NMEA 2000® Diagnostic Tool

N2KMeter

The N2KMeter is a diagnostic tool for NMEA 2000® networks that allows users to validate NMEA 2000® network compatibility and operations during installation of a device or complete system, and diagnose possible network flaws or failures that occur on an operational network.

Cut troubleshooting time from hours to seconds, by effectively identifying and diagnosing network problems. N2KMeter provides the detailed technical information an NMEA 2000® troubleshooting expert needs, yet it simplifies and summarizes, allowing an NMEA 2000® novice to effectively identify and diagnose network problems. Battery-powered operation allows a novice user to save readings for experts to analyze later, off the boat.

N2KMeter uses a patented integrated intelligence technique to summarize multiple NMEA 2000® network operational variables into a single health index. To a service technician, it's a "guru-in-a-box", providing a detailed reading of network performance. It summarizes NMEA 2000® network health by displaying a happy face icon, indicating a healthy network; a sad face, indicating a serious problem; or a neutral face, indicating nominal performance (a good indication to repair things before they actually fail). N2KMeter then walks the user through each fault condition and its source, or it can record key operating parameters for offline review.

Faults that can be detected by the N2KMeter include

* Opens and shorts
* Incorrect topology
* Bad nodes
* Bad termination
* Improper shield connection
* Intermittent problems
* Excessive scan rate
* Common mode voltage

Maretron

Leading the way in NMEA 2000® technology

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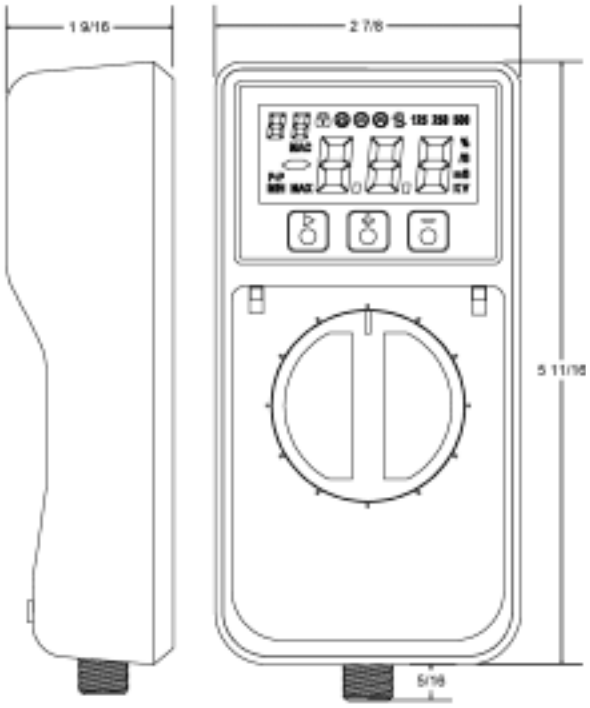

Specifications

Parameter	Value	Comment
Network Connection	NMEA 2000®	Standard “Micro-C” Connector
Baud Rates	125K, **250K**, 500K	Auto-Detect
Bus Power Range	0 to 25V	With Over/Under Range Indication
Bus Signal Range	-5 to 10V	With Over/Under Range Indication
Number of Network/Node Parameters Measured	Up to 2,297	Compares to NMEA 2000® Specifications

Fault/Warning Thresholds

Measurement	Nominal	Fault
Recessive NET-L Low	-2.0V	-3.0V
Recessive NET-L High	7.0V	8.5V
Recessive NET-H Low	-2.0V	-3.0V
Recessive NET-H High	7.0V	8.5V
Recessive Differential Low	N/A	0.08V
Recessive Differential High	N/A	-0.18V
Dominant NET-L Low	-3.5V	-4.5V
Dominant NET-L High	6.25V	7.75V
Dominant NET-H Low	-1.25V	-2.25V
Dominant NET-H High	8.5V	10.0V
Dominant Differential Low	1.45V	1.2V
Dominant Differential High	2.75V	3V
Common Mode Voltage Low	-2.5V	-5.5V
Common Mode Voltage High	2.5V	5.5V
Bus Traffic (% bandwidth) High	90%	N/A
Bus Traffic (messages/second)	N/A	N/A
Node Traffic (% bandwidth) High	90%	N/A
Node Traffic (messages/second)	N/A	N/A
Bus Errors (errors/second) High	1	15
Node Errors (errors/second) High	1	15
Node Errors Cumulative	N/A	N/A
Bus Power Voltage Low	10V	9V
Bus Power Voltage High	N/A	15.75V
Bus Power Voltage (peak-to-peak) High	2V	5V
Shield Voltage Low	-2.0V	-2.5V
Shield Voltage High	0.3V	1.0V

Certifications

Standard	Comment
NMEA 2000®	Listen Only Device
FCC and CE mark	Electromagnetic Compatibility

Electrical

Parameter	Value	Comment
Operating Voltage	7 to 30 Volts	DC Voltage
Power Consumption	90mA	Average Current Drain
Load Equivalence Number (LEN)	2	NMEA 2000® Spec. (1 LEN = 50mA). Can be configured to run with virtually zero network load with batteries installed
Reverse Battery Protection	Yes	Indefinitely
Batteries	2x AA Alkaline	For Offline Review of Stored Measurements

Mechanical

Parameter	Value	Comment
Size	3.45” W x 6.63” H x 2.20” D	With Protective Case
Weight	13 Oz.	With Protective Case

Environmental

Parameter	Value
Operating Temperature	0°C to 40°C
Storage Temperature	-40°C to 85°C
Relative Humidity	5% to 90% Non-condensing
Safety Precautions	CAN/CSA C22.2, No. 1010.1-92, CAN/CSA C22.2, No 1010.1B-97, UL 3111-1

Maretron

9034 N. 23rd Avenue
Suite 13
Phoenix, AZ 85021

Phone: 866-550-9100
Fax: 602-861-1777
Email: sales@maretron.com
Web: www.maretron.com

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