WACHENDORFF

The Encoder Experts

WDGI 58H Series

The Wachendorff WDGI 58H is a rugged 58mm [2.283in] through-bore incremental rotary encoder that mounts directly onto an existing machine shaft, eliminating couplings and simplifying installation in retrofit and space-constrained applications. Available with 12mm [0.472in] or 15mm [0.591in] hollow bore, the encoder uses a permanently attached clamping ring on a stainless steel bore and rides on two precision ball bearings inside an aluminum flange with a die-cast aluminum, powder-coated housing cap, delivering IP65 protection all around. Three output circuit versions cover virtually any controller input: R30 (5–30 VDC HTL push-pull, inverted, to 2500 PPR), R24 (10–30 VDC HTL push-pull, inverted, to 5000 PPR), and R05 (4.75–5.5 VDC TTL/RS422-compatible, inverted, to 5000 PPR). All versions provide A, B, and N channels plus inverted complements for high noise immunity over long cable runs, output frequency to 200 kHz, and an M12 8-pin radial sensor connector.



Through Bore 12mm

Features

- Resolution: 60, 100, 360, 500, 1000, 1024, 2000, 2500, 4096, 5000 models available
- Available in 12mm [0.472in] or 15mm [0.591in] hollow bore, 44.5mm [1.752in] bore length
- Three output circuits available: R05, R24, and R30 cover 5 VDC TTL, 24 VDC HTL, and wide-range HTL controller inputs
- Output frequency to 200 kHz; 40 mA max load per channel
- Power supply 5–30 VDC (R30), 10–30 VDC (R24), and 4.75–5.5 VDC (R05) options available
- Reverse-polarity and short-circuit protection on most models
- Protection rating IP65 all around
- Max. operating speed 6,000 rpm; 2 precision ball bearings
- Spring plate torque support (WDGDS10001) included
- 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)
- 5-year warranty; cULus, Made in Germany



Through Bore 15mm

Wachendorff WDGI 58H Series Encoders

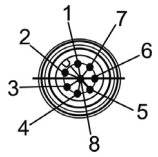
AutomationDirect Part Number	Wachendorff Part Number	Price	Output Circuit	Pulses per Revolution	Dimensional Drawing	Shaft/Bore Diameter	Flange Diameter	Input Voltage	Output
58H12603ESC8	WDGI 58H-12-60-ABN-R30-SC8	$330.00	R30	60	PDF	12mm hollow bore[1]	58mm	5–30 VDC	HTL, inv. (TTL/ RS422 comp. at 5 VDC)
58H121003ESC8	WDGI 58H-12-100-ABN-R30-SC8	$330.00		100	PDF				
58H123603ESC8	WDGI 58H-12-360-ABN-R30-SC8	$330.00		360	PDF				
58H125003ESC8	WDGI 58H-12-500-ABN-R30-SC8	$330.00		500	PDF				
58H1210003ESC8	WDGI 58H-12-1000-ABN-R30-SC8	$330.00		1000	PDF				
58H1210243ESC8	WDGI 58H-12-1024-ABN-R30-SC8	$330.00		1024	PDF				
58H1220003ESC8	WDGI 58H-12-2000-ABN-R30-SC8	$330.00		2000	PDF				
58H1225003DSC8	WDGI 58H-12-2500-ABN-R24-SC8	$330.00	R24	2500	PDF			10–30 VDC	HTL inverted
58H1240963DSC8	WDGI 58H-12-4096-ABN-R24-SC8	$330.00		4096	PDF				
58H1250003DSC8	WDGI 58H-12-5000-ABN-R24-SC8	$330.00		5000	PDF				
58H1240963CSC8	WDGI 58H-12-4096-ABN-R05-SC8	$330.00	R05	4096	PDF			4.75–5.5 VDC	TTL, RS422 comp., inverted
58H1250003CSC8	WDGI 58H-12-5000-ABN-R05-SC8	$330.00		5000	PDF				
58H15603ESC8	WDGI 58H-15-60-ABN-R30-SC8	$330.00	R30	60	PDF	15mm hollow bore[2]	58mm	5–30 VDC	HTL, inv. (TTL/ RS422 comp. at 5 VDC)
58H151003ESC8	WDGI 58H-15-100-ABN-R30-SC8	$330.00		100	PDF				
58H153603ESC8	WDGI 58H-15-360-ABN-R30-SC8	$330.00		360	PDF				
58H155003ESC8	WDGI 58H-15-500-ABN-R30-SC8	$330.00		500	PDF				
58H1510003ESC8	WDGI 58H-15-1000-ABN-R30-SC8	$330.00		1000	PDF				
58H1510243ESC8	WDGI 58H-15-1024-ABN-R30-SC8	$330.00		1024	PDF				
58H1520003ESC8	WDGI 58H-15-2000-ABN-R30-SC8	$330.00		2000	PDF				
58H1525003DSC8	WDGI 58H-15-2500-ABN-R24-SC8	$330.00	R24	2500	PDF			10–30 VDC	HTL inverted
58H1540963DSC8	WDGI 58H-15-4096-ABN-R24-SC8	$330.00		4096	PDF				
58H1550003DSC8	WDGI 58H-15-5000-ABN-R24-SC8	$330.00		5000	PDF				
58H1540963CSC8	WDGI 58H-15-4096-ABN-R05-SC8	$330.00	R05	4096	PDF			4.75–5.5 VDC	TTL, RS422 comp., inverted
58H1550003CSC8	WDGI 58H-15-5000-ABN-R05-SC8	$330.00		5000	PDF				

