WACHENDORFF
The Encoder Experts

WDGI 58A Series

The Wachendorff WDGI 58A is a rugged 58mm [2.283in] incremental rotary encoder built for demanding industrial motion feedback, speed, and position applications. A stainless steel 6mm [0.236in] solid shaft rides on two precision ball bearings in a synchro flange housing of stainless steel, delivering an IP65-rated seal at the shaft and IP65/IP67 housing protection. Resolution is available from 60 to 5000 pulses per revolution, and the wide 5–30 VDC supply with push-pull HTL outputs (TTL/RS422 compatible at 5 VDC) makes the encoder easy to drop into virtually any PLC, drive, or counter input without additional interface hardware. Outputs include A, B, and N (Z-pulse) channels plus inverted complements for high noise immunity over long cable runs, and every channel carries inverse-polarity and short-circuit protection.

58A Synchro Flange



Features

- Resolution: 60, 100, 360, 500, 1000, 1024, 2000, 2500, 4096, 5000 models available
- Universal HTL or TTL output circuit (A, B, N + inverted signals), push-pull, max. 40 mA/channel
- Output frequency up to 600 kHz (HTL) / 1 MHz (TTL)
- Power supply 5–30 VDC with reverse-polarity and short-circuit protection
- Protection rating IP65/IP67 (housing), IP65 at shaft seal
- Max. operating speed 10,000 rpm; 2 precision ball bearings
- Common M12 8-pin radial sensor connector across all variants, shield tied to housing
- High electrical immunity: 8 kV ESD (EN 61000-4-2), 2 kV burst (EN 61000-4-4), EMC per EN 61000-6-2 / 61000-6-3
- Vibration resistant to 50 m/s^2 (10 to 2000 Hz); shock resistant to 1000 m/s^2 (6 ms)
- Functional safety data provided: MTTFd 2200 years, mission time 25 years
- 5-year warranty; cULus, Made in Germany

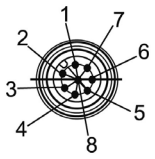
Wachendorff WDGI 58A Series Encoders

AutomationDirect Part Number	Wachendorff Part Number	Price	Output Circuit	Pulses per Revolution	Dimensional Drawing	Shaft/Bore Diameter	Flange Diameter	Input Voltage	Output
58A06603GSC8	WDGI 58A-06-60-ABN-M35-SC8	$150.00	M35	60	PDF	6mm solid shaft	58mm	5–30 VDC	HTL, inv. (TTL/RS422 comp. at 5 VDC)
58A061003GSC8	WDGI 58A-06-100-ABN-M35-SC8	$150.00		100	PDF				
58A063603GSC8	WDGI 58A-06-360-ABN-M35-SC8	$150.00		360	PDF				
58A065003GSC8	WDGI 58A-06-500-ABN-M35-SC8	$150.00		500	PDF				
58A0610003GSC8	WDGI 58A-06-1000-ABN-M35-SC8	$150.00		1000	PDF				
58A0610243GSC8	WDGI 58A-06-1024-ABN-M35-SC8	$150.00		1024	PDF				
58A0620003GSC8	WDGI 58A-06-2000-ABN-M35-SC8	$150.00		2000	PDF				
58A0625003GSC8	WDGI 58A-06-2500-ABN-M35-SC8	$150.00		2500	PDF				
58A0640963GSC8	WDGI 58A-06-4096-ABN-M35-SC8	$150.00		4096	PDF				
58A0650003GSC8	WDGI 58A-06-5000-ABN-M35-SC8	$150.00		5000	PDF				

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WDGI 58A Series

WDGI 58A Wiring

Wachendorff WDGI 58A Connector Pinout			
8-Pin Connector	***Signal***	***Pin***	***Murrelektronik Wire Colors Part# 7000-170x1-292xxxx or 7024-171x1-406xxxx***
	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

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

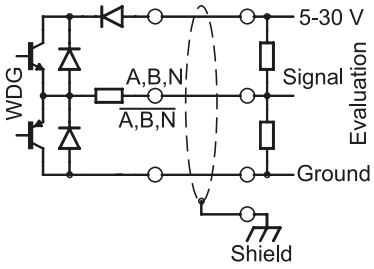
- Applying GND and V+ to two outputs is not permitted and can lead to failure.

