Encoders can be used with controllers for position monitoring or control: be

DURAPULSE

AC Drive

High-Quality, Rugged Encoders

Where can I use an encoder?

Encoders are used in all types of motion sensing applications, including machine tooling, semiconductor positioning and multi-axis positioning. All Koyo encoders feature a reinforced aluminum diecast casing and come equipped with a two-meter cable or MS connector. Use the incremental encoders with our PLC high-speed counter modules for accurate position monitoring and control. Or use our absolute encoders to monitor position with Gray code and standard PLC DC inputs.

Why buy an encoder from us?

There are several distinct advantages to purchasing your encoder from AUTOMATION DIRECT:

Price

As with all of our product lines, our prices are often well below the list prices of traditional automation suppliers. Our direct business model allows us to operate more efficiently than other suppliers and pass the savings on to you.

Quality

All encoders carry a 1-year warranty, and a 30-day money-back guarantee. If for any reason you are not satisfied with your purchase, send it back and we will refund your money.

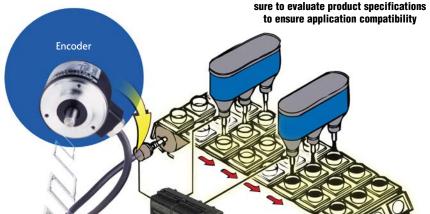
What is a light-duty encoder?

Includes series: TRD-MX, TRDA-2E, TRD-S, TRD-SH

A light-duty encoder is a cost-effective encoder requiring minimal load on the shaft. Ours offer the following features:

- Size 10 (1.0 inch or 25mm) diameter body or Size 15 (1.5 inch or 38mm) diameter body
- Dustproof (IP40 or IP50) rating
- 4mm, 6 mm or 1/4" standard shaft or 8 mm hollow shaft
- Resolution available from 100 pulses/revolution to 2500 pulses/revolution
- Open collector or line driver outputs
- Up to 200 kHz response frequency

1 Absolute encoders are not compatible with the PLC high-speed counter modules, but can be used with general purpose DC input cards.



What is a medium-duty encoder?

Includes series: TRD-N, TRD-NH, TRDA-20, TRDA-25, TRD-NA

A medium-duty encoder is the most popular encoder we offer. The product line offers the greatest flexibility of choice while maintaining very high quality, all for a very low price. Our medium-duty encoders offer:

- Size 20 (2.0 inch or 50mm) diameter body or Size 25 (2.5 inch flange with 2.0 inch diameter body) frames
- Dust Proof (IP50) or splash-proof (IP65) ratings
- 8 mm or 3/8" standard shaft or 8 mm hollow shaft
- · Incremental or absolute (Gray code) operation
- Incremental resolution available from 3 pulses/revolution to 5000 pulses/revolution
- Absolute resolution available from 32 pulses/revolution to 2048 pulses/revolution
- Open collector, Totem-pole or line driver output versions
- Up to 200 kHz response frequency
- MS connector models available

What is a heavy-duty encoder?

Includes series: TRD-GK

A heavy-duty encoder is the most rugged encoder you can buy. Top-of-the-line bearings help maintain a service life of 12 billion revolutions. Our heavy-duty encoders offer:

- Rugged size 30 (3.0 inch or 78mm) diameter body
- · Splash-proof (IP65) rating
- 10 mm standard shaft
- Incremental operation from 30 pulses/revolution to 5000 pulses/revolution
- Totem-pole output
- Up to 100 kHz response frequency

