

Description

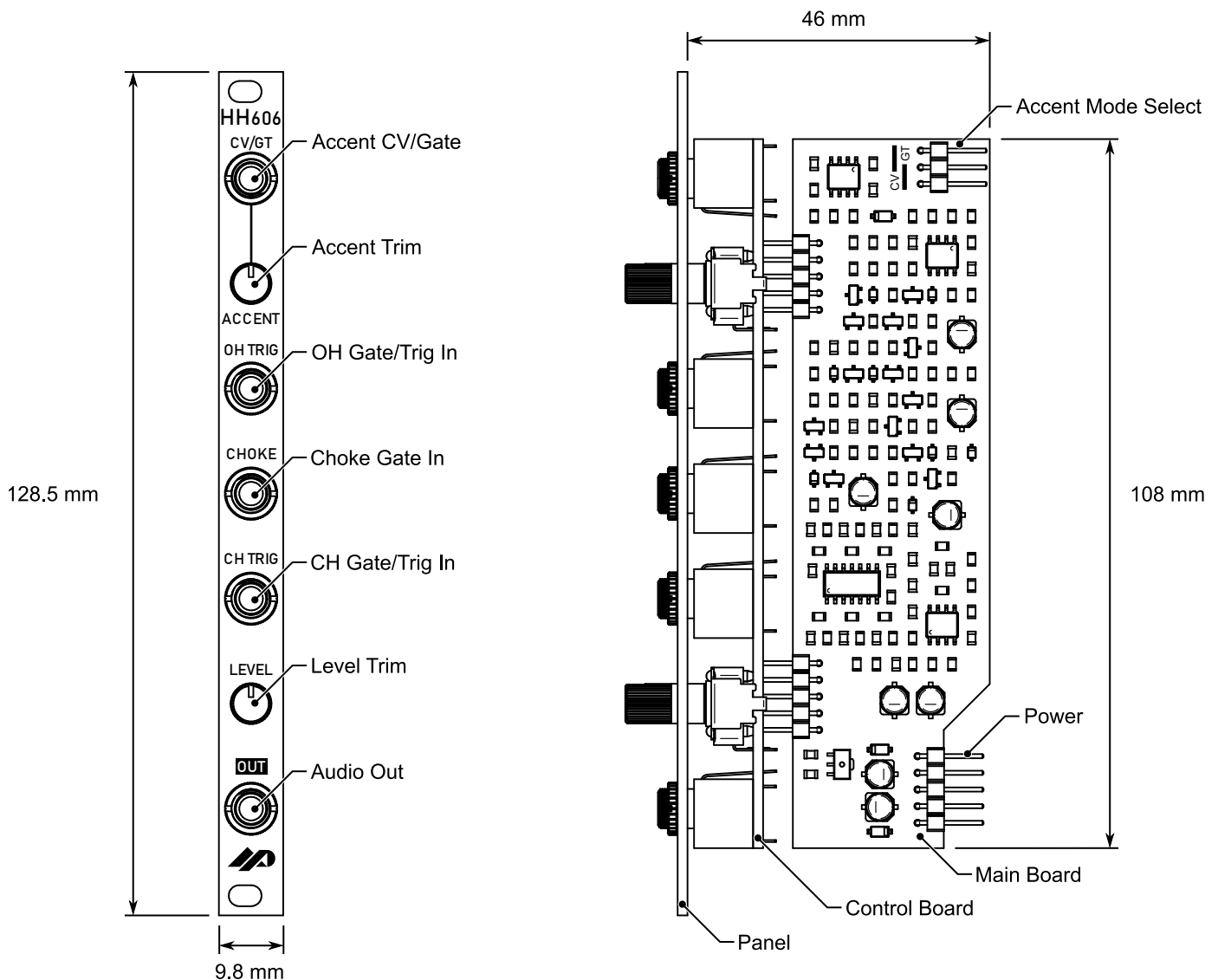
The HH-606 is a clone of the TR-606 HiHat, modified to fit the Eurorack size format and voltage requirements. It supports additional functionality not available in the original TR-606 drum machine, including features that make it more suited to the modular synthesizer format.

