

Encoders

Optical Encoders

Features:
 96 to 1024 Lines per revolution
 2 or 3 Channels
 Digital output

Series 5500, 5540

		HEDS 5500	HEDS 5540	HEDM 5500	
Lines per revolution	N	96 - 512	100 - 512	1 000 - 1024	
Signal output, square wave		2	2+1 index	2	channels
Supply voltage	V _{CC}	4,5 ... 5,5			V DC
Current consumption, typical (V _{CC} = 5 V DC)	I _{CC}	17	57	57	mA
Pulse width	P	180 ± 45			°e
Phase shift, channel A to B	Φ	90 ± 20			°e
Logic state width	S	90 ± 45			°e
Cycle	C	360 ± 5,5			°e
Signal rise/fall time, typical	tr/tf	0,25 / 0,25			µs
Frequency range ¹⁾	f	up to 100	up to 100 ²⁾	up to 100	kHz
Inertia of code disc	J	0,6			gcm ²
Operating temperature range		-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})

Ordering information

Encoder type		number of channels	lines per revolution	For combination with DC-Micromotors, brushless DC-Servomotors and DC-Motor-Tachos
		5500	5540	
HEDS 5500 K		2	-	96
HEDS 5500 C	HEDS 5540 C	2	2+1	100
HEDS 5500 D		2	-	192
HEDS 5500 E	HEDS 5540 E	2	2+1	200
HEDS 5500 F	HEDS 5540 F	2	2+1	256
HEDS 5500 G	HEDS 5540 G	2	2+1	360
HEDS 5500 H	HEDS 5540 H	2	2+1	400
HEDS 5500 A	HEDS 5540 A	2	2+1	500
HEDS 5500 I	HEDS 5540 I	2	2+1	512
HEDM 5500 B		2	-	1000
HEDM 5500 J		2	-	1024

Series
 2036, 2444, 3056, 3564
 2230, 2233, 2251
 2338, 2342, 2356
 2842, 3042
 3557, 3863

Interlocking connector options: on demand with extension cables 300 mm length.

Line driver options: on demand for extreme conditions or long cable connections.

Features

These 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.

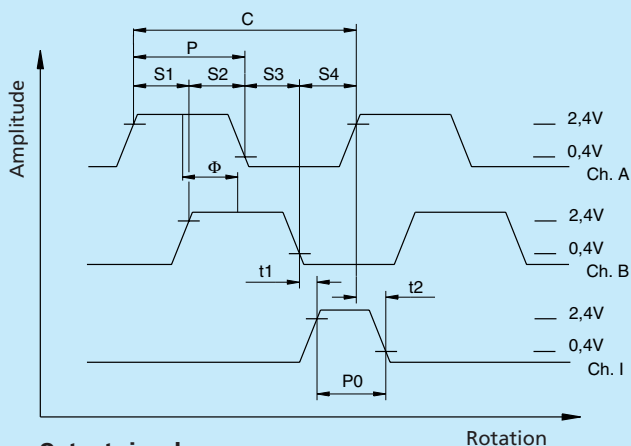
A LED source and lens system transmits collimated light through a low inertia metal disc to give two channels with 90° phase shift.

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

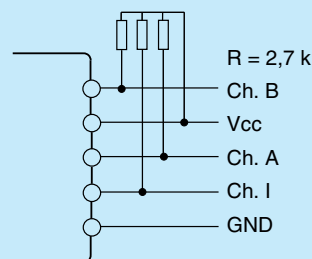
Ball bearings are recommended for continuous operation at low and high speeds and for elevated radial shaft load.

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

Output signals / Circuit diagram / Connector information

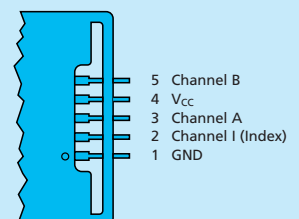


Output signals
 with clockwise rotation as seen from the shaft end



Connection diagram
 HEDS 5540 requires pull-up resistors

Pin Function

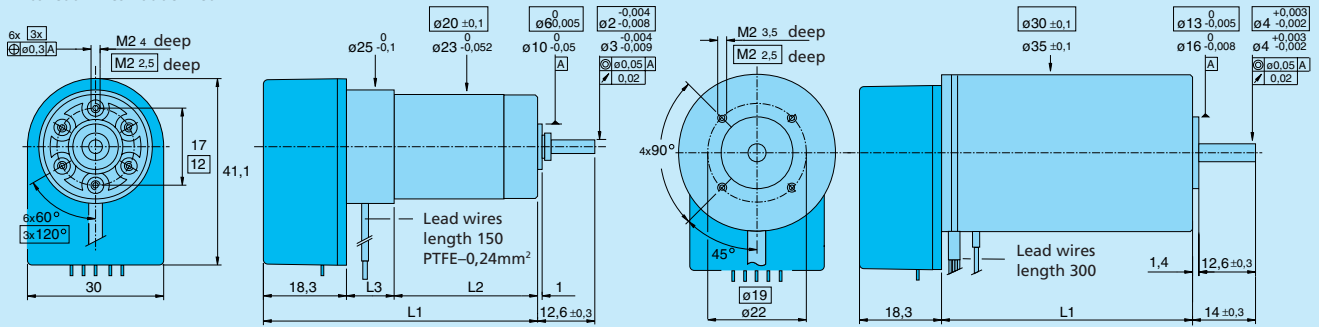


Connector

suggested connectors
 AMP 103686-4/640442-5,
 Molex 2695/2759
 Berg 65039--032/4825X-000