Great Encoder Selection at Great Prices



	, , ,		ı	Medium Duty TRD-NH			medium duty 1 kD-N				
	Duty	Family	Size	Encoder diameter	Shaft dlameter	Solid or Hollow Shaft	Operating Voltage (VDC) and Electrical Output*	IP Rating	Max Radial Load (N)	Max Axiai Load (N)	Available resolutions
Incremental	Light Duty	TRD-MX	10	25mm	4mm	solid	5V Line Driver or 5-12V OC or 12-24V OC	IP50	10	5	100, 360, 500, 1000, 1024
		TRDA-2E	15	1.5"	1/4"	solid	5V Line Driver or 12-24V OC	IP50	30	20	100, 360, 500, 1000, 1024, 2500
		TRD-S	15	38mm	6mm	solid	5V Line Driver or 5-12V OC or 12-24V OC	IP40	20	10	100, 200, 250, 300, 360, 400, 500, 600, 800, 1000, 1024, 1200, 2000, 2500
		TRD-SH	15	38mm	8mm	hollow	5V Line Driver or 5-12V OC or 12-24V OC	IP40	20	10	100, 200, 250, 300, 360, 400, 500, 600, 800, 1000, 1024, 1200, 2000, 2500
	Medium Duty	TRDA-20	20	2"	3/8"	solid	5V Line Driver or 5-30V P/P	IP50	50	30	100, 360, 500, 1000, 1024, 2500
		TRDA-25	25 (w/size 20 body)	2.5" flange (w/ 2.0" body)	3/8"	solid	5V Line Driver or 5-30V P/P	IP65	50	30	100, 360, 500, 1000, 1024, 2500
		TRD-N	20	50mm	8mm	solid	5V Line Driver or 5-30V P/P	IP65	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, 3000, 3600, 5000
		TRD-NH	20	50mm	8mm	hollow	5V Line Driver or 5-30V P/P	IP65	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, 3000, 3600, 5000
	Heavy Duty	TRD-GK	30	78mm	10mm	solid	10-30V P/P	IP65	100	50	30, 100, 120, 200, 240, 250, 300, 360, 400, 500, 600, 800, 1000, 1200, 1500, 1800, 2000, 2500, 3600, 5000
Medium	Duty Absolute	TRD-NA	20	50mm	8mm	solid	10-30V OC	IP65	50	30	32, 64, 128, 180, 256, 360, 512, 720, 1024, 2048 (Gray code)

All our encoders feature an integral 2m cable except for the TRDA-25 series which has an MS connector

- *Operating Voltage and Electrical Output:
 LD = Line Driver (all Line Drivers require 5VDC supply)
- OC = NPN Open Collector (at Operating Voltage)
 P/P = Push Pull or Totem Pole (at Operating Voltage)

Accessories

Couplings

A variety of couplings - metric-to-metric, inch-to-inch (SAE - SAE), and metric-toinch are in stock, ready to ship.



Flanges

A collection of flanges that ease encoder mounting. Several models are available with round flanges, square flanges and miscellaneous mounting options.

Mounting brackets

Simplify your installation with a ready-to-use right-angle mounting bracket for light, medium and heavy-duty encoders



Cables

For encoders that require a connector cable, we have cables in stock, priced right and ready to ship.



