

# Non-Contacting Angle Sensors Measuring Absolute up to 360°

## VX Series



### Special features

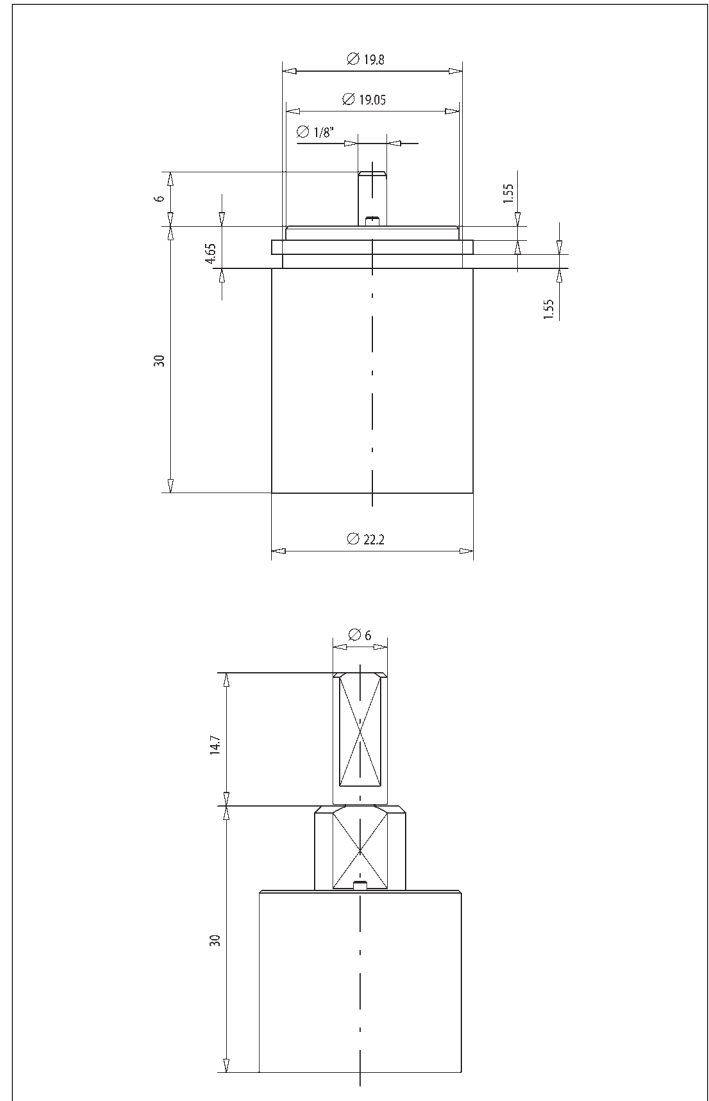
- compact dimensions
- non-contacting measuring method using VERT-X® Hall technology
- absolute angle measurement up to 360°
- output signals: analog or digital
- very long service lifetime
- high resolution
- high accuracy of measurement
- high adjusting speed
- initialization of the measurement direction (CW/CCW) is user selectable
- output characteristic programmable on request
- a permanent self-monitoring of the system is possible
- applications under adverse ambient conditions possible (humidity/dampness, oil, dust, vibrations, etc.)
- mechanically compatible with our Rotary Sensor PL300

VERT-X® is a technology with absolute measurement for angles up to 360°. The absolute value measurement is referred to a mechanical index point, so that in case of a rotation during a power failure the new angular position is still held.

The rotation angle sensor can be supplied in two different ways: 5 VDC  $\pm 10\%$  or 12 to 30 VDC. The outputs are digital and/or analog and the output characteristic curve can be programmed prior to delivery in accordance with the customer's requirements. The angle sensor is suitable for all applications in which an angle has to be converted into an analog voltage, current or digital value.

The VX has a microprocessor incorporated into it to provide 12-bit resolution and custom performance enhancements.

The measuring system is protected against overvoltage, pole reversal and short-circuits (only analog output signals 0.5 V to 4.5 VDC).



### Description

Dimensions	see drawing
Case	aluminum
Shaft	$\varnothing$ 3.175 mm -> Arcap / $\varnothing$ 6.00 mm -> stainless steel
Bearings	ball bearings
Mounting	Bushing M 10 x 0.75 or Servo-mount size 9
Electrical connections	shielded 10-core cable, AWG28

### Electrical Data

Power supply voltage 12 ... 30 V (typically at +25 °C, Ub = +24 V and RL = 10 kΩ, if nothing different indicated)		
Power supply voltage Ub	24 (12...30)	VDC
Voltage supply rise time	≥ 20	V/ms
Overvoltage	35 (max. 10s)	VDC
Current consumption	10	mA
Ohmic load at output 0.5...4.5 V	≥ 5	kΩ
Ohmic load at output 0...10 V	≥ 5	kΩ
Capacitive load at output 0.5...4.5 V	≤ 5	nF
Capacitive load at output 0...10 V	1	μF
Output voltage	0.5...4.5	VDC
	0...10	VDC
Current for digital output	1	mA

