



Vert-X 37 - 5V

Applications

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

Features

- Very robust design, sealed stainless steel housing
- Contactless measuring method
- Long life
- High accuracy of measurement
- Applications under adverse ambient conditions possible (humidity, dampness, oil, dust, vibrations, etc.)
- 3 to 5pol cable 0.56mm² (AWG20) for simple fixation of contacts with crimp-technology

Options

- Custom shaft design
- Custom cable

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CONTELEC
 A company of the Siedle-Group

Version		A	B	C
Electrical Data				
Measuring range	°	0 ... 360	0 ... 360	360
Linearity		see table A	see table B	see table C
Max. hysteresis		see table A	see table B	see table C
Resolution		see table A	see table B	see table C
Max. repeatability		see table A	see table B	see table C
Sample rate		see table A	see table B	see table C
System propagation delay		see table A	see table B	see table C
Max. temperature coefficient of the output signal ppm/°K		100	50	50
Min. life (electrical)	years	10	10	10
Power supply voltage	VDC	5 (±10 %)	5 (±10 %)	5 (±10 %)
Current consumption without load (typical)		see table A	see table B	see table C
Min. ohmic load at output		see table A	see table B	see table C
Max. capacitive load at output		see table A	see table B	see table C
PWM frequency		see table A	see table B	-
Reverse polarity protection of power supply		see table A	see table B	see table C
Electrical connection		see table A	see table B	see table C
Mechanical Data				
Mechanical range	°	360 (continuous)	360 (continuous)	360 (continuous)
Max. starting torque at IP54 / IP67	Ncm	6	6	6
Max. rotating speed	rpm	3000	3000	3000
Min. life (mechanical)	movements	360 Mio.	360 Mio.	360 Mio.
Max. permitted axial shaft load	N	250	250	250
Max. permitted radial shaft load	N	100	100	100
Operating temperature	°C	-40 ... +85	-40 ... +125	-40 ... +125
Storage temperature	°C	-40 ... +85	-40 ... +125	-40 ... +125
Protection class		IP54 / IP69	IP54 / IP69	IP54 / IP69
Standards				
EN 55022 class B, emission radiated (30... 230MHz)		max. 30 dB(µV/m)	max. 30 dB(µV/m)	max. 30 dB(µV/m)
EN 55022 class B, emission radiated (230...1000MHz)		max. 37 dB(µV/m)	max. 37 dB(µV/m)	max. 37 dB(µV/m)
EN 61000-4-2, ESD on housing and connections (contact / air)		4 / 8 kV	4 / 8 kV	4 / 8 kV
EN 61000-4-3, immission HF radiated (80 ... 1000 MHz)		100 V/m	100 V/m	100 V/m
EN 61000-4-4, burst (supply lines / signal lines)		1 / 0.5 kV	1 / 0.5 kV	1 / 0.5 kV
EN 61000-4-5, surge (supply lines / signal lines)		1 kV	1 kV	1 kV
EN 61000-4-6, immission HF conducted (0.15 ... 80MHz)		10 Vemk	10 Vemk	10 Vemk
EN 61000-4-8, immission magnetic field (50 Hz)		30 A/m	30 A/m	30 A/m
IEC 60393-1 Insulation resistance (500VDC, 1bar, 2s)		20 GOhm	20 GOhm	20 GOhm
IEC 60393-1 Dielectric strenght (VAC, 50Hz, 1min, 1bar)		1 kV	1 kV	1 kV
IEC 68-2-6 Vibration (Amax = 0.75mm, f = 5 ... 2000 Hz)		20 g	20 g	20 g
IEC 68-2-27 Shock		50 g	50 g	50 g



Interface		10 ... 90% UB	PWM
		5 ... 95% UB	
Absolute linearity	°	0.36	0.72
Max. hysteresis	°	0.1	0.1
Resolution	bit	12	12
Max. repeatability	%	0.1	0.1
Sample rate	kHz	1	0.33
System propagation delay	µs	2100	2100
Current consumption without load (typical)	mA	6	6
Min. ohmic load at output	kOhm	5	10
Max. capacitive load at output	nF	5	1
PWM frequency	kHz	-	0.3 ±25%
Reverse polarity protection of power supply		no	no
Electrical connection (s = shielded)		Round cable 3pol, s	Round cable 3pol, s
Cross section of single wires	mm ²	0.56 (AWG20)	0.56 (AWG20)
Redundancy feasible		no	no

Vert-X 37 - 5V Table Version A

Additional features

- Custom output characteristic programmable before delivery

Additional options

- Special characteristic (freely programmable)
- Up to 2 digital switches (freely programmable)
- Electrical angle within 0 ... 360° programmable

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Vert-X 37 - 5V
Ordering code
Version A

		Power voltage supply												
		2	Standard: 5VDC											
		Output signal												
		2	Standard: 10% ... 90% of power supply											
		3	Optional: x% ... y% of power supply (within 5 ... 95%)											
		4	Standard: PWM											
		Output characteristics												
		1	Standard: Positive gradient CW											
		2	Optional: Positive gradient CCW											
		9	Optional: Special signal curves											
		Electrical connection												
		4	Standard: Round cable 3pol											
		6	Optional: 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	3	7	2	2	2	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										
				2	A									
				Mechanical version										
		3722	Standard:	Servo mount size 13 ; 10 mm shaft slotted with D-shape ; IP54										
		3762	Standard:	Servo mount size 13 ; 10 mm shaft slotted with D-shape ; IP69										
		3799	Optional:	Special housing ; Special shaft										

