

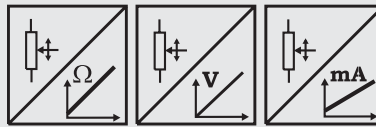
AWS

Angle sensor with analog output



Analog Angle Sensor

- Protection class IP67
- Measurement ranges:
345° / 180° / 90°, continuous rotation
- Sensing device: precision potentiometer
- Analog output 0 ... 10 V, 4 ... 20 mA, potentiometer



Specifications	Outputs	Potentiometer: 1 kΩ Voltage: 0 ... 10 V Current: 4 ... 20 mA, 2 or 3 wire Voltage and current output, adjustable
	Resolution	Essentially infinite
	Material	Aluminium and Stainless Steel
	Sensing Device	Precision Potentiometer
	Connector	Male Socket 8 pin DIN 45326
	Linearity	±0.10 %; ±0.20 % for 90°
	Repeatability	±0.0020 % (equivalent to 0.008°)
	Rotating Direction	Clockwise (for increasing output signal)
	Revolutions	10000 r.p.m. max.
	Torque	1 Ncm
	Life Time	100 x 10 ⁶ Revolutions (≤1500 r.p.m.)
	Protection Class (DIN 40050)	IP67 (only when the electrical plug is correctly assembled and connected)
	Weight	450 g approx.
	Environmental	
	EMC	Refer to output specification
	Temperature	Refer to output specification

Order Code AWSX

Model Name

AWS1 = Angle sensor with servo flange
AWS2 = Angle sensor with square flange

Measurement Range

345° / 180° / 90°

Outputs

R1K = Potentiometer 1 kΩ (only for 345° range)
10V = 0 ... 10 V signal conditioner
420A = 4 ... 20 mA signal conditioner (2 wire)
420T = 4 ... 20 mA signal conditioner (3 wire)
PMU = 0 ... 10 V/4 ... 20 mA signal conditioner, 345° range, adjustable to 45°

AWSX - -

Order Code Mounting Clamps (set of 3 pieces, for AWS1)

WS-EXZENTER

Order Code Mating Connector (see accessories page 82)

