

INSTALLATION INSTRUCTIONS

Junction Box

Terminal Style

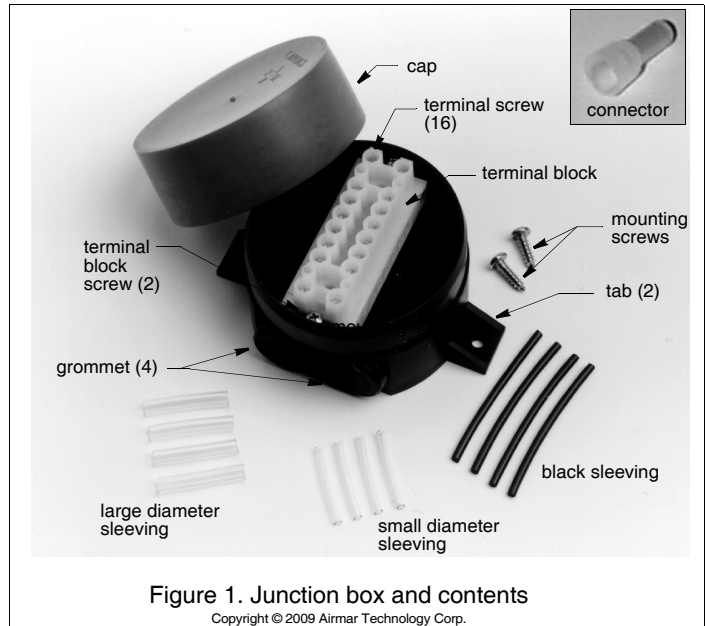
12/14/10
17-037-01 rev. 04

WARNING: Always wear safety goggles and a dust mask to avoid personal injury.

CAUTION: High Voltage Charge

The depth transducer may be storing a high voltage charge. Accidental discharge could destroy the speed sensor.

IMPORTANT: Please read these instructions completely before proceeding with the installation. These instructions are to be used in conjunction with your instrument manual and the instructions provided with your transducer(s), sensor, or other components.



Applications

- To provide a water, fog, and salt-resistant splice.
- To splice marine cables up to 7.5mm (5/16") in diameter.
- To splice marine cables with up to eight wires. (Two crimp connectors are included for additional wires.)
- To splice Airmar TRIDUCER® multisensor and other Airmar cables.

Pre-Installation Test

NOTE: For Airmar Products Only

1. Connect the transducer or multisensor to the echosounder with the *transducer in the water and aimed at the bottom*. Check for a depth reading on the instrument (and temperature reading if applicable).
2. To check the speed and temperature functions, connect the sensor to the instrument. Spin the paddlewheel and check for a reading of several knots. Check for the approximate air temp.
3. If a test produces no reading, check all the connections and repeat the test. If a function (depth, speed, or temperature) is inoperative, do not install the unit; return it to the *dealer*.

Tools & Materials

- Safety goggles
- Dust mask
- Screwdrivers: Phillips and blade
- Pencil
- Drill
- Drill bit: 3mm or 1/8"
- Box-cutter knife (some installations)
- Cutting pliers
- Alcohol
- Wire strippers
- Crimping pliers (nine or ten-wire cables)
- Petroleum jelly (nine or ten-wire cables)
- Cable ties

Parts Needed

CAUTION: Do not puncture unused grommets.

