

- Compas électronique 3D de précision
- En sortie: azimuth, tangage, roulis
- étendues de mesure roulis / tangage:  $\pm 85^\circ$
- Précision : azimuth :  $\pm 0,5$  à  $0,8^\circ$ , Inclinaison :  $\pm 0,1^\circ$
- Calibration 2D rapide pour compensation des perturbations magnétiques
- température de fonctionnement :  $-40^\circ$  à  $+85^\circ\text{C}$
- Sorties RS232, RS485 et UART, Protocole : ASCII
- Dimensions : L60xW59xH33mm
- Alimentation 5Vdc (9-36VDC en option)
- Connectique : sortie connecteur 5 pins
- Étanchéité IP67



## Caractéristiques

Le compas numérique DCM302B associe un magnétomètre à un inclinomètre électrolytique robuste à 2 axes pour fournir des mesures de cap, de roulis, de tangage précises jusqu'à  $\pm 85^\circ$  (roulis, tangage). Les précisions obtenues sont comprises entre  $\pm 0,5^\circ$  et  $\pm 0,8^\circ$  pour l'azimuth, et de  $\pm 0,1^\circ$  en roulis/tangage.

L'interface de sortie est de type RS-232/485/UART, le protocole est ASCII.

## Spécifications

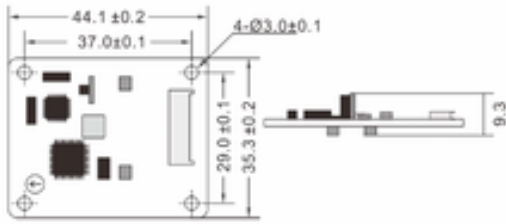
DCM301B / DCM302B		PARAMETER
Compass heading	The best heading accuracy	0.5°
	Resolution	0.1°
Compass tilt parameter	Pitch accuracy	0.1° < 15° (Measure range)
		0.2° < 30° (Measure range)
		0.3° < 60° (Measure range)
		0.3° < 85° (Measure range)
	Pitch tilt range	$\pm 85^\circ$
	Roll accuracy	Roll tilt range
0.2° < 30° (Measure range)		
0.3° < 60° (Measure range)		
0.3° < 85° (Measure range)		
Resolution		0.1°
The best tilt compensation range	< 40°	
Calibration	Hard iron calibration	Yes
	Soft iron calibration	Yes
	Magnetic field interference calibration method	Plane rotation in 1 circle (2D Calibration)
Physical features	Dimension	L60xW59xH33mm
	Weight	PCB : 20g , with shell : 100g
Interface features	RS-232/RS485/TTL interface connector	5PIN connector
	Start delay	< 50MS
	Maximum output rate	20Hz/s
	Communication rate	2400 to 19200baud
Power	Output format	Binary high performance protocol (Default) DC+5V
	Power supply	(Customized) DC9~36V
	Current(Maximum)	40mA
	Ideal mode	30mA
	Sleep Mode	TBD
Enviroment	Operating range	$-40^\circ\text{C} \sim +85^\circ\text{C}$
	Storage temperature	$-40^\circ\text{C} \sim +85^\circ\text{C}$
	Resistance shock performance	2500g
Electromagnetic	According to EN61000 and GBT17626	
MTBF	$\geq 40000$ hours/times	
Insulation	$\geq 100\text{M}$	
Anti-shock	100g@11ms, 3 Axial Direction (Half Sinusoid)	
Anti-vibration	10grms, 10~1000Hz	

## Applications

- Stabilisation de la plate-forme
- Contrôle des antennes satellites
- ROV/UUV Véhicules sous-marins sans équipage
- Navigation maritime, arpentage et cartographie
- Bouées météorologiques
- \* Positionnement d'antennes

