

# Encoders

## Optical Incremental Encoders

- Features:**  
 Rugged Housing  
 32 to 1250 lines per revolution  
 2 or 3 Channels + complementary outputs  
 TTL Digital output  
 Line Driver

### Series E5D

		E5D	E5D...I	
Lines per revolution	N	32 - 1 250	50 - 1 250	
Signal output, square wave		2	2+1 index	channels
Supply voltage	V <sub>CC</sub>	4,5 to 5,5		V DC
Current consumption, typical (V <sub>CC</sub> = 5 V DC)	I <sub>CC</sub>	< 500 (LPR) 33 max	≥ 500 (LPR) 60 max	mA
Pulse width	P	180 ± 45		°e
Index pulse width	P <sub>0</sub>	90 ± 30		°e
Phase shift, channel A to B	Φ	90 ± 30		°e
Cycle	C	360 ± 5,5		°e
Signal rise/fall time, typical	tr/tf	15		ns
Frequency range <sup>1</sup>	f	up to 300		kHz
Inertia of code disc	J	0,6		gcm <sup>2</sup>
Operating temperature range		- 40 to +100		°C

<sup>1</sup> Velocity (rpm) = f (Hz) x 60/N

#### Ordering information

Encoder	number of channels	lines per revolution (LPR)	in combination with DC-Micromotors
E5D	2	32*, 50, 96, 100, 192, 200, 250, 256, 360, 400, 500, 512, 540	2230, 2233, 2237, 2342, 2642, 2657 3242, 3257, 3272, 3863
E5D...I	3	720, 900, 1000, 1024, 1250	<b>Brushless DC-Servomotors</b> 2036, 2057, 2444, 3056, 3564, 3890, 4490

\* 32 CPR not available with index

#### Features

These rugged incremental shaft encoders in combination with the FAULHABER DC-Micromotors are designed for indication and control of both, shaft velocity and direction of rotation as well as for positioning.

A LED source and lens system transmits collimated light through a low inertia mylar disc with machined aluminum hub, to give two channels with 90° phase shift.

The single 5 volt supply and the two or three channel digital output signals are interfaced with 10-pin locking connector (sold separately).

Optional Cable: Dual ended, 10-pin female finger latching connectors on both ends of an 8-conductor round shielded twisted pair 24AWG cable. CA-FC10-SH-FC10-X (X= number of feet, in 1 ft increments).

Base and cover constructed of rugged 20% glass filled polycarbonate.

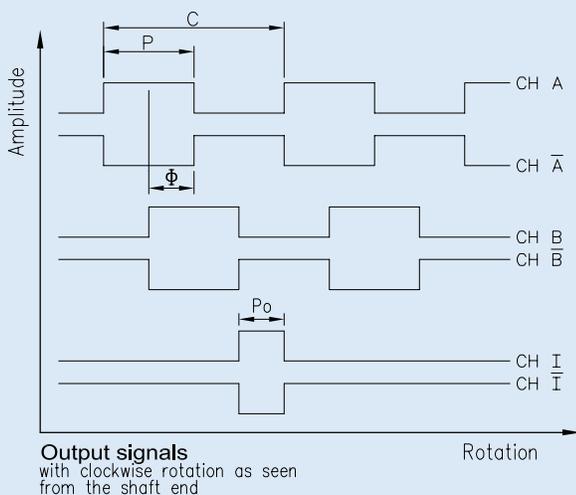
Ball bearings are recommended for continuous operation at low and high speeds and for elevated radial shaft load.

Details for the DC-Micromotors and suitable reduction gearheads are on separate catalog pages.

L- option provides Avago pin out

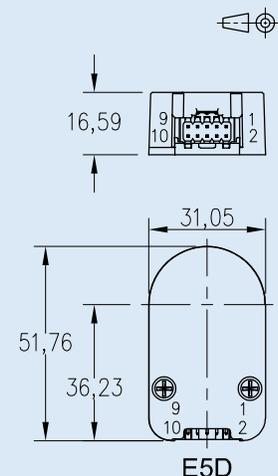
Maximum noise immunity is achieved when the differential receiver is terminated with a 110-ohm resistor in series with a .0047 microfarad capacitor placed across each differential pair. The capacitor simply conserves power; otherwise power consumption would increase by approximately 20mA per pair, or 60mA for 3 pairs.

#### Output signals / Circuit diagram / Connector information...E5D



STANDARD PINOUT	L-OPTION PINOUT
1 GND	1 N/C
2 GND	2 +5VDC
*3 CH I-bar	3 GND
*4 CH I	4 N/C
5 CH A-bar	5 CH A-bar
6 CH A	6 CH A
7 +5VDC	7 CH B-bar
8 +5VDC	8 CH B
9 CH B-bar	*9 CH I-bar
10 CH B	*10 CH I

\*INDEX OPTIONAL



# Notes

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