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Piezo VOA Manual

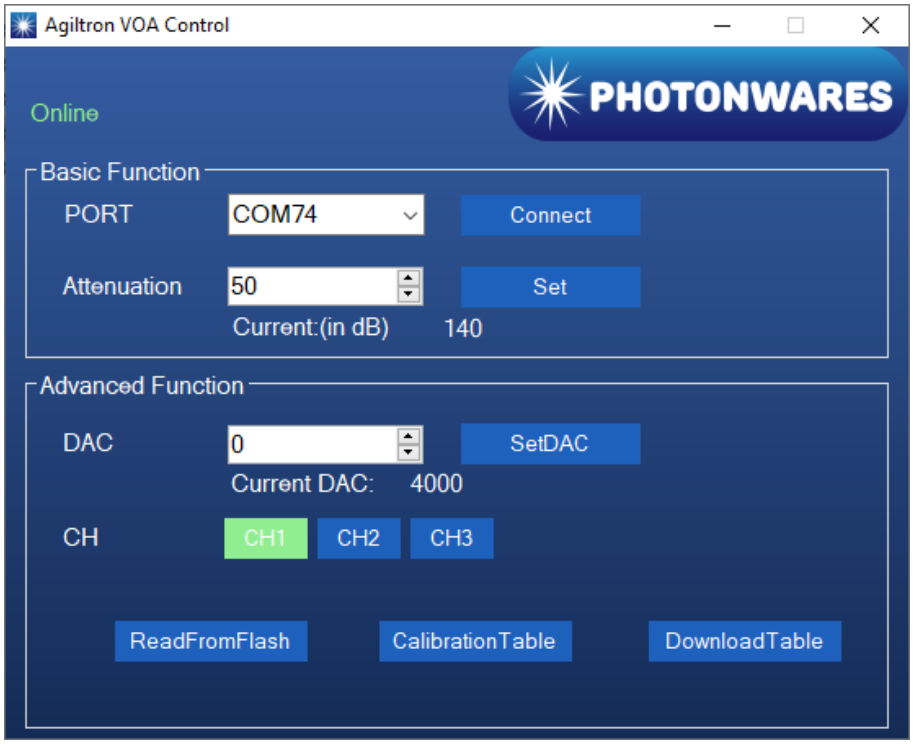


Figure 1. Test GUI

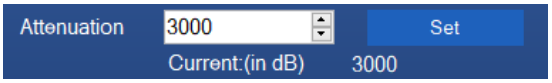
Control via Windows GUI:

Basic:

1. Connect device

Choose the correct COM port, then click “Connect” button to connect with the device.

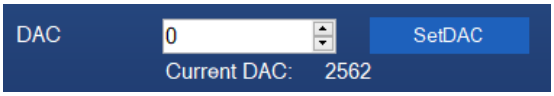
2. Set target DB for VOA



Type the DB value in the number box, then click “Set” button to set target DB value. The current DB value would change to the set value if successful.
DB value 1000 means -10.00 DB attenuation.

Advanced

3. Set DAC (VOA voltage) for VOA

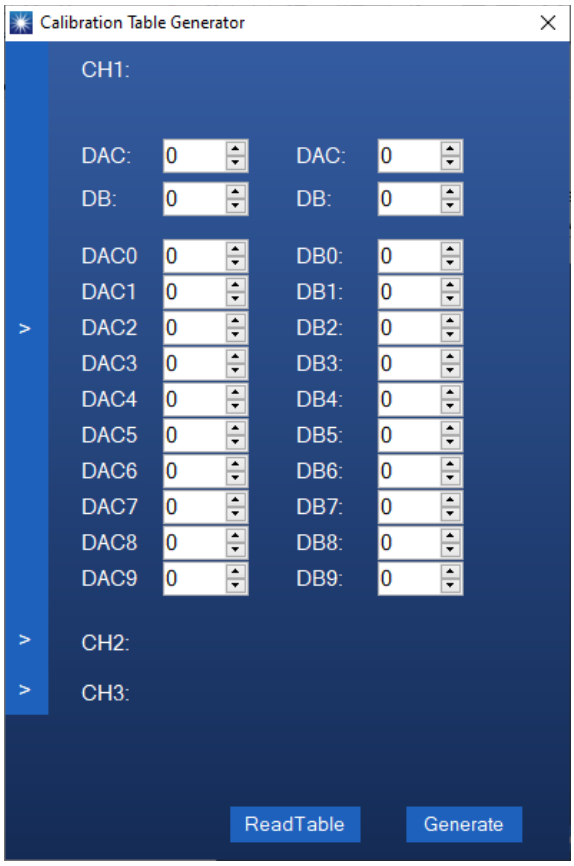


Type the value of DAC (VOA voltage) in the number box, then click the “Set” button to set the value. The value should be between 0 and 4000.