The HH-606 module fits in a compact 2hp form factor to minimize used rack space and has a max depth of 46 mm with recessed power header to fit almost any rack size. All inputs are robust with overvoltage and reverse-voltage protection.

Features

- Compact 2hp form factor
- Internal gate to timed trigger conversion
- Dual selectable Accent (AC) input mode s
 - AC Control Voltage (CV) mode
 - AC Gate (GT) mode
- Accent trim
- Choke input
- Output Level trim
- Input overvoltage and reverse-polarity protection
- Power input reverse-polarity protection

Module Layout



Functionality

OH/CH Trig

The HH-606 can generate both Open Hat (OH) and Closed Hat (CH) sounds when triggered by either the OH or CH trig inputs. OH/CH Trig inputs can be any voltage between 5V and 12V.

The OH/CH Trig inputs both contain gate to trigger converters, which take gate inputs longer than 1ms in duration and converts them into 1ms timed pulses. This avoids any need for an external gate to trigger converter and prevents double-triggering on the falling edge of longer gate inputs. Note that input pulses shorter than 1ms are not altered.

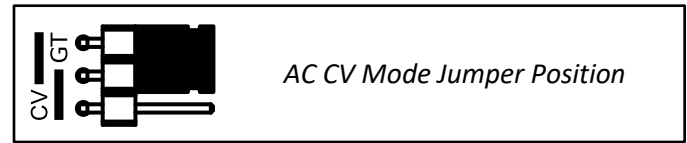
Choke

The decay length of the OH can be shortened by applying a voltage to the Choke input following a trigger input. Choke inputs can be any voltage between 5V and 12V. Note that triggering the CH also chokes the OH decay.

Accent

The Accent (AC) effect adds a dynamic feel to a drum sequence by modifying the strength of the drum hit (i.e. volume). The Accent effect can be set by the Accent trim alone (with no physical inputs to the AC CV/GT jack), or with external voltages. The HH-606 has two accent modes for external voltages, selectable with a jumper and 3-pin mode-select header: AC CV Mode and AC GT Mode.

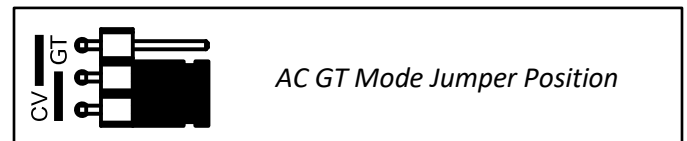
AC CV Mode



AC CV Mode allows the Accent setting to be modified by an external analog CV input. This input can range from 0V to 6V, with 0V being a 'light' drum hit and 6V being a 'hard' hit. CV input voltages larger than 6V will not damage the module, however they will also not further increase the accent setting.

In AC CV mode the Accent trim acts as an offset for the CV input. The Accent trim setting will always be active and applied to every beat, regardless of the presence of a CV voltage.

AC GT Mode



AC GT mode allows the Accent effect to be gated (On/Off) rather than continuously variable, similar to the functionality of the original TR-606. To gate the Accent effect (i.e., turn it On), any voltage input between 5V and 12V (High) can be used. A voltage input less than 2V (Low) will turn the Accent effect Off.

Though the AC GT input should be treated like any other digital gate input, note that it is internally pulled up to +5V. Floating input signals will be treated as a High input, allowing for the use of the Accent trim with no physical inputs to the AC CV/GT jack. In order to leave beats unaccented in AC GT Mode, the AC GT input must be pulled down to GND.

