



## Vert-X 51 - 5V

### Applications

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

### Features

- Compact dimensions
- Contactless measuring method
- Absolute measurement up to 360°
- Long life
- High accuracy of measurement
- Applications under adverse ambient conditions possible (humidity, dampness, oil dust, vibrations etc.)

### Options

- Custom shaft design
- Custom cable

Errors and omissions excepted. Subject to change without notice. State: 19.09.06

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Version		B
<b>Electrical Data</b>		
Measuring range	°	0 ... 360
Linearity		see table B
Max. hysteresis		see table B
Resolution		see table B
Max. repeatability		see table B
Sample rate		see table B
System propagation delay		see table B
Max. temperature coefficient of the output signal ppm/°K		50
Min. life (electrical)	years	10
Power supply voltage	VDC	5 (±10 %)
Current consumption without load (typical)		see table B
Min. ohmic load at output		see table B
Max. capacitive load at output		see table B
PWM frequency		see table B
Reverse polarity protection of power supply		see table B
Electrical connection		see table B
<b>Mechanical Data</b>		
Mechanical range	°	360 (continuous)
Max. starting torque at IP54 / IP67	Ncm	0.5 / 6
Max. rotating speed	rpm	6000
Min. life (mechanical)	movements	250 Mio.
Max. permitted axial shaft load	N	45
Max. permitted radial shaft load	N	45
Operating temperature	°C	-40 ... +125
Storage temperature	°C	-40 ... +125
Protection class		IP54 / IP67
<b>Normen</b>		
EN 55022 class B, emission radiated (30... 230MHz)		max. 30 dB(µV/m)
EN 55022 class B, emission radiated (230...1000MHz)		max. 37 dB(µV/m)
EN 61000-4-2, ESD on housing and connections (contact / air)		4 / 8 kV
EN 61000-4-3, immission HF radiated (80 ... 1000 MHz)		100 V/m
EN 61000-4-4, burst (supply lines / signal lines)		1 / 0.5 kV
EN 61000-4-5, surge (supply lines / signal lines)		1 kV
EN 61000-4-6, immission HF conducted (0.15 ... 80MHz)		10 Vemk
EN 61000-4-8, immission magnetic field (50 Hz)		30 A/m
IEC 60393-1 Insulation resistance (500VDC, 1bar, 2s)		20 GOhm
IEC 60393-1 Dielectric strength (VAC, 50Hz, 1min, 1bar)		1 kV
IEC 68-2-6 Vibration (Amax = 0.75mm, f = 5 ... 2000 Hz)		20 g
IEC 68-2-27 Shock		50 g



Interface	10 ... 90% UB		PWM	SPI
		5 ... 95% UB		
Independent linearity	% meas. range	±0.3	±0.3	±0.3
Max. hysteresis	°	0.1	0.1	0.1
Resolution	bit	12	12	14
Max. repeatability	°	0.1	0.1	0.1
Sample rate fast mode	kHz	(5)	(5)	2.2
Sample rate slow mode	kHz	1.66	1.66	(0.55)
System propagation delay fast mode	µs	(800)	(800)	400
System propagation delay slow mode	µs	4600	4600	(600)
Current consump. without load (typ.) fast mode	mA	(16)	(16)	16
Current consump. without load (typ.) slow mode	mA	10	10	(10)
Min. ohmic load at output	kOhm	10	10	-
Max. capacitive load at output	nF	10	1	-
PWM frequency	kHz	-	0.1 (... 1)	-
Reverse polarity protection of power supply		yes	yes	yes
Electrical connection (s = shielded)		Round cable 3pol, s	Round cable 3pol, s	Round cab. 6pol, s
Cross section of single wires	mm <sup>2</sup>	0.56 (AWG20)	0.56 (AWG20)	0.56 (AWG20)
Redundancy feasible		yes	yes	yes

## Vert-X 51 - 5V Table Versions B

### Additional features

- High resolution and accuracy at programmed electrical angle

### Additional options

- Electrical angle within 0 ... 360° programmable
- Redundancy
- Fast mode / slow mode selectable (Standard: slow mode, except for SPI: fast mode)

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**Vert-X 51 - 5V**  
**Ordering code**  
**Version B**

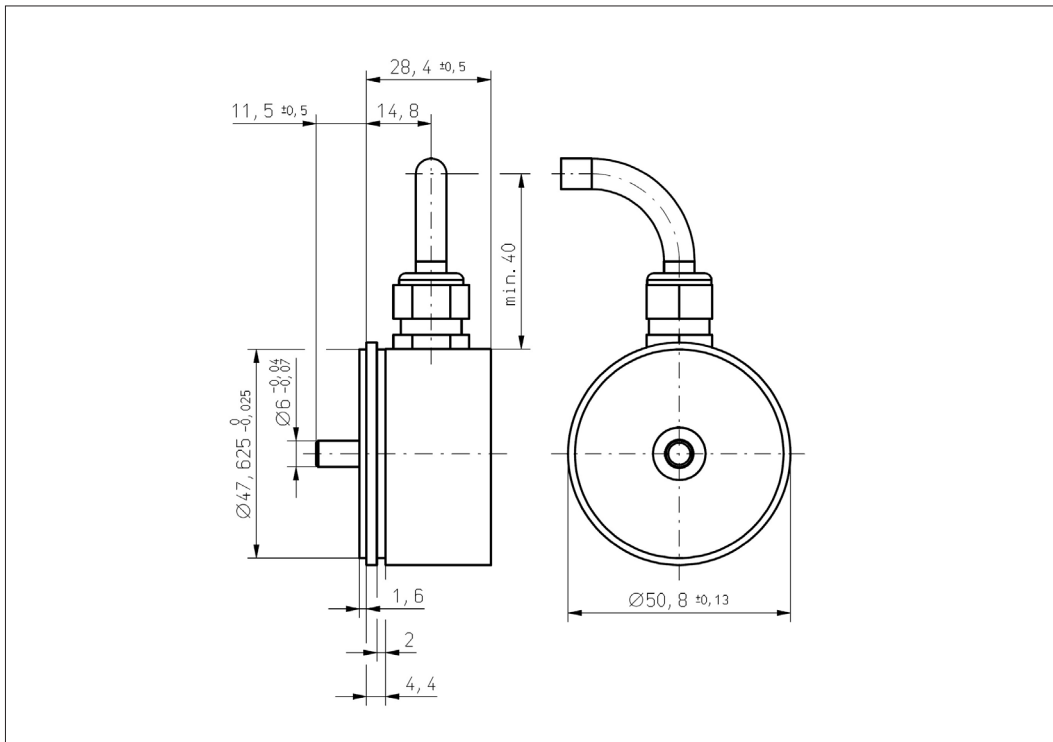
		<b>Power supply voltage</b>											
		2	Standard: 5VDC										
		<b>Output signal</b>											
		2	Standard: 10% ... 90% of power supply										
		3	Optional: x% ... y% of power supply (within 5 ... 95%)										
		4	Standard: PWM										
		8	Standard: SPI										
		<b>Output characteristics</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: Round cable 10pol										
		4	Standard: Round cable 3pol (not SPI)										
		6	Standard: Round cable 6pol										
		9	Optional: Special cable										
		<b>Length of cable</b>											
		02	Standard: 1.0m										
		06	Optional: 3.0m										
		10	Optional: 5.0m										
		99	Optional: Special length										
<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>2</b>	<b>1</b>	<b>4</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		B							
				<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							

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