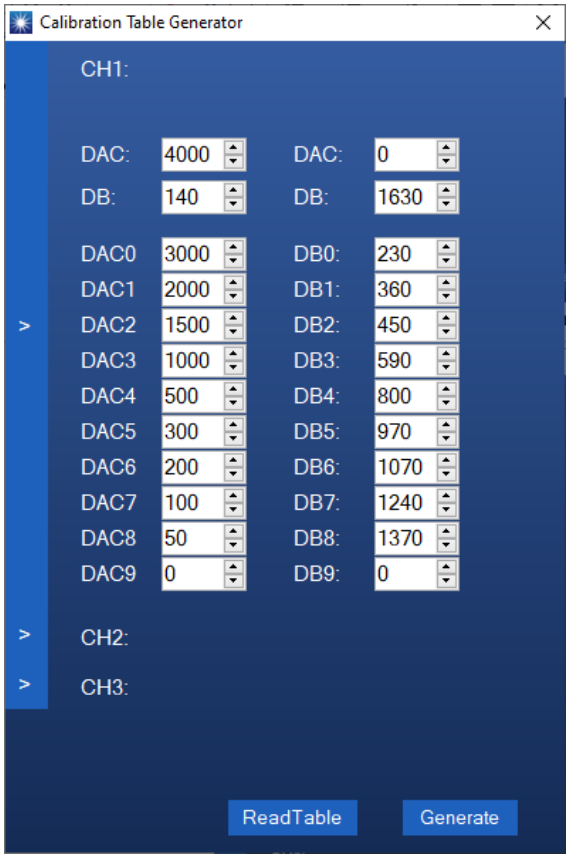
4. Set VOA channel

Click on the button for different channels to set the channel. The green button shows the current channel of VOA.

5. Manage Table in Flash
   1) Click “ReadFromFlash” button. A “table.csv” would be created or overwritten.
   2) Click the “CalibrationTable” button. A window would show as below.



   3) Click the “ReadTable” button. All the data from the table would be filled in the window.



4) Then the window would be ready for checking or modifying.
5) If any changes are made, click the “Generate” button. The “table.csv” would be created or overwritten.
6) Click the “downloadable” button on the main window. The new table would be downloaded into the flash.

Control via UART command (in HEX):

The baud rate setting is 115200-N-8-1.

Basic:

1. Set DB num:
   0x01 0x12 <DB higher byte> <DB lower byte>
   Return: None
   Example: 0x01 0x12 0x03 0xE8 -> set device to -10.00 DB

2. Check Current DB num:
   0x01 0x1A 0x00 0x00
   Return <Current DB higher byte> <Current DB Lower byte>
   Example: 0x01 0x1A 0x00 0x00 RTN: 0x03 0xE8 -> The current DB is set to -10.00 DB

3. Check device version:
   Explain: This command can be used to check whether the correct COM port is used.
   0x01 0x02 0x00 0x00
   Return 0x41 0x30

Advanced:

1. Set/Read CH num:
   Explain: The VOA uses different channels for different DB ranges. The maximum number of channels used is five, but it is possible that only one or several channels are enabled.
   1) Read CH num:
      0x01 0x18 0x00 0x00
      Return <current CH num byte>
      Example: 0x01 0x18 0x00 0x00 RTN: 0x01 -> The current CH is CH 1.

   2) Set CH num:
      0x01 0x18 0x00 <CH num byte>
      Return <CH num byte> if new CH is set successfully (new CH is enabled)
      0xFF if new CH is not set successfully (new CH is not enabled)
      <original CH num byte> if <CH num byte> is greater than 5

2. Set VOA voltage:
   Explain: This command directly controls the voltage applied to the VOA. This command is for testing.
   0x01 0x13 <DAC higher byte> <DAC lower byte> (DAC is a value between 0-4095>
   Return <DAC higher byte> <DAC lower byte>

3. Read current VOA voltage:
   0x01 0x14 <DAC higher byte> <DAC lower byte>
   Return <DAC higher byte> <DAC lower byte>

4. Read Flash address:
   Explain: This command can be used to read the value of the address in device flash.
   0x01 0x1C <address high byte> <address low byte>
   Return <address byte>

Appendix I. Full Table in Flash

Table:

