RAA100 *Rudder Angle Adapter*

Maretron's RAA100 is used to adapt commercially available resistive rudder senders to the NMEA 2000® network. This allows you to observe rudder angle anywhere on the vessel where there are NMEA 2000® compatible displays such as the Maretron DSM250 or DSM200.

The RAA100 is compatible with both the American standard (240-30 ohms) and European standard (10-180 ohm) resistive senders. In fact, the RAA100 can be calibrated for any resistance between 0 and 300 ohms.

You can also use the RAA100 with analog gauges at the same time as NMEA 2000® so you don't have to give up existing analog gauges to enjoy the advantages of digitally networked information.

The Maretron RAA100 has the following features:

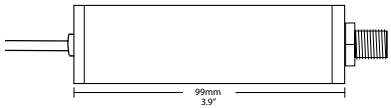
- NMEA 2000® Interface
- Adapts American standard (240-30 ohm) resistive senders to NMEA 2000® Network
- Adapts European standard (10-180 ohm) resistive senders to NMEA 2000® Network
- Can be Calibrated for any Resistive Sender Ranging from 0-300 Ohms or 300-0 Ohms
- Three Point Electronic Calibration eliminates need for Mechanical Adjustment or Calibration
- Can be Used Standalone Without Analog Gauges

Products

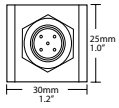
PART NUMBER	DESCRIPTION
RAA100-01	Rudder Angle Adapter

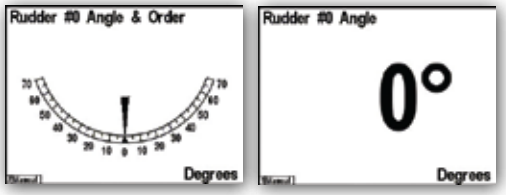
Top View

Side View



End View





DSM250/DSM200 Screen Shots

Specifications

Parameter	Value	Comment
Accuracy	+/-2%	Does Not Include Inaccuracies of Analog Gauge or Sender
Resolution	+/-1%	Worst Case (Resolution Better at High Resistance Values)
American Standard Senders	240-30 ohms	Standard Sender Types are User Selectable
European Standard Senders	10-180 ohms	Standard Sender Types are User Selectable
Calibration Resistance Range	0-300 ohms	Non-Standard Sender Calibration
Electronic Calibration	Yes	Eliminates need to mechanically adjust or calibrate
Analog Gauge Support	Yes	Can be Used With or Without Analog Gauges

Certifications

Standard	Comment
NMEA 2000® Standard	Level B+
Maritime Navigation and Radio Communication Equipment & Systems	IEC 61162-3
Maritime Navigation and Radio Communication Equipment & Systems	IEC 60945
FCC and CE mark	Electromagnetic Compatibility

NMEA 2000® Parameter Group Numbers (PGNs)

Description	PGN #	PGN Name	Default Rate
Periodic Data PGNs	127545	Rudder	10 Times/Second
Response to Requested PGNs	126464	PGN List (Transmit and Receive)	N/A
	126996	Product Information	N/A
	126998	Configuration Information	N/A
Protocol PGNs	059392	ISO Acknowledge	N/A
	059904	ISO Request	N/A
	060928	ISO Address Claim	N/A
	065240	ISO Address Command	N/A
	126208	NMEA Request/Command/Acknowledge	N/A
Maretron Proprietary PGNs	126720	Configuration	N/A

Electrical

Parameter	Value	Comment
Operating Voltage	9 to 16 Volts	DC Voltage
Power Consumption	<100mA	Average Current Drain
Load Equivalence Number (LEN)	2	NMEA 2000® Spec. (1LEN = 50mA)
Reverse Battery Protection	Yes	Indefinitely
Load Dump Protection	Yes	Energy Rated per SAE J1113

Mechanical

Parameter	Value	Comment
Size	3.9" x 1.2" x 1.0" (99mm x 30mm x 25mm)	Excluding NMEA 2000® Connector & Cable
Weight	9 oz. (255g)	
Mounting	Any Orientation	

Environmental

Parameter	Value
IEC 60945 Classification	Exposed
Degree of Protection	IP67
Operating Temperature	-25°C to 55°C
Storage Temperature	-40°C to 70°C
Relative Humidity	93%RH @40° per IEC60945-8.2
Vibration	2-13.2Hz @ ±1mm, 13.2-100Hz @ 7m/s² per IEC 60945-8.7
Rain and Spray	12.5mm Nozzle @ 100liters/min from 3m for 30min per IEC 60945-8.8
Solar Radiation	Ultraviolet B, A, Visible, and Infrared per IEC 60945-8.10
Corrosion (Salt Mist)	4 times 7days @ 40°C, 95%RH after 2 hour Salt Spray Per IEC 60945-8.12
Electromagnetic Emission	Conducted and Radiated Emission per IEC 60945-9
Electromagnetic Immunity	Conducted, Radiated, Supply, and ESD per IEC 60945-10
Safety Precautions	Dangerous Voltage, Electromagnetic Radio Frequency per IEC 60945-12