

## IP68 NMEA 2000 COMPASS



### FEATURES

- IP68 - see note 1
- NMEA-2000 compatible
- 2 Axis Tilt compensation to 45°
- 12V Supply 1 LEN
- Auto calibration button
- Set zero button

### APPLICATIONS

- Marine Compass
- Radar "North up"
- Autopilots
- AIS
- Course Watch

### ABSOLUTE MAXIMUM RATINGS

| PARAMETER        | DESCRIPTION              | NOTES | CONDITIONS       | VALUE       | UNIT |
|------------------|--------------------------|-------|------------------|-------------|------|
| $\Theta_{STOR}$  | Storage Temp Range       |       |                  | -20 to +100 | °C   |
| $\Theta_{OPER}$  | Operating Temp Range     |       | Vcc = 12v        | -20 to +60  | °C   |
|                  | Shock Resistance         |       | Single impact    | ±40         | G    |
|                  | Vibration Resistance     |       | 60Hz, 10 Minutes | ±11         | G    |
| V <sub>CC</sub>  | Supply Voltage           |       | At 40degC        | 30          | Vdc  |
| P <sub>MAX</sub> | Operating Pressure Range | 2     |                  | -0.5 to +2  | Bar  |

### PERFORMANCE

| PARAMETER         | DESCRIPTION             | NOTES | CONDITIONS     | MIN | TYP | MAX | UNIT    |
|-------------------|-------------------------|-------|----------------|-----|-----|-----|---------|
| t <sub>PU</sub>   | Time to valid output    |       | After power-on |     |     | 4   | s       |
| ERR <sub>OP</sub> | Output error            | 3     | heel of 0°     |     | 0.3 | 1   | Degrees |
|                   | Output Change With Tilt | 4     | heel of 35°    |     |     | 2   |         |
|                   |                         | 4     | heel of 45°    |     |     | 4   |         |

#### Notes

1. 2 day immersion at 1.2m
2. Can be shipped at 0Bar
3. After auto-calibration with original error not more than 20°
4. In addition to error at 0 degrees of tilt

### ORDER INFORMATION

| PART  | DESCRIPTION | SHIPPING WEIGHT |
|-------|-------------|-----------------|
| A5050 | 2K Compass  | 120g            |

## ELECTRICAL CHARACTERISTICS AT 20°C

| PARAMETER       | DESCRIPTION         | NOTES | MIN | TYP | MAX | UNIT |
|-----------------|---------------------|-------|-----|-----|-----|------|
| V <sub>CC</sub> | Supply Voltage      |       | 8   | 12  | 30  | Vdc  |
| I <sub>CC</sub> | Current consumption |       |     | 25  |     | mA   |
| LEN             | NMEA Backbone Load  |       |     | 1   |     | LEN  |

## INSTALLATION

This compass is a complete NMEA 2000 attitude system for displays and devices which require a magnetic heading such as Autopilots . It is housed in a water-resistant enclosure so it can be mounted outside a steel hull.

The A5050 contains a fluxgate with floating core surrounded by high-precision interface circuits which allow a microprocessor to acquire field strength from two orthogonal sensors of the horizontal component of the Earth's magnetic field.

The processor calculates the vector from these values, then it uses a calibration table to correct for local field disturbance errors and offsets the result.

This table is created during the autocalibration process. It's status is indicated by the blue LED as follows:

|              |                  |
|--------------|------------------|
| Single flash | uncalibrated     |
| Double flash | calibrated       |
| Continuous   | being calibrated |

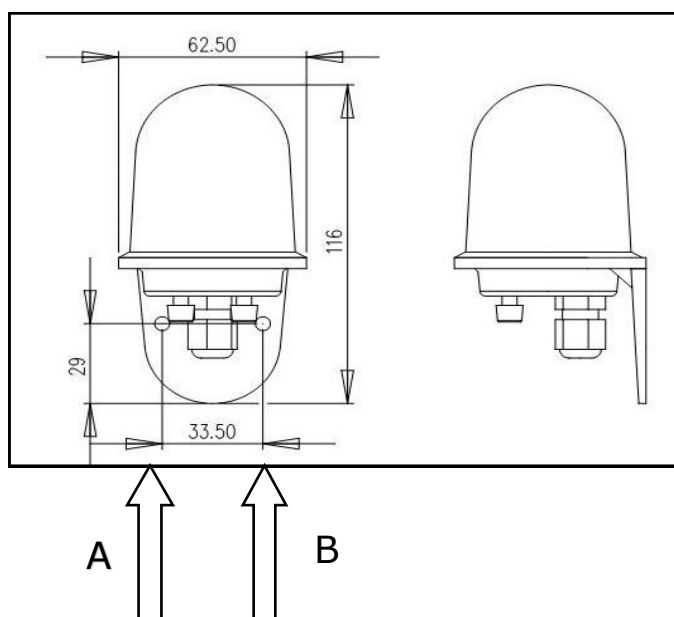
Calibration is done by arranging that the vessel is rotating at a fixed angular speed - typically by

locking the wheel while the engine is at a low rate. A speed of 90seconds per circle is ideal. Button A is pressed and the angular motion should continue for some 400° afterwards. The light should change from continuous to a double-flash.

The compass is fixed to the chassis of the vessel or vehicle in the upright position using the fixing holes shown. It does not matter which way it faces as the azimuth can be set to North at any time or, if the azimuth is known, then the A5050 may be rotated before fixing to North using a protractor. Button B is then pressed and the compass can be mounted.

Just like any other magnetic compass the A5050 has to be installed in the best place. It's accuracy may be affected by the iron in boat, or by magnetic field 'noise' from a switching power supply or local strong DC currents. Care should be taken to make sure the compass is not situated too close to a power supply

Note that the output from the A5050 takes several seconds to stabilize after power is applied.



### CONNECTIONS

Standard NMEA-2000 Plug on 1m cable  
netH, netL, +12V, GND

### NMEA-2000 OUTPUT

Standard Compass PGN (127250) every 100ms

### NMEA-2000 INPUT

Set North using proprietary PGN 61184.  
Contact factory for details.

### BUTTONS

Button A is CAL which starts the autocalibration process.  
Button B is ZERO which assigns the current azimuth the value of 0.0°