Address	Hex	Description
0	0x000	If the device needs calibration. 0: Not calibrated 1: Already calibrated
1	0x001	0xFF
2	0x002	Channel 1 Max DAC value – high byte
3	0x003	Channel 1 Max DAC value – low byte
4	0x004	Channel 1 Max DB value – high byte
5	0x005	Channel 1 Max DB value – low byte
6	0x006	Channel 1 Min DAC value – high byte
7	0x007	Channel 1 Min DAC value – low byte
8	0x008	Channel 1 Min DB value – high byte
9	0x009	Channel 1 Min DB value – low byte
10	0x00A	Channel 1 ADC Table[0] – high byte
11	0x00B	Channel 1 ADC Table[0] – low byte
12	0x00C	Channel 1 ADC Table[1] – high byte
13	0x00D	Channel 1 ADC Table[1] – low byte
14	0x00E	Channel 1 ADC Table[2] – high byte
15	0x00F	Channel 1 ADC Table[2] – low byte
16	0x010	Channel 1 ADC Table[3] – high byte
17	0x011	Channel 1 ADC Table[3] – low byte
18	0x012	Channel 1 ADC Table[4] – high byte
19	0x013	Channel 1 ADC Table[4] – low byte
20	0x014	Channel 1 ADC Table[5] – high byte
21	0x015	Channel 1 ADC Table[5] – low byte
22	0x016	Channel 1 ADC Table[6] – high byte
23	0x017	Channel 1 ADC Table[6] – low byte
24	0x018	Channel 1 ADC Table[7] – high byte
25	0x019	Channel 1 ADC Table[7] – low byte
26	0x01A	Channel 1 ADC Table[8] – high byte
27	0x01B	Channel 1 ADC Table[8] – low byte
28	0x01C	Channel 1 ADC Table[9] – high byte
29	0x01D	Channel 1 ADC Table[9] – low byte
30	0x01E	Channel 1 DB Table[0] – high byte
31	0x01F	Channel 1 DB Table[0] – low byte
32	0x020	Channel 1 DB Table[1] – high byte
33	0x021	Channel 1 DB Table[1] – low byte
34	0x022	Channel 1 DB Table[2] – high byte
35	0x023	Channel 1 DB Table[2] – low byte
36	0x024	Channel 1 DB Table[3] – high byte
37	0x025	Channel 1 DB Table[3] – low byte
38	0x026	Channel 1 DB Table[4] – high byte
39	0x027	Channel 1 DB Table[4] – low byte

40	0x028	Channel 1 DB Table[5] – high byte
41	0x029	Channel 1 DB Table[5] – low byte
42	0x02A	Channel 1 DB Table[6] – high byte
43	0x02B	Channel 1 DB Table[6] – low byte
44	0x02C	Channel 1 DB Table[7] – high byte
45	0x02D	Channel 1 DB Table[7] – low byte
46	0x02E	Channel 1 DB Table[8] – high byte
47	0x02F	Channel 1 DB Table[8] – low byte
48	0x030	Channel 1 DB Table[9] – high byte
49	0x031	Channel 1 DB Table[9] – low byte
50	0x032	Channel 2 Max DAC value – high byte
51	0x033	Channel 2 Max DAC value – low byte
52	0x034	Channel 2 Max DB value – high byte
53	0x035	Channel 2 Max DB value – low byte
54	0x036	Channel 2 Min DAC value – high byte
55	0x037	Channel 2 Min DAC value – low byte
56	0x038	Channel 2 Min DB value – high byte
57	0x039	Channel 2 Min DB value – low byte
58	0x03A	Channel 2 ADC Table[0] – high byte
59	0x03B	Channel 2 ADC Table[0] – low byte
60	0x03C	Channel 2 ADC Table[1] – high byte
61	0x03D	Channel 2 ADC Table[1] – low byte
62	0x03E	Channel 2 ADC Table[2] – high byte
63	0x03F	Channel 2 ADC Table[2] – low byte
64	0x040	Channel 2 ADC Table[3] – high byte
65	0x041	Channel 2 ADC Table[3] – low byte
66	0x042	Channel 2 ADC Table[4] – high byte
67	0x043	Channel 2 ADC Table[4] – low byte
68	0x044	Channel 2 ADC Table[5] – high byte
69	0x045	Channel 2 ADC Table[5] – low byte
70	0x046	Channel 2 ADC Table[6] – high byte
71	0x047	Channel 2 ADC Table[6] – low byte
72	0x048	Channel 2 ADC Table[7] – high byte
73	0x049	Channel 2 ADC Table[7] – low byte
74	0x04A	Channel 2 ADC Table[8] – high byte
75	0x04B	Channel 2 ADC Table[8] – low byte
76	0x04C	Channel 2 ADC Table[9] – high byte
77	0x04D	Channel 2 ADC Table[9] – low byte
78	0x04E	Channel 2 DB Table[0] – high byte
79	0x04F	Channel 2 DB Table[0] – low byte
80	0x050	Channel 2 DB Table[1] – high byte
81	0x051	Channel 2 DB Table[1] – low byte
82	0x052	Channel 2 DB Table[2] – high byte
83	0x053	Channel 2 DB Table[2] – low byte
84	0x054	Channel 2 DB Table[3] – high byte

