Sensor principle

MH-C  MH-C2

<table>
<thead>
<tr>
<th>Property</th>
<th>MH-C</th>
<th>MH-C2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring range</td>
<td>° 0...360</td>
<td>0...360</td>
</tr>
<tr>
<td>Indep. linearity (without misalignment) % of meas. range</td>
<td>±0.3</td>
<td>±0.3</td>
</tr>
<tr>
<td>Indep. linearity (with allowed misalignment @ 360°) % of meas. range</td>
<td>±0.5</td>
<td>±0.5</td>
</tr>
<tr>
<td>Max. hysteresis °</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>Resolution</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td>Max. repeatability °</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>Sample rate fast mode kHz</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Sample rate slow mode kHz</td>
<td>1.66</td>
<td>0.5</td>
</tr>
<tr>
<td>System propagation delay fast mode μs</td>
<td>(800)</td>
<td>(800)</td>
</tr>
<tr>
<td>System propagation delay slow mode μs</td>
<td>4600</td>
<td>2500</td>
</tr>
<tr>
<td>Max. temperature coefficient of the output signal ppm/K</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>MTTFd / MTBF years</td>
<td>185 / 185</td>
<td>147 / 147</td>
</tr>
<tr>
<td>Power supply voltage VDC</td>
<td>16 ... 35</td>
<td>16 ... 35</td>
</tr>
<tr>
<td>Current consumption without load (typ.) fast mode mA</td>
<td>(19)</td>
<td>(20)</td>
</tr>
<tr>
<td>Current consumption without load (typ.) slow mode mA</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td>Min. ohmic load at output kOhm</td>
<td>0 ... 0.5</td>
<td>0 ... 0.5</td>
</tr>
<tr>
<td>Max. capacitive load at output μF</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Reverse polarity protection of power supply yes</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>Electrical connection axial Wires (3x)</td>
<td>Wires (3x)</td>
<td></td>
</tr>
<tr>
<td>Cross section of single wires mm²</td>
<td>0.56 (AWG20)</td>
<td>0.56 (AWG20)</td>
</tr>
<tr>
<td>Electrical connection radial Cable 3 pole</td>
<td>Cable 3 pole</td>
<td></td>
</tr>
<tr>
<td>Cross section of single wires mm²</td>
<td>0.56 (AWG20)</td>
<td>0.56 (AWG20)</td>
</tr>
<tr>
<td>Redundancy feasible yes</td>
<td>no</td>
<td></td>
</tr>
<tr>
<td>Electrical connection redundant axial Wires (6x)</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Cross section of single wires redundant mm²</td>
<td>0.56 (AWG20)</td>
<td>-</td>
</tr>
<tr>
<td>Electrical connection redundant radial Cable 6 pole</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Cross section of single wires redundant mm²</td>
<td>0.25 (AWG24)</td>
<td>-</td>
</tr>
</tbody>
</table>

Mechanical data

<table>
<thead>
<tr>
<th>Property</th>
<th>MH-C</th>
<th>MH-C2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical range °</td>
<td>360 (continuous)</td>
<td>360 (continuous)</td>
</tr>
<tr>
<td>Protection class</td>
<td>IP68</td>
<td>IP68</td>
</tr>
<tr>
<td>Min. life movements</td>
<td>no limitation</td>
<td>no limitation</td>
</tr>
<tr>
<td>Operating &amp; storage temperature °C</td>
<td>-40 ... +85</td>
<td>-40 ... +85</td>
</tr>
<tr>
<td>IEC 68-2-6 Vibration (Amax = 0.75mm, f = 5 ... 2000 Hz) g</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>EC 68-2-27 Shock</td>
<td>200</td>
<td>200</td>
</tr>
</tbody>
</table>

Standards

<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
<th>MH-C</th>
<th>MH-C2</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN 55022 class B, Emission radiated (30 ... 230 MHz) dBμV/m</td>
<td>max. 30</td>
<td>max. 30</td>
<td></td>
</tr>
<tr>
<td>EN 55022 class B, Emission radiated (230...1000MHz) dBμV/m</td>
<td>max. 37</td>
<td>max. 37</td>
<td></td>
</tr>
<tr>
<td>EN 61000-4-2, ESD (contact discharge / air discharge) kV</td>
<td>±4 / ±8</td>
<td>±4 / ±8</td>
<td></td>
</tr>
<tr>
<td>EN 61000-4-3, Immision HF radiated (80 ... 1000 MHz) V/m</td>
<td>30</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>EN 61000-4-4, Burst (on all lines) kV</td>
<td>±1</td>
<td>±1</td>
<td></td>
</tr>
<tr>
<td>EN 61000-4-5, Surge (lines to ground) kV</td>
<td>±1</td>
<td>±1</td>
<td></td>
</tr>
<tr>
<td>EN 61000-4-6, Immision HF conducted (0.15...80MHz) V/m</td>
<td>10</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>EN 61000-4-8, Immision magnetic field (50Hz) A/m</td>
<td>30</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>IEC 60393-1 Insulation resistance (500VDC, 1bar, 2s) GOhm</td>
<td>20</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>IEC 60393-1 Dielectric strength (VAC, 50Hz, 1min, 1bar) kV</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Vert-X 37E - 24V / 4 - 20mA

