



Vert-X 22 - 24V / PWM

Applications

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

Features

- 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

Sensor principle		MH-C	MH-C2
Electrical data			
Measuring range	°	0 ... 360	-
Indep. linearity	% of meas. range	±0.3	-
Max. hysteresis	°	0.1	-
Resolution	bit	12	-
Max. repeatability	°	0.1	-
Sample rate fast mode	kHz	(5)	-
Sample rate slow mode	kHz	1.66	-
System propagation delay fast mode	µs	(800)	-
System propagation delay slow mode	µs	4600	-
Max. temperature coefficient of the output signal	ppm/°K	25	-
MTTFd / MTBF	years	240 / 240	-
Power supply voltage	VDC	8 ... 35	-
Current consumption without load (typ.) fast mode	mA	(19)	-
Current consumption without load (typ.) slow mode	mA	14	-
Min. ohmic load at output	kOhm	10	-
Max. capacitive load at output	nF	1	-
PWM frequency	Hz	855 (±20%)	-
Reverse polarity protection of power supply		yes	-
Electrical connection (s = shielded)		Cable 3pole, s	-
Cross section of single wires	mm ²	0.25 (AWG24)	-

Mechanical data

Mechanical range	°	360 (continuous)	-
Protection class		IP54 / IP67	-
Max. starting torque at specified protection class	Ncm	0.5 / 3	-
Max. rotating speed	rpm	6000	-
Min. life	movements	360 Mio.	-
Max. permitted axial shaft load	N	100	-
Max. permitted radial shaft load	N	50	-
Operating & storage temperature	°C	-40 ... + 85	-
IEC 68-2-6 Vibration (Amax = 0.75mm, f = 5 ... 2000 Hz)	g	20	-
IEC 68-2-27 Shock	g	50	-

Standards

EN 55022 class B, Emission radiated (30... 230 MHz)	dB(µV/m)	max. 30	-
EN 55022 class B, Emission radiated (230...1000MHz)	dB(µV/m)	max. 37	-
EN 61000-4-2, ESD (contact discharge / air discharge)	kV	±4 / ±8	-
EN 61000-4-3, Immission HF radiated (80... 1000 MHz)	V/m	30	-
EN 61000-4-4, Burst (on all lines)	kV	±1	-
EN 61000-4-5, Surge (lines to ground)	kV	±1	-
EN 61000-4-6, Immission HF conducted (0.15...80MHz)	Vemk	10	-
EN 61000-4-8, Immission magnetic field (50Hz)	A/m	30	-
IEC 60393-1 Insulation resistance (500VDC, 1bar, 2s)	GOhm	20	-
IEC 60393-1 Dielectric strength (VAC, 50Hz, 1min, 1bar)	kV	1	-

Errors and omissions excepted. Subject to change without notice. / State: 31.10.11

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

CONTELEC
 A company of the Siedle-Group



Vert-X 22 - 24V / PWM
Ordering code

		Output characteristics														
		Positive gradient CW	Standard	1												
		Positive gradient CCW	Optional	2												
		Redundant, positive gradient CW	Optional	3												
		Redundant, positive gradient CCW	Optional	4												
		Redundant, crossed signal curves	Optional	5												
					Output signal											
		PWM	Standard	4												
					Power supply voltage											
		24VDC	Standard	1												
Vert-X	2	2	0	1	7	3	6	1	4	1	4	0	2			
								Electrical angle								
					36	Standard					Electrical angle 360°					
					xx	Optional					03 to 35; Declaration in 10° steps					
					99	Optional					Special angle					
					Sensor principle											
					7	MH-C										
					Mechanical version											
		2201	Standard	Bushing M10x0,75 ; 6 mm shaft D-shape ; IP54												
		2202	Standard	Bushing M10x0,75 ; 3,175 mm shaft slotted ; IP54												
		2211	Standard	Servo mount size 9 ; 6 mm shaft D-shape ; IP54												
		2212	Standard	Servo mount size 9 ; 3,175 mm shaft slotted ; IP54												
		2231	Standard	Bushing M10x0,75 ; 6 mm shaft D-shape ; IP67												
		2232	Standard	Bushing M10x0,75 ; 3,175 mm shaft slotted ; IP67												
		2241	Standard	Servo mount size 9 ; 6 mm shaft D-shape ; IP67												
		2242	Standard	Servo mount size 9 ; 3,175 mm shaft slotted ; IP67												
		2299	Optional	Special housing ; Special shaft												

