# RAS Rotational Analog Sensor

The Rotational Analog Sensor (RAS) from DeltaTech Controls provides the functionality of classical potentiometers but with the advantage of contactless sensing, thereby increasing product life expectation and reliability.

The unique sensing design has been developed to provide the reliability required in demanding environmental conditions such as armrest controls and dashboards, in heavy duty and harsh industrial and off-road applications.

In addition the RAS can be reverse mounted and used as an angle sensor.
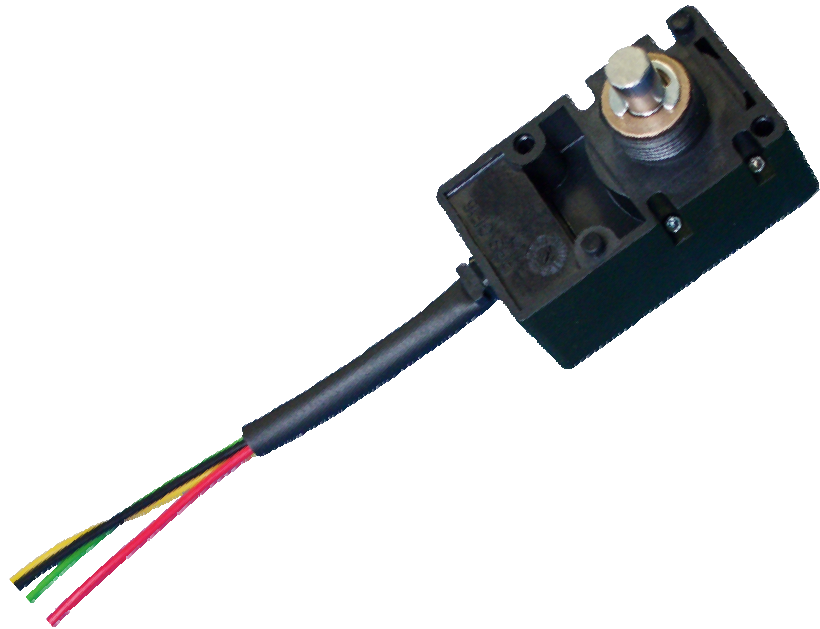
Main Features

- Contactless sensing – Hall effect
- Life greater than 5 million cycles
- Definable working angle
- Precise tactile feel (optional)
- Dual mountable:
  - contactless potentiometer
  - angle sensor
- One channel – optional second channel for redundancy
- Integrated temperature compensation
- Short circuit protection

Custom modifications

- Angle of operation
- Force of rotation
- Length of axis
- Rotational feel (smooth or ridged)
- Redundancy

Electrical Data		
Supply Ratings	Voltage range DC current	9V … 16V or 5.0 V ± 5% 50 mA at 24V
Voltage Output	Output 1 Output 2*	0.5V … 4.5V at 5Vcc 4.5V … 0.5V at 5Vcc Output proportional to Vcc
Pull-down resistor	Recommendation	4.7kΩ
Total error		< 10%
Output current		1 mA max. (per output channel)
Other electrical Characteristics	EMI	> 100 V/m

Mechanical Data	
Life	> 5 million cycles
Operating temperature - Storage - Working	- 40℃ to 85℃ - 35℃ to 70℃
Protection Level	IP 65
RAS deflection angle	up to 360°