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**Vert-X 37 - 5V
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		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 ²	0.56 (AWG20)	0.56 (AWG20)	0.56 (AWG20)
Redundancy feasible		yes	yes	yes

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Vert-X 37 - 5V
Ordering code
Version B

		Power voltage supply												
		2	Standard: 5VDC											
		Output signal												
		2	Standard: 10% ... 90% of power supply											
		3	Optional: x% ... y% of power supply (within 5 ... 95%)											
		4	Standard: PWM											
		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	3	7	2	2	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										
		3722	Standard:	Servo mount size 13 ; 10 mm shaft slotted with D-shape ; IP54										
		3762	Standard:	Servo mount size 13 ; 10 mm shaft slotted with D-shape ; IP69										
		3799	Optional:	Special housing; special shaft										

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Interface		SSI	Incremental (A,B,Z)
Independent linearity	%	±0.5	±0.5
Max. hysteresis	°	0.1	0.7
Resolution	bit	10	10 (quadrature)
Resolution per channel	ppr	-	256 / (128 / 64 / 32)
Max. repeatability	°	0.12	0.12
Sample rate	kHz	10	10
System propagation delay	µs	65	200
Current consumption without load (typical)	mA	16	16
Min. ohmic load at output	kOhm	5	5
Max. capacitive load at output	nF	1	1
Reverse polarity protection of power supply		no	no
Electrical connection (s = shielded)		Round cable 6pol, s	Round cable 6pol, s
Cross section of single wires	mm ²	0.56 (AWG20)	0.56 (AWG20)
Redundancy feasible		no	no

**Vert-X 37 - 5V
Table
Version C**

- Additional features**
- High operating speed

- Additional options**
- Incremental resolution 128,64 or 32ppr programmable (Standard 256ppr)

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Version C

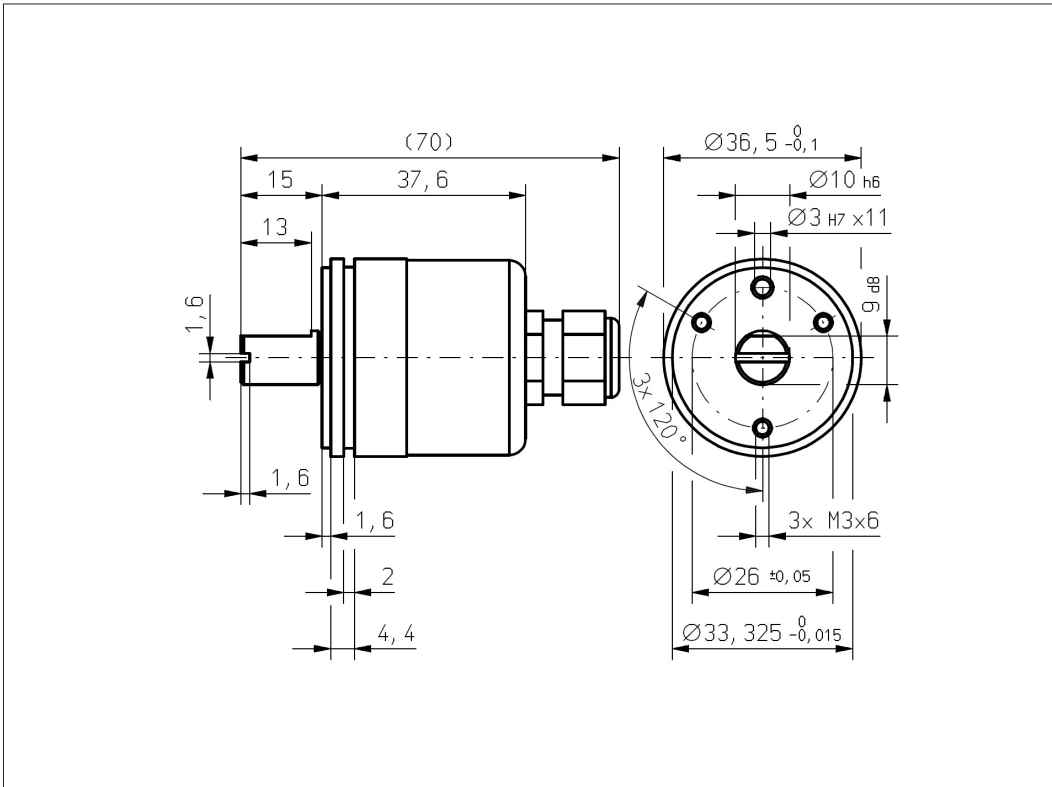
Vert-X	3	7	2	2	6	3	6	2	6	1	5	0	2
	Power supply voltage												
	2 Standard: 5VDC												
	Output signal												
	6 Standard: SSI												
	7 Standard: Incremental A,B,Z												
	Output characteristics												
	1 Standard: Positive gradient CW												
	2 Optional: Positive gradient CCW (only SSI)												
	Electrical connection												
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													
Electrical angle													
36 Standard: Electrical angle 360°													
Sensor principle													
6 C													
Mechanical version													
3722 Standard: Servo mount size 13 ; 10 mm shaft slotted with D-shape ; IP54													
3762 Standard: Servo mount size 13 ; 10 mm shaft slotted with D-shape ; IP69													
3799 Optional: Special housing; special shaft													

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