

WACHENDORFF

The Encoder Experts

WDGI 36J Series Encoders

The Wachendorff WDGI 36J is a 36mm incremental encoder that uses magnetic sensing technology to allow use in high pressure steam cleaning environments and the Food and Beverage industry. The IP67 and IP69K encoders are made of aluminum and stainless steel and are available with resolutions from 60 to 5000 PPR. The universal quadrature (A, B, and Z) electrical output can work with single-ended or differential inputs. The encoder's 5 year warranty and 300N shaft/radial load rating assure reliability and long life (up to 31 billion revolutions!).

Features

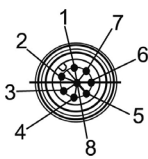
- Resolutions from 60 to 5000 PPR available
- Magnetic sensing – rugged construction
- IP67 + IP69K all-around protection (high-pressure steam cleaning)
- High shaft load capacity: 300 N radial and axial
- Max. operating speed: 6000 rpm
- M12 A-coded 8-pin, radial exit
- Universal electrical output (quadrature A,B,Z signals that work with single-ended and differential inputs)
- Full connection protection with 4.75–30 VDC supply range
- Wide operating temperature: -40 °C to +85 °C
- 5 year warranty; cULus, Made in Germany



Wachendorff 36J Series Encoders

AutomationDirect Part Number	Wachendorff Part Number	Price	Pulses per Revolution	Dimensional Drawing	Shaft Diameter	Flange Diameter	Input Voltage	Output
36J10603GSC8	WDGI 36J-10-60-ABN-M35-SC8	\$134.00	60	PDF	10mm Solid	36mm	4.75–30 VDC	Universal (HTL or TTL, single-ended or differential)
36J101003GSC8	WDGI 36J-10-100-ABN-M35-SC8	\$134.00	100	PDF				
36J103603GSC8	WDGI 36J-10-360-ABN-M35-SC8	\$134.00	360	PDF				
36J105003GSC8	WDGI 36J-10-500-ABN-M35-SC8	\$134.00	500	PDF				
36J1010003GSC8	WDGI 36J-10-1000-ABN-M35-SC8	\$134.00	1000	PDF				
36J1010243GSC8	WDGI 36J-10-1024-ABN-M35-SC8	\$134.00	1024	PDF				
36J1020003GSC8	WDGI 36J-10-2000-ABN-M35-SC8	\$134.00	2000	PDF				
36J1025003GSC8	WDGI 36J-10-2500-ABN-M35-SC8	\$134.00	2500	PDF				
36J1040963GSC8	WDGI 36J-10-4096-ABN-M35-SC8	\$134.00	4096	PDF				
36J1050003GSC8	WDGI 36J-10-5000-ABN-M35-SC8	\$134.00	5000	PDF				

WDGI 36J Wiring

Wachendorff 36J Connector Pinout			
8-Pin Connector	Signal	Pin	Murr Wire Colors Part# 7000-170x1-292xxxx
	GND	1	White
	V+	2	Brown
	A	3	Green
	B	4	Yellow
	N	5	Gray
	A inv.	6	Pink
	B inv.	7	Blue
	N inv.	8	Red
	Shield	-	-

Inverse-polarity protection:

Encoders have reverse polarity protection and can be mis-wired without concern of damage to the encoder. It does not matter if the connections are reversed, even on a long-term basis. Reversing the connection cables of the power supply when the outputs are connected correctly will not result in damage. However, the encoder will not function properly.

Short circuit resistance:

Requirements:

- Supply lines not reversed!
- Only one output and max. permissible supply voltage observed!

Wachendorff encoders are short-circuit-proof between two outputs or against GND or V+.

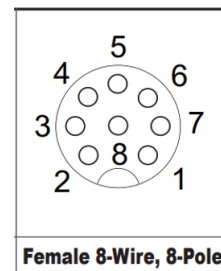
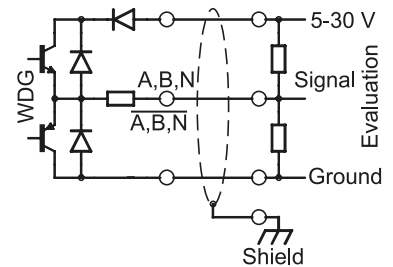
Circuit protection:

Reversing the polarity of the power supply while simultaneously short-circuiting the outputs to each other or to GND or V+ will not result in damage.

