Sensor principle: MH-C, MH-C2

**Electrical data**

- **Measuring range**: ° 0...360
- **Indep. linearity (without misalignment)**: % of meas. range ±0.3
- **Indep. linearity (with allowed misalignment @ 360°)**: % of meas. range ±0.5
- **Max. hysteresis**: ° 0.1
- **Resolution**: bit 12
- **Sample rate fast mode**: kHz (5)
- **Sample rate slow mode**: kHz 1.66
- **System propagation delay fast mode**: µs (800)
- **System propagation delay slow mode**: µs 4600
- **Max. temperature coefficient of the output signal**: ppm/K 25
- **MTTFd / MTBF years**: 668 / 668
- **Power supply voltage**: VDC 5 (±10%)
- **Current consumption without load (typ.) fast mode**: mA (14)
- **Current consumption without load (typ.) slow mode**: mA 9
- **Min. ohmic load at output**: kOhm 10
- **Max. capacitive load at output**: nF 1
- **PWM frequency**: Hz 855 (±20%)
- **Reverse polarity protection of power supply**: yes
- **Cross section of single wires**: mm² 0.56 (AWG20)
- **Cross section of single wires**: mm² 0.56 (AWG20)
- **Redundancy feasible**: yes
- **Cross section of single wires redundant**: mm² 0.25 (AWG24)

**Mechanical data**

- **Mechanical range**: ° 360 (continuous)
- **Protection class**: IP68
- **Min. life**: movements no limitation
- **Operating & storage temperature (with wires)**: °C -40 ... +125
- **Operating & storage temperature (with round cable)**: °C -40 ... +85
- **IEC 68-2-6 Vibration (Amax = 0.75mm, f = 5 ... 2000 Hz)**: g 50
- **IEC 68-2-27 Shock**: g 200

**Standards**

- EN 55022 class B, Emission radiated (30...230 MHz): dB(µV/m) max. 30
- EN 55022 class B, Emission radiated (230...1000MHz): dB(µV/m) max. 37
- EN 61000-4-2, ESD (contact discharge / air discharge): kV ±4 / ±8
- EN 61000-4-3, Immision HF radiated (80...1000 MHz): V/m 30
- EN 61000-4-4, Burst (on all lines): kV ±1
- EN 61000-4-5, Surge (lines to ground): kV ±1
- EN 61000-4-6, Immision HF conducted (0.15...80MHz): Vemk 10
- EN 61000-4-8, Immision magnetic field (50Hz): A/m 30
- IEC 60333-1 Insulation resistance (500VDC, 1bar, 2s): GOhm 20
- IEC 60393-1 Dielectric strength (VAC, 50Hz, 1min, 1bar): kV 1

**Vert-X 37E - 5V / PWM**

**Applications**
- Agricultural machines
- Construction machines
- Forest machines
- Special purpose vehicles

**Features**
- 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

Errors and omissions excepted. Subject to change without notice. / State: 31.10.11
### Vert-X 37E - 5V / PWM

#### Ordering code

<table>
<thead>
<tr>
<th>Options</th>
<th>MH-C</th>
<th>MH-C2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Custom magnetic actuator</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>Custom modification of the housing</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>Custom cable / wires</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>Sample rate in fast mode</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>Switch functions TTL (max. 2)</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>Special characteristic curve</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Special electrical angle within 30° to 360° (ex factory)</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>Electrical angle programmable (Software)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Start &amp; end point settable (Additional wires)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sense of rotation CW/CCW settable / programmable (Additional wires or Software)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Index point settable / programmable (Additional wires or Software)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

#### Electrical angle

<table>
<thead>
<tr>
<th>Electrical angle</th>
<th>MH-C</th>
<th>MH-C2</th>
</tr>
</thead>
<tbody>
<tr>
<td>36</td>
<td>Standard 1</td>
<td>03 to 35; Declaration in 10° steps</td>
</tr>
<tr>
<td>99</td>
<td>Optional 4</td>
<td>Special angle</td>
</tr>
</tbody>
</table>