Power Supply Inverse-polarity protection:
Encoders have reverse polarity protection and can be mis-wired without concern of damage to the encoder. 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.

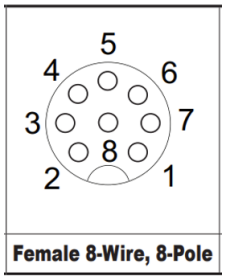
Output Short-circuit protection:
Requirements:

- Supply lines must not be reversed!
- Only one output is short-circuit-proof against GND, V+ (max. allowable supply voltage) or another output.

M35 Output Circuit



Part Number	***Connector***	***Length***	***Protection Degree***	***Shielding***
7000-17041-2920xx0	Axial female	xx=03, 05, or 10 (3, 5, or 10m)	IP65/IP66/IP67	None
7000-17061-2920xx0	90-degree female			
7024-17121-406xxx0	Axial female	xxx=015, 050, or 100 (1.5, 5, or 10m)	IP65/IP68/IP69K	Copper braid, tinned
7024-17141-406xxx0	90-degree female			



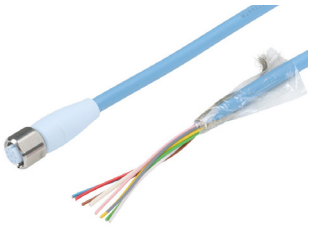
Female 8-Wire, 8-Pole



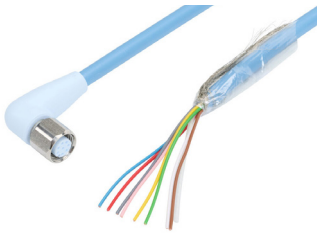
Unshielded Axial



Unshielded 90-degree



Shielded Axial



Shielded 90-degree

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WDGI 58A Series

Specifications - WDGI 58A Series

WDGI 58A Series Specifications		
Electrical Specifications	***Resolution (PPR)***	60, 100, 360, 500, 1000, 1024, 2000, 2500, 4096, 5000
	Operating Principle	Magnetic (non-contact)
	Output Signals	ABN and inverted signals
	Output Circuits	Configurable HTL, TTL (A, B, N + inv.)
	Output	Push-pull
	Power Supply	5–30 VDC
	Consumption	40 mA (typical)
	Output Current (each channel)	40 mA
	Signal Level mA	@ 20 mA
	Signal Level H	H > Vcc -10% Vcc
	Signal Level L	L < 2.5 VDC
	Output Frequency	HTL: max. 600 kHz, TTL: max. 1 MHz
	Protection	Inverse-polarity and short-circuit protection
	EMC	DIN EN 61000-6-2, DIN EN 61000-6-3
Mechanical Specifications	***Shaft/Bore Diameter Ø***	6mm [0.236in]
	Shaft Length/Bore Depth	12mm [0.472in]
	Flange Diameter Ø	58mm [2.283in]
	Flange Type	Synchro flange
	Max. Radial Shaft Load	125N [12.746 kp]
	Max. Axial Shaft Load	120N [12.236 kp]
	Starting Torque	Approx. 0.5 N·cm [0.708 in-ozf] at ambient temperature
	Bearings	2 precision ball bearings
	Max. Mechanical Operating Speed	10000 rpm*
	Nominal Service Life	3×10^8 rev. @ 100% shaft load; 4×10^{10} rev. @ 20% rated shaft load
	Electrical Connection	8-pin M12 A-coded
	Weight	230g [8.113 oz]
Materials	***Flange***	Aluminum
	Housing	Stainless steel
	Shaft	Stainless steel
Environmental Specifications	***Protection***	IP65/IP67 housing + IP65 at shaft input (EN 60529)
	Operating Temperature	-40 to +85 °C [-40 to +185 °F]
	Storage Temperature	-40 to +85 °C [-40 to +185 °F]
	Vibration	50 m/s² (10–2000 Hz) per DIN EN 60068-2-6
	Shock	1000 m/s² (6 ms) per DIN EN 60068-2-27
	Electrical Safety	according to DIN VDE 0160
	Approvals	CE, cULus