Bill of Materials

Value	Qty.	Name on Board	Description	Footprint
100Ω	1	R49	100Ω 1% 0.125W Resistor	0805
220Ω	2	R23, R42	220Ω 1% 0.125W Resistor	0805
560Ω	1	R56	560Ω 1% 0.125W Resistor	0805
1kΩ	2	R17, R72	1kΩ 1% 0.125W Resistor	0805
4.7kΩ	2	R16, R41	4.7kΩ 1% 0.125W Resistor	0805
10kΩ	14	R1, R2, R10, R11, R12, R18, R19, R20, R25, R26, R31, R43, R44, R46	10kΩ 1% 0.125W Resistor	0805
12kΩ	1	R52	12kΩ 1% 0.125W Resistor	0805
15kΩ	1	R36	15kΩ 1% 0.125W Resistor	0805
18kΩ	1	R71	18kΩ 1% 0.125W Resistor	0805
20kΩ	1	R7	20kΩ 1% 0.125W Resistor	0805
22kΩ	5	R21, R30, R39, R40, R63	22kΩ 1% 0.125W Resistor	0805
33kΩ	6	R24, R27, R28, R33, R45, R48	33kΩ 1% 0.125W Resistor	0805
39kΩ	4	R73, R74, R75, R76	39kΩ 1% 0.125W Resistor	0805
47kΩ	3	R13, R29, R50	47kΩ 1% 0.125W Resistor	0805
68kΩ	1	R9	68kΩ 1% 0.125W Resistor	0805
82kΩ	1	R62	82kΩ 1% 0.125W Resistor	0805
100kΩ	15	R3, R4, R5, R6, R8, R14, R15, R32, R34, R35, R37, R38, R51, R61, R64	100kΩ 1% 0.125W Resistor	0805
150kΩ	6	R53, R54, R55, R68, R69, R70	150kΩ 1% 0.125W Resistor	0805
330kΩ	3	R47, R65, R67	330kΩ 1% 0.125W Resistor	0805
470kΩ	2	R57, R66	470kΩ 1% 0.125W Resistor	0805
560kΩ	2	R58, R59	560kΩ 1% 0.125W Resistor	0805
1MΩ	2	R22, R60	1MΩ 1% 0.125W Resistor	0805
1nF	3	C21, C22, C28	1nF 50V C0G MLCC	0805
2.2nF	3	C10, C16, C17	2.2nF 50V C0G MLCC	0805
3.3nF	2	C18, C19	3.3nF 50V C0G MLCC	0805
10nF	2	C25, C26	10nF 50V C0G MLCC	0805
12nF	2	C13, C14	12nF 50V C0G MLCC	0805
15nF	2	C15, C24	15nF 50V C0G MLCC	0805
56nF	1	C7	56nF 50V X7R MLCC	0805
100nF	10	C1, C2, C3, C4, C6, C9, C20, C23, C27, C31	100nF 50V X7R MLCC	0805
330nF	1	C32	330nF 50V X7R MLCC	0805
470nF	2	C8, C11	470nF 50V Elec. Capacitor	4x5.4mm SMD
1uF	4	C5, C12, C29, C30	1uF 50V Elec. Capacitor	4x5.7mm SMD
10uF	2	C33, C34	10uF 25V Elec. Capacitor	4x5.7mm SMD
BC846 NPN	12	Q1, Q3, Q4, Q5, Q6, Q7, Q8, Q9, Q11, Q12, Q13, Q14	BC846 NPN Transistor	SOT-23
BC856 PNP	2	Q2, Q10	BC856 PNP Transistor	SOT-23
1N4148 Diode	8	D2, D3, D4, D5, D6, D7, D8, D9	1N4148 Gen. Purp. Diode	SOD-323
Schottky Diode	3	D1, D10, D11	Schottky Diode 40V	SOD-123
TL072	3	U1, U2, U4	TL072 Dual Op Amp	SOIC-8 150mil

Bill of Materials (cont.)

Value	Qty.	Name on Board	Description	Footprint
CD40106	1	U3	Hex Schmitt-Trig. Inv.	SOIC-14 150mil
L78L05	1	U5	5V Regulator	SOT-89-3
B10k Pot Lin	1	RV1	10k Lin. Potentiometer	Alpha 9mm vertical
A50k Pot Log	1	RV2	50k Log. Potentiometer	Alpha 9mm vertical
3.5mm Jack	5	J1, J2, J3, J4, J5	3.5mm Mono Jack	PJ-3001F
5-Pin Header	3	J9 J7/11, J8/12	2.54mm Header 5x1	2.54mm 5-pin right angle
3-Pin Header	1	J6	2.54mm Header 3x1	2.54mm 3-pin right angle
2-Position Jumper	1	N/A (For use on J6)	2.54mm 2-Pos. Jumper	N/A