#### Sensor principle

<table>
<thead>
<tr>
<th>Sensor principle</th>
<th>MH-C</th>
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<tbody>
<tr>
<td>7</td>
<td>MH-C</td>
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#### Mechanical version

<table>
<thead>
<tr>
<th>Mechanical version</th>
<th>MH-C</th>
</tr>
</thead>
<tbody>
<tr>
<td>37E1</td>
<td>Optional Servo mount size 13; magnetic actuator type 1</td>
</tr>
<tr>
<td>37E2</td>
<td>Optional Servo mount size 13; magnetic actuator type 2</td>
</tr>
<tr>
<td>37E4</td>
<td>Standard Servo mount size 13; magnetic actuator type 4</td>
</tr>
<tr>
<td>37E9</td>
<td>Optional Special housing; special magnetic actuator</td>
</tr>
</tbody>
</table>

#### Output signal

<table>
<thead>
<tr>
<th>Output signal</th>
<th>MH-C</th>
</tr>
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<tbody>
<tr>
<td>PWM</td>
<td>Standard 4</td>
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</table>

#### Power supply voltage

<table>
<thead>
<tr>
<th>Power supply voltage</th>
<th>MH-C</th>
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</thead>
<tbody>
<tr>
<td>5VDC</td>
<td>Standard 2</td>
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#### Output characteristics

<table>
<thead>
<tr>
<th>Output characteristics</th>
<th>MH-C</th>
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</thead>
<tbody>
<tr>
<td>Positive gradient CW</td>
<td>Standard 1</td>
</tr>
<tr>
<td>Positive gradient CCW</td>
<td>Optional 2</td>
</tr>
<tr>
<td>Redundant, positive gradient CW</td>
<td>Optional 3</td>
</tr>
<tr>
<td>Redundant, positive gradient CCW</td>
<td>Optional 4</td>
</tr>
<tr>
<td>Redundant, crossed signal curves</td>
<td>Optional 5</td>
</tr>
</tbody>
</table>

#### Electrical connection / axial

<table>
<thead>
<tr>
<th>Electrical connection / axial</th>
<th>MH-C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wires 3pole</td>
<td></td>
</tr>
<tr>
<td>Wires 3pole / 6pole</td>
<td></td>
</tr>
<tr>
<td>Special cable ; special wires</td>
<td></td>
</tr>
</tbody>
</table>

#### Electrical connection / radial

<table>
<thead>
<tr>
<th>Electrical connection / radial</th>
<th>MH-C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Round cable 3pole</td>
<td></td>
</tr>
<tr>
<td>Round cable 6pole</td>
<td></td>
</tr>
<tr>
<td>Special cable ; special wires</td>
<td></td>
</tr>
</tbody>
</table>

#### Length of wires

<table>
<thead>
<tr>
<th>Length of wires</th>
<th>MH-C</th>
</tr>
</thead>
<tbody>
<tr>
<td>10cm</td>
<td></td>
</tr>
<tr>
<td>30cm</td>
<td></td>
</tr>
<tr>
<td>50cm</td>
<td></td>
</tr>
<tr>
<td>Special length</td>
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</tbody>
</table>

#### Length of cable

<table>
<thead>
<tr>
<th>Length of cable</th>
<th>MH-C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0m</td>
<td></td>
</tr>
<tr>
<td>3.0m</td>
<td></td>
</tr>
<tr>
<td>5.0m</td>
<td></td>
</tr>
<tr>
<td>Special length</td>
<td></td>
</tr>
</tbody>
</table>

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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
see mounting information

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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 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
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A company of the Siedle-Group
Vert-X 37E4
Mounting information

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

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

Vert-X 37E1
Mounting information

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

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

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

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

Vert-X 37E
Accessoires
Fixation clip