*** Note: Due to frequency limits some maximum speeds may be lower than the mechanical max. Use the following formula to determine the maximum electrical speed: Max RPM = f_max(Hz) × 60 ÷ PPR**

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Encoder Accessories

Measuring Wheels - Wachendorff Encoders

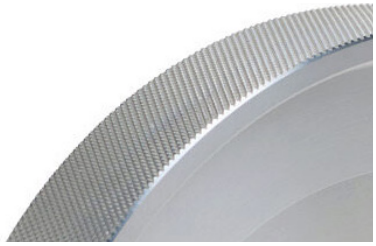
Measuring Wheels for Wachendorff Series Encoders					
AutomationDirect Part Number	*Price*	*Description*	*C*	*Material*	*For Use With*
MR200KG06	$73.00	Wachendorff Automation encoder measuring wheel, 63.7mm diameter (200mm circumference), 6mm shaft, aluminum and plastic, grooved Hytrel contact surface.	200mm	Grooved Hytrel	Any 6mm shaft encoder
MR200KH06	$73.00	Wachendorff Automation encoder measuring wheel, 63.7mm diameter (200mm circumference), 6mm shaft, aluminum and plastic, smooth Hytrel contact surface.		Smooth Hytrel	
MR200KR06	$76.00	Wachendorff Automation encoder measuring wheel, 63.7mm diameter (200mm circumference), 6mm shaft, aluminum, knurled metal contact surface.		Knurled Metal	
MR200NG06	$89.00	Wachendorff Automation encoder measuring wheel, 63.7mm diameter (200mm circumference), 6mm shaft, aluminum and plastic, pimpled rubber contact surface.		Pimpled Rubber	
MR200KG10	$73.00	Wachendorff Automation encoder measuring wheel, 63.7mm diameter (200mm circumference), 10mm shaft, aluminum and plastic, grooved Hytrel contact surface.		Grooved Hytrel	Any 10mm shaft encoder
MR200KH10	$73.00	Wachendorff Automation encoder measuring wheel, 63.7mm diameter (200mm circumference), 10mm shaft, aluminum and plastic, smooth Hytrel contact surface.		Smooth Hytrel	
MR200KR10	$76.00	Wachendorff Automation encoder measuring wheel, 63.7mm diameter (200mm circumference), 10mm shaft, aluminum, knurled metal contact surface.		Knurled Metal	
MR200NG10	$89.00	Wachendorff Automation encoder measuring wheel, 63.7mm diameter (200mm circumference), 10mm shaft, aluminum, pimpled rubber contact surface.		Pimpled Rubber	
MR500KH10	$120.00	Wachendorff Automation encoder measuring wheel, 159.2mm diameter (500mm circumference), 10mm shaft, aluminum and plastic, smooth Hytrel contact surface.	500mm	Smooth Hytrel	Any 10mm shaft encoder
MR500KG10	$120.00	Wachendorff Automation encoder measuring wheel, 159.2mm diameter (500mm circumference), 10mm shaft, aluminum and plastic, grooved Hytrel contact surface.		Grooved Hytrel	
MR500NG10	$146.00	Wachendorff Automation encoder measuring wheel, 159.2mm diameter (500mm circumference), 10mm shaft, aluminum, pimpled rubber contact surface.		Pimpled Rubber	
MR500KR10	$131.00	Wachendorff Automation encoder measuring wheel, 159.2mm diameter (500mm circumference), 10mm shaft, aluminum, knurled metal contact surface.		Knurled Metal	
MR500KV10	$146.00	Wachendorff Automation encoder measuring wheel, 159.2mm diameter (500mm circumference), 10mm shaft, aluminum, smooth vulcanized rubber contact surface.		Vulcanized Rubber	



