

## SIZE 12 SERIES E2 (Single-ended only) INCREMENTAL MODULAR / KIT ENCODER (Mounting Kit Required)

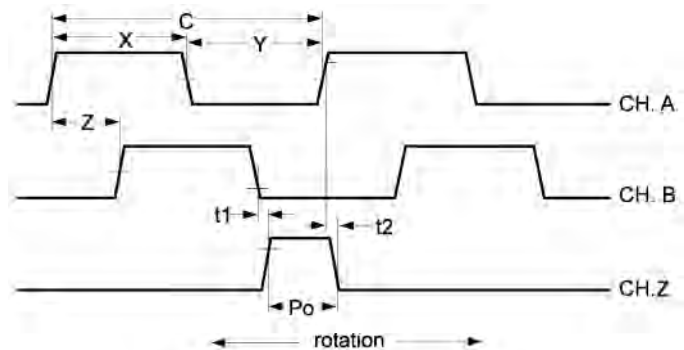


### FEATURES

**WORLD ENCODERS** brand, Made in USA

- 1.2" W x 1.42" L Modular / Kit light duty designed
- Thickness .61" Rugged screw-together housing
- Positive finger-latching connector
- Up to 1250 P/R, 5v TTL either 2 or 3 channels
- Hub ID size 2, 3, 4, 5, 6, 8, 10mm, 1/8", 5/32", 3/16", 1/4", 5/16", 3/8"
- RoHS compliant
- Mounting compatibility with Agilent HEDS-5500
- Wide gap 0.025" (0.635mm)

### OUTPUT WAVE FORM



Shaft Rotation for a Kit Encoder: (View the encoder so the cover side is facing up.)

B leads A in a clockwise rotation; A leads B in a counter-clockwise rotation.

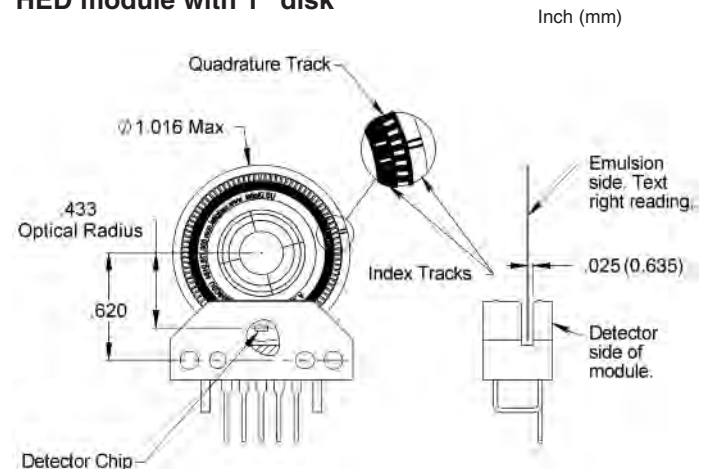
### SPECIFICATIONS

#### Electrical

Pulse per Revolution	Up to 1250 P/R
Supply Voltage	5vdc TTL
Output Format	Dual Square Wave in Quadrature
Output Circuit	Index (option) in 5vdc TTL
Supply Voltage	5vdc ±0.5
Current Consumption	88mA Max. No Load
Output Voltage	
Sourcing to +5	Min 2.4v Typ. 3.4v @ -20mA
Sinking to Ground	Typ. 0.2v Max. 0.4v @ 20mA
Frequency Response	100KHz
Cycle Error	Typ. 3.0°, Max 5.5°
Symmetry	Min. 150°, Typ. 180°, Max. 210°
Quadrature & Index Pulse width	Min. 60°, Typ. 90°, Max. 120°



### HED module with 1" disk



**New!** Plug-in RS422 differential cable driver 10pin Avago/HP (HEDL) compatible. Features-E2 TTL outputs turn over to differential linedriver outputs.