Encoder Selection Guide SAE Dimension Encoders & Metric Dimension Encoders

		5	AE Dimensi	on Encoder Sel	lection					
	TRDA	4-2E Series			20 Series		TRDA-25 Series			
Specification	TRDA-2ExxxBD	TRDA	-2ExxxVD T	RDA-20R1NxxxRZL	TRDA-20R1Nxxx	11	TRDA	TRDA		
Description	Light duty incremental encoder with solid shaft		solid shaft I	Medium duty incremental encoder with solid shaft			25RNxxxRZWDMS Medium duty incremental encoder with solid shaft			
Size	Body: 1.5 in. diameter and 1.6 in. depth; Shaft: 0.25 in. diameter			Body: 2.0 in. diameter and 1.7 in. depth; Shaft: 0.375 in. diameter			Removable Flange: 2.5 in. round; Body: 2.0 in. diameter and 2.15 in. depth; Shaft: 0.375 in. diameter			
Output Configuration	NPN open collector (E	BD) Line d	river (VD)	Totem pole (RZD)	Line driver (VD)	Totem p	oole (RZWD)	Line driver (VWD)		
Input Power	12–24 VDC (nomina Range: 10.8–26.4 VE		(nominal) .75–5.25 VDC F	5–30 VDC (nominal) Range: 4.75–30.0 VDC	5VDC (nominal) Range: 4.75–5.25 VE		DC (nominal) 1.75–30.0 VDC	5VDC (nominal) Range: 4.75–5.25 VDC		
Resolutions Available	100 to 2500	pulses per revol	ution	100 to 2500 pu	lses per revolution		100 to 2500 puls	es per revolution		
Output Type	Cable – 2	2m [6.6 ft], tinne	d	Cable – 2m [6.6 ft], tinned			Military style (MS) connector			
Frequency Response	200kHz			100kHz 200kHz		1	100kHz 200kHz			
Rating	IP50 couplings, mounting bracket, mounting flanges			IP50			IP65			
Accessories Available	couplings, mountin		<u> </u>		oracket, mounting flanges	Ca	ables, couplings,	mounting flanges		
		M	etric Dimen	sion Encoder S	election					
Specification					X Series					
-		-MXxxxAD	11.1.0		MXxxxBD	1111	TRD-M.			
Description	Light duty incremental encoder with solid shaft Body: 25mm diameter and 29mm depth:			Light duty incremental encoder with solid shaft			Light duty incremental encoder with solid shaft Body: 25mm diameter and 29mm depth;			
Size	,	4mm diameter	п аврит,	Body: 25mm diameter and 29mm depth; Shaft: 4mm diameter			Shaft: 4mm diameter			
Output Configuration		en collector (AD)		NPN open collector (BD)			Line driver (VD)			
Input Power	5–12 VDC (nomina	<i>,</i>		12–24 VDC (nominal); Range: 10.8–26.4 VDC			5VDC (nominal); Range: 4.75–5.25 VDC			
Resolutions Available		pulses per revolu	ıtion	100 to 1024 pulses per revolution			100 to 1024 pulses per revolution			
Output Type	,	vo meter, tinned)		Cable (two meter, tinned) 100kHz max			Cable (two meter, tinned) 100kHz max			
Frequency Response Rating	10	10kHz max IP50			172 111ax P50		IDUKH IP:			
Accessories Available		11 30	Metric-to-		.A.E. couplings, mounting	brackets	11 3	50		
	TO	OD C Carias					TD	ID N Corios		
Specification		RD-S Series TRD-Sxxx-BD	TRD-Sxxx-VD	TRD-SHxxxAD	TRD-SH Series TRD-SHxxx-BD TR	D-SHxxx-VD	TRD-Nxxx-RZ	D-N Series WD TRD-Nxxx-RZVWD		
Description	Light duty incremental encoder with solid shaft Light duty incremental encoder with hollow		ow shaft	Madison dubsing seal and admissible						
		diameter and 30	mm depth;	Dodu 20m	1. 1 100 1	enth:	; Body: 50mm diameter and 35mm			
Size	Body: 38mm (ſ	,	ım diameter and 30mm d haft: 8mm diameter	ърит,	,			
Size Output Configuration	Shaft NPN open	t: 6mm diamete NPN open collector (BD)	Line driver (VD)	,	haft: 8mm diameter	e driver (VD)	,	: 8mm diameter		
Output Configuration	NPN open collector (AD)	t: 6mm diamete NPN open collector (BD) -24 VDC (nominal)		NPN open collector (AD) : 5-12 VDC (nominal)	haft: 8mm diameter NPN open collector (BD)	e driver (VD) DC (nominal)	Shaft	: 8mm diameter VD) Line driver (RZVWD) nal) 5VDC (nominal)		
