



## Vert-X 22 - 24V / 0.5 - 4.5V

### Applications

- Wind vanes
- Valve control
- Steering angle sensor for F1-racing cars

### Features general

- Robust design, sealed stainless steel housing
- Contactless measuring method
- Long life
- High accuracy of measurement
- Applications under adverse ambient conditions possible (humidity, dampness, dust, vibrations etc.)
- Full resolution and accuracy at programmed electrical angle

### Features MH-C

- Linearity of  $\pm 0.3\%$
- Resolution of 12bit
- Full redundancy possible
- Lower price than MH-C2

### Features MH-C2

- Linearity of  $\pm 0.1\%$
- Resolution of 14bit
- Index point(s), sense of rotation and angle settable resp. programmable by customer (optional)

Errors and omissions excepted. Subject to change without notice. / State: 28.09.10

Contelec AG  
 Portstrasse 38  
 CH-2503 Biel/Bienne  
 Phone +41 (0)32 3665600  
 Telefax +41 (0)32 3665604  
 sales@contelec.ch

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Sensor principle		MH-C	MH-C2
<b>Electrical data</b>			
Measuring range	°	0 ... 360	0 ... 360
Indep. linearity	% of meas. range	$\pm 0.3$	$\pm 0.1$
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	$\mu$ s	(800)	(800)
System propagation delay slow mode	$\mu$ s	4600	2500
Max. temperature coefficient of the output signal	ppm/°K	100	100
MTTFd / MTBF	years	240 / 240	209 / 209
Power supply voltage	VDC	8 ... 35	8 ... 35
Current consumption without load (typ.) fast mode	mA	(19)	(20)
Current consumption without load (typ.) slow mode	mA	14	15
Min. ohmic load at output	kOhm	10	10
Max. capacitive load at output	nF	100	100
Reverse polarity protection of power supply		yes	yes
Electrical connection (s = shielded)		Cable 3pole, s	Cable 3pole, s
Cross section of single wires	mm <sup>2</sup>	0.25 (AWG24)	0.25 (AWG24)
Redundancy feasible		yes	no
Electrical connection redundant (s = shielded)		Cable 6pole, s	-
Cross section of single wires redundant	mm <sup>2</sup>	0.25 (AWG24)	-
<b>Mechanical data</b>			
Mechanical range	°	360 (continuous)	360 (continuous)
Protection class		IP54 / IP67	IP54 / IP67
Max. starting torque at specified protection class	Ncm	0.5 / 3	0.5 / 3
Max. rotating speed	rpm	6000	6000
Min. life	movements	360 Mio.	360 Mio.
Max. permitted axial shaft load	N	100	100
Max. permitted radial shaft load	N	50	50
Operating & storage temperature	°C	-40 ... +85	-40 ... +85
IEC 68-2-6 Vibration (Amax = 0.75mm, f = 5 ... 2000 Hz)	g	20	20
IEC 68-2-27 Shock	g	50	50
<b>Standards</b>			
EN 55022 class B, Emission radiated (30... 230 MHz)	dB( $\mu$ V/m)	max. 30	max. 30
EN 55022 class B, Emission radiated (230...1000MHz)	dB( $\mu$ V/m)	max. 37	max. 37
EN 61000-4-2, ESD (contact discharge / air discharge)	kV	$\pm 4 / \pm 8$	$\pm 4 / \pm 8$
EN 61000-4-3, Immission HF radiated (80... 1000 MHz)	V/m	30	30
EN 61000-4-4, Burst (on all lines)	kV	$\pm 1$	$\pm 1$
EN 61000-4-5, Surge (lines to ground)	kV	$\pm 1$	$\pm 1$
EN 61000-4-6, Immission HF conducted (0.15...80MHz)	Vemk	10	10
EN 61000-4-8, Immission magnetic field (50Hz)	A/m	30	30
IEC 60393-1 Insulation resistance (500VDC, 1bar, 2s)	GOhm	20	20
IEC 60393-1 Dielectric strength (VAC, 50Hz, 1min, 1bar)	kV	1	1

