PHIL REES LITTLE 2M MIDI MERGE UNIT

The mighty Little 2M is a product of our unmatched MIDI merge design experience. It has two MIDI IN ports and one MIDI OUT port. The lower MIDI IN has a standard opto-isolated MIDI configuration, while power for the unit is derived via the upper MIDI IN port.

Powered from the line

The line-powered scheme is a significant convenience, as you won’t need a battery or external adaptor. The Little 2M employs a novel power circuit which ensures very good compatibility, so it will work perfectly with the vast majority of MIDI master devices. A state-of-the-art low-power microcontroller provides a level of performance which was not previously possible in a line-powered unit.

An indicator lamp lights when correct power is being received. The same lamp dips to indicate transmit data flow, which makes sure that the lamp is consuming current when the MIDI output is not. To reassure the user that the system is running, the lamp flashes when the data flash during dense data. It flashes rapidly when the first opportunity.

Clock interlock system

The MIDI Clock source is dynamically selected by our intelligent interlock system (see diagram above), which arranges that the most recently started clock stream takes over.

System Exclusive messages of any length are retransmitted. MIDI Time Code quarter frame messages are only retransmitted when received on the upper IN port.

Our popular intelligent clock interlock system controls the retransmission of MIDI Clocks.

Applications

In the example above, two MIDI performance streams are rendered by a single sound module. The keyboard MIDI OUT port provides the source of power for Little 2M.

In the unlikely event that the keyboard MIDI OUT isn’t compatible with the line-powered scheme, you can swap cables so that power is sourced from the percussion pads.

2M MIDI MERGE UNIT

The classic 2M has a built-in mains power supply, so it is able to drive several outputs! There are thru outputs for each of the two MIDI inputs. The merged data is available simultaneously on two MIDI outputs, so you can drive two slave devices at the same time.

The smarter MIDI merge unit

The well-proven 2M has a reputation for solid performance. It is widely acknowledged as offering the best MIDI merge function available anywhere. It recognises all MIDI data, including MIDI Time Code and System Exclusive, and has many automatic features to optimise performance and convenience.

The 2M has ample RAM memory to accommodate multiple large data buffers and so minimise data loss. To mitigate undesirable delays, it could become necessary to reject some data. The 2M does this gracefully and automatically according to a priority discard system; redundant data is thrown away first.

MIDI Time Code compatible

MIDI Time Code (MTC - that’s not the same as MIDI clocks!) and the Universal Real Time System Exclusive messages are only accepted on MIDI IN A. The merging of two MTC streams would be pointless, and indeed two simultaneous sources of Time Code would be bizarre. You just connect a source of Time Code to input A if you want the code to be retransmitted, and to input B if you want the code to be discarded.

The presence of MTC on input A automatically inhibits the retransmission of System Exclusive messages received on input B.

System Exclusive

The 2M is especially capable of making the most of interleaving System Exclusive transfers, and minimising the disruption of concurrent performance data. System Exclusive messages less than 140 bytes long (the majority) are inserted into a performance data stream. Appropriate action is taken, if necessary, to prevent stuck notes and pitch bend values when longer SysEx messages are to be retransmitted.

Pitchbend summing

Pitchbend values, relating to the same MIDI channel but coming from opposite inputs, are arithmetically combined. This is far better than allowing them to clash, which can give horrible results.

The 2M understand and sends Running Status, so you get the benefits of more efficient communications and faster response. As it automatically inserts status bytes when it has the opportunity, problems with receiving devices that tend to lose current status are avoided.

Example application

The above configuration shows one way of using a MIDI merge unit for on-line patch editing. The sound module has bi-directional communication with the computer and can also be played from the keyboard.

Neat package

The 2M is 109mm x 109mm x 41mm. It contains a built-in mains power supply, eliminating the need for an external adaptor. The integral mains lead comes with a plug.
3M MIDI MERGE UNIT

The 3M follows in the fine tradition of our highly-respected 2M, but the 3M merges from three inputs in place of just two. The program inside this mains-powered unit has the extra fast, efficient code needed to successfully combine three simultaneous MIDI data streams.