- Applying GND and V+ to two outputs is not permitted and can lead to failure.

Part Number	Connector	Length	Protection Degree
7000-17041-2920300	Axial female	3m	IP65 IP66 IP67
7000-17061-2920300	90-degree female		
7000-17041-2920500	Axial female	5m	
7000-17061-2920500	90-degree female		
7000-17041-2921000	Axial female	10m	
7000-17061-2921000	90-degree female		

M35 Output Circuit



Specifications - WDGI 36J Series

Electrical Specifications	
Resolution (PPR)	60, 100, 360, 500, 1000, 1024, 2000, 2500, 4096, 5000
Operating Principle	Magnetic (non-contact)
Output Signals	Quadrature output signals with index (ABN, /ABN)
Max Pulse Frequency	HTL up to 600 kHz; TTL up to 1 MHz
Output Circuits	Universal (HTL or TTL, single-ended or differential)
Power Supply	4.75–30 VDC
Consumption	40 mA (typical)
Output Current (each channel)	40 mA
Protection	Inverse-polarity and short-circuit protection
EMC	DIN EN 61000-6-2 / 61000-6-3
Mechanical Specifications	
Shaft Diameter	Ø 10mm (0.394in)
Flange Diameter	Ø 36mm [1.417in]
Flange Type	Servo flange
Max. Radial Shaft Load	300N [30.59 kp]
Max. Axial Shaft Load	300N [30.59 kp]
Starting Torque	Approx. 1 N·cm [1.416 in-ozf] at ambient temperature
Bearings	2 precision ball bearings
Max. Mechanical Operating Speed	6000 rpm
Nominal Service Life	5×10 ⁸ rev. @ 100% shaft load; 5.44×10 ⁹ @ 40%; 3.1×10 ¹⁰ @ 20%
Electrical Connection	8-pin M12 A-coded
Weight	Approx. 210g [7.407 oz]
Materials	
Flange	Aluminum, Type: AlMgSi1 (EN AW-6082)
Housing	Stainless steel, Type: 1.4521 (magnetic) (AISI 444)
Shaft	Stainless steel; Type: 1.4305 (AISI 303)
Environmental Specifications	
Protection	IP67 + IP69K all around (EN 60529)
Operating Temperature	-40 °C to +85 °C [-40 °F to +185 °F]
Storage Temperature	-40 °C to +85 °C [-40 °F to +185 °F]
Vibration	50 m/s ² (10–2000 Hz) per DIN EN 60068-2-6
Shock	1000 m/s ² (6 ms) per DIN EN 60068-2-27
Electrical Safety	DIN VDE 0160
Approvals	CE, UKCA, cULus, RoHS

