

Rotational Absolute Magnetic Encoder Displacement Sensor



LINKS TO ADDITIONAL RESOURCES



FEATURES

- Hall effect principle
- OTP (one time programmable) or flash technology
- Lightning protection
- Plug and play
- Single or redundant functions
- 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)



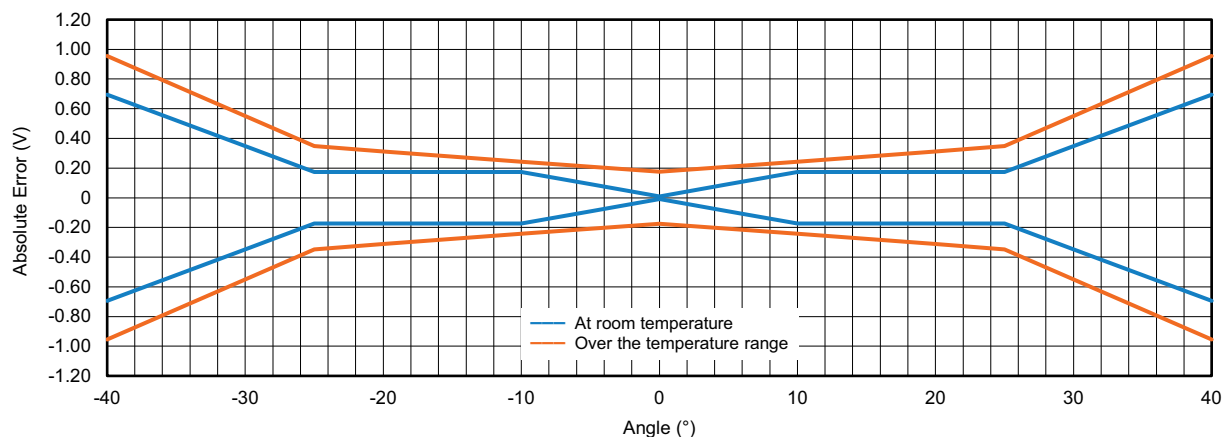
SAP PART NUMBERING GUIDELINES

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

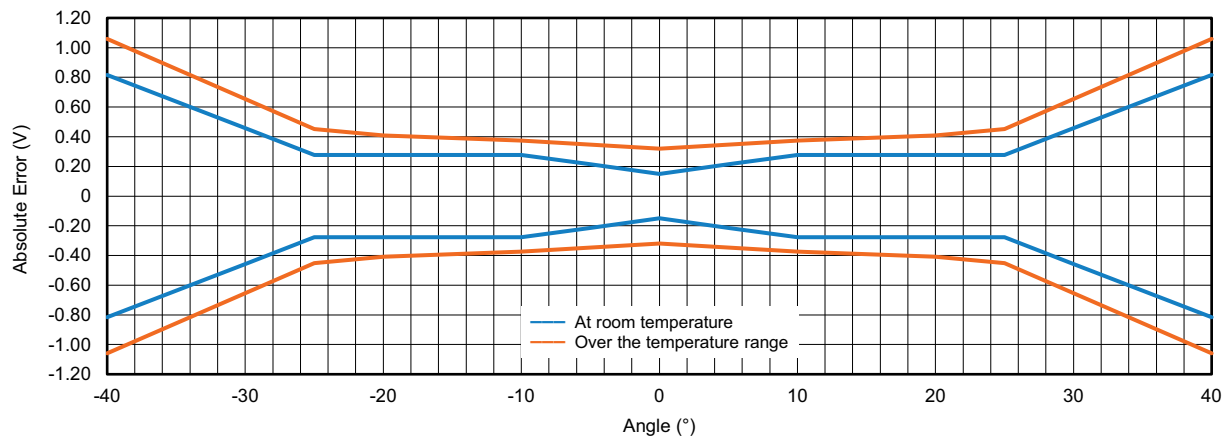
PERFORMANCE

PARAMETER	
Operating temperature range	-40 °C to +115 °C
Protection class	IP50
Life	50M cycles, ≥ 175 M cycles (pseudo-random cycle in lab conditions)
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

