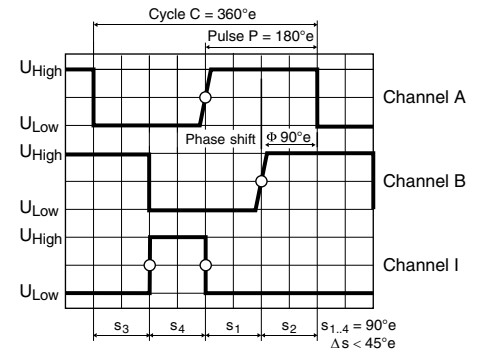
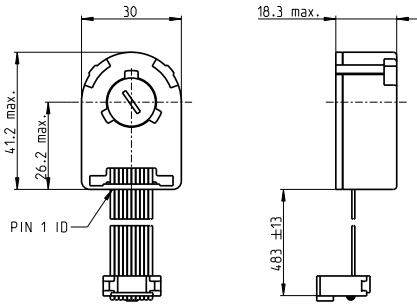


# Encoder HEDL 5540 500 CPT, 3 Channels, with Line Driver RS 422



Direction of rotation cw (definition cw p. 60)

- Stock program
- Standard program
- Special program (on request)

## Part Numbers

| 110512 | 110514 | 110516 | 110518 | X drives |
|--------|--------|--------|--------|----------|
| 500    | 500    | 500    | 500    | 500      |
| 3      | 3      | 3      | 3      | 3        |
| 100    | 100    | 100    | 100    | 100      |
| 12000  | 12000  | 12000  | 12000  | 12000    |
| 3      | 4      | 6      | 8      | 2-4      |

## Type

|                                |       |       |       |       |       |
|--------------------------------|-------|-------|-------|-------|-------|
| Counts per turn                | 500   | 500   | 500   | 500   | 500   |
| Number of channels             | 3     | 3     | 3     | 3     | 3     |
| Max. operating frequency (kHz) | 100   | 100   | 100   | 100   | 100   |
| Max. speed (rpm)               | 12000 | 12000 | 12000 | 12000 | 12000 |
| Shaft diameter (mm)            | 3     | 4     | 6     | 8     | 2-4   |

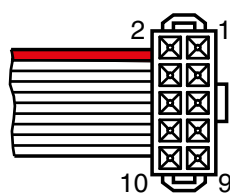
## maxon Modular System

| + Motor     | Page    | + Gearhead           | Page    | + Brake | Page | Overall length [mm] / • see Gearhead |
|-------------|---------|----------------------|---------|---------|------|--------------------------------------|
| RE 25       | 125/127 |                      |         |         |      | 75.3                                 |
| RE 25       | 125/127 | GP 26/GP 32          | 340/342 |         |      | •                                    |
| RE 25       | 125/127 | KD 32, 1.0 - 4.5 Nm  | 352     |         |      | •                                    |
| RE 25       | 125/127 | GP 32, 0.75 - 6.0 Nm | 343/346 |         |      | •                                    |
| RE 25       | 125/127 | GP 32 S              | 374-378 |         |      | •                                    |
| RE 25, 20 W | 126     |                      |         |         |      | 63.8                                 |
| RE 25, 20 W | 126     | GP 22, 0.5 Nm        | 334     |         |      | •                                    |
| RE 25, 20 W | 126     | GP 26/GP 32          | 340/342 |         |      | •                                    |
| RE 25, 20 W | 126     | KD 32, 1.0 - 4.5 Nm  | 352     |         |      | •                                    |
| RE 25, 20 W | 126     | GP 32, 0.75 - 6.0 Nm | 343/346 |         |      | •                                    |
| RE 25, 20 W | 126     | GP 32 S              | 374-378 |         |      | •                                    |
| RE 25, 20 W | 126     |                      |         | AB 28   | 480  | 94.3                                 |
| RE 25, 20 W | 126     | GP 26/GP 32          | 340/342 | AB 28   | 480  | •                                    |
| RE 25, 20 W | 126     | KD 32, 1.0 - 4.5 Nm  | 352     | AB 28   | 480  | •                                    |
| RE 25, 20 W | 126     | GP 32, 0.75 - 6.0 Nm | 343/346 | AB 28   | 480  | •                                    |
| RE 25, 20 W | 126     | GP 32 S              | 374-378 | AB 28   | 480  | •                                    |
| RE 25, 20 W | 127     |                      |         | AB 28   | 480  | 105.8                                |
| RE 25, 20 W | 127     | GP 26/GP 32          | 340/342 | AB 28   | 480  | •                                    |
| RE 25, 20 W | 127     | KD 32, 1.0 - 4.5 Nm  | 352     | AB 28   | 480  | •                                    |
| RE 25, 20 W | 127     | GP 32, 0.75 - 6.0 Nm | 343/346 | AB 28   | 480  | •                                    |
| RE 25, 20 W | 127     | GP 32 S              | 374-378 | AB 28   | 480  | •                                    |
| RE 30, 15 W | 128     |                      |         |         |      | 88.8                                 |
| RE 30, 15 W | 128     | GP 32, 0.75 - 4.5 Nm | 344     |         |      | •                                    |
| RE 30, 60 W | 129     |                      |         |         |      | 88.8                                 |
| RE 30, 60 W | 129     | GP 32, 0.75 - 6.0 Nm | 342-349 |         |      | •                                    |
| RE 30, 60 W | 129     | KD 32, 1.0 - 4.5 Nm  | 352     |         |      | •                                    |
| RE 30, 60 W | 129     | GP 32 S              | 374-378 |         |      | •                                    |
| RE 35, 90 W | 130     |                      |         |         |      | 91.7                                 |
| RE 35, 90 W | 130     | GP 32, 0.75 - 8.0 Nm | 342-350 |         |      | •                                    |
| RE 35, 90 W | 130     | GP 42, 3.0 - 15.0 Nm | 354     |         |      | •                                    |
| RE 35, 90 W | 130     | GP 32 S              | 374-378 |         |      | •                                    |
| RE 35, 90 W | 130     |                      |         | AB 28   | 480  | 124.3                                |
| RE 35, 90 W | 130     | GP 32, 0.75 - 8.0 Nm | 342-350 | AB 28   | 480  | •                                    |
| RE 35, 90 W | 130     | GP 42, 3.0 - 15.0 Nm | 354     | AB 28   | 480  | •                                    |
| RE 35, 90 W | 130     | GP 32 S              | 374-378 | AB 28   | 480  | •                                    |