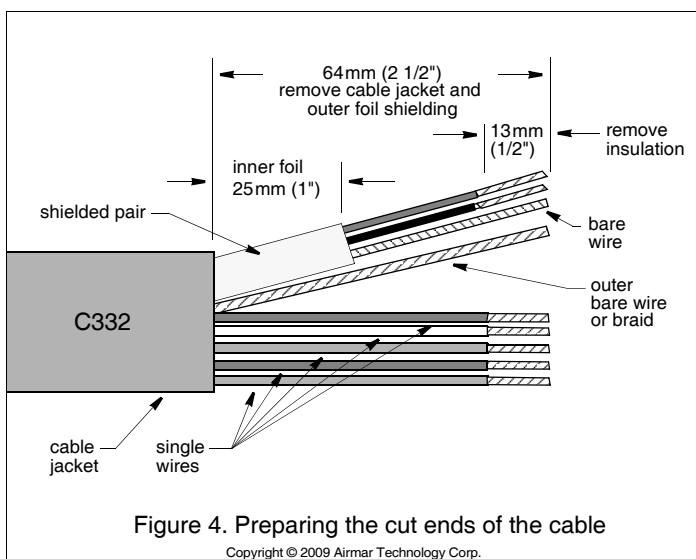
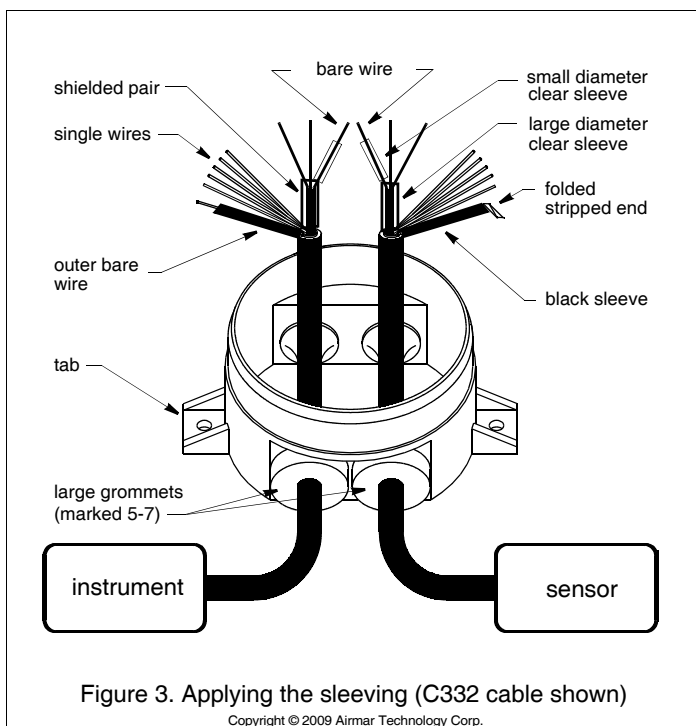
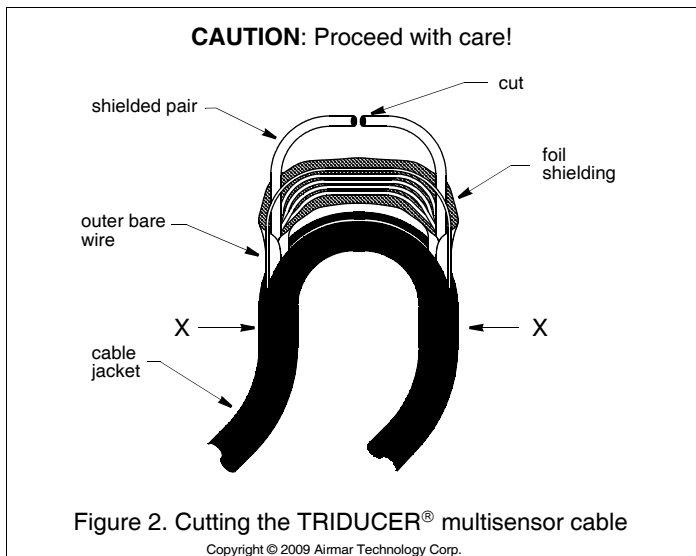
1. Remove the red cap and the contents of the junction box including the terminal block (see Figure 1).
2. The type of sensor and the size of the cable determine which instructions to follow (see Table 1 on page 4). Determine the grommets that will be needed. Using a small Phillips screwdriver, puncture the center of the appropriate grommets.

NOTE: The small grommets (marked 3-5) provide moisture sealing for cables from 3.5–5mm (1/8–3/16"). The large grommets (marked 5-7) provide moisture sealing for cables from 5–7.5mm (3/16–5/16"). Both set of grommets can accommodate smaller cables than suggested, but the sealing will be less effective. Larger cables can be used, but insertion will be difficult.

