

Rotational Absolute Magnetic Encoder Displacement Sensor



FEATURES

- Hall effect principle
- OTP (one time programmable) or flash technology
- Lightning protection
- Plug and play
- Good magnetic immunity
- Ball bearings
- Stainless steel shaft
- Housing protected
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

QUICK REFERENCE DATA

Sensor type	ROTATIONAL, magnetic technology
Output type	Cable
Market appliance	Industrial, railway, military airplane actuator
Dimensions	7/8" (22 mm)

ELECTRICAL SPECIFICATIONS

PARAMETER	
Voltage supply	± 10 V
Current supply	5 mA max.
Current supply maximum at startup time	15 mA during 50 ms (typical)
Connection	Shielded cable
Useful electrical angle	80°
Absolute accuracy at 18 °C to 25 °C	Refer to curves in charts "Channel 1" and "Channel 2"
Absolute accuracy at -40 °C to +110 °C	Refer to curves in charts "Channel 1" and "Channel 2"
Residual ripple	≤ 30 mV
Residual ripple frequency	75 kHz \pm 30 kHz
Response time	1 ms max. (for an angle of 20° in 6 ms \pm 2 ms)
Electrical phasing	0.5 U \pm 0.1 % U
Nominal power at 70 °C	≤ 0.2 W
Lightning	DO160d level 4
Coupling (for design 2 functions)	≤ 14 mV

MECHANICAL SPECIFICATIONS

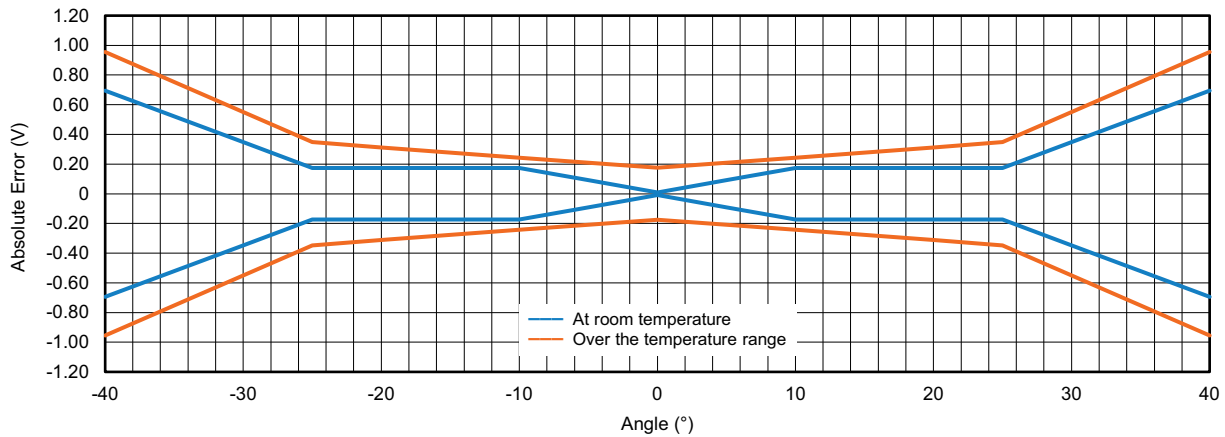
PARAMETER	
Mechanical angle	360°
Hysteresis	≤ 14 mV
Running torque	< 0.2 N.m
Weight	36 g \pm 4 g (for 1 function); 51 g \pm 5.1 g (for 2 functions)