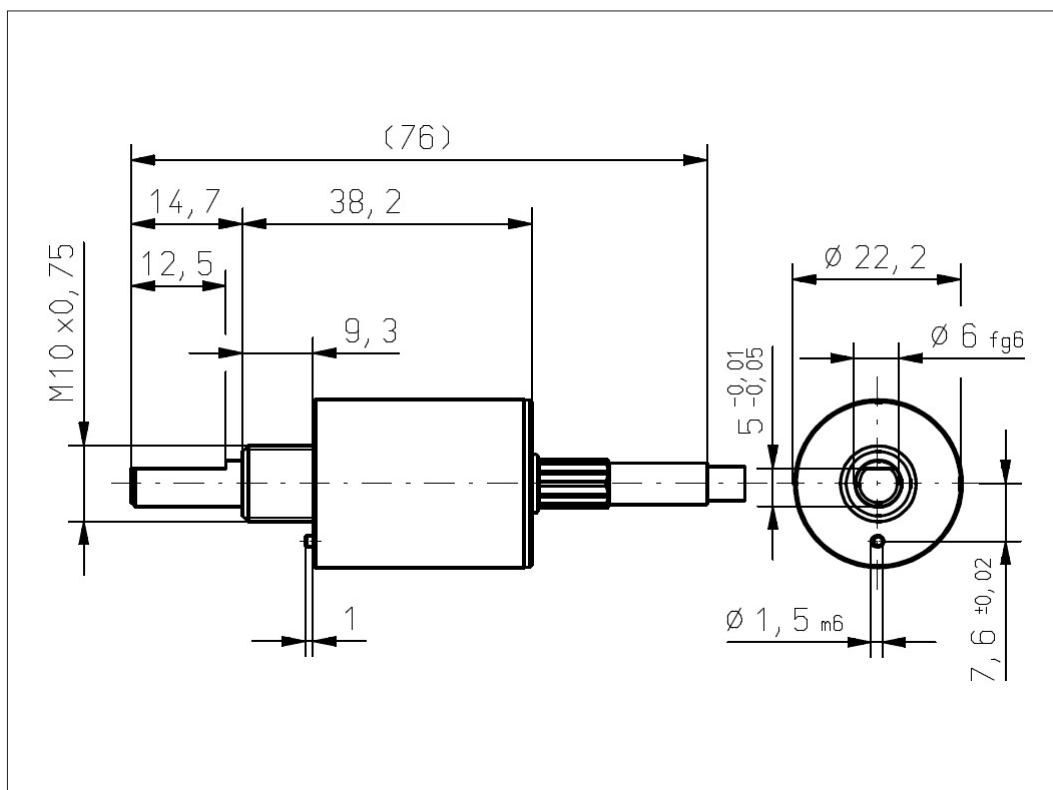




**Vert-X 2201 / Vert-X 2231**

**Accessoires (incl.)**

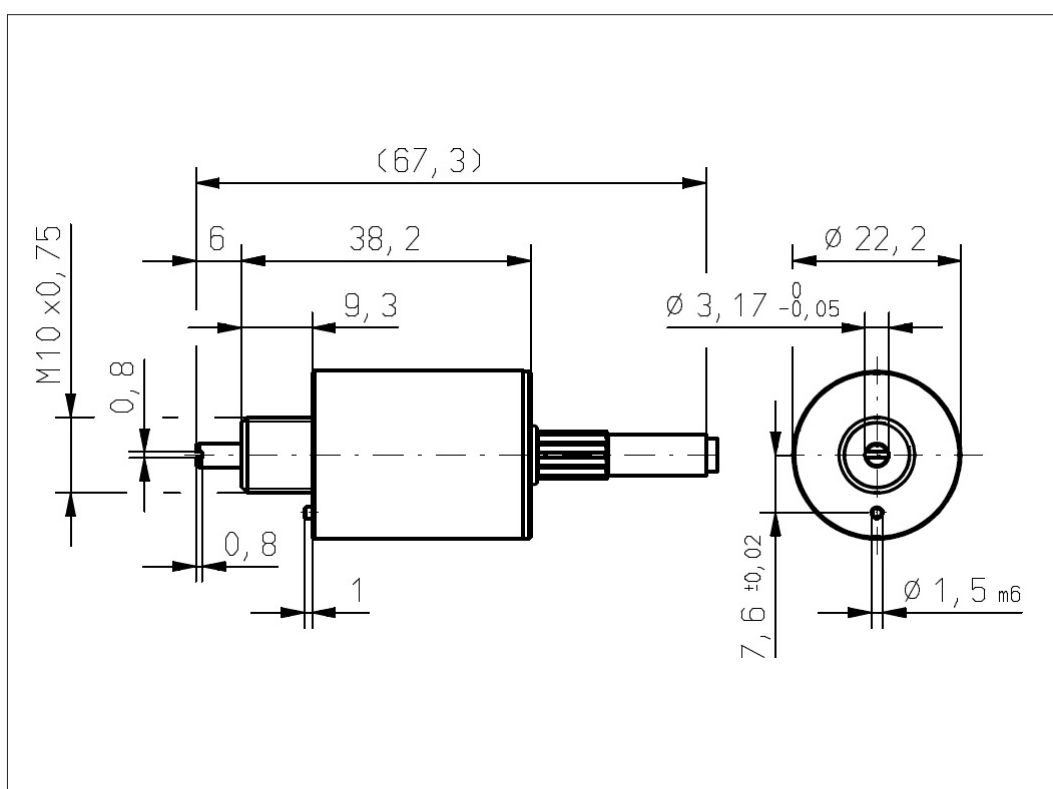
- 1x Nut M10x0.75 / SW13
- 1x Serrated lock washer



