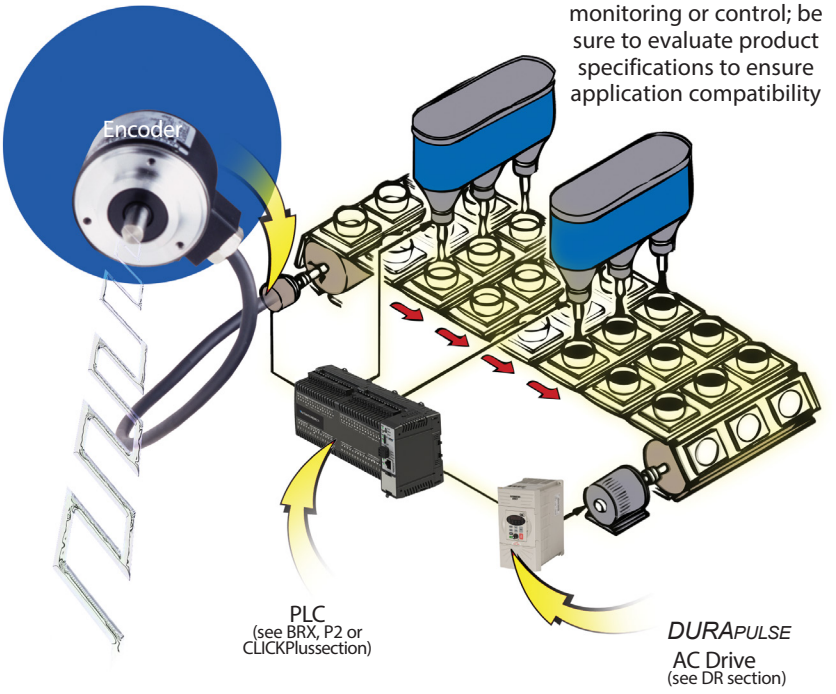
High-Quality, Rugged Encoders

Where can I use an encoder?

Encoders are used in all types of motion sensing applications, including machine tooling, semi-conductor 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[1] for accurate position monitoring and control. Or use our absolute encoders to monitor position with Gray code and standard PLC DC inputs.



Encoders can be used with controllers for position monitoring or control; be sure to evaluate product specifications to ensure application compatibility

Why buy an encoder from us?

There are several distinct advantages to purchasing your encoder from AUTOMATIONDIRECT:

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 modular kit encoder?

Modular encoders are bolt-on options for SureStep stand-alone dual-shaft motors and standard integrated motor/drives. Our kit encoders offer:

- Capacitive and optical technologies
- Designed to fit NEMA 14 to NEMA 42 motors
- Line driver, NPN open-collector, or push-pull outputs
- Fixed or configurable resolutions up to 4096 ppr

What is a light-duty encoder?

Includes series: TRD-SR & TRD-SHR

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

- Size 15 (1.5 inch or 38mm/40mm) diameter body
- Dust Proof (IP50) or spash-proof (IP65) ratings
- 6 mm 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

Kit Encoder AMT

Light-duty TRD-SR

Medium Duty TRDA-25 (w/MS connector)

Medium Duty TRD-N

Medium Duty TRD-NH

Heavy-duty TRD-GK

	Duty	Family	Size	Encoder Diameter	Shaft Diameter	Solid or Hollow Shaft	Operating Voltage (VDC) and Electrical Output*	IP Rating	Max Radial Load (N)	Max Axial Load (N)	Available Resolutions (PPR)
Incremental	Modular/ Kit	**AMT (CUI Devices)**	11, 15	28mm, 42mm	2/3/4/5/6/8/9/10/11/12/13/14mm, 3/16", 1/4", 3/8", 1/2", 5/8"	hollow	5V Line Driver or 5V P/P	IP20	NA**	NA**	Programmable Up to 4096
		STP-MTRA-ENC	12	31mm	5mm, 1/4", 3/8"	hollow	5V Line Driver or 5V P/P	IP20	NA**	NA**	400, 1000
	Light Duty	**TRD-SR**	15	38 or 40mm	6mm	solid	5V Line Driver or 5-26V OC	IP50 or IP65	20	10	100, 200, 360, 500, 600, 1000, 1024, 2000, 2500
		TRD-SHR	15	38 or 40mm	8mm	hollow	5V Line Driver or 5-26V OC	IP50 or IP65	20	10	100, 200, 360, 500, 600, 1000, 1024, 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
		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
	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, 1000, 1200, 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 (grey code)

