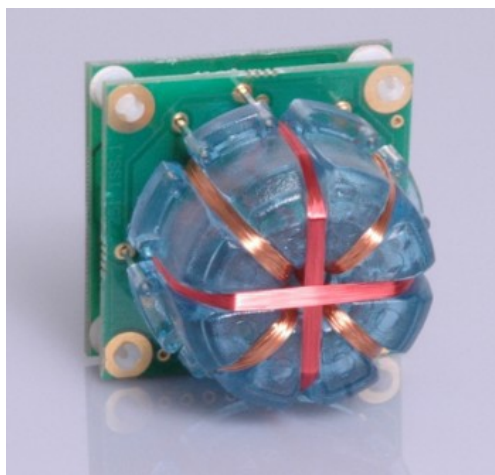


## OEM DIGITAL COMPASS MODULES



A4082

### FEATURES

- Complete OEM Digital Compass
- Pitch and Roll Compensated up to  $\pm 45^\circ$
- Compact
- Low cost
- Auto-calibration
- NMEA-0183 format at TTL level

### APPLICATIONS

- Marine
- Automotive
- Robotics
- Encoders

### ABSOLUTE MAXIMUM RATINGS

PARAMETER	DESCRIPTION	NOTES	CONDITIONS	VALUE	UNIT
$\theta_{\text{STOR}}$	Storage Temp Range			-20 to +100	$^\circ\text{C}$
$\theta_{\text{OPER}}$	Operating Temp Range			0 to +65	$^\circ\text{C}$
	Shock Resistance		Single impact	$\pm 400$	G
	Vibration Resistance		60Hz, 10 Minutes	$\pm 11$	G
	Climate Test		+71 $^\circ\text{C}$ , 95% Humidity -20 $^\circ\text{C}$ , 85% Humidity	6	Hours
$V_{\text{CC}}$	Supply Voltage			15	Vdc

### PERFORMANCE

PARAMETER	DESCRIPTION	NOTES	CONDITIONS	MIN	TYP	MAX	UNIT
$\text{ERR}_{\text{OP}}$	Output error	1			0.2		Degree
$T_{\text{PU}}$	Settling time after power-on					3	s

NOTES: 1 After autocalibration

### ORDER INFORMATION

PART	DESCRIPTION
A4081	35deg digital
A4081D	35deg digital damped
A4082	45deg digital
A4082D	45deg digital damped



## ELECTRICAL CHARACTERISTICS AT 20°C

PARAMETER	DESCRIPTION	NOTES	MIN	TYP	MAX	UNIT
VS	Supply Voltage	1	8	12	15	V
IS	Current consumption			30	40	mA
VL	Supply Voltage	2	4.75	5	5.25	V
Iomax	Analogue output current				1	mA
Sens	Sensitivity (either SIN or COS)	3		25		μT/V
Vref	Analogue Output Voltage		0		5	V
Vref	Analogue Reference			2.5		V
V <sub>oh</sub>	Digital output range high		3		5	V
V <sub>ol</sub>	Digital output range low		0		2	V
V <sub>in</sub>	Digital input range	3	2		3	V
I <sub>op</sub>	Digital output current				1	mA

## DIGITAL OUTPUT FORMAT

**Format D1:** Standard NMEA-0183 sentence 'HDG': (Magnetic heading only)  
 \$HCHDM, x.x, M\*ss<CR><LF> (M indicates Magnetic Heading, checksum ss as above)  
 Or \$HCHDT, x.x, M\*ss<CR><LF> selected by Configuration Command

COMMANDS	FUNCTION
\$PATC, I IHDG, IAC<CR><LF>	Start auto-calibration
\$PATC, I IHDG, XCL<CR><LF>	Abort auto-calibration
\$PATC, I IHDG, OCV<CR><LF>	Reset all calibration data to factory default
\$PATC, I IHDG, AHD, x.x<CR><LF>	Set reference heading (0 to 359.9 degrees)
\$PATC, I IHDG, DHD, x.x<CR><LF>	Set heading damping (as percentage 0 to 100.0)
\$PATC, I IHDG, TXP, x.x<CR><LF>	Set NMEA-0183 output period in milliseconds. (in range 100 to 3000 ms- default is 100 ms)
\$PATC, I IHDG, CFG, x<CR><LF>	Configure output format HDG/HDT, checksum, serial number



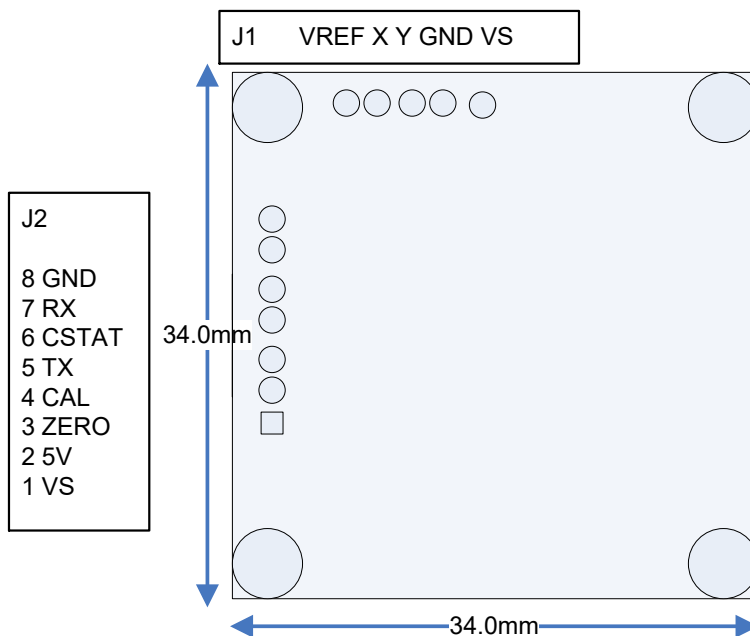
## CONNECTIONS

J1 is the inter-board connector

J2 is the 2.54mm pitch connector

Diagram shows the A408x from the underside

Height in mm	
A4070	18.5
A4071	28.0
A4072	30.5



Corner mounting holes are M2.5 on 28.5mm square spacing

In or Out	Symbol	J1	J2	J3	
P	VS	5	1	8	Supply to on-board regulator
P	GND	4	8	1	Supply and signal ground
P	VL		2	7	Supply not using on-board regulator — not recommended
O	VX	3			COS
O	Vref	1			2.5v
O	VY	2			SIN
P	GND				Signal Ground
I	CAL		4	5	Set the auto-cal routine running
I	ZERO		3	6	Set the current heading to zero
I	SI		7	2	Serial Input
O	SO		5	4	Serial Output
O	CSTAT		6	3	Auto-calibration status