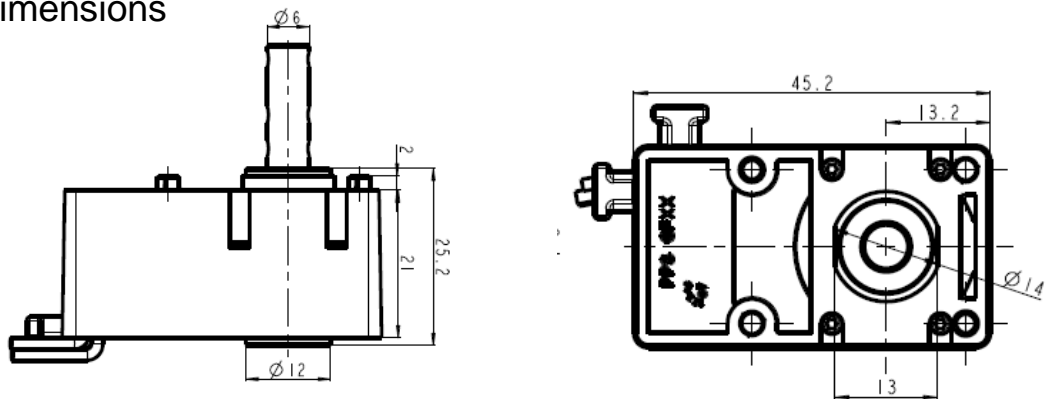*for redundant version*

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Order Code

| Ordering code			1	2	3	4	5	6	7	8	9	10
	Example		RAS	P	160	xN	40.4	S	1	V	2	00
1 **Type**	RAS = rotational analog sensor											
2 **Version**	P = potentiometer											
	AS = angle sensor											
3 **Deflection Angle**	160 = standard 160°											
	x = customised x°											
4 **Operation Force**	xN = force of rotation depends on actuator											
5 **Length of Axis**	40.4 = standard 40.4 mmm length of axis											
	Ax = customised length of axis x mm											
6 **Rotational Feel**	S = smooth											
	R = ridged											
7 **Electrical supply**	0 = voltage 9 … 16 V											
	1 = 5 V ± 5%											
8 **Output**	V = voltage											
9 **Sensors**	1 = 1 sensor											
	2 = 2 sensors (for redundancy)											
10 **Output Voltage Code**	00 = output 1 / 0.5V … 4.5V; 1mA *											
	output 2 / 4.5V … 0.5V; 1mA *											
	02 = output 1 / 0.5V … 4.5V; 1mA *											
	03 = output 1 / 4.5V … 0.5V; 1mA *											

* ratiometric to 5V electrial supply

Version: Angle Sensor – Mounting (AS)

Install dimensions
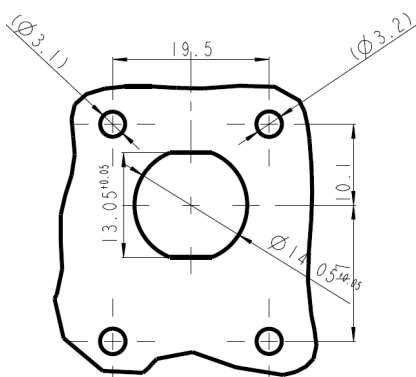
Drilling template

Pin Assignment
standard

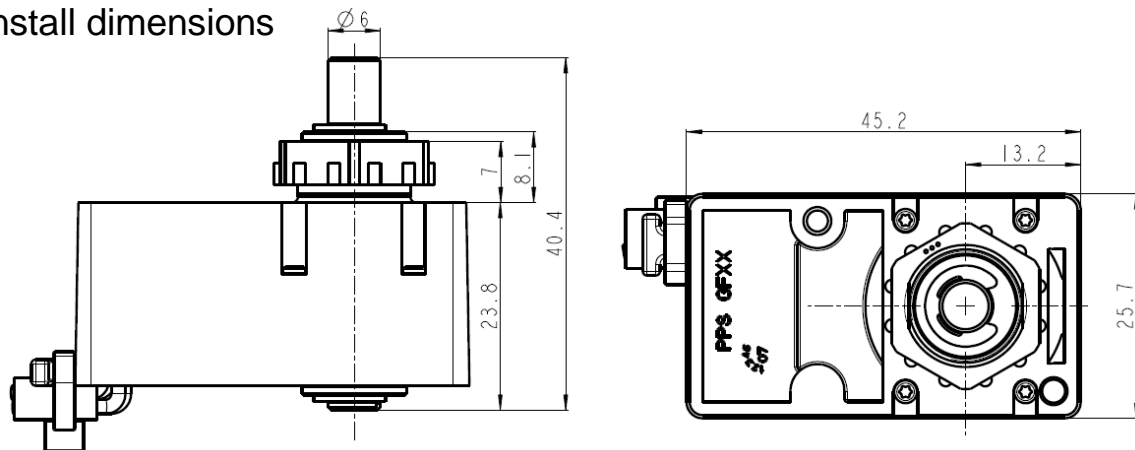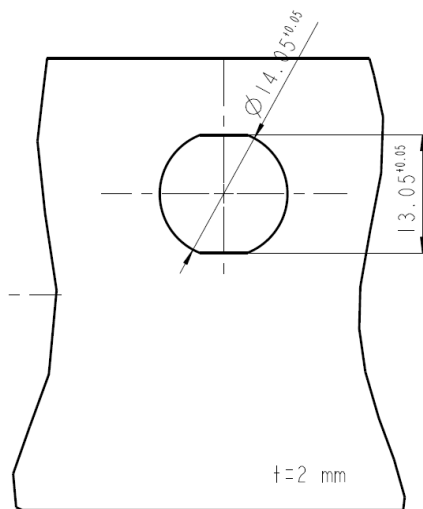| PIN	Signal	Color
1	VCC	BN
2	Out 1	WH
3	GND	GN

Version: Potentiometer – Mounting (P)

Install dimensions

Drilling template

Screw nut
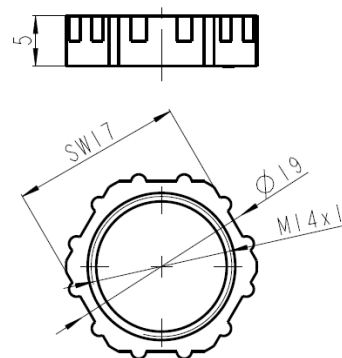
Pin Assignment
redundant

PIN	Signal	Color
1	VCC	RD
2	Out 1	GN
3	Out 2	YE
4	GND	BK

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DeltaTech Controls – A CoActive Technologies Company - **worldwide Facilities**
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