## Technical Data

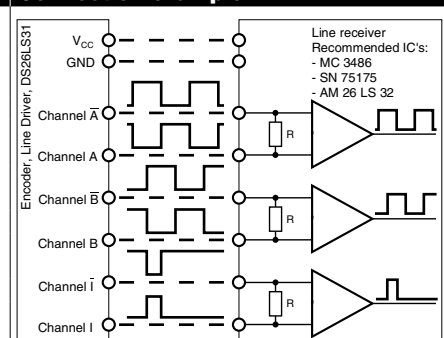
|   |                              |
|---|------------------------------|
| Supply voltage $V_{CC}$   | 5 V $\pm$ 10%                |
| Typical current draw  | 55 mA                        |
| Output signal driver used:  | EIA Standard RS 422 DS26LS31 |
| Phase shift $\Phi$  | 90°e $\pm$ 45°e              |
| Signal rise time (typically, at $C_L = 25$ pF, $R_L = 2.7$ k $\Omega$ , 25°C) | 180 ns                       |
| Signal fall time (typically, at $C_L = 25$ pF, $R_L = 2.7$ k $\Omega$ , 25°C) | 40 ns                        |
| Index pulse width   | 90°e                         |
| Operating temperature range   | -40...+100°C                 |
| Moment of inertia of code wheel   | $\leq 0.6$ gcm <sup>2</sup>  |
| Max. angular acceleration   | 250000 rad s <sup>-2</sup>   |
| Output current per channel  | $\pm 20$ mA                  |

## Pin Allocation



- 1 N.C.
  - 2  $V_{CC}$
  - 3 GND
  - 4 N.C.
  - 5 Channel A
  - 6 Channel A
  - 7 Channel B
  - 8 Channel B
  - 9 Channel I (Index)
  - 10 Channel I (Index)
- Pin type DIN 41651/EN 60603-13 flat band cable AWG 28

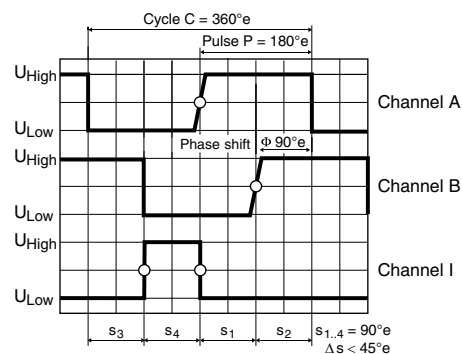
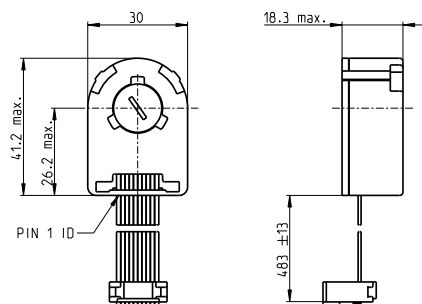
## Connection example



Terminal resistance R = typical 120  $\Omega$

The index signal I is synchronized with channel A or B.

