

	SPECIFICATION			Folio 1/8	
	DEPARTEMENT CAPTEURS			Valable à partir de : Valid from :	
Produit / Product : RSMR - 0002			Date de création : 05/11/2012		
			Produit RSMR	Indice	Date
EMETTEUR: Développement BE Capteurs		Vérification / Approbation			
		Fonction	Date	Nom/signatures	
DESTINATAIRES : Agent Technique Qualité		Resp. Développement / <i>Design</i>			
		Ing. Produit / <i>Marketing</i>			
		Resp. Production film / <i>Film manufacturing</i>			
		Resp. Production / <i>Manufacturing</i>			
		Resp. Méthodes/ <i>Process</i>			
		Ingénieur Qualité / <i>Quality Control</i>			
		Client / <i>Customer</i> ECE	05/11/2012		

OBJECT:

Hall Effect rotational position sensor.

Application:

Avionic

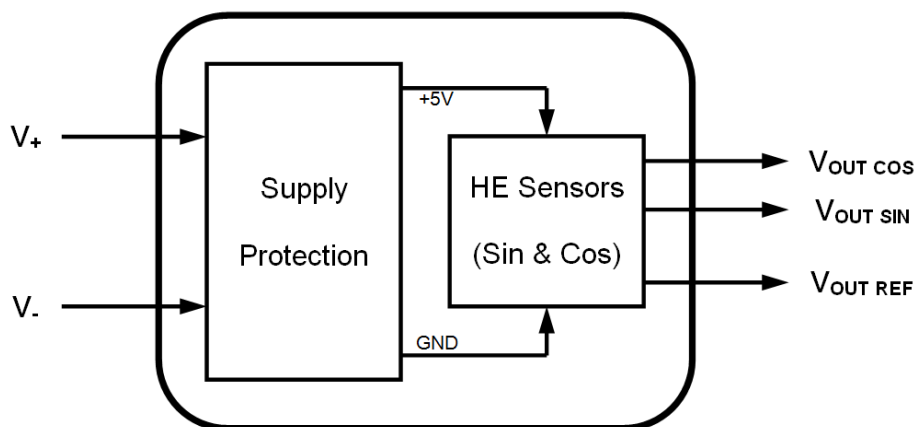
Customer's specification:

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CARACTERISTIQUES ELECTRIQUES ELECTRICAL SPECIFICATIONS		Standard	Spécial	Révisions issues
Tension d'alimentation <i>Power supply</i>	V_{supply}		$5V \pm 20mV$	
Mode du signal de sortie <i>Output mode</i>	$V_{out\ sin}$ $V_{out\ cos}$		Sine – Cosine - Reference	
Sortie de référence <i>Output reference</i>	$V_{out\ ref}$		$(V_{SUPPLY}/2) \pm 4\%$	
Course électrique utile <i>Electrical angle (degrees)</i>	Theta		$\pm 40^\circ$	
Gain Signaux Sin et Cos <i>Sin and Cos Outputs Gain</i>	M		$1.8V \pm 0.4V\ TBC$	
Erreur de gain Sin / Cos <i>Gain mismatch Sin / Cos</i>	Sin / Cos		$\pm 3.4\%$ Ambiant temperature	
			$\pm 4.6\%$ Over temperature range	
Phasage Sin - Cos <i>Phase Sin - Cos</i>	$\theta_{Sin} - \theta_{Cos}$		$90^\circ \pm 1^\circ$	
Offset (Sin et Cos) <i>Offset (Sin and Cos)</i>	Offset		$V_{OUT\ REF} \pm 10mV$ Ambiant temperature	
			$V_{OUT\ REF} \pm 20mV$ Over temperature range	
Courant d'alimentation <i>Supply current</i>	I_{supply}		17 mA Typ 20 mA Max	
Protection contre les surtensions <i>Over voltage protection</i>			15 V	
Tension d'alimentation inverse maximum <i>Maximum reverse supply voltage</i>			-0.6V	
Protection contre les court-circuit sur V_{OUT} <i>Short circuit protection on V_{OUT}</i>			$V_{supply} + 0.6V$	
Hysteresis static (25°C)			< 1.4 mV	
Résistance de charge recommandée <i>Load resistance recommended</i>			> 15 K Ω	
Capacité de charge <i>Load capacitor</i>			< 1000 pF	
Temps de mise en action <i>Start up cycle</i>			< 200 μs	

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BLOCK DIAGRAM :