Note 1: 6, 7, 9, 10mm or 1/4, 3/8in available with optional WDGHA bore reducer.
Note 2: 1/2in available with optional WDGHA bore reducer.

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WDGI 58H Series

WDGI 58H Wiring

Wachendorff WDGI 58H 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

Wachendorff 58H Circuit Protection			
Output Circuit Type	*Circuit Protection*	*Power Supply Inverse-Polarity Protection*	*Output Short Circuit Protection*
R05 (CL)	no	no	yes
R24 (DL)	yes	yes	yes
R30 (EL)	no	yes	yes

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.

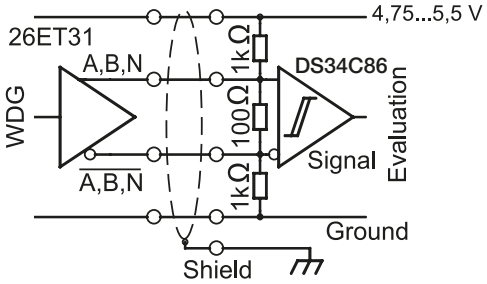
- Applying GND and V+ to two outputs is not permitted and can lead to failure.

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.

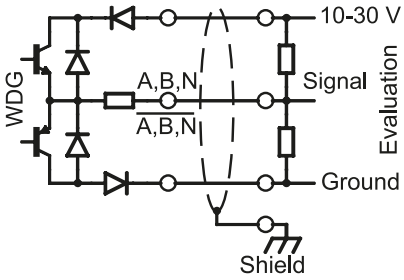
Output Short-circuit protection:
Requirements:

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

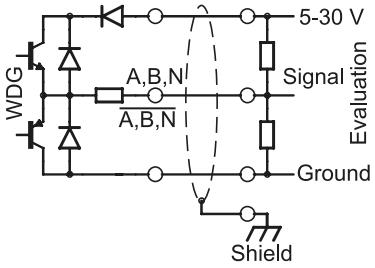
R05 Output Circuit
(CL models)



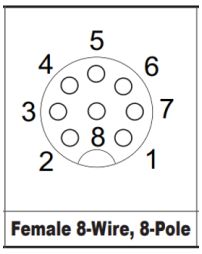
R24 Output Circuit
(DL models)



R30 Output Circuit
(EL models)



