



Vert-X 13E

Applications

- Servodrives
- Insetting machines
- Sewer inspection robots
- Medical applications

Features

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

Options

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

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

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 A company of the Siedle-Group

Version		B	C
Electrical Data			
Measuring range	°	0 ... 360	360
Independent 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)		-	-
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



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	0.25 (AWG24)	0.25 (AWG24)	0.09 (AWG28)
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	0.25 (AWG24)	0.25 (AWG24)	0.09 (AWG28)
Operating temperature	°C	-40 ... +125	-40 ... +125	-40 ... +125
Storage temperature	°C	-40 ... +125	-40 ... +125	-40 ... +125
Redundancy feasible		yes	yes	no

Vert-X 13E 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

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**Vert-X 13E
Table
Version C**

- Additional features**
- High operating speed

- Additional options**
- Operating temperature
-40 ... + 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	0.09 (AWG28)	0.09 (AWG28)
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	0.09 (AWG28)	0.09 (AWG28)
Operating temperature	°C	-40 ... +125	-40 ... +125
Storage temperature	°C	-40 ... +125	-40 ... +125
Redundancy feasible		no	no

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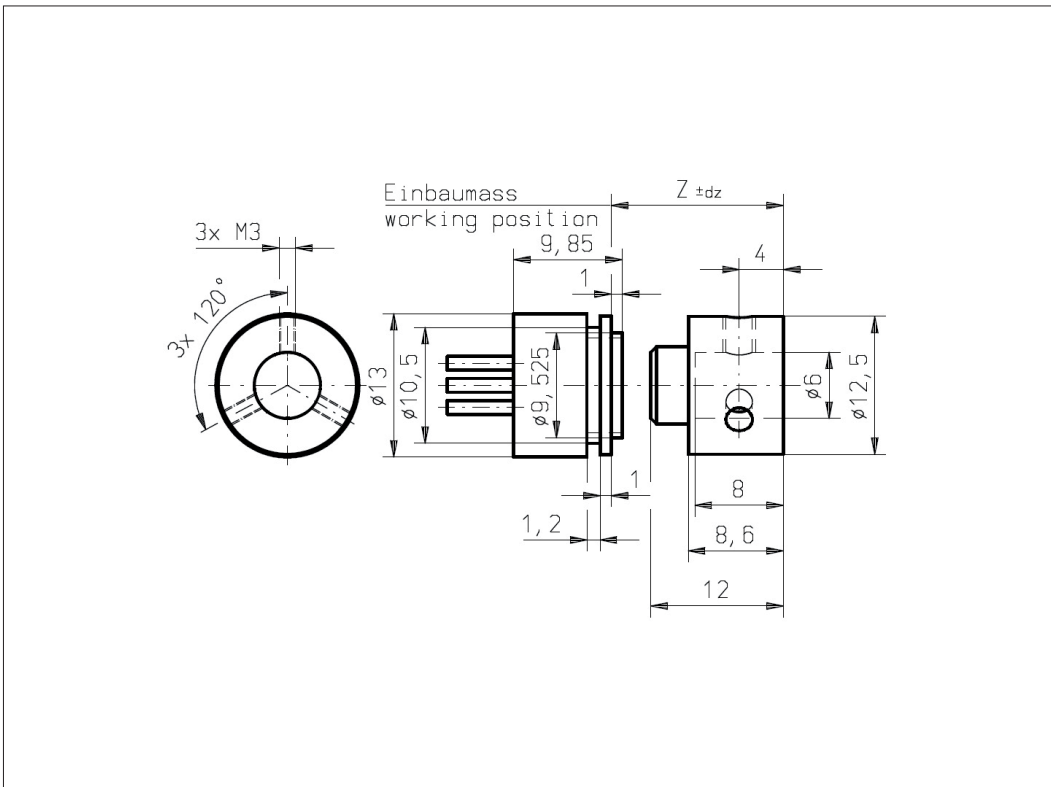
Vert-X 13E3 xxx xxx 1xx
Vert-X 13E3 xxx xxx 2xx

Working position (Z)