Output Configuration	Shaft NPN open Collector (AD)	t: 6mm diamete NPN open collector (BD) -24 VDC (nominal)	Line driver (VD) 5VDC (nominal)Range 4.75–5.25 VDC	S NPN open collector (AD) 2: 5-12 VDC (nominal) Range: 4.75-13.2 VDC F	haft: 8mm diameter NPN open collector (BD) 12–24 VDC (nominal) Range: 10.8–26.4 VDC Range 2500 pulses per revolutio	e driver (VD) DC (nominal) 4.75–5.25 VDC	Shaft. Totem pole (RZV 5–30 VDC (nomi Range: 4.75–30.0	: 8mm diameter VD) Line driver (RZVWD) nal) 5VDC (nominal)		
Output Configuration Input Power	Shaft NPN open collector (AD) 5-12 VDC (nominal) 12- Range: 4.75-13.2 VDC Range 100 to 250	t: 6mm diamete NPN open collector (BD) -24 VDC (nominal) ge: 10.8–26.4 VDC	Line driver (VD) 5VDC (nominal)Range 4.75–5.25 VDC olution	S NPN open collector (AD) 2: 5-12 VDC (nominal) Range: 4.75-13.2 VDC F	haft: 8mm diameter NPN open collector (BD) 12–24 VDC (nominal) Range: 10.8–26.4 VDC Range	e driver (VD) DC (nominal) 4.75–5.25 VDC	Shaft: Totem pole (RZV 5-30 VDC (nomi Range: 4.75-30.0 3 to 5000	: 8mm diameter WD) Line driver (RZVWD) nal) 5VDC (nominal) VDC Range: 4.75–5.25 VDC pulses per revolution (two meter, tinned)		
Output Configuration Input Power Resolutions Available	Shaft NPN open collector (AD) 5-12 VDC (nominal) 12- Range: 4.75-13.2 VDC Range 100 to 250	t: 6mm diamete NPN open collector (BD) -24 VDC (nominal) ge: 10.8–26.4 VDC 0 pulses per rev	Line driver (VD) 5VDC (nominal)Range 4.75–5.25 VDC olution	S NPN open collector (AD) 2: 5-12 VDC (nominal) Range: 4.75-13.2 VDC F	haft: 8mm diameter NPN open collector (BD) 12–24 VDC (nominal) Range: 10.8–26.4 VDC Range 2500 pulses per revolutio	e driver (VD) DC (nominal) 4.75–5.25 VDC	Shaft: Totem pole (RZV 5-30 VDC (nomi Range: 4.75-30.0 3 to 5000	: 8mm diameter WD) Line driver (RZWWD) nal) 5VDC (nominal) VDC Range: 4.75–5.25 VDC pulses per revolution (two meter, tinned)		
Output Configuration Input Power Resolutions Available Output Type	Shaft NPN open collector (AD) 5-12 VDC (nominal) 12- Range: 4.75-13.2 VDC Range 100 to 250	t: 6mm diamete NPN open collector (BD) -24 VDC (nominal) ge: 10.8–26.4 VDC 10 pulses per rev (two meter, tinne	Line driver (VD) 5VDC (nominal)Range 4.75–5.25 VDC olution	S NPN open collector (AD) 2: 5-12 VDC (nominal) Range: 4.75-13.2 VDC F	haft: 8mm diameter NPN open collector (BD) 12–24 VDC (nominal) Alange: 10.8–26.4 VDC Range 2500 pulses per revolution cole (two meter, tinned)	e driver (VD) DC (nominal) 4.75–5.25 VDC	Shaft. Totem pole (RZV 5-30 VDC (nomi Range: 4.75-30.0 3 to 5000 Cable (100kHz max	: 8mm diameter WD) Line driver (RZWWD) nal) 5VDC (nominal) VDC Range: 4.75–5.25 VDC pulses per revolution (two meter, tinned) X 100kHz max (<3000 ppr 1P65		
Output Configuration Input Power Resolutions Available Output Type Frequency Response	Shaft NPN open collector (AD) 5-12 VDC (nominal) 12- Range: 4.75-13.2 VDC Range 100 to 250	t: 6mm diamete NPN open collector (BD) -24 VDC (nominal) ge: 10.8–26.4 VDC 0 pulses per rev (two meter, tinne 200kHz	Line driver (VD) 5VDC (nominal)Range 4.75–5.25 VDC ollution d)	S NPN open collector (AD) 2: 5-12 VDC (nominal) Range: 4.75-13.2 VDC F	haft: 8mm diameter NPN open collector (BD) 12-24 VDC (nominal) Aange: 10.8-26.4 VDC Range 2500 pulses per revolutio ole (two meter, tinned) 200kHz	e driver (VD) DC (nominal) 4.75–5.25 VDC	Shaft: Totem pole (RZV 5–30 VDC (nomi Range: 4.75–30.0 3 to 5000 Cable (100kHz max	: 8mm diameter WD) Line driver (RZWWD) nal) 5VDC (nominal) VDC Range: 4.75–5.25 VDC pulses per revolution (two meter, tinned) x 100kHz max (<3000 ppr 200kHz max (<3000 ppr		