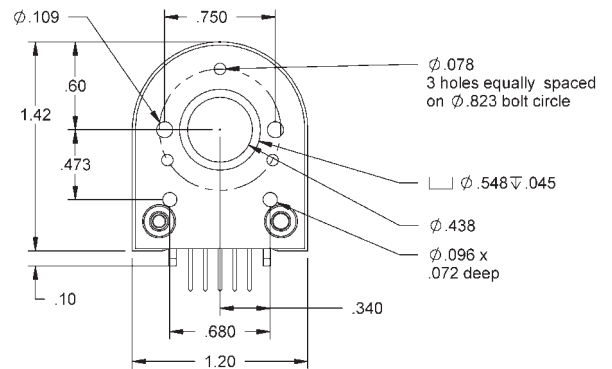
PART NUMBER	LIST PRICE
PC5-H10	\$21.00

## SIZE 12 SERIES E2 (Single-ended only) INCREMENTAL MODULAR / KIT ENCODER (Mounting Kit Required)

### Mechanical

Hub I.D.	2, 3, 4, 5, 6, 8, 10mm 1/8", 5/32", 3/16", 1/4", 5/16", 3/8"
Moment of Inertia	8.0 x 10 <sup>-6</sup> oz. in. s <sup>2</sup>
Hub Set Screw Size	3-48 or 4-48 in.
Hex Wrench Size	0.05 in.
Base Plate Thickness	0.135 in.
3 Mounting Screws Size	0-80 on 0.823 B.C. in.
2 Mounting Screws Size	2-56 or 4-40 on 0.750 B.C. in.
Required Shaft Length	0.445 to 0.570 in.
Weight	Polycarbonate 1.0 oz.
Torque: Hub Set Screw	2-3 in. lbs.
Cover (4-40)	2-3 in. lbs.
Base Plate	4-6 in. lbs.
Mtg. Adapter	4-6 in. lbs.

### E2-Sgl. ended Dimensions



### Environmental

Temperature	Operating: -40 - +100°C Storage: -55 - +125°C
Operation Humidity	35 - 85% without condensation
Vibration	Max. 20g (5 to 2kHz)
Acceleration	250,000 rad/sec <sup>2</sup>
Shaft Axial End Play	±0.01"
Shaft Eccentricity Plus Radial Play*	0.004"

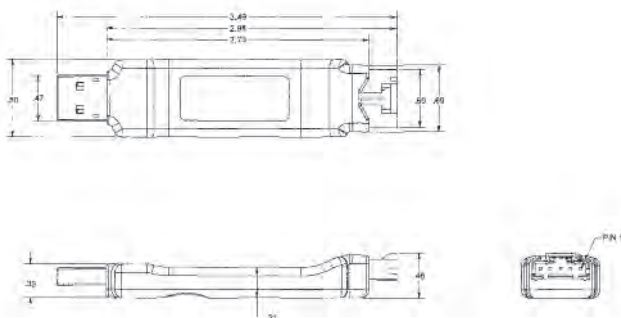
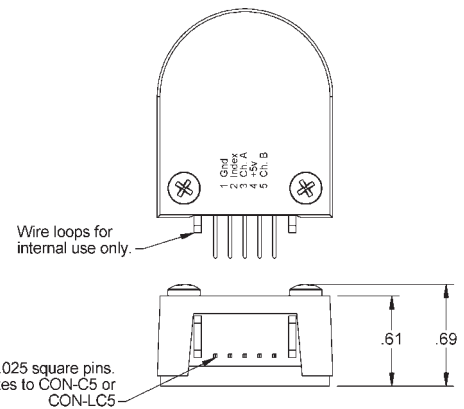
\*Note: Radial play translates directly to position inaccuracy.

### Wiring Diagram

PIN #	5 Pin Sggle-ended
1	Gnd
2	Index Z
3	A ch.
4	+5vdc
5	B ch.

