



## Vert-X 22E - 24V / 4 - 20mA

### Applications

- Wind vanes
- Valve control
- Level sensor
- Special purpose vehicles

### Features general

- High protection class IP68
- Flat design
- Non-contacting measuring method
- Very long life
- High accuracy of measurement
- Use in cramped installation conditions
- Full resolution and accuracy at programmed electrical angle

### Features MH-C

- Resolution of 12bit
- Lower price than MH-C2

### Features MH-C2

- Resolution of 14bit
- Index point(s), sense of rotation and angle settable resp. programmable by customer (optional)

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 A company of the Siedle-Group

Sensor principle		MH-C	MH-C2
<b>Electrical data</b>			
Measuring range	°	0 ... 360	0 ... 360
Indep. linearity (without misalignment)	% of meas. range	±0.3	±0.3
Indep. linearity (with allowed misalignment @ 360°)	% of 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	(5)	(2)
Sample rate slow mode	kHz	1.66	0.5
System propagation delay fast mode	µs	(800)	(800)
System propagation delay slow mode	µs	4600	2500
Max. temperature coefficient of the output signal	ppm/K	100	100
MTTFd / MTBF	years	185 / 185	147 / 147
Power supply voltage	VDC	16 ... 35	16 ... 35
Current consumption without load (typ.) fast mode	mA	(19)	(20)
Current consumption without load (typ.) slow mode	mA	14	15
Ohmic load at output	kOhm	0 ... 0.5	0 ... 0.5
Max. capacitive load at output	nF	100	100
Reverse polarity protection of power supply		yes	yes
Electrical connection axial		Wires (3x)	Wires (3x)
Cross section of single wires	mm <sup>2</sup>	0.25 (AWG24)	0.25 (AWG24)
Electrical connection radial		Cable 3pole	Cable 3pole
Cross section of single wires	mm <sup>2</sup>	0.25 (AWG24)	0.25 (AWG24)
Redundancy feasible		no	no
Electrical connection redundant axial		-	-
Cross section of single wires redundant	mm <sup>2</sup>	-	-
Electrical connection redundant radial		-	-
Cross section of single wires redundant	mm <sup>2</sup>	-	-
<b>Mechanical data</b>			
Mechanical range	°	360 (continuous)	360 (continuous)
Protection class		IP68	IP68
Min. life	movements	no limitation	no limitation
Operating & storage temperature	°C	-40 ... +85	-40 ... +85
EN 60068-2-6 Vibration (Amax = 0.75mm, f = 5...2000 Hz)	g	50	50
EN 60068-2-27 Shock	g	200	200
<b>Standards</b>			
EN 55022 class B, Emission radiated (30...230 MHz)	dB(µV/m)	max. 30	max. 30
EN 55022 class B, Emission radiated (230...1000MHz)	dB(µV/m)	max. 37	max. 37
EN 61000-4-2, ESD (contact discharge / air discharge)	kV	±4 / ±8	±4 / ±8
EN 61000-4-3, Immission HF radiated (80... 1000 MHz/4...2.7GHz)	V/m	30	30
EN 61000-4-4, Burst (on all lines)	kV	±1	±1
EN 61000-4-5, Surge (lines to ground)	kV	±1	±1
EN 61000-4-6, Immission HF conducted (0.15...80MHz)	Vemk	10	10
EN 61000-4-8, Immission magnetic field (50Hz)	A/m	300	300
EN 60393-1 Insulation resistance (500VDC, 1bar, 2s)	GOhm	20	20
EN 60393-1 Dielectric strength (VAC, 50Hz, 1min, 1bar)	kV	1	1



