Service Note

TELEDYNE
ADVANCED POLLUTION INSTRUMENTATION
A Teledyne Technologies Company

9480 Carroll Park Drive, San Diego, CA 92121-5201
Phone (858) 657-9800 Fax: (858) 657-9818 Toll Free 1 (800) 324-5190
E-mail: api-customerservice@teledyne.com http://www.teledyne-api.com

09-001 *Rev A.*
February 4, 2009

Transferring the CONFIG.BIN file from the ACROSSER CPU to the ICOP CPU

I. PURPOSE:

This procedure guides you through retrofitting your analyzer or calibrator with the new ICOP CPU (KIT000284 for analyzers & KIT000286 for calibrators) and retaining the original configuration and calibration.

II. TOOLS:

A computer with communications program (HyperTerminal is on all Windows computers).
DB9 to DB9 Female to Female Serial Communications cable.
If your computer only has a USB serial port, you will need a USB to RS232 adapter
Anti-ESD wrist strap.
Philips screwdriver

III. PARTS and SUPPLIES:

KIT000284 or KIT000286

IV. REFERENCE:

Service Note 06-005 - Extracting Parameters, Readings, Settings, and Data using HyperTerminal.
Service Note 05-023 - APICOM and IDAS Procedure Tutorial
Service Note 03-020 - How to Perform a Manual DAC Calibration on "E" Series Machines
Service Note 02-039F - Downloading New Firmware into E Series Analyzers
APICOM Manual http://www.teledyne-api.com/manuals/man_apicom.pdf
IDAS Manual http://www.teledyne-api.com/manuals/das_02837a.pdf

V. PROCEDURE:

1) Before replacing the CPU and or CPU/motherboard, you can extract and save various important parameters and files from the instrument, refer to Service Note: 06-005 - Extracting Parameters, Readings, Settings, and Data using HyperTerminal. It is advised that before proceeding with this service note, you follow Service Note 06-005 and extract a T list, V list and D list before proceeding.
2) When the CPU is replaced, all of the stored data in the IDAS (internal data acquisition system) will be deleted, refer to Service Note 05-023 for instructions on saving this data, or the IDAS Manual available from the Teledyne-API website.
3) To save the analyzers configuration and calibration, it will be necessary to extract the CONFIG.BIN file from the analyzer and save it on your computer for insertion into the new CPU's Flash drive.
4) Perform the following procedure before you replace the old CPU/motherboard.
5) Change the analyzer's baud rate to 115200.
   a) SETUP – MORE - COMM - COM1 – SET> - EDIT – NEXT....until 115200 - ENTR
6) Connect the computer's COM port to the analyzer's COM port with RS-232 cable.

7) Open HyperTerminal and type a name for the connection (such as Direct Download), and press OK. Depending on your version of Microsoft Windows, HyperTerminal is located on your computer at: Start / All Programs / Accessories / Communications / HyperTerminal (example of Windows XP).
8) Select Connect using: COM1 (or use the dropdown to select your computers active COM port), and press OK.
9) Use bits per second dropdown and select 115200.
10) Ensure Data bits = 8, Parity = None, Stop bits = 1, Flow control = None.
11) Now press OK.
12) Type a question mark (?) (Even if the? character does not display on the screen) and press Enter (↵).
13) If the analyzer does not respond with the help menu, go to the back of the analyzer and observe the red / green LEDs on the back panel near the serial com ports. If only one LED is lit, change the position of the DCE/DTE switch on the back of the analyzer, then both LEDs should be lit. Now type a question mark again (?) and Enter (↵), the help menu should display.
14) If typing characters do not display on the screen, press the "Control" key and the "T" key together (Ctrl + T) to turn on the terminal mode, now typing will echo onto the screen.
15) Type: D RESET 11 and press (↵),

    or go to HALT FIRMWARE on front panel of the instrument, press, Setup – More – Diag – 929 – Entr – Next (until... Halt Firmware) – Entr, push Yes to exit to DOS, then push the (.) period key or choose RCMD (Remote Commands). Now choose baud rate of 115 K or let the timer count down and automatically connect. Rates must match between the instrument and the computer.

16) In the HyperTerminal window, type: dir (↵) to see all of the files, (DIR = directory).

    The response that you will see will look similar to the following.

```
RCMD 4.3> dir
Directory listing of C:\*.*
KERNEL.SYS        45815  04-17-04  21:19  ___A_
COMMAND.COM       66673  03-30-04  01:03  ___A_
FREEDOS          <DIR>   07-01-08  00:18  ____D
DATA.BIN        1048576  01-08-09  15:04  ___A_
CONFIG.SYS          179  07-01-08  00:20  ___A_
FIRMWARE.EXE     463316  10-23-08  23:50  ___A_
AUTOEXEC.BAT       6644  10-03-08  23:51  ___A_
RCMD.EXE         208450  01-25-06  18:06  ___A_
KBPROMPT.EXE     151146  10-03-08  23:51  ___A_
     1990799 byte(s) in    9 file(s)
    29300736 byte(s) free
```

17) Type dir b: (↵) to see the contents of the b: directory.