Encoder Selection Guide

SAE Dimension Encoders & Metric Dimension Encoders

Encoder Selection Guide												
Type	Duty	Series	Encoder Diameter	Shaft Diameter	Shaft Type	Operating Voltage (VDC) and Electrical Output	IP Rating	Cable	Max Radial Load (N)	Max Axial Load (N)	Available Resolutions (PPR)	Brand
Incremental	Modular Kit	AMT	28mm, 42mm	2, 3, 4, 5, 6, 8 mm 3/16, 1/4, 3/8, 1/2, 5/8 inch	Hollow	5V Line Driver (TTL) or 5V Push-Pull (Totem Pole)	IP20	Custom cables sold separately	N/A	N/A	Programmable up to 4096	Same Sky
		MTRA	31mm	5mm 1/4", 3/8"	Hollow	5V Line Driver (TTL) or 5V Push-Pull (Totem Pole)	IP20	Custom cables sold separately	N/A	N/A	400, 1000	SureStep
	Light Duty	TRD-S(H)R	38mm, 40mm	8mm	Solid or Hollow	5V Line Driver (TTL) or 5-26V NPN/PNP Open Collector (HTL)	IP50 or IP65	Integral 2m pigtail cable	20	10	100, 200, 360, 500, 600, 1000, 1024, 2000, 2500	JTEKT
		A41	41mm	1/4"	Solid or Hollow	5-30 VDC Universal output circuit: Push-Pull (Totem Pole), or NPN/PNP Open Collector (HTL), or Line Driver (TTL)	IP64	Integral 2m pigtail cable	20	20	100, 200, 360, 500, 1000, 1024, 200, 2048, 3600, 4096	Lika
	Medium Duty	A50	50mm	1/4", 3/8"	Hollow		IP65	M12 cables sold separately	20	20	360, 1000, 1024, 2048	
		A80	80mm	30mm (reducer bushings available for 19 & 20mm, 5/8", 7/8", 1, and 1 1/8")	Hollow		IP64	M23 cables sold separately	30	30	1024	
	Medium Duty	AQ58/59	58mm, 59mm	3/8" solid, 15mm hollow (reducer bushings available for 6, 8, 10, 11, 12 mm; 1/4, 3/8, 1/2 inch)	Solid or Hollow	5-30 VDC Universal output circuit: Push-Pull (Totem Pole), or NPN/PNP Open Collector (HTL), or Line Driver (TTL)	IP65	M12 cables sold separately	100	100	Programmable from 1 to 16,384 (default 1024)	JTEKT
		AR01	58mm	15mm	Solid Dual-shaft		IP65	M12 cables sold separately	50	50	250 (linear res: 0.36 deg/cts) 1250 (linear res: 0.072 deg/cts)	
		TRDA-20	2"	3/8"	Solid	5VDC Line Driver (TTL) or 5-30 VDC Push-Pull (Totem Pole)	IP50	Integral 2m pigtail cable	50	30	100, 360, 500, 1000, 1024, 2500	
		TRDA-25	2.5" flange (w/2.0" body)	3/8"	Solid		IP65	Military Spec (MS) cables sold separately	50	30	100, 360, 500, 1000, 1024, 2500	
		TRD-N(H)	50mm	8mm	Solid or Hollow		IP65	Integral 2m pigtail cable	50	30	3, 4, 5, 10, 30, 40, 50, 60, 100, 120, 200, 240, 250, 300, 360, 400, 480, 500, 600, 750, 1000, 1024, 1200, 2000, 2500	
	Heavy Duty	WDGI 36J	36mm	10mm	Solid	4.75-30 VDC Universal (HTL or TTL, single-ended or differential)	IP69K	8-pin M12 A-coded cable	300	300	60, 100, 360, 500, 1000, 1024, 2000, 2500, 4096, 5000	Wachendorff
		WDG 58V	58mm	10mm	Solid	5-30 VDC universal (HTL or TTL, single-ended or differential) or 4.75-5.5 VDC Line Driver (Differential) or 10-30 VDC Push-Pull (Totem)	IP69K	Integral 5m pigtail	100	100	60, 100, 360, 500, 1000, 1024, 2000, 2500, 4096, 5000	
		TRD-GK	78mm	10mm	Solid	10-30 VDC Push-Pull (Totem Pole)	IP65	Integral 2m pigtail cable	100	50	30, 100, 120, 200, 240, 250, 300, 360, 400, 500, 600, 1000, 1200, 2000, 2500, 3600, 5000	JTEKT
Absolute	Medium Duty	TRD-NA	50mm	8mm	Solid	10-30V NPN/PNP Open Collector (HTL)	IP65	Integral 2m pigtail cable	50	30	32, 64, 128, 180, 256, 360, 512, 720, 1024 (Gray code)	Lika
		AM5x ¹	58mm	6-15mm, 3/8"	Solid or Hollow	5-30 VDC, 10-30 VDC	IP65	M12 cables sold separately	40	40	Programmable up to 8192 ppr (13 bit), up to 16384 turns (14 bit)	

1 - AM5x encoders have different versions supporting 4 different outputs - Ethernet/IP, Modbus TCP, EtherCAT, and Modbus RTU (RS485).