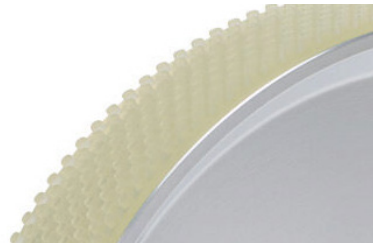
Grooved Hytrel



Smooth Hytrel



Knurled Metal



Pimpled Rubber



Smooth Vulcanized Rubber

Measuring Wheels, *continued*



MR200KG10



MR500KH10

Measuring Wheel Selection Guide								
Fields of Application	*Surface Finish*	*Hardness Shore A*	*Wheel Body Material*	*Circumference*	*Standard Bore-hole Diameter*	*Width*	*Est. Weight*	*Part*
Rubber, soft plastics, certain textiles, rough wood	Metal, knurled	–	Aluminum	200mm	6mm	12mm	60g	MR200KR06
					10mm			MR200KR10
				500mm	10mm	25mm	350g	MR500KR10
Wood with even surface, plastics, wire, greased metals	Hytrel, smooth	85–90	Plastic	200mm	6mm	12mm	35g	MR200KH06
					10mm			MR200KH10
				500mm	10mm	25mm	260g	MR500KH10
Carpets, coarse textiles	Rubber, pimpled	–	Aluminum	200mm	6mm	12mm	37g	MR200NG06
					10mm			MR200NG10
				500mm	10mm	25mm	320g	MR500NG10
Paper, pasteboard, cable, ungreased metal, raw wood, plastics, textiles, floor coverings, leather	Hytrel, grooved	85–90	Plastic	200mm	6mm	12mm	35g	MR200KG06
					10mm			MR200KG10
				500mm	10mm	25mm	260g	MR500KG10
Paper, pasteboard, cable, ungreased metal, raw wood, plastics, wire	Vulcanized rubber, smooth	90–95	Aluminum	500mm	10mm	25mm	320g	MR500KV10

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Encoder Accessories

Spring-loaded Arms - Wachendorff Encoders

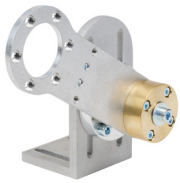
Spring-loaded Arms for Wachendorff Series Encoders					
AutomationDirect Part Number	***Price***	***Description*****	***Wheel Size***	***Circumference***	***For Use With***
WDGMA10000	$160.00	Wachendorff Automation spring-loaded counter-clockwise arm, aluminum. Mounting bracket included.	200mm or 500mm	10mm shaft	Wachendorff 58B and 58V series encoders Lika Electronic AM58S and AQ58S series encoders
WDGMA10002	$160.00	Wachendorff Automation spring-loaded clockwise arm, aluminum. Mounting bracket included.			
WDGMA51051	$244.00	Wachendorff Automation spring-loaded counter-clockwise arm, aluminum. Mounting bracket included.			
WDGMA51052	$244.00	Wachendorff Automation spring-loaded clockwise arm, aluminum. Mounting bracket included.			
WDGMA31031*	$191.00	Wachendorff Automation spring-loaded counter-clockwise arm, aluminum. Mounting bracket included.	200mm	6mm and 10mm shafts	Wachendorff 36A and 36J series encoders
WDGMA31032*	$191.00	Wachendorff Automation spring-loaded clockwise arm, aluminum. Mounting bracket included.			

*** WDGMA3103x are designed for 200mm wheels. These arms will work with 500mm wheels, but the wheels must be removed to adjust the arm tension.**
**** See the next page for a visual explanation of clockwise vs. counter-clockwise arms.**

Note: For a complete linear measurement system select a spring-loaded arm, choose an encoder that will mount to it, then select a wheel with the desired circumference (and bore size to match the encoder's solid shaft).