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

Options (on request)

Errors and omissions excepted. Subject to change without notice. / State: 31.10.11

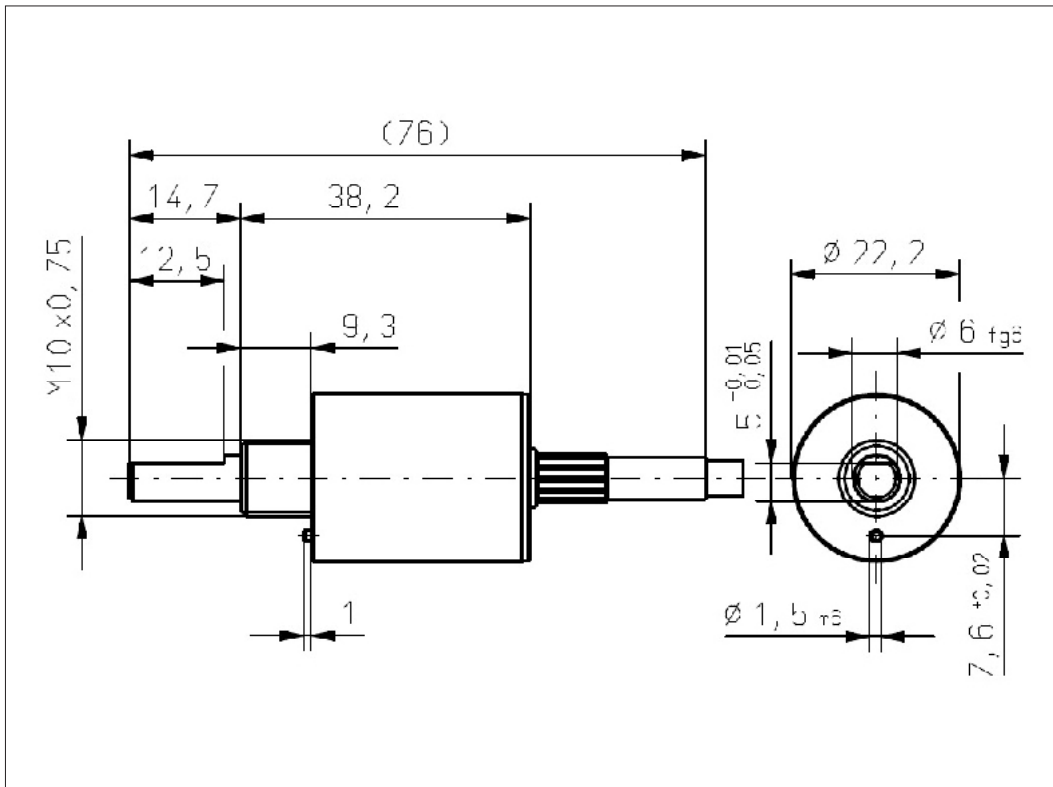
Contelec AG
 Portstrasse 38
 CH-2503 Biel/Bienne
 Phone +41 (0)32 3665600
 Telefax +41 (0)32 3665604
 sales@contelec.ch



Vert-X 2201 / Vert-X 2231

Accessoires (incl.)