# Encoder HEDL 5540 500 CPT, 3 Channels, with Line Driver RS 422



Direction of rotation cw (definition cw p. 60)

- Stock program
- Standard program
- Special program (on request)

## Part Numbers

| 110512 | 110514 | 110516 | 110518 | X drives |
|--------|--------|--------|--------|----------|
| 500    | 500    | 500    | 500    | 500      |
| 3      | 3      | 3      | 3      | 3        |
| 100    | 100    | 100    | 100    | 100      |
| 12000  | 12000  | 12000  | 12000  | 12000    |
| 3      | 4      | 6      | 8      | 2-4      |

## Type

|                                |       |       |       |       |       |
|--------------------------------|-------|-------|-------|-------|-------|
| Counts per turn                | 500   | 500   | 500   | 500   | 500   |
| Number of channels             | 3     | 3     | 3     | 3     | 3     |
| Max. operating frequency (kHz) | 100   | 100   | 100   | 100   | 100   |
| Max. speed (rpm)               | 12000 | 12000 | 12000 | 12000 | 12000 |
| Shaft diameter (mm)            | 3     | 4     | 6     | 8     | 2-4   |



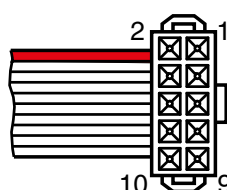
## maxon Modular System

| + Motor      | Page    | + Gearhead             | Page    | + Brake | Page | Overall length [mm] / • see Gearhead |
|--------------|---------|------------------------|---------|---------|------|--------------------------------------|
| RE 40, 25 W  | 131     |                        |         |         |      | 91.7                                 |
| RE 40, 150 W | 132     |                        |         |         |      | 91.7                                 |
| RE 40, 150 W | 132     | GP 42, 3.0 - 15.0 Nm   | 354     |         |      | •                                    |
| RE 40, 150 W | 132     | GP 52, 4.0 - 30.0 Nm   | 359     |         |      | •                                    |
| RE 40, 150 W | 132     |                        |         | AB 28   | 480  | 124.3                                |
| RE 40, 150 W | 132     | GP 42, 3.0 - 15.0 Nm   | 354     | AB 28   | 480  | •                                    |
| RE 40, 150 W | 132     | GP 52, 4.0 - 30.0 Nm   | 359     | AB 28   | 480  | •                                    |
| RE 50, 200 W | 133     |                        |         |         |      | 128.7                                |
| RE 50, 200 W | 133     | GP 52, 4.0 - 30.0 Nm   | 360     |         |      | •                                    |
| RE 50, 200 W | 133     | GP 62, 8.0 - 50.0 Nm   | 361     |         |      | •                                    |
| RE 65, 250 W | 134     |                        |         |         |      | 157.3                                |
| RE 65, 250 W | 134     | GP 81, 20.0 - 120.0 Nm | 362     |         |      | •                                    |
| A-max 26     | 152-158 |                        |         |         |      | 63.1                                 |
| A-max 26     | 152-158 | GP 26, 0.75 - 4.5 Nm   | 340     |         |      | •                                    |
| A-max 26     | 152-158 | GS 30/GP 32            | 341/344 |         |      | •                                    |
| A-max 26     | 152-158 | GP 32, 0.75 - 6.0 Nm   | 343/347 |         |      | •                                    |
| A-max 26     | 152-158 | GS 38, 0.1 - 0.6 Nm    | 353     |         |      | •                                    |
| A-max 26     | 152-158 | GP 32 S                | 374-378 |         |      | •                                    |
| A-max 32     | 160/162 |                        |         |         |      | 82.3                                 |
| A-max 32     | 160/162 | GP 32, 0.75 - 6.0 Nm   | 342-347 |         |      | •                                    |
| A-max 32     | 160/162 | GS 38, 0.1 - 0.6 Nm    | 353     |         |      | •                                    |
| A-max 32     | 160/162 | GP 32 S                | 374-378 |         |      | •                                    |
| EC 32, 80 W  | 212     |                        |         |         |      | 78.4                                 |
| EC 32, 80 W  | 212     | GP 32, 0.75 - 6.0 Nm   | 342-349 |         |      | •                                    |
| EC 32, 80 W  | 212     | GP 32 S                | 374-378 |         |      | •                                    |
| EC 40, 170 W | 213     |                        |         |         |      | 103.4                                |
| EC 40, 170 W | 213     | GP 42, 3.0 - 15.0 Nm   | 354     |         |      | •                                    |
| EC 40, 170 W | 213     | GP 52, 4.0 - 30.0 Nm   | 359     |         |      | •                                    |