3. Set aside the sleeving that will be needed.

Mounting Location

1. Select a convenient *dry* mounting location along the cable route, preferably 1–1.5 m (3–5') from the transducer/sensor to facilitate future replacement.
2. Position the junction box so the grommets are easily accessible to the cable. Mark the location of the mounting holes.
3. At the marked location, drill two 3mm or 1/8" holes approximately 10mm (3/8") deep. *Do not fasten the junction box in place at this time.*



A. One-cable TRIDUCER® Multisensor

NOTE: These instructions are not for use for with zip-cable (follow instruction B).

Preparing

CAUTION: Take care not to damage the inner wires. when slitting the jacket.

1. Disconnect the multisensor from the instrument.
2. Select the point where the cable will be spliced and mark the jacket.
3. Place the cable on a hard, flat surface. At the marked location, cut a 127 mm (5") long slit in the cable JACKET only. **DO NOT CUT ANY WIRES AT THIS TIME.**
4. At the slit, bend the cable in half and remove the outer foil shielding to expose the shielded pair(s) inside (see Figure 2). Lift one shielded pair away from the other wires. *Being careful not to allow the shielded pair or the cutting pliers to touch the outer bare wire, CUT ONLY THE SHIELDED PAIR.* Repeat this process until all the shielded pairs are cut. (This will allow any built-up electrical charge stored in the transducer to be discharged.)
5. Cut the remaining single wires and the outer bare wire.
6. Cut away the slit segment of the cable jacket and the outer foil shielding between the points marked "X".

NOTE: If the multisensor has not been installed, do so at this time following the instructions provided with it.

7. Apply alcohol to each cable jacket to ease sliding. Carefully push approximately 203mm (8") of each cable end through a large grommet (marked 5-7) (see Figure 3).
8. Separate the shielded pair(s) from other wires and remove 38mm (1-1/2") of the inner foil shielding (see Figure 4).
9. Strip 13mm (1/2") of insulation from the end of each insulated wire to make a stripped end.
10. Slide a large diameter clear sleeve over the foil shielding of the shielded pair(s) until it touches the cable jacket. If there is a bare wire in the shielded pair, slide-on a small diameter clear sleeve until it touches the large diameter sleeve. Slide a black sleeve over the outer bare wire of each cable and position it against the cable jacket (see Figure 3).

NOTE: For ease in holding the sleeves in place and connecting to the terminals, fold the stripped ends to about half their original length, twist the ends, and bend them 90°.

11. Go to "Connecting" on page 3 and follow the instructions.

B. All Splices—Except One-cable TRIDUCER® Multisensor (follow instruction A)

Preparing

1. Disconnect the sensor(s) from the instrument.
2. Select the point(s) where the cable(s) will be spliced and mark the jacket(s) with a pencil.

NOTE: With zip-cable, split the cable into two separate cables for a distance of 0.5m (18") at the selected junction-box location (see Figure 5).

3. At the marked location(s), cut each cable ONE AT A TIME. (When the depth cable is cut, any built-up electrical charge stored in the transducer will be discharged.)

NOTE: If the sensor(s) has not been installed, do so at this time following the instructions provided with the product(s).

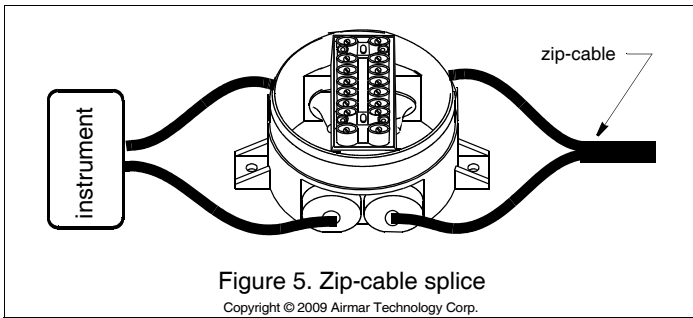


Figure 5. Zip-cable splice
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4. Apply alcohol to each cable jacket to ease sliding. Carefully push approximately 203 mm (8") of each cable segment through the appropriate grommet (see Table 1 on page 4).