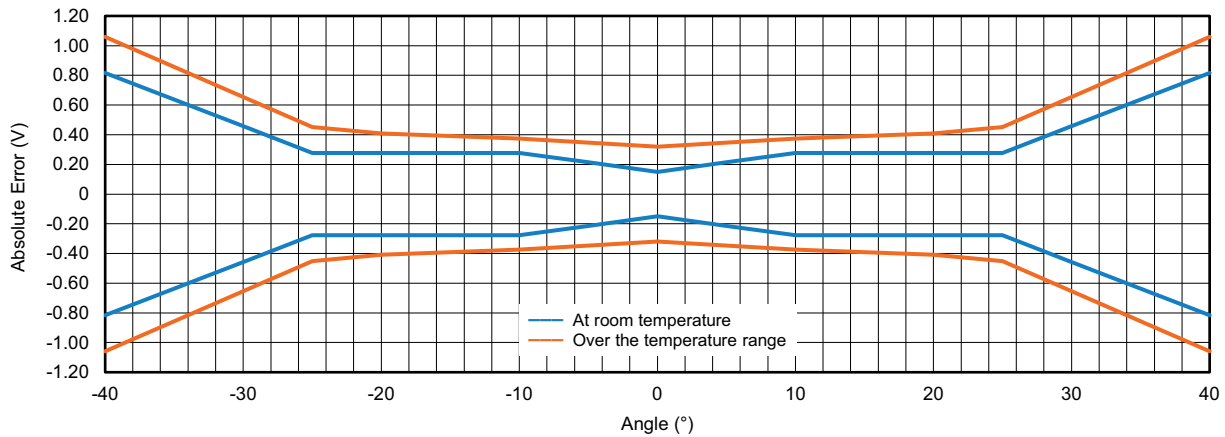
SAP PART NUMBERING GUIDELINES									
TYPE	MODEL	DESIGN	SIZE (mm)	TYPE	FUNCTION	ACCURACY (BITS)	RESOLUTION (BITS)	OUTPUT	PACKAGING
R = rotational	AM	E = encoder with housing	022	M	1 = 1 function 2 = 2 functions	UU	UU	B = analog CCW	B = box

PERFORMANCE	
PARAMETER	
Operating temperature range	-40 °C to +125 °C
Protection class	IP50
Life	50M cycles
Vibration	1.5 mm pic from 10 Hz to 60 Hz, 20 g from 60 Hz to 2000 Hz (free shaft) on 3 major axis
Shock	50 g, 1 ms, 1/2 sinus on the 3 axis