* Orientation with respect to lead wires not defined

scale reduced

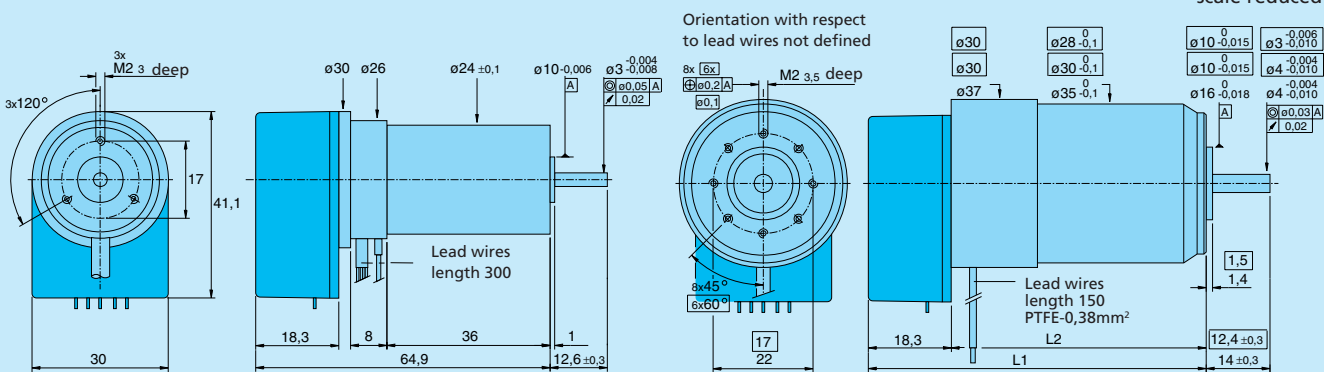


Encoders HEDS 5500, 5540
with Brushless DC-Servomotor 2036,
DC-Micromotors 2338*, 2342*

Motor type	L1	L2	L3
2036	56,8	28,0	10,5
2338	60,4	31,6	10,5
2342	64,8	36,0	10,5

Encoders HEDS 5500, 5540
with Brushless DC-Servomotors 3056, 3564

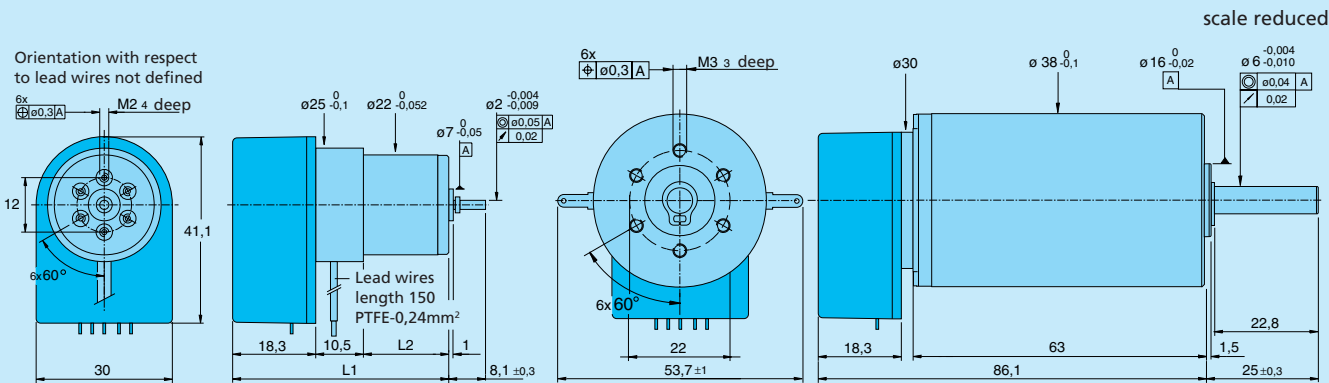
Motor type	L1
3056	57,8
3564	65,8



Encoders HEDS 5500, 5540
with Brushless DC-Servomotor 2444

Encoders HEDS 5500, 5540
with DC-Micromotors 2842, 3042, 3557

Motor type	L1	L2
2842, 3042	64,8	46,5
3557	80,8	62,5



Encoders HEDS 5500, 5540
with DC-Micromotors 2230, 2233

Motor type	L1	L2
2230	52,8	24
2233	55,6	26,8

Encoders HEDS 5500, 5540
with DC-Micromotor 3863