**Vert-X 22E - 24V / 4 - 20mA**  
**Ordering code**

**\* Switch outputs**  
 Please define number (max. 127), position and width of the pulses.

Output characteristics		Electrical connection / axial	
Positive gradient CW	Standard 1	3 Optional	Wires 4pole
Positive gradient CCW	Optional 2	5 Standard	Wires 3pole
Redundant, positive gradient CW	Optional 3	7 Optional	Ribbon cable 6pole
Redundant, positive gradient CCW	Optional 4	9 Optional	Special cable ; special wires
Redundant, crossed signal curves	Optional 5	<b>Electrical connection / radial</b>	
Positive gradient CW with 1 switch output*	Optional A	4 Standard	Round cable 3pole
Positive gradient CCW with 1 switch output*	Optional B	6 Optional	Round cable 6pole
Positive gradient CW with 2 switch outputs*	Optional C	9 Optional	Special cable ; special wires
Positive gradient CCW with 2 switch outputs*	Optional D	<b>Length of wires / ribbon cable</b>	
Sense of rotation settable	Optional E	01 Optional	10cm
Zero point & sense of rotation settable	Optional F	03 Optional	30cm
Middle point & sense of rotation settable	Optional G	05 Standard	50cm
Start + end point & sense of rotation settable	Optional H	99 Optional	Special length
Programmable with Vert-X EasyAdapt	Optional P	<b>Length of cable</b>	
<b>Output signal</b>		02 Standard	1.0m
4mA ... 20mA	Standard 5	06 Optional	3.0m
<b>Power supply voltage</b>		10 Optional	5.0m
24VDC	Standard 1	99 Optional	Special length

Vert-X	2	2	E	2	7	3	6	1	5	1	5	0	5
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Electrical angle		Sensor principle	
36	Standard	7	MH-C
xx	Optional	8	MH-C2
99	Optional	<b>Mechanical version</b>	
Electrical angle 360°		22E1	Optional
03 to 35; Declaration in 10° steps		22E2	Standard
Special angle		22E9	Optional

	MH-C	MH-C2
Custom magnetic actuator	X	X
Custom modification of the housing	X	X
Custom cable / wires	X	X
Sample rate in fast mode	X	X
Switch functions TTL (max. 2)	X	X
Special characteristic curve	-	X
Special electrical angle within 30° to 360° (ex factory)	X	X
Electrical angle programmable (Software)	-	X
Start & end point settable (Additional wires)	-	X
Sense of rotation CW/CCW settable / programmable (Additional wires or Software)	-	X
Index point settable / programmable (Additional wires or Software)	-	X

**Options (on request)**

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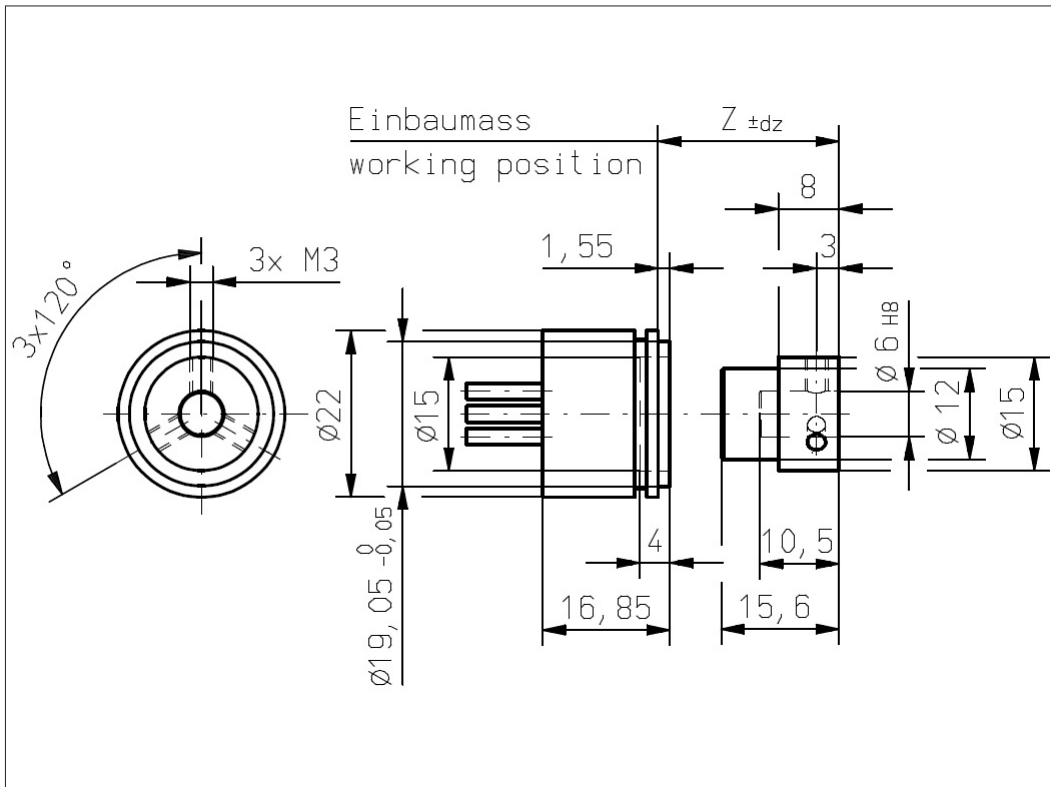
**Vert-X 22E2 xxx xxx 5xx**  
**Vert-X 22E2 xxx xxx 7xx**

