



Vert-X 37E - 5V

Applications

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

Features

- High protection class IP69
- Very robust design
- Non-contacting measuring method
- Very long life
- High accuracy of measurement
- Applications under adverse ambient conditions possible (humidity, dampness, oil, dust, vibrations etc.)

Options

- Special electrical angle
- Output signal X ... Y% UB
- Custom housing design
- Custom magnetic actuator design
- Custom wires / cable

Errors and omissions excepted. Subject to change without notice. State: 20.11.06

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Version		B	C
Electrical Data			
Measuring range	°	0 ... 360	360
Linearity		see table B	see table C
Max. hysteresis		see table B	see table C
Resolution		see table B	see table C
Max. repeatability		see table B	see table C
Sample rate		see table B	see table C
System propagation delay		see table B	see table C
Max. temperature coefficient of the output signal ppm/°K		50	50
Min. life (electrical)	years	10	10
Power supply voltage	VDC	5 (±10%)	5 (±10%)
Current consumption without load (typical)		see table B	see table C
Min. ohmic load at output		see table B	see table C
Max. capacitive load at output		see table B	see table C
PWM frequency		see table B	-
Reverse polarity protection of power supply		see table B	see table C
Electrical connection		see table B	see table C
Mechanical Data			
Mechanical range	°	360 (continuous)	360 (continuous)
Min. life (mechanical)	movements	infinite	infinite
Operating temperature	°C	see table B	see table C
Storage temperature	°C	see table B	see table C
Protection class		IP69	IP69
Standards			
EN 55022 classe B, emission radiated (30... 230 MHz)		max. 30 dB(µV/m)	max. 30 dB(µV/m)
EN 55022 classe B, emission radiated (230...1000MHz)		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
EN 61000-4-3, immission HF radiated (80... 1000 MHz)		100 V/m	100 V/m
EN 61000-4-4, burst (on supply lines / signal lines)		1 / 0.5 kV	1 / 0.5 kV
EN 61000-4-5, surge (on 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 (50Hz)		30 A/m	30 A/m
IEC 60393-1 insulations 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)		50 g	50 g
IEC 68-2-27 shock		200 g	200 g





Vert-X 37E - 5V Table Version B

Additional features

- Full resolution and accuracy at programmed electrical angle

Additional options

- Electrical angle within 0 ... 360° programmable
- Redundancy
- Operating temperature -40 ... +125°C

Interface	10 ... 90% UB		PWM	SPI
		5 ... 95% UB		
Indep. linearity (without misalignment)	% meas. range	±0.3	±0.3	±0.3
Indep. linearity (with allowed misalignm. @ 360°)	% meas. range	±0.5	±0.5	±0.5
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 axial		wires	wires	ribbon cable
Cross section of single wires	mm ²	0.5 (AWG20)	0.5 (AWG20)	0.5 (AWG20)
Operating temperature	°C	-40 ... +125	-40 ... +125	-40 ... +105
Storage temperature	°C	-40 ... +125	-40 ... +125	-40 ... +105
Electrical connection radial		round cable 3pol	round cable 3pol	round cable 6pol
Cross section of single wires	mm ²	0.5 (AWG20)	0.5 (AWG20)	0.5 (AWG20)
Operating temperature	°C	-40 ... +125	-40 ... +125	-40 ... +125
Storage temperature	°C	-40 ... +125	-40 ... +125	-40 ... +125
Redundancy feasible		yes	yes	yes

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Ordering code
Version B

		Power supply voltage			
		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 / axial			
		2 Optional: Ribbon cable 10pol			
		5 Standard: Wires 3pol (not SPI)			
		7 Standard: Ribbon cable 6pol			
		9 Optional: Special cable ; special wires			
		Electrical connection / radial			
		1 Optional: Round cable 10pol			
		4 Standard: Round cable 3pol (not SPI)			
		6 Standard: Round cable 6pol			
		9 Optional: Special cable ; special wires			
		Length of wires / ribbon cable			
		01 Optional: 10cm			
		02 Optional: 20cm			
		03 Optional: 30cm			
		04 Optional: 40cm			
		05 Standard: 50cm			
		99 Optional: Special length			
		Length of cable			
		02 Standard: 1.0m			
		06 Optional: 3.0m			
		10 Optional: 5.0m			
		99 Optional: Special length			
Vert-X		3 7 E 4		7 3 6	
				2 2 1	
				5 0 5	
		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					
37E2		Optional: Servo mount size 13 ; magnetic actuator type 2			
37E4		Standard: Servo mount size 13 ; magnetic actuator type 4			
37E9		Optional: Special housing ; special magnetic actuator			