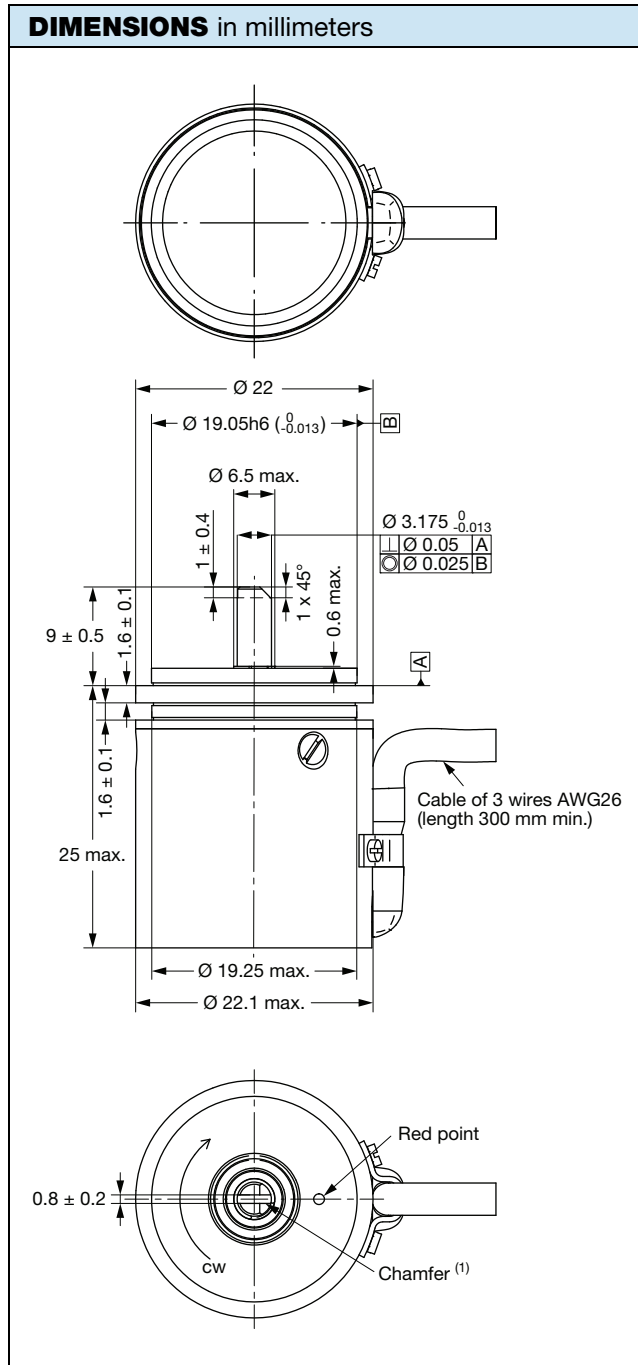
CHANNEL 1



CHANNEL 2



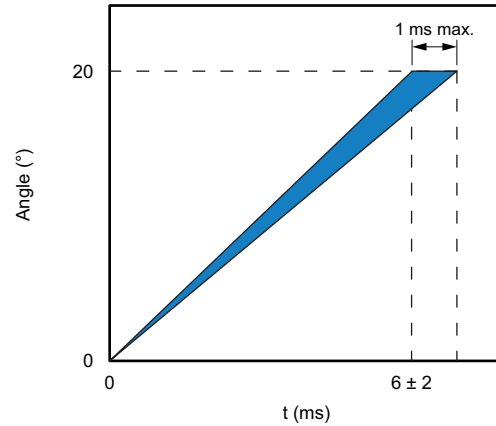
VARIANT 1: SINGLE FUNCTION



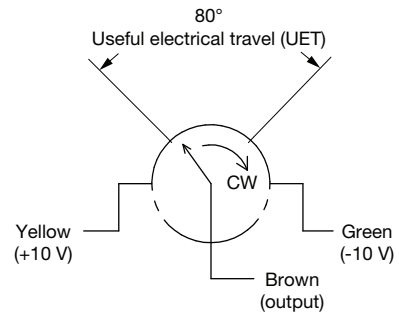
Note

⁽¹⁾ When the shaft chamfer is aligned with the red point, the position is approximately at electrical zero