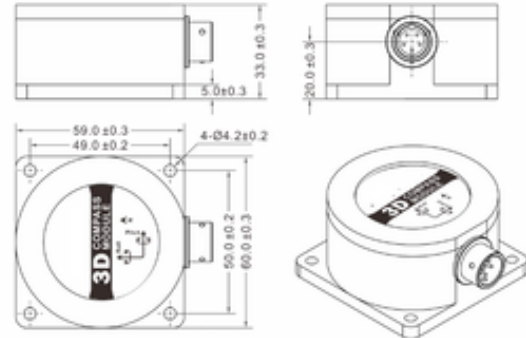
## Dimensions

### PCBA SIZE ▼

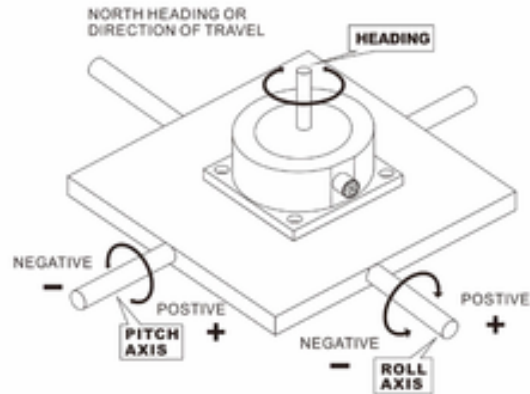
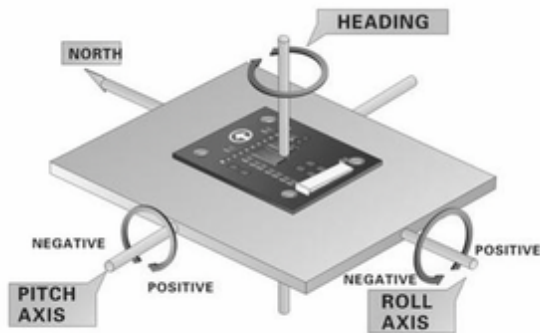


PCBA size: L44.1×W35.55×H9.3mm  
Installation size: L37×W29  
Counting screws: 4 M3 screws

### HOUSING SIZE ▼



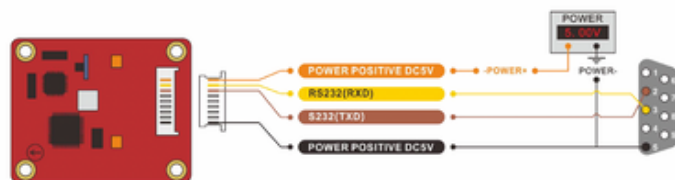
Shell size: L59×W60×H33mm  
Installation size: L49×W50×H5mm  
counting screws: 4 M4 screws



## Câblage

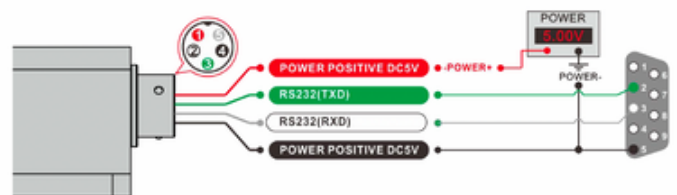
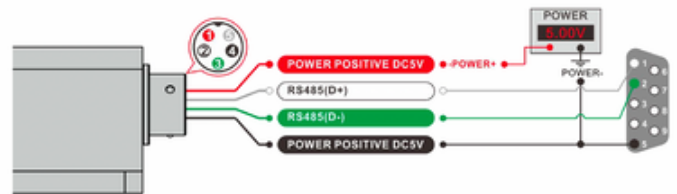
### PCBA WIRING DEFINITION

Color	ORANGE	YELLOW	BROWN	BLACK
function	DC 5V	RS232(RXD) TTL(RXD) RS485(D-)	RS232(TXD) TTL(TXD) RS485(D+)	GND



### WIRING DEFINITION FOR COMPASS WITH SHELL

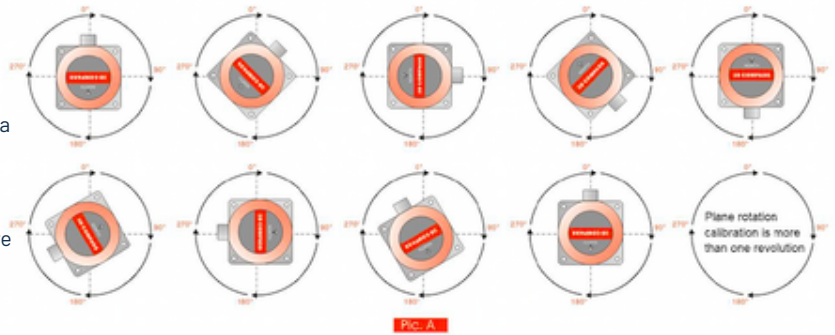
Color	RED	BLACK	WHITE	GREEN
function	DC 5V	GND	RS232(RXD) TTL(RXD) RS485(D+)	RS232(TXD) TTL(TXD) RS485(D-)



## Calibration

Le compas numérique DCM302B intègre une procédure de calibration rapide pour la compensation des perturbations magnétiques de type "Soft Iron" et "Hard Iron", consistant en la rotation du compas autour de l'axe vertical sans et en présence du matériau potentiellement perturbateur.