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

Additional features

- High operating speed

Additional options

- Operating temperature
-40°C ... +125°C

Interface		SSI	Incremental (A,B,Z)
Independent linearity	°	1.8	1.8
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 axial		ribbon cable	ribbon cable
Cross section of single wires	mm ²	0.5 (AWG20)	0.5 (AWG20)
Operating temperature	°C	-40 ... +105	-40 ... +105
Storage temperature	°C	-40 ... +105	-40 ... +105
Electrical connection radial		round cable 6pol	round cable 6pol
Cross section of single wires	mm ²	0.5 (AWG20)	0.5 (AWG20)
Operating temperature	°C	-40 ... +125	-40 ... +125
Storage temperature	°C	-40 ... +125	-40 ... +125
Redundancy feasible		no	no

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Vert-X 37E - 5V Ordering code Version C

Vert-X	3	7	E	4	6	3	6	2	6	1	7	0	5	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 / axial															
2	Optional: Ribbon cable 10pol														
7	Standard: Ribbon cable 6pol														
9	Optional: Special cable ; special wires														
Electrical connection / radial															
1	Optional: Round cable 10pol														
6	Standard: Round cable 6pol														
9	Optional: Special cable ; special wires														
Length of wires / ribbon cable															
01	Optional: 10cm														
02	Optional: 20cm														
03	Optional: 30cm														
04	Optional: 40cm														
05	Standard: 50cm														
99	Optional: Special length														
Length of cable															
02	Standard: 1.0m														
06	Optional: 3.0m														
10	Optional: 5.0m														
99	Optional: Special length														

Vert-X	3	7	E	4	6	3	6	2	6	1	7	0	5	Electrical angle	
														36	Standard: Electrical angle 360°
														xx	Optional: 10 to 35; Declaration in 10° steps
99	Optional: Special angle														
Sensor principle															
6	C														
Mechanical version															
37E2	Optional: Servo mount size 13 ; magnetic actuator type 2														
37E4	Standard: Servo mount size 13 ; magnetic actuator type 4														
37E9	Optional: Special housing ; special magnetic actuator														

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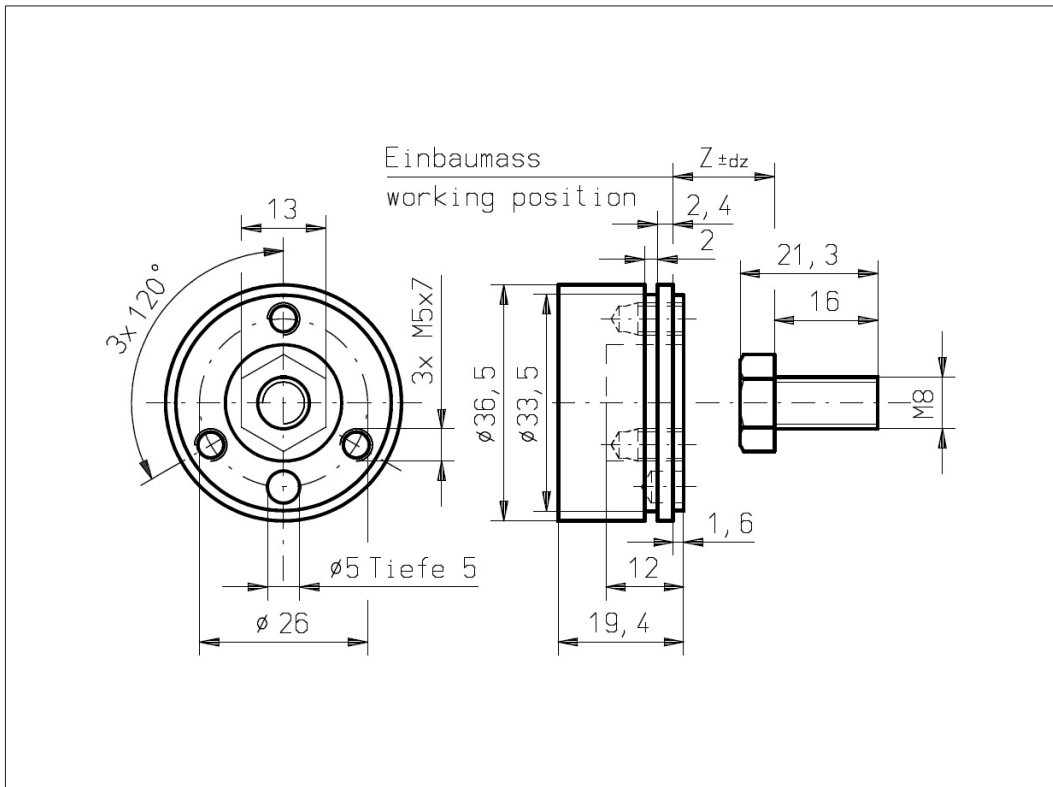
Vert-X 37E4 xxx xxx 2xx
Vert-X 37E4 xxx xxx 5xx
Vert-X 37E4 xxx xxx 7xx

