



Vert-X 22E - 24V

Applications

- Wind vanes
- Throttle control
- Level sensor
- Steering angle sensor for F1-racing cars
- Special purpose vehicles

Features

- High protection class IP69
- Flat design
- Non-contacting measuring method
- Very long life
- High accuracy of measurement
- Use in cramped installation conditions

Options

- Special electrical angle
- Custom housing design
- Custom magnetic acuator design
- Custom cable / wires

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

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Version		B	C
Electrical Data			
Max. 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		100	100
Min. life (electrical)	years	10	10
Power supply voltage		see table B	see table C
Current consumption without load (typical)		see table B	see table C
Min. ohmic load at ouput		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	-40 ... +85	-40 ... +85
Storage temperature	°C	-40 ... +85	-40 ... +85
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 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)		50 g	50 g
IEC 68-2-27 shock		200 g	200 g



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Table
Version B

Additional features

- Full resolution and accuracy at programmed electrical angle

Additional options

- Electrical angle within 0 ... 360° programmable
- Redundancy

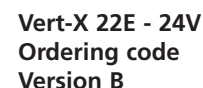
Interface		0.5 ... 4.5V	0.1 ... 10V	4 ... 20mA
Indep. linearity (without misalignment)	% meas. range	±0.3	±0.3	±0.3
Indep. linearity (with allowed misalignm. @ 360°)	% meas. range	±0.5	±0.5	±0.5
Max. hysteresis	°	0.1	0.1	0.1
Resolution	bit	12	12	12
Max. repeatability	°	0.1	0.1	0.1
Sample rate fast mode	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 ... 35	10.8 ... 35	16 ... 35
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 ... 0.5
Max. capacitive load at output	nF	5	10	10
PWM frequency	kHz	-	-	-
Reverse polarity protection of power supply		yes	yes	yes
Electrical connection axial		wires	wires	wires
Cross section of single wires	mm ²	0.25 (AWG24)	0.25 (AWG24)	0.25 (AWG24)
Electrical connection radial		round cable 3pol	round cable 3pol	round cable 3pol
Cross section of single wires	mm ²	0.25 (AWG24)	0.25 (AWG24)	0.25 (AWG24)
Redundancy feasible		yes	no	no

Interface		PWM	SPI
Indep. linearity (without misalignment)	% meas. range	±0.3	±0.3
Indep. linearity (with allowed misalignm. @ 360°)	% meas. range	±0.5	±0.5
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 ... 35	8 ... 35
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 supply		yes	yes
Electrical connection axial		wires	ribbon cable
Cross section of single wires	mm ²	0.25 (AWG24)	0.09 (AWG28)
Electrical connection radial		round cable 3pol	round cable 6pol
Cross section of single wires	mm ²	0.25 (AWG24)	0.25 (AWG24)
Redundancy feasible		yes	yes

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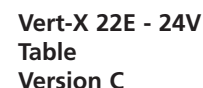
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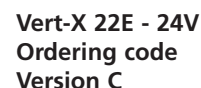


- High operating speed

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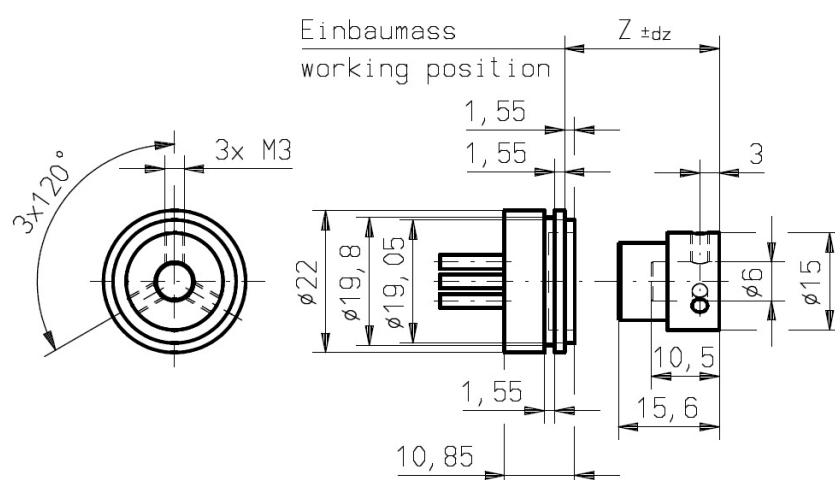
Vert-X 22E2 xxx xxx 2xx
Vert-X 22E2 xxx xxx 5xx
Vert-X 22E2 xxx xxx 7xx
 (0.5...4.5VDC / PWM / SPI /
 SSI / Incremental)