Output Configuration Input Power Resolutions Available Output Type Frequency Response Rating Accessories Available	Shaft NPN open collector (AD) 5-12 VDC (nominal) Range: 4.75-13.2 VDC 100 to 250 Cable of the collector (AD) Metric-to-metric a	t: 6mm diamete NPN open collector (BD) -24 VDC (nominal) ge: 10.8–26.4 VDC 0 pulses per rev (two meter, tinne 200kHz IP40 and metric-to-S.A	Line driver (VD) 5VDC (nominal)Range 4.75–5.25 VDC ollution d)	NPN open collector (AD) 5: 5-12 VDC (nominal) Range: 4.75-13.2 VDC F 100 to 2	haft: 8mm diameter NPN open collector (8D) 12–24 VDC (nominal) tange: 10.8–26.4 VDC Range: 2500 pulses per revolutio ple (two meter, tinned) 200kHz IP40 —	e driver (VD) DC (nominal) 4.75–5.25 VDC	Shaft: Totem pole (RZV 5–30 VDC (nomi Range: 4.75–30.0 3 to 5000 Cable (100kHz max Metric-to-me	: 8mm diameter VD) Line driver (RZVWD) nal) 5VDC (nominal) VDC Range: 4.75–5.25 VDC pulses per revolution (two meter, tinned) x 100kHz max (<3000 ppr 200kHz max (>3000 ppr IP65 tric and metric-to-S.A.E. s, mounting brackets		
Output Configuration Input Power Resolutions Available Output Type Frequency Response Rating	Shaft NPN open collector (AD) 5-12 VDC (nominal) Range: 4.75-13.2 VDC 100 to 250 Cable of the collection of the colle	t: 6mm diamete NPN open collector (BD) -24 VDC (nominal) ge: 10.8–26.4 VDC 10 pulses per rev (two meter, tinne 200kHz IP40 and metric-to-S.A	Line driver (VD) 5VDC (nominal)Range 4.75–5.25 VDC olution d) A.E. couplings	S NPN open collector (AD) 5-12 VDC (nominal) Range: 4.75-13.2 VDC F 100 to 2 Cat	haft: 8mm diameter NPN open collector (BD) 12-24 VDC (nominal) Aange: 10.8-26.4 VDC Range 2500 pulses per revolutio ole (two meter, tinned) 200kHz	e driver (VD) DC (nominal) 4.75–5.25 VDC	Shaft: Totem pole (RZV 5–30 VDC (nomi Range: 4.75–30.0 3 to 5000 Cable (100kHz max	: 8mm diameter WD) Line driver (RZWWD) nal) 5VDC (nominal) VDC Range: 4.75–5.25 VDC pulses per revolution (two meter, tinned) x 100kHz max (<3000 ppr 200kHz max (>3000 ppr IP65 tric and metric-to-S.A.E. s, mounting brackets		
Output Configuration Input Power Resolutions Available Output Type Frequency Response Rating Accessories Available	Shaft NPN open collector (AD) 5-12 VDC (nominal) Range: 4.75-13.2 VDC 100 to 250 Cable of the collector (AD) Metric-to-metric a	t: 6mm diamete NPN open collector (BD) -24 VDC (nominal) ge: 10.8–26.4 VDC IO pulses per rev (two meter, tinne 200kHz IP40 and metric-to-S.A. NH Series IRD-NHJ	Line driver (VD) 5VDC (nominal)Range 4.75–5.25 VDC olution d) A.E. couplings	S NPN open collector (AD) 5: 5-12 VDC (nominal) Range: 4.75-13.2 VDC F 100 to 2 Cat TRD-N TRD-N	haft: 8mm diameter NPN open collector (BD) 12–24 VDC (nominal) 12–24 VDC (nominal) 12–50 pulses per revolutio 200kHz IP40 - IA Series	e driver (VD) DC (nominal) 4.75–5.25 VDC	Shaft. Totem pole (RZV 5–30 VDC (nominange: 4.75–30.0 3 to 5000 Cable (100kHz max) Metric-to-me couplings TRD-GK	: 8mm diameter WD) Line driver (RZWWD) nal) 5VDC (nominal) VDC Range: 4.75–5.25 VDC pulses per revolution (two meter, tinned) x 100kHz max (<3000 ppr 200kHz max (>3000 ppr IP65 tric and metric-to-S.A.E. s, mounting brackets		
Output Configuration Input Power Resolutions Available Output Type Frequency Response Rating Accessories Available Specification	Shaft NPN open collector (AD) 5-12 VDC (nominal) 5-12 VDC (250 Range: 4.75-13.2 VDC TO to 250 Cable of the collection	t: 6mm diamete NPN open collector (BD) -24 VDC (nominal) ge: 10.8–26.4 VDC 10 pulses per rev (two meter, tinne 200kHz IP40 and metric-to-S.A NH Series TRD-NH3 ameter and 35mir	Line driver (VD) 5VDC (nominal)Range 4.75–5.25 VDC olution d) A.E. couplings	S NPN open collector (AD) 5: 5-12 VDC (nominal) Range: 4.75-13.2 VDC F 100 to 2 Cat TRD-N TRD-N Medium duty absolute Body: 50mm