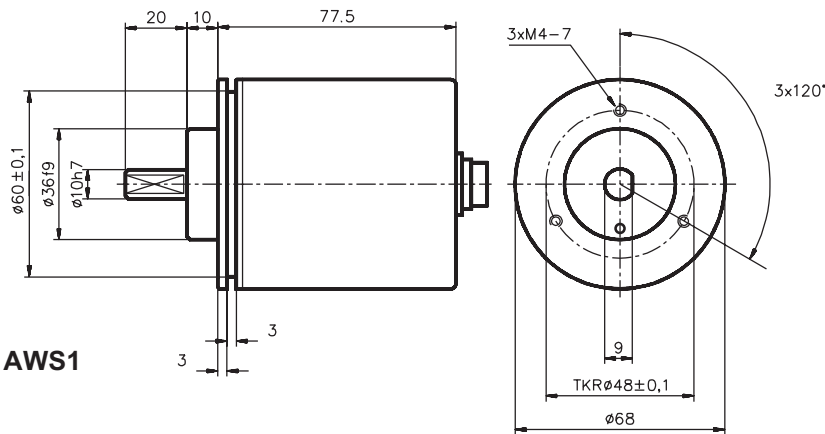
CONN-DIN-8F-W

Order Example: AWS1 - 345 - 420T

AWS
Angle sensor with analog output

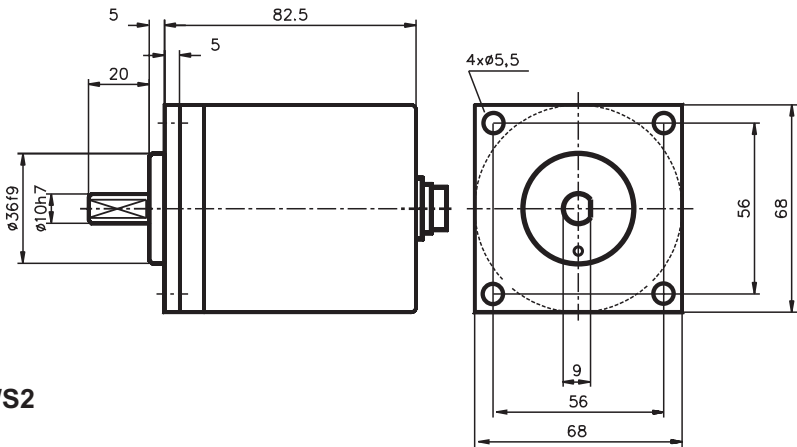


Outline drawing



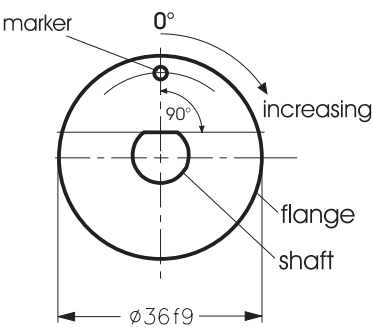
AWS1

Dimensions informative only.
For guaranteed dimensions consult factory.



AWS2

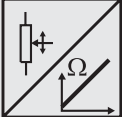
Zero position



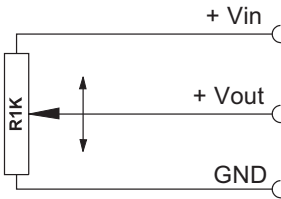
Output Specifications

R1K and 10V for WS position sensors

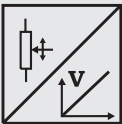


Voltage divider R1K Potentiometer 	Excitation Voltage	32 VDC max. at 1 kΩ (input power 1 W max.)
	Potentiometer Impedance	1 kΩ ±10%
	Thermal coefficient	±25 x 10 ⁻⁶ / °C full scale
	Sensitivity	Depends on measurement range, individual sensitivity of sensor specified on label
	Voltage Divider Utilization Range	Approx. 3% ... 97% of full range
	Operating Temperature	-20 ... +85 °C

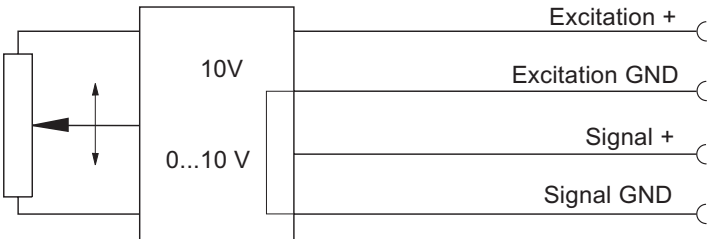
Signal diagram



Note: The potentiometer must be connected as a voltage divider. The input impedance of the following processing circuit should be 10 MΩ min.

Signal conditioner 10V Voltage output 	Excitation Voltage	+18 ... +27 V DC non stabilized
	Excitation Current	20 mA max.
	Output Voltage	0 ... +10 V DC
	Output Current	2 mA max.
	Output Load	> 5 kΩ
	Stability (Temperature)	±50 x 10 ⁻⁶ / °C full scale
	Protection	Reverse polarity, short circuit
	Output Noise	0,5 mVRMS
	Operating Temperature	-20 ... +85 °C
	EMC	According to EN 61326:2004

Signal diagram

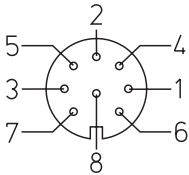


Signal Wiring	Output signals		Cable color	Connector pin no.
	R1K	10V		
	+ Vin	Excitation +	White	1
	GND	Excitation GND	Brown	2
	+ Vout	Signal +	Green	3
		Signal GND	Yellow	4