## Technical Data

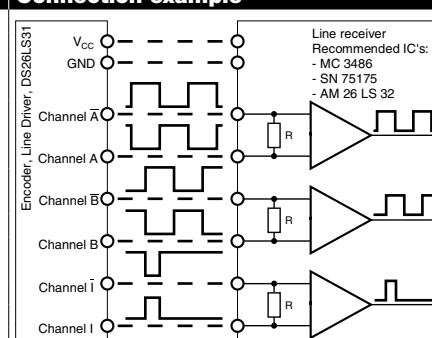
|  |                             |
|--|-----------------------------|
| Supply voltage $V_{CC}$  | 5 V ± 10%                   |
| Typical current draw   | 55 mA                       |
| Output signal  | EIA Standard RS 422         |
| driver used:   | DS26LS31                    |
| Phase shift $\phi$   | 90°e ± 45°e                 |
| Signal rise time<br>(typically, at $C_L = 25$ pF, $R_L = 2.7$ k $\Omega$ , 25°C) | 180 ns                      |
| Signal fall time<br>(typically, at $C_L = 25$ pF, $R_L = 2.7$ k $\Omega$ , 25°C) | 40 ns                       |
| Index pulse width  | 90°e                        |
| Operating temperature range  | -40...+100°C                |
| Moment of inertia of code wheel  | ≤ 0.6 gcm <sup>2</sup>      |
| Max. angular acceleration  | 250 000 rad s <sup>-2</sup> |
| Output current per channel   | ± 20 mA                     |

## Pin Allocation



- 1 N.C.
  - 2  $V_{CC}$
  - 3 GND
  - 4 N.C.
  - 5 Channel A
  - 6 Channel A
  - 7 Channel B
  - 8 Channel B
  - 9 Channel I (Index)
  - 10 Channel I (Index)
- Pin type DIN 41651/  
EN 60603-13  
flat band cable AWG 28

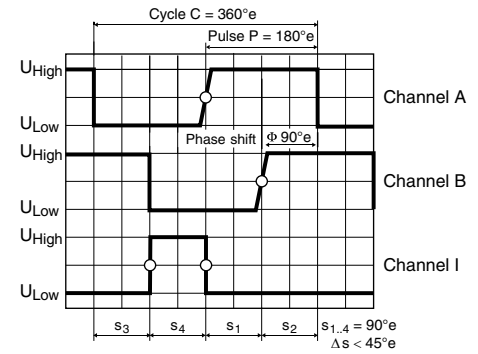
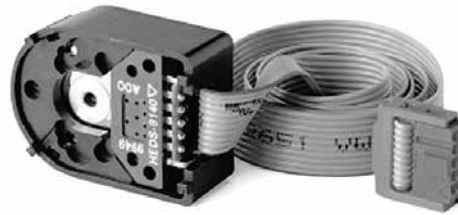
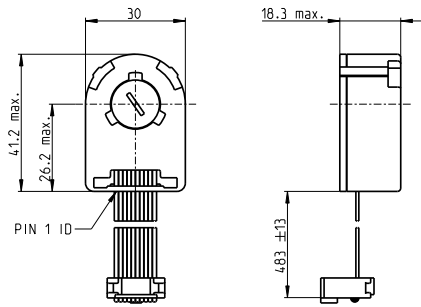
## Connection example



Terminal resistance R = typical 120  $\Omega$

The index signal I is synchronized with channel A or B.

# Encoder HEDL 5540 500 CPT, 3 Channels, with Line Driver RS 422



Direction of rotation cw (definition cw p. 60)

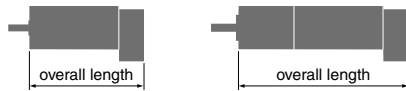
- Stock program
- Standard program
- Special program (on request)

## Part Numbers

| 110512                         | 110514 | 110516 | 110518 | X drives |
|--------------------------------|--------|--------|--------|----------|
| Counts per turn                | 500    | 500    | 500    | 500      |
| Number of channels             | 3      | 3      | 3      | 3        |
| Max. operating frequency (kHz) | 100    | 100    | 100    | 100      |
| Max. speed (rpm)               | 12000  | 12000  | 12000  | 12000    |
| Shaft diameter (mm)            | 3      | 4      | 6      | 8        |

## Type

|                                |       |       |       |       |       |
|--------------------------------|-------|-------|-------|-------|-------|
| Counts per turn                | 500   | 500   | 500   | 500   | 500   |
| Number of channels             | 3     | 3     | 3     | 3     | 3     |
| Max. operating frequency (kHz) | 100   | 100   | 100   | 100   | 100   |
| Max. speed (rpm)               | 12000 | 12000 | 12000 | 12000 | 12000 |
| Shaft diameter (mm)            | 3     | 4     | 6     | 8     | 2-4   |



