



## Vert-X 16 - 5V / PWM

### Applications

- Servodrives
- Dancer arm
- Operating table

### Features

- Compact dimensions
- Mounting tabs with metal inlets
- Contactless measuring method
- Long life
- High accuracy of measurement
- Use in cramped installation conditions
- Full resolution and accuracy at programmed electrical angle
- Full redundancy possible

Errors and omissions excepted. Subject to change without notice. State: 02.02.12

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**CONTELEC**  
 A company of the Siedle-Group

| Version   |                 | MH-C              | MH-C2 |
|---|-----------------|-------------------|-------|
| <b>Electrical data</b>                                  |                 |                   |       |
| Measuring range   | °               | 0 ... 360         | -     |
| Indep. linearity  | % meas. range   | ±0.3              | -     |
| Max. hysteresis   | °               | 0.1               | -     |
| Resolution  | bit             | 12                | -     |
| Max. repeatability                                      | °               | 0.1               | -     |
| 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          | 50                | -     |
| 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               | -     |
| Electrical connection                                   |                 | Wires (3x)        | -     |
| Cross section of single wires                           | mm <sup>2</sup> | 0.25 (AWG24)      | -     |
| Redundancy feasible                                     |                 | yes               | -     |
| Electrical connection redundant                         |                 | Ribbon cable 6pol | -     |
| Cross section of single wires redundant                 | mm <sup>2</sup> | 0.09 (AWG28)      | -     |
| <b>Mechanical data</b>                                  |                 |                   |       |
| Mechanical range  | °               | 360 (continuous)  | -     |
| Protection class  |                 | IP54 / IP65       | -     |
| Max. starting torque at specified protection class      | Ncm             | 0.5 / 3           | -     |
| Max. rotating speed                                     | rpm             | 120               | -     |
| Min. life   | movements       | 50 Mio.           | -     |
| Max. permitted axial shaft load                         | N               | 10                | -     |
| Max. permitted radial shaft load                        | N               | 10                | -     |
| Operating & storage temperature (with wires)            | °C              | -40 ... +125      | -     |
| Operating & storage temperature (with ribbon cable)     | °C              | -40 ... +105      | -     |
| IEC 68-2-6 Vibration (Amax = 0.75mm, f = 5 ... 2000 Hz) | g               | 20                | -     |
| IEC 68-2-27 Shock                                       | g               | 50                | -     |
| <b>Standards</b>  |                 |                   |       |
| 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, Immission 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, Immission HF conducted (0.15...80MHz)     | Vemk            | 10                | -     |
| EN 61000-4-8, Immission magnetic field (50Hz)           | A/m             | 300               | -     |
| IEC 60393-1 Insulation resistance (500VDC, 1bar, 2s)    | GOhm            | 20                | -     |
| IEC 60393-1 Dielectric strength (VAC, 50Hz, 1min, 1bar) | kV              | 1                 | -     |



**Vert-X 16 - 5V / PWM**  
**Ordering code**

|               |          |                                       |   |                         |          |                          |          |                                    |          |          |          |          |          |
|---------------|----------|---------------------------------------|---|-------------------------|----------|--------------------------|----------|------------------------------------|----------|----------|----------|----------|----------|
|               |          | <b>Power supply voltage</b>           |   |                         |          |                          |          |                                    |          |          |          |          |          |
|               |          | 2                                     | Standard 5VDC                             |                         |          |                          |          |                                    |          |          |          |          |          |
|               |          | <b>Output signal</b>                  |   |                         |          |                          |          |                                    |          |          |          |          |          |
|               |          | 5                                     | Standard PWM                              |                         |          |                          |          |                                    |          |          |          |          |          |
|               |          | <b>Output characteristics</b>         |   |                         |          |                          |          |                                    |          |          |          |          |          |
|               |          | 1                                     | Standard Positive gradient CW             |                         |          |                          |          |                                    |          |          |          |          |          |
|               |          | 2                                     | Optional Positive gradient CCW            |                         |          |                          |          |                                    |          |          |          |          |          |
|               |          | 3                                     | Optional Redundant, positive gradient CW  |                         |          |                          |          |                                    |          |          |          |          |          |
|               |          | 4                                     | Optional Redundant, positive gradient CCW |                         |          |                          |          |                                    |          |          |          |          |          |
|               |          | 5                                     | Optional Redundant, crossed signal curves |                         |          |                          |          |                                    |          |          |          |          |          |
|               |          | <b>Electrical connection</b>          |   |                         |          |                          |          |                                    |          |          |          |          |          |
|               |          | 1                                     | Optional Ribbon cable 6pol                |                         |          |                          |          |                                    |          |          |          |          |          |
|               |          | 2                                     | Standard Wires 3pol                       |                         |          |                          |          |                                    |          |          |          |          |          |
|               |          | 9                                     | Optional Special cable; special wires     |                         |          |                          |          |                                    |          |          |          |          |          |
|               |          | <b>Length of wires / ribbon cable</b> |   |                         |          |                          |          |                                    |          |          |          |          |          |
|               |          | 01                                    | Optional 10cm                             |                         |          |                          |          |                                    |          |          |          |          |          |
|               |          | 02                                    | Standard 20cm                             |                         |          |                          |          |                                    |          |          |          |          |          |
|               |          | 03                                    | Optional 30cm                             |                         |          |                          |          |                                    |          |          |          |          |          |
|               |          | 04                                    | Optional 40cm                             |                         |          |                          |          |                                    |          |          |          |          |          |
|               |          | 05                                    | Optional 50cm                             |                         |          |                          |          |                                    |          |          |          |          |          |
|               |          | 99                                    | Optional Special length                   |                         |          |                          |          |                                    |          |          |          |          |          |
| <b>Vert-X</b> | <b>1</b> | <b>6</b>                              | <b>0</b>                                  | <b>1</b>                | <b>7</b> | <b>3</b>                 | <b>6</b> | <b>2</b>                           | <b>5</b> | <b>1</b> | <b>2</b> | <b>0</b> | <b>2</b> |
|               |          |                                       |   | <b>Electrical angle</b> |          |                          |          |                                    |          |          |          |          |          |
|               |          |                                       |   | 36                      |          | Standard                 |          | Electrical angle 360°              |          |          |          |          |          |
|               |          |                                       |   | xx                      |          | Optional                 |          | 10 to 35; Declaration in 10° steps |          |          |          |          |          |
|               |          |                                       |   | 99                      |          | Optional                 |          | Special angle                      |          |          |          |          |          |
|               |          |                                       |   | <b>Sensor principle</b> |          |                          |          |                                    |          |          |          |          |          |
|               |          |                                       |   | 7                       |          | MH-C                     |          |                                    |          |          |          |          |          |
|               |          | <b>Mechanical version</b>             |   |                         |          |                          |          |                                    |          |          |          |          |          |
|               |          | 1601                                  |   | Standard                |          | 6mm shaft D-shape ; IP54 |          |                                    |          |          |          |          |          |
|               |          | 1631                                  |   | Standard                |          | 6mm shaft D-shape ; IP65 |          |                                    |          |          |          |          |          |
|               |          | 1699                                  |   | Optional                |          | Special shaft            |          |                                    |          |          |          |          |          |