**Accessories (incl.)**

- 1x Fixation clip
- 2x Slotted cylinder head screw M3x8

**Working position (Z) and max. permitted misalignment of the magnetic actuator**

see mounting information



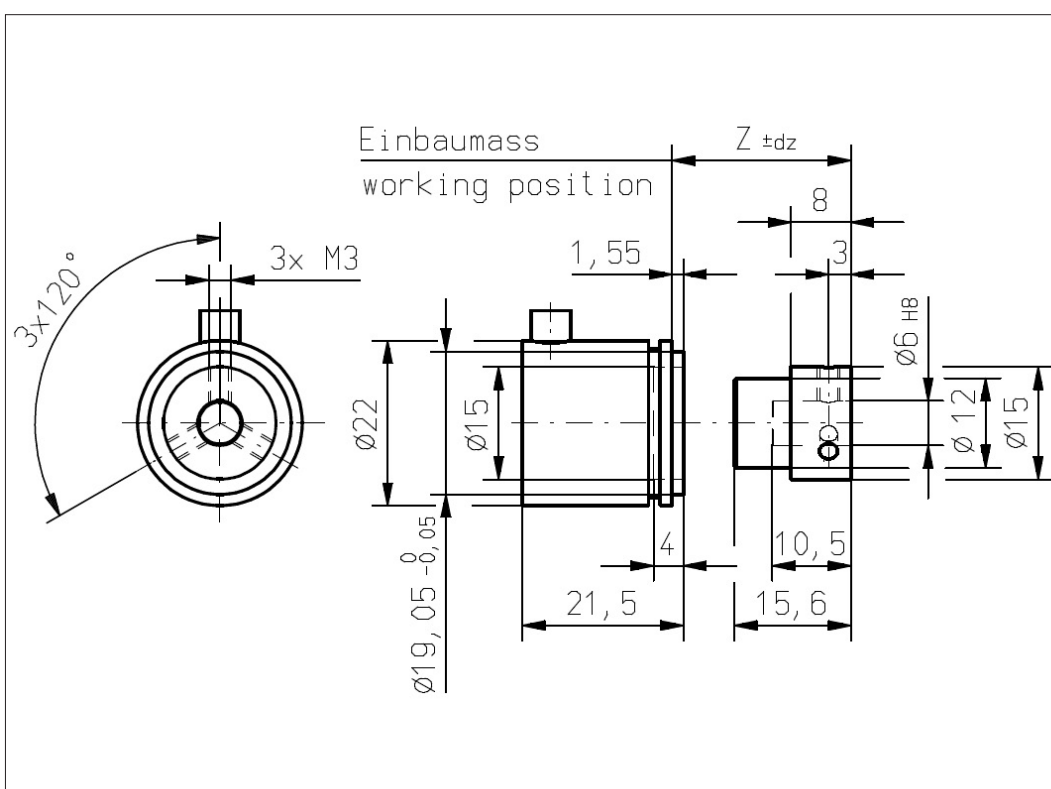
**Vert-X 22E2 xxx xxx 4xx**  
**Vert-X 22E2 xxx xxx 6xx**