Version B	11.05mm
Version B redundant	10.55mm
Version C	10.55mm

Max. permitted axial misalignment of the magnetic actuator

dz ±0.5mm



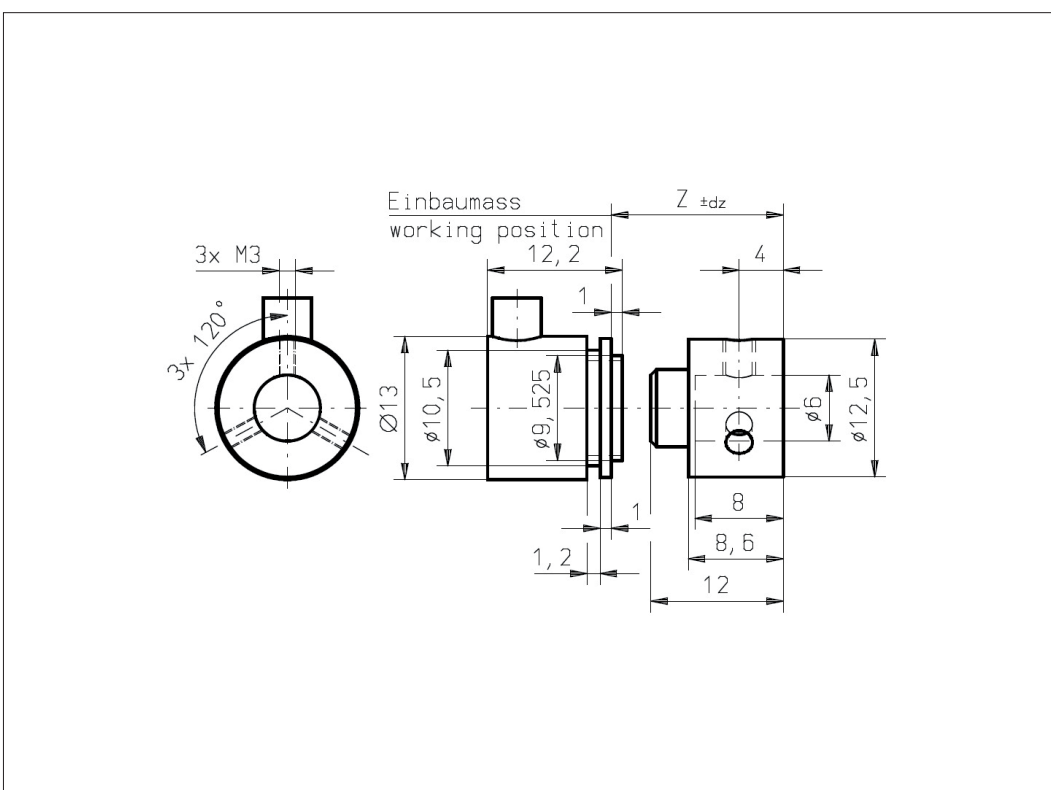
Vert-X 13E3 xxx xxx 4xx
Vert-X 13E3 xxx xxx 6xx

Working position (Z)

Version B	11.05mm
Version B redundant	10.55mm
Version C	10.55mm

Max. permitted axial misalignment of the magnetic actuator

dz ±0.5mm



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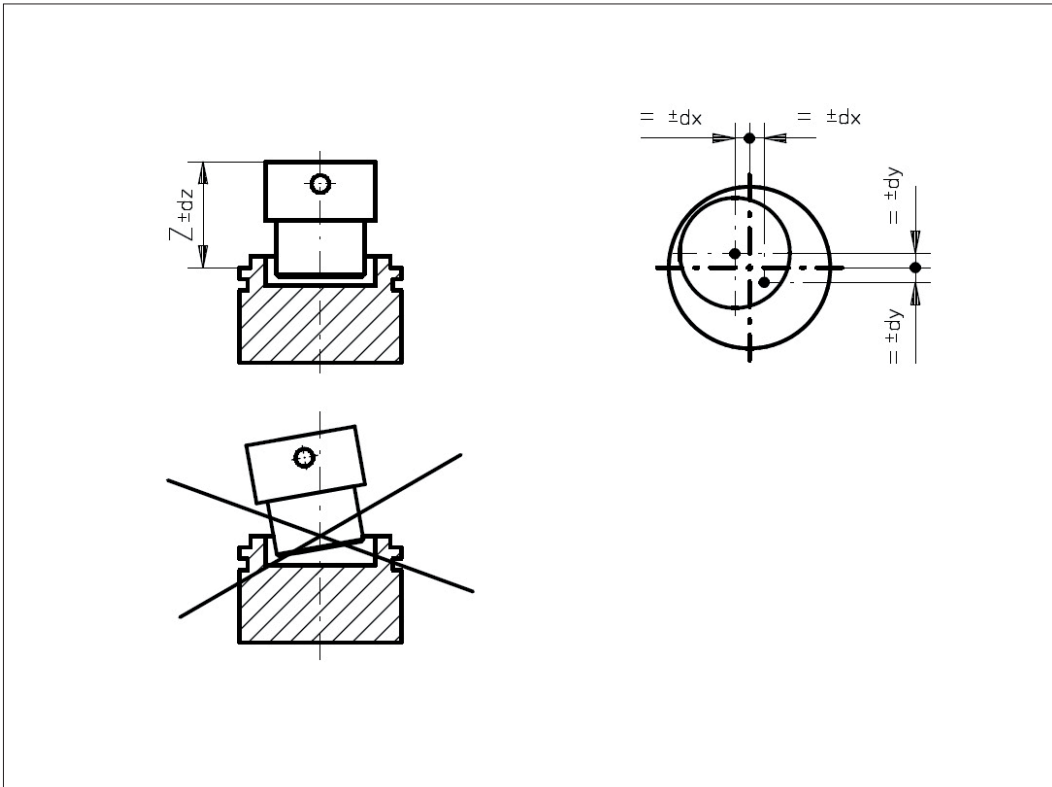
Vert-X 13E
Mounting information