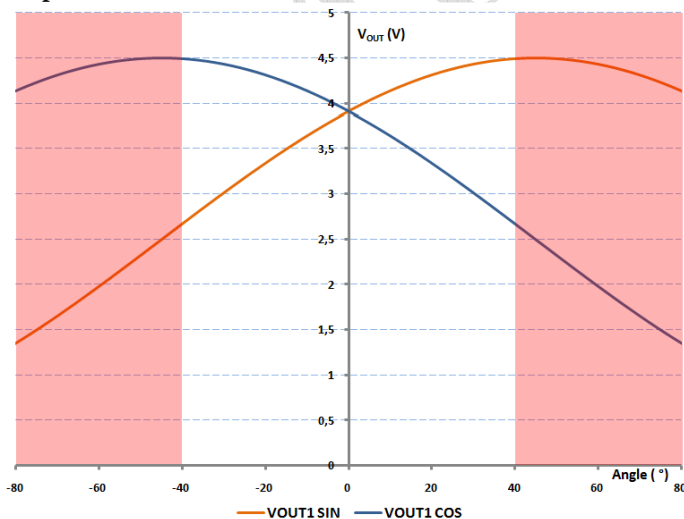


ELECTRICAL GRAPHIC :

$$V_{OUT SIN} = V_{OUT REF} + M * \sin(\theta)$$

$$V_{OUT COS} = V_{OUT REF} + M * \cos(\theta)$$

Output Sensor 1



Note : $V_{OUT1} \Rightarrow \text{Angle} = \text{Calculated Angle} - 45^\circ$

$V_{OUT2} \Rightarrow \text{Angle} = \text{Calculated Angle} + 45^\circ$



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Folio

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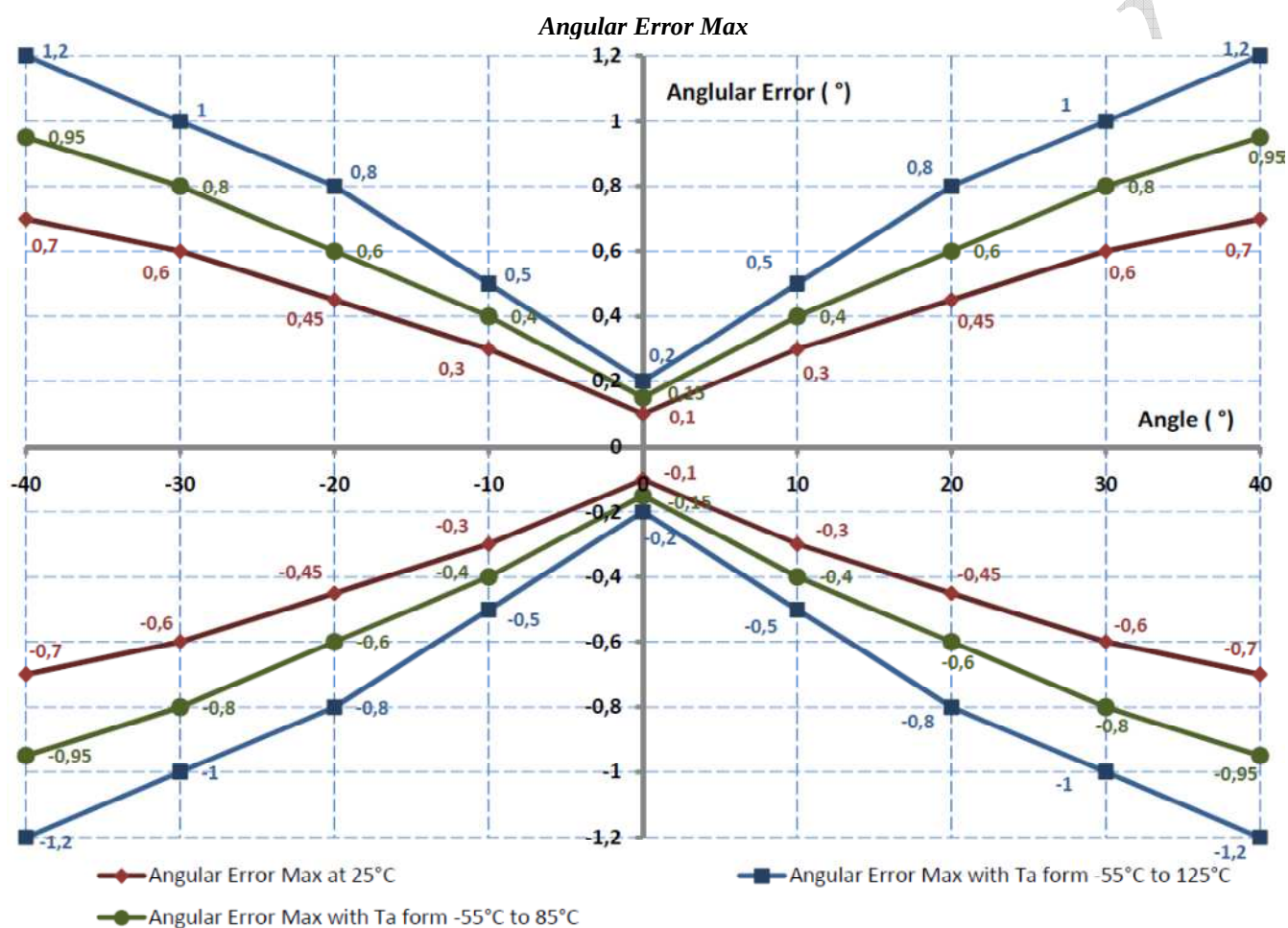
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Angular error after $\left(\tan \frac{V_{OUT SIN} - V_{OUT REF}}{V_{OUT COS} - V_{OUT REF}}\right) \pm 45^\circ$ calculation :

