



**TELEDYNE  
INSTRUMENTS**

*Advanced Pollution Instrumentation*

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*Service Note*

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## **OPTO-SENSOR ADJUSTMENT IN M300**

**SUBJECT:** Opto-sensor adjustment in M300 CO analyzer

**TOOLS:** Philips head screwdriver, a pair of adjustable wrenches, O'scope,  
16 pin DIP IC clip.

### **PROCEDURE:**

- I. Connect the 16 pin DIP IC clip to U6 on the sync demod card.**
- II. Connect the O'scope to pin 11.**
- III. Check the waveform (see the FIGURE 1 "OPTO PICKUP WAVEFORM" attached).**
- IV. If the waveform is a symmetrical square wave, the optosensor is adjusted correctly, and therefore disregard the procedure below.**
- V. If the waveform is not as described in steps 3. and 4., please perform the adjustment procedure:**
  - A. The Opto-Interrupter is located on the bottom of the bench, therefore, in order to adjust it you will need to remove the bench from the chassis while keeping all connections to it intact.**
  - B. The next step will be to gently turn the bench over, as much as you can, to gain access to the bottom.**
  - C. Located just below the motor you will see an aluminum bracket holding a black plastic LED transmitter/Photo-transistor receiver (the Opto-Sensor). Note that this black plastic device is held in place with a single screw. Loosen the screw and proceed to step D).**
  - D. With your oscilloscope still connected to U6 pin 11, adjust the Opto-Sensor until you observe a symmetrical square wave on the O'scope.**
  - E. Tighten the screw, ensuring that the waveform is not affected.**
- 6. Reassemble the analyzer in the reverse order of disassembly.**

**Should you have any questions, please do not hesitate to call the API Customer Service Department.**

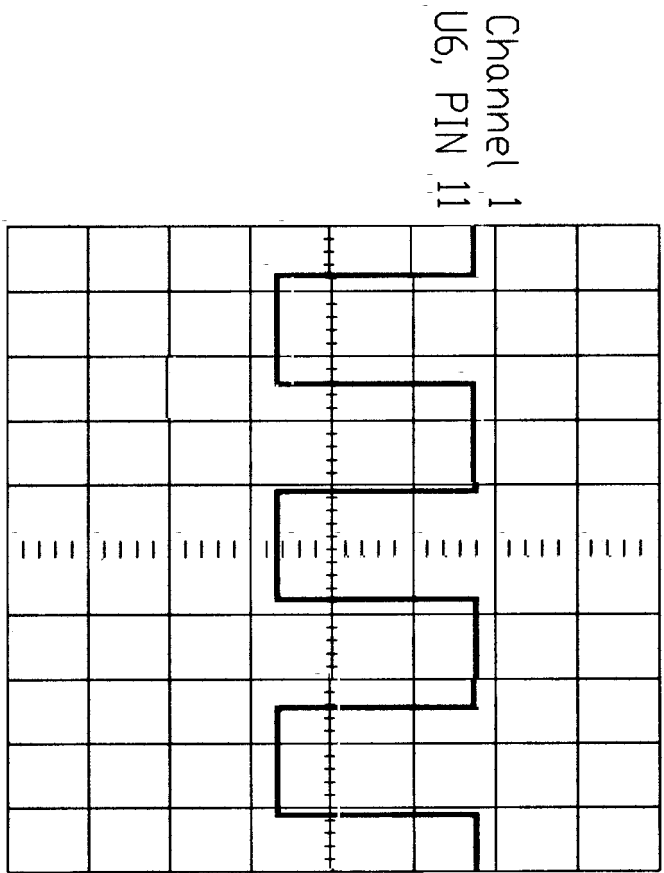


FIGURE 1 OPTO PICKUP WAVEFORM

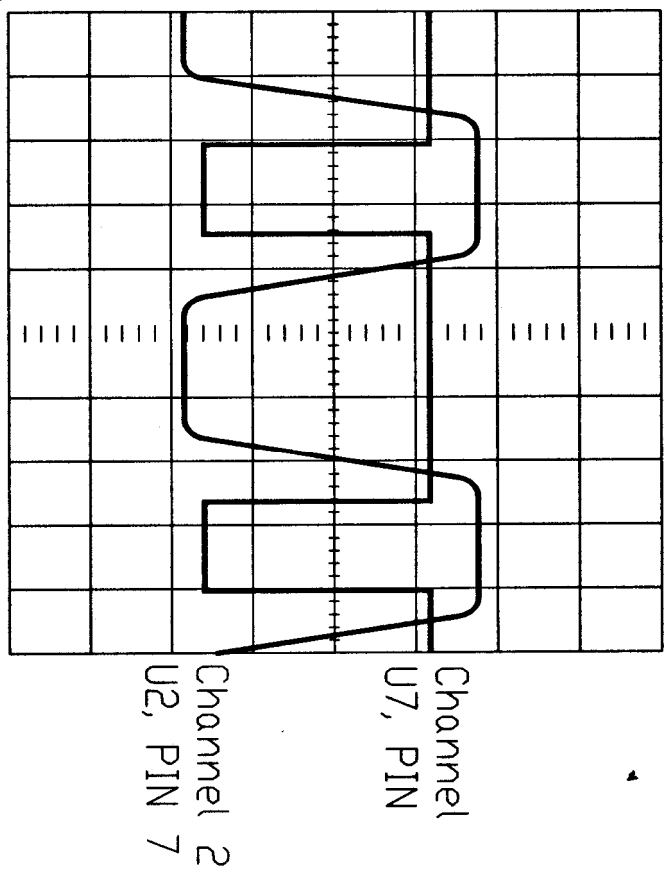


FIGURE 2 DETECTOR WAVEFORM