NOTE: Zip-cable uses one small grommet (marked 3-5) and one large grommet (marked 5-7) (see Figure 5).

5. Strip 64 mm (2-1/2") of the cable jacket and foil shield from each cable end (see Figure 4).

NOTE: If the shielding is made of wire braid, make a hole in the braid near the jacket and pull the inner wires out through the hole. Twist the hollow braid to form an outer bare wire.

6. If there is a shielded pair(s), separate the shielded pair(s) from other wires and remove 38 mm (1-1/2") of the inner foil shielding.

7. Strip 13 mm (1/2") of insulation from the end of each insulated wire to make a stripped end.

8. If there is a shielded pair(s), slide one large diameter clear sleeve over the foil shielding of each shielded pair until it touches the cable jacket (see Figure 3). If there is a bare wire in the shielded pair, slide-on a small diameter clear sleeve until it touches the large diameter sleeve. Slide a black sleeve over the outer bare wire of each cable and position it against the cable jacket.

NOTE: For ease in holding the sleeves in place and connecting to the terminals, fold the stripped ends to about half their original length, twist the ends, and bend them 90°.

Connecting

CAUTION: If there is a depth transducer, always connect it first (the blue, black, or purple wires that are sometimes grouped in shielded pairs)

CAUTION: Take care when matching like colored wires; there may be wires with stripped insulation. Be sure to connect blue stripe to blue stripe, solid blue to solid blue, black stripe to black stripe, and solid black to solid black.

CAUTION: Make certain the sleeving completely covers any bare wire so there are no frayed strands or loose ends to cause shorting. If any bare wire is visible, shorten the stripped end and reconnect it to the terminal.

1. Connect the depth function/sensor, if any, before the speed/temperature function/sensor. Starting with terminal one, connect each colored wire and bare wire in turn to the terminal block (see Figure 6). Insert each wire through a separate square opening in the side. Tighten the terminal screw until the wire is held firmly in place.
2. Connect the matching colored wires and bare wire(s) from the instrument cable to the correspondingly numbered terminals on the opposite side of the terminal block. (Example: blue at

terminal 1 to blue at terminal 1 on the opposite side of the terminal block)

NOTE: If there are nine wires in the cables, twist the outer bare wires together, dip the ends in petroleum jelly, cover them with a crimp connector, and crimp the connector in place with crimping pliers.

With ten wires, twist the two brown wires together, twist the two white wires together, then crimp each pair as described above.

Closing & Mounting

1. From outside the junction box, carefully pull each cable until only 25 mm (1") of the cable jacket remains inside the box. This will invert the nipples to seal the grommets.
 2. Place the terminal block in the box and secure the ends with the terminal block screws provided (see Figure 1).
- NOTE:** If there is a crimp connection(s), push it into the junction box first, under the terminal block.
3. Arrange the wires neatly in the junction box.
 4. Close the box with the red cap. Expel the excess air inside the box by placing a thumb on the center of the red cap and applying pressure for 3 seconds.
 5. Screw the junction box to the selected mounting surface at the holes previously drilled. Use the two mounting screws provided.
 6. Coil any excess cable and secure it in place using cable ties to prevent damage.
 7. Connect the cable to the instrument.