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			



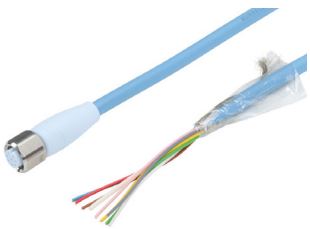
Female 8-Wire, 8-Pole



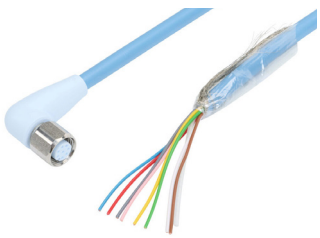
Unshielded Axial



Unshielded 90-degree



Shielded Axial



Shielded 90-degree

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WDGI 58H Series

Specifications - WDGI 58H Series

WDGI 58H Series Specifications				
Model		**R05 Models**	**R24 Models**	**R30 Models**
Electrical Specifications	Resolution (PPR)	4096, 5000	2500, 4096, 5000	60, 100, 360, 500, 1000, 1024, 2000
	Operating Principle	Magnetic (non-contact)		
	Output Signals	ABN and inverted signals		
	Output Circuits	TTL, RS422 comp., inverted	HTL inverted	HTL, inv. (TTL/RS422 comp. at 5 VDC)
	Output	Push-pull		
	Power Supply	4.75–5.5 VDC	10–30 VDC	5–30 VDC
	Consumption	70 mA (typical)		
	Output Current (each channel)	40 mA		
	Signal Level mA	@ 20 mA		
	Signal Level H	H > 2.5 VDC	H > Vcc -2.5 VDC	HTL: H > Vcc -10% Vcc
	Signal Level L	L < 2.5 VDC		
	Output Frequency	max. 200 kHz		
	Protection	No	Inverse-polarity and short-circuit protection	Inverse-polarity protection only
	EMC	DIN 61000-6-2 DIN 61000-6-3		
Mechanical Specifications	Shaft/Bore Diameter Ø	12mm [0.472in] or 15mm [0.591in]		
	Shaft Length/Bore Depth	44.5mm [1.752in]		
	Flange Diameter Ø	58mm [2.283in]		
	Flange Type	Hollow shaft (through-bored)		
	Max. Radial Shaft Load	80N [8.157 kp]		
	Max. Axial Shaft Load	60N [6.118 kp]		
	Starting Torque	Approx. 2.2 N•cm [3.115 in-ozf] at ambient temperature		
	Bearings	2 precision ball bearings		
	Max. Mechanical Operating Speed	6000 rpm*		
	Nominal Service Life	1×10^{9} rev. @ 100% shaft load; 1×10^{11} rev. @ 20% rated shaft load		
	Electrical Connection	8-pin M12 A-coded		
	Weight	220g [7.76 oz]		
Materials	Flange	Aluminum		
	Housing	Die cast aluminum, powder coated		
	Shaft/Bore	Stainless steel		
Environmental Specifications	Protection	IP65 all around		
	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

Mounting Accessories - 58 Series Wachendorff Encoders

Mounting Accessories for 58 Series Hollow Shaft Encoders			
AutomationDirect Part Number	*Price*	*Description*	*For Use With*
WDGDS10001	$13.00	Wachendorff Automation encoder mounting tether, 46mm, stainless steel. Mounting hardware included.	Wachendorff 58E, 58H series hollow shaft encoders
WDGDS10004	$17.00	Wachendorff Automation encoder mounting tether, 34mm, stainless steel. Mounting hardware included.	
WDGDS10005	$13.00	Wachendorff Automation encoder anti-rotation insert, 4mm pin slot, polyamide. Requires 4mm anti-rotation pin. Pin not sold by AutomationDirect.	
WDGDS10007	$15.00	Wachendorff Automation encoder mounting tether, 49mm, stainless steel. Mounting hardware included.	
WDGDS10008	$12.00	Wachendorff Automation encoder mounting plate, 36mm, stainless steel. Mounting hardware included.	
WDGDS10009	$16.00	Wachendorff Automation encoder mounting tether, 35mm, stainless steel. Mounting hardware included.	
WDGDS10011	$16.00	Wachendorff Automation encoder mounting tether, 90.5mm, stainless steel. Mounting hardware included.	
WDGDS10012	$13.00	Wachendorff Automation encoder mounting tether, 48mm, stainless steel. Mounting hardware included.	
WDGDS10013	$10.00	Wachendorff Automation encoder mounting plate, 112mm bolt hole circle, stainless steel. Mounting hardware included.	
WDGDS10019	$20.00	Wachendorff Automation encoder mounting plate, 63mm bolt hole circle, stainless steel. Mounting hardware included.	