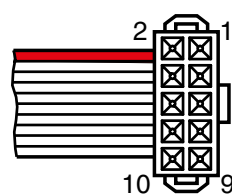
## maxon Modular System

| + Motor            | Page | + Gearhead           | Page    | + Brake | Page | Overall length [mm] / • see Gearhead |
|--------------------|------|----------------------|---------|---------|------|--------------------------------------|
| EC-max 30, 40 W    | 224  |                      |         |         |      | 62.6                                 |
| EC-max 30, 40 W    | 224  | GP 32, 1.0 - 8.0 Nm  | 347/350 |         |      | •                                    |
| EC-max 30, 40 W    | 224  | KD 32, 1.0 - 4.5 Nm  | 352     |         |      | •                                    |
| EC-max 30, 40 W    | 224  | GP 32 S              | 374-378 |         |      | •                                    |
| EC-max 30, 40 W    | 224  |                      |         | AB 20   | 478  | 98.4                                 |
| EC-max 30, 40 W    | 224  | GP 32, 1.0 - 8.0 Nm  | 347/350 | AB 20   | 478  | •                                    |
| EC-max 30, 40 W    | 224  | KD 32, 1.0 - 4.5 Nm  | 352     | AB 20   | 478  | •                                    |
| EC-max 30, 40 W    | 224  | GP 32 S              | 374-378 | AB 20   | 478  | •                                    |
| EC-max 30, 60 W    | 225  |                      |         |         |      | 84.6                                 |
| EC-max 30, 60 W    | 225  | GP 32, 1.0 - 8.0 Nm  | 347/350 |         |      | •                                    |
| EC-max 30, 60 W    | 225  | KD 32, 1.0 - 4.5 Nm  | 352     |         |      | •                                    |
| EC-max 30, 60 W    | 225  | GP 42, 3.0 - 15.0 Nm | 355     |         |      | •                                    |
| EC-max 30, 60 W    | 225  |                      |         | AB 20   | 478  | 120.4                                |
| EC-max 30, 60 W    | 225  | GP 32, 1.0 - 8.0 Nm  | 347/350 | AB 20   | 478  | •                                    |
| EC-max 30, 60 W    | 225  | KD 32, 1.0 - 4.5 Nm  | 352     | AB 20   | 478  | •                                    |
| EC-max 30, 60 W    | 225  | GP 42, 3.0 - 15.0 Nm | 355     | AB 20   | 478  | •                                    |
| EC-max 40, 70 W    | 226  |                      |         |         |      | 81.4                                 |
| EC-max 40, 70 W    | 226  | GP 42, 3.0 - 15.0 Nm | 355     |         |      | •                                    |
| EC-max 40, 70 W    | 226  |                      |         | AB 28   | 479  | 110.7                                |
| EC-max 40, 70 W    | 226  | GP 42, 3.0 - 15.0 Nm | 355     | AB 28   | 479  | •                                    |
| EC-max 40, 120 W   | 227  |                      |         |         |      | 111.4                                |
| EC-max 40, 120 W   | 227  | GP 52, 4.0 - 30.0 Nm | 360     |         |      | •                                    |
| EC-max 40, 120 W   | 227  |                      |         | AB 28   | 479  | 140.7                                |
| EC-max 40, 120 W   | 227  | GP 52, 4.0 - 30.0 Nm | 360     | AB 28   | 479  | •                                    |
| EC-4pole 22, 90 W  | 231  |                      |         |         |      | 70.1                                 |
| EC-4pole 22, 90 W  | 231  | GP 22/GP 32          | 337/347 |         |      | •                                    |
| EC-4pole 22, 90 W  | 231  | GP 32 S              | 374-378 |         |      | •                                    |
| EC-4pole 22, 120 W | 232  |                      |         |         |      | 87.5                                 |
| EC-4pole 22, 120 W | 232  | GP 22/GP 32          | 337/347 |         |      | •                                    |
| EC-4pole 22, 120 W | 232  | GP 32 S              | 374-378 |         |      | •                                    |

## Technical Data

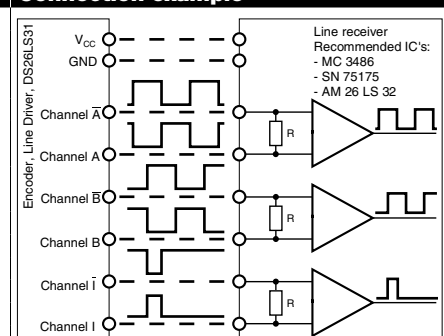
|   |                             |
|---|-----------------------------|
| Supply voltage $V_{CC}$   | 5 V $\pm$ 10%               |
| Typical current draw  | 55 mA                       |
| Output signal   | EIA Standard RS 422         |
| driver used:  | DS26LS31                    |
| Phase shift $\Phi$  | 90° $\pm$ 45°e              |
| Signal rise time<br>(typically, at $C_L = 25$ pF, $R_L = 2.7$ k $\Omega$ , 25 °C) | 180 ns                      |
| Signal fall time<br>(typically, at $C_L = 25$ pF, $R_L = 2.7$ k $\Omega$ , 25 °C) | 40 ns                       |
| Index pulse width   | 90°e                        |
| Operating temperature range   | -40...+100 °C               |
| Moment of inertia of code wheel   | $\leq 0.6$ gcm <sup>2</sup> |
| Max. angular acceleration   | 250 000 rad s <sup>-2</sup> |
| Output current per channel  | $\pm 20$ mA                 |

## Pin Allocation



- 1 N.C.
  - 2  $V_{CC}$
  - 3 GND
  - 4 N.C.
  - 5 Channel A
  - 6 Channel A
  - 7 Channel B
  - 8 Channel B
  - 9 Channel I (Index)
  - 10 Channel I (Index)
- Pin type DIN 41651/  
EN 60603-13  
flat band cable AWG 28

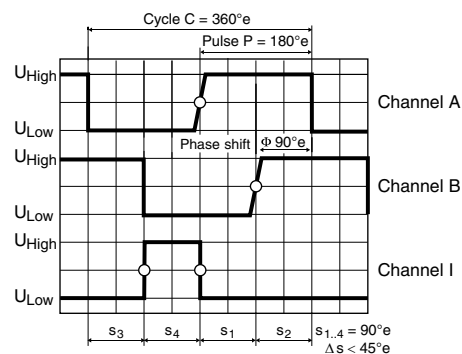
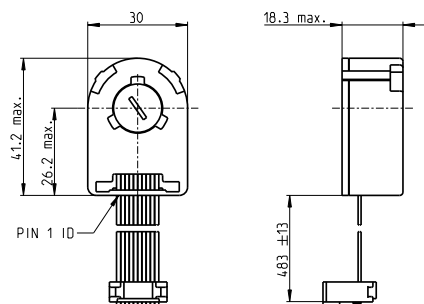
## Connection example



Terminal resistance R = typical 120  $\Omega$

The index signal I is synchronized with channel A or B.

# Encoder HEDL 5540 500 CPT, 3 Channels, with Line Driver RS 422



Direction of rotation cw (definition cw p. 60)

- Stock program
- Standard program
- Special program (on request)

## Part Numbers

| 110512 | 110514 | 110516 | 110518 | X drives |
|--------|--------|--------|--------|----------|
| 500    | 500    | 500    | 500    | 500      |
| 3      | 3      | 3      | 3      | 3        |
| 100    | 100    | 100    | 100    | 100      |
| 12000  | 12000  | 12000  | 12000  | 12000    |
| 3      | 4      | 6      | 8      | 2-4      |

## Type

|                                |       |       |       |       |       |
|--------------------------------|-------|-------|-------|-------|-------|
| Counts per turn                | 500   | 500   | 500   | 500   | 500   |
| Number of channels             | 3     | 3     | 3     | 3     | 3     |
| Max. operating frequency (kHz) | 100   | 100   | 100   | 100   | 100   |
| Max. speed (rpm)               | 12000 | 12000 | 12000 | 12000 | 12000 |
| Shaft diameter (mm)            | 3     | 4     | 6     | 8     | 2-4   |



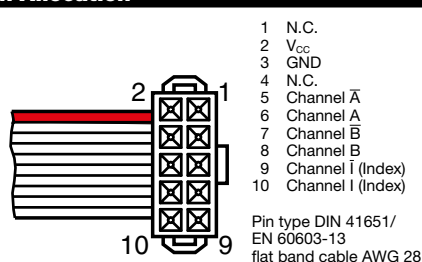
## maxon Modular System

| + Motor                | Page | + Gearhead          | Page    | + Brake | Page | Overall length [mm] / • see Gearhead |
|------------------------|------|---------------------|---------|---------|------|--------------------------------------|
| EC-4pole 30, 100 W 233 |      |                     |         |         |      | 67.6                                 |
| EC-4pole 30, 100 W 233 |      | GP 32, 4.0 - 8.0 Nm | 350     |         |      | •                                    |
| EC-4pole 30, 100 W 233 |      | GP 42, 3 - 15 Nm    | 355     |         |      | •                                    |
| EC-4pole 30, 100 W 233 |      |                     |         | AB 20   | 478  | 104.0                                |
| EC-4pole 30, 100 W 233 |      | GP 32, 4.0 - 8.0 Nm | 350     | AB 20   | 478  | •                                    |
| EC-4pole 30, 100 W 233 |      | GP 42, 3 - 15 Nm    | 355     | AB 20   | 478  | •                                    |
| EC-4pole 30, 200 W 235 |      |                     |         |         |      | 84.6                                 |
| EC-4pole 30, 200 W 235 |      | GP 32, 4.0 - 8.0 Nm | 350     |         |      | •                                    |
| EC-4pole 30, 200 W 235 |      | GP 42, 3 - 15 Nm    | 355     |         |      | •                                    |
| EC-4pole 30, 200 W 235 |      |                     |         | AB 20   | 478  | 121.0                                |
| EC-4pole 30, 200 W 235 |      | GP 32, 4.0 - 8.0 Nm | 350     | AB 20   | 478  | •                                    |
| EC-4pole 30, 200 W 235 |      | GP 42, 3 - 15 Nm    | 355     | AB 20   | 478  | •                                    |
| EC-i 30, 30 W          | 242  |                     |         |         |      | 62.7                                 |
| EC-i 30, 30 W          | 242  | GP 32, 1.0 - 6.0 Nm | 347     |         |      | •                                    |
| EC-i 30, 30 W          | 242  | GP 32 S             | 374-379 |         |      | •                                    |
| EC-i 30, 45 W          | 243  |                     |         |         |      | 62.7                                 |
| EC-i 30, 45 W          | 243  | GP 32, 1.0 - 6.0 Nm | 348     |         |      | •                                    |
| EC-i 30, 45 W          | 243  | GP 32 S             | 374-379 |         |      | •                                    |
| EC-i 30, 50 W          | 244  |                     |         |         |      | 62.7                                 |
| EC-i 30, 50 W          | 244  | GP 32, 1.0 - 6.0 Nm | 348     |         |      | •                                    |
| EC-i 30, 50 W          | 244  | GP 32 S             | 374-379 |         |      | •                                    |
| EC-i 30, 75 W          | 245  |                     |         |         |      | 62.7                                 |
| EC-i 30, 75 W          | 245  | GP 32, 1.0 - 6.0 Nm | 348     |         |      | •                                    |
| EC-i 30, 75 W          | 245  | GP 32 S             | 374-379 |         |      | •                                    |

## Technical Data

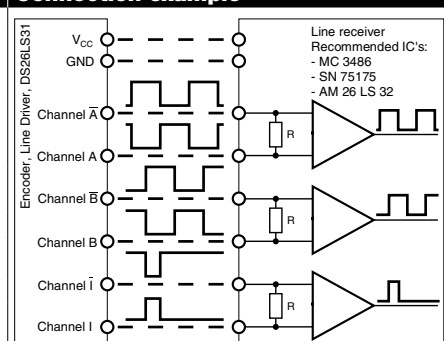
|  |                             |
|--|-----------------------------|
| Supply voltage $V_{CC}$                                      | 5 V $\pm$ 10%               |
| Typical current draw   | 55 mA                       |
| Output signal  | EIA Standard RS 422         |
| driver used:   | DS26LS31                    |
| Phase shift $\Phi$   | 90° $\pm$ 45°e              |
| Signal rise time   |                             |
| (typically, at $C_L = 25$ pF, $R_L = 2.7$ k $\Omega$ , 25°C) | 180 ns                      |
| Signal fall time   |                             |
| (typically, at $C_L = 25$ pF, $R_L = 2.7$ k $\Omega$ , 25°C) | 40 ns                       |
| Index pulse width  | 90°e                        |
| Operating temperature range                                  | -40...+100°C                |
| Moment of inertia of code wheel                              | $\leq 0.6$ gcm <sup>2</sup> |
| Max. angular acceleration                                    | 250 000 rad s <sup>-2</sup> |
| Output current per channel                                   | $\pm 20$ mA                 |

## Pin Allocation



Pin type DIN 41651/  
EN 60603-13  
flat band cable AWG 28

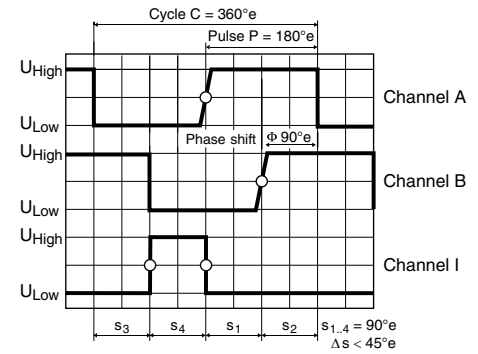
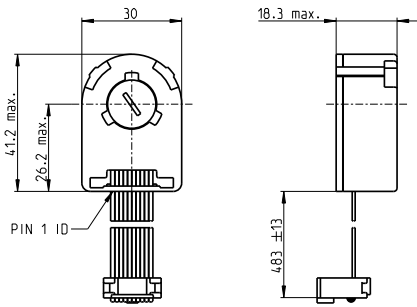
## Connection example



Terminal resistance R = typical 120  $\Omega$

The index signal I is synchronized with channel A or B.