diam	haft: 8mm diameter NPN open collector (BD) 12-24 VDC (nominal) Stange: 10.8-26.4 VDC Range 2500 pulses per revolutio cle (two meter, tinned) 200kHz IP40 IA Series AxxxNWD e encoder with solid shaft eter and 35mm depth;	e driver (VD) DC (nominal) 4.75–5.25 VDC	Shaft. Totem pole (RZV 5–30 VDC (nominal Range: 4.75–30.0) 3 to 5000 Cable (100kHz max) Metric-to-me couplings TRD-GK TRD-GK duty incremental dy: 78mm diameted	: 8mm diameter WD) Line driver (RZWWD) nal) 5VDC (nominal) VDC Range: 4.75–5.25 VDC pulses per revolution (two meter, tinned) x 100kHz max (<3000 ppr 200kHz max (>3000 ppr IP65 tric and metric-to-S.A.E. s, mounting brackets (**Series** (**Xex-RZD** encoder with solid shaft ter and 60mm depth;		
Output Configuration Input Power Resolutions Available Output Type Frequency Response Rating Accessories Available Specification Description	Shaft NPN open collector (AD) 5-12 VDC (nominal) 5-12 VDC (250 Range: 4.75-13.2 VDC TO to 250 Cable of the collection	t: 6mm diamete NPN open collector (BD) -24 VDC (nominal) ge: 10.8–26.4 VDC 10 pulses per rev (two meter, tinne 200kHz IP40 and metric-to-S.A NH Series TRD-NH3 mtal encoder witt ameter and 35mr 8mm diameter	Line driver (VD) 5VDC (nominal)Range 4.75–5.25 VDC olution d) A.E. couplings	NPN open collector (AD) 5: 5-12 VDC (nominal) Range: 4.75-13.2 VDC F 100 to 2 Cat TRD-N TRD-N Medium duty absolute Body: 50mm diam Shaft: 8n	haft: 8mm diameter NPN open collector (BD) 12–24 VDC (nominal) Stange: 10.8–26.4 VDC Range 2500 pulses per revolutio cle (two meter, tinned) 200kHz IP40 - IA Series 4xxxNWD e encoder with solid shaft	e driver (VD) DC (nominal) 4.75–5.25 VDC	Shaft. Totem pole (RZV 5–30 VDC (nominal Range: 4.75–30.0 3 to 5000 Cable (100kHz max) Metric-to-me couplings TRD-GK duty incremental	: 8mm diameter WD) Line driver (RZVWD) nal) 5VDC (nominal) VDC Range: 4.75–5.25 VDC pulses per revolution (two meter, tinned) x 100kHz max (<3000 ppr 200kHz max (<3000 ppr lP65 tric and metric-to-S.A.E. s, mounting brackets (**Series** (**Xxx-RZD** encoder with solid shaft ter and 60mm depth; nm diameter		
Output Configuration Input Power Resolutions Available Output Type Frequency Response Rating Accessories Available Specification Description Size	Shaft NPN open collector (AD) 5-12 VDC (nominal) 5-12 VDC (nominal) 12-Range: 4.75-13.2 VDC TOUR to 250 Cable: Metric-to-metric a TRD-NHxxx-RZWI Medium duty increment Body: 50mm dia Shaft: Totem pole (RZWD) 5-30 VDC (nominal)	t: 6mm diamete NPN open collector (BD) -24 VDC (nominal) ge: 10.8–26.4 VDC IO pulses per rev (two meter, tinne 200kHz IP40 and metric-to-S.A NH Series TRD-NH) ntal encoder with ameter and 35mm 8mm diameter) Line driw) 5VDC	Line driver (VD) 5VDC (nominal)Range 4.75–5.25 VDC oblution (d) A.E. couplings CXX-RZVWD (nominal) (nominal)	S NPN open collector (AD) 5: 5-12 VDC (nominal) Range: 4.75-13.2 VDC F 100 to 2 Cat TRD-N TRD-N Medium duty absolute Body: 50mm diam Shaft: 8n NPN ope 12-24 VE	haft: 8mm diameter NPN open collector (BD) 12–24 VDC (nominal) 12–50 pulses per revolutio cle (two meter, tinned) 200kHz IP40 - IA Series AxxxNWD e encoder with solid shaft eter and 35mm depth; nm diameter en collector DC (nominal)	e driver (VD) DC (nominal) 4.75–5.25 VDC	Shaft. Totem pole (RZV 5–30 VDC (nominance: 4.75–30.0 3 to 5000 Cable (100kHz max) Metric-to-me couplings TRD-GK duty incremental dy: 78mm diameted Shaft: 10 m Totem 10–30 VDC	: 8mm diameter WD) Line driver (RZWWD) nal) 5VDC (nominal) VDC Range: 4.75–5.25 VDC pulses per revolution (two meter, tinned) x 100kHz max (<3000 ppr 200kHz max (<3000 ppr 200kHz max (>3000 ppr tric and metric-to-S.A.E. s, mounting brackets (**Series** (**ExxRZD** encoder with solid shaft ter and 60mm depth; and diameter n pole C (nominal)		