Applications

• Agricultural machines
• Construction machines
• Forest machines
• Special purpose vehicles

Features general

• High protection class IP68
• Very robust design
• Non-contacting measuring method
• Very long life
• High accuracy of measurement
• Applications under adverse ambient conditions possible (humidity, dampness, dust, vibrations etc.)
• Full resolution and accuracy at programmed electrical angle

Features MH-C

• Resolution of 12bit
• Full redundancy possible
• Lower price than MH-C2

Features MH-C2

• Resolution of 14bit
• Index point(s), sense of rotation and angle settable resp. programmable by customer (optional)
Vert-X 37E - 24V / 4 - 20mA

Ordering code

* Switch outputs
Please define number (max. 127), position and width of the pulses.

Options (on request)

Errors and omissions excepted. Subject to change without notice. / State: 01.10.10

Contelec AG
Portstrasse 38
CH-2503 Biel/Bienne
Phone +41 (0)32 3665600
Telefax +41 (0)32 3665604
sales@contelec.ch

A company of the Siedle-Group
Vert-X 37E4 xxx xxx 5xx
Vert-X 37E4 xxx xxx 7xx

Accessoires (incl.)
- 1x Fixation clip
- 2x Slotted cylinder head screw M5x12

Working position (Z) and max. permitted misalignment of the magnetic actuator
see mounting information

Vert-X 37E4 xxx xxx 4xx
Vert-X 37E4 xxx xxx 6xx

Accessoires (incl.)
- 1x Fixation clip
- 2x Slotted cylinder head screw M5x12

Working position (Z) and max. permitted misalignment of the magnetic actuator
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A company of the Siedle-Group
Vert-X 37E1 xxx xxx 5xx
Vert-X 37E1 xxx xxx 7xx

Accessoires (incl.)
- 1x Fixation clip
- 2x Slotted cylinder head screw M5x12

Working position (Z) and max. permitted misalignment of the magnetic actuator
see mounting information

Vert-X 37E1 xxx xxx 4xx
Vert-X 37E1 xxx xxx 6xx

Accessoires (incl.)
- 1x Fixation clip
- 2x Slotted cylinder head screw M5x12

Working position (Z) and max. permitted misalignment of the magnetic actuator
see mounting information
Vert-X 37E2 xxx xxx 5xx
Vert-X 37E2 xxx xxx 7xx

Accessoires (incl.)
- 1x Fixation clip
- 2x Slotted cylinder head screw M5x12

Working position (Z) and max. permitted misalignment of the magnetic actuator
see mounting information

Vert-X 37E2 xxx xxx 4xx
Vert-X 37E2 xxx xxx 6xx

Accessoires (incl.)
- 1x Fixation clip
- 2x Slotted cylinder head screw M5x12

Working position (Z) and max. permitted misalignment of the magnetic actuator
see mounting information

Errors and omissions excepted. Subject to change without notice. / State: 01.10.10
Vert-X 37E4
Mounting information

Working position (Z)
- MH-C: 3.85mm
- MH-C redundant: 4.35mm
- MH-C2: 3.85mm

Max. permitted misalignment of the magnetic actuator
- dx: ±0.25mm
- dy: ±0.25mm
- dz: ±0.5mm

Vert-X 37E1
Mounting information

Working position (Z)
- MH-C: 4.95mm
- MH-C redundant: 5.45mm
- MH-C2: 4.95mm

Max. permitted misalignment of the magnetic actuator
- dx: ±0.25mm
- dy: ±0.25mm
- dz: ±0.5mm
Vert-X 37E2
Mounting information

Working position (Z)
- MH-C 6.45mm
- MH-C redundant 5.95mm
- MH-C2 6.45mm

Max. permitted misalignment of the magnetic actuator
- $dx \pm 0.25$mm
- $dy \pm 0.25$mm
- $dz \pm 0.5$mm

Vert-X 37E
Accessoires
Fixation clip

Errors and omissions excepted. Subject to change without notice. / State: 01.10.10

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