USER MANUAL

MIDI6B, "organ MIDI keyboard"

- This model is capable of scanning up to 165 keys, and 3 potentiometers. Keys are divided into 3 logical groups as separate keyboards. Keys in each group send MIDI notes in 3 different channels. Typically 2 bigger ones use channel 1 and 2 while 3rd shorter one uses channel 3. Each potentiometer can be used as any MIDI controller, typically it is MIDI volume, each in one of 3 channels associated with each keyboard. The channels and controller types cannot be changed later by user.
- Power supply must be 5V DC. Current consumption is about 1.3mA. Additional current is introduced by potentiometers. There is no auto-power-off feature, so power switch is required if used with batteries. Connect (+) of power supply to red wire, and (-) to blue wire of the board. Connecting in reverse will permanently damage the board and is not covered by guarantee.
- Potentiometers' outer leads must be connected between GND and +5V (outer pins of J7 connector) while wipers go to appropriate inputs of J7 (pins 3,4,5). Those potentiometers should have linear taper, in range of 1k-50k, preferably 10k. Choosing lower value of potentiometers increases power consumption. 10K potentiometers will increase total power consumption by additional 1.5mA, while 1k – by 15mA.
- If requested, there can be optional dead band implemented on each potentiometer input equivalent of 120mV input voltage range in the middle of potentiometer position. This is useful for pitch bend.
- Wires between potentiometers and the board should be as short as possible. For cable longer than 30cm, or potentiometer values bigger than 20k, shielded cable is recommended. Too long wires may pickup interference and cause spurious MIDI activity.
- MIDI Velocity is constant for all notes, at level as specified in order. Same value is used in both note-on and note-off messages, there's no "running status" used.
- Transposition can be set independently for each of 3 keyboards. Pins 2 and 6 of J7 connector serve that purpose. Shorting one of those pins to GND will result in shifting last played keyboard by one semitone. There's no limit for transposition. If set too high, some upper keys might appear beyond MIDI boundary, so they are wrapped back to lowest possible MIDI note and start from there. Similar thing happens if transposition is set too low.
- Optional feature of keyboard coupling can be added at last 3 contacts of 1st keyboard. Then they no longer generate MIDI notes, but control duplication of notes played on keyboards. Their function is as follows:

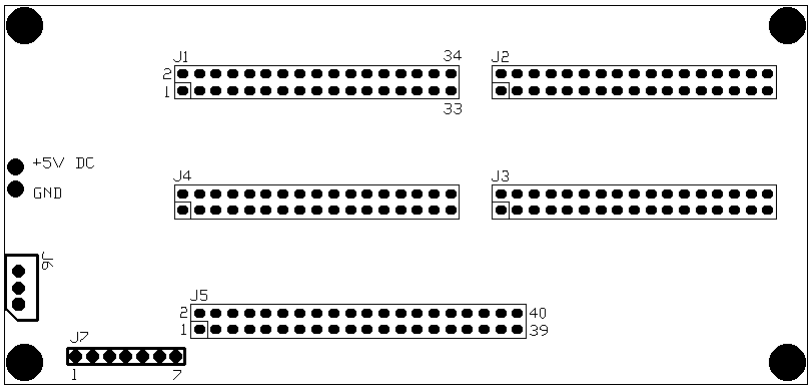
  key 62 (pin 32 of J2) enables coupling of manual II to I. Playing note on 1st keyboard generates 2 MIDI notes in channels assigned to keyboards 1 and 2.

  key 63 (pin 33 of J2) enables coupling of keyboard I to pedal. Playing a note on pedal (3rd keyboard) generates 2 MIDI notes in channels assigned to pedal (3rd keyboard) and 1st keyboard

  key 64 (pin 34 of J2) enables coupling of keyboard II to pedal. Playing a note on pedal (3rd keyboard) generates 2 MIDI notes in channels assigned to pedal and 2nd keyboard

  it is possible to use more than one couplings at once, so if for example contacts 63 and 64 are closed, the board generates 3 notes in 3 MIDI channels for each key pressed on 3rd keyboard.

LAYOUT

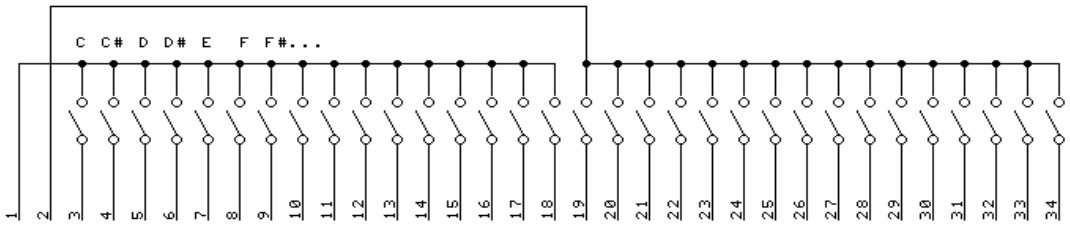


J1 - 1st keyboard, keys 1-32
J2 - 1st keyboard, keys 33-64
J4 - 2nd keyboard, keys 1-32
J3 - 2nd keyboard, keys 33-64
J5 - 3rd keyboard, keys 1-37
J6 – MIDI output
J7 – special functions, the pinout:

1 – GND
2 – transpose down
3, 4, 5 - CC inputs, typically volume in channels 2,1,3 respectively
6 – transpose up
7 – VCC (+5V) to be used only for connecting potentiometers

SCHEMATIC OF CONTACT KEYS

pinout of connectors J1, J2, J3 and J4 is the same. Each covers 32 keys according to the following schematic



Key's names C, C#, D, etc. shown above represent only direction of the keyboard. Lowest key should always be at pin 3, and proper key assignment is later done by means of transpose feature.

The bigger, 40-pin connector has the following pinout: