

## Encoders

optical Encoder, digital outputs,  
3 channels, 100 - 500 lines per revolution

For combination with  
DC-Micromotors  
Brushless DC-Motors

### Series HEDS 5540

		HEDS 5540 C	HEDS 5540 A	
Lines per revolution	<i>N</i>	100	500	
Frequency range, up to <sup>1)2)</sup>	<i>f</i>	100	100	kHz
Signal output, square wave		2+1 Index		Channels
Supply voltage	<i>U<sub>DD</sub></i>	4,5 ... 5,5		V
Current consumption, typical <sup>3)</sup>	<i>I<sub>DD</sub></i>	57		mA
Pulse width	<i>P</i>	180 ± 35		°e
Phase shift, channel A to B	<i>Φ</i>	90 ± 15		°e
Logic state width	<i>S</i>	90 ± 35		°e
Cycle	<i>C</i>	360 ± 5,5		°e
Signal rise/fall time, max. ( <i>C<sub>LOAD</sub></i> = pF)	<i>tr/tf</i>	0,25 / 0,25		µs
Inertia of code disc	<i>J</i>	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> HEDS 5540 requires pull-up resistors of 2,7 kΩ between pins 2, 3, 5 and 4 (*U<sub>DD</sub>*)

<sup>3)</sup> *U<sub>DD</sub>* = 5 V: with unloaded outputs

#### For combination with Motor

Dimensional drawing A	<L1 [mm]		
2230 ... S	52,8	3863 ... CR	86,1
2233 ... S	55,6	3890 ... CR	112,1
2342 ... CR	63,8	2036 ... B - K312	56,8
2642 ... CXR	64,8	2057 ... B - K312	75,8
2642 ... CR	64,8	2444 ... B - K312	64,9
2657 ... CXR	79,8	3056 ... B - K312	76,1
2657 ... CR	79,8	3274 ... BP4	94,0
2668 ... CR	90,8	3564 ... B - K312	84,1
3242 ... CR	65,3	4490 ... B - K312	116,3
3257 ... CR	80,3	4490 ... BS - K312	116,3
3272 ... CR	95,3		

#### 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.

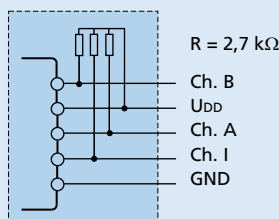
Motors with ball bearings are recommended for continuous operation at low and high speeds and for elevated radial shaft load.

A LED source and lens system transmits collimated light through a low inertia metal disc 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 a 5-pin connector.

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

#### Circuit diagram / Output signals

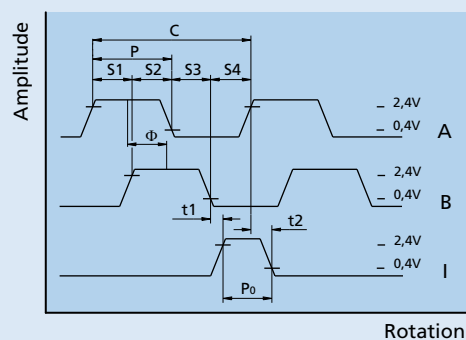
##### Output circuit



**Note:**  
HEDS 5540 requires  
pull-up resistors

##### Output signals

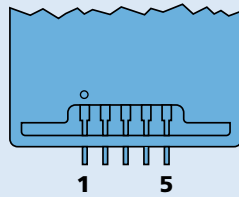
with clockwise rotation as seen  
from the shaft end



### Connector information / Variants

No.	Function
1	GND
2	Channel I
3	Channel A
4	U <sub>DD</sub>
5	Channel B

#### Connection Encoder



#### Recommended connector

AMP 103686-4/640442-5,  
Molex 2695/2759  
FCI 65039-032/4825x-000

#### Option

- **HEDS 5540** Interlocking connector, extension cables 300 mm length (Part No.: K799)

#### Full product description

- Example:  
2444S024B K312 HEDS5540C  
3863H048CR HEDS5540A

### Dimensional drawing A