Working position (Z)

Version B	-3.85mm
Version B redundant	-4.35mm
Version C	-4.35mm

Max. permitted axial misalignment of the magnetic actuator

dz ±0.5mm



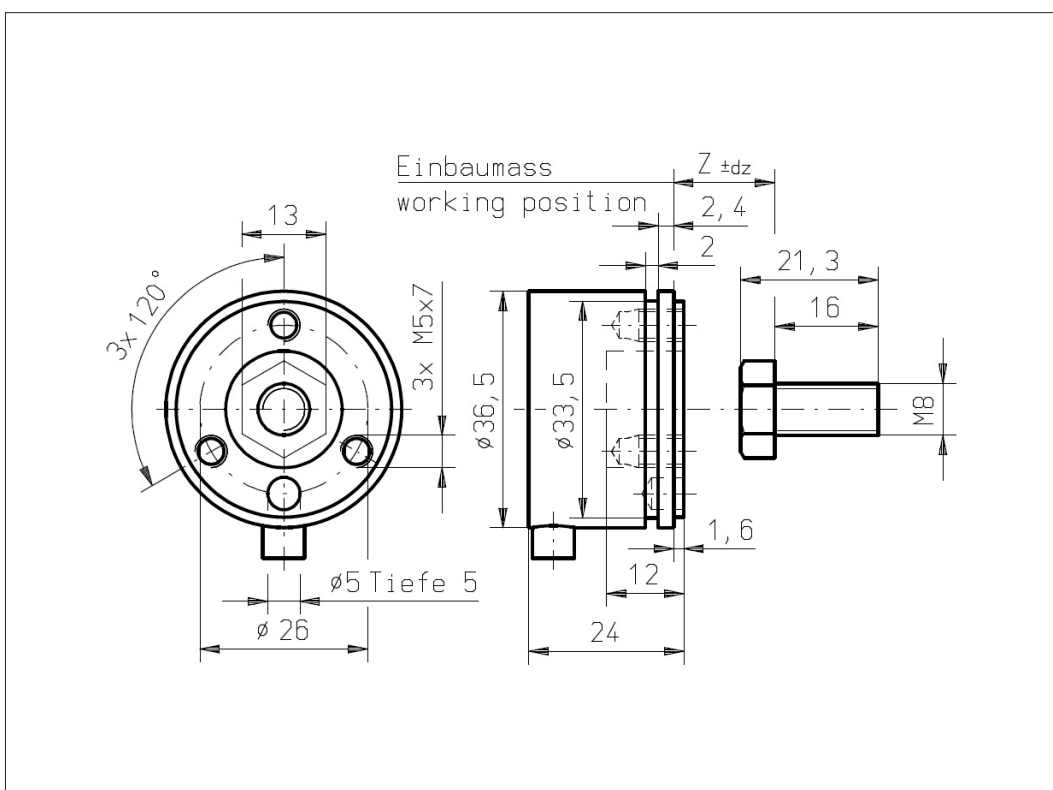
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Vert-X 37E4 xxx xxx 4xx
Vert-X 37E4 xxx xxx 6xx

Working position (Z)