WDGMA31031



WDGMA10000



WDGMA51051



WDGMA31032



WDGMA10002



WDGMA51052

Spring-loaded Arms, *continued*



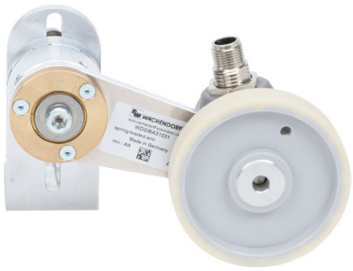
Spring-loaded clockwise:
WDGMA10002



Spring-loaded counter-clockwise:
WDGMA10000



Spring-loaded clockwise:
WDGMA31032



Spring-loaded counter clockwise:
WDGMA31031



Spring-loaded clockwise:
WDGMA51052

Spring-loaded counter clockwise:
WDGMA51051

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Encoder Accessories

Accessories - Wachendorff Encoders

Accessories for Wachendorff Series Encoders			
AutomationDirect Part Number	*Price*	*Description*	*For Use With*
DSK290606	$33.00	Wachendorff Automation encoder coupling, double loop, galvanized steel and polyurethane, setscrew, size 29, 6 x 6mm bore.	Any 6mm shaft encoder
FB29B0606	$58.00	Wachendorff Automation encoder coupling, bellows, stainless steel and aluminum, setscrew, size 29, 6 x 6mm bore.	
DSK291010	$33.00	Wachendorff Automation encoder coupling, double loop, galvanized steel and polyurethane, setscrew, size 29, 10 x 10mm bore.	Any 10mm shaft encoder
DSK481010	$63.00	Wachendorff Automation encoder coupling, double loop, galvanized steel and polyurethane, setscrew, size 48, 10 x 10mm bore.	
FB29B1010	$58.00	Wachendorff Automation encoder coupling, bellows, stainless steel and aluminum, setscrew, size 29, 10 x 10mm bore.	
MG58A	$62.00	Wachendorff Automation mounting bell, 68mm and 75mm bolt hole circles, Fortron PPS.	Wachendorff 58A series encoders
MW58B	$28.00	Wachendorff Automation right angle bracket, aluminum.	Wachendorff 58B or 58V series encoders
QF58B	$28.00	Wachendorff Automation square mounting flange, 48mm bolt hole square, anodized aluminum.	
WDGDH10000	$196.00	Wachendorff Automation spring-loaded encoder mount, aluminum.	
WDGQF58B04	$17.00	Wachendorff Automation square mounting flange, 65–75mm adjustable bolt hole circle, aluminum.	
*SP300**	$26.00	Wachendorff Automation servo mount clamp, steel.	Wachendorff 36A, 36J, 58A, and 58B series encoders

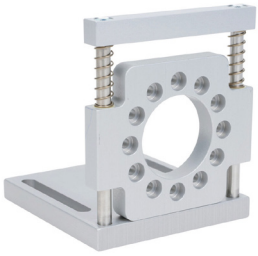
*** Note: ADC Part Number SP300 is Wachendorff Part Number SP-3-00.**



SP300



QF58B



WDGDH10000



DSK290606



WDGQF58B04



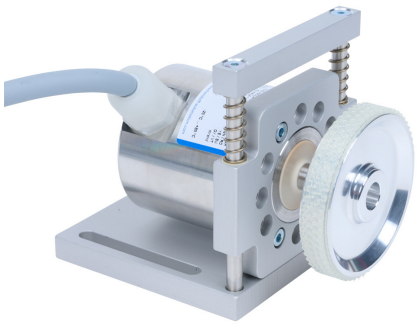
MG58A



FB29B0606



MW58B



WDGDH10000 (shown with 58V encoder and wheel, sold separately)

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Encoder Accessories

Encoder Signal Conditioner/Splitter - Wachendorff Encoders



The Wachendorff WDG012VGOM is a compact, DIN rail-mounted encoder distributor designed to condition, split, and cross-switch incremental encoder signals in industrial control systems. The WDG012VGOM is a universal encoder interface: the unit accepts two separate quadrature (A/B/Z or A/B or just A) encoder inputs and delivers two sets of quadrature signals out, with each set of outputs adjustable to HTL, TTL, (single-ended) or RS422 (differential) levels. The WDG012VGOM can act as an encoder level converter, a dual-output encoder splitter, or a contactless encoder signal switcher controlled via remote logic inputs. It handles both symmetric (differential) and asymmetric (single-ended) signal formats across the A, B, and Z channels, supports frequencies up to 1 MHz, and always regenerates full differential output pairs even when only single-ended signals are applied at the input. An integrated auxiliary 5 VDC output simplifies encoder power supply wiring, while front-panel LEDs provide at-a-glance diagnostics of operating mode and control-input status.

