TELEDYNE INSTRUMENTS
Advanced Pollution Instrumentation

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Service Note

4-20 M.A. CONVERSION ON AN "A" STYLE ANALYZER

I.   SCOPE:
To help guide you through converting an API 'A' style analyzer from a voltage output to a current output on one or more of the analog output channels. For assistance in determining what parts, you will need for the conversion to a current output, please contact the API service department. What you will need to decide is what type of current output you will want (isolated or non-isolated) and if you would like it to be 0-20 m.a. or 4-20 m.a. and what channels you would like to convert to current.

II.   PARTS:
The correct status temp card (01086) configured for the current output that you desire. Resistor between 250 and 1000 ohms, for calibration of the current output.

Ill. TOOLS:
Digital volt meter capable of reading current or a data logger with the same ability.

IV.   PROCEDURE:
1.   If you have not calibrated the D/A circuit with the analyzer configured for voltage, you will want to do that now. Follow the instructions in the manual on calibrating the D/A converter, section 9.3.
2.   Remove power from the analyzer and remove the cover.
3.   Remove the status temp card from the motherboard (the rear most card with the thermocouple attached to it (only the NOx or H_2S analyzers have thermocouples).
4.   Change the jumpers on the motherboard for current.

   S02   JP2 and 3 to the forward pins for current on the REC output.
         JP1 and 2 to the forward pins for current on the DAS output.

   NOx   JPI and 2 to the forward pins for current on the NO channel.
         JP3 and 4 to the forward pins for current on the NOx channel.
         JP5 and 6 to the forward pins for current on the NO_2 channel.

5.   Install the new status temp card that has the current chips installed on it.
6.   You must check to make sure that the DAC outputs are set for the proper voltage for the 4-20 chips that you have installed in the analyzer. Check section 9.3 in your manual for the dip switch configuration that you will need for the voltage you are looking for.

        a.   If you are using the isolated current output chips, you will need to have the DAC outputs set for 0-5 Vdc.

        b.   If you are using the non-isolated current output chips you will need to have the DAC outputs set for 0-1 0 Vdc.

7. Turn on the analyzer.
8. Press 'SETUP - MORE - DIAG - NEXT to D/A CAL-ENTER'
9. Press "CFG" and press "SET" to change that channel to CURRENT.
10. If you would like to change more than the first channel to CURRENT then press the NEXT button to get to the channel you would like to change to current.
11. If you are using a datalogger for collection of data then hook your analyzer to the datalogger and set up the datalogger to display the raw analog input signal
12. If you are not using a data logger then hook your meter, set for current in series with the resistor on the channel that you would like to cal to 4-20.
13. Press the "CAL" button and follow the directions on the screen.
14. You will want to press the up or down button until the meter reads 4 m.a. then press enter.
15. You will want to press the up or down button until the meter reads 20 m.a. then press enter.
16. You are now done with the calibration of the 4-20 m.a. circuit.

If you have questions regarding this procedure or any API equipment, please contact an API Customer Service representative:

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