Note: 5 pin Single-ended: Amp #87165-1 (22-26 AWG)  
(Locking Flat) Wires - Horizontal direction

Note: 5 pin Single-ended: Amp #640440-5 (22 AWG)  
(Std. Angle) Amp #640441-5 (24 AWG)  
Amp #640442-5 (26 AWG)  
Wires - Vertical direction



<b>New! USB data acquisition device. Features-count Quadrature and Index signals from E2 encoder for (1)Single-ended quadrature interface. (Optional 6 ft cable # CA3620-6FT)</b>	
<b>PART NUMBER</b>	<b>LIST PRICE</b>
QSB-S	\$60.00
(1) Single-ended quadrature and either 4-bits of digital I/O or (1)channel step/direction stepper motor control. (Optional 6ft. Cable w/5 pin mating Conn. Both ends. # CA3620-6FT)	
<b>PART NUMBER</b>	<b>LIST PRICE</b>
QSB-M	\$75.00

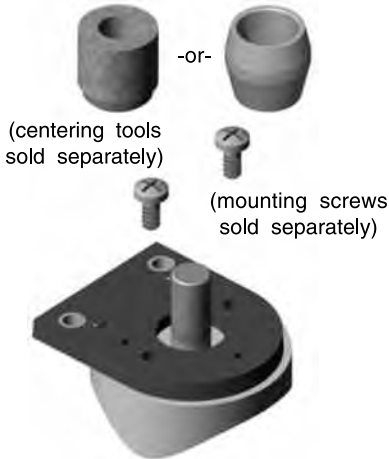
Note: Software CD included.

# SIZE 12 SERIES E2 (Single-ended only)

## Assembly Instructions:

### 1. Base Mounting

Secure base to mounting surface using two or three screws. If a centering tool is used, slip it over shaft and into center hole of base. Tighten mounting screws. Remove centering tool.



### 2. Spacer Installation

For shafts less than 3/8", snap spacer tool clip around shaft. (Fig. A)  
For shafts equal to or larger than 3/8", place spacer tool next to shaft. (Fig. B)

Figure A



Figure B



### 3. Hub Disk Assembly Installation

Slip hub disk assembly over shaft with disk side down until it bottoms out against spacer tool. Tighten set screw with hex wrench provided while pressing down on hub.



### 4. Encoder Module Installation

Slip optical module into position until two alignment pins slip into holes of module. Thick side of module should be out.



### 5. Cover Installation

Place housing (cover) over assembly and secure with two 4-40 x 5/8" cover screws (supplied).



## Cables/Colors

PIN #	Channel	Color
1	GRD	Brown or Black
2	Z	Violet or Green
3	A	Blue or White
4	5V	Orange or Red
5	B	Yellow or Brown

	5-Wires	Shielded Wire
Std. Angle	CA-435-1FT	CA-3934-6FT
Locking Flat	CA-1095-1FT	CA-3935-6FT

## Size 12 Series E2 Modular/Kit Encoder (Single-ended only)

Model	Resolution	Hub I.D.	Options
E2	- □ □ □ □	- □ □ □ -	□

### ORDERING INFORMATION

E2	32*	250	900*	Code	=	Size	Code	=	Size	I = Index (Z ch.)
	50*	256	1000	079*	=	2mm	197	=	5mm	G = Adds 1.81" Mounting B.C. "ears" to base
	96*	360	1016*	118*	=	3mm	237	=	6mm	
	100	400	1024	125*	=	1/8"	250	=	1/4"	
	110*	500	1250*	156*	=	5/32"	315	=	8mm	
	120*	512		157	=	4mm	375	=	3/8"	
	192*	540*		187*	=	3/16"	394*	=	10mm	
	200	720*		312*	=	5/16"				

### PRICING INFORMATION

Model	Resolution	HUB I.D.	Options
E2 Base Price \$52.00 (A,B channels only Std.)	32 Thru 900	Std. Hub I.D. 4mm, 5mm, 6mm, 8mm 1/4", 3/8"	I = Index (Z channel) Add \$8.00
	1000 Thru 1250	N/C  Non-Stock Hub I.D. 2mm, 3mm, 10mm 1/8", 5/32", 3/16", 5/16"	G = Add 1.81" Mounting B.C. "ears" to base Add \$7.00

Standard Stock Items: Shipped immediately. Non-stock Items: \*Lead Time: 7 - 10 days to ship. \*32, 720, 900, 1250 only available with Index.