Features

- Universal encoder interface, applicable as level converter, encoder splitter and cross switch
- Two encoder inputs (A, /A, B, /B, Z, /Z), adjustable either to HTL, TTL or RS422 level
- Suitable for symmetrical (differential), asymmetrical (single-ended) quadrature as well as single channel signals
- Two signal outputs (A, /A, B, /B, Z, /Z), adjustable either to HTL, TTL or RS422 level
- Contactless and bounce-free switch-over between the encoder channels, by remote control signals
- Auxiliary output 5 VDC for encoder supply
- High frequency range up to 1 MHz
- Three primary applications:
  - Dual level converter (adjust/change/extend signals from two separate encoder inputs to two separate encoder outputs)
  - Encoder splitter (one input split into dual output)
  - Encoder signal switcher (one or two encoder inputs can be crossed/switched on the fly to two different outputs via digital inputs Control1 and Control2)

Signal Conditioner for Wachendorff Series Encoders

AutomationDirect Part Number	Price	Description	Drawing	For Use With
WDG012VGOM	$415.00	Wachendorff Automation signal conditioner, isolated, Input: 2-channel, differential or single-ended line driver encoder, Output: 2-channel, differential or single-ended line driver encoder, 12–30 VDC operating voltage, 35mm DIN rail mount.	PDF	Any non-ethernet/ comms encoders

WDG012VGOM Specifications

Power Supply	Input Voltage	12–30 VDC
	Protection Circuit	Reverse polarity protection
	Ripple	≤ 10% at 24 VDC
	Consumption	Approximately 50 mA (unloaded)
Connections	Connector Type	Screw terminals, 1.5mm^2 / AWG16
Encoder Supply	Output Voltages	5.2 VDC and 10–28 VDC (approx. 2 VDC lower than input voltage)
	Output Current	Max. 125 mA
	Protection	Short-circuit proof
Incremental Encoder Inputs	Number of Inputs	2 encoders
	Signal Levels	Adjustable to TTL (single ended <5V) / RS422 (differential signal > 1V) or HTL (10–30 V)
	Channels	Symmetrical: A, /A, B, /B, Z, /Z Asymmetrical: A, B, Z
	Frequency	Symmetrical: max. 1 MHz Asymmetrical: max. 250 kHz
	Internal Resistance	Ri ≈ 4.7 kOhm
Control DIP Switch	Number of Inputs	2
	Application	Contactless and bounce-free signal switchover
	Levels	HTL, PNP (10–30 V)
Incremental Encoder Outputs	Number of Outputs	2 encoders
	Output Level	Adjustable to TTL / RS422 or HTL (12–30 V, ≙ power supply voltage)
	Channels	A, /A, B, /B, Z, /Z
	Output Current	RS422/TTL: 50 mA HTL: max. 30 mA (per output)
	Output Circuit	Push-pull
	Signal Propagation Delay	Approximately 600 ns
	Protection	Short-circuit proof
Housing	Material	Plastic
	Mounting	35mm DIN rail (according to EN 60715)
	Protection Class	IP20
	Weight	~ 100g
Temperature Range	Operation	-20 to +60 °C [-4 to +140 °F] (not condensing)
	Storage	-30 to +75 °C [-22 to +167 °F] (not condensing)
Failure Rate	MTBF in Years	146.4 years (long-term usage at 60 °C [140 °F])
Conformity and Standards	EMC 2004/108/EC	EN 61000-6-2, EN 61000-6-3, EN 61000-6-4
	Guideline 2011 / 65 / EU	RoHs

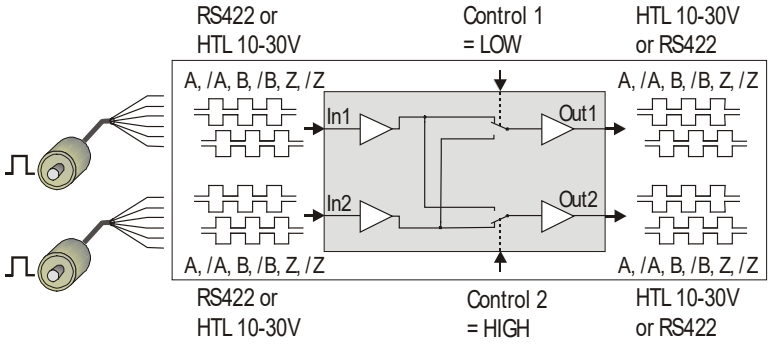
Signal Conditioner - Applications

Dual Level Converter

Both inputs can be individually set to either symmetric (differential) format using A, /A, B, /B, Z, /Z channels, or to asymmetric (single-ended) format using A, B, Z channels only. Acceptable input levels are RS422 (differential), TTL* (single-ended) and HTL 10–30 V.