85	0x055	Channel 2 DB Table[3] – low byte
86	0x056	Channel 2 DB Table[4] – high byte
87	0x057	Channel 2 DB Table[4] – low byte
88	0x058	Channel 2 DB Table[5] – high byte
89	0x059	Channel 2 DB Table[5] – low byte
90	0x05A	Channel 2 DB Table[6] – high byte
91	0x05B	Channel 2 DB Table[6] – low byte
92	0x05C	Channel 2 DB Table[7] – high byte
93	0x05D	Channel 2 DB Table[7] – low byte
94	0x05E	Channel 2 DB Table[8] – high byte
95	0x05F	Channel 2 DB Table[8] – low byte
96	0x060	Channel 2 DB Table[9] – high byte
97	0x061	Channel 2 DB Table[9] – low byte
98	0x062	Channel 3 Max DAC value – high value
99	0x063	Channel 3 Max DAC value – low value
100	0x064	Channel 3 Max DB value – high value
101	0x065	Channel 3 Max DB value – low value
102	0x066	Channel 3 Min DAC value – high value
103	0x067	Channel 3 Min DAC value – low value
104	0x068	Channel 3 Min DB value – high value
105	0x069	Channel 3 Min DB value – low value
106	0x06A	Channel 3 ADC Table[0] – high byte
107	0x06B	Channel 3 ADC Table[0] – low byte
108	0x06C	Channel 3 ADC Table[1] – high byte
109	0x06D	Channel 3 ADC Table[1] – low byte
110	0x06E	Channel 3 ADC Table[2] – high byte
111	0x06F	Channel 3 ADC Table[2] – low byte
112	0x070	Channel 3 ADC Table[3] – high byte
113	0x071	Channel 3 ADC Table[3] – low byte
114	0x072	Channel 3 ADC Table[4] – high byte
115	0x073	Channel 3 ADC Table[4] – low byte
116	0x074	Channel 3 ADC Table[5] – high byte
117	0x075	Channel 3 ADC Table[5] – low byte
118	0x076	Channel 3 ADC Table[6] – high byte
119	0x077	Channel 3 ADC Table[6] – low byte
120	0x078	Channel 3 ADC Table[7] – high byte
121	0x079	Channel 3 ADC Table[7] – low byte
122	0x07A	Channel 3 ADC Table[8] – high byte
123	0x07B	Channel 3 ADC Table[8] – low byte
124	0x07C	Channel 3 ADC Table[9] – high byte
125	0x07D	Channel 3 ADC Table[9] – low byte
126	0x07E	Channel 3 DB Table[0] – high byte
127	0x07F	Channel 3 DB Table[0] – low byte
128	0x080	Channel 3 DB Table[1] – high byte
129	0x081	Channel 3 DB Table[1] – low byte

130	0x082	Channel 3 DB Table[2] – high byte
131	0x083	Channel 3 DB Table[2] – low byte
132	0x084	Channel 3 DB Table[3] – high byte
133	0x085	Channel 3 DB Table[3] – low byte
134	0x086	Channel 3 DB Table[4] – high byte
135	0x087	Channel 3 DB Table[4] – low byte
136	0x088	Channel 3 DB Table[5] – high byte
137	0x089	Channel 3 DB Table[5] – low byte
138	0x08A	Channel 3 DB Table[6] – high byte
139	0x08B	Channel 3 DB Table[6] – low byte
140	0x08C	Channel 3 DB Table[7] – high byte
141	0x08D	Channel 3 DB Table[7] – low byte
142	0x08E	Channel 3 DB Table[8] – high byte
143	0x08F	Channel 3 DB Table[8] – low byte
144	0x090	Channel 3 DB Table[9] – high byte
145	0x091	Channel 3 DB Table[9] – low byte