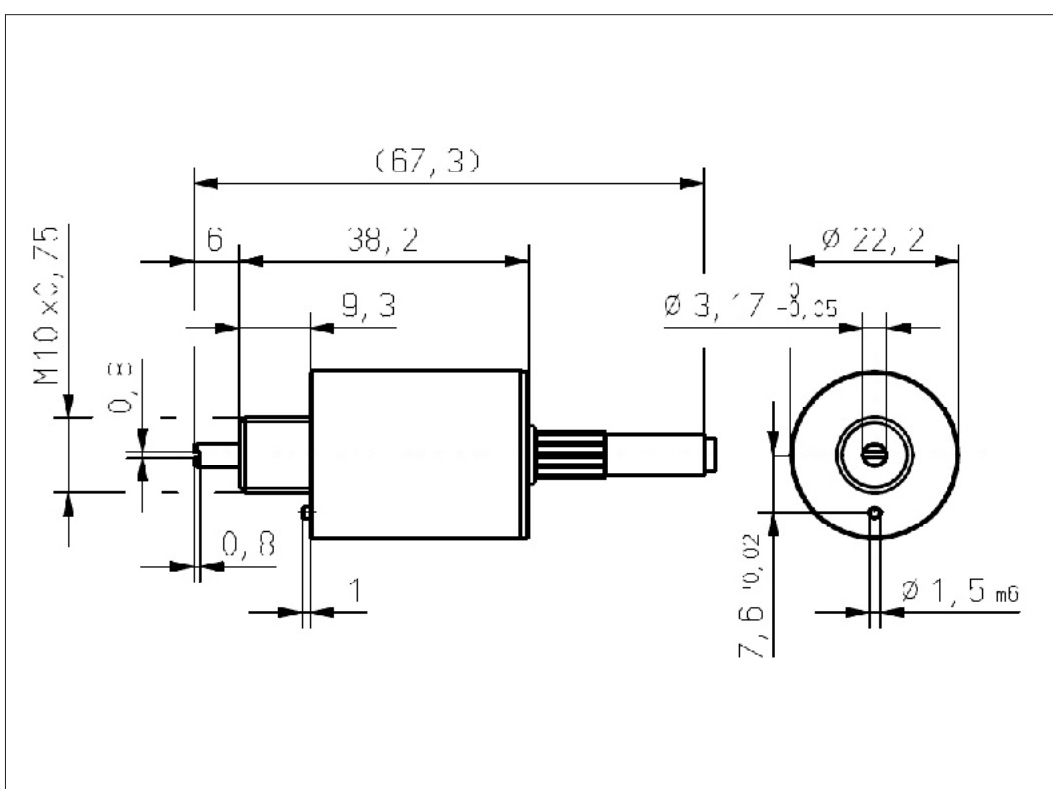
- 1x Nut M10x0.75 / SW13
- 1x Serrated lock washer



Vert-X 2202 / Vert-X 2232

Accessoires (incl.)

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



Errors and omissions excepted. Subject to change without notice. / State: 31.10.11

