APPLICATION NOTE

# Instructions to Update CSAT3 Embedded Software

## CAMPBELL SCIENTIFIC, INC.

815 W. 1800 N. • Logan, Utah 84321-1784 • (435) 753-2342 • FAX (435) 750-9540

# Instructions to Update CSAT3 Embedded Software

*This application note provides the procedure for replacing a socketed surface-mount component inside the CSAT3 electronics box. Please familiarize yourself with all of these instructions before beginning the procedure.*

## Required Equipment

- Large Phillips screw driver
- Small Phillips screw driver
- Masking, electrical, or cellophane tape
- 12 V power supply

⚠ **CAUTION**

*The pins on the surface-mount component are fragile and easily bent. Therefore, do not touch the legs of the old surface-mount component, the new surface-mount component, or the the surface-mount socket.*

## Replacing the Surface-Mount Chip

1. Remove all external connectors (4 total) from the CSAT3 electronics box.

2. Place the electronics box on a workbench in front of you as shown in figure 1. These instructions reference the locations of various components as top, bottom, left, and right. The Campbell Scientific logo is in the top left corner of the electronics box.

3. Remove the four electronics box cover retaining screws (figure 1). These are captive screws that are retained in the electronics box cover.
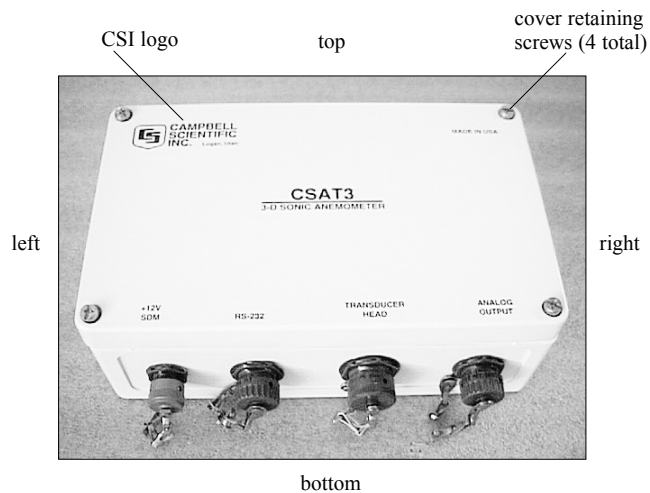
**Figure 1. CSAT3 electronics box on a workbench.**

4. Remove the electronics box cover to gain access to the printed circuit board shown in figure 2.

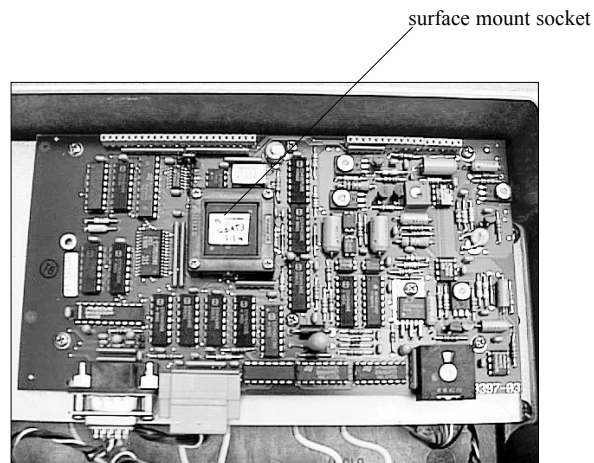5. Locate the surface-mount socket shown in figure 2.



