



Vert-X 21 - 5V / PWM

Applications

- Joysticks / Master switches
- Valve controls
- Inclinometer

Features

- Compatible to the potentiometers of the PL300-family
- Compact dimensions
- Contactless measuring method
- Long life
- High accuracy of measurement
- Use in cramped installation conditions
- Full resolution and accuracy at programmed electrical angle
- Full redundancy feasible

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	-
System propagation delay fast mode	kHz	(5)	-
System propagation delay 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	50	-
MTTFd / MTBF	years	668 / 668	-
Power supply voltage	VDC	5 (±10%)	-
Current consumption without load (typ.) fast mode	mA	(14)	-
Current consumption without load (typ.) slow mode	mA	9	-
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		Wires	-
Cross section of single wires	mm ²	0.25 (AWG24)	-
Redundancy feasible		yes	-

Mechanical data

Mechanical range	°	360 (continuous)	-
Protection class		IP54 / IP65	-
Max. starting torque at specified protection class	Ncm	0.5 / 3	-
Max. rotating speed	1/min.	6000	-
Min. life	movements	360 Mio.	-
Max. permitted axial shaft load	N	5	-
Max. permitted radial shaft load	N	5	-
Operating & storage temperature	°C	-40 ... +125	-
IEC 68-2-6 Vibration (Amax = 0.75mm, f = 5 ... 2000 Hz)	g	20	-
IEC 68-2-27 Shock	g	50	-

Standards

EN 55022 classe B, Emission radiated (30... 230 MHz)	dB(µV/m)	max. 30	-
EN 55022 classe 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, Immision 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, Immision HF conducted (0.15...80MHz)	Vemk	10	-
EN 61000-4-8, Immision magnetic field (50Hz)	A/m	300	-
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: 30.03.15

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CONTELEC
 A company of the Siedle-Group



Vert-X 21 - 5V / PWM
Ordering code

Output characteristics		Electrical connection	
Positive gradient CW	Standard 1	2	Standard Wires 3pole
Positive gradient CCW	Optional 2	3	Standard Wires 5pole / 6pole
Redundant, positive gradient CW	Optional 3	9	Optional Special wires
Redundant, positive gradient CCW	Optional 4		
Redundant, crossed signal curves	Optional 5		
Output signal		Length of wires	
PWM	Standard 4	01	Optional 10cm
		02	Standard 20cm
		03	Optional 30cm
		04	Optional 40cm
		05	Optional 50cm
		99	Optional Special length
Power supply voltage			
5VDC	Standard 2		

Vert-X 2 1 1 2 a 7 3 6 2 4 1 2 0 2

Electrical angle	
36	Standard Electrical angle 360°
xx	Optional 10 to 35; Declaration in 10° steps
99	Optional Special angle

Sensor principle	
7	MH-C

Protection class	
a	Standard IP54
b	Optional IP65

Shaft	
0	Standard 6mm shaft slotted / nominal length 14.1mm
1	Standard 6mm shaft D-shape / nominal length 14.1mm
2	Standard 3.175mm shaft slotted / nominal length 11.15mm
9	Optional Special shaft

Housing	
211	Standard: Servo mount size 9
212	Standard: Bushing M9 x 0.75 with pilot diameter
219	Optional: Special housing

	MH-C	MH-C2
Custom shaft design	X	-
Custom modification of the housing	X	-
Custom wires	X	-
Sample rate in fast mode	X	-
Switch functions TTL (max. 2)	-	-
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)

