

- High Accuracy
 - Heading within 0.5° or better ⇒ Tilt within 0.3° or better \Rightarrow
- Wide Operating Range
- ±42° Pitch and Roll ⇒
- \Rightarrow ±80° Dip angle range
- Temperature -40° to 105°C \Rightarrow
- **Fast Response**
 - 27.5 readings per second ⇒
 - Wake from standby in 50 msec \Rightarrow
 - **Single Supply Operation**
 - 6 to 45V unregulated DC \Rightarrow
- Low Power
 - 25 mA operating \Rightarrow
 - 10 mA sample ⇒
 - 2 mA standby
- Wide Selection of Output data
 - Heading, pitch, and roll \Rightarrow
 - Magnetometer X, Y, and Z \Rightarrow
 - ⇒ Dip angle
 - Total, horizontal, and vertical magnetic field \Rightarrow strength
- **Choice of Interface**
 - Full-duplex RS-232 ⇒
 - Full-duplex RS-485 \rightarrow
- In-System Configuration and Test
 - PC or laptop can be connected while unit \Rightarrow operates in-situ
 - Perform hard and soft iron calibration ⇒
 - Monitor outputs and change user-definable \Rightarrow settings

True North Technologies Revolution[™] Upgrade **Electronic Compass**

General Description

The Revolution Upgrade (TNT1500) combines a precision 3-axis solid-state magnetometer and a rugged 2-axis electrolytic tilt sensor to provide accurate heading and tilt measurements over a wide range of environmental conditions. The firmware and signal processing algorithms have been refined and improved over three prior generations of compasses to deliver the ultimate in performance from the available sensor data.

The TNT1500 is recommended for applications that include surveying, antenna positioning, dead reckoning, and as supplemental navigation when GPS is not available.

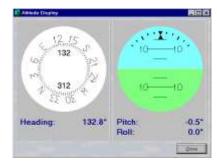
Why a Revolution?

A key advantage of the Revolution is its quick-connect, external serial interface. While the compass is in-place, and without disconnecting system wiring, a serial cable or available USB cable can be temporarily connected via the RJ12-style modular receptacle. This allows easy access during installation for calibration and tuning. It also provides a valuable diagnostic port and can be used for

an auxiliary read-out when needed. In situations where a fixed installation is not desirable, the RJ12 connection can be used exclusively.

Among the host of user definable parameters is the selection of NMEA output data and update rate;

operating mode as continuou



Attitude Display in PC Software or query-only; and angle data in

degrees, mils, radians, or 16-bit integer (65536 counts per revolution). Compensation for both hard and soft iron influences is built-in.

About True North

True North Technologies, a 25-year-old manufacturer, offers a development kit that includes the compass, cable, and software. All products are made in the USA.

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Specifications

Heading Performance

	Parameter	Value	Comments
	Accuracy Repeatability Response time Dip Angle Range Tilt Range Update rate	± 0.5° rms ± 0.3° 36 msec ± 80° ± 42° 27.5 per second	Typical, Tilt < 35° Dip < 60 No filter Minimum, no filter
Pitch	and Roll Performance		
	Parameter	Value	Comments
	Accuracy Repeatability Range Settling time	± 0.3° ± 0.20° ± 42° 0.5 sec	Factory calibrated No filter No damping
Electr	ical		
	Parameter	Value	Comments
	Supply Current	25 mA operating 10 mA sample 2 mA standby	typical typical typical
	Supply Voltage (VDD)	6 – 45 Vdc unregulated	91
Enviro	onmental		
	Parameter	Value	Comments

Parameter	Value	Comments
Operating Temp	-40 to 105 °C	
Storage Temperature	-50 to 150 °C	
Humidity	0 to 90%	Non-condensing

Mechanical

Parameter

Box PCB Size PCB Mounting Weight Connectors

Interface

Parameter

Signal type Baud rate Character Format Input Buffer Size Output Buffer Size Output Format Output Data Rate Operating Modes Angle Units

Value

Value

3 oz. in box

RS232 or RS485 2400, 4800, 9600, 19200, 38400, or 57600 bps 8 data, no parity, 1 stop 110 characters 110 characters NMEA 0183 and binary 1 to 1650 sentences per minute Continuous or sample Degrees, mils, radians, 16-bit integer

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60°

Comments

Hammond Mfg1591MFL 1.8"W x 3.0"L x 0.6"H H required for tilt sensor 4 #4 screws, 1.4" x 2.2" spacing 8 pin, single-row, 0.1" friction header 6 pin RJ12 modular jack