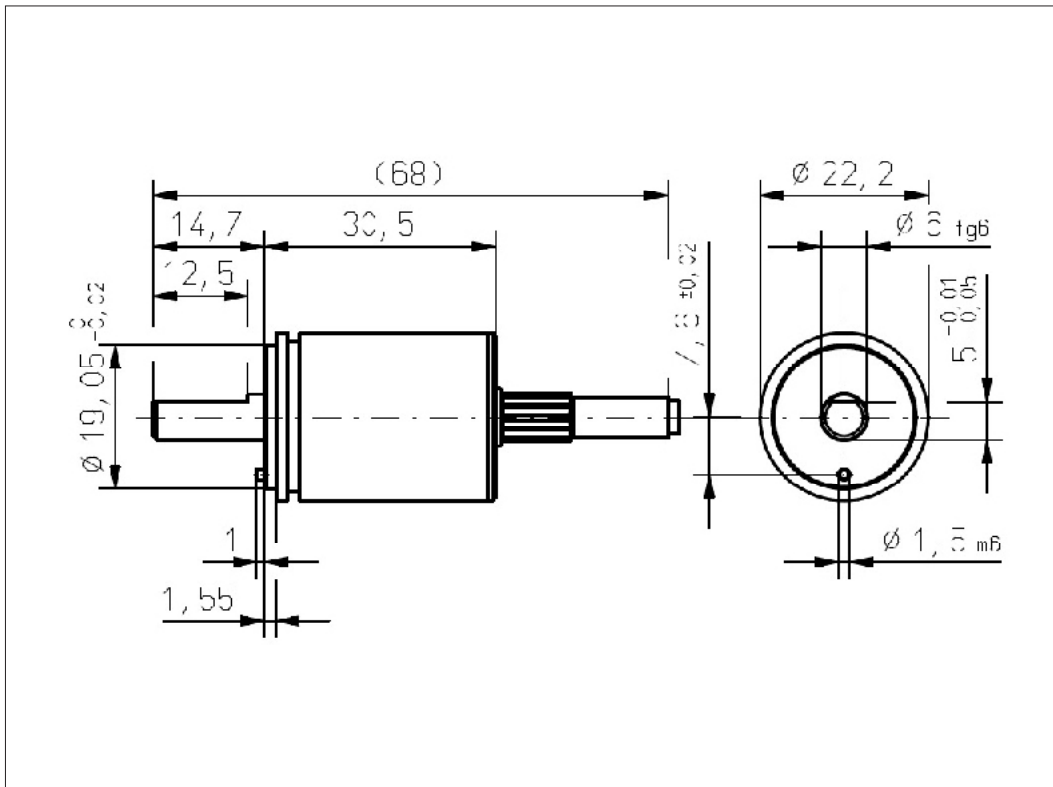
Contelec AG
 Portstrasse 38
 CH-2503 Biel/Bienne
 Phone +41 (0)32 3665600
 Telefax +41 (0)32 3665604
 sales@contelec.ch



Vert-X 2211 / Vert-X 2241

Accessoires (incl.)

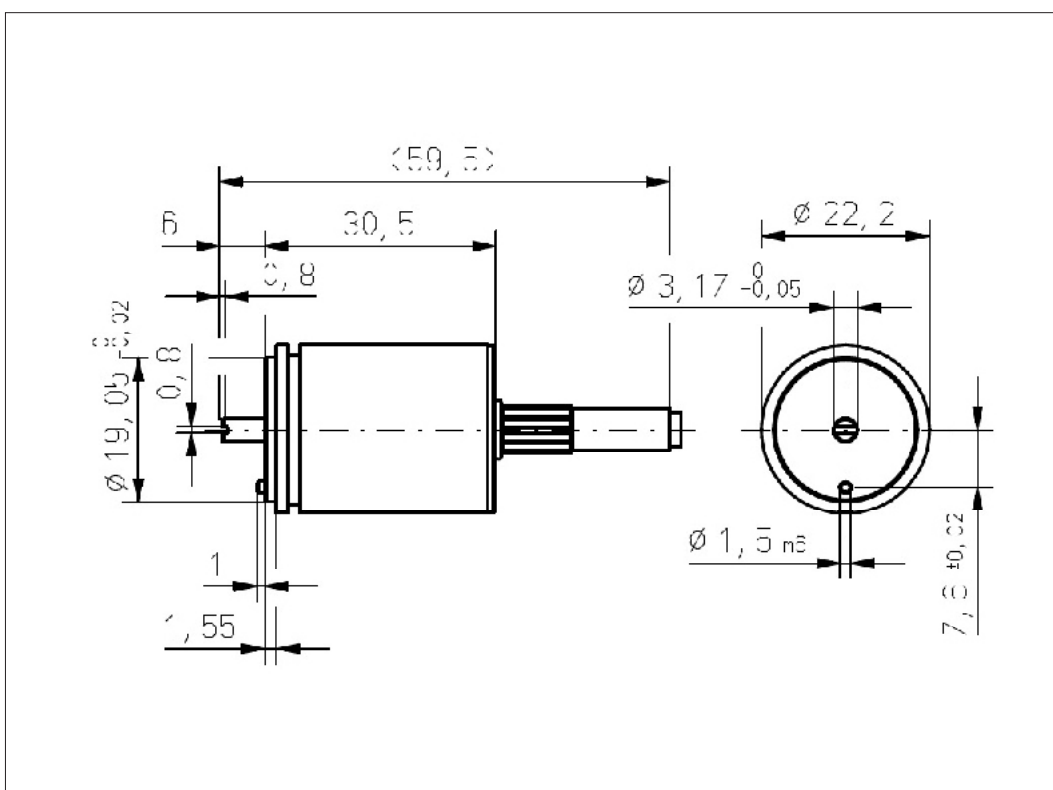
- 1x Fixation clip
- 2x Slotted cylinder head screw M3x8