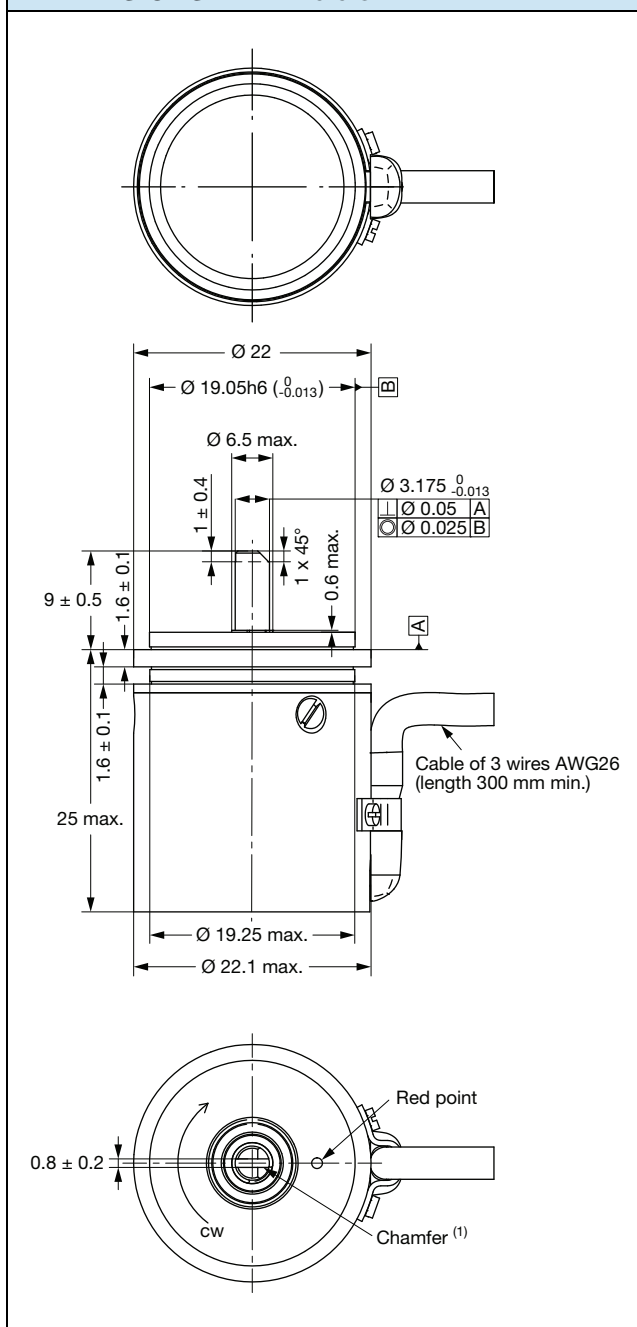


CHANNEL 2



VARIANT 1: SINGLE FUNCTION

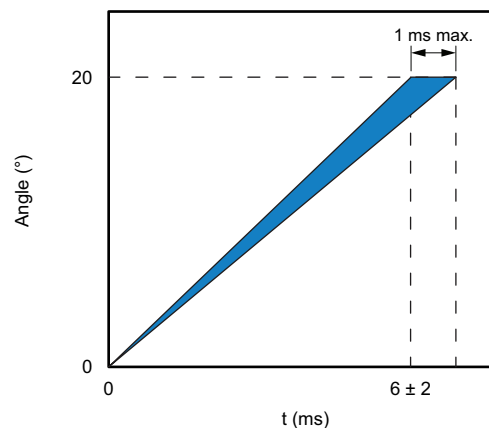
DIMENSIONS in millimeters



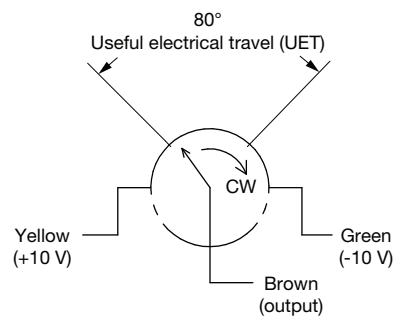
Note

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

RESPONSE TIME