La séquence est pilotée par des requêtes ASCII ou un utilitaire fourni gratuitement



## Configuration



E.g. : DCM302B-232 : Plane calibration 3D electronic compass(with enclosure sealed)/RS232 output

## Options

Sur demande, le DCM301B / DCM302B peut être personnalisé pour intégration directe à l'application:

- câblage
- Platines, boîtiers customs
- afficheur intégré ou déporté
- enregistreur autonome
- intégration dans système IOT pour suivi distant

Nous contacter pour plus d'informations sur ces possibilités

## Protocole

### 1. Data frame format: (8 data bits, 1 stop bit, no parity, default rate 9600)

Identifier (1byte)	Date Length (1byte)	Address code (1byte)	Command word (1byte)	Date domain	Check sum (1byte)
68h					

Identifier: Fixed68H

Data length: From data length to check sum (including check sum) length

Address code: Accumulating module address, Default :00

Date domain will be changed according to the content and length of command word

Check sum: Data length, Address code, Command word and data domain sum, No carry.

### 2. command word analysis

Command word	Meaning/Example	Description
<b>0X04</b>	<b>Read Pitch, Roll, Heading at the same time</b> Angle command <b>68 04 00 04 08</b>	Data field (0byte) No data field command
<b>0X84</b>	Sensor response reply E.g.: <b>68 0D 00 84 00 10 50 10 10 05 01 04 01 1C</b>	Data field ( 9byte ) AA AB BB CC CD DD EE EF FF <b>AA AB BB</b> : 3 character represent Pitch <b>CC CD DD</b> : 3 character represent Roll <b>EE EF FF</b> : 3 character represent Heading Angle format has similar analysis with Pitch, Roll, Heading The angle in the left example is : Pitch : +010.50° , Roll : -010.05° , Heading : +104.01°
<b>0X06</b>	<b>Set magnetic declination command</b> <b>68 06 00 06 02 08 16</b>	Data field ( 2byte ) SA AB S is the sign 0 plus 1 minus AA: two integers, B: a decimals example: 02 08 is +20.8°
<b>0X86</b>	Sensor response reply E.g.: <b>68 05 00 86 00 8E</b>	Data field ( 1byte ) The number in the data field indicates the result of the sensor response. 00 set successfully FF set failed
<b>0X07</b>	<b>Read magnetic declination command</b> <b>68 04 00 07 0b</b>	Data field (0byte) No data field command
<b>0X87</b>	Sensor response reply E.g.: <b>68 06 00 87 02 08 97</b>	Data field ( 2byte ) The number in the data field indicates the result of the sensor response
<b>0X08</b>	<b>Start calibration command</b> <b>68 04 00 08 0C</b>	Data field (0byte) No data field command
<b>0X88</b>	Sensor response reply E.g.: <b>68 05 00 88 00 8D</b>	Data field ( 1byte ) The number in the data field indicates the result of the sensor response. 00 set successfully FF set failed
<b>0X0A</b>	<b>Save calibration command</b> <b>68 04 00 0A 0E</b>	Data field (0byte) No data field command
<b>0X8A</b>	Sensor response reply command E.g.: <b>68 05 00 8A 00 8F</b>	Data field ( 1byte ) The number in the data field indicates the result of the sensor response. 00 set successfully FF set failed

## Protocole

<b>0X8B</b>	Sensor response reply command E.g.: <b>68 05 00 8B 00 90</b>	Data field ( 1byte ) The number in the data field indicates the result of the sensor response. 00 set successfully FF set failed
<b>0X0F</b>	<b>Set module address command</b> <b>68 05 00 0F 01 15</b>	Data field ( 1byte ) XX module address, the address ranges from 00 to EF. Note: Our products have a unified address: <b>FF</b> . <b>If you forget the address you set during the operation, you can use the FF address to operate the product and still respond normally.</b>
<b>0X8F</b>	Sensor response reply command E.g.: <b>68 05 00 8F 94</b>	Data field ( 1byte ) The number in the data field indicates the result of the sensor response. 00 set successfully FF set failed
<b>0X0C</b>	<b>Set angle output mode</b> <b>68 05 00 0C 00 11</b>	Data field ( 1byte ) 00: Question and answer type 01: Automatic output type Factory default: Question and answer type
<b>0X8C</b>	Sensor response reply command E.g.: <b>68 05 00 8C 00 91</b>	Data field ( 1byte ) , The number in the data field indicates the result of the sensor response. 00 set successfully FF set failed