Comprehensive specification

When the data traffic is especially heavy, it may be necessary for the merge processor to reject some MIDI data, especially if undesirable delays are to be avoided. 3M does this gracefully and automatically according to a priority discard system, redundant data being thrown away first. 3M understands and sends ‘running status’.

Time-critical System Common messages, including Time Code, are retransmitted at the first opportunity. Time Code and the associated Universal RT SysEx messages are only accepted on MIDI IN A.

The 3M can handle System Exclusive messages of any length on any input.

Interlocks prevent conflicts

As on all our merge boxes, System Real Time messages are accepted on any input and are retransmitted as soon as possible. Clocks are managed by an intelligent interlock system.

Pitch bend messages, relating to the same MIDI channel, but coming from different inputs, are also controlled by an interlock system, to avoid conflicts and nasty noises.

Useful neat package

In the example installation in the diagram below, the sound module can render the combined commands of the synth, keyboard and sequencer. The sequencer can record the synth while it simultaneously plays the sounds on the sampler.

Like many of our products, the 3M is exceptionally compact at only 109mm x 109mm x 40mm. This includes the built-in mains power supply (which obviates the need for an external adaptor) and the mains power supply (which obviates the need for an external adaptor) and the integral mains lead comes with a plug.

The useful 3M has, of course, three MIDI inputs; it provides Thru outputs for two of these. The MIDI output of the merge processor is available on the third output socket.

5M MIDI MERGE UNIT

When you need to drive a MIDI slave subsystem from up to five master devices at the same time, the 5M will come to your rescue. It is a superb high-tech MIDI merge box which requires an external DC power source.

The comprehensive automatic features of the 5M include intelligent interlocks on clocks and pitchbend. The embedded program employs an optimum combination of the message-stream and state-machine models of the MIDI merge function.

Merge applications

In the first example a 5M combines five MIDI performances into one module.

The 5M could be put on the MIDI input to a computer, so that a performance could be recorded by a sequencer program. Other data could be received for filing or processing.

The above configuration could be used for allowing a sound editor program and a keyboard simultaneous access to a sound module, whilst keeping a return MIDI path to the computer.

The alternative configuration for on-line patch editing does not require the computer program to ‘echo’ the transmissions of a master keyboard or the MIDI controller.

Fine five-input friend

The 5M has five MIDI IN ports plus one MIDI OUT. There is a DATA LED which flashes to show that MIDI data is being transmitted. A POWER LED is also provided.

The 5M requires an external DC power source of nine to twelve volts at 200mA, which is connected via a 3.5mm jack, tip positive. A POWER LED is fitted, which will light to indicate when the unit is powered up.

Despite its impressive capabilities, the unit is quite small and neat: the sturdy ABS enclosure is just 109mm x 109mm x 40mm.

9M MIDI MERGE UNIT

The 9M is a 9-into-1 DC-powered merge box, which will let the whole band play together via a single multi-timbral sound generator. It would also let a sequencer record many sources of MIDI data simultaneously and avoid the need to switch or re-cable.

Sophisticated program

Philip Rees MIDI merge units have earned a first class reputation. We have extended and refined the firmware techniques that made our smaller units so successful. This has made possible a really useful merge box design with a massive nine inputs.

The sophisticated data handling features of the 9M include our usual intelligent interlocks on clocks and pitchbend. Like the 5M, the program employs a combination of the message-stream and state-machine methods, and it can readily handle all types of MIDI message including Time Code and SysEx. Like all our merge boxes, 9M only accepts MIDI Time Code received on one specified input. This makes good sense.

High-performance hardware

These units must be able to deal with the large potential requirements of handling many data sources. Therefore, the 9M and 5M use a 24MHz processor and the same type of advanced asynchronous communication elements as the high performance serial interfaces on personal computers.

Convenient and compact

The 9M has nine MIDI IN sockets and one MIDI OUT socket, which carries the output of the merge processor.

The 9M requires an external DC power source of nine to twelve volts at 250mA, which is connected via a 3.5mm jack, tip positive. A POWER LED is fitted, which will light to indicate when the unit is powered up.

Despite its impressive capabilities, the unit is quite small and neat: the sturdy ABS enclosure is just 109mm x 109mm x 40mm.