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Smart encoders & actuators

DWx Series Light and Medium Duty Draw Wire Encoders

Draw Wire Encoders, also known as string encoders or string potentiometers, use a spring-loaded cable reel that is wrapped with a steel cable. The reel is connected to a rotary encoder or potentiometer that can provide very accurate feedback of how far the steel cable has been pulled out. Our Draw Wire Encoders provide encoder (quadrature) and analog (0-10V, 4-20mA) outputs and are available from 2 meter pull lengths up to 10 meter lengths.

Typical applications include linear measuring, vertical lift measurement, cylinder stroke measurement, or any application where accurate, inexpensive, and easy to install measurement of a linear distance is required.

Features

DWI Series
- Encoder (quadrature) output 0.025–0.050 mm/count resolution
- Cost effective
- Miniature size (DWI-2M), robust and space saving construction
- Universal electrical output (line driver, open collector, etc.)
- Stainless steel draw wire
- Measuring lengths of 2000mm, 5000mm, and 10000mm
- Light duty IP64 and medium duty IP65 encoders available

DWP Series
- Analog voltage or current output: 0-10 V or 4-20 mA
- Robust design
- Smooth, stepless analog incrementing (potentiometer-based)
- Stainless steel draw wire
- Measuring lengths of 2000mm
- IP64

DWA Series
- Programmable Analog out: 0-10 V or 4-20 mA
- Easy to use Teach Mode (use pushbuttons on the back of the encoder or use digital inputs)
- Status LEDs
- Overrun function (alarm if wire is pulled outside the Teach limits)
- Convenient M12 cable connection
- Stainless steel draw wire
- Measuring lengths of 5000mm and 10000mm
- IP65

DWx Series Light and Medium Duty Draw Wire Encoders

Part Number	Price	Duty Type	Measuring Length	Measuring Speed	Feed Distance per Encoder Revolution	Resolution	Dimensional Drawing	Input Voltage	Output
DWI-2M-H0500-RL2	$-06ivb:	Light	2000mm	1m/sec max	100mm	0.050 mm/count (quadrature)	PDF	5–30 VDC	Universal output circuit: Push-Pull (Totem Pole) or NPN/PNP open collector (HTL), or Line Driver (TTL) Quadrature (AB,/AB)
DWI-5M-H2000-RL2	$-06ivc:	Medium	5000mm	2m/sec max	200mm	0.025 mm/count (quadrature)	PDF		Universal output circuit: Push-Pull (Totem Pole) or NPN/PNP open collector (HTL), or Line Driver (TTL) Quadrature with index (ABZ, /ABZ)
DWI-10M-H2000-RL2	$-06ivd:		10000mm				PDF		
DWP-2M-4A-RL2	$-06ive:		2000mm	1m/sec max	100mm	Analog (stepless)	PDF	10–30 VDC	4–20 mA
DWP-2M-0V-RL2	$;-06ivf:						PDF		0–10 V
DWA-5M-4A-M12	$-06iv7:		5000mm	2m/sec max	200mm	16bit (min 0.366 µA/step)	PDF	13–30 VDC	4–20 mA
DWA-5M-0V-M12	$-06iv8:					16bit (min 0.153 mV/step)	PDF		0–10 V
DWA-10M-4A-M12	$-06iv9:		10000mm			16bit (min 0.366 µA/step)	PDF		4–20 mA
DWA-10M-0V-M12	$-06iva:					16bit (min 0.153 mV/step)	PDF		0–10 V

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DWI Series Light and Medium Duty Draw Wire Encoders

Specifications - DWI Series

DWI Series Specifications				
Model		DWI-2M-H0500-RL2	DWI-5M-H2000-RL2	DWI-10M-H2000-RL2
Price		$-06ivb:	$-06ivc:	$-06ivd:
Drawing		PDF	PDF	PDF
Electrical Specifications	Resolution	0.05 mm	0.025 mm	
	Output Signals	AB, /AB	ABZ, /ABZ	
	Output Circuits	Universal output circuit: Push-Pull (Totem Pole) or NPN/PNP open collector (HTL), or Line Driver (TTL), Quadrature (AB,/AB)	Universal output circuit: Push-Pull (Totem Pole) or NPN/PNP open collector (HTL), or Line Driver (TTL), Quadrature with index (ABZ, /ABZ)[1]	
	Power Supply	5–30 VDC		
	Output Current	40mA max		
	Input Current	60mA max		
Mechanical Specifications	Feed Distance per Encoder Revolution	100mm	200mm	
	Wire Retraction Force	3–5 N	3.2–6.5 N	3.2–6 N
	Measuring Length	2000mm	5000mm	10000mm
	Measuring Speed	1 m/sec max	2 m/sec max	
	Linearity[2]	± 0.3 mm	± 0.5 mm	
	Repeatability	± 0.1 mm		
	Signal Cable	2.0 m cable		
	Weight	0.2 kg	0.8 kg	
Materials	Housing	Aluminum plus plastic	Aluminum	
	Draw Wire	Stainless steel, non-magnetic – UNI EN 4305		
Environmental Specifications	Shock	100g, 6ms		
	Vibrations	10g, 5–2000 Hz		
	Protection	IP64	IP65	
	Operating Temperature Range	-25°C to +85°C (-13°F to +185°F)	-40°C to +85°C (-40°F to +185°F)	
	Storage Temperature Range	-40°C to +100°C (-40°F to +212°F), 98% relative humidity, non-condensing		
	Approvals	UKCA, CE, RoHS		