### Series E2 Return Policy & Warranty

World Encoders warrants its products against defects in material for one year from shipment.

World Encoders Series E2 products are not intended for applications where a failure could result in a **costly, dangerous or life threatening** situation.

World Encoders will not be responsible for Series E2 damages or losses greater than the cost of the World Encoders replacement parts.

**World Encoders will not accept Series E2 returns for Unpacked items, mis-alignment, mis-gapping, entering higher voltage than 5V or improper usage by customer's wrong handling or wrong usage.**

### Mounting Kit / E2-MK-Hub I.D.



### Mating Connector w/6 ft. Cable Assy.



## Series E2 - (Single-ended only)

PART NUMBER	LIST PRICE	PART NUMBER	LIST PRICE
E2-100-237	\$52.00	E2-1000-315	\$62.00
E2-100-250	\$52.00	E2-1000-375	\$62.00
E2-100-315	\$52.00	E2-1024-237	\$62.00
E2-100-375	\$52.00	E2-1024-315	\$62.00
E2-200-157	\$52.00	E2-1024-375	\$62.00
E2-200-197	\$52.00	E2-1000-157-I	\$70.00
E2-200-237	\$52.00	<b>New!</b> Plug-in RS422 differential cable driver 10pin Avago/HP (HEDL) compatible. Features-E2 TTL outputs turn over to differential linedriver outputs.	
E2-250-237	\$52.00		
E2-250-250	\$52.00		
E2-250-315	\$52.00	PC5-H10	\$21.00
E2-250-375	\$52.00	<b>New!</b> USB data acquisition device. Features-count Quadrature and Index signals from E2 encoder for (1)Single-ended quadrature interface.	
E2-256-237	\$52.00		
E2-256-315	\$52.00	QSB-S	\$60.00
E2-256-375	\$52.00	(1) Single-ended quadrature and either 4-bits of digital I/O or (1)channel step/direction stepper motor control. Optional 6ft. Cable w/5 pin mating Conn. Both ends. # CA3620-6FT \$24.00	
E2-360-237	\$52.00		
E2-360-250	\$52.00		
E2-360-315	\$52.00	QSB-M	\$75.00
E2-360-375	\$52.00	<b>MOUNTING KIT</b>	
E2-400-157	\$52.00	E2-MK-157 (4mm)	\$10.00
E2-400-197	\$52.00	E2-MK-197 (5mm)	\$10.00
E2-400-237	\$52.00	E2-MK-237 (6mm)	\$10.00
E2-500-237	\$52.00	E2-MK-250 (1/4")	\$10.00
E2-500-250	\$52.00	E2-MK-315 (8mm)	\$10.00
E2-500-250-G	\$59.00	E2-MK-375 (3/8")	\$10.00
E2-500-315	\$52.00	<b>CONNECTORS*</b>	
E2-500-375	\$52.00	CON-C5-22	\$1.00
E2-512-237	\$52.00	CON-LC5	\$3.00
E2-512-250	\$52.00	<b>CABLES*</b>	
E2-512-315	\$52.00	CA-435-1FT	\$8.00
E2-512-375	\$52.00	CA-1095-1FT	\$12.00
E2-1000-237	\$62.00	CA3934-6FT	\$15.00
E2-1000-250	\$62.00	CA3935-6FT	\$18.00
		CA3620-6FT	\$24.00

Standard Stock Items: Shipped immediately.

\*Non-Stock Items Lead Time: 7 - 10 days to ship.

### Series E2 Return Policy & Warranty

World Encoders warrants its products against defects in material for one year from shipment.

World Encoders Series E2 products are not intended for applications where a failure could result in a **costly, dangerous or life threatening** situation.

World Encoders will not be responsible for Series E2 damages or losses greater than the cost of the World Encoders replacement parts.

**World Encoders will not accept Series E2 returns for Unpacked items, mis-alignment, mis-gapping, entering higher voltage than 5V or improper usage by customer's wrong handling or wrong usage.**