# Encoder HEDL 5540 500 CPT, 3 Channels, with Line Driver RS 422



Direction of rotation cw (definition cw p. 60)

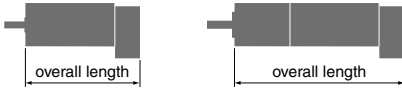
- Stock program
- Standard program
- Special program (on request)

## Part Numbers

| 110512 | 110514 | 110516 | 110518 | X drives |
|--------|--------|--------|--------|----------|
| 500    | 500    | 500    | 500    | 500      |
| 3      | 3      | 3      | 3      | 3        |
| 100    | 100    | 100    | 100    | 100      |
| 12000  | 12000  | 12000  | 12000  | 12000    |
| 3      | 4      | 6      | 8      | 2-4      |

## Type

|                                |       |       |       |       |       |
|--------------------------------|-------|-------|-------|-------|-------|
| Counts per turn                | 500   | 500   | 500   | 500   | 500   |
| Number of channels             | 3     | 3     | 3     | 3     | 3     |
| Max. operating frequency (kHz) | 100   | 100   | 100   | 100   | 100   |
| Max. speed (rpm)               | 12000 | 12000 | 12000 | 12000 | 12000 |
| Shaft diameter (mm)            | 3     | 4     | 6     | 8     | 2-4   |



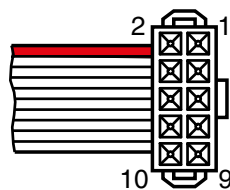
## maxon Modular System

| + Motor        | Page    | + Gearhead           | Page    | + Brake | Page | Overall length [mm] / • see Gearhead |
|----------------|---------|----------------------|---------|---------|------|--------------------------------------|
| EC-i 40, 50 W  | 246-247 |                      |         |         |      | 49.0                                 |
| EC-i 40, 50 W  | 246     | GP 32, 1.0 - 6.0 Nm  | 347     |         |      | •                                    |
| EC-i 40, 50 W  | 246-247 | GP 42, 3.0 - 15.0 Nm | 355     |         |      | •                                    |
| EC-i 40, 50 W  | 246     | GP 32 S              | 374-378 |         |      | •                                    |
| EC-i 40, 70 W  | 248/249 |                      |         |         |      | 59.0                                 |
| EC-i 40, 70 W  | 248     | GP 32, 1.0 - 6.0 Nm  | 347     |         |      | •                                    |
| EC-i 40, 70 W  | 248/249 | GP 42, 3.0 - 15.0 Nm | 355     |         |      | •                                    |
| EC-i 40, 70 W  | 248     | GP 32 S              | 374-378 |         |      | •                                    |
| EC-i 40, 100 W | 250     |                      |         |         |      | 79.0                                 |
| EC-i 40, 100 W | 250     | GP 42, 3.0 - 15.0 Nm | 355     |         |      | •                                    |
| EC-i 52, 180 W | 251     |                      |         |         |      | 102.8                                |
| EC-i 52, 180 W | 251     | GP 52, 4.0 - 30.0 Nm | 359     |         |      | •                                    |
| DCX 22 S       | 80-81   |                      |         |         |      | online                               |
| DCX 22 L       | 82-83   |                      |         |         |      | online                               |
| DCX 26 L       | 84-85   |                      |         |         |      | online                               |
| DCX 32 L       | 86      |                      |         |         |      | online                               |
| DCX 35 L       | 87      |                      |         |         |      | online                               |

## Technical Data

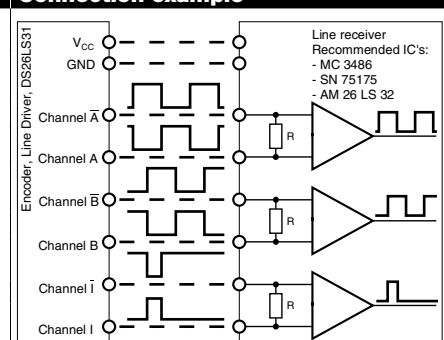
|   |                              |
|---|------------------------------|
| Supply voltage $V_{CC}$   | 5 V $\pm$ 10%                |
| Typical current draw  | 55 mA                        |
| Output signal driver used:  | EIA Standard RS 422 DS26LS31 |
| Phase shift $\Phi$  | 90° $\pm$ 45°                |
| Signal rise time (typically, at $C_L = 25$ pF, $R_L = 2.7$ k $\Omega$ , 25°C) | 180 ns                       |
| Signal fall time (typically, at $C_L = 25$ pF, $R_L = 2.7$ k $\Omega$ , 25°C) | 40 ns                        |
| Index pulse width   | 90°                          |
| Operating temperature range   | -40...+100 °C                |
| Moment of inertia of code wheel   | $\leq 0.6$ gcm <sup>2</sup>  |
| Max. angular acceleration   | 250 000 rad s <sup>-2</sup>  |
| Output current per channel  | $\pm 20$ mA                  |

## Pin Allocation



- 1 N.C.
  - 2  $V_{CC}$
  - 3 GND
  - 4 N.C.
  - 5 Channel A
  - 6 Channel A
  - 7 Channel B
  - 8 Channel B
  - 9 Channel I (Index)
  - 10 Channel I (Index)
- Pin type DIN 41651/ EN 60603-13 flat band cable AWG 28

## Connection example



Terminal resistance R = typical 120  $\Omega$

The index signal I is synchronized with channel A or B.