Working position (Z)

Version B	14.40mm
Version B redundant	13.90mm
Version C	13.90mm

Max. permitted axial misalignment of the magnetic actuator

dz ±0.5mm



Vert-X 22E2 xxx xxx 1xx
Vert-X 22E2 xxx xxx 4xx
Vert-X 22E2 xxx xxx 6xx
 (0.5...4.5VDC / PWM / SPI /
 SSI / Incremental)

Working position (Z)

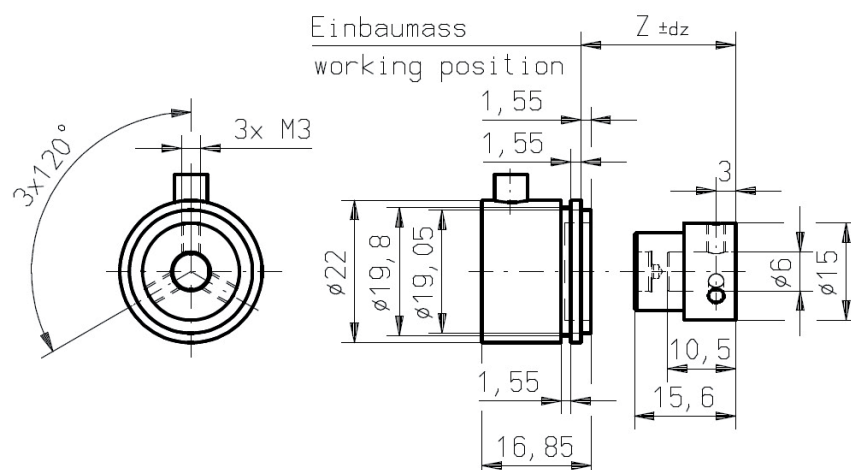
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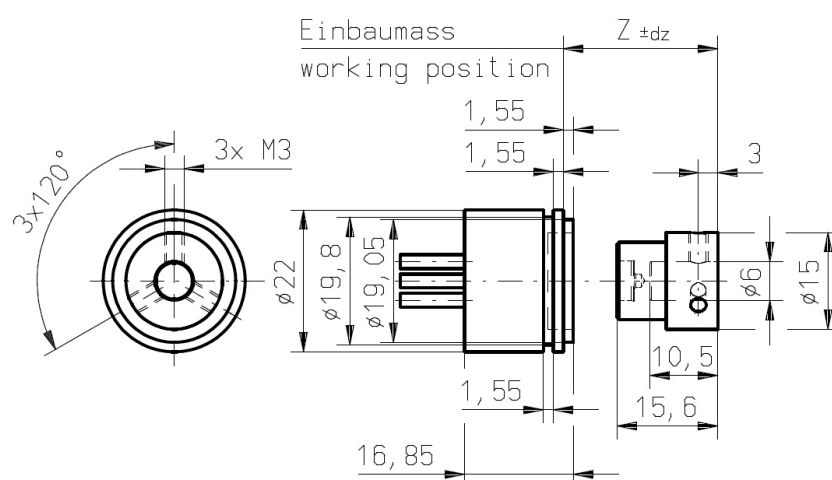
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Vert-X 22E2 xxx xxx 2xx
Vert-X 22E2 xxx xxx 5xx
Vert-X 22E2 xxx xxx 7xx
 (0.1...10VDC / 4...20mA)

