Encoders

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

For combination with
DC-Micromotors
Brushless DC-Servomotors

Series 5540

		HEDL 5540	
Lines per revolution	N	500	
Frequency range [1]	f	up to 100	kHz
Signal output, square wave		2+1 index and complementary outputs	channels
Supply voltage	U_{DD}	4,5 … 5,5	V DC
Current consumption, typical [2]	I_{DD}	57	mA
Pulse width	P	180 ± 35	°e
Index pulse width	P_0	90 ± 35	°e
Phase shift, channel A to B	Φ	90 ± 15	°e
Logic state width	S	90 ± 35	°e
Cycle	C	360 ± 5,5	°e
Signal rise/fall time, typical	tr/tf	0,25 / 0,25	µs
Inertia of code disc	J	0,6	gcm^2
Operating temperature range		– 40 ... + 100	°C

[1] Velocity (rpm) = f (Hz) x 60/N
[2] 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 index pulse is synchronized with the channel $\overline{B}$.
Each encoder channel provides complementary output signals.

The single 5 volt supply and the digital output signals are interfaced with a connector.

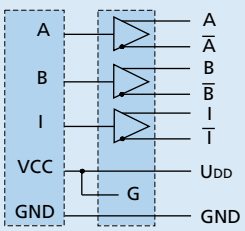
The line driver offers enhanced performance when the encoder is used in noisy environments, or when it is required to drive long distances.

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.

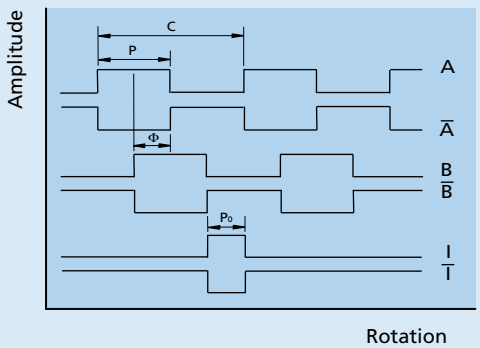
Output signals / Circuit diagram

Output circuit



Recommendation:
Suggested Line Receivers:
AM26LS32, SN75175, MC3486

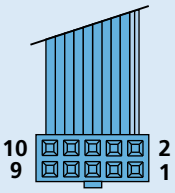
Output signals
with clockwise rotation as seen from the shaft end



Connector information / Variants

No.	Function
1	n.c.
2	U_{DD} (+5V)
3	GND
4	n.c.
5	Channel $\overline{A}$
6	Channel A
7	Channel $\overline{B}$
8	Channel B
9	Channel $\overline{I}$ (Index)
10	Channel I (Index)

Connection Encoder



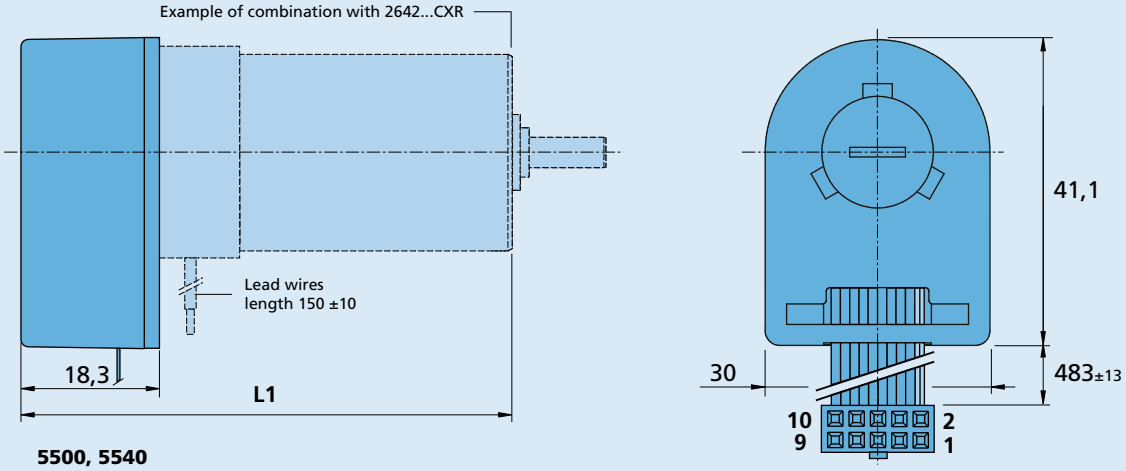
Cable
PVC-ribbon cable
10-conductors, 0,09 mm²

Connector
DIN-41651
grid 2,54 mm

Full product description

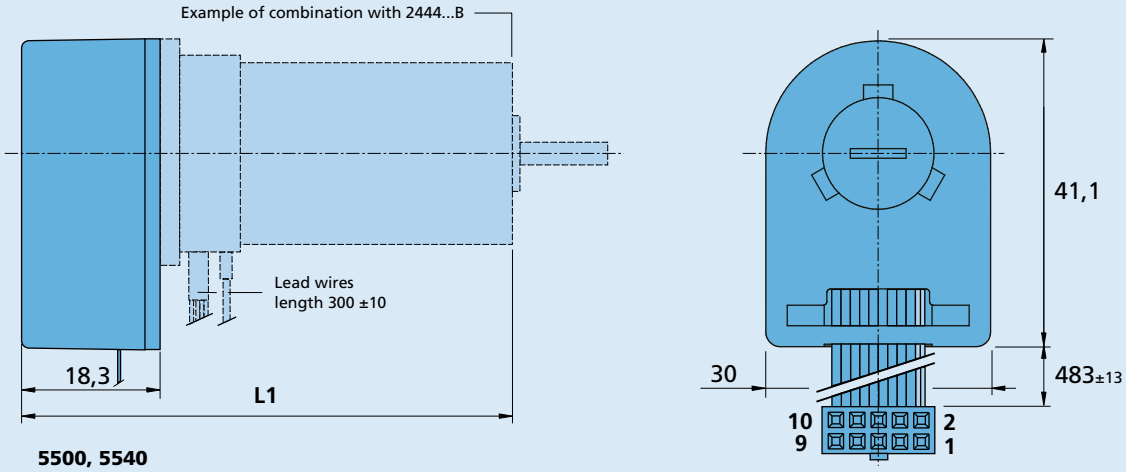
- Example:
  2444S024B K312 HEDL5540A
  3863H048CR HEDL5540A

Dimensional drawing A



5500, 5540

Dimensional drawing B



5500, 5540