RESPONSE TIME



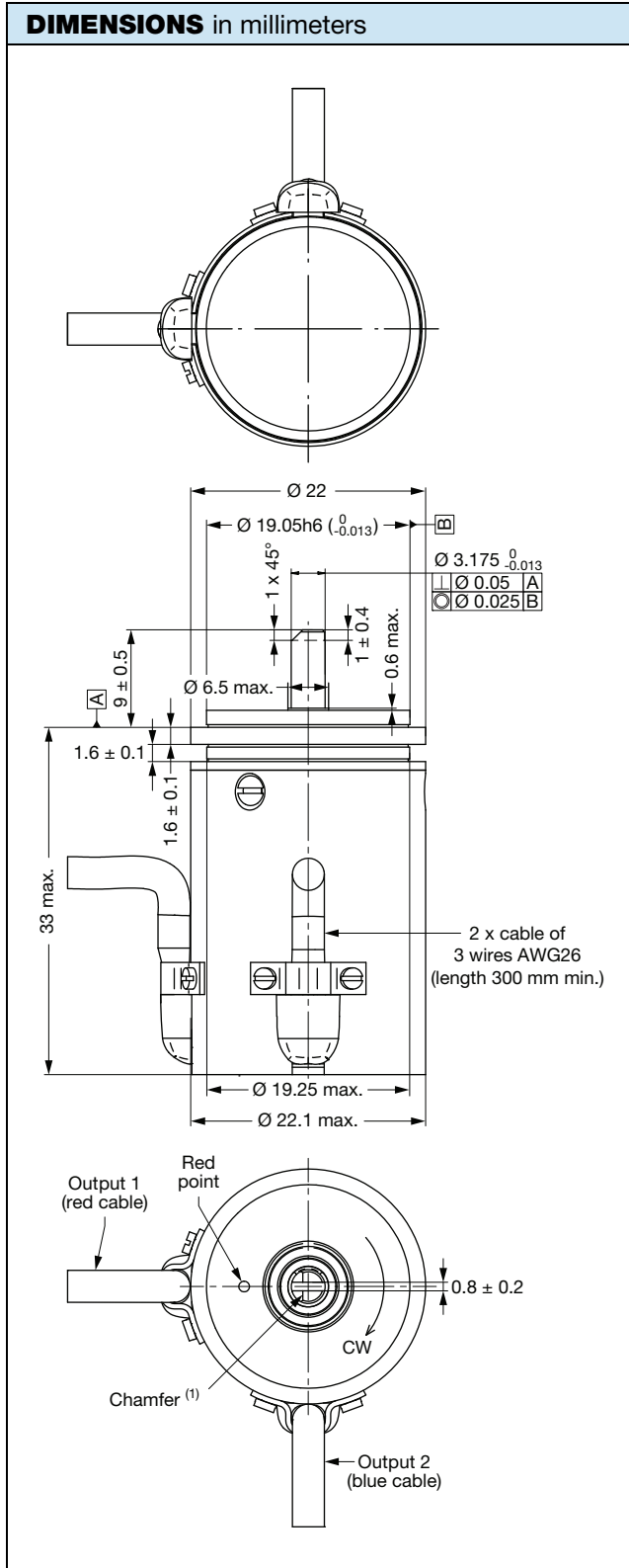
ELECTRICAL DIAGRAM ⁽¹⁾



Note

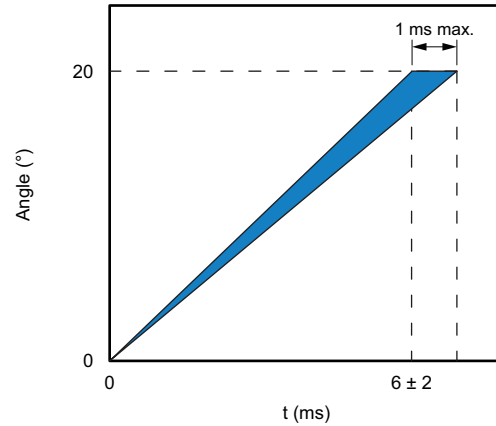
⁽¹⁾ Shaft side view, decreasing function when rotation is clockwise (CW)

VARIANT 2: REDUNDANT FUNCTIONS

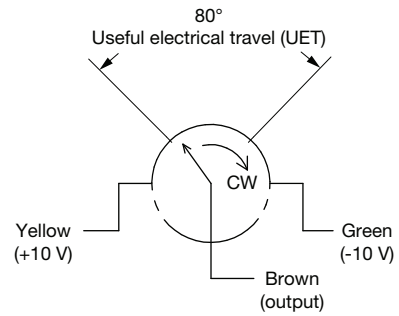


Note
 (1) When the shaft chamfer is aligned with the red point, the position is approximately at electrical zero

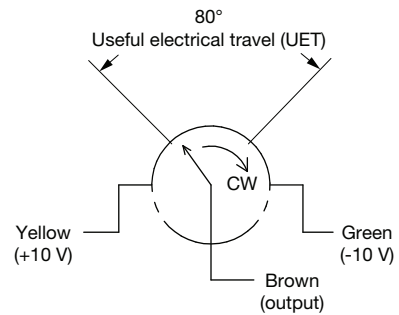
RESPONSE TIME



ELECTRICAL DIAGRAM (1)



Output 1



Output 2

Note
 (1) Shaft side view, decreasing function when rotation is clockwise (CW)

OPTIONS (on request)

- Other accuracy
- Other resolution
- Other mechanical dimensions and mechanical interfaces
- Other electrical interface (for example: SSI, ...)
- Possibility of function redundant



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