Vert-X 2212 / Vert-X 2242

Accessoires (incl.)

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



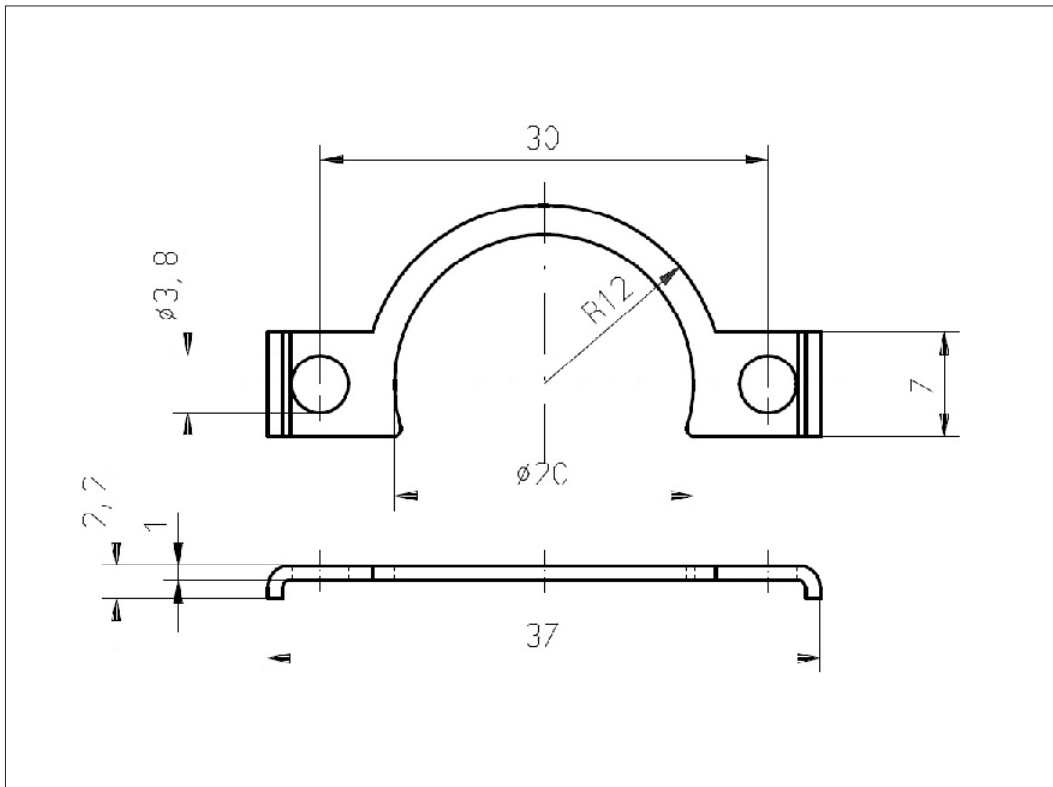
Errors and omissions excepted. Subject to change without notice. / State: 31.10.11

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

CONTELEC
 A company of the Siedle-Group



Vert-X 2211 / Vert-X 2212
Vert-X 2241 / Vert-X 2242
Accessoires
Fixation clip



Errors and omissions excepted. Subject to change without notice. / State: 31.10.11

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

CONTELEC
A company of the Siedle-Group