**Vert-X 2202 / Vert-X 2232**

**Accessoires (incl.)**

- 1x Nut M10x0.75 / SW13
- 1x Serrated lock washer



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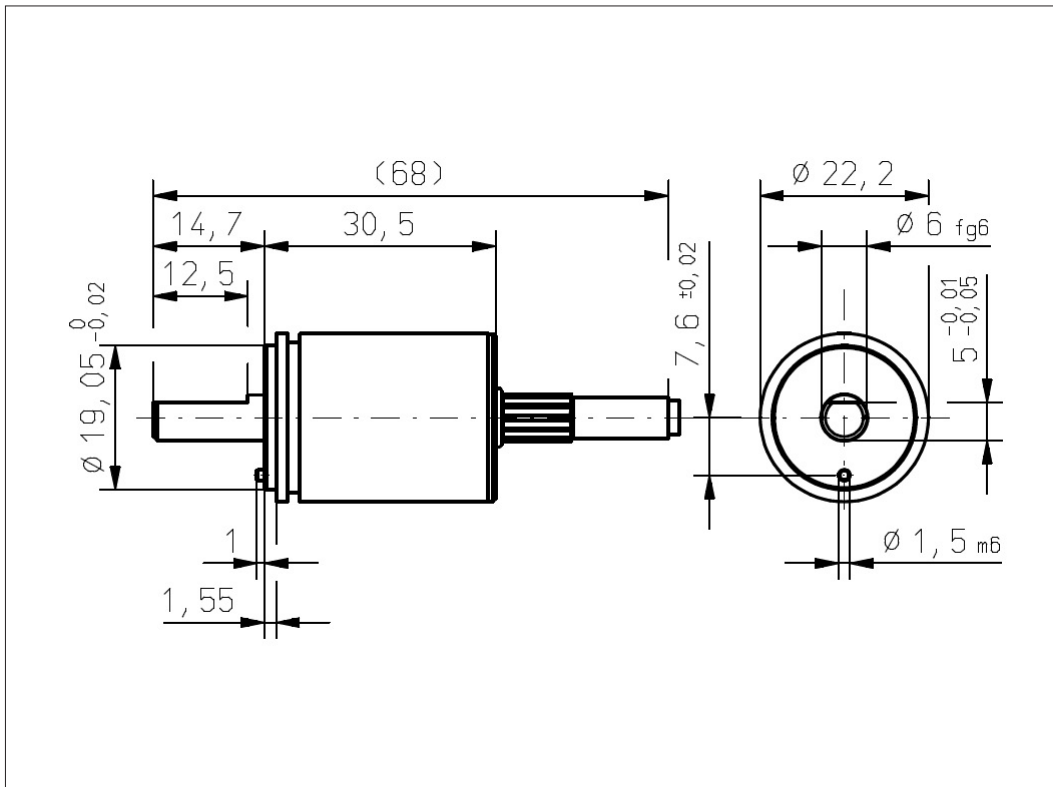
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### Vert-X 2211 / Vert-X 2241

