

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 | | - | 96 | } Series 2036, 2444, 3056, 3564 2230, 2233, 2251 2338, 2342, 2356 2842, 3042 3557, 3863 |
| HEDS 5500 C | HEDS 5540 C | 2 | 2+1 | |
| HEDS 5500 D | | 2 | - | |
| HEDS 5500 E | HEDS 5540 E | 2 | 2+1 | |
| HEDS 5500 F | HEDS 5540 F | 2 | 2+1 | |
| HEDS 5500 G | HEDS 5540 G | 2 | 2+1 | |
| HEDS 5500 H | HEDS 5540 H | 2 | 2+1 | |
| HEDS 5500 A | HEDS 5540 A | 2 | 2+1 | |
| HEDS 5500 I | HEDS 5540 I | 2 | 2+1 | |
| HEDM 5500 B | | 2 | - | |
| HEDM 5500 J | | 2 | - | |

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.

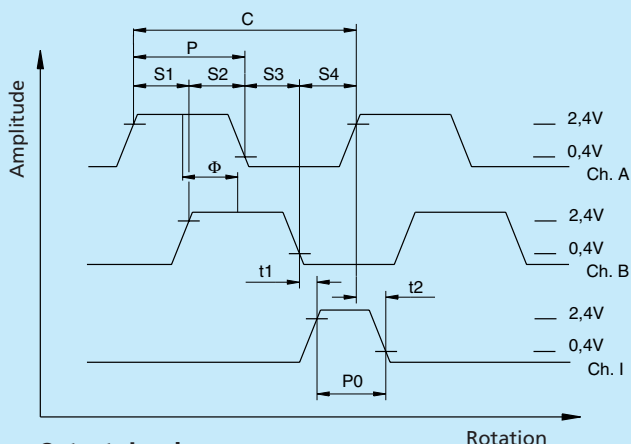
A LED source and lens system transmits collimated light through a low inertia metal disc to give two channels with 90° phase shift.

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

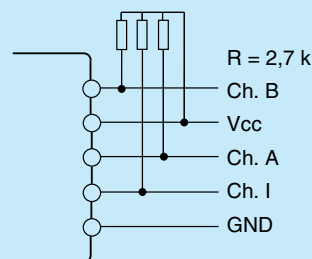
Ball bearings are recommended for continuous operation at low and high speeds and for elevated radial shaft load.

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

Output signals / Circuit diagram / Connector information

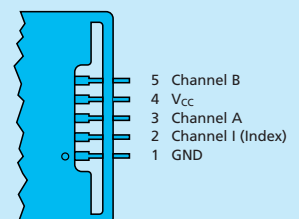


Output signals
with clockwise rotation as seen from the shaft end



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