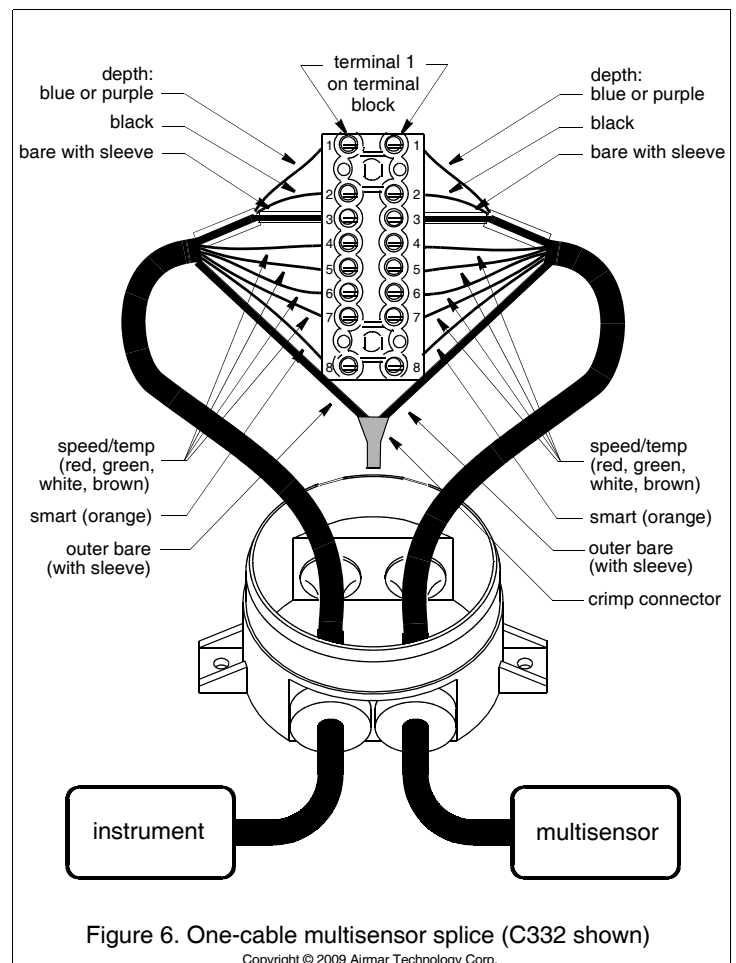
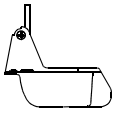
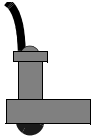
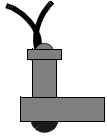
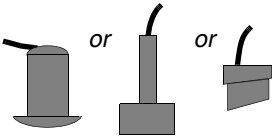
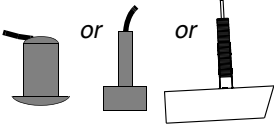
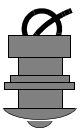
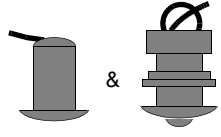
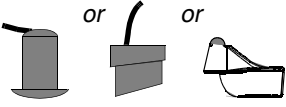
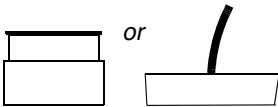


Figure 6. One-cable multisensor splice (C332 shown)

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Table 1: Instructions and Materials Needed

Sensor Type	Instruction	Grommets	Sleeving	
	TRIDUCER® multisensor C332 or C347 cable	A	2 large (marked 5-7)	C332: 2 small clear ^a 2 large clear ^b 2 black C347: 2 large clear 2 black
	TRIDUCER® multisensor with valve C344 zip-cable	B	2 small (marked 3-5) 2 large (marked 5-7)	4 black
	TRIDUCER® multisensor with valve Two-cable C9 and C13 cables	B	C9: 2 small (marked 3-5) C13: 2 large (marked 5-7)	4 black
	Depth transducer C2, C13, or C33 cable	B	C2: 2 small (marked 3-5) C13, C33: 2 large (marked 5-7)	2 black
	Depth/temperature C332 or C172 cable	B	C332: 2 large (marked 5-7) C172: 2 small (marked 3-5)	C332: 2 small clear ^a 2 large clear ^b 2 black C172: 4 large clear ^b 2 black
	Speed/temperature C9 cable	B	2 small (marked 3-5)	2 black
	Depth transducer and Speed/temperature pair	B	Depth: 2 large (marked 5-7) Speed/ Temp: 2 small (marked 3-5)	4 black
	Smart™ sensor NMEA or RS485 output Depth transducer, or Depth/ temp, or Depth/speed/temp C189 or C190 cable	B	2 small (marked 3-5)	4 black
	In-hull or External depth transducer C44 or C332 cable	B	C44: 2 large (marked 5-7) C332: 2 large (marked 5-7)	C44: 4 small clear ^a 4 large clear ^b 2 black C332: 2 small clear ^a 2 large clear ^b 2 black

a. The small clear sleeving is 2.5 mm in diameter.

b. The large clear sleeving is 5 mm in diameter.