#### Accessoires (incl.)

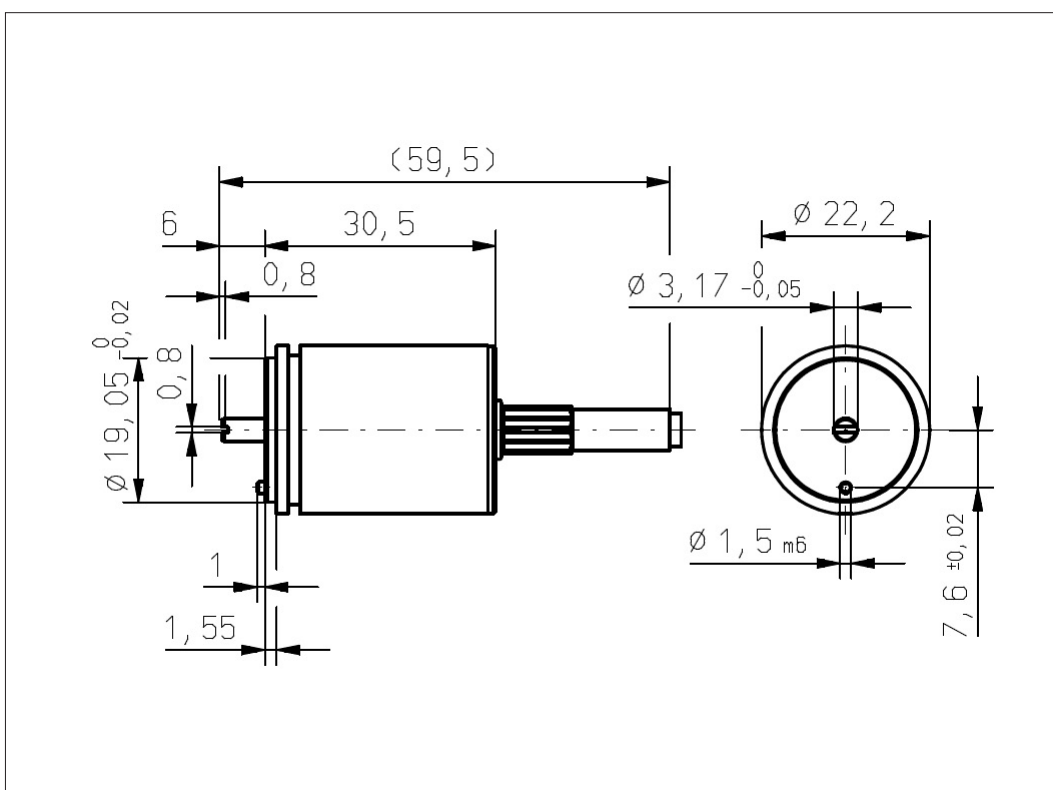
- 1x Fixation clip
- 2x Slotted cylinder head screw M3x8



### Vert-X 2212 / Vert-X 2242

#### Accessoires (incl.)

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



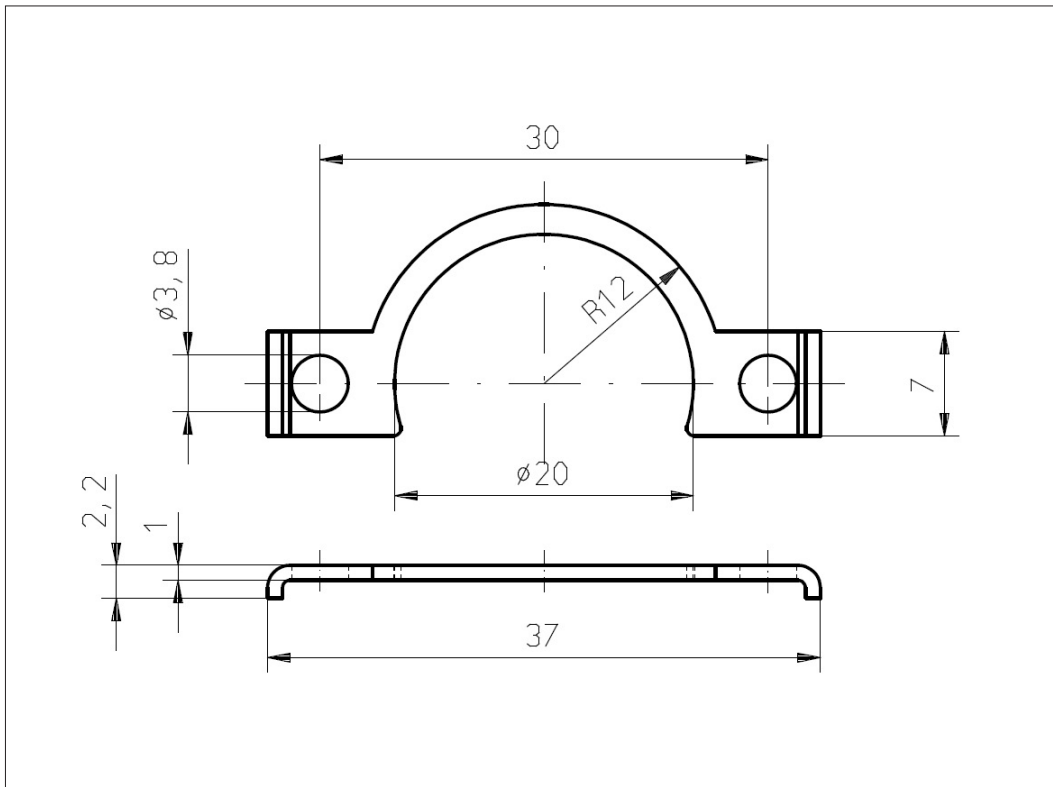
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**Vert-X 2241 / Vert-X 2242**  
**Accessoires**  
Fixation clip



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