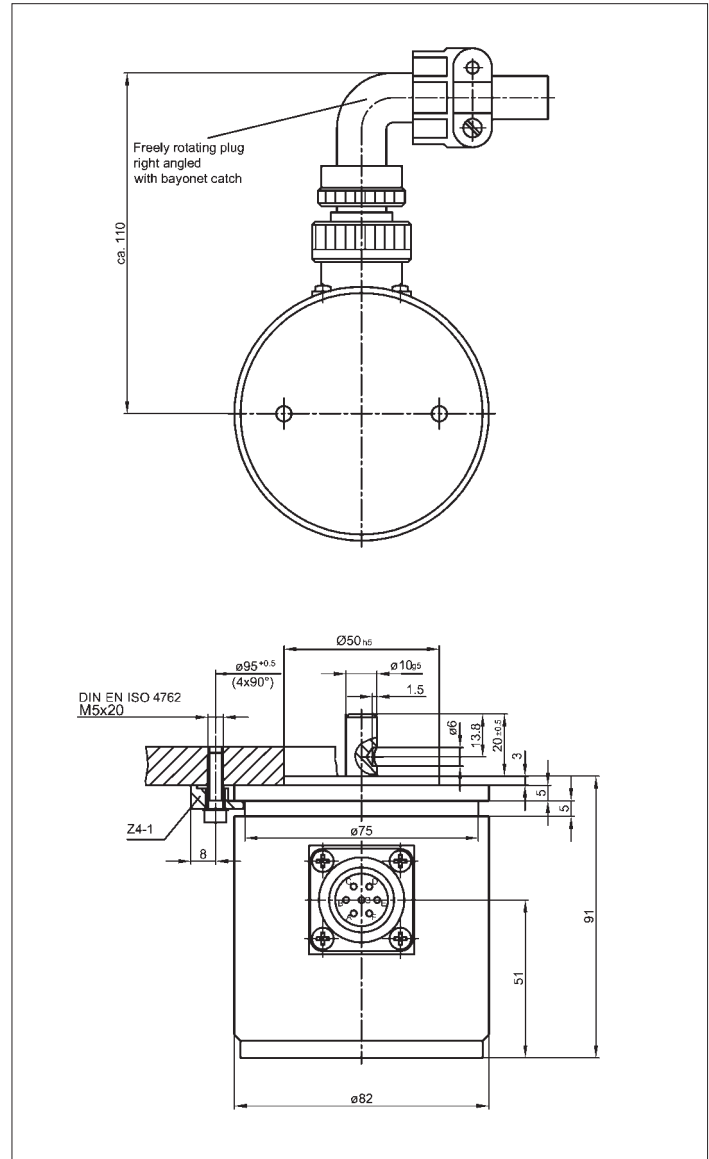
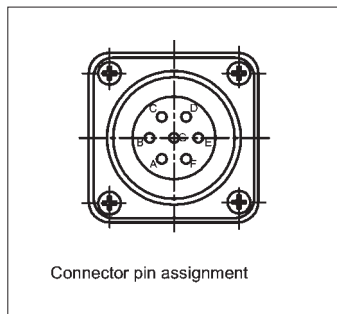
In addition to direct analog applications, the AWS360 ZE can be used in conjunction with an external A/D converter. In these applications, the AWS360 ZE operates as an angle transducer with 12-bit resolution and 10- or 11-bit absolute accuracy depending on model selected. Only six connections are required and these are made via a 6-pole, waterproof lug and socket.

### Special features

- gap-free output over all 360°
- very high absolute linearity
- interchangeable without electrical adjustment
- guaranteed 12-bit resolution and repeatability
- long life – 50 x 10<sup>6</sup> movements
- robust industrial version with 10 mm shaft
- protection class IP 65

This heavy-duty version of the AWS360 ZE is designed to provide continuous gap-free output over 360° in harsh industrial environments. With a robust waterproof case, the sensor is sealed to IP 65.