Working position (Z)
 Version B 14.40mm

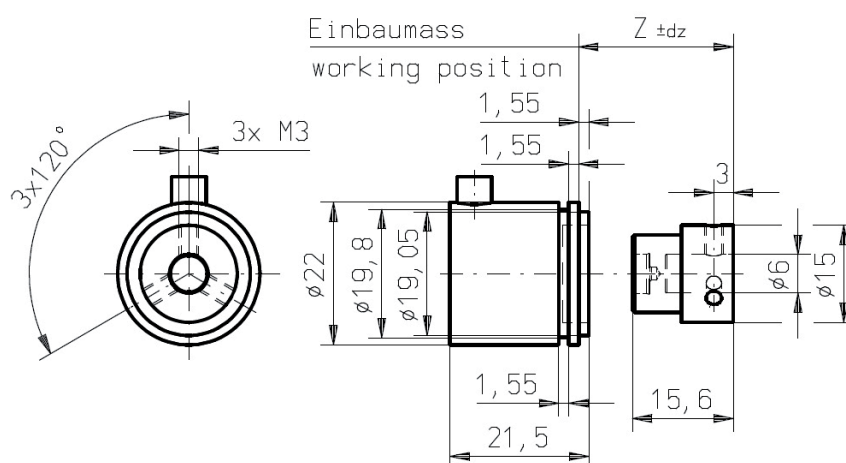
Max. permitted axial misalignment of the magnetic actuator
 dz ±0.5mm



Vert-X 22E2 xxx xxx 1xx
Vert-X 22E2 xxx xxx 4xx
Vert-X 22E2 xxx xxx 6xx
 (0.1...10VDC / 4...20mA)

Working position (Z)
 Version B 14.40mm

Max. permitted axial misalignment of the magnetic actuator
 dz ±0.5mm



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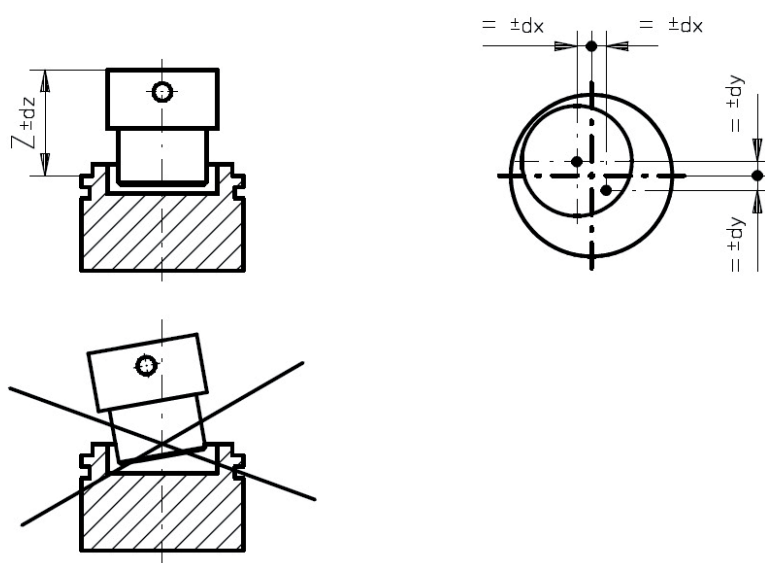
Vert-X 22E Mounting information

Working position (Z)

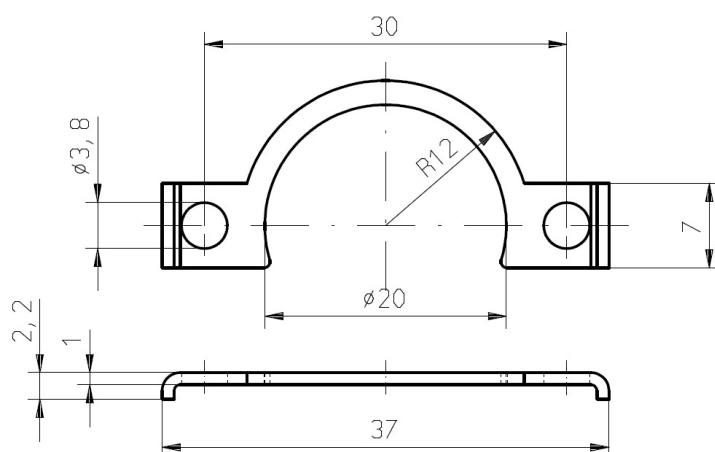
Version B	14.40mm
Version B redundant	13.90mm
Version C	13.90mm

Max. permitted misalignment of the magnetic actuator

dx	±0.25mm
dy	±0.25mm
dz	±0.5mm



Vert-X 22E Accessoires Fixation clip



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