

Internal DAC Outputs

Current (4-20mA) or Voltage Outputs

The CPP supports up to 16 isolated current or voltage outputs. An analog output motherboard is required for each group of 8 output signals. Four daughter cards, each containing two isolated output signals, can be plugged into each motherboard. So each motherboard can support eight isolated output signals. A jumper on the board, J11, determines the address of each motherboard, either output channels 1-8, or 9-16. Jumpering pins 1 and 2 of J11, which are the two pins closest to the rear panel connectors, sets this board up to output channels 1-8. The output pin assignments of the motherboards are presented below.

<u>Rear Panel</u>	<u>Signal</u>
1	Earth Ground (EG)
2	Signal01+
3	Signal01-
4	EG
5	EG
6	Signal02+
7	Signal02-
8	EG
9	EG
10	Signal03+
11	Signal03-
12	EG
13	EG
14	Signal04+
15	Signal04-
16	EG
17	EG
18	Signal05+
19	Signal05-
20	EG
21	EG
22	Signal06+
23	Signal06-
24	EG
25	EG
26	Signal07+
27	Signal07-
28	EG
29	EG
30	Signal08+
31	Signal08-
32	EG

Calibration

The analog outputs of the CPP are calibrated digitally. There are no potentiometers to adjust. Calibration parameters are stored in an on board EEPROM. Calibration of the DAC's are conducted over comm port number four as described below.

DA_Wxx

Writes a set of default parameters for DAC# xx into the EEPROM.

DA_Rxx

Reads the EEPROM and outputs the stored calibration parameters for DAC# xx.

DA_Cxx

Allows the calibration of DAC# xx. To calibrate a DAC output, connect a current meter across the output pins on the rear panel of the DAC being calibrated. The EEPROM must be write enabled to calibrate the outputs. Move the jumper located near the connector on the output daughter card to the two pins closest to the connector. When the calibration is completed, move the jumper to the two pins farther away from the connector. This write protects the EEPROM. An Example follows.

DA_C01

Outputting 4mA

0028 **DDDD**<cr>

0024 **D**<cr>

0023 <cr> (4mA output set)

Outputting 20mA

0FA0 **UUU**<cr>

0FA3 **UUUUUUUU**<cr>

0FAB **D**<cr>

0FAA <cr> (20mA output set)

>

The CPP first outputs the digital value that corresponds to a 4mA signal. Use the U and D keys to step this digital value up or down until the DAC output is reading 4mA. A carriage return stores this digital value as the 4mA value. The CPP then outputs the corresponding 20mA digital value. Repeat the above process until the DAC output is reading 20mA. A carriage return stores this value. The CPP uses these two numbers to properly scale the output value to a 4-20mA output signal. In the above example, the user lowered the 4mA value by five counts, and raised the 20mA value by 10 counts to achieve the proper reading.

Other values between 4 and 20mA can be output using the OBD commands. An Example follows.

OBD xx vv, where xx is the DAC number and vv is the percent of full scale to output.

OBD 01 50

DAC#01 set to 50%

An operator set value will remain set until cleared by the operator. This command is;

```
OBDC  
All DAC Operator Sets Cleared  
>
```