

## Encoders

optical Encoder, digital outputs,  
3 channels, 500 lines per revolution, Line Driver

For combination with  
DC-Micromotors  
Brushless DC-Motors

### Series HEDL 5540

		HEDL 5540 A	
Lines per revolution	$N$	500	
Frequency range, up to <sup>1)</sup>	$f$	100	kHz
Signal output, square wave		2+1 Index and complementary outputs	Channels
Supply voltage	$U_{DD}$	4,5 ... 5,5	V
Current consumption, typical <sup>2)</sup>	$I_{DD}$	57	mA
Pulse width	$P$	180 ± 35	°e
Index Pulse width	$P_0$	90 ± 35	°e
Phase shift, channel A to B	$\Phi$	90 ± 15	°e
Logic state width	$S$	90 ± 35	°e
Cycle	$C$	360 ± 5,5	°e
Signal rise/fall time, max. ( $C_{LOAD} = pF$ )	$tr/tf$	0,25 / 0,25	µs
Inertia of code disc	$J$	0,6	gcm <sup>2</sup>
Operating temperature range		-40 ... +100	°C

<sup>1)</sup> Velocity (min<sup>-1</sup>) =  $f$  (Hz) x 60/ $N$

<sup>2)</sup>  $U_{DD} = 5$  V: with unloaded outputs

#### For combination with Motor

Dimensional drawing A	<L1 [mm]		
2230 ... S	52,8		
2233 ... S	55,6		
2036 ... B - K312	56,8		
2057 ... B - K312	78,3		
2444 ... B - K312	64,9		
3056 ... B - K312	76,1		
3564 ... B - K312	84,1		
4490 ... B - K312	116,3		
4490 ... BS - K312	116,3		

#### Characteristics

These incremental shaft encoders in combination with the DC-Motors are designed for the 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 metal disc to give two channels with 90° phase shift. The index pulse is synchronized with the channel B. Each encoder channel provides complementary output signals. The single 5 volt supply and the digital output signals are interfaced with a connector.

The Line Driver offers enhanced performance when the encoder is used in noisy environments, or when it is required to drive long distances.

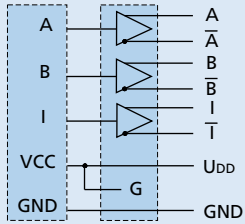
Motor with ball bearings are recommended for continuous operation at low and high speeds and for elevated radial shaft load.

Details for the motors and suitable reduction gearheads are on separate catalogue pages.

To view our large range of accessory parts, please refer to the "Accessories" chapter.

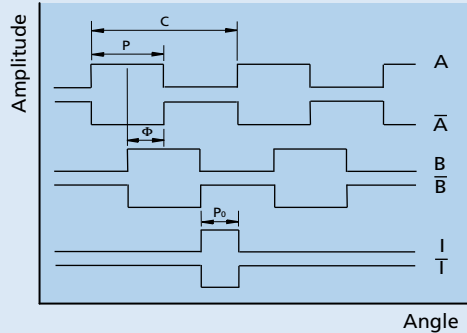
### Circuit diagram / Output signals

#### Output circuit



**Recommendation:**  
Suggested Line Receivers:  
AM26LS32, SN75175, MC3486

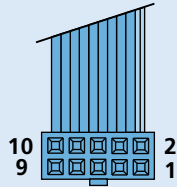
#### Output signals with clockwise rotation as seen from the shaft end



### Connector information / Variants

No.	Function
1	N.C.
2	U <sub>DD</sub> (+5V)
3	GND
4	N.C.
5	Channel A
6	Channel A
7	Channel B
8	Channel B
9	Channel I
10	Channel I

#### Connection Encoder



**Cable**  
PVC-ribbon cable  
10-conductors, 0,09 mm<sup>2</sup>

**Connector**  
DIN-41651  
grid 2,54 mm

#### Full product description

- Example:  
2444S024B-K312 HEDL5540A  
4490H024BS-K312 HEDL5540A

### Dimensional drawing A