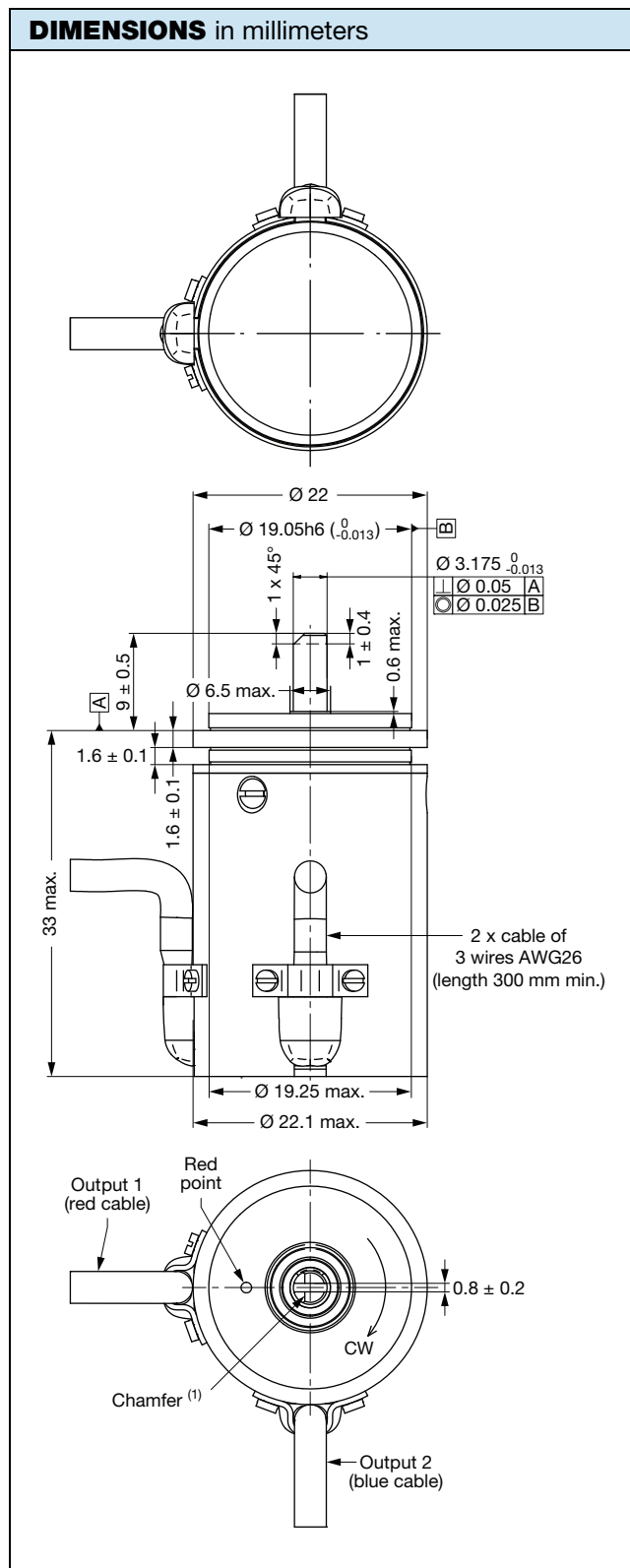


ELECTRICAL DIAGRAM (1)

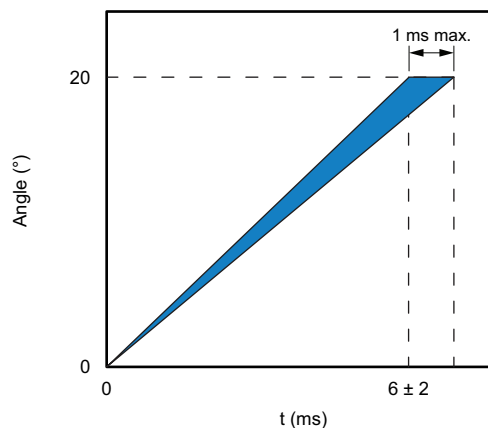
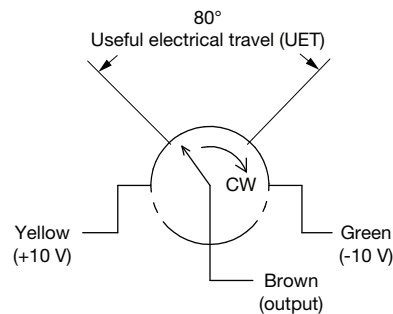
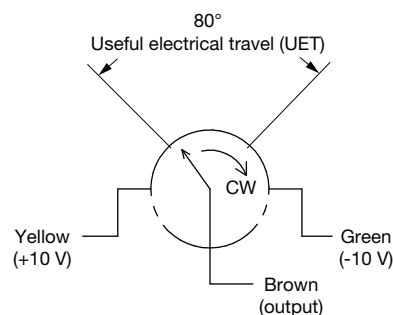


Note

(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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