Version B	-3.85mm
Version B redundant	-4.35mm
Version C	-4.35mm

Max. permitted axial misalignment of the magnetic actuator

dz ±0.5mm



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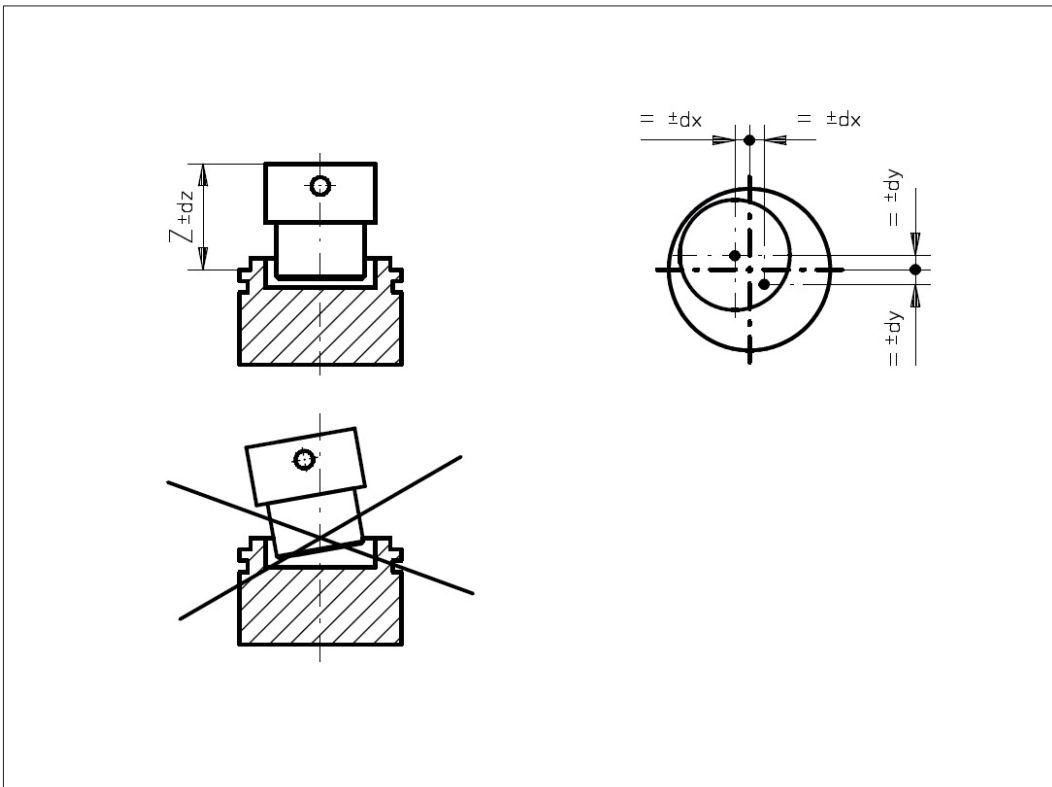
Vert-X 37E
Mounting information

Working position (Z)

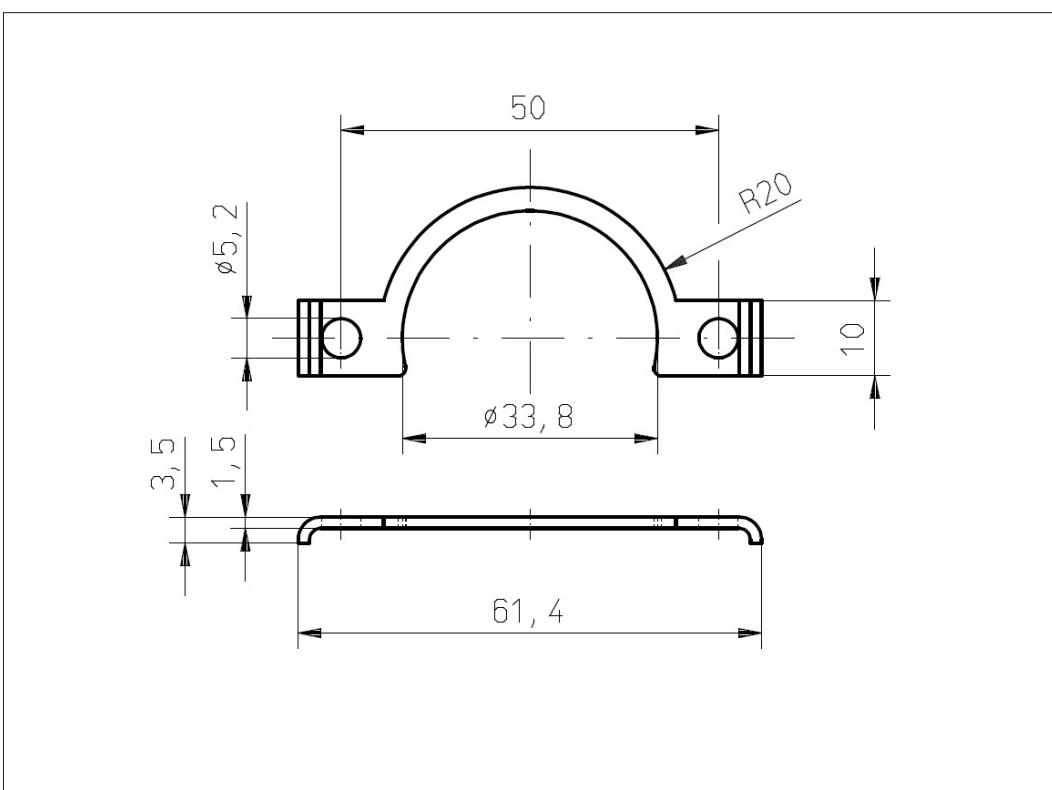
Version B	-3.85mm
Version B redundant	-4.35mm
Version C	-4.35mm

Max. permitted misalignment of the magnetic actuator

dx	±0.25mm
dy	±0.25mm
dz	±0.5mm



Vert-X 37E
Accessories
Fixation clip



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