**Accessories (incl.)**

- 1x Fixation clip
- 2x Slotted cylinder head screw M3x8

**Working position (Z) and max. permitted misalignment of the magnetic actuator**

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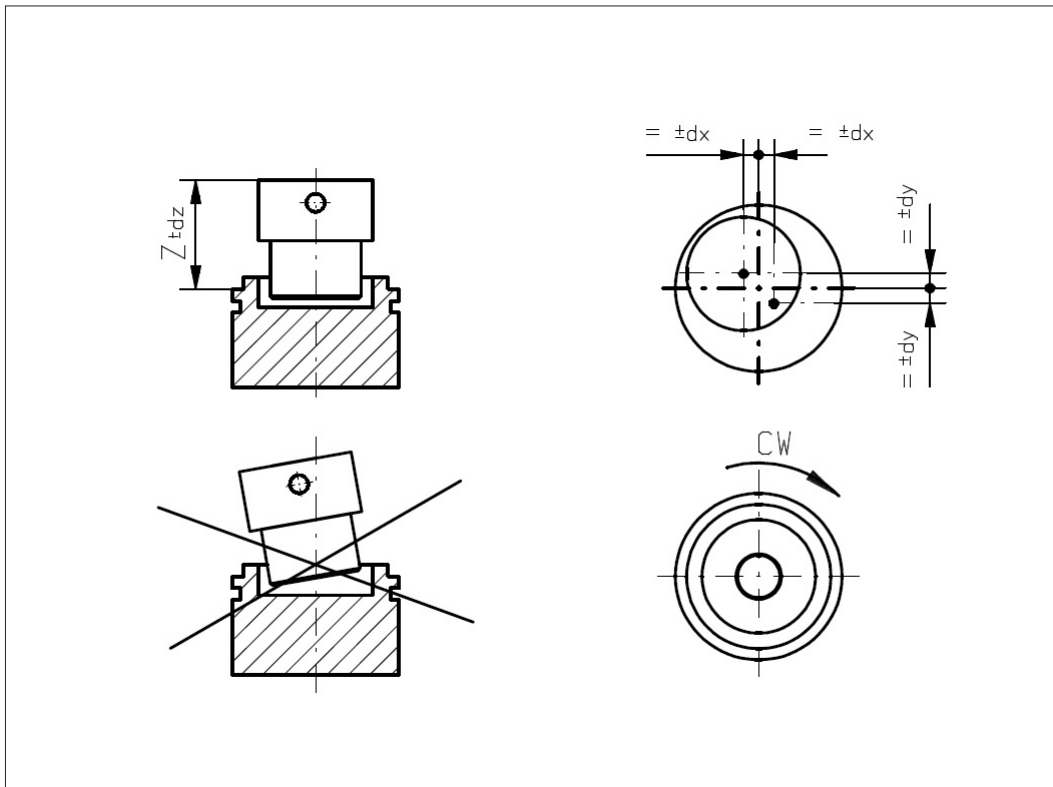
**Vert-X 22E2**  
**Mounting information**

