



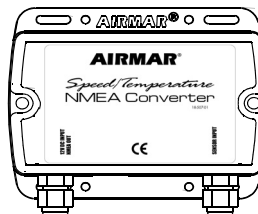
OWNER'S GUIDE & INSTALLATION INSTRUCTIONS

Analog to NMEA 0183

Data Converter

for Speed and/or Temperature Data

Patent <http://www.airmar.com/patent.html>



Follow the precautions below for optimal product performance and to reduce the risk of property damage, personal injury, and/or death.

WARNING: Always wear safety glasses, a dust mask, and ear protection when installing.

WARNING: The power must be OFF before making electrical connections if the instrument is already connected to a power source.

WARNING: The power supply voltage must be 12 VDC.

WARNING: A safe installation requires a 0.5 amp fast-blow fuse or circuit breaker.

CAUTION: To reduce electrical interference from other electrical wiring and any on-board equipment with strong magnetic fields such as radar equipment, radio transmitters, boat engines, generators, etc., separate the cables by at least 1 m (3').

CAUTION: Be careful not to tear the cable jackets when passing them through the bulkhead(s) and other parts of the boat. Use grommet(s) to prevent chafing.

CAUTION: Make power connections to a 12 VDC power source that is isolated from the engine start battery(s). Voltage drops may cause the instrument/receiver/sensor to lose information and/or change operating mode.

CAUTION: Use a multimeter to check the polarity and the connections to the power supply before applying power to the sensor.

IMPORTANT: Read the instructions completely before proceeding with the installation. These instructions supersede any other instructions in your instrument manual if they differ.

Application

To convert analog speed and temperature data to NMEA 0183 digital format.

Tools & Materials

Safety glasses	Alcohol (optional)
Dust mask	Wire strippers
Ear protection	Heat-shrink tubing
Pencil	Heat gun
Grommet(s) (some installations)	Blade screwdrivers
Cutting plier	Electric drill
Phillips screwdrivers	Drill bit 3mm or 1/8"

Locating the Converter

1. Select a convenient dry mounting location for the water-resistant Data Converter. Locate it a minimum of 1 m (3') away from the display (Figure 1). Position the converter so the bushings are easily accessible. If the Data Converter will be mounted on a vertical surface, face the bushings downward to avoid water seeping into the box.
2. Hold the Data Converter at the selected location and mark the holes for the screws. *Do not fasten it in place at this time.*
3. Route the sensor/instrument cable to the proposed location of the Data Converter. *Do not fasten the cable in place at this time.*
4. Route the Data Converter cable from the Data Converter to the display (and power supply on some installations). *Do not fasten the cable in place at this time.*

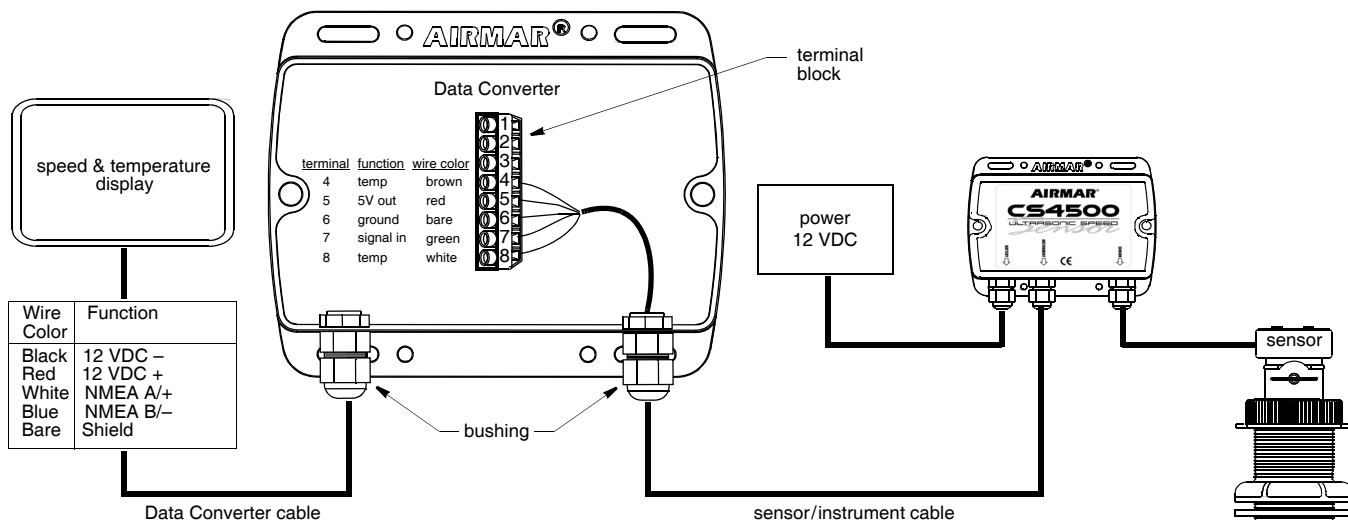


Figure 1. Connecting (not to scale) (CS4500 installation shown)

