RoHS COMPLIANT

Description

The HD25 is a rugged optical incremental shaft encoder designed for heavy-duty industrial applications. The housing, machined from a solid billet aluminum block and finished with clear anodizing, conforms to the industrial standard size 25 package. Size 25 encoders are widely used and are considered to be the backbone of feedback devices found in factory automation and industrial applications. The HD25 will drop directly into existing applications to provide a superior solution at a competitive cost. The HD25 is a factory stock product with little or no lead-time.

Typical applications include:

- Automation, robotics, motion control, elevator controls, machine tools, food processing, X-Y tables and conveyors.
- Lathes, grinders, CNC machine tools, high performance servos, test equipment, packaging machines, balance machines and cutting machines.
- Web processing, rotary tables, transfer machines, stacker cranes, press controls, printing presses and pump controls.
- Oil field equipment, saw mill machinery and construction machinery.

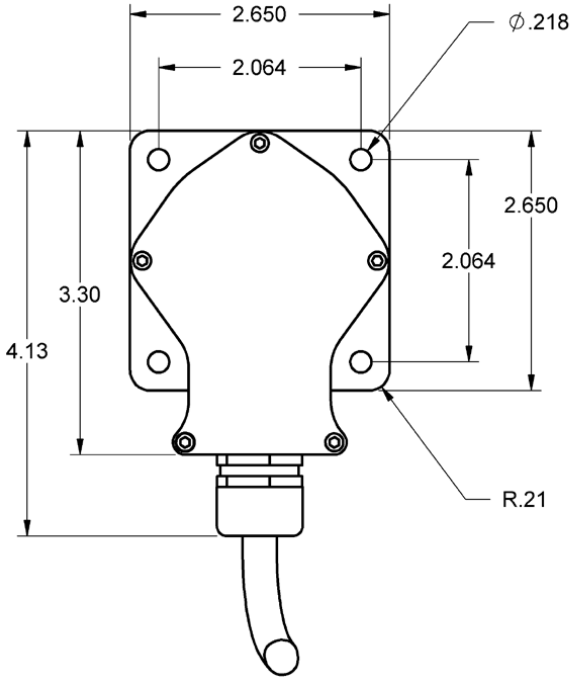
Our absolute encoders may be used in many stand alone applications that do not require a PC interface. For these applications we provide detailed communications protocols for all of our absolute products (see the SEI Absolute Encoder Communications Protocol page).

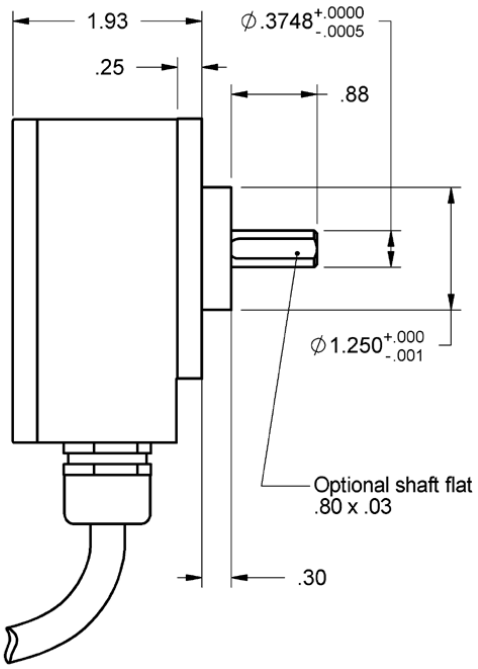
Features

- NEMA size 25 package
- Anodized milled aluminum housing with O-ring housing seal
- LED and phased array wide-gap monolithic encoder technology
- 64 to 2500 cycles per revolution (CPR)
- 400 to 10000 pulses per revolution (PPR)
- 2 channel quadrature squarewave outputs
- Single-ended or differential outputs
- Optional index (3rd channel)

Mechanical Drawing

US DIGITAL
1400 NE 136th Avenue
Vancouver, Washington 98684, USA
info@usdigital.com
www.usdigital.com
Local: 360.260.2468
Toll-free: 800.736.0194





Environmental

Parameter	Value
Operating Temperature	
Low voltage version	-40C to 100C
High voltage version	-40C to 85C
Storage Temperature	-40C to 100C
Humidity	
Non-sealed	98% non-condensing
Sealed	100% condensing (NEMA IP65)
Vibration (5 to 2kHz)	20G
Shock, 11 mSec	60G
Electrostatic Discharge, Human Body Model	± 4kV

Mechanical

Parameter	Value
Size	NEMA size 25
Housing and Cover Material	Anodized aluminum
Shaft Material	Stainless steel

