



Vert-X 51 - 24V

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

Version		A	B
Electrical Data			
Measuring range	°	360	0 ... 360
Linearity		see table A	see table B
Max. hysteresis		see table A	see table B
Resolution		see table A	see table B
Max. repeatability		see table A	see table B
Sample rate		see table A	see table B
System propagation delay		-	see table B
Max. temperature coefficient of the output signal ppm/°K		100	100
Min. life (electrical)	years	10	10
Power supply voltage		see table A	see table B
Current consumption without load (typical)		see table A	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 A	see table B
Electrical connection		see table A	see table B
Mechanical Data			
Mechanical range	°	360 (continuous)	360 (continuous)
Max. starting torque at IP54 / IP67	Ncm	0.5 / 6	0.5 / 6
Max. rotating speed	rpm	6000	6000
Min. life (mechanical)	movements	200 Mio.	200 Mio.
Max. permitted axial shaft load	N	45	45
Max. permitted radial shaft load	N	45	45
Operating temperature	°C	0 ... +70	-40 ... +85
Storage temperature	°C	-40 ... +85	-40 ... +85
Protection class		IP54 / IP67	IP54 / IP67
Normen			
EN 55022 class B, emission radiated (30... 230MHz)		max. 30 dB(µV/m)	max. 30 dB(µV/m)
EN 55022 class B, emission radiated (230...1000MHz)		max. 37 dB(µV/m)	max. 30 dB(µV/m)
EN 61000-4-2, ESD on housing and connections (contact / air)		6 / 8 kV	4 / 8 kV
EN 61000-4-3, immission HF radiated (80 ... 1000 MHz)		10 V/m	100 V/m
EN 61000-4-4, burst (supply lines / signal lines)		2 / 2 kV	1 / 0.5 kV
EN 61000-4-5, surge (supply lines / signal lines)		1 kV	1 kV
EN 61000-4-6, immission HF conducted (0.15 ... 80MHz)		10 Vemk	10 Vemk
EN 61000-4-8, immission magnetic field (50 Hz)		30 A/m	30 A/m
IEC 60393-1 Insulation resistance (500VDC, 1bar, 2s)		20 GOhm	20 GOhm
IEC 60393-1 Dielectric strength (VAC, 50Hz, 1min, 1bar)		1 kV	1 kV
IEC 68-2-6 Vibration (Amax = 0.75mm, f = 5 ... 2000 Hz)		20 g	20 g
IEC 68-2-27 Shock		50 g	50 g

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

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

CONTELEC
 A company of the Siedle-Group



Vert-X 51 - 24V
Ordering code
Version A

Vert-X	5	1	1	1	2	3	6	1	3	1	1	0	2
	Power supply voltage												
	1 Standard: 24VDC												
	Output signal												
	3 Standard: CANopen Encoder Profile 406 (C1)												
	Output characteristics												
	1 Standard: Positive gradient CW												
	2 Optional: Positive gradient CCW												
	Electrical connection												
	1 Standard: Round cable 10pol												
9 Optional: Special cable													
Length of cable													
02 Standard: 1.0m													
06 Optional: 3.0m													
10 Optional: 5.0m													
99 Optional: Special length													
Electrical angle													
36 Standard: Electrical angle 360°													
Sensor principle													
2 A													
Mechanical version													
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													

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

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



**Vert-X 51 - 24V
Table
Version B**

Additional features

- Full 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)

Interface		0.5 ... 4.5V	0.1 ... 10V	4 ... 20mA
Independent linearity	% meas. range	±0.3	±0.3	±0.3
Max. hysteresis	°	0.1	0.1	0.1
Resolution	bit	12	12	12
Max. repeatability	°	0.1	0.1	0.1
Sample rate fast mode	kHz	(5)	(5)	(5)
Sample rate slow mode	kHz	1.66	1.66	1.66
System propagation delay fast mode	µs	(800)	(850)	(850)
System propagation delay slow mode	µs	4600	4650	4650
Power supply voltage	VDC	8 ... 36	10.8 ... 36	16 ... 36
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	5	10	0...500 Ohm
Max. capacitive load at output	nF	5	10	10
PWM frequency		-	-	-
Reverse polarity protection power supply		yes	yes	yes
Electrical connection (s = shielded)		Round cable 3pol, s	Round cable 3pol, s	Round cab. 3pol, s
Cross section of single wires	mm ²	0.56 (AWG20)	0.56 (AWG20)	0.56 (AWG20)
Redundancy feasible		yes	yes	yes