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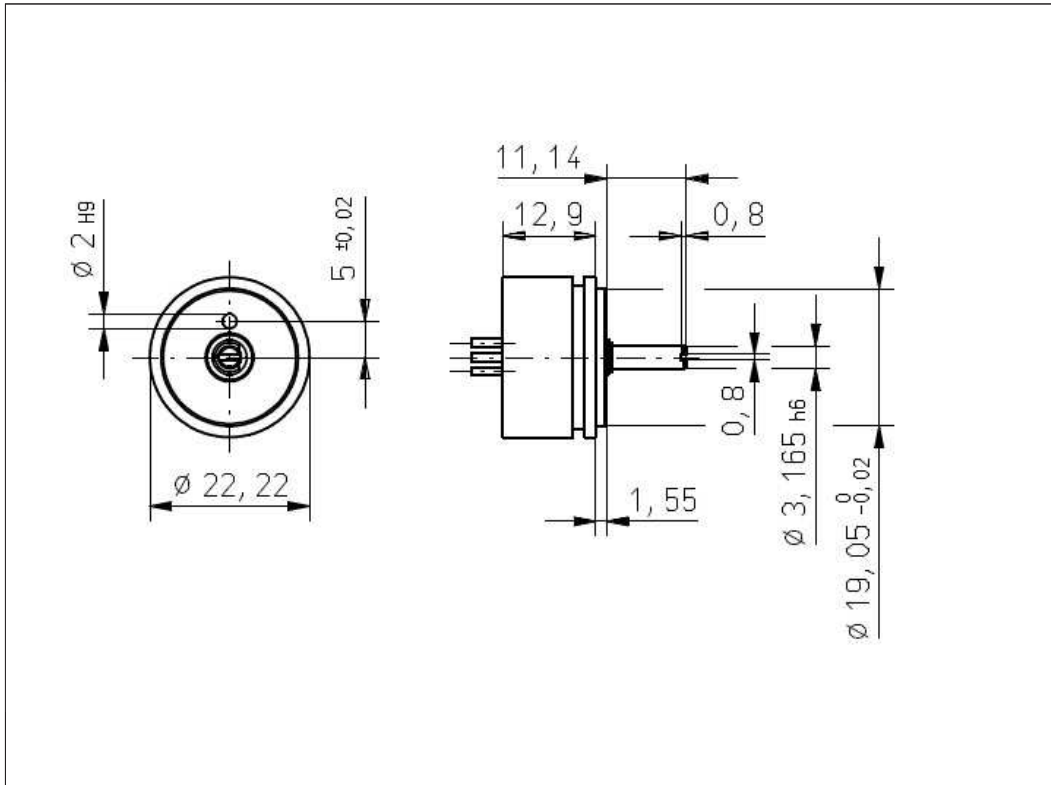
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Vert-X 2112

Accessories (incl.)

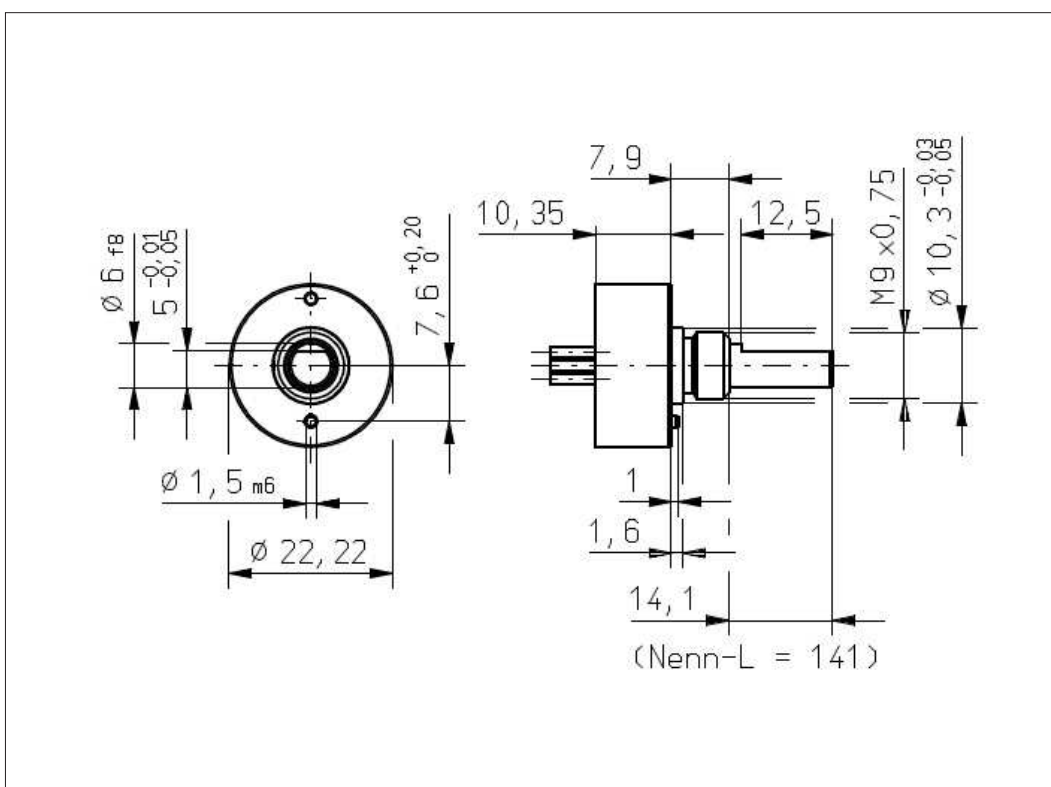
- 1x Fixation clip
- 2x Slotted cylinder head screw M3x8