**Figure 2. Printed circuit board inside of the electronics box.**

6. Remove the four retaining-clip screws shown in figure 3.

7. Remove the socket retaining clip, leaving the surface-mount chip seated in the socket.

8. Remove the rubber band that holds the two clam-shell pieces of surface-mount shipping container together. Carefully remove the upper clam-shell piece of the shipping container. Place the bottom clam shell piece containing the new surface-mount chip on your workbench where it will not be accidentally bumped.
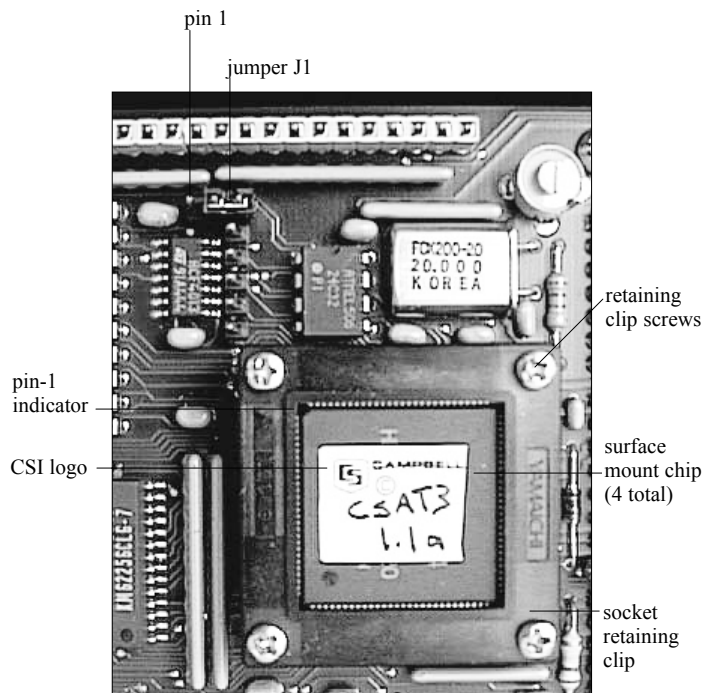
**Figure 3.  Close up of surface mount chip.**

9.  You will be replacing the old surface-mount chip shown in
    figure 3 with the new one.  Before removing the old chip, note
    how it seats in the surface mount socket.  Roll a two-inch
    piece of tape into a loop with the sticky side out.  Remove the
    old surface-mount chip by firmly pressing the sticky side of
    the tape against the top surface of the old chip, and then
    remove the old chip by lifting it vertically away from the elec-
    tronics board.

10. The shipping container with the new surface-mount part has
    two bins.  One of these bins is empty.  Place the old surface-
    mount chip in the empty bin of the shipping container.

11. Note the orientation of the revision label on the new surface-
    mount chip.  Also note the location of the pin-1 indicator on
    the new surface-mount chip.  The pin-1 indicator is the slight-
    ly rounded corner of the chip.  The pin-1 indicator is in the
    same corner of the chip as the Campbell Scientific logo on the
    revision label.

12. Firmly press the sticky side of the tape against the top surface
    of the new chip in the shipping container.  Remove it from the
    shipping container by carefully lifting it vertically away from

the shipping container.  Do not touch the legs of the new sur-face-mount chip.

13. Gently lower the new surface-mount chip into the socket on the CSAT3 electronics board.  Do not touch the legs of the new chip.  Remove your hand, leaving the tape attached to the new surface-mount chip.

14. Verify the proper orientation of the new surface-mount chip as shown in figure 3.  The Campbell Scientific logo and the pin-1 indicator must be the upper left corner of the chip.  Verify that the new chip is seated in the socket.

15. Use one hand to hold the new surface-mount chip in the sock-et and the other hand to remove the tape from the new chip.

16. Replace the retaining clip on the surface-mount socket. Gently snug-down all four retaining-clip screws before tightening them.  Tighten the four screws in a diagonal sequence to bring the retaining clip straight down on the chip.  Tighten the retaining-clip screws so the retaining clip seats firmly on the socket, but do not over-tighten the screws.

17. Apply some lubricant (included) to the threads of the electron-ics box cover retaining screws.  Replace the electronics box cover and firmly tighten the  retaining screws to achieve a good seal between the cover and the electronics box.

This completes the CSAT3 embedded software update.