WDGDS10001



WDGDS10004



WDGDS10005



WDGDS10008



WDGDS10011



WDGDS10013



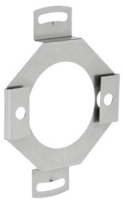
WDGDS10007



WDGDS10009



WDGDS10012



WDGDS10019

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Encoder Accessories

Bore Reducers - Wachendorff Encoders

Reducer Bushings for Wachendorff Encoders				
AutomationDirect Part Number	***Price***	***Description***	***Reduction***	***For Use With***
WDGHA1206	$20.00	Wachendorff Automation reducer bushing, 12–6mm, metal.	12mm to 6mm	Wachendorff 36E12, 58E12, or 58H12 series hollow shaft encoders
WDGHA1207	$20.00	Wachendorff Automation reducer bushing, 12–7mm, metal.	12mm to 7mm	
WDGHA1208	$20.00	Wachendorff Automation reducer bushing, 12–8mm, metal. .	12mm to 8mm	
WDGHA1210	$20.00	Wachendorff Automation reducer bushing, 12–10mm, metal.	12mm to 10mm	
WDGHA1263	$20.00	Wachendorff Automation reducer bushing, 12mm to 1/4in, metal.	12mm to 1/4in	
WDGHA1295	$20.00	Wachendorff Automation reducer bushing, 12mm to 3/8in, metal.	12mm to 3/8in	
WDGHA153Z	$20.00	Wachendorff Automation reducer bushing, 15mm to 1/2in, metal.	15mm to 1/2in	Wachendorff 36E15, 58E15, or 58H15 series hollow shaft encoders



WDGHA153Z



WDGHA1206



WDGHA1208



WDGHA1263



WDGHA1207



WDGHA1210



WDGHA1295

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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

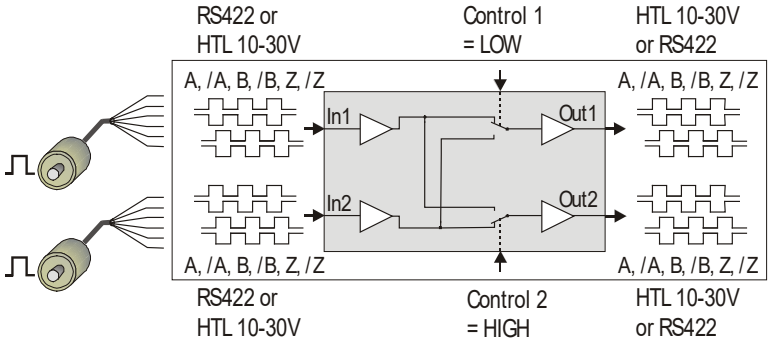
Signal Conditioner - Applications

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.

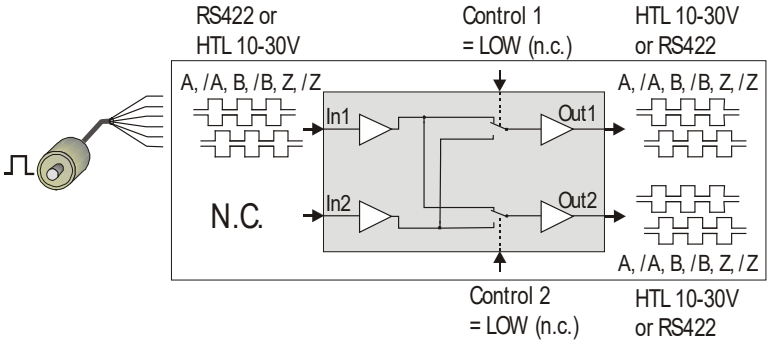
With Control input 1 = LOW (or unconnected) and Control input 2 = HIGH the signal ways are as shown in the drawing above, featuring two independent level converters.



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.



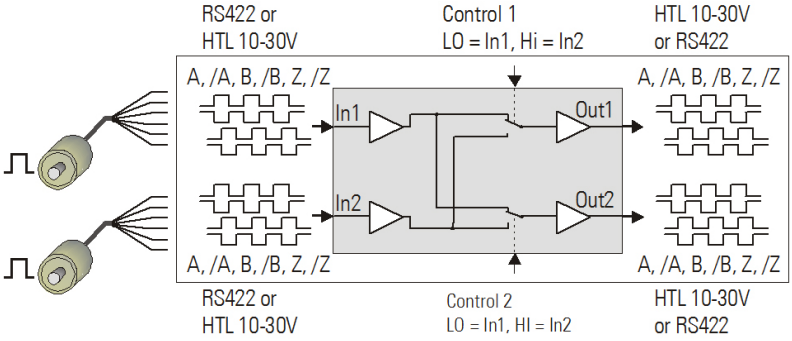
Encoder Signal Switcher

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)	