Applicable for Sensor 1 and Sensor 2 separately



Red diagram includes :

- ⇒ Offset error
- ⇒ Gain mismatch
- ⇒ Phase error

Blue diagram includes :

- ⇒ Offset error
- ⇒ Gain mismatch
- ⇒ Phase error
- ⇒ Temperature Range (-55°C to 125°C)
- ⇒ Mechanical error (Between Housing and Axis)

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CARACTERISTIQUES MECANQUES MECHANICAL SPECIFICATIONS	Standard	Spécial	Révisions Issues
Fixation Mounting type	servo		
Boitier Housing	Aluminium Aluminium Alloy		
Sorties Outputs	W = Fils W= Wires	5 Wires AWG 26	
Axe Shaft		Perçage $\phi 1$ + Fente tournevis $\phi 1$ drilling + Screwdriver slot	
Course mécanique Mechanical travel		$\pm 155^\circ$ mini	
Couple de démarrage Starting torque		Voir page 4 See page 4	
Durée de vie (millions de cycles) Life (millions of cycle)		> 2.5	
Poids (g) Weight (g)		< 48g TBC	
Identification et contrôle Marking and inspection		Voir ci-dessous See below	
Emballage Packaging		Individuel Individual	
Autres caractéristiques Other characteristics		Système de retour à zéro intégré dans le corps du potentiomètre Return to zero integrated into the potentiometer	

Identification / Marking :

SFERNICE
RSMR 0002
- date code (4 digits)
SER (4 digits)

- + Etiquette de contrôle qualité (verte)
- + Quality inspection label (green)

NB: Serial number by batch / N° de série par lot de livraison

Contrôle / Inspection :

Chaque potentiomètre sera délivré avec son certificat de conformité.

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Each unit will be delivered with a certificate of conformity.

CARACTERISTIQUES ENVIRONNEMENTALES & PERFORMANCES ENVIRONMENT SPECIFICATIONS & PERFORMANCE	Standard	Spécial	Révisions Issues
Vitesse de rotation <i>Rotation speed</i>	10 000 rpm max		
Températures d'utilisation <i>Operating Temperatures</i>	- 55°C ; +125°C		
Susceptibilité perturbations conduites fréquences acoustiques <i>Audio frequency conducted susceptibility (*)</i>		DO160, Section 18, Category R 10Hz to 150KHz	
Susceptibilité aux perturbations induites <i>Induced signal susceptibility (*)</i>		DO160, Section 19, Category ZN Mag field : 30A-m, 650Hz => 0.8A-m, 26KHz Elec field : 1800V-m, 350-650Hz Induced Pulses : ±600V, 10µs	
Susceptibilité aux perturbations radioélectriques conduites <i>Conducted radio frequency susceptibility (*)</i>		DO-160, Section 20, Category R 30mA, 400MHz	
Susceptibilité aux perturbations radioélectriques rayonnées <i>Radiated radio frequency susceptibility (*)</i>		DO-160, Section 20, Category R 20V/m, 400MHz / 150V/m, 8GHz	
Perturbation radioélectrique conduite <i>Conducted Emission radio frequency energy (*)</i>		DO160, Section 21 Category H extended	
Perturbation radioélectrique rayonnée <i>Radiated Emission radio frequency energy (*)</i>		DO160, Section 21 Category H extended	

(*) TO BE TESTED

Produit / Product :

