



## Vert-X 51 - 5V / PWM

### Applications

- Sensor for 360° marine propulsions
- Direction indicator device
- Agricultural machines
- Special purpose vehicles

### Features

- Compact dimensions
- Contactless measuring method
- 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

Sensor principle		MH-C	MH-C2
<b>Electrical data</b>			
Measuring range	°	0 ... 360	-
Indep. linearity	% of 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	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	-
Electrical connection (s = shielded)		Cable 3pole, s	-
Cross section of single wires	mm <sup>2</sup>	0.56 (AWG20)	-
Redundancy feasible		yes	-
Electrical connection redundant (s = shielded)		Cable 6pole, s	-
Cross section of single wires redundant	mm <sup>2</sup>	0.56 (AWG20)	-

### Mechanical data

Mechanical range	°	360 (continuous)	-
Protection class		IP54 / IP67	-
Max. starting torque at specified protection class	Ncm	0.5 / 6	-
Max. rotating speed	rpm	6000	-
Min. life	movements	200 Mio.	-
Max. permitted axial shaft load	N	45	-
Max. permitted radial shaft load	N	45	-
Operating & storage temperature	°C	-40 ... +125	-
IEC 68-2-6 Vibration (Amax = 0.75mm, f = 5 ... 2000 Hz)	g	20	-
IEC 68-2-27 Shock	g	50	-

### 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 60393-1 Insulation resistance (500VDC, 1bar, 2s)	GOhm	20	-
IEC 60393-1 Dielectric strength (VAC, 50Hz, 1min, 1bar)	kV	1	-

Errors and omissions excepted. Subject to change without notice. / State: 31.10.11

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



**Vert-X 51 - 5V / PWM**  
**Ordering code**

<b>Output characteristics</b>													
Positive gradient CW Standard 1													
Positive gradient CCW Optional 2													
Redundant, positive gradient CW Optional 3													
Redundant, positive gradient CCW Optional 4													
Redundant, crossed signal curves Optional 5													
<b>Output signal</b>													
PWM Standard 4													
<b>Power supply voltage</b>													
5VDC Standard 2													
<b>Electrical connection</b>													
4 Standard Round cable 3pole													
6 Optional Round cable 6pole													
9 Optional Special cable													
<b>Length of cable</b>													
02 Standard 1.0m													
06 Optional 3.0m													
10 Optional 5.0m													
99 Optional Special cable													
<b>Vert-X</b>	<b>5</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>7</b>	<b>3</b>	<b>6</b>	<b>2</b>	<b>4</b>	<b>1</b>	<b>4</b>	<b>0</b>	<b>2</b>
<b>Electrical angle</b>													
36 Standard Electrical angle 360°													
xx Optional 03 to 35; Declaration in 10° steps													
99 Optional Special angle													
<b>Sensor principle</b>													
7 MH-C													
<b>Mechanical version</b>													
5111 Standard Servo mount size 20 ; 6 mm shaft ; IP54													
5151 Standard Servo mount size 20 ; 6 mm shaft ; IP67													
5199 Optional Special housing ; Special shaft													

	MH-C	MH-C2
Custom shaft design	X	-
Custom modification of the housing	X	-
Custom cable	X	-
Sample rate in fast mode	X	-
Switch functions TTL (max. 2)	X	-
Special characteristic curve	-	-
Special electrical angle within 30° to 360° (ex factory)	X	-
Electrical angle programmable (Software)	-	-
Start & end point settable (Additional wires)	-	-
Sense of rotation CW/CCW settable / programmable (Additional wires or Software)	-	-
Index point settable / programmable (Additional wires or Software)	-	-

**Options (on request)**

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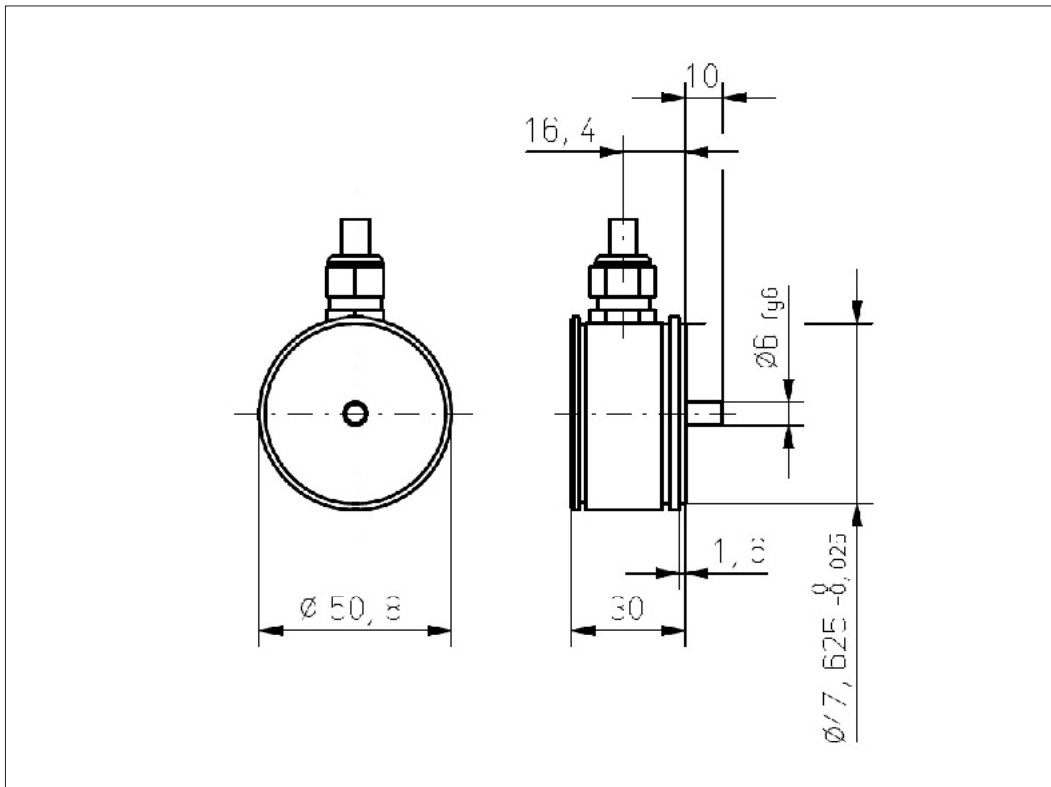
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### Vert-X 51

#### Accessoires (incl.)

- 3x Fixation clamp
- 3x Slotted cylinder head screw M3x8



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