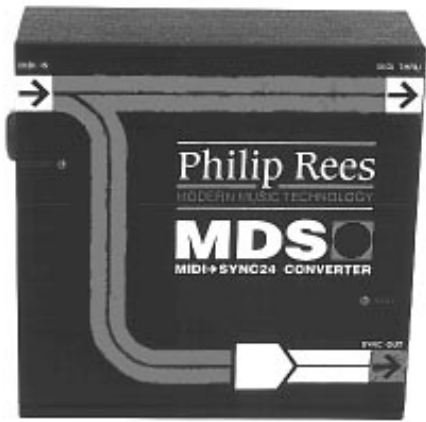


PHILIP REES MDS MIDI TO DIN SYNC CONVERTER

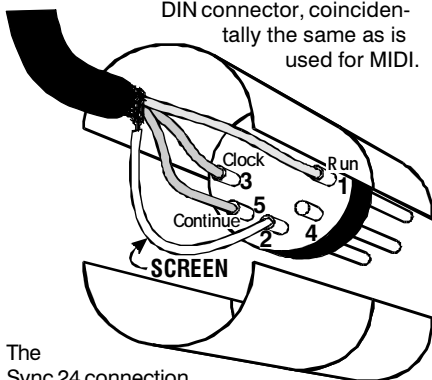


Synchro systems

When pieces of music technology equipment are required to work together, a means may be required to synchronise them.

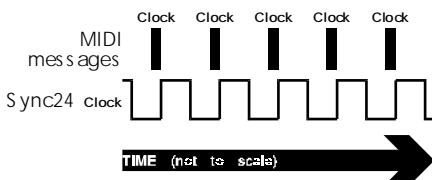
The MIDI standard includes a group of single-byte messages called System Real Time (SRT), four of which are concerned with synchronisation (Clock, Start, Continue and Stop).

The Sync24 system was introduced by the estimable Japanese company, *Roland*. It was subsequently adopted by a few other manufacturers, but was then largely superseded by the sync facilities of MIDI. Sync24 is popularly known as 'DIN Sync', because it uses the round five pin DIN connector, coincidentally the same as is used for MIDI.

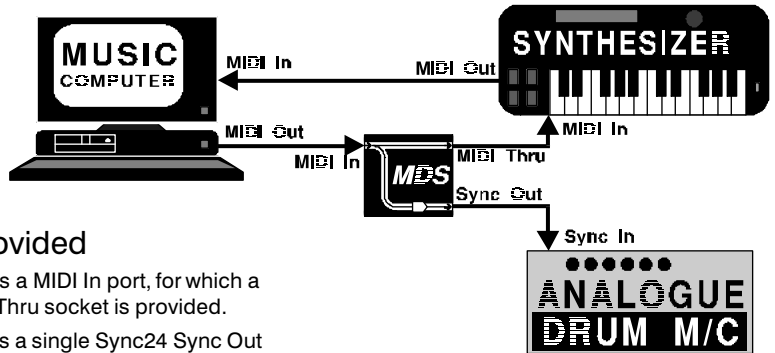


The Sync 24 connection cannot be made with a plain MIDI cable, as shown in the diagram above, it requires a pin-to-pin cable with pins 1, 2, 3 and 5 connected. Although they use the same type of connector, you should never connect MIDI sockets to Sync24 sockets.

Clever converter



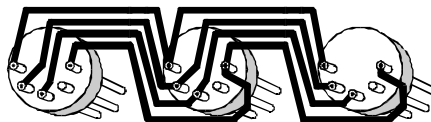
The *Philip Rees MDS MIDI to Sync24 Converter* listens to an incoming MIDI SRT clock stream and generates a corresponding Sync24 (DIN sync) format output. The *MDS* appears as a tempo slave to your MIDI system, and is a tempo master in Sync24. When you have installed your sync converter, your Sync24 device(s) should start, play in time, and stop automatically, by remote control from your MIDI master equipment.