The output format can again be selected individually for each output. The outputs provide all signals including the inverted channels, even when no inverted signals are applied to the input.

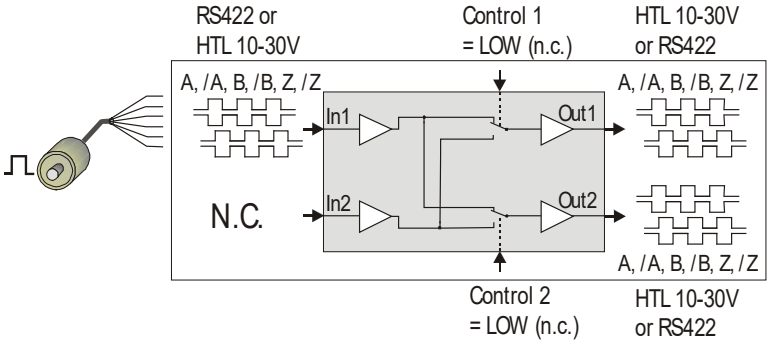
With Control input 1 = LOW (or unconnected) and Control input 2 = HIGH the signal ways are as shown in the drawing above, featuring two independent level converters.



Encoder Splitter (Dual Output)

Input 1 is used as encoder input, and Input 2 remains unconnected. The input can be set to either symmetric (differential) format using A, /A, B, /B, Z, /Z channels, or to asymmetric (single-ended) format using A, B, Z channels only. Acceptable input levels are RS422 (differential), TTL* (single-ended) and HTL 10–30 V.

The output standard can again be selected individually for each output. The outputs provide always all signals including the inverted channels, even when no inverted signals are applied to the input. Control1 and Control2 remain unconnected with this application.



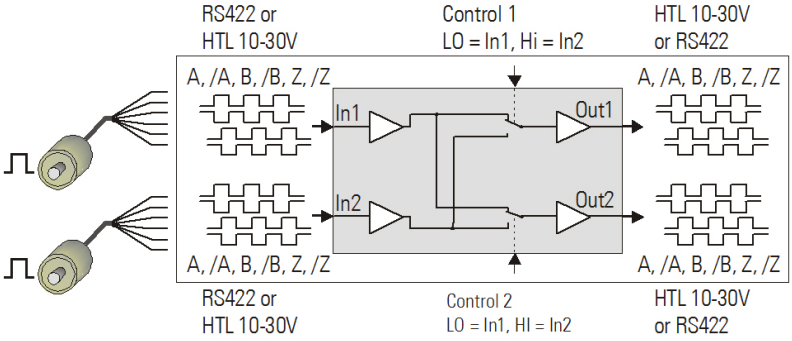
Encoder Signal Switcher

Both inputs can be individually set to either symmetric (differential) format using A, /A, B, /B, Z, /Z channels, or to asymmetric (single-ended) format using A, B, Z channels only. Acceptable input levels are RS422 (differential), TTL* (single-ended) and HTL 10–30 V.

The output standard can again be selected individually for each output. The outputs provide always all signals including the inverted channels, even when no inverted signals are applied to the input.

Inputs Control1 and Control2 select the signal ways:

- LOW: The corresponding output is connected to input 1
- HIGH: The corresponding output is connected to input 2



