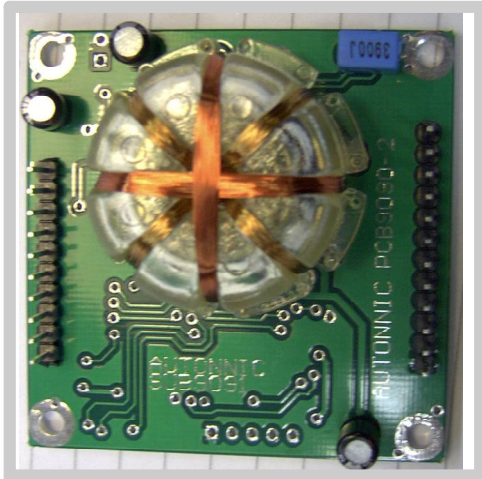




OEM COMPASS



FEATURES

- Complete OEM Compass
- Compact
- Low cost
- Remote inputs for Calibration and offset
- Auto-calibration
- Tilt compensation of 0° 35° or 45°
- Analogue: Linear or SIN/COS
- Digital: NMEA-0183, FURUNO

APPLICATIONS

- Marine
- Automotive
- Robotics

ABSOLUTE MAXIMUM RATINGS

PARAMETER	DESCRIPTION	NOTES	CONDITIONS	VALUE	UNIT
θ_{STOR}	Storage Temp Range			-20 to +100	°C
θ_{OPER}	Operating Temp Range			0 to +65	°C
	Shock Resistance		Single impact	±40	G
	Vibration Resistance		60Hz, 10 Minutes	±11	G
V_{CC}	Supply Voltage			15	Vdc
Φ_{MAX}	Operating Pressure Range	5	70°C	-0.5 to +3	Bar

PERFORMANCE

PARAMETER	DESCRIPTION	NOTES	CONDITIONS	MIN	TYP	MAX	UNIT
ERR_{OP}	Output error	1	0° heel		0.3	1	Degrees
H_{ea}	Heading error	2,3	±35° heel			2	
		2,4	±45° heel			3	
T_{PU}	Settling time after power-on					8	S

NOTES: 1 After auto-calibration where the original uncalibrated error was less than 20°
 2 In addition to error at 00° heel
 3 A4020-35
 4 A4020-45
 5 Consult factory about operation below 0.5Bar

ORDER INFORMATION

PART	DESCRIPTION
A4020-00	OEM fixed Compass
A4020-35	OEM 35deg Compass
A4020-45	OEM 45deg Compass

OPTIONS

B - connectors down
 (default is up)
 N – no analogue



ELECTRICAL CHARACTERISTICS AT 20°C

PARAMETER	DESCRIPTION	NOTES	MIN	TYP	MAX	UNIT
V_{PWR}	Supply Voltage	11	7	12	15	V
$I_{CC(AVG)}$	Average Current consumption	10		25		mA
	NMEA Output Loads			4		NMEA loads
I_{max-an}	Analogue output current				1	mA
V_{in}	Digital input range	6	2		4	V
I_{op}	Digital output current	7			1	mA
$I_{CC(SD)}$	Current consumption	8			2	mA
$I_{CC(AC)}$	Current consumption	9		60		mA

NOTES 6<2 for low, >3v for hi
8 shut-down
10 With 60mA peaks

7 either source or sink
9 during auto-calibration
11 For 5v operation consult factory

DIGITAL OUTPUTS

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 HDG, IAC<CR><LF>	Start auto-calibration
\$PATC, I HDG, XCL<CR><LF>	Abort auto-calibration
\$PATC, I HDG, 0CV<CR><LF>	Reset all calibration data to factory default
\$PATC, I HDG, AHD, xxx.x<CR><LF>	Set reference heading (0 to 359.9 degrees)
\$PATC, I HDG, DHD, xx<CR><LF>	Set heading damping (as percentage 0 to 99)
\$PATC, I HDG, TXP, xxxxx<CR><LF>	Set NMEA-0183 output period in milliseconds. (in range 100 to 3000 ms- default is 100 ms)
\$PATC, I HDG, CFG, x<CR><LF>	Configure output format HDG/HDT, checksum, serial number