Modular/Kit and TRDA-25 encoders have connectors and require separate cables. All other encoders feature an integral 2m cable.

*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)

**Modular/Kit encoders are direct mount, there are no load ratings.

Accessories

Couplings

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

Mounting brackets

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

Flanges

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

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

SAE Dimension Encoder Selection

Specification	TRDA-2E Series		TRDA-20 Series		TRDA-25 Series	
	TRDA-2ExxxBD	TRDA-2ExxxVD	TRDA-20R1NxxxRZD	TRDA-20R1NxxxVD	TRDA 25RNxxxRZWDMS	TRDA 25RNxxxVWDMS
Description	Light duty incremental encoder with solid shaft		Medium duty incremental encoder with solid shaft		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 (BD)	Line driver (VD)	Totem pole (RZD)	Line driver (VD)	Totem pole (RZWD)	Line driver (VWD)
Input Power	12–24 VDC (nominal) Range: 10.8–26.4 VDC	5VDC (nominal) Range: 4.75–5.25 VDC	5–30 VDC (nominal) Range: 4.75–30.0 VDC	5VDC (nominal) Range: 4.75–5.25 VDC	5–30 VDC (nominal) Range: 4.75–30.0 VDC	5VDC (nominal) Range: 4.75–5.25 VDC
Resolutions Available	100 to 2500 pulses per revolution		100 to 2500 pulses per revolution		100 to 2500 pulses per revolution	
Output Type	Cable – 2m [6.6 ft], tinned		Cable – 2m [6.6 ft], tinned		Military style (MS) connector	
Frequency Response	200kHz		100kHz	200kHz	100kHz	200kHz
Rating	IP50		IP50		IP65	
Accessories Available	couplings, mounting bracket, mounting flanges		couplings, mounting bracket, mounting flanges		cables, couplings, mounting flanges	

Metric Dimension Encoder Selection

Specification	TRD-MX Series		
	TRD-MXxxxAD	TRD-MXxxxBD	TRD-MXxxxVD
Description	Light duty incremental encoder with solid shaft	Light duty incremental encoder with solid shaft	Light duty incremental encoder with solid shaft
Size	Body: 25mm diameter and 29mm depth; Shaft: 4mm diameter	Body: 25mm diameter and 29mm depth; Shaft: 4mm diameter	Body: 25mm diameter and 29mm depth; Shaft: 4mm diameter
Output Configuration	NPN open collector (AD)	NPN open collector (BD)	Line driver (VD)
Input Power	5–12 VDC (nominal); Range: 4.5–13.2 VDC	12–24 VDC (nominal); Range: 10.8–26.4 VDC	5VDC (nominal); Range: 4.75–5.25 VDC
Resolutions Available	100 to 1024 pulses per revolution	100 to 1024 pulses per revolution	100 to 1024 pulses per revolution
Output Type	Cable (two meter, tinned)	Cable (two meter, tinned)	Cable (two meter, tinned)
Frequency Response	100kHz max	100kHz max	100kHz max
Rating	IP50	IP50	IP50
Accessories Available	Metric-to-metric and metric-to-S.A.E. couplings, mounting brackets		

