Encoders

optical Encoder, digital outputs, 2 - 3 channels,
100 - 1024 lines per revolution

For combination with
DC-Micromotors
Brushless DC-Servomotors

Series 5500, 5540

		HEDS 5500	HEDS 5540	HEDM 5500	
Lines per revolution	N	100 - 500	100 - 500	1000 - 1024	
Frequency range [1]	f	up to 100	up to 100 [2]	up to 100	kHz
Signal output, square wave		2	2+1 Index	2	channels
Supply voltage	U_{DD}	4,5 … 5,5	4,5 … 5,5	4,5 … 5,5	V DC
Current consumption, typical [3]	I_{DD}	17	57	57	mA
Pulse width	P	180 ± 45	180 ± 35	180 ± 45	°e
Phase shift, channel A to B	Φ	90 ± 20	90 ± 15	90 ± 15	°e
Logic state width	S	90 ± 45	90 ± 35	90 ± 45	°e
Cycle	C	360 ± 5,5	360 ± 5,5	360 ± 7,5	°e
Signal rise/fall time, typical	tr/tf	0,25 / 0,25	0,25 / 0,25	0,25 / 0,25	µs
Inertia of code disc	J	0,6	0,6	0,6	gcm^2
Operating temperature range		– 40 ... + 100	– 40 ... + 100	– 40 ... + 70	°C

[1] Velocity (rpm) = f (Hz) x 60/N
[2] HEDS 5540 requires pull-up resistors of 2,7 kΩ between pins 2, 3, 5 and 4 (V_{CC})
[3] U_{DD} = 5 V: with unloaded outputs

For combination with motor

Dimensional drawing A	<L1 [mm]	3890...CR	112,1
2230...S	52,8		
2233...S	55,6	**Dimensional drawing B**	**<L1 [mm]**
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	3564...B - K312	84,1
3242...CR	65,3		
3257...CR	80,3		
3272...CR	95,3		
3863...CR	86,1		

Features

These incremental shaft encoders in combination with the DC-Micromotors and brushless DC-Servomotors 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.

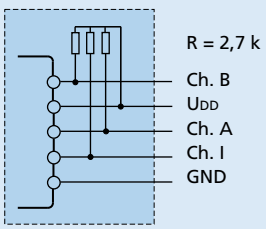
The single 5 volt supply and the two or three channel digital output signals are interfaced with a 5-pin connector.

Motors 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.

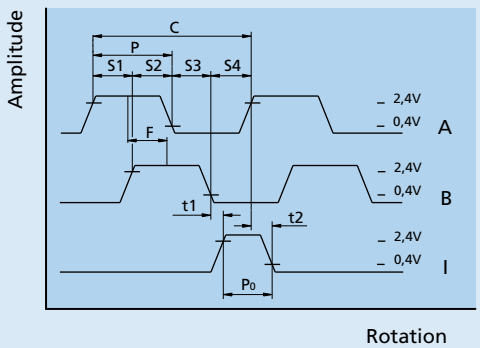
Output signals / Circuit diagram

Output circuit



Note:
HEDS 5540 requires pull-up resistors

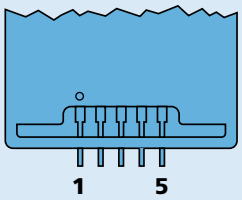
Output signals
with clockwise rotation as seen from the shaft end



Connector information / Variants

No.	Function
1	GND
2	Channel I (Index)
3	Channel A
4	U_{DD}
5	Channel B

Connection Encoder



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

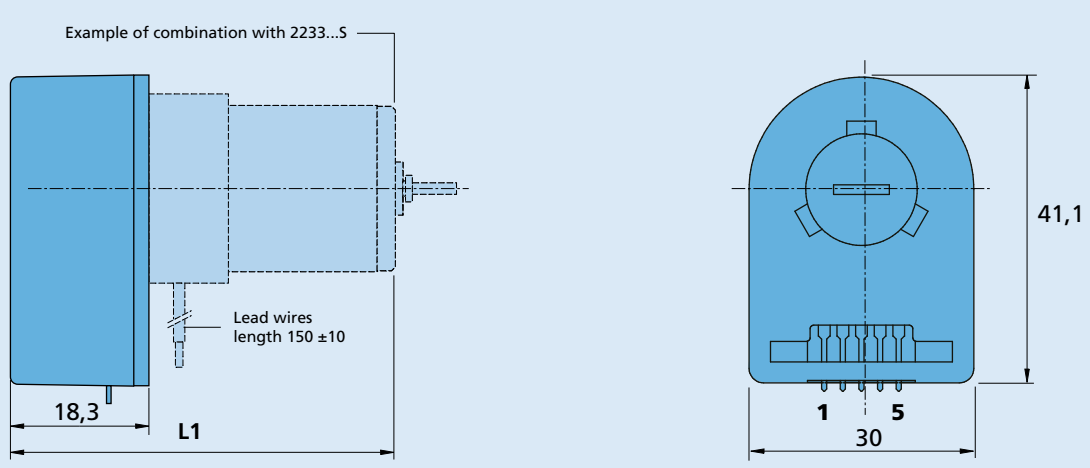
Option

- **HEDS 5500, HEDM 5500** Interlocking connector, extension cables 300 mm length (Part No.: K798)
- **HEDS 5540** Interlocking connector, extension cables 300 mm length (Part No.: K799)

Full product description

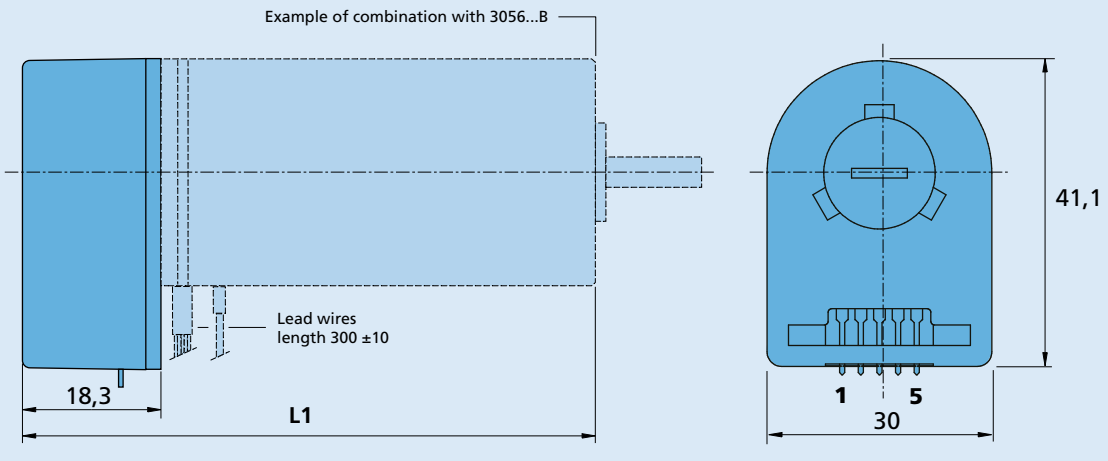
- Example:
  2444S024B K312 HEDM5500J
  3863H048CR HEDM5540C

Dimensional drawing A



5500, 5540

Dimensional drawing B



5500, 5540