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Weight	17 oz.
Shaft Diameter	0.3748 in. (+0.0000 in. -0.0003 in.)
Shaft Optional Flat Size	.08 in. long x .03 in. deep
Max. Acceleration	100000 rad / sec²
Max. Shaft Speed Non-sealed (mechanical) Sealed (mechanical)	 15000 rpm 6000 rpm
Shaft Torque Non-sealed Sealed	 < 0.5 in-oz 3.5 in-oz typical
Max. Shaft Load Axial Radial	 40 lb. 35 lb.
Max. Shaft Total Indicated Runout	0.0003 in.
Bearing Life @ 4 Pound Load	2.3 x 10^9 revolutions
Moment of Inertia	2.8 x 10^-4 oz-in-sec²
Technical Bulletin TB1001 - Shaft and Bore Tolerances	Download

Electrical

- Specifications apply over entire operating temperature range.
- Typical values are specified at 25 ° C.
- Output driver IC: ET7272B
- For complete details, see the EM1 product page.

Parameter	Min.	Typ.	Max.	Units	Conditions
Supply Voltage Low Voltage Version High Voltage Version	 4.5 9.5	 5.0	 5.5 30	 V	
Supply Current			115	mA	
Low-level Output		0.4	0.5	V	I_{OL} = 20mA
High-level Output		Vs - 2.0		V	I_{OH} = -20mA
Output Rise/Fall Time		700	980	nS	

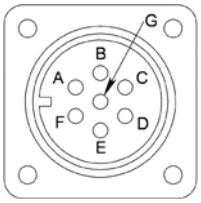
7-pin Connector Pin-out & Cable Wire

Pin	Quad. (AB)	Low Temp. (CA7) (see the CA-RC7-SH-NC)
A	A channel	White w/ Blue stripe
B	B channel	White w/ Brown stripe
C*	Index	White w/ Orange stripe

Pin	Quad. (AB)	Low Temp. (CA7) (see the CA-RC7-SH-NC)
D	+VDC	Orange w/ White stripe
E	NC	Brown w/ White stripe
F	Common	Blue w/ White stripe
G	Case ground	Green w/ White stripe

* Only available when Index channel is specified.

The 7-pin Connector

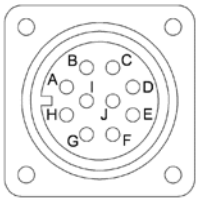


10-pin Connector Pin-out & Cable Wire

Pin	Quad. (AB)	Low Temp. (CA7) (see theCA-RC10-SH-NC)
A	A+ channel	Blue w/ White stripe
B	B+ channel	Brown w/ White stripe
C*	Index+	Orange w/ White stripe
D	+VDC	Green w/ White stripe
E	NC	Gray w/ White stripe
F	Common	White w/ Gray stripe
G	Case ground	White w/ Green stripe
H	A- channel	White w/ Blue stripe
I	B- channel	White w/ Brown stripe
J*	Index-	White w/ Orange stripe

* Only available when Index channel is specified.

The 10-pin Connector



Product Change Notifications

Title	Date	Description	Download
EM1 LED Die - PCN 1016	2/7/2013	As part of US Digital's continual assurance of supply strategy, we have qualified additional sources for our LED die used in our EM1 encoder module, which in turn impacts all of the following products: EM1, E2, E3, E5, E6, H1, H15, H3, H5, H6, HB5M, HB6M, HD25, PE, S1, S2, S5, S6, T5 and T6 The device specification will remain the same, i.e. there will be no change to form, fit or function of the product(s) as specified by US Digital. The appropriate quality and reliability testing has been performed on representative products to ensure normal parametric distribution, consistent with US Digital's quality and reliability standards.	Download
EM1 Component Change Notice	N/A	Unless otherwise specified, the US Digital EM1 optical encoder module will be phased in to replace our previous encoder module, HEDS-9000 Series, supplied by Avago Technologies.	View

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Ordering Information

HD25 - [ ] - [ ] - [ ] - [ ] - [ ] - [ ]

CPR	Flat	Seal	Voltage	Index	Output
64 =	N =*Non-Flat Shaft*	N =*Non-Sealed*	L =*Low*	NE =*No Index*	S =*Single-ended*
100 =	F =*Flat Shaft*	S =*Sealed*	H =*High*	IE =*Index (3rd Channel)*	D =*Differential*
200 =					
400 =					
500 =					
512 =					
1000 =					
1024 =					
1800 =					
2000 =					
2048 =					
2500 =					

Rules

- Index must be equal to NE when CPR is equal to 64

Notes

- Cables and connectors are not included and must be ordered separately.
- US Digital warrants its products against defects in materials and workmanship for two years. See complete warranty for details.

Base Pricing

Quantity	Price
1	$284.00
10	$241.40

For volume discounts, please contact us at sales@usdigital.com or 800.736.0194.

- Add $45.00 per unit for **Seal** of Sealed
- Add 4% per unit for **Index** of Index (3rd Channel)
- Add 5% per unit for **Output** of Differential

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