

## Optical Sensor Encoder



External encoder which is mounted on the motor gear house and connected to the output shaft. Two channel quadrature with optional index pulse. Resolutions up to 1024 counts per revolution. TTL compatible. Single 5 V supply.-.

## Technical specification

### Configurations

Available for RE25, RE35

### Electrical characteristics type HEDS-5XXX

Absolute max ratings:

|                              |                 |                   |
|------------------------------|-----------------|-------------------|
| Operating temperature        | -40°C to +100°C |                   |
| Supply voltage Vcc           | -0,5 to 7,0VDC  |                   |
| Output voltage Vo            | -0,5 to Vcc     |                   |
| Output current/channel, Iout | -1,0mA to 5mA   |                   |
| Load capacitance             | Max 100pF       | 2,7 Kohms pull-up |

Recommended operating conditions:

|                       |  |                         |
|-----------------------|--|-------------------------|
| Operating temperature | -40°C to +100°C                                    |                         |
| Supply voltage        | 5,0 VDC (min 4,5VDC, max 5,5VDC) ripple <100mVp-p  |                         |
| Supply current*       | 17mA   | (max 40mA)              |
| High level output*    | min 2,4VDC   | I oh = -40uA            |
| Low level output*     | max 0,4VDC   | I ol = 3,2mA            |
| Rise time*            | 200nS  | @ 25pF, 11kohms pull-up |
| Fall time*            | 50nS   | @ 25pF, 11kohms pull-up |
| Resolution            | 50, 96, 100, 192, 200, 256, 360, 400, 500, 512 ppr |                         |

### Electrical characteristics type HEDS-5XXX

Absolute max ratings:

|                              |                |                   |
|------------------------------|----------------|-------------------|
| Operating temperature        | -40°C to +70°C |                   |
| Supply voltage Vcc           | -0,5 to 7,0VDC |                   |
| Output voltage Vo            | -0,5 to Vcc    |                   |
| Output current/channel, Iout | -1,0mA to 5mA  |                   |
| Load capacitance             | Max 100pF      | 2,7 Kohms pull-up |

Recommended operating conditions:

|                       |   |                          |
|-----------------------|---|--------------------------|
| Operating temperature | -40°C to +70°C                                    |                          |
| Supply voltage        | 5,0 VDC (min 4,5VDC, max 5,5VDC) ripple <100mVp-p |                          |
| Supply current*       | 57mA  | (max 85mA)               |
| High level output*    | min 2,4VDC  | I oh = -40uA             |
| Low level output*     | max 0,4VDC  | I ol = 3,86mA            |
| Rise time*            | 180nS   | @ 25pF, 3,2kohms pull-up |
| Fall time*            | 40nS  | @ 25pF, 3,2kohms pull-up |
| Resolution            | 1000 and 1024 ppr                                 |                          |

\*Typical values specified at Vcc = 5,0VDC and 25°C

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### Resolution

| Encoder ppr | Actuator pitch 3mm | Actuator pitch 4mm | Actuator pitch 6mm | Actuator pitch 9mm |
|-------------|--------------------|--------------------|--------------------|--------------------|
| 50          | 16,667             | 12,500             | 8,333              | 5,556              |
| 96          | 32,000             | 24,000             | 16,000             | 10,667             |
| 100         | 33,333             | 25,000             | 16,667             | 11,111             |
| 192         | 64,000             | 48,000             | 32,000             | 21,333             |
| 200         | 66,667             | 50,000             | 33,333             | 22,222             |
| 256         | 85,333             | 64,000             | 42,667             | 28,444             |
| 360         | 120,000            | 90,000             | 60,000             | 40,000             |
| 400         | 133,333            | 100,000            | 66,667             | 44,444             |
| 500         | 166,667            | 125,000            | 83,333             | 55,556             |
| 512         | 170,667            | 128,000            | 85,333             | 56,889             |
| 1000        | 333,333            | 250,000            | 166,667            | 111,111            |
| 1024        | 341,333            | 256,000            | 170,667            | 113,778            |

### Connection

|              |   |
|--------------|---|
| AMP          | 103686-4, 640442-5                                      |
| Molex        | 2695 series with 2759 series term                       |
| Avago        | Designed connector, HEDS-8902 (2 ch), HEDS-8903 (3 ch). |
| Cable length | 152 mm  |

### Pin Configuration

| Pin No | Parameter | HEDS-8902 | HEDS-8903 |
|--------|-----------|-----------|-----------|
| 1      | Ground    | Black     | Black     |
| 2      | CH 1      | N/A       | Blue      |
| 3      | CH A      | White     | White     |
| 4      | Vcc       | Red       | Red       |
| 5      | CH B      | Brown     | Brown     |

### Overall dimensions

Height over motor gear house will increase 18mm, length and width fits within gear house dimensions.

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