



## Vert-X 24 - 5V / 10...90% Ub

### Applications

- Servodrives
- Forklifter
- Dancer arm
- Operating table

### Features

- Compact dimensions
- Contactless measuring method
- Long life
- High accuracy of measurement
- Use in cramped installation conditions
- Simple adjustment with elongated holes
- Full resolution and accuracy at programmed electrical angle
- Full redundancy possible
- Better linearity, up to  $\pm 0.3\%$  possible

Sensor principle		MH-C
<b>Electrical data</b>		
Measuring range	°	0 ... 360
Indep. linearity	% of meas. range	$\pm 1$
Max. hysteresis	°	0.25
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	$\mu\text{s}$	(800)
System propagation delay slow mode	$\mu\text{s}$	4600
Max. temperature coefficient of the output signal	ppm/K	50
MTTFd / MTBF	years	668 / 668
Power supply voltage	VDC	5 ( $\pm 10\%$ )
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	100
Reverse polarity protection of power supply		yes
Electrical connection		Wires (3x)
Cross section of single wires	mm <sup>2</sup>	0.50 (AWG20)
Redundancy feasible		yes
Electrical connection redundant		Wires (6x)
Cross section of single wires redundant	mm <sup>2</sup>	0.50 (AWG20)
<b>Mechanical data</b>		
Mechanical range	°	360 (continuous)
Protection class		IP54 / IP67
Max. starting torque at specified protection class	Ncm	0.5 / 3
Max. rotating speed	rpm	120
Min. life	movements	50 Mio.
Max. permitted axial shaft load	N	10
Max. permitted radial shaft load	N	10
Operating & storage temperature	°C	-40 ... +125
IEC 68-2-6 Vibration (Amax = 0.75mm, f = 5...2000Hz)	g	20
IEC 68-2-27 Shock	g	50
<b>Standards</b>		
EN 55022 class B, Emission radiated (30...230MHz)	dB( $\mu\text{V}/\text{m}$ )	max. 30
EN 55022 class B, Emission radiated (230...1000MHz)	dB( $\mu\text{V}/\text{m}$ )	max. 37
EN 55022 class B, Emission conducted (0.15...0.5MHz)	dB( $\mu\text{V}$ )	max. 56 ... 46
EN 55022 class B, Emission conducted (0.5...5MHz)	dB( $\mu\text{V}$ )	max. 46
EN 55022 class B, Emission conducted (5...30MHz)	dB( $\mu\text{V}$ )	max. 50
EN 61000-4-2, ESD (contact discharge / air discharge)	kV	$\pm 8 / \pm 15$
EN 61000-4-3, Immision HF radiated (80...1000MHz/1.4...2.7GHz)	V/m	100
EN 61000-4-4, Burst (on all lines)	kV	$\pm 1$
EN 61000-4-6, Immision HF conducted (0.15... 80MHz)	Vemk	12
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: 02.12.16

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## Vert-X 24 - 5V / 10...90% Ub Ordering code

Output characteristics		Electrical connection	
Positive gradient CW	Standard 1	2 Standard	Wires 3pole
Positive gradient CCW	Optional 2	3 Optional	Wires 4pole
Redundant, positive gradient CW	Optional 3	7 Optional	Wires 5pole / 6pole
Redundant, positive gradient CCW	Optional 4	9 Optional	Special wires
Redundant, crossed signal curves	Optional 5		
Output signal		Length of wires	
10% ... 90% Ub	Standard 2	01 Optional	10cm
x% ... y% Ub (within 5 ... 95%)	Optional 3	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	4	1	1	a	7	3	6	2	2	1	2	0	2
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Electrical angle		Sensor principle	
36 Standard	Electrical angle 360°	7	MH-C
xx Optional	10 to 35 ; Declaration in 10° steps		
99 Optional	Special angle		
Protection class			
a Standard	IP54		
c Standard	IP67		
Shaft			
1 Standard	6.35mm shaft D-shape		
2 Optional	6mm shaft D-shape		
3 Optional	3.165mm shaft with screw slot		
7 Optional	6mm shaft with shaped leaf		
9 Optional	Special shaft		
Mechanical version			
241 Standard	Fastening lug housing ; pilot diameter		
24a Optional	Fastening lug housing ; pilot diameter ; return spring CW (max. mech. angle 120°)		
24b Optional	Fastening lug housing ; pilot diameter ; return spring CCW (max. mech. angle 120°)		
249 Optional	Special housing		

	MH-C
Custom shaft design	X
Custom wires	X
Return spring (CW or CCW, max. mech. angle 120°)	X
Interface x% ... y% Ub (within 5% ... 95% Ub)	X
Sample rate in fast mode	X
Special electrical angle within 30 to 360° (ex factory)	X
Full redundancy possible	X
Indep. linearity of ± 0.3% meas. range	X

### Options (on request)

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