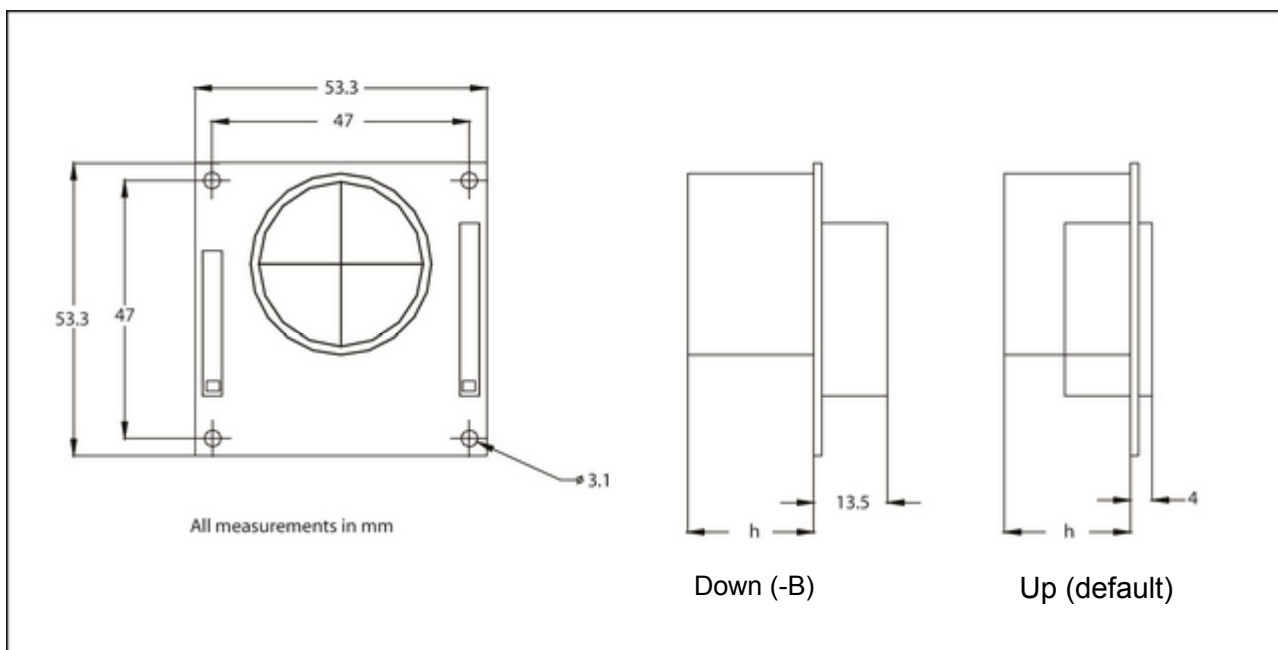
Format D2: Furuno code

Clocked on rising edge of 17kHz clock.(SPICK)
Data (SPID) set-up and hold: 30µs.
Connect /RTS to GND to start. Response is within 20µs to 30ms.
Maintain /RTS at GND for continuous Furuno output.

ANALOGUE OUTPUT

Analogue Format A1:

$ANO1 = 2\sin HDG + ANO3$, $ANO2 = 2\cos HDG + ANO3$, $ANO3 = \text{supply}/2$
 $ANO4 = 13.89\text{mV}/^\circ$ (0-5v = 0 – 350°)



For the -00 h= 6

For the -35 h=19

For the -45 h=21

CONNECTIONS

J1	Header Block		
Pin	In or Out		
1	P	GND	Supply and signal ground
2	I	/AC	not Start auto-calibration
3	I	/SZ	not Set zero heading
4	I	/BRC	not Change bit-rate
5	I	/SD	not Shut-down
6	O	CE	Cal status output
7	I	ANI	Analogue Input
8	O	SO	Serial output
9	I	SI	Serial input
10	O	NMEAO	RS422 / NMEA-0183 O/P (+)
11	I	NMEAI-	RS422 / NMEA-0183 I/P (-)
12	I	NMEAI+	RS422 / NMEA-0183 I/P (+)

J2	Header Block		
Pin	In or Out		
1	O	ANO4	Analogue Output 4
2	O	ANO1	Analogue Output 1
3	O	ANO2	Analogue Output 2
4	O	ANO3	Analogue Output 3
5			n/c
6	O	SPICK	SPI/Furuno Clock
7	O	SPID	SPI/Furuno Data
8	I	/RTS	not Request SPI/Furuno
9	P	PWR	+ supply
10	P	GND	Supply and signal ground

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