**Working position (Z)**

MH-C	14.40mm
MH-C2	14.40mm

**Max. permitted misalignment of the magnetic actuator**

dx	±0.25mm
dy	±0.25mm
dz	±0.5mm



**Vert-X 22E1**  
**Mounting information**

**Working position (Z)**

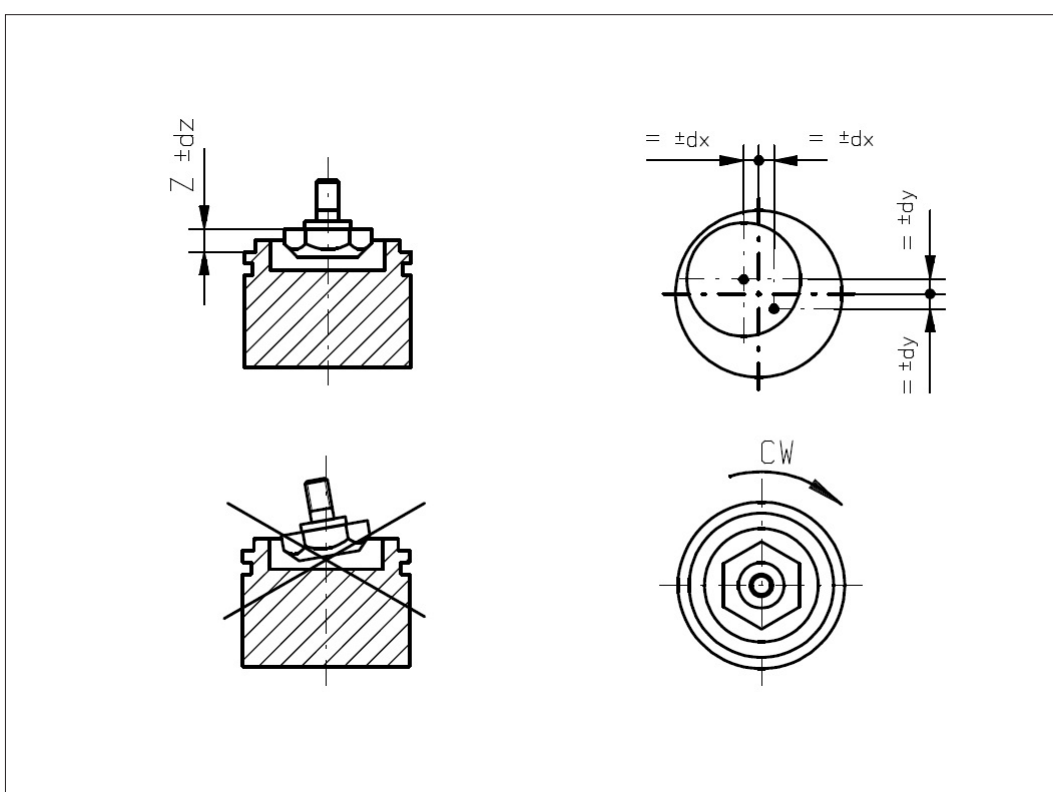
MH-C	3.00mm
MH-C2	3.00mm

**Max. permitted misalignment of the magnetic actuator**

dx	±0.25mm
dy	±0.25mm
dz	±0.5mm

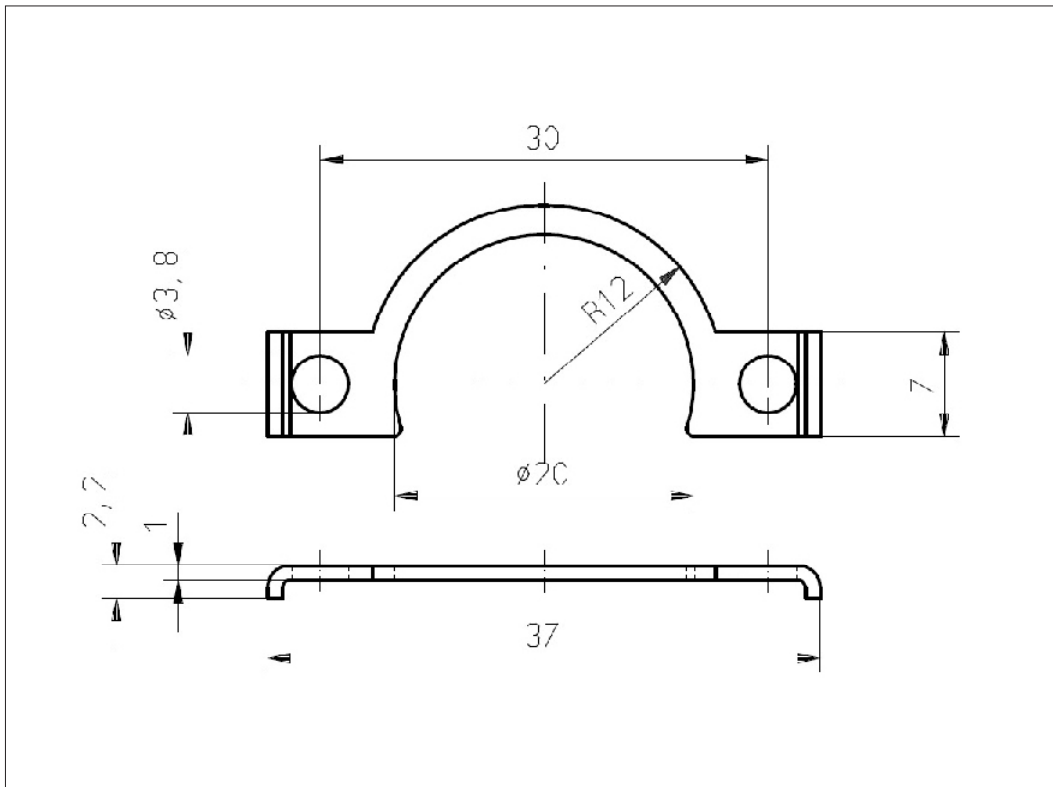
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**Vert-X 22E**  
**Accessories**  
Fixation clip



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