Specification	TRD-S/TRD-SH Series			TRD-SR/TRD-SHR Series				TRD-N Series	
	TRD-S(H)xxxAD	TRD-S(H)xxx-BD	TRD-S(H)xxx-VD	TRD-S(H) RxxxA(5)D	TRD-S(H) RxxxAW(0)D	TRD-S(H) RxxxV(5)D	TRD-S(H) RxxxVW(0)D	TRD-Nxxx-RZWD	TRD-Nxxx-RZVWD
Description	Light duty incremental encoder with solid (S) or hollow (SH) shaft			Light duty incremental encoder with solid (S) or hollow (SH) shaft				Medium duty incremental encoder with solid shaft	
Size	Body: 38mm diameter and 30mm depth; Shaft: 6mm (S) or 8mm (SH) diameter			38mm Ø	40mm Ø	38mm Ø	40mm Ø	Body: 50mm diameter and 35mm depth; Shaft: 8mm diameter	
				Shaft: 6mm (S) or 8mm (SH) diameter					
Output Configuration	NPN open collector (AD)	NPN open collector (BD)	Line driver (VD)	NPN open collector		Line driver (differential)		Totem pole (RZWD)	Line driver (RZVWD)
Input Power	5-12 VDC (nominal) Range: 4.75-13.2 VDC	12–24 VDC (nominal) Range: 10.8–26.4 VDC	5VDC (nominal)Range: 4.75–5.25 VDC	5-26 VDC (nominal) Range: 4.75-26.4 VDC		5VDC (nominal) Range: 4.75–5.25 VDC		5–30 VDC (nominal) Range: 4.75–30.0 VDC	5VDC (nominal) Range: 4.75–5.25 VDC
Resolutions Available	100 to 2500 pulses per revolution			100 to 2500 pulses per revolution				3 to 5000 pulses per revolution	
Output Type	Cable (two meter, tinned)			Cable (two meter, tinned)				Cable (two meter, tinned)	
Frequency Response	200kHz			200kHz				100kHz max	100kHz max (≤3000 ppr) 200kHz max (>3000 ppr)
Rating	IP40			IP50	IP65	IP50	IP65	IP65	
Accessories Available	Metric-to-metric and metric-to-S.A.E. couplings			Metric-to-metric and metric-to-S.A.E. couplings, mounting brackets				Metric-to-metric and metric-to-S.A.E. couplings, mounting brackets	

Specification	TRD-NH Series		TRD-NA Series	TRD-GK Series
	TRD-NHxxx-RZWD	TRD-NHxxx-RZVWD	TRD-NAxxxNWD	TRD-GKxxx-RZD
Description	Medium duty incremental encoder with hollow shaft		Medium duty absolute encoder with solid shaft	Heavy duty incremental encoder with solid shaft
Size	Body: 50mm diameter and 35mm depth; Shaft: 8mm diameter		Body: 50mm diameter and 35mm depth; Shaft: 8mm diameter	Body: 78mm diameter and 60mm depth; Shaft: 10 mm diameter
Output Configuration	Totem pole (RZWD)	Line driver (RZVWD)	NPN open collector	Totem pole
Input Power	5–30 VDC (nominal) Range: 4.75–30.0 VDC	5VDC (nominal) Range: 4.75–5.25 VDC	12–24 VDC (nominal) Range: 10.8–26.4 VDC	10–30 VDC (nominal) Range: 9.7–30.9 VDC
Resolutions Available	3 to 5000 pulses per revolution		32 to 2048 pulses per revolution	30 to 5000 pulses per revolution
Output Type	Cable (two meter, tinned)		Cable (two meter, tinned)	Cable (two meter, tinned)
Frequency Response	100kHz max	100kHz max (≤3000 ppr) 200kHz max (>3000 ppr)	20kHz max	100kHz
Rating	IP65		IP65	IP65
Accessories Available	–		Metric-to-metric and metric-to-S.A.E. couplings, mounting brackets	Metric-to-metric and metric-to-S.A.E. couplings, mounting brackets