Output Configuration Input Power Resolutions Available Output Type Frequency Response Rating Accessories Available Specification Description Size Output Configuration Input Power	Shaft NPN open collector (AD) 5-12 VDC (nominal) 5-12 VDC (nominal) 100 to 250 Cable Metric-to-metric a TRD-NHxxx-RZWI Medium duty increment Body: 50mm dia Shaft: Totem pole (RZWD) 5-30 VDC (nominal) Range: 4.75–30.0 VD	t: 6mm diamete NPN open collector (BD) -24 VDC (nominal) ge: 10.8–26.4 VDC IO pulses per rev (two meter, tinne 200kHz IP40 and metric-to-S.A NH Series D TRD-NH) ntal encoder witt ameter and 35mr 8mm diameter) Line driw) 5VDC DC Range: 4.	Line driver (VD) 5VDC (nominal)Range 4.75–5.25 VDC oblution dd) A.E. couplings CXX-RZVWD n hollow shaft n depth; er (RZVWD) (nominal) 75–5.25 VDC	S NPN open collector (AD) 5: 5-12 VDC (nominal) Range: 4.75-13.2 VDC F 100 to 2 Cat TRD-N TRD-N Medium duty absolute Body: 50mm diam Shaft: 8n NPN ope 12–24 VE Range: 10	haft: 8mm diameter NPN open collector (BD) 12–24 VDC (nominal) 22500 pulses per revolution colle (two meter, tinned) 200kHz IP40 - IA Series AxxxNWD e encoder with solid shaft eter and 35mm depth; nm diameter en collector DC (nominal) 18–26.4 VDC	e driver (VD) DC (nominal) 4.75–5.25 VDC	Shaft. Totem pole (RZV 5-30 VDC (nominange: 4.75-30.0 3 to 5000 Cable (100kHz max) Metric-to-me couplings TRD-GK duty incremental dy: 78mm diamet Shaft: 10 m Totem 10-30 VDC Range: 9.7	: 8mm diameter WD) Line driver (RZWWD) nal) 5VDC (nominal) Range: 4.75–5.25 VDC pulses per revolution (two meter, tinned) x 100kHz max (<3000 ppr 200kHz max (>3000 ppr 200kHz max (>3000 ppr etric and metric-to-S.A.E. s, mounting brackets (**Series** (**Series** (**Sexxx-RZD** encoder with solid shaft ter and 60mm depth; and diameter n pole C (nominal) (**-30.9 VDC		
Output Configuration Input Power Resolutions Available Output Type Frequency Response Rating Accessories Available Specification Description Size Output Configuration Input Power Resolutions Available	Shaft NPN open collector (AD) 5-12 VDC (nominal) 12-Range: 4.75-13.2 VDC TRD-NHxxx-RZW Medium duty incremen Body: 50mm dia Shaft: Totem pole (RZWD) 5-30 VDC (nominal) Range: 4.75-30.0 VD 3 to 5000 pt	t: 6mm diamete NPN open collector (BD) -24 VDC (nominal) ge: 10.8–26.4 VDC IO pulses per rev (two meter, tinne 200kHz IP40 and metric-to-S.A NH Series TRD-NH) ntal encoder with ameter and 35mm 8mm diameter) Line driw) 5VDC	Line driver (VD) 5VDC (nominal)Range 4.75–5.25 VDC olution dd) A.E. couplings EXXX-RZVWD n hollow shaft n depth; er (RZVWD) (nominal) 75–5.25 VDC oion	Range: 4.75-13.2 VDC F TRD-N TRD-N Medium duty absolute Body: 50mm diam Shaft: 8n NPN open 12-24 VE Range: 10 32 to 2048 pul	haft: 8mm diameter NPN open collector (BD) 12–24 VDC (nominal) 12–50 pulses per revolutio cle (two meter, tinned) 200kHz IP40 - IA Series AxxxNWD e encoder with solid shaft eter and 35mm depth; nm diameter en collector DC (nominal)	e driver (VD) DC (nominal) 4.75–5.25 VDC	Shaft. Totem pole (RZV 5–30 VDC (nominance: 4.75–30.0 3 to 5000 Cable (100kHz max) Metric-to-me couplings TRD-GK duty incremental dy: 78mm diameted Shaft: 10 m Totem 10–30 VDC	: 8mm diameter WD) Line driver (RZWWD) nal) 5VDC (nominal) Range: 4.75–5.25 VDC pulses per revolution (two meter, tinned) x 100kHz max (<3000 ppr 200kHz max (>3000 ppr lP65 tric and metric-to-S.A.E. s, mounting brackets (**Series** **EXXX-RZD** encoder with solid shaft ter and 60mm depth; am diameter n pole C (nominal) -30.9 VDC es per revolution		