** For TTL inputs (single-ended <5V), see section 3.4 of the WDG012VGOM user manual.*

Encoder Selection Guide

SAE Dimension Encoders & Metric Dimension Encoders

Rotary Incremental 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, 8mm 3/16, 1/4, 3/8, 1/2, 5/8in	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 1/4in, 3/8in	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	1/4in	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, 2000, 2048, 3600, 4096	Lika
	Medium Duty	A50	50mm	1/4, 3/8in	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 1/8in)	Hollow		IP64	M23 cables sold separately	30	30	1024	
		AR01	58mm	15mm	Solid Dual-shaft		IP65	M12 cables sold separately	50	50	250 (linear res: 0.36 °/cts) 1250 (linear res: 0.072 °/cts)	
		TRDA-20	2in	3/8in	Solid	5 VDC Line Driver (TTL) or 5–30 VDC Push-Pull (Totem Pole)	IP50	Integral 2m pigtail cable	50	30	100, 360, 500, 1000, 1024, 2500	JTEKT
		TRDA-25	2.5in flange (w/2.0" body)	3/8in	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	AQ58/59	58mm, 59mm	3/8in solid, 15mm hollow (reducer bushings available for 6, 8, 10, 11, 12mm; 1/4, 3/8, 1/2in)	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 16384 (default 1024)	Lika
		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
		WDGI 58A	58mm	6mm	Solid	5–30 VDC HTL, inv. (TTL/ RS422 comp. at 5 VDC)	IP65/ IP67	8-pin M12 A-coded cable	125	120	60, 100, 360, 500, 1000, 1024, 2000, 2500, 4096, 5000	
		WDGI 58B	58mm	10mm	Solid	5–30 VDC HTL, inv. (TTL/ RS422 comp. at 5 VDC)	IP65/ IP67	8-pin M12 A-coded cable	220	120	60, 100, 360, 500, 1000, 1024, 2000, 2500, 4096, 5000	
		WDGI 58H	58mm	12mm or 15mm (reducer bushings available for 6, 7, 8, 10mm; 1/4, 3/8, 1/2in)	Hollow	R05: 4.75–5.5 VDC R05: TTL, RS422 comp., inverted	IP65	8-pin M12 A-coded cable	80	60	4096, 5000	
						R24: 10–30 VDC HTL inverted					2500, 4096, 5000	
						R30: 5–30 VDC HTL, inv. (TTL/RS422 comp. at 5 VDC)					60, 100, 360, 500, 1000, 1024, 2000	
		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 Pole)	IP69K	Integral 5m pigtail	100	100	60, 100, 360, 500, 1000, 1024, 2000, 2500, 4096, 5000	

Encoder Selection Guide

SAE Dimension Encoders & Metric Dimension Encoders

Rotary Incremental Encoder Selection Guide *(continued)*

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	Heavy Duty	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

Rotary Absolute 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
Absolute	Medium Duty	TRD-NA	50mm	8mm	Solid	10–30 VDC NPN/PNP Open Collector (HTL)	IP65	Integral 2m pigtail cable	50	30	32, 64, 128, 180, 256, 360, 512, 720, 1024 (Gray code)	JTEKT
		AM58/59[1]	58mm	3/8in solid, 15mm hollow (reducer bushings available for 6, 8, 10, 11, 12mm; 1/4, 3/8, 1/2in)	Solid or Hollow	5-30 or 10-30VDC Input, Ethernet/Serial Comms Output	IP65	M12 cables sold separately	40	40	Programmable up to 8192 PPR (13 bit), up to 16384 turns (14 bit)	Lika

1 - AM58/59 encoders have different versions supporting 4 different outputs - EtherNet/IP, Modbus TCP, EtherCAT, and Modbus RTU (RS485).

Linear Encoder Selection Guide

Type	Duty	Sensing Technology	Series	Available Lengths	Tracking Width	Operating Voltage (VDC) and Electrical Output	IP Rating	Cable	Max Speed	Available Resolutions	Brand
Rotary Encoder + Wheel	Medium Duty	Optical	AR01	Unlimited	88mm (two wheels)	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	With 12.5in wheels: 34 ft/s With 250mm wheels: 8.3 m/s	250 PPR (linear res: 0.36 deg/cts) 1250 PPR (linear res: 0.072 deg/cts)	Lika
Linear Encoder + Tape (non-contact)	Medium Duty	Magnetic	AME95	0.25 to 20m (tape can be cut in field)	10mm tape	5 VDC Line Driver (Differential) or 10–30 VDC Push-Pull (Totem Pole)	IP67	2m pigtail or 2m 8-pin M12 male A-coded	20 m/s	10µm (x4 quadrature= 2.5µm/ct)	
Linear Encoder + Rail (captured)	Heavy Duty	Magnetic	AMIG	Fixed lengths: 195, 220, 240, 300, 370, or 650mm	25mm rail		IP65		1 m/s	50µm (x4 quadrature= 12.5µm/ct)	