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Preparing the Cables

1. If the instrument is connected to a power source, the power must be OFF before proceeding.
2. Allowing an extra 25 cm (10") for wiring ease, cut each cable to length.
3. Remove the cover of the Data Converter (Figure 2). Peel the tape away from the inside and set the screws aside.
4. Push approximately 200mm (8") of the sensor/instrument cable through the bushing of the Data Converter (Figure 1). To ease sliding, apply alcohol to the cable jacket.
5. Strip 51 mm (2") of the outer jacket and foil shielding from the cut ends of both the sensor/instrument cable and the Data Converter cable (Figure 3).
6. Strip 6mm (1/4") of conductor insulation from the end of each colored wire in both cables.
7. Protect each cable's foil shielding from causing a short by using heat-shrink tubing around the jacket where the wires emerge from the cable. The tubing must overlap the wires a minimum of 6mm (1/4").

Connecting

Wiring the Data Converter

1. From outside the Data Converter, carefully pull the sensor/instrument cable until only 13mm (1/2") of the cable jacket remains inside the box.
2. Connect each colored wire in turn to its corresponding terminal on the terminal block. Insert the stripped end of the wire into the hole in the terminal and tighten the screw using a small blade screwdriver (Figure 1). *Be sure the stripped end of the wire is inserted up to its insulation only.* Do not include any insulation inside the terminal. Gently tug on the wire to ensure that it is securely fastened. Repeat this process until all the wires are connected. Follow the color code listed on the inside of the Data Converter cover (Figure 4).
3. Arrange the wires neatly inside the Data Converter, being sure that no bare wires are touching.
4. Hand tighten the nut on the bushing to make a water-resistant seal (Figure 1).
5. Reattach the Data Converter cover with the screws supplied.

Wiring the Display & Power

1. If there is *no* terminal for the bare wire (shield), cut it off flush with the cable jacket.
2. Connect the Data Converter cable to the display. Refer to the instructions that came with the display for connecting an NMEA 0183 speed & temperature sensor. Follow the color code below (Figure 1).

Black	12 VDC –
Red	12 VDC +
White	NMEA A/+
Blue	NMEA B/–
Bare	Shield

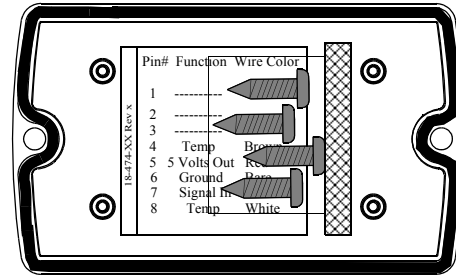


Figure 2. Inside of the Data Converter cover

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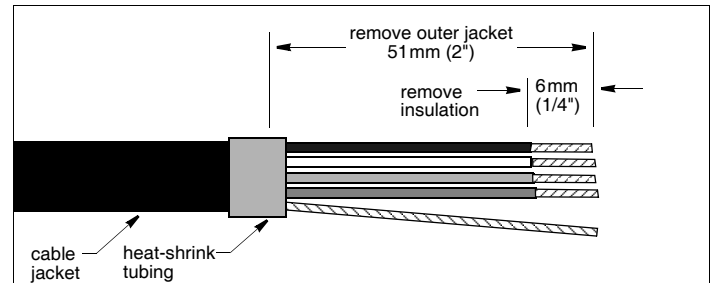


Figure 3. Preparing a cable (sample cable shown)

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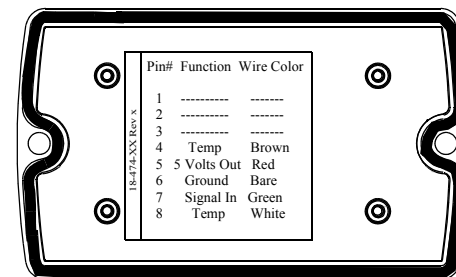


Figure 4. Wiring label inside of the Data Converter cover

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Completing the Installation

1. Using a 3mm or 1/8" drill bit, drill the holes for the screws at the selected Data Converter mounting location.
2. Fasten the Data Converter in place using the screws supplied.
3. Fasten all the cables in place.

Parts

Obtain parts from your instrument manufacturer or marine dealer.

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