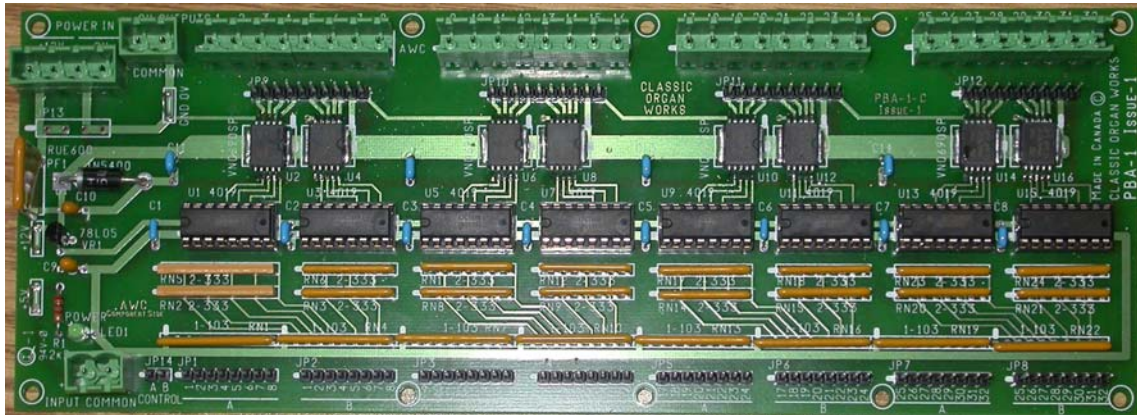


PEDAL BORROW ACTION SWITCH BOARD PBA-1

INSTALLATION



The PBA-1 Pedal Borrow Action Switch board is used to select one, or both, sets of 32 inputs to one set of 32 outputs. The intended use is to allow the bottom 32 pipes of a Swell rank to be played either by the Swell division or by the Pedal division, or both. In effect it is like a double 32-pole coupler relay such as Kimber-Allen used to make but it uses solid-state switching.

Other uses may be found for this unit. For instance, several could be used to expand an existing unit rank to two or more sources. By parallel wiring the second inputs 12 inputs distant, an octave coupler can be created.

All inputs must be positive-going and exceed approximately +3V in order to turn on an output. All inputs pass via 33k-Ohm series resistors that prevent excessive voltages from causing damage so that typical positive-going +12V sources are acceptable. Each input has a pull-down resistor of 10k-Ohm to 0V.

Outputs provide high-side switching to the board supply (typically +12V) and are open-circuit when off. Output current capacity for each output is typically a maximum of 10 Amps with short-circuit protection. However, the self-resetting board fuse will not allow more than some 6 Amps. Therefore, the pipe magnets should not have extremely low resistances if several are to be activated at the same time, otherwise the board may shut off the drives to all outputs. This should not normally be a problem as the pipes would be in the lower registers where it is uncommon to play several together.

A self-resetting fuse of 6 Amps rating is included in the power input system to protect the drivers in case of faults or overloads. A green LED indicates that the board input power is on and the total current is within the fuse limit.

Mount the board via clips or spacers (using #4 screws) to keep it away from any woodwork. Not all the holes need be used unless inserting connectors causes excessive flexing of the board. No special ventilation is necessary and the board may be orientated as desired.

CONNECTIONS

The source of power for the board should be the chamber supply of approximately +12V DC to Terminal-1 of the Power Input terminal block with 0V to Terminal-4. Alternatively, JP-13 can be used if the total board current will be less than some 3 Amps as it is connected in parallel. The screw terminals should be used if the pipe magnets will take a lot of current.

Connect the 32 pipe magnets to Outputs 1-32 using the screw terminals. Outputs are via detachable plugs in groups of four.

The pipe-magnet common for these 32 pipes should go to the detachable Common 2-pin terminal block at the end of the same row. Both pins are in parallel. **Do NOT connect these 32 magnet commons directly to the chamber supply** as doing so will prevent the output devices from properly suppressing back-emf voltages and may lead to their damage. I.e., isolate them from the rest of the Swell rank commons and wire them **ONLY** to this board.

One set of 32 inputs (say, Swell, in four groups of eight) should be connected to the inputs 'A' on JP-1, JP-3, JP-5 and JP-7. The other set of inputs ('B' for, say, Pedal) should go to JP-2, JP-4, JP-6 and JP-8.

These inputs are activated by positive-going keyboard signals that rise beyond +3V (to typically +12V) and may have a common positive either from the chamber supply or +5V from this board via the INPUT COMMON terminal block (both pins are in parallel).

If the inputs come from an external voltage source, connect the 0V of that source to the 0V of the board at the power connector pin-3.

The Input Control is to JP-14 to select 'A', 'B', or both, by applying +5V, or greater, from stop controls to Pin-1 and/or Pin-2.

SET-UP

There are no adjustments on this board.

A single 8-LED section of a CCU/PCU Output LED test board type OUTT-1 can be used to check the output states by plugging it onto headers JP-9 to JP-12 in turn. However, this is only possible if the output connectors are unplugged.

Normal indication is with the LEDs not lit (open, no loads or showing green (low) if the loads are connected). Each LED shows red when its output is turned on (high).