|  | MH-C | MH-C2 |
|--|------|-------|
| Custom shaft design  | X    | -     |
| Custom cable / wires   | X    | -     |
| Interface x% ... y% Ub (within 5%...95%Ub)                                   | X    | -     |
| Sample rate in fast mode   | X    | -     |
| Special electrical angle within 30 to 360° (ex factory)                      | X    | -     |
| Special characteristic curve   | -    | -     |
| Electrical angle programmable by customer (Software)                         | -    | -     |
| Switchfunctions TTL (max. 2)   | -    | -     |
| Index-point setting by customer (Additional wire or Software)                | -    | -     |
| Positive gradient setting (CW/CCW) by customer (Additional wire or Software) | -    | -     |

**Options (on request)**

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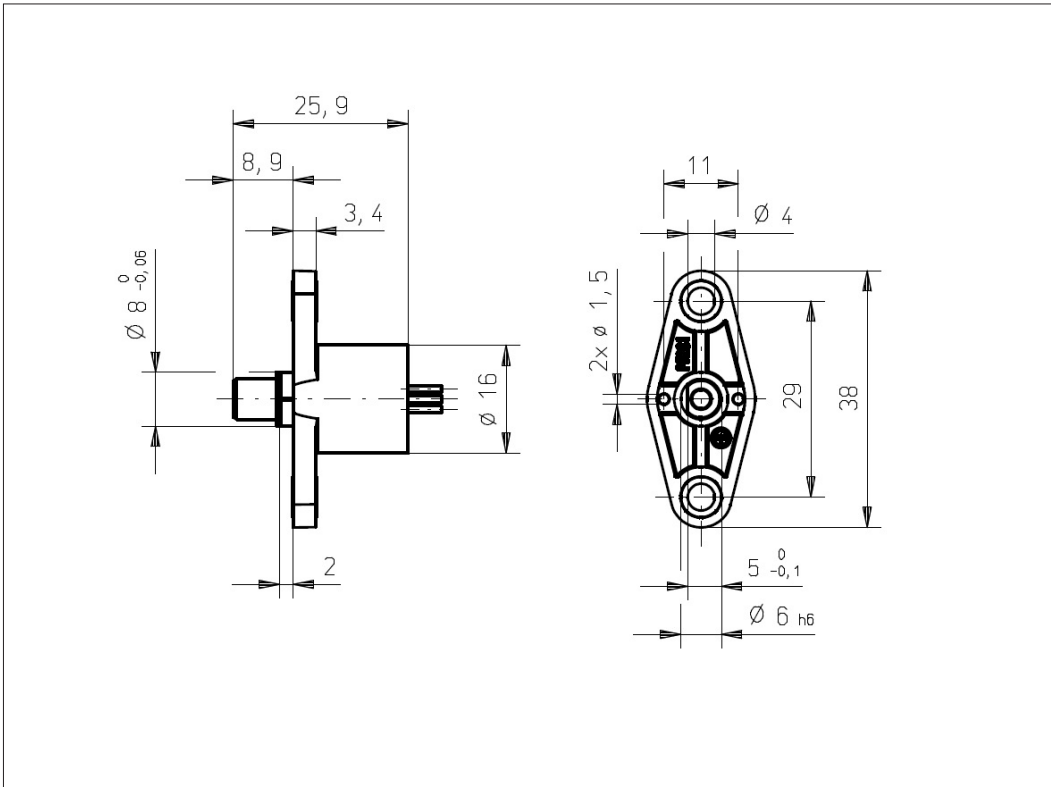
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#### Accessories (incl.)

- None



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