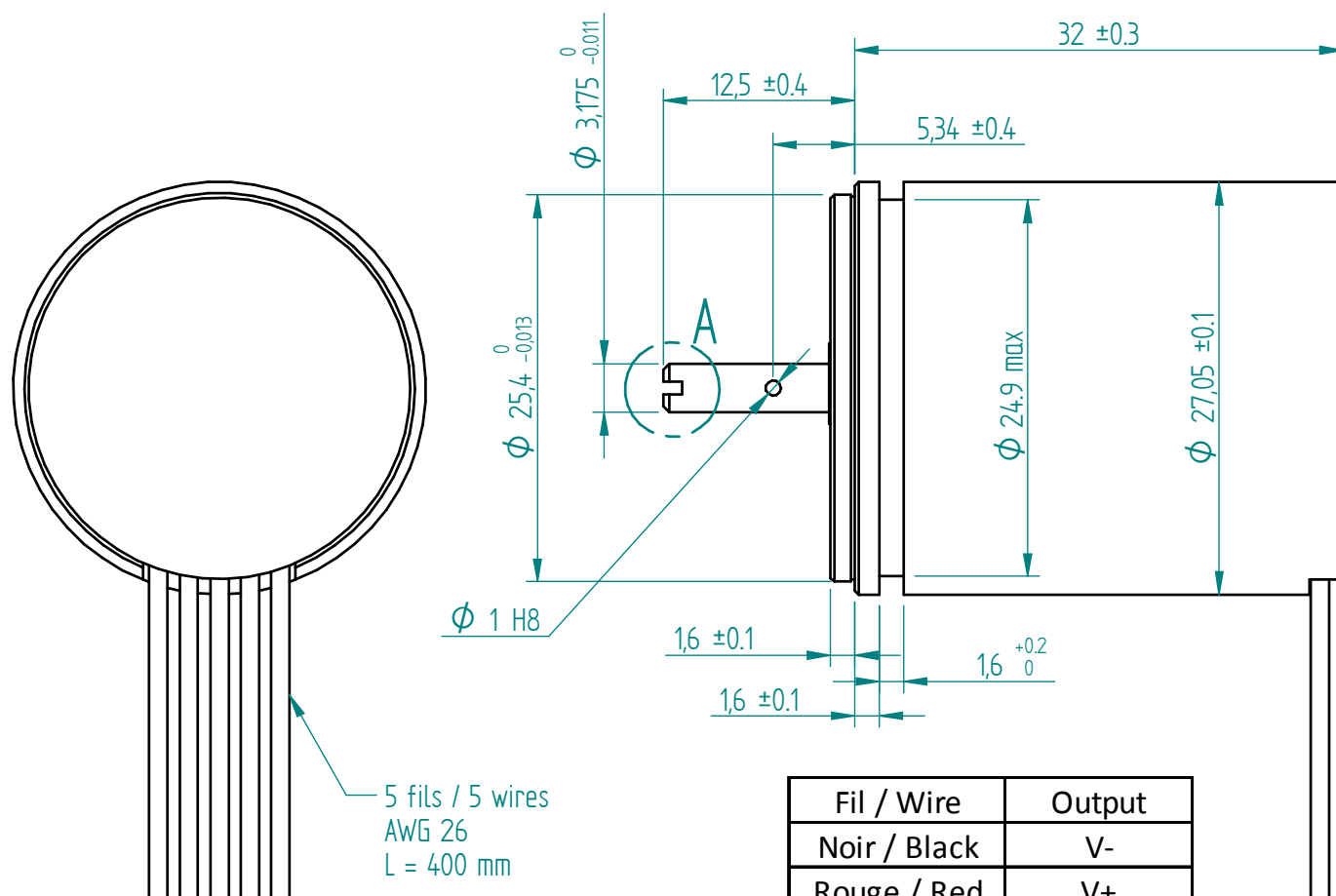
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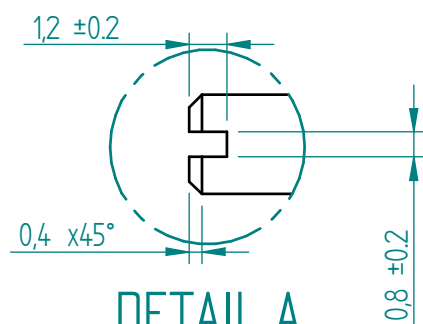
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Fil / Wire	Output
Noir / Black	V-
Rouge / Red	V+
Vert / Green	Cos
Jaune / Yellow	Sin
Bleu / blue	Ref



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