Power supply voltage 5 V (typically at +25°C, Ub = +5 V and RL = 10 kΩ, if nothing different indicated)

Power supply voltage Ub	5 (0.5...4.5)	VDC
Voltage supply rise time	≥ 20	V/ms
Over-voltage	6.5 (max. 10s)	VDC
Current consumption	10	mA
Ohmic load at output 10...90%	≥ 5	kΩ
Capacitive load at output 10...90%	≤ 5	nF
Output voltage	10...90	% of UB
Current for digital output	1	mA

### General

Measuring range	360	°
Resolution	±0.09	°
Accuracy	±0.35	°
Hysteresis	0.1	°
Temperature coefficient	50	ppm/K
Sample rate	1000 (330 for PWM)	Hz
Other interfaces	on request	

### Mechanical Data

Dimensions	see drawing	
Starting torque	< 0.05	Ncm
Highest permissible speed	6,000	RPM

### Environmental Data

Life time		
(at 60 RPM, 100,000 h, axial and radial load 3 N)	360 million	movem.
Temperature range	-40...+85	°C
Vibration	20...2000	Hz
	a <sub>max</sub> = 3	g
Shock	20	g
Protection class (DIN 400 50 / IEC 529)	IP 54 (IP 67 optional*)	

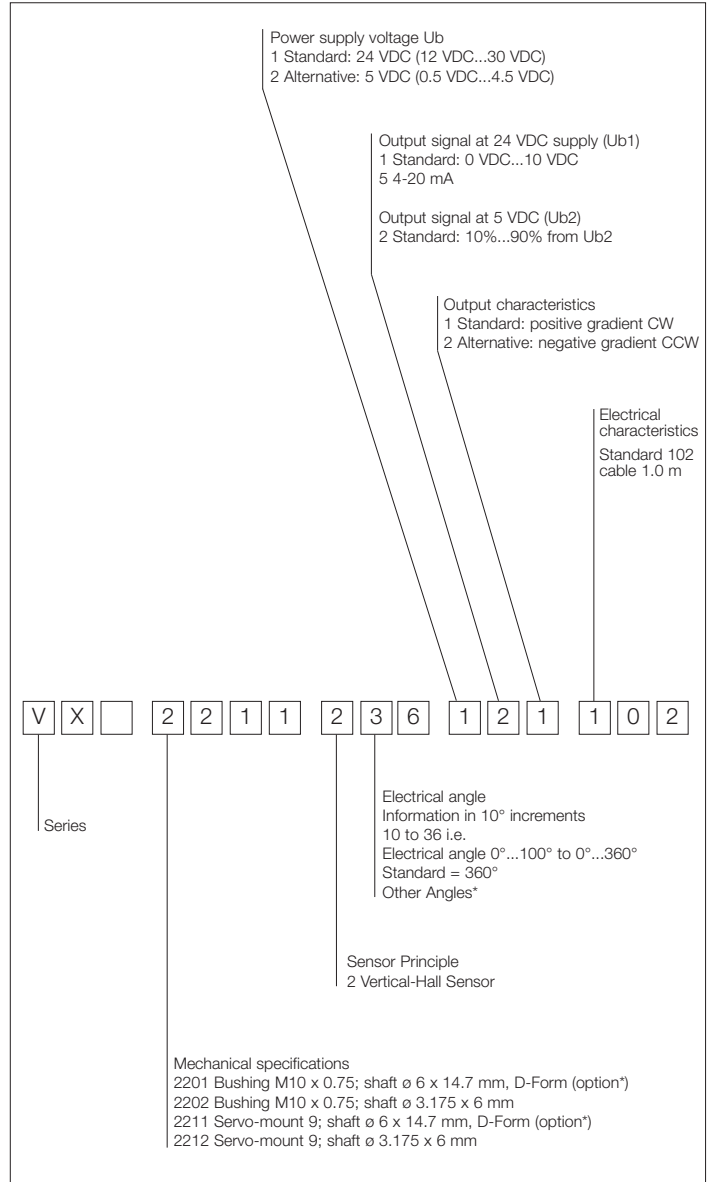
Conform to CE (89/336/CEE)

EN 580081-1

EN 580081-1-2

EN 61000-6-2

### Ordering specifications



### Possible Options:

- max. 8 logic switches programmable as requested
- max. 4 analog switches programmable as requested
- max. 2 inputs for external analog signals with A/D-converter
- max. 8 inputs for external digital signals

\*available in production quantities of greater than 500 pieces