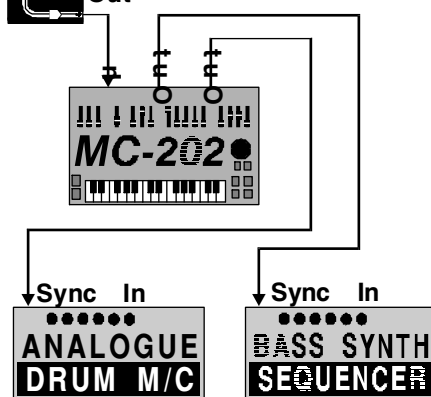
Ports provided

The *MDS* has a MIDI In port, for which a handy MIDI Thru socket is provided.

The *MDS* has a single Sync24 Sync Out socket. The signals have good drive capability, and we have not found any compatibility problems. The Sync24 output is able to drive several Sync24 inputs in parallel. To make use of this you will probably need a special multi-drop cable



assembly. Some Sync24 devices, notably the *Roland MC-202*, have a built-in fan-out capability (like a Sync24 thru) to drive extra slave units - see adjacent diagram.

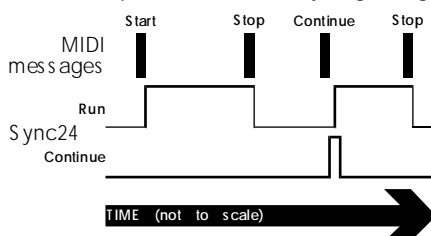


Continue facility included

As well as regular Start and Stop commands, *MDS* implements the MIDI Continue command and the corresponding Sync24 feature. Compatible Sync24 devices, such as the *MC-4*, should resume correctly when synchronised via the *MDS*.

Some devices, including the otherwise wonderful *Roland MC-202*, respond to a Continue by resuming from the beginning of the current 'measure'. You may be able to arrange that your master MIDI sequencer always restarts from the beginning of a measure. You can probably manually set both sequencers to start at the same measure. Alternatively you could always restart the sequence from the top.

The Continue facility is not included on some Sync24 devices, notably the *Roland TB-303* and *TR606*. When it is omitted, the Continue command will cause the slave to start the sequence from the very beginning.



Sync interface applications

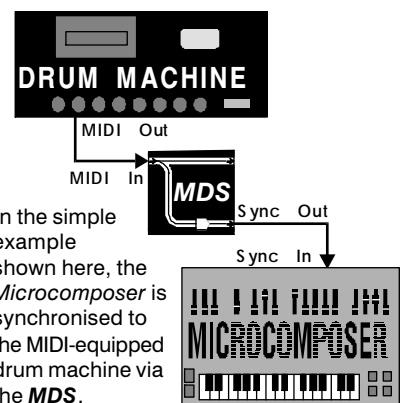
In the diagram above, a normal MIDI cable connects the MIDI Out socket of the computer to the MIDI IN of the *MDS*. The computer has been set to run off its own internal clock. Also, *MIDI Timing Clocks Out* has been enabled in the computer sequencer program. The beat lamp should be flashing, which indicates that the *MDS* is receiving a stream of MIDI clocks from the computer.

The MIDI THRU output of the *MDS* is connected to the MIDI In on the synthesiser. The SYNC OUT port of the *MDS* is linked to the Sync port of the old drum machine, which should be set to Input mode.

When the sequencer is running, the computer will transmit Channel Voice and SRT messages. These arrive at the MIDI IN port of the *MDS*, and are duplicated at the MIDI THRU port. When the Channel Voice messages arrive at the synthesizer they are rendered as musical notes. The synth ignores the SRT messages.

The sync converter ignores the Channel Voice messages, but it uses the System Real Time messages to derive the Sync24 signals. These signals go forward to the analogue drum machine, so that it plays in time with the master sequencer.

The MIDI lead between the Out on the synth and the In on the computer makes possible the recording of new sequencer tracks.



In the simple example shown here, the *Microcomposer* is synchronised to the MIDI-equipped drum machine via the *MDS*.

Gorgeous wee lamps

The 'POWER' lamp is lit when mains power is connected to the *MDS*.

The funky 'BEAT' lamp (on the front panel, next to the SYNC OUT socket) flashes on and off in time with the sync stream. The lamp is lit for the first quarter-period of every crotchet-period. It will flash four times during a normal common time (4/4) measure.

The case is 109mm x 109mm x 40mm. It contains an integral mains power supply.