18) The response that you will see will look similar to the following.

```
RCMD 4.3> dir b:
Directory listing of b:\*.*
FORMAT.OK            15  01-07-09  14:38  ___A_
CONFIG.BIN        32768  01-08-09  16:10  ___A_
    32783 byte(s) in    2 file(s)
    2049024 byte(s) freeType
```

19) Type **send ymodem b:\config.bin** (↵) to command the analyzer to send a copy of the CONFIG.BIN file to your computer.

20) The response that you will see will look similar to the following.

```
RCMD 4.3> send ymodem b:\config.bin
Begin receiving file b:\config.bin
```

21) Now on the hyper terminal menu screen, select Transfer, and then select Receive File.
   a) Select the Filename BROWSE button and select Desktop
   b) Press Receive to upload from the instrument, you should see the "packets" begin counting.
   c) When finished, the response that you will see will look similar to the following.

```
File b:config.bin sent OK
RCMD 4.3>
```

   d) If a timeout error has occurred or data does not transfer, press cancel, then press OK, and start over at send ymodem step 19-21 above.

22) Check the desktop to ensure that the CONFIG.BIN file is there.

23) Close the connection in Hyper Terminal by clicking the disconnect icon.

24) Power down the analyzer and replace the Motherboard/CPU assemblies. Refer to service note 07-004A - Motherboard Replacement in "E" Series Instruments and 02-038B - REPLACING THE CPU IN E SERIES ANALYZERS.

25) Power on the analyzer and when the display shows "SELECT DESIRED FUNCTION," press the far right button below the (.) decimal point in the lower right corner of the display. This will start the "Remote Command Mode." The display will indicate various Baud rates and a timer, allowing the timer to run out will automatically select 115,200 as the default.

26) We will now move a copy of the CONFIG.BIN file from your computers desktop, into the analyzer. Hyper Terminal should still be configured the same as in steps 7 through 14 of this service note. Reopen the connection in Hyper Terminal and verify communication by typing dir (↵)**.**

Note: On the ICOP CPU, the CONFIG.BIN file is located in the a: directory

a) When finished, the response that you will see will look similar to the following.

```
RCMD 4.4>
RCMD 4.4> dir
Directory listing of C:\*.*
KERNEL.SYS          45815  04-17-04  21:19  ___A_
COMMAND.COM         66673  03-30-04  01:03  ___A_
FREEDOS             <DIR>   07-01-08  00:18  ____D
DATA.BIN          1048576  01-08-09  15:04  ___A_
CONFIG.SYS            179  07-01-08  00:20  ___A_
FIRMWARE.EXE       463316  10-23-08  23:50  ___A_
AUTOEXEC.BAT         6644  10-03-08  23:51  ___A_
RCMD.EXE           208450  01-25-06  18:06  ___A_
KBPROMPT.EXE       151146  10-03-08  23:51  ___A_
    1990799 byte(s) in    9 file(s)
    29300736 byte(s) free
```

27) Type `cd a:` (↵) to switch to the a: directory.

28) The response that you will see will look similar to the following.

```
RCMD 4.4>
```

29) Type `dir` (↵) to see the contents of the a: directory.

30) The response that you will see will look similar to the following.

```
RCMD 4.4> dir
Directory listing of a:\*.*
FORMAT.OK           15  01-07-09  14:38  ___A_
      32783 byte(s) in    2 file(s)
      2049024 byte(s) free
```

31) Type **recv ymodem** (↵) to command the analyzer to receive a copy of the CONFIG.BIN file from your computer.

32) The response that you will see will look similar to the following.

```
RCMD 4.4> recv ymodem
Begin sending file
CCC
```

33) Now on the hyper Terminal menu screen, select `Transfer`, and then select `Send File`.
   a) A Send File popup window will appear, allowing you to select the file to send. Choose the CONFIG.BIN file that you previously uploaded to your desktop.
   b) Press `Send` to upload the file from your computer, you should see the “packets” begin counting.
   c) When finished, the response that you will see will look similar to the following.

```
File received OK
RCMD 4.4>
```

34) Type `dir a:` (↵) to see the contents of the a: directory and confirm that the CONFIG.BIN is there.

35) The response that you will see will look similar to the following.

```
RCMD 4.4> dir a:
Directory listing of A:\*.*
FORMAT.OK            1  5  01-07-09  14:38  ___A_
CONFIG.BIN       32768  01-08-09  16:10  ___A_
    32783 byte(s) in    2 file(s)
    2049024 byte(s) free
```

36) Type exit (↵), this will cause the analyzer to reboot.
37) Close the connotation in Hyper Terminal by clicking the disconnect icon.

38) Refer to Service Note 06-005 - Extracting Parameters, to reestablish communication with the analyzer and compare a new T list, V list and D list with the original set from step 1. Careful attention should be given to the VARIABLE LIST (V List)! Added variable are generally not a problem, nor are small changes in existing variable values. Large changes in a variables value may indicate a problem and should be investigated.