Working position (Z)

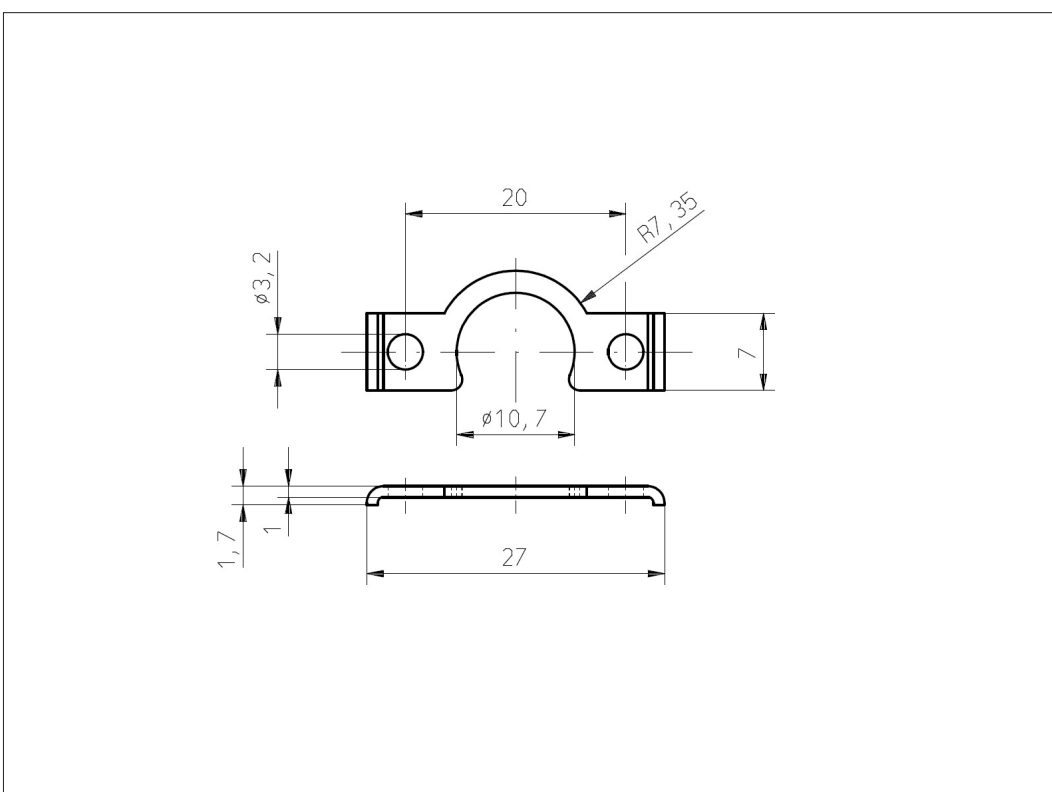
Version B	11.05mm
Version B redundant	10.55mm
Version C	10.55mm

Max. permitted misalignment of the magnetic actuator

dx	±0.25mm
dy	±0.25mm
dz	±0.5mm



Vert-X 13E
Accessories
Fixation clip



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