Output Configuration Input Power Resolutions Available Output Type Frequency Response Rating Accessories Available Specification Description Size Output Configuration Input Power	Shaft NPN open collector (AD) 5-12 VDC (nominal) 12-Range: 4.75-13.2 VDC TRD-NHxxx-RZW Medium duty incremen Body: 50mm dia Shaft: Totem pole (RZWD) 5-30 VDC (nominal) Range: 4.75-30.0 VD 3 to 5000 pt	t: 6mm diamete NPN open collector (BD) -24 VDC (nominal) ge: 10.8–26.4 VDC 00 pulses per rev (two meter, tinne 200kHz IP40 and metric-to-S.A NH Series D TRD-NH) ntal encoder with ameter and 35mr 8mm diameter) Line driv) 5VDC DC Range: 4. ulses per revolut vo meter, tinned)	Line driver (VD) 5VDC (nominal)Range 4.75–5.25 VDC oblution dd) A.E. couplings CXX-RZVWD n hollow shaft n depth; er (RZVWD) (nominal) 75–5.25 VDC ion	S NPN open collector (AD) 100 to 2 Cat TRD-N TRD-N Medium duty absolute Body: 50mm diam Shaft: 8n NPN open 12–24 VE Range: 10 32 to 2048 pul Cable (two	haft: 8mm diameter NPN open collector (BD) 12–24 VDC (nominal) 12–250 pulses per revolutio ple (two meter, tinned) 200kHz IP40 - IA Series AxxxNWD e encoder with solid shaft eter and 35mm depth; nm diameter en collector DC (nominal) 1.8–26.4 VDC ses per revolution	e driver (VD) DC (nominal) 4.75–5.25 VDC	Shaft: Totem pole (RZV 5–30 VDC (nominange: 4.75–30.0 3 to 5000 Cable (100kHz maximum and the couplings TRD-GK TRD-GK duty incremental and the couplings Totem 10–30 VDC Range: 9.7 30 to 5000 pulse Cable (two maximum and the couplings)	: 8mm diameter WD) Line driver (RZWWD) nal) 5VDC (nominal) Range: 4.75–5.25 VDC pulses per revolution (two meter, tinned) x 100kHz max (<3000 ppr 200kHz max (>3000 ppr lP65 tric and metric-to-S.A.E. s, mounting brackets (**Series** **EXXX-RZD** encoder with solid shaft ter and 60mm depth; am diameter n pole C (nominal) -30.9 VDC es per revolution		
Output Configuration Input Power Resolutions Available Output Type Frequency Response Rating Accessories Available Specification Description Size Output Configuration Input Power Resolutions Available Output Type	Shaft NPN open collector (AD) 5-12 VDC (nominal) 12-Range: 4.75-13.2 VDC Cable of the state of t	t: 6mm diamete NPN open collector (BD) -24 VDC (nominal) ge: 10.8–26.4 VDC 00 pulses per rev (two meter, tinne 200kHz IP40 and metric-to-S.A NH Series D TRD-NH) ntal encoder with ameter and 35mr 8mm diameter) Line driv) 5VDC DC Range: 4. ulses per revolut vo meter, tinned)	Line driver (VD) 5VDC (nominal)Range 4.75–5.25 VDC oblution dd) A.E. couplings EXX-RZVWD n hollow shaft n depth; er (RZVWD) (nominal) 75–5.25 VDC oion	S NPN open collector (AD) 5: 5-12 VDC (nominal) Range: 4.75-13.2 VDC 100 to 2 Cat TRD-N TRD-N Medium duty absolute Body: 50mm diam Shaft: 8n NPN open 12—24 VE Range: 10 32 to 2048 pul Cable (two	haft: 8mm diameter NPN open collector (8D) 12–24 VDC (nominal) 12–24 VDC (nominal) 12–25 VDC (nominal) 2500 pulses per revolutio colle (two meter, tinned) 200kHz IP40 - IP40 IP40 - IP4	e driver (VD) DC (nominal) 4.75–5.25 VDC	Shaft: Totem pole (RZV 5–30 VDC (nominange: 4.75–30.0 3 to 5000 Cable (100kHz maximum and the couplings TRD-GK TRD-GK duty incremental and the couplings Totem 10–30 VDC Range: 9.7 30 to 5000 pulse Cable (two maximum and the couplings)	: 8mm diameter WD) Line driver (RZWWD) nal) 5VDC (nominal) Range: 4.75–5.25 VDC pulses per revolution (two meter, tinned) x 100kHz max (<3000 ppr 200kHz max (>3000 ppr lP65 tric and metric-to-S.A.E. s, mounting brackets (Series xxxx-RZD encoder with solid shaft ter and 60mm depth; am diameter n pole C (nominal) (-30.9 VDC es per revolution neter, tinned)		

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