Unlike single wiper potentiometers that have a dead band, the AWS360 ZE has two wipers and hybrid circuitry to provide a full 360° measurement range. The reset voltage (U<sub>a</sub>) at the beginning and end of the saw tooth are well defined and the function-angle tolerance normally associated with potentiometers is eliminated.



### Mechanical Data

Dimensions	see drawing	
Mounting	with 4 mounting clamps Z 4-1	
Mechanical travel	360, continuous	°
Permitted shaft loading (axial and radial) static or dynamic force	300	N
Starting torque	< 10	Ncm
Maximum operational speed	2,000	RPM
Weight approx.	ca. 1,200	g

### Electrical Data

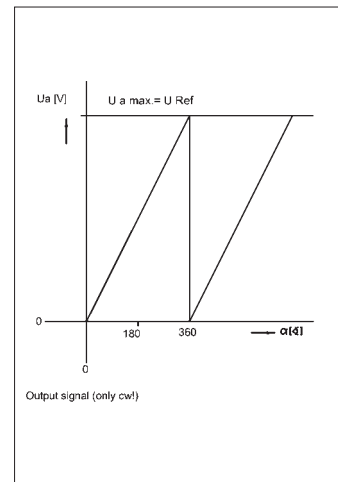
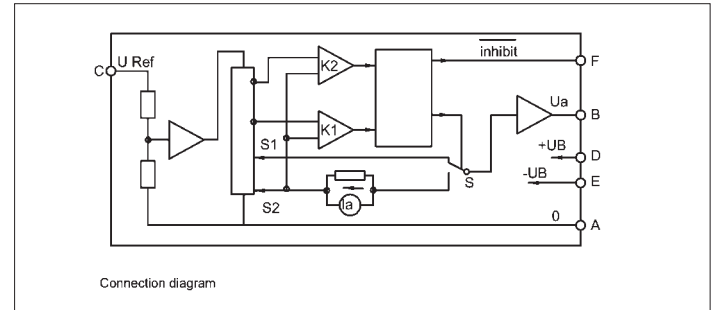
Actual electrical travel	360	°
Absolute linearity	±0.07	%
Repeatability	0.002 ( $\Delta$ 0.007°)	%
Effective temperature coefficient of resistance	100 (typical)	ppm/°C
Supply volt. UB of the electronic circuitry	±15 (±1)	V
Potentiometer supply voltage $U_{Ref}$	≤ +10	V
Inhibit signal from + UB to zero approx.	50	µs
Zero offset	< 2	mV
Max. difference of supply voltage $U_{Ref}$	±2	mV
Output current	5, short-circuit protected	mA
Output resistance	< 0.1	Ω
Quiescent current of electronic circuitry	10	mA
Insulation resistance (250 VDC, 1 bar, 2 s)	≥ 10	MΩ
Dielectric strength (50 Hz, 2 s, 1 bar, 250 VAC)	≤ 100	µA

### Description

Case	aluminum, varnished, shaft passage sealed
Shaft	stainless steel
Bearings	stainless steel ball bearings
Resistance element	conductive plastic
Wiper assembly	precious metal multi-finger wiper
Mounting position	any optional position
Connections	7-pin connector; all-metal round plug, freely rotatable, 90° right angled, protection class IP 65, bayonet catch
Electrical circuitry	hybrid circuit built into potentiometer housing

### Environmental Data

Temperature range	0...+70	°C
Vibration	10...2000 $A_{max} = 0.76$ $a_{max} = 20$	Hz mm g
Shock	50 11	g ms
Life	50 million	movem.
Protection class	IP 65 (DIN 400 50 / IEC 529)	



### Included in delivery

4 mounting clamps Z 4-1,  
Right-angled plug  
Canon No.: CA 08 COM-  
E16S-1S-B,  
1 anti-kink sleeve

### Recommended accessories

Spring-operated backlash-free  
coupling Z 110 G10,  
MAP process-control indicators  
and display. MUP or MUK signal  
conditioner for standardized  
output signals.

### Order designations

Type	Art. no.
AWS360 ZE-10	001161