Vert-X 2121

Accessories (incl.)

- 1x Nut M9x0.75 / SW13
- 1x Serrated lock washer



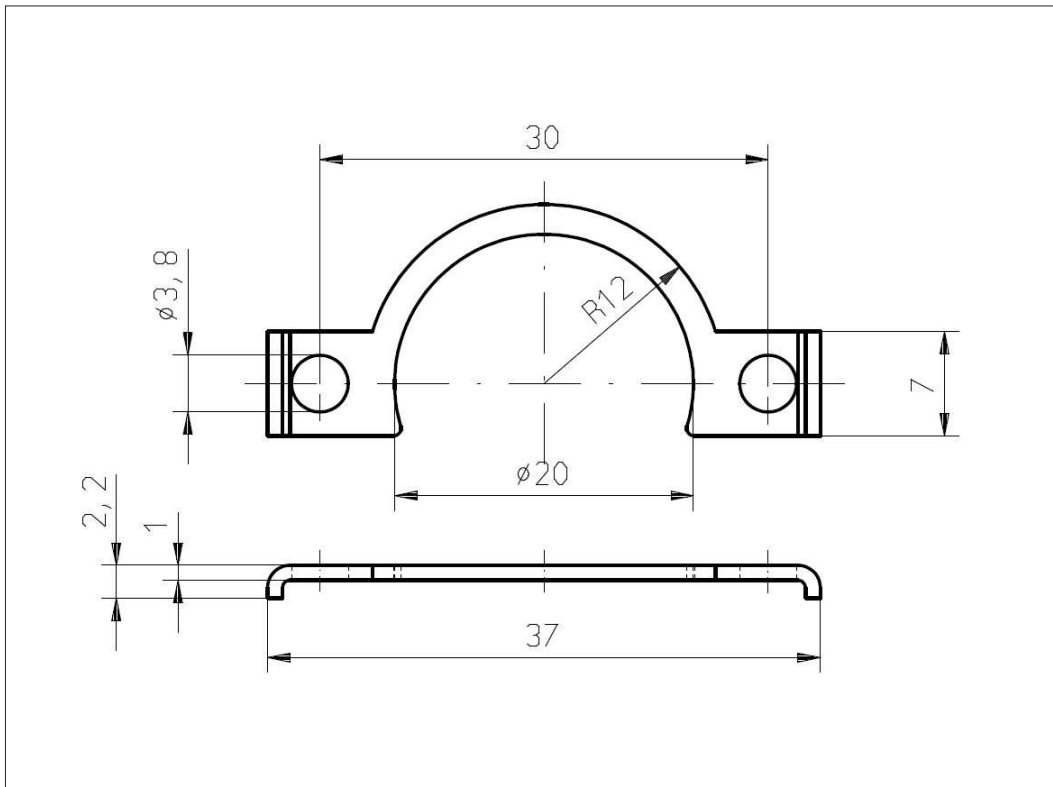
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Vert-X 2112
Accessories
Fixation clip



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