Interface		PWM	SPI
Independent linearity	% meas. range	±0.3	±0.3
Max. hysteresis	°	0.1	0.1
Resolution	bit	12	14
Max. repeatability	°	0.1	0.1
Sample rate fast mode	kHz	(1)	2.2
Sample rate slow mode	kHz	1	(0.55)
System propagation delay fast mode	µs	(800)	400
System propagation delay slow mode	µs	4600	(600)
Power supply voltage	VDC	8 ... 36	8 ... 36
Current consump. without load (typ.) fast mode	mA	(16)	16
Current consump. without load (typ.) slow mode	mA	10	(10)
Min. ohmic load at output	kOhm	10	-
Max. capacitive load at output	nF	1	-
PWM frequency	kHz	0.1 (... 1)	-
Reverse polarity protection of power		yes	yes
Electrical connection (s = shielded)		Round cable 3pol, s	Round cable 6pol, s
Cross section of single wires	mm ²	0.56 (AWG20)	0.56 (AWG20)
Redundancy feasible		yes	yes

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

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



Vert-X 51 - 24V
Ordering code
Version B

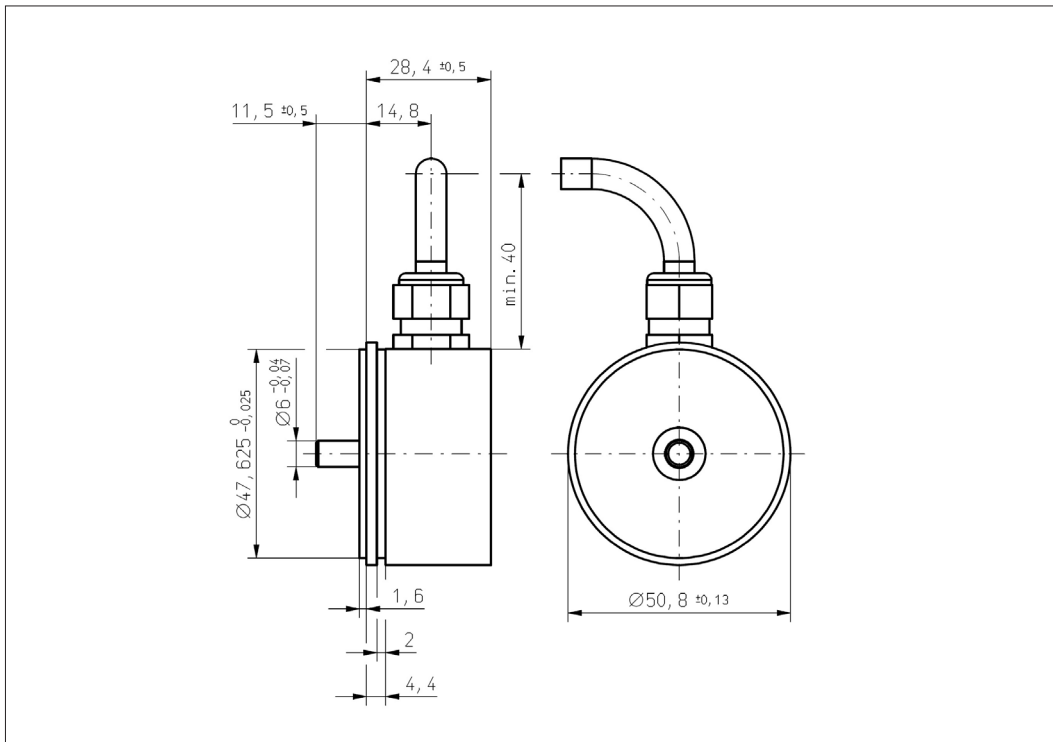
										Power supply voltage			
										1 Standard: 24VDC			
										Output signal			
										1 Standard: 0,1VDC ... 10VDC			
										2 Standard: 0,5VDC ... 4,5VDC			
										4 Standard: PWM			
										5 Standard: 4 mA ... 20 mA			
										8 Standard: SPI			
										Output characteristics			
										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			
										Electrical connection			
										1 Optional: Round cable 10pol			
										4 Standard: Round cable 3pol (not SPI)			
										6 Standard: Round cable 6pol			
										9 Optional: Special cable			
										Length of cable			
										02 Standard: 1.0m			
										06 Optional: 3.0m			
										10 Optional: 5.0m			
										99 Optional: Special length			
Vert-X	5	1	1	1	7	3	6	2	2	1	4	0	2
										Electrical angle			
										36 Standard: Electrical angle 360°			
										xx Optional: 10 to 35; Declaration in 10° steps			
										99 Optional: Special angle			
										Sensor principle			
										7 B			
										Mechanical version			
										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			

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

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



Vert-X 51



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

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

CONTELEC
A company of the Siedle-Group