

# *API-Cecom Group n'fo*

## **Technical & Application Notes**

### **How to test an analog control loop with an API/APD module installed**

The LoopTracker LEDs indicate the level of the input and/or output signal by varying its intensity. As the process signal increases, the brightness of the LED increases, and as the signal decreases the LED brightness decreases. Should a problem develop in the current loop, such as a faulty device in the loop causing an incomplete path for current flow, the Loop LED's detect this and cease to illuminate. This function works on both the input and output loop allowing the technician to diagnose the cause of the problem quickly and efficiently therefore minimizing system down time.

The Functional Test Switch will, when pressed, output a test signal independent of the input signal. This signal is factory set at 50% ( $\pm 1\%$ ) and allows the technician to temporarily inject a test or preset calibration signal into the output loop without manipulating the input signal (the output of the Api unit holds a constant preset value regardless of the input signal). This manual output is field adjustable via a potentiometer on top of the module. This feature allows the technician to check loop status (LoopTracker LED's should be ON), downstream display operation, downstream alarm operation, etc. using only a pencil or pen.

### **Symptoms:**

1. Customer states system is not operating correctly. When questioned he states the input LED is out and the output LED is lit dimly. When the customer presses the Test Switch both input and output LED's illuminate at approximately 50% brightness. The input LED illuminating when the Test Switch is pressed indicates that the problem is the input signal to the module. The input signal to the module is either open or shorted-to-ground.
2. Customer states system is not operating correctly. When questioned he states the input LED is out and the output LED is lit dimly. When the customer presses the Test Switch the output LED's illuminates at approximately 50% brightness but the input LED stays out and he has verified that the input signal is correct at the socket. The input LED being out indicates that there is no signal from the module input amplifier so the module needs to either be replaced and/or repaired by the factory.
3. Customer states system is not operating correctly. When questioned he states that the input LED seems to be varying in brightness with the input signal but the output LED is out. When the customer presses the Test Switch only the input LED illuminates, the output LED stays out and when you have the customer place a jumper across the output terminals, the output LED illuminates. This indicates that the output circuit is open.
4. Customer states system is not operating correctly. When questioned he states that the input LED is seems to be varying in brightness with the input signal but the output LED is out. When the customer presses the Test Switch only the input LED illuminates, the output LED stays out and when you have the customer place a jumper across the output terminals, the output LED does not illuminate. The output LED remaining out indicates that the output circuit on the module is "Blown" and the module needs to either be replaced and/or repaired by the factory.



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