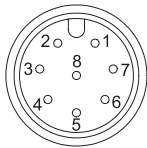
Connection

Mating Connector

View to solder terminals



CONN-DIN-8F-W

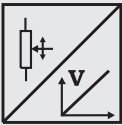


CONN-M12-8F-G

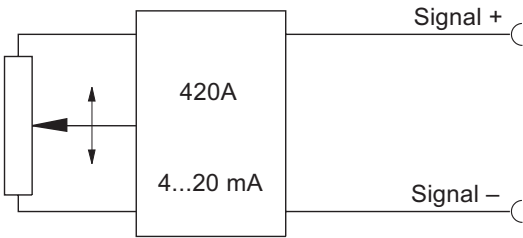
Output Specifications

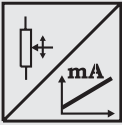
420A and 420T for WS position sensors



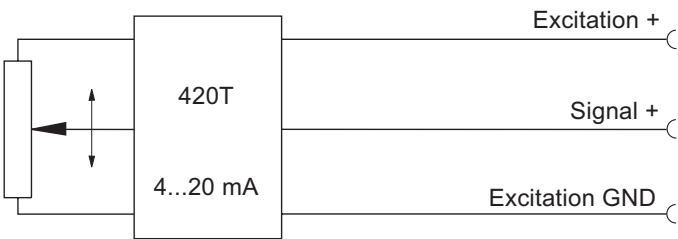
Signal conditioner 420A Current output (2 wire) 	Excitation Voltage	+12 ... 27 VDC non stabilized, measured at the sensor terminals
	Excitation Current	35 mA max.
	Output Current	4 ... 20 mA equivalent to 0 ... 100% range
	Stability (Temperature)	$\pm 100 \times 10^{-6} / ^\circ\text{C}$ full scale
	Protection	Reverse polarity, short circuit
	Output Noise	0.5 mV _{RMS}
	Operating Temperature	-20 ... +85 °C
	EMC	According to EN 61326:2004

Signal Diagram



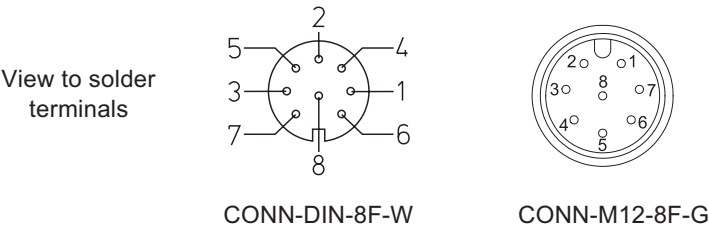
Signal Conditioner 420T Current output (3 wire) 	Excitation Voltage	+18...+27 V DC non stabilized
	Excitation Current	40 mA max.
	Load Resistor	350 Ω max.
	Output Current	4 ... 20 mA equivalent to 0 ... 100% range
	Stability (Temperature)	$\pm 50 \times 10^{-6} / ^\circ\text{C}$ full scale
	Protection	Reverse polarity, short circuit
	Output Noise	0.5 mV _{RMS}
	Operating Temperature	-20 ... +85 °C
	EMC	According to EN 61326:2004

Signal diagram



Signal Wiring	Output signals		Cable color	Connector pin no.
	420A	420T		
	Signal +	Excitation +	White	1
	Signal -	Excitation GND	Brown	2
		Signal +	Green	3

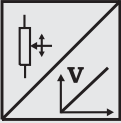
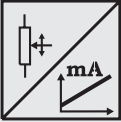
Connection
Mating Connector



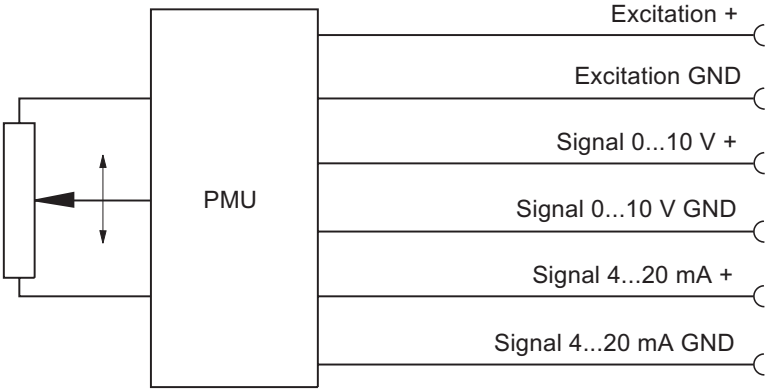
Output Specification

PMU for WS position sensors



Signal Conditioner PMU, adjustable Voltage output and current output (3 wire)  	Excitation voltage	+18 ... 27 V DC
	Excitation current	50 mA max.
	Voltage output	0 ... 10 V
	Output current	10 mA max.
	Output load	1 kΩ min.
	Current output	4 ... 20 mA (3 wire)
	Load resistor	500 Ω max.
	Adjustment	
	Activation of offset and gain adjust	Connect with excitation GND (0 V)
	Scalable range	90 % max. full scale
	Stability (Temperature)	±50 x 10 ⁻⁶ / °C full scale
	Protection	Reverse polarity, short circuit
	Output noise	1 mV _{eff}
	Operating temperature	-20 ... +85 °C
	EMC	According to EN 61326:2004

Signal diagram



Signal wiring	Output signals	Connector pin no.
	Excitation +	1
	Excitation GND	2
	Signal 0...10 V +	3
	Signal 0...10 V GND	4
	Signal 4...20 mA +	5
	Signal 4...20 mA GND	6
	Offset	7
	Gain	8

Connection

Mating Connector

