Lars Thrane A/S

Comparison of LT-1000 NRU with GPS Compasses

27 June 2016

Comparison of Products

- Comparison of the following products:

Type	Product	Company
Electronic compass	LT-1000 NRU	Lars Thrane A/S
GPS compass	Vector Compact	True Heading[1]
GPS compass	Vector Carbon	True Heading[1]
GPS compass	Vector Mk2 Lite	True Heading[1]
GPS compass	Vector Mk2 Pro	True Heading[1]
GPS compass	SC-30	Furuno

Note: Data presented in this report is taken from official data sheets.
1: The True Heading GPS compasses are OEM products from Hemisphere.


LT-1000 NRU


Vector Compact

SC-30

Vector Carbon

Vector Mk2 Lite/Pro

LT-1000 NRU – Pros & Cons

- Pros:
  - Cheaper than a GPS compass
  - Similar heading performance as more expensive satellite compasses
  - Never lose heading output
  - Not required to be installed in the top of the mast
  - Multipath fading and reflections are not affecting the heading performance
  - Easy to install (pole or roof mount)
  - Support both NMEA 0183 and NMEA 2000
  - Support (GPS, SBAS, GLONASS, and BeiDou)
  - Easy configuration of output via LT-Service Tool (sentence, output rate, and talker ID)
  - Two deviation calibration methods supported (standard and adaptive)
  - Operational temp. from -40°C to +55°C (-40°F to +131°F)
  - Low power consumption (< 1 W)
  - Low weight and size
  - All parts included in the box

- Cons:
  - Can be affected by external magnetic interference
  - Deviation calibration required to output reliable magnetic and true heading

LT-1000 NRU vs. GPS Compasses

	LT-1000 NRU vs. GPS Compasses					
	Lars Thrane A/S	True Heading / Hemisphere				Furuno
	LT-1000 NRU	Vector Compact	Vector Carbon	Vector MK2 Lite	Vector MK2 Pro	SC-30
Heading	Static 0.5° rms Dynamic 1.5° rms	< 2° rms	< 0.75° rms	< 0.3° rms	< 0.3° rms	0.5° rms
Roll/Pitch	Static 0.5° rms	< 2° rms	< 1.5° rms	< 1° rms	< 1° rms	0.5° rms
Air temperature/pressure	Yes	No	No	No	No	No
Update rate	Standard: 10 Hz Optional: up to 40 Hz (NMEA 0183)	Standard: 10 Hz	Standard: 10 Hz Optional: 20 Hz	Standard: 20 Hz	Standard: 20 Hz	Standard: 10 Hz
Rate of Turn	45°/s. (gyro perf. 70°/s.)	90°/s.	90°/s.	90°/s.	90°/s.	45°/s.
Heave	No	30 cm (@ 40 s.)	30 cm (@ 40 s.)	30 cm (@ 40 s.)	30 cm (@ 40 s.)	30 cm (@ 40 s.)
Pitch and Roll alignment	Yes (via LT-Service Tool)					
Supply voltage	9-40 VDC	8-36 VDC	6-36 VDC	6-36 VDC	6-36 VDC	12-24 VDC
Operating Temperature	-40°C to +55°C	-30°C to +70°C	-30°C to +70°C	-30°C to +70°C	-30°C to +70°C	-25°C to +70°C
Dimensions	15,1 x 8,2 x 12,8 cm	22,5 x 12,5 x 4,0 cm	41,7 x 15,8 x 6,9 cm	66,3 x 20,9 x 14,6 cm	66,3 x 20,9 x 14,6 cm	68,5x25,3x14,1 cm
Weight	0.2 kg.	0.5 Kg.	1.5 kg.	2.1 kg.	2.4 Kg.	2.5 Kg. (ant. only)
Vibration	IEC 60945. Plus survival and shock profiles up to 60 g pk.	IEC 60945	IEC 60945	IEC 60945	IEC 60945	IEC 60945
Dust & Waterproof rating	IP46	IP69	IP67	IP67	IP67	IP56
Receiver Type	72 ch. GNSS receiver	12 ch. GPS L1	12 ch. GPS L1	12 ch. GPS L1	12 ch. GPS L1 300 KHz DGPS Rec.	12 ch. GPS L1
SBAS	WAAS, EGNOS, MSAS	1 Ch. (WAAS)	2 ch. (WAAS/EGNOS)	2 ch. (SBAS)	2 ch. (SBAS)	1 ch. (WAAS)
GPS Position Accuracy	GNSS: < 2.5 m. (95 %) SBAS: < 1 m. (65 %)	GPS: < 3 m. (95 %) SBAS: < 1 m. (95 %)	GPS: < 2.5 m. (95 %) SBAS: < 1 m. (95 %)	GPS: < 2.5 m. (95 %) SBAS: < 0.6 m. (95 %)	GPS: < 2.5 m. (95 %) SBAS: < 0.6 m. (95 %)	GPS: < 10 m. (95 %) WAAS: < 3 m. (95 %)
Cold start	26 s.	< 60 s.	< 60 s.	< 60 s.	< 60 s.	3 min. (settling time)
Hot start	NA	< 1 s.	< 1 s.	< 1 s.	< 1 s.	NA
NMEA 0183	Yes	No	Yes	Yes	Yes	Yes (break-out box)
NMEA 2000	Yes	Yes	Yes	Yes	Yes	Yes
Power Consumption (Typ.)	55 mA @ 12 VDC	165 mA @ 12 VDC	250 mA @ 12 VDC	240 mA @ 12 VDC	265 mA @ 12 VDC	500 mA @ 12 VDC
Certifications	CE, FCC, IC, RCM (~C-Tick)	CE, FCC	CE, FCC	CE, FCC	CE, FCC	CE, FCC
IMO Wheelmark Certification	No	No	No	No	Yes	No
MSRP	755 EUR	~850 EUR	~1600 EUR	~2000 EUR	~2350 EUR	~2250 EUR (ant. only)