AUTONNIC

A5041

IP68 GYRO COMPASS

Ideal for:

- Autopilots
- Marine and Vehicle Compass
- Radar "North up"
- AIS
- Off-Course Alarms systems

Features:

- 2 Axis Tilt compensated fluxgate
- Solid-state yaw sensor
- NMEA-0183
- 8-30 V Supply
- Rich command set
- Rate-of-Turn sentence (HFROT/HEROT)
- Auto calibration button
- Set zero button
- IP68 - see note 1

Heading output is derived by integrating the rate-of-turn output from a MEMS yaw accelerometer or 'gyro' which is then drift-corrected by a fluxgate magnetometer, pitch and roll compensated to 45°, for precision and long-term stability.

ABSOLUTE MAXIMUM RATINGS

PARAMETER	DESCRIPTION	NOTES	CONDITIONS	VALUE	UNIT
Θ_{STOR}	Storage Temp Range			-20 to +100	°C
Θ_{OPER}	Operating Temp Range		Vcc = 12v	-20 to +60	°C
	Shock Resistance		Single impact	±40	G
	Vibration Resistance		60Hz, 10 Minutes	±11	G
V_{CC}	Supply Voltage		At 40degC	30	Vdc
P_{MAX}	Operating Pressure Range	2		-0.5 to +2	Bar

PERFORMANCE

PARAMETER	DESCRIPTION	NOTES	CONDITIONS	MIN	TYP	MAX	UNIT
t_{PU}	Time to valid output		After power-on		5	7	s
ERR_{OP}	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 20degrees
4. In addition to error at 0 degrees of tilt

ORDER INFORMATION

PART	DESCRIPTION	SHIPPING WEIGHT
A5041A	IP68 Compass 15m cable	1.0kg
A5041B	IP68 Compass 7.5m cable	500g
A5041C	IP68 Compass 1m cable	120g

ELECTRICAL CHARACTERISTICS AT 20°C

PARAMETER	DESCRIPTION	NOTES	MIN	TYP	MAX	UNIT
V_{CC}	Supply Voltage		8	12-24	30	Vdc
I_{CC}	Current consumption			25		mA
	NMEA Output Load			4		NMEA loads
$I_{O(max)}$	Furuno output load	Data and clock			1	mA

NMEA-0183 OUTPUT FORMAT (software subject to change)

The output from the compass is a standard NMEA-0183 sentence which can be configured to be in one of several standard forms: Eg: `$HCHDG,hhh.h,,,,*ss<CR><LF>` or `$HCHDT,hhh.h,T<CR><LF>`

where hhh.h represents the magnetic heading with one decimal place of precision, i.e: 000.0 to 359.9 degrees. The two HEX digits, ss, are a checksum. Serial output is RS422, 4800 Baud, 8 data bits, 1 stop bit, no parity.

An option is to include `$HFROT,zxxx.x,A*cc<CR><LF>` (or `...HEROT`...)

The compass may be configured via several proprietary input sentences, and will reply with an 'Acknowledge' output sentence `$PATC,HCHDG,ACK <CR> <LF>` when any of the sentences listed below are received.

SOME COMMAND EXAMPLES

`$PATC,IIHDG,IAC (or XCL<CR><LF>`

`$PATC,IIHDG,0CV <CR><LF>`

`$PATC,IIHDG,AHD,fff.f<CR><LF>`

`$PATC,IIHDG,DHD,ddd.d<CR><LF>`

`$PATC,IIHDG,TXP,mmmm<CR><LF>`

FUNCTION

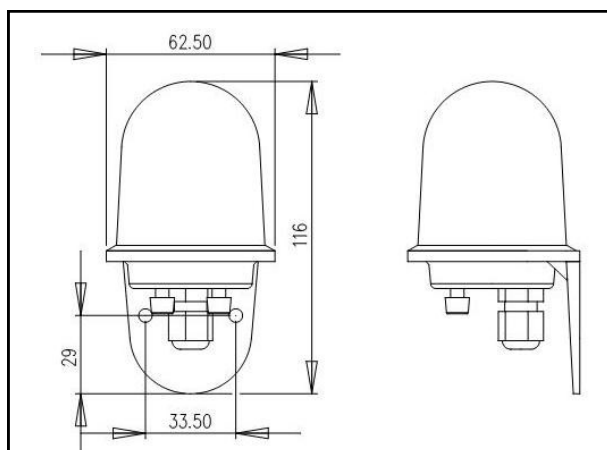Start (or stop) magnetic auto-calibration

Set reference heading (f = 0 to 359.9 degrees)

Set heading damping (d = 0 to 100.0%)

Set NMEA-0183 output sentence interval
(in range m=100 to 3000 ms- default is 100 ms)
Also commands for:
LED on/off, sentence structure, checksum, serial number, autocal status and power-up delay.

CONNECTIONS

1	Red	+10-30v
2	White	NMEA IN+
3	Brown	NMEA IN-
4	Black	GND
5	Green	GND
6	Yellow	NMEA OUT+
7	Blue	No Connection
8	Violet	No Connection
9	Screen	No Connection