1 - Note: The index pulse is output every one encoder revolution which corresponds to the Feed Distance per Encoder Revolution. The index pulse will trigger every 200mm.
2 - Note: Linearity is the measurement difference between the ideal or expected output position (a straight line) and the reported output position of the draw wire.

DWI-2M-H0500-RL2

DWI-5M-H2000-RL2

DWI-10M-H2000-RL2

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DWP Series Medium Duty Draw Wire Encoders

Specifications - DWP Series

DWP Series Specifications			
Model		DWP-2M-4A-RL2	DWP-2M-0V-RL2
Price		$-06ive:	$;-06ivf:
Drawing		PDF	PDF
Electrical Specifications	Current Output	4–20 mA ± 5%	
	Power Supply (for current output)	10–30 VDC	
	Voltage Output	0–10 V ± 5%	
	Power Supply (for voltage output)	15–30 VDC	
	Input Current	2mA max	
Mechanical Specifications	Feed Distance per Encoder Revolution	100mm	
	Wire Retraction Force	3–5 N	
	Measuring Length	2000mm	
	Measuring Speed	1 m/sec max	
	Linearity[1]	± 0.25% of current position value	
	Repeatability	± 0.15 mm	
	Signal Cable	2.0 m cable	
	Weight	0.2 kg	
Materials	Housing	Aluminum	
	Draw Wire	Stainless steel, non-magnetic – UNI EN 4305	
Environmental Specifications	Shock	100g, 6ms	
	Vibrations	10g, 5–2000 Hz	
	Protection	IP64	
	Operating Temperature Range	-25°C to +85°C (-13°F to +185°F)	
	Storage Temperature Range	-40°C to +100°C (-40°F to +212°F), 98% relative humidity, non-condensing	
	Approvals	UKCA, CE, RoHS	

1 - Note: Linearity is the measurement difference between the ideal or expected output position (a straight line) and the reported output position of the draw wire.

DWP-2M-4A-RL2

DWP-2M-0V-RL2

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DWA Series Medium Duty Draw Wire Encoders

Specifications - DWA Series

DWA Series Specifications					
Model		DWA-5M-4A-M12	DWA-5M-0V-M12	DWA-10M-4A-M12	DWA-10M-0V-M12
Price		$-06iv7:	$-06iv9:	$-06iv8:	$-06iva:
Drawing		PDF	PDF	PDF	PDF
Electrical Specifications	Resolution	65536 steps (min. step = 0.048 mm)			
	Power Supply	13–30 VDC			
	Output Circuit	4–20 mA		0–10 V	
	Output Range	Adjustable by teach-in buttons			
	Input current	1.5 W			
	Protection	Against inversion of polarity and short-circuit			
	EMC	Electro-magnetic immunity, according to: EN-61000-4-2 and EN-61000-4-4			
	Optoelectronic Life	>100,000 hours			
	Functions	Teach window of travel length Overrun limit alarm			
Mechanical Specifications	Feed Distance per Encoder Revolution	200mm			
	Wire Retraction Force	3.2–6.5 N	3.2–6 N	3.2–6.5 N	3.2–6 N
	Measuring Length	5000	10000	5000	10000
	Measuring Speed	2 m/sec max			
	Linearity[1]	± 0.5 mm			
	Repeatability	± 0.1 mm			
	Signal Cable	M12 plug			
	Weight	0.8 kg			
Materials	Housing	Aluminum			
	Draw Wire	Stainless steel, non-magnetic – UNI EN 4305			
Environmental Specifications	Shock	100g, 6ms			
	Vibrations	10g, 5–2000 Hz			
	Protection	IP65			
	Operating Temperature Range	-40°C to +85°C (-40°F to +185°F)			
	Storage Temperature Range	-40°C to +100°C (-40°F to +212°F), 98% relative humidity, non-condensing			
	Approvals	UKCA, CE, RoHS			

1 - Note: Linearity is the measurement difference between the ideal or expected output position (a straight line) and the reported output position of the draw wire.

DWA-10M-4A-M12

DWA-10M-0V-M12

DWA-5M-0V-M12

DWA-5M-4A-M12